Topock Project Executive Abstract

Document Title: Fourth Quarter 2012 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California Submitting Agency: California Department of Toxic Substances Control (DTSC) Final Document? ☒ Yes ☐ No	Date of Document: 3/15/13 Who Created this Document?: (i.e. PG&E, DTSC, DOI, Other) PG&E
Priority Status: ☐ **HIGH** ☐ **MED** ☒ **LOW** Is this time critical? ☐ Yes ☒ No Type of Document: ☐ Draft ☒ Report ☐ Letter ☐ Memo ☐ Other / Explain:	Action Required: ☒ Information Only ☐ Review & Comment Return to: _____ _____ By Date:_____ ☐ Other / Explain:
What does this information pertain to? ☐ Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA)/Preliminary Assessment (PA) ☐ RCRA Facility Investigation (RFI)/Remedial Investigation (RI) (including Risk Assessment) ☐ Corrective Measures Study (CMS)/Feasibility Study (FS) ☐ Corrective Measures Implementation (CMI)/Remedial Action ☐ California Environmental Quality Act (CEQA)/Environmental Impact Report (EIR) ☒ Interim Measures ☐ Other / Explain:	Is this a Regulatory Requirement? ☒ Yes ☐ No If no, why is the document needed?
What is the consequence of NOT doing this item? What is the consequence of DOING this item? Report is required to be in compliance with DTSC requirements.	Other Justification/s: ☐ Permit ☐ Other / Explain:

Brief Summary of attached document:

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

Based on the data and evaluation presented in this report, the IM performance standard has been met for the fourth quarter 2012 and annual reporting period. On July 23, 2010, DTSC approved a revised reporting schedule for this report; this was done at the request of DTSC to minimize the time between data collection and report submittal. As a result, the fourth quarter includes only the months of November and December 2012. The average pumping rate for the IM extraction system over fourth quarter 2012 was 131.4 gallons per minute, and an estimated 106 pounds (48.3 kilograms) of chromium were removed. To date the IM extraction system has removed a total of 7,430 pounds (3,370 kilograms) of chromium.

Written by: PG&E

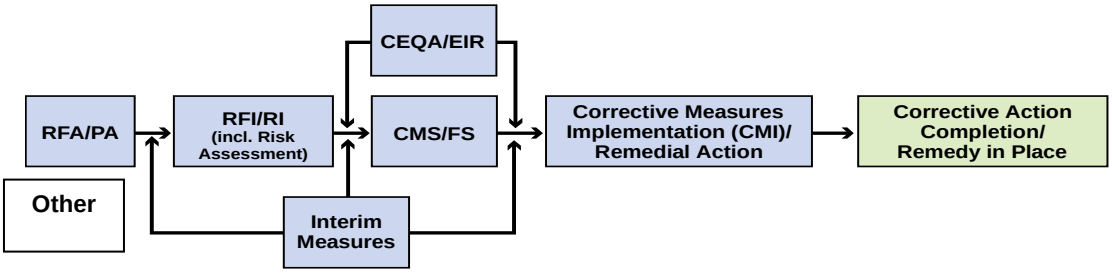
Recommendations:
This report presents recommendations for changes in the PMP-GMP for 2013 onward.

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

Other requirements of this information?
None.

Related Reports and Documents:

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



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

Version 9

Pacific Gas and Electric Company

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March 15, 2013

Mr. Aaron Yue
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Cypress, CA 90630

Subject: *Fourth Quarter 2012 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California* (Document ID: PGE20130315A)

Dear Mr. Yue:

Enclosed is the *Fourth Quarter 2012 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California,* for PG&E's Interim Measures (IMs) Performance Monitoring Program and the Groundwater Monitoring Program and Surface Water Monitoring Program for the Topock project. This report presents the fourth quarter (November through December 2012) performance monitoring results for the IMs hydraulic containment system and provides the annual performance evaluation for the 2012 reporting period (January through December 2012). This report also presents groundwater and surface water monitoring activities, results, and analyses related to the Groundwater and Surface Water Monitoring Programs during the 2012 reporting period.

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

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

Sincerely,

Yvonne Meeks
Topock Project Manager

Enclosure

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Final Report

Fourth Quarter 2012 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,

PG&E Topock Compressor Station, Needles, California

Document ID: PGE20130315A

Prepared for

California Department of Toxic Substances Control

on behalf of

Pacific Gas and Electric Company

March 15, 2013

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Fourth Quarter 2012 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,

PG&E Topock Compressor Station,
Needles, California

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March 15, 2013

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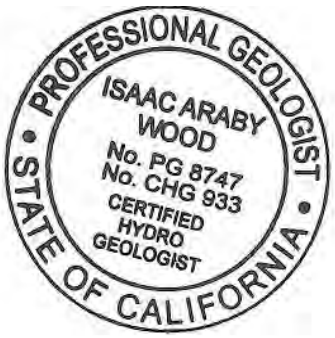

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Acronyms and Abbreviations

δ^2H	deuterium
$\delta^{18}O$	oxygen-18, stable isotope of oxygen
µg/L	micrograms per liter
µS/cm	microSiemens per centimeter
ADEQ	Arizona Department of Environmental Quality
ARAR	Applicable, Relevant, and Appropriate Requirements
As	arsenic
AWQ	Annual Water Quality Analysis
Ba	Barium
B	Boron
BOR	United States Bureau of Reclamation
BWQ	Biennial water quality analysis
Ca	Calcium
Cr	Total dissolved chromium
Cr(VI)	hexavalent chromium
COPC	contaminants of potential concern
DTSC	California Environmental Protection Agency, Department of Toxic Substances Control
FD	field duplicate
ft/ft	foot/feet per foot
GMP	Groundwater Monitoring Program
gpm	gallons per minute
IM	interim measures
IMCP	Interim Measures Contingency Plan
IM-3	Interim Measures Number 3
K	Potassium
MCL	maximum contaminant level
Mg	Magnesium
Mo	Molybdenum
mV	millivolt
N	Nitrogen
Na	Sodium
ND	not detected
NE	not established

ORP	oxidation-reduction potential
PG&E	Pacific Gas and Electric Company
PMP	Performance Monitoring Program
RCRA	Resource Conservation and Recovery Act
RL	reporting limit(s)
RMP	Surface Water Monitoring Program
Se	Selenium
SC	specific conductance
TDS	total dissolved solids
USEPA	United States Environmental Protection Agency
UTL	upper tolerance limit
Vn	Vanadium

1.0 Introduction

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

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

This report presents the monitoring data from PG&E's GMP, RMP, and PMP collected from November 1, 2012, through December 31, 2012 (hereafter referred to as fourth quarter). In addition, this report serves as an annual report and provides a summary of groundwater and surface water monitoring results for samples collected from January 1, 2012, through December 31, 2012 (hereafter referred to as the annual reporting period) under the Topock GMP and RMP. The data collected as part of the GMP and RMP are presented in Section 3.0. The data collected for the current quarter (November through December) as part of the PMP are presented in Section 4.0. An evaluation of data collected under the PMP for the annual reporting period are presented in Section 5.0. Further, this report provides recommended changes to future monitoring activities for the GMP and PMP (Section 7.0).

This combined GMP (including RMP) and PMP reporting format was approved by the California Environmental Protection Agency, Department of Toxic Substances Control (DTSC) in May 2009 (DTSC, 2009a). On July 23, 2010, DTSC approved a new sampling event timing and reporting schedule for the PMP, GMP, and RMP programs (DTSC, 2010a). See Table 1-1 for the current sampling and reporting schedule (tables are located at the end of this report).

1.1 Site-wide Groundwater and Surface Water Monitoring Program

The Topock GMP and RMP were initiated as part of a Resource Conservation and Recovery Act (RCRA) and Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) 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 ID No. CAT080011729).

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

In compliance with the requirements for Groundwater and Surface Water Monitoring Program directive of April 2005 (DTSC, 2005a), this document presents the fourth quarter 2012 and Annual GMP and RMP report for the IM monitoring activities from November 1, 2012, through December 31, 2012.

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

- 129 monitoring wells in California (including 2 bedrock wells formerly equipped with packers and newly installed East Ravine/Topock Compressor Station Wells, 2 dry wells and 5 wells currently sampled by ARCADIS under the Pilot Test Program)
- 8 monitoring wells in Arizona
- 2 water supply wells
- 2 active IM-3 extraction wells
- 5 test wells

Sampling frequencies for the GMP wells were updated beginning in first quarter 2010 following the DTSC's directive dated March 3, 2010 (DTSC, 2010b). Figure 1-2 shows these updated frequencies. Sampling frequencies for the Arizona monitoring wells were updated following the April 23, 2010, approval from the Arizona Department of Environmental Quality (ADEQ, 2010) and the April 28, 2010, directive from DTSC (DTSC, 2010c).

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

- 10 river channel surface water monitoring locations
- 4 shoreline surface water monitoring locations
- 2 other surface water monitoring locations

1.1.2 Changes to the Groundwater Monitoring Program in 2012

Wells previously being monitored under the East Ravine-Topock Compressor Station Groundwater Investigation are now part of the GMP. These wells include the following: MW-58BR, MW-60BR-245, MW-64BR, MW-65-160, MW-65-225, MW-66-165, MW-66-230, MW-66BR-270, MW-67-185, MW-67-225, MW-67-260, MW-68-180, MW-68-240, MW-68BR-280, MW-69-195, MW-70-105, MW-70BR-225, MW-71-035, MW-72-080, MW-72BR-200, MW-73-080, and MW-74-240.

Wells that were previously equipped with a packer (MW-58BR and MW-64BR) had the packer removed as directed by DTSC in January 2013. As noted above, these wells are now part of the GMP.

1.1.3 Additional Baseline Data Collection in Support of Future Groundwater Remedy

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

1.2 Interim Measure Performance Monitoring Program

In compliance with the requirements for IM monitoring and reporting outlined in the DTSC IM performance directive of February 2005, and in subsequent directives from the DTSC in 2007 (DTSC, 2005b, 2007a-c), this document presents the fourth quarter 2012 PMP evaluation for the IM monitoring activities from November 1, 2012, through December 31, 2012.

The Topock project IM consists of groundwater extraction for hydraulic control of the Cr plume boundaries in the Colorado River floodplain and management of extracted groundwater. The groundwater extraction, treatment,

and injection systems are collectively referred to as IM-3. Currently, the IM-3 facilities include a groundwater extraction system (four extraction wells: TW-2D, TW-3D, TW-2S, and PE-1), conveyance piping, a groundwater treatment plant, and an injection well field for the discharge of the treated groundwater. Figure 1-1 shows the location of the IM-3 extraction, conveyance, treatment, and injection facilities.

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

The February 2005 DTSC directive also defined the monitoring and reporting requirements for the IM (DTSC, 2005b). In October 2007, DTSC modified the reporting requirements for the PMP (DTSC, 2007a) to discontinue monthly performance monitoring reports (the quarterly and annual reporting requirements were unchanged). Additional updates and modifications to the PMP were approved by DTSC in letters dated October 12, 2007, July 14, 2008, July 17, 2008 (DTSC, 2007a, 2008a-b), and July 23, 2010 (DTSC, 2010a).

1.2.1 Performance Monitoring Program Monitoring Networks

Figure 1-4 shows the locations of wells used for IM extraction, performance monitoring, and hydraulic gradient measurements. With approval from DTSC, the list of wells included in the PMP was modified beginning August 1, 2008. The performance monitoring wells that were in service/active as of December 2012 are defined as:

- **Floodplain Wells** (monitoring wells on the Colorado River floodplain)
- **Intermediate Wells** (monitoring wells located immediately north, west, and southwest of the floodplain)
- **Interior Wells** (monitoring wells located upgradient of IM pumping)

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

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

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

2.0 Fourth Quarter 2012 Monitoring Activities

This section provides a summary of the monitoring and sampling activities completed during fourth quarter 2012.

2.1 Groundwater Monitoring Program

2.1.1 Monthly

The active IM extraction wells (PE-1 and TW-3D) were sampled for Cr(VI) and Cr during November and December 2012.

Cr(VI), Cr, and arsenic (As) samples were collected from wells MW-34-100 and MW-46-175 in November and December, per DTSC direction (DTSC, 2010a).

2.1.2 Quarterly

The fourth quarter GMP groundwater monitoring event was conducted between November 5 and December 14, 2012, and consisted of sampling:

- 137 groundwater monitoring wells
- 2 active IM extraction wells

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

In addition, groundwater samples were collected at selected GMP wells during the fourth quarter 2012 sampling event for the following analytes:

- California Code of Regulations Title 22 metals analyses, which includes As at three wells (MW-10, MW-12, and MW-22)
- Background metals as recommended in the background study report (CH2M HILL, 2008) at two wells (MW-16 and MW-17)
- As analysis, as directed by DTSC in the Corrective Measures Study review comment No. 186 (DTSC, 2009b), from a subset of wells screened in fluvial sediments
- As in groundwater samples from bedrock monitoring wells
- Contaminants of potential concern (COPCs), including molybdenum (Mo), nitrate as Nitrogen (N), and selenium (Se) and potential in situ byproducts (manganese (Mn), iron, and As) from a subset of wells (DTSC, 2010b, 2011)
- To assist in the future groundwater remedy performance evaluation, groundwater samples were also collected from select monitoring wells and analyzed for additional non-routine parameters during the December 2012 monitoring event. Sample analysis included chloride and bromide (anions); Ca, Mg, K, and Na (cations); B, alkalinity, and stable isotopes: $\delta^{18}O$ and $\delta^{2}H$.

2.2 Surface Water Monitoring Program

Quarterly surface water sampling was conducted on November 1 and 2, 2012, from the complete RMP monitoring network. Samples were analyzed for Cr(VI), Cr, SC, and pH. Samples were also analyzed for COPCs (Mo, nitrate, and Se), in situ byproducts (Mn, iron, and As), and geochemical indicator parameters to develop baseline concentrations for future remedy performance evaluations.

2.3 Performance Monitoring Program

PMP pressure transducers, which monitor the groundwater elevations in the Alluvial Aquifer, are typically downloaded in the first week of every month (November and December). The transducers in the key monitoring wells (MW-27-085, MW-31-125, MW-33-150, MW-34-100, and MW-45-095a; Figure 1-4) are downloaded via a telemetry system.

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

This section presents the analytical results for groundwater and surface water monitoring conducted during fourth quarter 2012. In addition, this section summarizes the site-wide groundwater and surface water sample results for the 2012 annual reporting period.

3.1 Groundwater Results for Cr(VI) and Chromium

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

Fourth quarter data is found in Table 3-1 which presents the results for Cr(VI), Cr, field ORP, SC, and field pH in groundwater samples collected from September 2011 through December 2012. During fourth quarter 2012, the maximum detected Cr(VI) concentration was 20,400 µg/L at well MW-68-180. The laboratory reports for results from November through December 2012 are presented in Appendix B.

Figures 3-1a through 3-1c present the Cr(VI) results for wells monitoring the shallow (upper depth interval), mid-depth (middle depth interval), and deep (lower depth interval) wells of the Alluvial Aquifer and bedrock, respectively, from the fourth quarter 2012 sampling event. Figures 3-1a through 3-1c also show the approximate outlines of Cr(VI) concentration contours greater than 32 µg/L for the Alluvial Aquifer and bedrock. The value of 32 µg/L is based on the calculated natural background upper tolerance limit (UTL) for Cr(VI) in groundwater from the background study (CH2M HILL, 2009a).

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

Table 3-1 presents the results for Cr(VI), Cr, field ORP, SC, and field pH in groundwater samples collected from September 2011 to December 2012. Cr(VI) concentration trend graphs for GMP monitoring wells are presented in Appendix C, Figures C-1 through C-19. This section presents observed results for wells that are not evaluated for the PMP.

A review of the GMP Cr(VI) concentration trend plots (Figures C-1 through C-19 and Table 3-1) reveals the following observed Cr(VI) trends:

- Concentrations have been declining at MW-14, MW-18, and MW-19. The lowest concentration to date at MW-18 was reported in December 2012 (Figure C-2).
- Concentrations at the shallow alluvial well MW-25 have steadily decreased, with the lowest concentration to date reported in December 2012 (Figure C-3).
- Concentrations at MW-26 and the MW-31 cluster have decreased. The lowest concentration reported to date for MW-26 was observed during November 2012 (Figure C-4).
- Concentrations at MW-37S and MW-40S have remained relatively stable (Figures C-8 and C-9, respectively), while concentrations have decreased in MW-37D and increased in MW-40D (Figures C-8 and C-9, respectively).
- Concentrations in well MW-50-095 have steadily declined, with the lowest concentration reported to date in November 2012 (Figure C-12).
- Concentrations in well MW-50-200 have been elevated but appear stable over the long term.
- Concentrations at bedrock well MW-62-65 have been stable since October 2010, and concentrations at MW-62-110 appear to be increasing (Figure C-14). Cr(VI) concentrations at bedrock well MW-62-190 have been non-detect since December 2009 (Figure C-14).
- Concentrations at the MW-65 cluster have been increasing (Figure C-15).

- Cr(VI) concentrations at MW-66-165 and MW-66BR-270 have been stable since 2011, while concentrations at MW-66-230 have been increasing since October 2011 (Figure C-16).
- Concentrations at the MW-67 cluster increased in 2011 during initial sampling events, but have been generally stable in 2012 monitoring (Figure C-16).
- Concentrations at MW-68-240 and MW-68BR-280 have been slightly increasing to stable since 2011 (Figure C-16). Concentrations at MW-68-180 have been variable but have recently been the highest of any well at the site (Figure C-16).
- Concentrations at MW-69-195 have been increasing since 2011 (Figure C-17).

While indications of seasonal trends (changes on a quarterly time scale) are noted above at several wells, apparently due to the interaction of extraction pumping and periodic fluctuation in Colorado River level, seasonal variations are considered secondary in importance to the longer term trends over multi-year time scales. Sample results from the Arizona monitoring wells did not have detections of Cr(VI) or Cr in 2012, with the exception of MW-55-120, which had detections of 7.1 µg/L or less.

The Park Moabi water production wells, Park Moabi-3 and Park Moabi-4, had detections of 7.2 and 21.3 µg/L for Cr(VI) and 8.3 and 23.0 µg/L for Cr, respectively, in November 2012. These Cr(VI) and Cr detections were below the California drinking water standard of 50 µg/L for Cr (California Code of Regulations Title 22, Division 4, Chapter 15) and consistent with regional background concentrations.

Sample results for the East Ravine bedrock wells indicate that Cr(VI) is present within bedrock and exceeds the groundwater background value of 32 µg/L in some shallow, mid-depth, and deep intervals (using the same background concentrations and elevations designated for the alluvial wells). The Cr(VI) contours in Figures 3-1a through 3-1c incorporate these data.

3.2 Other Groundwater Monitoring Results

3.2.1 Contaminants of Potential Concern and In Situ Byproducts

Table 3-2 presents the COPCs, in situ byproducts, and other analytes sampling results for groundwater monitoring wells in fourth quarter sampling. Figures 3-2a through 3-2e present the Mo, nitrate (as N), Se, As, and Mn results for fourth quarter 2012, respectively. Results were compared to the background UTLs calculated and reported in the *Revised Final RCRA Facility Investigation/Remedial Investigation Report, Volume 2* (CH2M HILL, 2009a).

Molybdenum. The concentrations and distribution of dissolved Mo for fourth quarter 2012 are shown on Figure 3-2a. Results for 32 of the 79 wells sampled for Mo were above the calculated background UTL for Mo of 36.3 µg/L. The well locations with the highest Mo results (>100 µg/L) include MW-33-40, MW-44-125, MW-46-175, MW-70-105, and MW-74-240. Mo has no California or federal maximum contaminant level (MCL). The maximum Mo result was collected from MW-33-040 with a result of 220 µg/L, which is within the typical range of Mo for this well. Mo concentration trend graphs for GMP monitoring wells are presented in Figures C-20 through C-34.

Nitrate as Nitrogen. The concentrations and distribution of nitrate (as N) for fourth quarter 2012 are shown on Figure 3-2b. Results for 23 of the 136 wells sampled were above the calculated background UTL for nitrate of 5.03 mg/L. Seventeen of these 23 wells exceeded the MCL of 10.0 µg/L. The maximum nitrate result was collected from MW-66-165 at 38.4 mg/L; concentrations of nitrate are increasing at this well. Nitrate (as N) concentration trend graphs for GMP monitoring wells are presented in Figures C-35 through C-53.

Selenium. The concentrations and distribution of Se for fourth quarter 2012 are shown on Figure 3-2c. Results for 12 of 79 wells sampled were above the calculated background UTL for Se of 10.3 µg/L. Two wells exceeded the MCL of 50 µg/L for Se. The maximum result was from MW-67-185, at 110 µg/L. Se concentration trend graphs for GMP monitoring wells are presented in Figures C-54 through C-68.

In Situ Byproducts. The concentrations and distribution of As for fourth quarter 2012 are shown on Figure 3-2d and discussed further in Section 3.2.3. The concentrations and distribution of Mn for the fourth quarter of 2012 are shown on Figure 3-2e.

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

3.2.2 Title 22 Metals

Table 3-3 presents the California Code of Regulations Title 22 metals results for the GMP monitoring wells (MW-10, MW-12, and MW-22) sampled during fourth quarter 2012, and previous 2012 monitoring events. The concentrations of Title 22 metals consistently detected in monitoring wells remained generally stable overall during the 2012 monitoring period.

In addition to Cr, the trace metals detected in MW-10 during the fourth quarter 2012 groundwater sampling event were As, barium (Ba), Mo, Se, vanadium (Vn), and zinc. The dissolved concentrations of the trace metals detected during the fourth quarter 2012 event in MW-10 —other than Cr—are below the respective federal and California MCL drinking water standards.

In addition to Cr, the trace metals detected in MW-12 during the fourth quarter 2012 groundwater sampling event were As, Ba, Mo, Se, and Vn. The dissolved concentrations of the trace metals detected in MW-12 during the fourth quarter 2012 event—other than Cr and As—are below the respective federal and California MCL drinking water standards.

The trace metals detected in MW-22 during the fourth quarter 2012 groundwater sampling event were As, Ba, copper, Mo, Se, and silver. The dissolved concentrations of the trace metals detected during the fourth quarter 2012 event—other than As—are below the respective federal and California MCL drinking water standards.

3.2.3 Arsenic Sampling in Monitoring Wells

Eighty-four fluvial/alluvial wells were sampled for As in fourth quarter 2012 (Figure 3-2d). These results and results for previous 2012 monitoring events are presented in Table D-2. As was detected in 83 of the 84 samples analyzed for As. Eleven of the monitoring well samples had As concentrations greater than the California MCL of 10 µg/L. The maximum concentration was detected in MW-12, at 38.5 µg/L.

As was detected in all of the 24 bedrock wells sampled for As in the fourth quarter 2012 event. These results are presented in Table D-2. Five of the bedrock monitoring well samples had As concentrations just above the California MCL of 10 µg/L: MW-57-185 at 13.0 µg/L, MW-62-110 at 12.0 µg/L, MW-72-80 at 11.0 µg/L, MW-72BR-200 at 15.0 µg/L, and MW-74-240 at 16.0 µg/L.

3.2.4 Background Study Metals

Table D-3 presents the background metals sampling results for fourth quarter 2012 sampling from monitoring wells MW-16 and MW-17, as recommended in the background study report (CH2M HILL, 2008).

In addition to Cr, the background metals detected in MW-16 during the fourth quarter 2012 groundwater sampling event were As, Ba, B, Ca, Mg, Mo, Se, and Vn. The dissolved concentrations of the trace metals detected during the fourth quarter 2012 event—other than As—are below the respective federal and California MCL drinking water standards.

In addition to Cr, the background metals detected in MW-17 during the fourth quarter 2012 groundwater sampling event were As, Ba, B, Ca, Mg, Mo, Se, and Vn. The dissolved concentrations of the trace metals detected during the fourth quarter 2012 event are below the respective federal and California MCL drinking water standards.

3.2.5 Laboratory Specific Conductance Results

In 2007, PG&E was directed by DTSC to continue collecting samples for laboratory SC analysis (DTSC, 2007c). Results of this analysis for the 2012 reporting period are presented in Table 3-1. The salient trend in SC results is a correlation of lower SC over time at wells that also show increasing river water isotopic signature. A trend to lower SC can indicate that IM3 pumping is drawing river water into the floodplain saturated zone. For wells adjacent to the Colorado River a greater influence of river water can be seen at summer high river levels.

3.2.6 Water Level Monitoring

Table D-4 presents the manual water level measurements collected during the 2012 reporting period. Table D-4 also lists salinity data for the wells where water levels were measured. Groundwater salinity during fourth quarter 2012 ranged from 0.07 percent (MW-27-20) to 3.0 percent (well MW-32-020)—a range that is consistent with results of prior monitoring. Due to the variation in groundwater salinity at the site, the groundwater elevations measured in the monitoring wells have been adjusted (normalized) to an equivalent freshwater head (Fetter, 1994).

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

Figure 3-3 presents the groundwater elevation contours for the shallow-depth interval of the Alluvial Aquifer. A site-wide water level survey was conducted on November 5, 2012, that involved the manual collection of groundwater level data at 25 shallow wells within approximately a 1-hour period. Because groundwater levels at the site fluctuate continuously in response to changes in the river stage, these groundwater elevation contours reflect transient conditions at the time of measurement and may not be representative of the average groundwater flow directions.

3.2.7 Field Parameter Data

A field water quality meter and flow-through cell were used to measure parameters during well purging and groundwater sampling (CH2M HILL, 2005). Water quality field measurements were also recorded during surface water sampling. Table D-5 summarizes the field water quality data collected (SC, temperature, pH, ORP, and dissolved oxygen) from January 2012 through December 2012.

3.2.8 Additional Water Quality Characterization

Additional analytes including anions, cations, dissolved metals, and $\delta^{18}O$ and $\delta^{2}H$, were collected from selected wells to assist in future remedy performance evaluation. These data are presented in Table D-6.

3.3 Surface Water Results for Cr(VI) and Chromium

Table 3-4 presents results of Cr(VI), Cr, SC, and lab pH from the fourth quarter 2012 surface water monitoring event and the 2012 reporting period. During the fourth quarter and 2012 reporting periods, Cr(VI) and Cr were not detected above reporting limits (RLs) at any in-channel, shoreline, or other surface water monitoring locations. Table 3-5 presents results for the COPCs (Mo, nitrate, and Se), in situ byproducts (Mn, iron, and As), and other geochemical indicator parameters.

3.4 Data Validation and Completeness

Laboratory analytical data from the fourth quarter 2012 GMP sampling events were reviewed by project chemists to assess data quality and to identify deviations from analytical requirements.

The following bullets summarize the observed analytical qualifications in the data reported this quarter:

- One method 218.6 (Cr(VI)) sample was associated with an equipment blank that had a detect result. The associated sample result was less than five times the detection in the equipment blank; therefore, the sample result was qualified as non-detect. No flags were applied.
- Thirty-four U.S. Environmental Protection Agency (USEPA) method 218.6 (Cr(VI)) results exhibited a matrix interference issue that required a dilution to achieve satisfactory matrix spike recovery, resulting in an elevated RL. The sample results were qualified, but no flags were added.
- Seven ammonia samples were analyzed outside the USEPA recommended holding time. The non-detect results were qualified as estimated and flagged "UJ," and the detect results were qualified and flagged "J."
- Ten field duplicate pairs had relative percentage differences greater than the upper control limit for between one and five analytes. The analytes included chloride, sulfate (method USEPA 300.0); ammonia (method USEPA 350.1); nitrate/nitrite (method USEPA 353.2); As, Mo, Mn, Se (method SW 6020A); and Ca, Mg, and Na (method SW 6010B). The non-detect result was qualified and flagged "UJ," and the detect results were qualified and flagged "J."
- One sample had matrix spike and matrix spike duplicate recoveries that were outside the control limits for zinc (method SW 6010B); the associated detect result was qualified and flagged "J."
- Based on the March 2007 USEPA ruling, pH has a 15-minute holding time. As a result, method SM4500-HB (pH) samples analyzed in a certified lab require qualification; therefore, all pH results for the fourth quarter events analyzed in a certified lab were qualified as estimated and flagged "J."

No other significant analytical deficiencies were identified in the fourth quarter 2012 GMP data. Additional details are provided in the data validation reports, which are kept in the project file and are available upon request.

3.5 Summary of 2012 Grounding Monitoring Program and Surface Water Monitoring Program Results

During 2012, quarterly events occurred in March, April/May, September/October, and December. Quarterly events in April/May and September/October were timed to occur before and after Southwestern Willow Flycatcher nesting season to minimize biological impacts to potential nesting habitat from the field activities during these larger-scale sampling events.

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

- Cr concentrations in many GMP monitoring wells are stable or declining, with fluctuating concentrations present at some locations. Some stable to increasing concentrations are observed in the newly incorporated East Ravine-Topock Compressor Station wells.
- During the fourth quarter and 2012 reporting periods, Cr(VI) and Cr were not detected above RLs at any in-channel, shoreline, or other surface water monitoring locations.
- The COPCs carried forward from the RFI Vol. 2, Addendum and Corrective Measures Study/Feasibility Study (Mo, Se, and nitrate) continue to be detected in a subset of monitoring wells above their background UTLs (CH2M HILL, 2009a, b, and f).
- As was detected in 103 of the 104 fluvial/alluvial and bedrock wells analyzed for As. Sixteen of these samples exceeded the California MCL of 10 µg/L.

4.0 Fourth Quarter Interim Measures Performance Monitoring Program Evaluation

This section presents the quarterly PMP evaluation summary.

4.1 Water Quality Results for Performance Monitoring Program Floodplain Wells

Appendix F, Table F-1, presents the results of general chemistry and stable isotope analyses for 15 PMP monitoring wells and 2 river stations during sampling events from March 2005 through December 2012. In July 2008, DTSC approved modifications to the PMP IM chemical PMP (DTSC, 2008b). With those modifications, nine monitoring wells and one river station are now sampled for IM chemical performance monitoring. Figure 1-4 shows the locations of the monitoring wells sampled for the performance monitoring parameters. Water samples from the selected performance monitoring locations are analyzed for general chemistry parameters, including TDS, chloride, sulfate, nitrate, bromide, Ca, K, Mg, Na, B, alkalinity, δ^2H, and δ^{18}O to monitor the effects of IM pumping on groundwater chemistry. Section 5.3.2.2 of this report provides an evaluation of the general chemistry groundwater data for the floodplain area.

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

The fourth quarter 2012 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 fourth quarter 2012 Cr(VI) results for Cross-section B, oriented parallel to the Colorado River. The location of Cross-section B is shown on Figure 1-4.

Appendix C includes Cr(VI) concentration trend graphs for selected monitoring well clusters through December 2012. Sample results for the 2012 reporting period are presented in Table 3-1. An evaluation of Cr trends in PMP wells is presented in the annual performance evaluation in Section 5.3.

4.3 Performance Monitoring Program Contingency Plan Cr(VI) Monitoring

The Topock Interim Measures Contingency Plan (IMCP) was developed to detect and control any possible migration of the Cr(VI) plume toward the Colorado River. Currently, the IMCP consists of 24 wells. Appendix C includes Cr(VI) concentration trend graphs for the IMCP wells. The IMCP well Cr(VI) results in the fourth quarter and throughout 2012 were all below their assigned trigger levels.

4.4 Extraction Systems Operations

Pumping data for the IM-3 groundwater extraction system for the fourth quarter reporting period of November 1, 2012, through December 31, 2012, are presented in Table 4-1. From November 1, 2012, through December 31, 2012, the volume of groundwater extracted and treated by the IM-3 system was 11,540,332 gallons. An estimated

[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.

106 pounds (48.3 kilograms) of Cr were removed from the aquifer during the period October 1, 2012, through December 31, 2012[2].

During fourth quarter 2012, extraction wells TW-3D and PE-1 operated at a combined pumping rate of 131.4 gallons per minute (gpm), excluding periods of planned and unplanned downtime. The average monthly pumping rates were 131.8 gpm (November 2012) and 131.0 gpm (December 2012) during the reporting period. Extraction wells TW-2S and TW-2D were operated briefly during December 2012. The operational run-time percentage for the IM extraction system was 98.3 percent during this reporting period. The operations log for the extraction system during fourth quarter 2012, including planned and unplanned downtime, is included in Appendix G.

The concentrate (i.e., saline water) from the reverse osmosis system was shipped offsite as a non-hazardous waste and was transported to Liquid Environmental Solutions in Phoenix, Arizona, for treatment and disposal. Four containers of solids from the IM-3 facility were disposed of at the U.S. Ecology Chemical Waste Management facility in Beatty, Nevada, during fourth quarter 2012. Daily IM-3 inspections included general facility inspections, flow measurements, and site security monitoring. Daily logs with documentation of inspections are maintained onsite.

4.5 Hydraulic Gradient and River Levels during Quarterly Period

During the reporting period, water levels were recorded at intervals of 30 minutes with pressure transducers in 55 wells (excluding 5 Arizona locations) and 2 river monitoring stations (I-3 and RRB). The data are typically continuous, with only short interruptions for sampling or maintenance. The locations of the wells monitored are shown on Figure 1-4.

Daily average groundwater and river elevations calculated from the pressure transducer data for the fourth quarter 2012 reporting period are summarized in Appendix E, Table E-1. Groundwater elevations (or hydraulic heads) are adjusted for temperature and salinity differences between wells (i.e., adjusted to a common freshwater equivalent), as described in the PMP. Groundwater elevation hydrographs for the PMP wells during the fourth quarter 2012 reporting period are included in Appendix E. The elevation of the Colorado River measured at the I-3 gauge station (location shown on Figure 1-4) is also shown on the hydrographs in Appendix E.

Average fourth quarter 2012 groundwater elevations for the shallow, mid-depth, and deep wells are presented and contoured in plan view on Figures 4-3a through 4-3c. Average groundwater elevations for wells on floodplain Cross-section A are presented and contoured on Figure 4-4. Several monitoring wells are significantly deeper than other wells in the lower depth interval. Due to vertical gradients present at the Topock site, water levels in deeper wells tend to be higher than water levels in shallower wells. Consequently, some wells with screen intervals significantly deeper than most of the lower-interval wells exhibit water levels that are not contoured in the plan view on Figure 4-3c.

For the fourth quarter 2012 reporting period, transducer data were recorded in wells located on the Arizona side of the Colorado River. The quarterly average groundwater elevations for wells MW-55-120, MW-54-85, MW-54-140, and MW-54-195 are presented on Figure 4-3c, if available, and are used for contouring, where appropriate. With the exception of well MW-55-45, all of the wells in the MW-54 and MW-55 clusters are screened in the deep interval of the Alluvial Aquifer. Well MW-55-45 is screened over the boundary between the shallow and middle intervals.

Deep zone water levels shown on Figure 4-3c indicate that potentiometric levels in monitoring wells in Arizona are higher than those in wells across the river on the California floodplain. This means that the hydraulic gradient on

[2] On July 23, 2010, DTSC approved a revised reporting schedule for this report that included a revised IM-3 sample collection period from October 1, 2012, through December 31, 2012; this IM-3 sample collection period is in line with previous reports prior to combining the GMP with the PMP reports. The PMP/GMP reporting schedule uses July through October as third quarter and November through December as fourth quarter due to sampling event timing; these reporting periods differ from IM-3.

the Arizona side of the river is directed to the west and, as a result, groundwater flow would also be toward the west in that area. This is consistent with the site conceptual model and with the current numerical groundwater flow model.

Hydraulic gradients were measured during the fourth quarter 2012 reporting period for well pairs selected for performance monitoring of the two pumping centers (TW-3D and PE-1). The following well pairs were approved by DTSC on October 12, 2007 (DTSC, 2007a), to define the gradients induced while pumping from two locations:

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

Table 4-2 presents the average monthly hydraulic gradients that were measured between the gradient well pairs in November and December 2012. Strong landward gradients were measured each month. The overall average gradients for all well pairs ranged from 0.0047 to 0.0049 foot per foot (ft/ft). This is 4.7 to 4.9 times greater than the required gradient of 0.001 ft/ft. The gradient for the northern well pair ranged from 1.8 to 1.9 times the target gradient of 0.001 ft/ft. For the central well pair, the average landward gradient ranged from 8.8 to 9.7 times the target gradient. The southern well pair gradients were 3.3 times the target gradient for the fourth quarter 2012 reporting period. Graphs of the hydraulic gradients, monthly average pumping rates, and river levels for the quarterly period are presented in the annual performance evaluation in Section 5.2.

4.6 Projected River Levels during Next Quarter

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

Figure 4-5 shows the river stage measured at I-3 superimposed on the projected I-3 river levels. Projected river levels for future months are based on the BOR projections of Davis Dam discharge and Lake Havasu levels from the month preceding. For example, the projected river level for January 2013 is based on the December 2012 BOR projections of Davis Dam release and Lake Havasu level, not the actual release and level values. The variability between measured and projected river levels is due to the difference between measured and actual Davis Dam release and Lake Havasu levels. The more recent data plotted on Figure 4-5 are summarized in Table 4-3. The future projections shown on Figure 4-5 are based on BOR long-range projections of Davis Dam releases and Lake Havasu levels from December 2012. 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 BOR projections, presented in Table 4-3, show that the average Davis Dam release for January 2013 (8,300 cubic feet per second) will be more than the actual release in December 2012 (6,427 cubic feet per second). The predicted height difference of the Colorado River compared to the actual I-3 gauge level from November and December could not be estimated due to a transducer malfunction at the I-3 river gauge during November and which continued into December. Current projections show that the water levels will increase during the next quarterly reporting period, further increasing in May 2013 to the maximum levels of the year, as shown on Figure 4-5.

4.7 Quarterly Performance Monitoring Program Evaluation Summary

The groundwater elevation and hydraulic gradient data from November and December 2012 performance monitoring indicate that the minimum landward gradient target of 0.001 ft/ft was exceeded each month during

the quarterly reporting period. The overall average landward gradients during fourth quarter 2012 were 4.7 to 4.9 times the required minimum magnitude (Table 4-2). The current gradient well pairs are adequate to define the capture of the Cr(VI)plume while pumping from extraction wells TW-3D and PE-1. Based on the hydraulic and monitoring data and evaluation presented in this report, the IM performance standard has been met for the fourth quarter 2012 reporting period.

A total of 11,540,332 gallons of groundwater were extracted between November and December 2012 by the IM-3 treatment facility. The average pumping rate for the IM extraction system during fourth quarter 2012, excluding system down time, was 131.4 gpm. An estimated 106 pounds (48.3 kilograms) of Cr were removed from groundwater during the period October 1 through December 31, 2012 (Table 4-1).

The wells that are monitored to detect trends in Cr(VI) in the IM pumping area (e.g., MW-36-100, MW-39-100, MW-44-115, MW-44-125, and MW-46-175) generally continue to show overall stable or declining Cr(VI) concentrations relative to prior monitoring results, as shown in Appendix C. Presentation and evaluation of the Cr(VI) trends observed in the performance monitoring area during the fourth quarter 2012 reporting period are discussed in Section 5.3.

5.0 Annual Performance Monitoring Program Evaluation

The section presents the annual PMP evaluation summary.

5.1 Extraction System Operations for Annual Reporting Period

5.1.1 Extraction Facilities and Operations

Pumping data for the IM-3 groundwater extraction system for the 2012 annual reporting period are presented in Table 5-1. A total of 68,001,817 gallons of groundwater were extracted from January 2012 through December 2012. Approximately 444 pounds (201 kilograms) of Cr were removed from the aquifer by pumping over the 2012 annual reporting period. The total mass of Cr removed by the IM-2 and IM-3 extraction systems during IM pumping from March 2004 through December 31, 2012, is approximately 7,430 pounds (3,370 kilograms). The average annual pumping rate during the 2012 reporting period was 129.4 gpm, while pumping mainly from extraction wells TW-3D and PE-1.

Figure 5-1 summarizes the monthly pumping rates, cumulative volumes extracted, and the percentage of time that the extraction system was in operation during the 2012 reporting period. This figure shows that pumping rates were relatively consistent month to month, with IM3 running at close to maximum capacity. The consistent high pumping rates are corroborated by the high percentage of uptime for the IM extraction and treatment facilities throughout the year. The decrease in uptime during April 2012 was due to the planned annual treatment plant maintenance event. The decrease in August 2012 was due to the planned semiannual treatment plant maintenance.

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

5.1.2 Extracted Groundwater Quality and Trends

Extraction well TW-3D was brought online in late December 2005, and groundwater extraction at well PE-1 on the floodplain began on January 25, 2006; both wells have been operating continuously for the IM. Table 5-2 presents the analytical results for Cr(VI), dissolved Cr, and TDS for extraction wells TW-3D and PE-1 during the 2012 reporting period.

The Cr(VI) and TDS concentration trends for TW-3D and PE-1 are plotted on Figure 5-2. During the 2012 reporting period, Cr(VI) concentrations in TW-3D remained stable, ranging from a maximum value of 1,040 µg/L in March 2012 to a minimum value of 788 µg/L in September 2012. TDS concentrations in TW-3D for this period have remained stable.

The Cr(VI) concentrations in the extracted groundwater at well PE-1, located on the floodplain, have ranged from 11.6 to 6.2 µg/L during the reporting period, as shown in Table 5-2. TDS concentrations in PE-1 for this period have remained stable.

5.2 Capture Zone Analysis for Annual Reporting Period

5.2.1 Monthly Average Gradients

Table 5-3 presents the hydraulic gradients measured between the selected gradient control well pairs during the period January 2012 through December 2012. The overall average gradient for well pairs exceeded the target landward gradient for each month in the reporting period. In addition, the IM target landward gradient criterion of 0.001 ft/ft was met each month at individual gradient control well pairs during the annual reporting period.

While exceeding the performance standard each month the gradient was calculated, the northern well pair (MW-31-135/ MW-33-150) generally had the lowest measured gradients because it is not aligned along the gradient generated by pumping. The gradient measurements at the northern well pair underestimate the true gradient.

Figure 5-3 summarizes the overall average monthly hydraulic gradient, individual well pair gradients, and the river stage and average pumping rates during the 2012 reporting period. During the annual reporting period, the average daily river levels ranged from a high of 457.8 feet above mean sea level (April 2012) to a low of 451.9 feet above mean sea level (December 2012). Strong overall average landward gradients were measured each month, even during the lower river stages observed in January, November, and December 2012.

5.2.2 Annual Average Gradients

Groundwater contour maps presenting the annual average groundwater elevation data in the upper, mid-depth, and lower aquifer intervals are shown on Figures 5-4a through 5-4c for the 2012 reporting period. The fourth quarter 2012 Cr(VI) contours are also shown on the annual average gradient maps. The annual average groundwater elevation data are presented in floodplain Cross-section A on Figure 5-5. Table E-2 presents a listing of the annual average, minimum, and maximum groundwater elevations for the wells used for the 2012 performance monitoring evaluation.

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

5.2.3 Analysis and Evaluation of Capture Zone

The methodology and results of the capture zone evaluations for 2012 are summarized in the following subsections.

5.2.3.1 Well Group Gradient Averaging

The temporal variation in magnitude and direction of horizontal hydraulic gradients in the lower-depth aquifer interval was assessed using quarterly average water levels and triangulation with linear interpretation for two well groupings (MW-31-135/MW-33-150/MW-34-100 and MW-45-95/MW-34-100/MW-27-85) in the IM performance area. Figure 5-6 shows the two well groupings and the calculated average gradients for all four quarterly monitoring periods in 2012.

This analysis shows that strong landward gradients were achieved during the 2012 monitoring period and that there was minimal variation in the magnitude and direction of the landward gradients during each quarter. These gradients are not the same as those calculated between the gradient control well pairs (Table 5-3) because they are calculated net gradients within the plane formed by each three-well group. Stronger landward gradients were calculated using the three-well method than those measured for the northern well pair MW-31-135/MW-33-150 (Table 5-3) due to a more optimally aligned gradient direction.

5.2.3.2 Particle Track Analysis

For the 2006 performance evaluation, particle tracking was conducted to calculate the direction and distance that groundwater would likely flow using selected starting points in the floodplain under the dual well (TW-3D and PE-1) IM pumping system. During 2006 IM operations, TW-3D and PE-1 were pumping at individual annual average rates of 97.5 and 34.3 gpm, respectively. During 2012 IM operations, the extraction wells were pumped at individual annual average rates of 104.4 and 24.6 gpm, respectively. Because the pumping locations have not changed and pumping rates are essentially the same, river elevations were similar, and the gradients for the lower interval were comparable for the 2006 and 2012 annual periods; completion of particle tracking analysis using 2012 data was not performed. The 2006 annual IM performance evaluation report (CH2M HILL, 2007) contains the particle tracking figure and the methods, input parameters, and data used for this analysis.

5.3 Evaluation of Groundwater Quality Trend

5.3.1 Cr(VI) Distribution and Trends

Figure 4-1 presents the fourth quarter 2012 Cr(VI) concentration results in floodplain wells in the upper, mid-depth, and lower intervals of the Alluvial Aquifer. The Cr(VI) contours presented on this figure incorporate data from the most comprehensive sampling event of the year.

Figure 5-7 presents Cr(VI) concentration trend graphs for selected deep monitoring wells in the floodplain area through December 2012. Sampling results are plotted for wells MW-34-100, MW-36-90, MW-36-100, MW-44-115, MW-44-125, and MW-46-175. The locations of the deep wells selected for performance evaluation are shown on Figure 1-4. Appendix C includes Cr(VI) concentration trend graphs for selected monitoring well clusters through December 2012. Sample results for the 2012 reporting period are presented in Table 3-1.

Wells showing marked decreases in concentration are generally in the floodplain area where IM pumping is removing Cr in groundwater. Wells with historical detections near or at RLs remained at these levels during the fourth quarter 2012 period. A review of Figure 5-7 and Appendix C indicates that Cr(VI) concentrations have remained steady or have decreased in many wells since IM and PE-1 pumping began in 2004 and 2005, respectively.

Key Cr(VI) concentration trends for the PMP wells sampled during the 2012 reporting period include:

- Concentrations at the MW-20 cluster (located near the TW-3D pumping well) indicate generally stable concentrations at the shallow well MW-20-070 (since 2010), decreasing concentrations at MW-20-100 (since May 2007), and variable concentrations at MW-20-130 (Figure C-3).
- As shown on Figure 5-7 and Figure C-6, well MW-34-100 has shown a seasonally fluctuating trend in Cr(VI) concentration over the past 5 to 6 years. However, since June 2006, concentrations at this well have shown a general downward trend. Landward gradients have been present at this location since IM pumping began; therefore, the seasonal fluctuations in concentration observed at MW-34-100 do not indicate movement of the plume toward the river.
- Deep well MW-36-100 Cr(VI) concentrations initially increased upon the startup of PE-01 pumping but began to decrease in 2007, and have remained less than 100 μg/L since late 2008 (Figure 5-7 and Figure C-4).
- Deep well MW-39-100 concentrations steadily declined since the start of IM pumping, with the lowest concentration observed to date in 2012 as presented in Figure C-8.
- Deep well MW-44-115 has shown an overall downward trend since July 2006, as presented on Figure 5-7 and Figure C-10. Well MW-44-125 has also shown an overall downward trend since November 2008 with results below the RL since 2012, as presented on Figure 5-7 and Figure C-10.
- Concentrations in deep well MW-46-175 have shown a seasonally fluctuating trend since 2007, as presented in Figure 5-7 and Figure C-11.
- Well TW-04, a deeper well, has shown an overall declining trend since March 2007, as presented in Figure C-19.

5.3.2 Groundwater Geochemistry in Interim Measures Extraction Area

5.3.2.1 Oxidation-Reduction Potential Evaluation

Figure 5-8 shows the concentrations and distributions of Cr(VI), ORP, nitrate, Mn, iron, and As from the fourth quarter 2012 sampling event. As and Mn samples were collected to establish baseline conditions of in situ byproducts that may be produced when the groundwater remediation remedy is implemented. Figure 5-9 shows these same results on Cross-section A, which runs west-to-east along the floodplain. The distribution of these redox indicator parameters shown on Figures 5-8 and 5-9 is generally consistent to previous years. Reducing conditions are prevalent in wells completed near the Colorado River, where there is a higher level of organic

material in the fluvial sediments, than wells located further from the Colorado River that are completed in alluvial sediments with lower organic carbon content.

5.3.2.2 General Chemistry Evaluation

Appendix F, Table F-1, presents the results of the general chemistry and stable isotope analyses for 15 PMP monitoring wells and 2 river stations during sampling events from March 2005 through December 2012. In July 2008, DTSC approved modifications to the PMP IM chemical PMP (DTSC, 2008b). With those modifications, nine monitoring wells and one river station are now sampled for IM chemical performance monitoring.

Fifteen floodplain wells were sampled for chemical performance monitoring parameters over the period of March 2005 through January 2012. The majority of the field parameters in groundwater samples from these wells remained stable through the reporting period (Table 3-1 and Table D-5). Shallow-depth wells exhibit both increases and decreases in some of these same parameters over the reporting period, but in these cases, it is interpreted as natural variation because some values were similar to those measured in previous years.

5.3.2.3 Stable Isotope Evaluation

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

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

The effects of IM pumping on the isotopic signature of floodplain wells have been plotted on Figures 5-11a through 5-11c. The percent river water signature was calculated by using composite statistics for ($\delta^{2}H$) isotope data from site river water samples (light fraction) and groundwater samples with greater than 3,000 µg/L Cr(VI) (heavy fraction; termed “industrial water”) between 2004 and 2012. The posted percentages each represent the sample’s calculated river water signature percentage, with 100 percent being essentially the same ($\delta^{2}H$) signature as river water, and 0 percent being equal to the industrial water signature. It is evident that isotopic signature in most industrial signature wells has become more similar to river water since IM pumping began. This is a result of the continuous landward gradient created by IM pumping and the resultant mixing of industrial water with river-influenced groundwater. These changes are most likely due to lateral and downward movement of shallow floodplain water, which has an isotopic signature similar to river water.

5.4 Conclusions and Status of Interim Measures Operations

5.4.1 2012 Performance Evaluation

As of March 2013, the IM has operated full time for 9 years and has been successful in meeting the IM objectives and performance criteria. This section summarizes the conclusions of IM operations and performance monitoring for the 2012 reporting period.

5.4.1.1 Attainment of Performance Standard

Throughout 2012, the IM extraction system (combined wells TW-3D and PE-1) operated at the target pumping rate of 135 gpm, excluding periods of planned and unplanned downtime. The operational run-time percentage for the extraction system was 96.5 percent during the 2012 reporting period. The average pumping rate for the IM extraction system, including downtime, during the annual period was 129.4 gpm. The results and conclusions of the 2012 performance evaluation include:

- A total of 68,001,817 gallons of groundwater was extracted and treated at the IM-3 system during the annual reporting period. The IM system removed approximately 444 pounds (201 kilograms) of Cr from the aquifer during the reporting period.
- The IM pumping rate was sufficient to exceed the minimum overall average landward gradient throughout the 2012 annual reporting period. The strong landward gradients were maintained even during the period of lower river stages in January 2012 and November 2012 through December 2012.
- The current gradient well pairs are adequate to define the capture of the plume while pumping from extraction wells TW-3D and PE-1, although the northern pair particularly underestimates the gradient as it is aligned at an angle to the true gradient.
- The annual average hydraulic gradient monitoring data showed that all floodplain monitoring wells where Cr(VI) was detected at greater than 20 μg/L were within the capture zone of the IM extraction system during the 2012 reporting period.

5.4.1.2 Cr(VI) Distribution and Trends

The key conclusions on Cr(VI) distribution and trends observed in the IM performance monitoring area during 2012 include:

- Overall, the groundwater Cr(VI) concentrations in the floodplain are stable or decreasing. The ongoing monitoring has shown marked decreases in Cr(VI) concentration in the floodplain areas where IM pumping exerts a strong influence on hydraulic gradients (e.g., well clusters MW-36, MW-39, and MW-44).
- MW-34-100 has shown a seasonally fluctuating trend in Cr(VI) concentration over the past 5 to 6 years. However, since June 2006 concentrations at this well have shown a general downward trend. Landward gradients have been present at this location since IM pumping began; therefore, the seasonal fluctuations in concentration observed at MW-34-100 do not indicate any movement of the plume toward the river.
- The groundwater ORP, stable isotope, and river signature calculated from stable isotope data continue to confirm that continued IM extraction is drawing more oxidizing river-influenced groundwater into the performance monitoring area.

5.4.2 Status of Operations and Monitoring

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

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

Current BOR projections show that the river levels will increase during the next quarterly reporting period (January through March 2013) through May and decline from May into the fall. By May 2013, the average monthly river elevations are projected to reach their maximum level of the year. The lowest river levels during the upcoming IM operations year are expected to occur in December 2013.

6.0 Upcoming Operation and Monitoring Events

Reporting of the IM extraction and monitoring activities will continue as described in the PMP and under direction from DTSC. All monitoring results, operations, and performance monitoring data will be reported in the first quarter 2013 quarterly monitoring report, which will be submitted by April 30, 2013.

6.1 Groundwater Monitoring Program

6.1.1 Quarterly Monitoring

As described in the July 23, 2010, DTSC sampling schedule approval (DTSC, 2010a), the first quarter monitoring event occurred February 4 through March 15, 2013. This sampling event was conducted at 56 GMP wells (not including additional wells that may be sampled for testing new techniques for sampling), including the wells located in the East Ravine area.

6.1.2 Monthly Monitoring

Monthly sampling of the two active extraction wells (TW-3D and PE-1) will continue to be performed during the first 2 weeks of each month. Results will be reported in the first quarter 2013 monitoring report.

6.2 Surface Water Monitoring Program

The RMP low river event occurred January 8 and 9, 2013. The first quarter 2013 surface water monitoring event was conducted March 5 and 6, 2013, at locations in the RMP monitoring network. Results will be reported in the first quarter 2013 quarterly monitoring report.

6.3 Performance Monitoring Program

6.3.1 Extraction

Per DTSC direction, PG&E will continue to operate wells TW-3D and PE-1 at a target combined pumping rate of 135 gpm during the first quarter of 2013, except for periods when planned and unplanned downtime occurs. Extracted groundwater treated at the IM-3 facility will be discharged into the IM-3 injection wells in accordance with compliance requirements of the waste discharge ARARs. Saline water and solids generated as byproducts of the treatment process will continue to be transported for offsite disposal.

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

6.3.2 Transducer Download

Downloads of the transducers in the key gradient control wells (MW-27-085, MW-31-135, MW-33-150, MW-34-100, and MW-45-095) and the MW-33 cluster will continue to be conducted via telemetry during fourth quarter 2012. Downloads of the remainder of the transducers will occur during the first week of each month during first quarter 2013.

7.0 Recommendations

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

7.1 Recommended Modifications to the Performance Monitoring Program

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

7.2 Recommended Modifications to the Groundwater Monitoring Program

7.2.1 Groundwater Monitoring Program Quarterly Reporting Schedule

PG&E proposes a modified reporting schedule, as shown in Table 7-1. These proposed schedule modifications are recommended to accommodate laboratory analysis, data management, and review as a result of the increased number of wells being sampled during each GMP event. For example, 20 additional wells were added to the GMP monitoring program, which includes 20 sets of laboratory results to each quarterly report.

PG&E plans to submit the First Quarter 2013 monitoring report under this proposed schedule on May 15, 2013, pending further DTSC direction.

7.2.2 Groundwater Monitoring Program Quarterly Report Contents

PG&E proposes a streamlined format for the quarterly reports. This format will continue to present key data. The new format will reduce the text pages accompanying the key data tables, figures, and appendices. As an example, the upcoming First Quarter 2013 monitoring report was revised into this new format and is attached as Appendix H.

The expanded format used for the Fourth Quarter and annual report will continue without reduction in contents.

PG&E plans to submit the First Quarter monitoring report with this proposed format on May 15, 2013, unless DTSC directs the use of the current deadline by March 29, 2013.

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

PG&E proposes a revised frequency and sampling plan for the GMP. We intend to review this proposal during technical calls in Second Quarter 2013 before implementing the proposed plan with the Third Quarter GMP sampling event beginning September 2013. The current and proposed sampling plan is shown in Table 7-2.

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

- Trends for COPC concentrations (decreasing, increasing, variable, or stable), based on historical data tables and the trend plots in Appendix C
- Data needs and timing for remedy design, including analyte sets such as annual water quality, redox indicators, and Title 22 or background metals

- Location of wells relative to the plume
- Role of current wells under the final remedy

An overarching consideration was optimizing the use of the upcoming monitoring interval until remedy startup. For this purpose, making the currently scheduled biennial GMP event in Fourth Quarter 2013 offers the largest data set to inform final remedy design. The subsequent biennial GMP sampling event schedule for Fourth Quarter 2015 would collect another comprehensive data set, serving as a key element of the last “baseline” data before remedy startup in 2016.

As of March 2013, the Final Groundwater Remedy Design is approaching 60 percent submittal, and the remedy is scheduled to start up in early 2016. Data cutoffs for the remedy design process represent a site milestone, following 9 years of interim measures groundwater extraction and almost 8 years of IM-3 operation at 120 to 130 gpm. Given the time frame of more than 2.5 years before start of the final remedy, sampling frequency modifications are proposed to focus on large biennial data sets supporting remedy design in 2013 and supporting pre-startup baseline data late in 2015. Monitoring between these two large events is focused on wells with variable data trends and wells in locations considered to be of greater interest or sensitivity.

Sampling at an annual frequency is proposed for the eight Arizona monitoring wells at locations MW-54, MW-55, and MW-56. Implementation of this change would also require Arizona Department of Environmental Quality (ADEQ) review and approval.

The end point in time for this monitoring proposal is the Remedy Monitoring Plan included in the Basis of Design documents. At startup, remedy monitoring will supersede all current groundwater monitoring programs.

There are several exclusions from this review and proposed modification to the GMP sampling program. No changes are proposed to the annual water level snapshot data collection. Wells installed from 2009 to 2011 for the East Ravine and Topock Compressor Station Groundwater Investigation (ER-TCS GI) were not considered in this review, and quarterly monitoring will continue. It is anticipated that final ER-TCS GI report recommendations now in preparation will guide a future modification proposal for the ER-TCS monitoring well frequency and analytes. The 17 wells sampled under the IM-3 injection area compliance monitoring program (CMP) were also excluded from these recommended modifications. The surface water monitoring program (RMP) was not considered in this review.

7.3.1 Groundwater Monitoring Program Sampling Frequency Modifications

Table 7-2 shows current and proposed sampling frequencies, including some considerations such as data trends and typical concentrations that guided the proposed modifications. Figure 1-2 shows the current GMP sampling frequencies, and Figure 7-1 shows the proposed GMP sampling frequencies. As noted earlier, no changes are proposed for CMP and ER-TCS monitoring wells at this time, and no changes in GMP sampling locations are proposed.

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

- Biennial sampling (Fourth Quarter 2013, Fourth Quarter 2015, sampling in November and December). Like the annual frequency, this event occurs during the winter low water level season for the Colorado River. The proposed modification is to move wells with stable or decreasing concentration trends to biennial frequency. This frequency affords large data sets late in the ongoing remedy design process and again shortly before remedy startup.
- Annual sampling (Fourth Quarter 2014, sampling in November and December). This sampling event includes manual measurements of water levels from wells in the shallow depth zone for the annual water level snapshot. This event is currently used for an annual water quality and general chemistry snapshot, which is proposed to become a biennial activity.

- Semiannual sampling is conducted in the Second Quarter during April and May, first sampling the set of wells near floodplain vegetation in April to protect potential bird nesting habitat. Colorado River water levels are generally rising toward summer high levels at this event. The current semiannual frequency would be implemented in Second Quarter 2013, before review and implementation of the proposed modifications.
- Quarterly sampling is conducted in First Quarter (February) and Third Quarter (September-October). The floodplain well locations close to potential nesting habitat are sampled later in the fall Third Quarter event.
- Monthly sampling is currently conducted year round for IM-3 extraction wells and during the winter low water level season (November through February) for two monitoring wells (MW-34-100 and MW-46-175). Based on consistent trends, continued quarterly sampling is proposed for these two wells without the added monthly winter events. Monthly sampling would continue from extraction wells PE-1 and TW-3D.
- A new frequency is proposed for several wells located in Bat Cave Wash and the East Ravine. The wells would be sampled at the proposed schedule; additionally, a sample would be collected at the next quarterly event following a rainfall event producing significant flow in the wash.
- Finally, for the MW-38 cluster only, two added quarterly sampling rounds are proposed following completion of well repair or replacement efforts currently planned for Second Quarter 2013.

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

7.3.2 Groundwater Monitoring Program Analytical Plan Modifications

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

- Hexavalent and total dissolved Cr, Cr(VI) and Cr, would continue to be analyzed without modification. These are code as “Cr” in Table 7-2.
- COPCs (consisting of Mo, Se, and nitrate) and in situ reduction byproducts (consisting of As and Mn) also continue to analyzed. No further sampling for fluoride is proposed with the COPC analyses.
- Annual water quality analyses (AWQ) and the similar but larger suite of performance monitoring analyses (PMP) are both proposed to be replaced with biennial water quality analyses (BWQ).
- BWQ is a new biennial water quality suite intended to provide a comprehensive look at water chemistry in Fourth Quarter 2013 and 2015. BWQ includes the former AWQ analyte list, adds alkalinity from the PMP list, and adds Mo and Se metals analyses from the COPC list (nitrate is already included from the AWQ list). This approach allows BWQ to provide a site-wide COPC snapshot. For wells where the influence of river water is analyzed, $\delta^{18}O$ and $\delta^{2}H$ are included. The addition of ammonia to these general chemistry suites allows for chemical assessment of redox conditions.

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

7.4 Recommendation to Consolidate the Compliance Monitoring Program with the Groundwater Monitoring Program and Performance Monitoring Program

Under ARARs, the CMP for the IM-3 injection area has continued for 2 years as a separate sampling and reporting program from the GMP and PMP programs. The CMP began as the monitoring and reporting program under IM-3 waste discharge requirements with IM-3 commissioning in 2005.

Now, under ARARs, PG&E proposes to synchronize semiannual CMP sampling with GMP events and combine semiannual and annual CMP reporting with GMP and PMP monitoring reports. Routine technical calls will be used to explain and preview this plan. PG&E will prepare this proposal in the first half of 2013 for discussion with agencies.

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Tables

Table 1-1

Topock Monitoring Reporting Schedule
Fourth Quarter 2012 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California

Program	1st Quarter	2nd Quarter	3rd Quarter	4th 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, September 2011 through December 2012
Fourth Quarter 2012 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Location ID	Aquifer Zone	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Selected Field Parameters	
						ORP (mV)	Field pH
MW-9	SA	09-Dec-11	299	290	2,800	130	7.3
		05-Dec-12	259	257	2,800	-24	7.4
MW-10	SA	09-Dec-11	621	622	2,600	62	7.6
		15-May-12	269	278	3,000	39	7.5
		10-Dec-12	484	461	2,700	12	7.7
MW-12	SA	06-Oct-11	2,840	3,200	6,700	73	8.3
		09-Dec-11	2,240	2,830	6,400	47	8.2
		09-Feb-12	2,730	3,100	7,000	120	7.6
		07-May-12	3,330	2,880	6,400	95	8.2
		02-Oct-12	2,740	2,970	7,100	200	7.8
		27-Nov-12	2,310	2,630	6,700	100	8.0
MW-13	SA	06-Dec-11	21.2	22.6	1,900	67	7.7
		11-Dec-12	20.2	24.6	2,000	-8.9	7.6
MW-14	SA	09-Dec-11	20.1	22.8	1,500	7.0	7.6
		13-Dec-12	19.9	21.8	1,700	-18	7.6
MW-15	SA	07-Dec-11	11.5	12.6	1,500	54	7.8
		15-Nov-12	10.6	11.4	1,600	110	7.7
MW-16	SA	07-Dec-11	11.8	11.3	1,100	54	8.0
		24-Apr-12	10.0	10.6	980	32	8.1
		08-Nov-12	9.7	10.0	1,300	-46	8.1
MW-17	SA	07-Dec-11	15.8	14.5	1,400	60	8.0
		25-Apr-12	13.3	13.3	1,300	29	8.3
		03-Dec-12	13.0	14.0	1,400	160	8.0
MW-18	SA	08-Dec-11	21.4	21.6	1,300	80	7.6
		04-Dec-12	20.0	20.7	1,400	130	7.5
MW-19	SA	09-Dec-11	289	295	2,000	110	7.5
		01-May-12	363	353	2,100	33	7.4
		01-May-12 FD	368	364	2,100	FD	FD
		04-Oct-12	250	241	2,200	220	7.1
		26-Nov-12	209	212	2,200	160	7.4
MW-20-70	SA	07-Dec-11	3,570	3,560	2,600	130	7.6
		07-May-12	3,330	3,410	2,300	110	7.7
		04-Oct-12	3,280	3,030	2,300	210	7.4
		27-Nov-12	3,020	3,110	2,300	110	7.5

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Location ID	Aquifer Zone	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Selected Field Parameters	
						ORP (mV)	Field pH
MW-20-100	MA	08-Dec-11	3,770	3,930	2,800	80	7.3
		08-May-12	4,740	5,030	3,000	100	7.3
		04-Oct-12	3,700	3,590	2,900	220	7.0
		29-Nov-12	2,910	3,090	2,600	150	7.3
MW-20-130	DA	09-Dec-11	11,100	11,500	11,000	82	7.4
		10-May-12	10,900	10,800	12,000	66	7.5
		09-Oct-12	9,610	11,000	12,000	250	7.1
		29-Nov-12	9,540	9,710	11,000	170	7.2
		29-Nov-12 FD	9,560	9,270	11,000	FD	FD
MW-21	SA	29-Sep-11	ND (1.0)	ND (1.0)	13,000	23	7.1
		06-Dec-11	2.1	2.7	11,000	200	7.0
		07-Feb-12	2.1	4.8	10,000	77	7.1
		26-Apr-12	0.56	1.8	9,700	33	7.5
		12-Sep-12	ND (1.0)	2.0	12,000	58	R
		13-Nov-12	2.3	3.1	10,000	9.0	7.0
MW-22	SA	16-Dec-11	ND (2.1)	1.0	32,000	-120	6.7
		11-Apr-12	ND (1.0)	ND (1.0)	16,000	-91	7.0
		10-Dec-12	ND (2.0)	ND (1.0)	32,000	-52	6.6
MW-23-060	BR	29-Sep-11	26.8	29.8	16,000	-29	R
		13-Dec-11	29.9	30.6	16,000	110	R
		14-Feb-12	30.2	32.1	16,000	67	R
		30-Apr-12	29.7	32.4	14,000	-76	R
		30-Apr-12 FD	29.9	33.4	14,000	FD	FD
		12-Sep-12	32.8	35.2	16,000	-46	R
		08-Nov-12	31.6	35.5	19,000	61	R
MW-23-080	BR	29-Sep-11	5.6	5.6	16,000	-66	R
		12-Dec-11	8.7	8.8	16,000	-43	R
		12-Dec-11 FD	8.2	8.6	16,000	FD	FD
		14-Feb-12	9.5	10.8	16,000	-140	7.6
		30-Apr-12	6.0	8.2	15,000	-130	R
		12-Sep-12	12.8	15.9	16,000	-110	R
		12-Sep-12 FD	14.2	15.2	16,000	FD	FD
		08-Nov-12	19.2	21.6	19,000	-80	R
MW-24BR	BR	30-Sep-11	ND (1.0)	8.2 J	14,000	-130	8.3
		09-Dec-11	ND (1.0)	ND (1.0)	14,000	-150	8.2

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Table 3-1
Groundwater Sampling Results, September 2011 through December 2012
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Location ID	Aquifer Zone	Sample Date		Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Selected Field Parameters	
							ORP (mV)	Field pH
MW-24BR	BR	09-Dec-11	FD	ND (1.0)	ND (1.0)	14,000	FD	FD
		10-Feb-12		ND (1.0)	ND (1.0)	14,000	-240	8.0
		16-May-12		ND (1.0)	ND (1.0)	15,000	-110	8.2
		26-Sep-12		ND (1.0)	ND (1.0)	14,000	-140	7.7
		13-Nov-12		ND (1.0)	ND (1.0)	14,000	-160	8.0
MW-25	SA	15-Dec-11		249	265	1,600	130	7.2
		15-Dec-11	FD	269 J	259	1,500	FD	FD
		11-Dec-12		192	216	1,700	16	7.3
MW-26	SA	09-Dec-11		1,840	1,750	4,000	5.5	7.4
		07-May-12		1,810	1,890	4,000	130	7.4
		04-Oct-12		1,950	1,980	4,100	190	7.0
		27-Nov-12		1,800	1,820	4,000	110	7.2
MW-27-20	SA	05-Dec-11		ND (0.2)	ND (1.0)	1,000	-160	7.5
		03-Dec-12		0.25	1.3	950	-33	7.3
MW-27-60	MA	05-Dec-11		ND (0.2)	ND (1.0)	1,100	-200	8.1
		07-Feb-12		ND (0.2)	ND (1.0)	1,100	-160	8.1
		01-Oct-12		ND (0.2)	ND (1.0)	1,100	-140	7.8
		03-Dec-12		ND (0.2)	ND (1.0)	1,000	-61	7.8
MW-27-85	DA	03-Oct-11		ND (1.0)	ND (1.0)	12,000	-83	7.2
		03-Oct-11	FD	ND (1.0)	ND (1.0)	12,000	FD	FD
		05-Dec-11		ND (1.0)	ND (1.0)	13,000	-87	7.1
		07-Feb-12		ND (1.0)	ND (1.0)	12,000	-53	7.3
		09-Apr-12		ND (1.0)	ND (1.0)	13,000	-22	7.5
		01-Oct-12		ND (1.0)	ND (1.0)	12,000	-51	7.3
		03-Dec-12		ND (1.0)	ND (1.0)	11,000	28	7.4
MW-28-25	SA	12-Dec-11		ND (0.2)	ND (1.0)	1,200	-29	7.1
		10-Apr-12		ND (0.2)	ND (1.0)	1,100	-5.3	7.6
		05-Dec-12		ND (0.2)	1.4	1,000	43	7.3
MW-28-90	DA	26-Sep-11		ND (0.2)	ND (1.0)	7,200	-140	7.3
		12-Dec-11		ND (1.0)	ND (1.0)	7,400	-120	7.0
		07-Feb-12		ND (0.2)	ND (1.0)	7,200	-100	7.3
		10-Apr-12		ND (0.2)	ND (1.0)	7,500	-89	7.4
		10-Apr-12	FD	ND (1.0)	ND (1.0)	7,600	FD	FD
		10-Sep-12		ND (0.2)	ND (1.0)	7,400	-210	7.0
		05-Dec-12		ND (1.0)	ND (1.0)	7,200	-48	7.2

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Location ID	Aquifer Zone	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Selected Field Parameters	
						ORP (mV)	Field pH
MW-29	SA	07-Dec-11	ND (0.2)	ND (1.0)	2,400	-110	7.2
		10-Apr-12	ND (0.2)	1.3	3,000	-130	7.4
		05-Dec-12	ND (0.2)	ND (1.0)	2,800	-67	7.3
		05-Dec-12 FD	ND (0.2)	ND (1.0)	2,400	FD	FD
MW-30-30	SA	07-Dec-11	ND (2.1)	ND (1.0)	33,000	-190	7.3
		10-Apr-12	ND (1.0)	ND (1.0)	10,000	-180	7.8
		03-Dec-12	ND (1.0)	5.5	28,000	-83	7.5
MW-30-50	MA	08-Dec-11	ND (0.2)	ND (1.0)	1,200	-190	7.7
		03-Dec-12	ND (0.2)	ND (1.0)	1,100	-26	7.8
MW-31-60	SA	06-Dec-11	489	500	3,200	55	7.7
		16-May-12	304	272	4,000	35	7.5
		13-Nov-12	334	369	3,300	77	7.3
MW-31-135	DA	06-Dec-11	14.4	15.1	11,000	1.9	7.9
		15-Nov-12	12.4	13.4	12,000	110	7.6
MW-32-20	SA	08-Dec-11	ND (2.1)	ND (2.0)	52,000	-160	6.5
		05-Dec-12	ND (2.0)	ND (1.0)	45,000	-92	6.7
MW-32-35	SA	09-Dec-11	ND (1.0)	ND (1.0)	16,000	-170	6.9
		09-Apr-12	ND (1.0)	ND (1.0)	17,000	-150	7.3
		05-Dec-12	ND (1.0)	ND (1.0)	15,000	-130	7.0
MW-33-40	SA	27-Sep-11	ND (1.0)	1.0	12,000	-66	7.8
		12-Dec-11	ND (1.0)	2.6	9,900	-45	7.7
		08-Feb-12	ND (0.2)	1.6	7,000	-45	8.1
		23-Apr-12	ND (0.2)	ND (1.0)	6,100	-54	8.4
		10-Sep-12	ND (0.2)	ND (1.0)	10,000	-2.5	7.6
		05-Dec-12	ND (1.0)	2.8	8,300	-100	8.0
		05-Dec-12 FD	ND (1.0)	2.5	8,100	FD	FD
MW-33-90	MA	04-Oct-11	16.8	20.2	10,000	63	7.3
		13-Dec-11	21.9	19.8	10,000	8.0	7.3
		09-Feb-12	20.1	23.0	10,000	83	7.4
		30-Apr-12	16.4	17.2	8,500	25	7.7
		24-Sep-12	16.5	17.2	10,000	170	7.1
		08-Nov-12	16.5	18.2	12,000	130	7.2
MW-33-150	DA	04-Oct-11	10.4	10.1	16,000	110	7.4
		13-Dec-11	12.7	12.4	17,000	42	7.3

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Location ID	Aquifer Zone	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Selected Field Parameters	
						ORP (mV)	Field pH
MW-33-150	DA	09-Feb-12	10.6	11.8	16,000	110	7.5
		23-Apr-12	11.3	12.0	15,000	20	7.7
		23-Apr-12 FD	11.5	12.1	15,000	FD	FD
		11-Sep-12	10.9	11.9	16,000	-61	7.4
		06-Dec-12	12.4	12.4	17,000	20	7.4
MW-33-210	DA	27-Sep-11	12.7	12.9	18,000	-84	7.3
		13-Dec-11	14.5	14.5	18,000	9.9	7.2
		09-Feb-12	12.7	14.4	18,000	98	7.3
		23-Apr-12	10.5	11.0	17,000	1.6	7.5
		11-Sep-12	12.6	13.2	19,000	-74	7.3
		06-Dec-12	13.3	10.9	19,000	21	7.3
MW-34-55	MA	06-Dec-11	ND (0.2)	ND (1.0)	990	-160	7.7
		12-Dec-12	ND (0.2)	ND (1.0)	980	-13	7.6
MW-34-80	DA	03-Oct-11	ND (1.0)	ND (1.0)	7,800	-92	7.3
		06-Dec-11	ND (1.0)	ND (1.0)	7,300	-83	7.4
		07-Feb-12	ND (0.2)	ND (1.0)	7,800	-27	7.3
		09-Apr-12	ND (1.0)	ND (1.0)	8,300	-34	7.6
		01-Oct-12	ND (0.2)	ND (1.0)	8,000	-31	7.4
		12-Dec-12	ND (0.2)	ND (1.0)	7,200	19	7.3
		12-Dec-12 FD	ND (0.2)	ND (1.0)	7,200	FD	FD
MW-34-100	DA	03-Oct-11	55.8	56.9	17,000	5.7	7.4
		03-Oct-11 FD	57.0	61.7	17,000	FD	FD
		09-Nov-11	144	147	---	74	7.6
		06-Dec-11	210	209	17,000	-1	7.6
		06-Dec-11 FD	202	210	17,000	FD	FD
		18-Jan-12	208	217	---	87	7.7
		07-Feb-12	76.6	84.9	17,000	33	7.5
		07-Feb-12 FD	77.8	89.9	17,000	FD	FD
		09-Apr-12	11.5	12.4	17,000	-22	7.6
		09-Apr-12 FD	11.6	11.3	17,000	FD	FD
		01-Oct-12	70.0	71.9	19,000	85	7.5
		01-Oct-12 FD	70.0	75.1	18,000	FD	FD
		26-Nov-12	166	169	17,000	100	7.5
		26-Nov-12 FD	167	173	17,000	FD	FD
		12-Dec-12	228	263	---	61	7.7

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Location ID	Aquifer Zone	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Selected Field Parameters	
						ORP (mV)	Field pH
MW-35-60	SA	07-Dec-11	26.2	25.9	6,700	100	7.3
		06-Feb-12	24.6	27.7	6,900	110	7.3
		26-Apr-12	32.6	32.1	5,800	42	7.7
		10-Sep-12	22.7	24.5	7,600	80	8.1
		04-Dec-12	22.3	29.6	7,100	75	7.1
MW-35-135	DA	07-Dec-11	35.3	36.9	9,600	97	7.6
		26-Apr-12	28.6	30.2	9,900	26	7.9
		04-Dec-12	30.6	37.7	10,000	61	7.6
MW-36-20	SA	14-Dec-11	ND (1.0)	1.1	8,100	-140	7.5
		04-Dec-12	ND (0.2)	ND (1.0)	6,000	-170	7.6
		04-Dec-12 FD	ND (0.2)	ND (1.0)	6,200	FD	FD
MW-36-40	SA	14-Dec-11	ND (0.2)	ND (1.0)	1,300	-150	7.7
		04-Dec-12	ND (0.2)	ND (1.0)	1,500	-170	7.7
MW-36-50	MA	14-Dec-11	ND (0.2)	ND (1.0)	1,400	-100	7.5
		04-Dec-12	ND (0.2)	ND (1.0)	1,100	-110	7.6
MW-36-70	MA	14-Dec-11	ND (0.2)	ND (1.0)	1,100	-77	7.9
		04-Dec-12	ND (0.2)	ND (1.0)	1,100	-110	7.9
MW-36-90	DA	14-Dec-11	ND (0.2)	ND (1.0)	1,200	-100	8.3
		10-Apr-12	ND (0.2)	ND (1.0)	1,300	-70	8.5
		04-Dec-12	ND (0.2)	ND (1.0)	1,200	-54	8.3
MW-36-100	DA	06-Dec-11	73.3	76.4	10,000	-100	7.1
		10-Apr-12	59.8	70.8	9,500	-130	7.4
		10-Oct-12	68.5	72.0	9,300	-48	7.1
		08-Nov-12	62.7	72.8	10,000	-18	7.1
MW-37S	MA	07-Dec-11	10.1	9.9	5,000	-16	7.7
		14-Nov-12	9.8	10.3	5,400	56	7.6
MW-37D	DA	08-Dec-11	62.5	70.8	15,000	-88	7.7
		04-Dec-12	26.2	27.7	16,000	55	7.7
MW-39-40	SA	15-Dec-11	ND (0.2)	ND (1.0)	2,000	-160	7.9
		15-Dec-11 FD	ND (0.2)	ND (1.0)	2,000	FD	FD
MW-39-50	MA	15-Dec-11	ND (0.2)	ND (1.0)	1,500	-97	8.1
		03-Dec-12	ND (0.2)	ND (1.0)	1,300	120	7.9
MW-39-60	MA	15-Dec-11	ND (0.2)	ND (1.0)	1,700	-60	7.9

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Location ID	Aquifer Zone	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Selected Field Parameters	
						ORP (mV)	Field pH
MW-39-60	MA	03-Dec-12	ND (1.0)	ND (1.0)	1,500	32	8.0
MW-39-70	MA	15-Dec-11	ND (0.2)	ND (1.0)	3,500	-4.2	7.5
		03-Dec-12	ND (0.2)	ND (1.0)	2,500	83	7.7
MW-39-80	DA	15-Dec-11	ND (1.0)	ND (1.0)	1,100	-4.5	7.0
		03-Dec-12	ND (0.2)	ND (1.0)	6,700	44	7.2
MW-39-100	DA	14-Dec-11	130	138	17,000	18	6.5
		13-Dec-12	93.2	82.0	17,000	110	6.5
MW-40S	SA	07-Dec-11	7.6	7.8	2,300	93	7.5
		03-Dec-12	8.0	9.5	2,200	170	7.7
MW-40D	DA	07-Dec-11	169	172	15,000	9.0	7.4
		03-Dec-12	157	176	15,000	130	7.6
MW-41S	SA	07-Dec-11	19.0	19.1	5,000	-22	7.9
		07-Dec-11 FD	19.0	18.5	5,000	FD	FD
		03-Dec-12	17.7	19.1	5,000	120	7.8
MW-41M	DA	05-Dec-11	10.6	12.2	15,000	160	7.6
		05-Nov-12	9.9	13.4	16,000	-160	7.7
MW-41D	DA	05-Dec-11	3.4	4.5	18,000	-56	7.6
		26-Apr-12	2.2	3.0	20,000	-66	7.9
		05-Nov-12	3.3	4.4	22,000	-180	7.8
MW-42-30	SA	06-Dec-11	0.2	1.3	---	-240	7.9
		06-Dec-12	ND (0.2)	ND (1.0)	4,400	-150	7.9
MW-42-55	MA	26-Sep-11	ND (0.2)	ND (1.0)	6,300	-120	7.4
		06-Dec-11	ND (0.2)	ND (1.0)	5,700	-170	7.5
		07-Feb-12	ND (0.2)	ND (1.0)	5,400	-130	7.6
		09-Apr-12	ND (0.2)	ND (1.0)	5,000	-120	7.8
		11-Sep-12	ND (0.2)	1.7	2,600	-130	7.8
		11-Sep-12 FD	ND (0.2)	1.6	2,600	FD	FD
		06-Dec-12	ND (0.2)	1.4	2,300	-57	7.9
MW-42-65	MA	26-Sep-11	ND (1.0)	ND (1.0)	9,100	-41	7.2
		06-Dec-11	ND (1.0)	ND (1.0)	9,800	-99	7.2
		07-Feb-12	ND (1.0)	ND (1.0)	9,400	-40	7.2
		09-Apr-12	ND (1.0)	ND (1.0)	9,000	-45	7.5
		11-Sep-12	ND (0.2)	ND (1.0)	7,900	-110	7.2

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Table 3-1
Groundwater Sampling Results, September 2011 through December 2012
Fourth Quarter 2012 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Location ID	Aquifer Zone	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Selected Field Parameters	
						ORP (mV)	Field pH
MW-42-65	MA	06-Dec-12	ND (1.0)	ND (1.0)	8,400	14	7.2
MW-43-25	SA	09-Dec-11	ND (0.2)	ND (1.0)	1,200	-180	7.4
		10-Dec-12	ND (0.2)	ND (1.0)	1,200	-120	7.4
MW-43-75	DA	09-Dec-11	ND (1.0)	ND (1.0)	12,000 J	-170	7.3
		10-Dec-12	ND (1.0)	ND (1.0)	12,000	-81	7.3
MW-43-90	DA	09-Dec-11	ND (1.0)	ND (1.0)	17,000	-100	6.6
		10-Dec-12	ND (1.0)	ND (1.0)	17,000	-36	6.9
MW-44-70	MA	08-Dec-11	ND (0.2)	ND (1.0)	2,200	-160	7.4
		12-Apr-12	ND (0.2)	ND (1.0)	2,300	-240	7.7
		06-Dec-12	ND (0.2)	ND (1.0)	2,100	-69	7.6
MW-44-115	DA	27-Sep-11	144	150	11,000	-150	7.9
		08-Dec-11	129	132	11,000	-160	7.8
		08-Dec-11 FD	128	130	11,000	FD	FD
		08-Feb-12	134	120	12,000	-93	8.0
		12-Apr-12	122	134	11,000	-170	8.1
		12-Apr-12 FD	124	125	11,000	FD	FD
		27-Sep-12	88.2	98.2	11,000	-85	7.8
		26-Nov-12	73.6	78.1	11,000	21	7.8
MW-44-125	DA	27-Sep-11	ND (1.0)	6.0	11,000	-170	7.8
		27-Sep-11 FD	ND (1.0)	7.1	12,000	FD	FD
		08-Dec-11	21.5	26.8	11,000	-190	7.7
		08-Dec-11 FD	20.6	27.2	9,800	FD	FD
		08-Feb-12	ND (1.0)	13.5	13,000 J	-200	7.8
		08-Feb-12 FD	ND (1.0)	13.2	7,700 J	FD	FD
		12-Apr-12	ND (0.2)	17.9	11,000	-260	7.9
		13-Sep-12	ND (1.0)	5.3	12,000	-190	7.9
		13-Sep-12 FD	ND (1.0)	4.0	12,000	FD	FD
		06-Nov-12	ND (1.0)	6.4	12,000	-170	7.9
		06-Nov-12 FD	ND (1.0)	5.9	10,000	FD	FD
MW-45-095a	DA	14-Dec-11	29.6	30.0	9,000	65	7.5
		14-Dec-11 FD	29.8	30.2	9,400	FD	FD
		13-Dec-12	20.2	20.4	9,000	100	7.3
MW-46-175	DA	26-Sep-11	69.4	70.6	17,000	-180	8.3
		09-Nov-11	110	106	---	-80	8.4

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Location ID	Aquifer Zone	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Selected Field Parameters	
						ORP (mV)	Field pH
MW-46-175	DA	13-Dec-11	121	129	17,000	-130	8.3
		18-Jan-12	93.8	101	---	-91	7.6
		08-Feb-12	76.2	84.1	15,000	-93	8.3
		23-Apr-12	34.4	40.5	16,000	-100	8.6
		26-Sep-12	46.7	52.6	18,000	-35	8.1
		09-Nov-12	71.0	73.5	18,000	120	8.2
		12-Dec-12	73.2	79.7	---	36	8.5
MW-46-205	DA	13-Dec-11	4.4	6.5	19,000	-67	8.2
		12-Apr-12	5.1	5.9	19,000	-140	8.5
		12-Dec-12	ND (4.9)	5.1	22,000	4.1	8.4
MW-47-55	SA	08-Dec-11	24.8	23.8	4,600	55	7.6
		25-Apr-12	16.5	16.6	4,400	35	7.8
		24-Sep-12	20.7	21.4	4,800	350	7.5
		07-Nov-12	28.8	29.6	5,100	160	7.3
MW-47-115	DA	08-Dec-11	16.9	18.0	14,000	18	7.6
		25-Apr-12	22.7	23.6	12,000	10	8.0
		25-Sep-12	20.0	23.2	14,000	93	7.4
		07-Nov-12	17.3	19.2	16,000	120	7.4
MW-48	BR	30-Sep-11	ND (0.2)	ND (1.0)	17,000	31	7.2
		07-Dec-11	ND (1.0)	1.0	17,000	---	6.8
		08-Feb-12	ND (1.0)	1.6	17,000	150	7.2
		25-Apr-12	ND (1.0)	ND (1.0)	17,000	-24	7.6
		13-Sep-12	ND (1.0)	ND (1.0)	18,000	81	R
		07-Nov-12	ND (1.0)	ND (1.0)	20,000	-120	7.6
MW-49-135	DA	07-Dec-11	ND (1.0)	ND (1.0)	13,000 J	1.1	7.9
		11-Dec-12	1.4	29.3	14,000	59	7.9
MW-49-275	DA	07-Dec-11	ND (1.0)	1.8	28,000	-200	8.1
		11-Dec-12	ND (1.0)	1.6	26,000	45	8.2
MW-49-365	DA	07-Dec-11	ND (2.1)	ND (1.0)	42,000	-230	8.0
		11-Dec-12	ND (2.0)	ND (1.0)	39,000	17	8.1
MW-50-095	MA	06-Dec-11	14.1	15.6	5,100	42	8.0
		25-Apr-12	14.7	15.4	4,800	0.2	8.2
		25-Apr-12 FD	14.6	15.5	4,800	FD	FD
		19-Sep-12	13.7	14.9	5,300	60	7.7

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Table 3-1
Groundwater Sampling Results, September 2011 through December 2012
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Location ID	Aquifer Zone	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Selected Field Parameters	
						ORP (mV)	Field pH
MW-50-095	MA	05-Nov-12	12.9	12.5	5,400	220	7.6
MW-50-200	DA	04-Oct-11	7,860	7,350	19,000	70	7.7
		08-Dec-11	8,740	8,730	19,000	76	7.7
		09-Feb-12	9,080	9,530	19,000	250	7.7
		10-May-12	9,370	9,190	21,000	45	7.7
		03-Oct-12	8,290	8,720	22,000	150	7.4
		03-Oct-12 FD	8,000	8,520	22,000	FD	FD
		29-Nov-12	6,680	7,000	20,000	80	7.4
MW-51	MA	07-Dec-11	4,810	4,710	10,000	140	7.3
		08-May-12	4,740	5,140	10,000	99	7.5
		09-Oct-12	4,630	5,100	11,000	---	---
		28-Nov-12	4,480	4,370	10,000	130	7.3
MW-52S	MA	15-Dec-11	ND (1.0)	ND (1.0)	7,500	-120	6.9
		11-Apr-12	ND (0.2)	ND (1.0)	10,000	-110	7.2
		05-Dec-12	ND (1.0)	ND (1.0)	9,200	-120	6.9
MW-52M	DA	15-Dec-11	ND (1.0)	ND (1.0)	11,000	-140	7.8
		11-Apr-12	ND (1.0)	ND (1.0)	16,000	-130	7.6
		05-Dec-12	ND (1.0)	ND (1.0)	16,000	-140	7.5
MW-52D	DA	15-Dec-11	ND (1.0)	ND (1.0)	16,000	-180	7.9
		11-Apr-12	ND (1.0)	ND (1.0)	19,000	-150	7.9
		05-Dec-12	ND (1.0)	ND (1.0)	22,000	-180	7.9
MW-53M	DA	16-Dec-11	ND (1.0)	ND (1.0)	18,000	-180	7.9
		11-Apr-12	ND (1.0)	ND (1.0)	18,000	-160	8.3
		05-Dec-12	ND (1.0)	ND (1.0)	19,000	-200	8.2
		05-Dec-12 FD	ND (1.0)	ND (1.0)	20,000	FD	FD
MW-53D	DA	03-Oct-11	ND (2.1)	ND (1.0)	33,000	-220	8.3
		03-Oct-11 FD	ND (2.1)	ND (1.0)	33,000	FD	FD
		16-Dec-11	ND (2.1)	ND (1.0)	28,000	-220	8.3
		16-Dec-11 FD	ND (2.1)	1.0	28,000	FD	FD
		11-Apr-12	ND (1.0)	ND (1.0)	30,000	-190	8.4
		06-Dec-12	ND (2.0)	ND (1.0)	25,000	-200	8.2
MW-54-85	DA	06-Dec-11	ND (1.0)	ND (1.0)	10,100	-180	7.5
		24-Apr-12	ND (0.2)	ND (1.0)	10,000	-170	7.8
		12-Dec-12	ND (1.0)	ND (1.0)	10,100	-140	7.5

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Table 3-1
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Location ID	Aquifer Zone	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Selected Field Parameters	
						ORP (mV)	Field pH
MW-54-140	DA	06-Dec-11	ND (1.0)	ND (1.0)	12,300	46	7.7
		24-Apr-12	ND (1.0)	ND (1.0)	12,600	-43	8.0
		12-Dec-12	ND (1.0)	ND (1.0)	12,700	-66	7.7
MW-54-195	DA	06-Dec-11	ND (1.0)	ND (5.0)	18,800	-220	8.1
		24-Apr-12	ND (1.0)	ND (5.0)	19,400	-170	8.3
		24-Apr-12 FD	ND (1.0)	ND (5.0)	19,100	FD	FD
		12-Dec-12	ND (1.0)	ND (1.0)	19,200	-180	8.2
MW-55-45	MA	06-Dec-11	ND (0.2)	ND (1.0)	1,450	-150	7.6
		03-Apr-12	ND (0.2)	ND (1.0)	---	-160	7.4
		12-Dec-12	ND (0.2)	ND (1.0)	1,510	-190	7.6
MW-55-120	DA	06-Dec-11	6.9	7.0	8,520	5.0	7.9
		06-Dec-11 FD	6.8	6.9	8,580	FD	FD
		03-Apr-12	6.7	6.5	---	28	7.9
		12-Dec-12	7.1	6.8	8,840	-56	7.9
		12-Dec-12 FD	7.0	6.9	8,800	FD	FD
MW-56S	SA	13-Dec-11	ND (1.0)	ND (1.0)	5,980	-160	7.2
		17-May-12	ND (0.2)	ND (1.0)	6,160	-120	8.0
		06-Dec-12	ND (0.2)	ND (1.0)	5,380	-120	7.1
MW-56M	DA	13-Dec-11	ND (1.0)	ND (1.0)	14,600	-150	7.2
		17-May-12	ND (1.0)	ND (1.0)	14,900	-120	8.0
		06-Dec-12	ND (1.0)	ND (1.0)	14,500	-120	7.1
MW-56D	DA	13-Dec-11	ND (1.0)	ND (5.0)	21,000	-170	7.7
		17-May-12	ND (1.0)	ND (1.0)	21,800	-110	8.2
		06-Dec-12	ND (2.0)	ND (1.0)	21,400	-150	7.5
MW-57-070	BR	29-Sep-11	309	352	2,400	56	6.9
		15-Dec-11	291	296	2,500	-21	7.1
		15-Feb-12	454	520	2,800	92	6.4
		03-May-12	288	314	2,600	120	7.1
		12-Sep-12	609	614	2,300	9.2	7.1
		13-Dec-12	724	799	2,100	130	7.0
		13-Dec-12 FD	752	851	2,100	FD	FD
MW-57-185	BR	28-Sep-11	7.0	8.5	17,000	-130	8.5
		13-Dec-11	7.4	7.3	18,000	-130	8.3
		10-Feb-12	7.2	8.5	17,000	-170	8.2

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Location ID	Aquifer Zone	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Selected Field Parameters	
						ORP (mV)	Field pH
MW-57-185	BR	10-Feb-12 FD	7.3	8.9	17,000	FD	FD
		30-Apr-12	7.1	8.6	16,000	-59	8.9
		11-Sep-12	7.8	9.1	18,000	-50	R
		08-Nov-12	9.5	10.7	21,000	-130	8.7
MW-58BR-LWR-160	BR	16-May-12	2.4	7.4	11,000	-88	8.4
		04-Oct-12	2.3	10.2	9,400	-91	8.0
MW-58BR-UPR-160	BR	15-May-12	ND (1.0)	1.4	11,000	-120	7.5
		03-Oct-12	ND (1.0)	ND (1.0)	10,000	-120	7.0
MW-59-100	SA	04-Oct-11	4,330	4,850	10,000	120	6.8
		15-Dec-11	4,600	4,950	9,000	1.8	6.9
		15-Dec-11 FD	4,990	4,890	9,100	FD	FD
		22-Feb-12	4,070	4,690	9,100	180	7.0
		08-May-12	4,610	4,690	11,000	130	7.0
		02-Oct-12	4,510	4,640	9,700	310	6.6
		28-Nov-12	3,980	3,970	9,400	170	6.8
MW-60-125	BR	04-Oct-11	715	760	8,200	-27	7.3
		14-Dec-11	901	915	8,100	-53	7.4
		15-Feb-12	918	1,100	19,000	110	7.4
		03-May-12	882	936	8,400	98	7.4
		20-Sep-12	848	846	9,600	63	7.6
		06-Dec-12	867	804	8,700	-76	7.5
MW-60BR-245	BR	17-May-12	74.2	77.0	17,000	-130	8.6
		19-Sep-12	89.7	97.2	18,000	-140	8.6
		05-Dec-12	61.4	59.2	17,000	-8	8.7
MW-61-110	BR	30-Sep-11	611	698	15,000	-30	7.3
		14-Dec-11	682	722	15,000	-46	7.3
		15-Feb-12	634	680	29,000	-29	7.3
		03-May-12	486	578	16,000	55	7.4
		27-Sep-12	656	714	17,000	5.0	7.1
		27-Sep-12 FD	661	738	17,000	FD	FD
		27-Nov-12	666	709	15,000	12	7.2
		27-Nov-12 FD	678	716	15,000	FD	FD
MW-62-065	BR	29-Sep-11	457	500	6,300	44	7.4
		13-Dec-11	532	500	3,900	30	7.3
		17-Feb-12	452	530	6,500	R	R

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Location ID	Aquifer Zone	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Selected Field Parameters	
						ORP (mV)	Field pH
MW-62-065	BR	02-May-12	443	433	6,600	34	7.6
		12-Sep-12	588	627	6,400	-28	7.3
		10-Dec-12	505	543	6,200	46	7.4
MW-62-110	BR	29-Sep-11	598	739	8,700	-60	7.7
		14-Dec-11	1,140	1,300	8,400	-87	7.9
		16-Feb-12	842	880	8,700	160	7.6
		10-May-12	828	941	8,900	180	7.5
		13-Sep-12	894	923	9,200	130	7.4
		11-Dec-12	904	944	9,000	130	6.6
MW-62-190	BR	29-Sep-11	ND (1.0)	ND (1.0)	17,000	-88	7.7
		14-Dec-11	ND (1.0)	ND (1.0)	16,000	-110	7.7
		16-Feb-12	ND (1.0)	ND (1.0)	16,000	-130	7.8
		10-May-12	ND (1.0)	ND (1.0)	19,000	-210	7.7
		13-Sep-12	ND (1.0)	ND (1.0)	19,000	-280	7.8
		11-Dec-12	ND (1.0)	ND (1.0)	18,000	100	7.5
MW-63-065	BR	28-Sep-11	1.6	2.8	7,500	4.5	7.1
		12-Dec-11	1.2	2.1	4,600	57	7.1
		13-Feb-12	ND (0.2)	1.4	7,200	28	7.1
		26-Apr-12	0.76	1.5	6,900	26	7.3
		10-Sep-12	1.5	2.3	7,600	96	8.0
		07-Nov-12	1.2	2.0	8,800	23	7.3
MW-64BR-LWR-150	BR	19-Apr-12	21.9	23.2	13,000	-34	7.9
		10-Oct-12	ND (1.0)	1.0	14,000	-180	7.9
MW-64BR-UPR-150	BR	16-Apr-12	ND (1.0)	2.1	12,000	-140	8.0
		08-Oct-12	ND (1.0)	ND (1.0)	12,000	-140	8.0
MW-65-160	SA	01-May-12	51.0	54.6	3,900	-2.2	7.3
		18-Sep-12	75.7	79.6	4,300	-76	7.2
		04-Dec-12	78.5	85.1	4,100	-9.7	7.3
MW-65-225	DA	02-May-12	365	387	13,000	110	7.7
		18-Sep-12	528	570	12,000	-69	7.0
		05-Dec-12	634	637	9,400	-16	7.4
MW-66-165	SA	02-May-12	651	682	4,600	48	7.7
		17-Sep-12	653	665	4,500	11	7.2
		06-Dec-12	622	583	4,300	46	7.3

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Location ID	Aquifer Zone	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Selected Field Parameters	
						ORP (mV)	Field pH
MW-66-230	DA	10-May-12	5,880	5,900	19,000	26	7.8
		10-May-12 FD	5,560	5,720	19,000	FD	FD
		17-Sep-12	6,200	6,040	19,000	-89	8.0
		10-Dec-12	6,190	5,910	19,000	-34	8.0
MW-66BR-270	BR	24-May-12	ND (1.0)	1.1	17,000	---	---
		02-Oct-12	ND (1.0)	ND (1.0)	18,000	-97	10.6
		20-Dec-12	ND (1.0)	ND (1.0)	19,000	42	9.8
MW-67-185	SA	03-May-12	2,180	2,230	4,400	100	7.3
		20-Sep-12	2,370	2,320	4,700	40	7.4
		06-Dec-12	2,300	2,270	4,400	-56	7.4
MW-67-225	MA	07-May-12	3,180	3,260	7,400	100	7.5
		20-Sep-12	3,200	3,420	8,000	310	7.2
		10-Dec-12	3,210	3,110	7,500	-30	7.5
MW-67-260	DA	07-May-12	2,130	2,090	18,000	65	8.2
		20-Sep-12	2,130	2,160	18,000	-140	8.5
		06-Dec-12	2,020	1,930	18,000	-100	8.3
MW-68-180	SA	10-May-12	5,970	5,990	3,200	76	7.4
		20-Sep-12	16,400	16,900	4,100	370	7.3
		11-Dec-12	20,200	21,800	4,400	45	7.4
		11-Dec-12 FD	20,400	21,700	4,400	FD	FD
MW-68-240	DA	03-May-12	1,820	1,900	16,000	87	7.3
		20-Sep-12	2,000	1,980	17,000	R	7.5
		06-Dec-12	1,990	1,870	16,000	-110	7.5
MW-68BR-280	BR	09-May-12	ND (1.0)	ND (1.0)	21,000	-130	8.5
		03-Oct-12	ND (1.0)	ND (1.0)	22,000	-140	8.2
		12-Nov-12	ND (1.0)	ND (1.0)	21,000	-120	8.3
MW-69-195	BR	02-May-12	446	488	3,800	71	7.7
		19-Sep-12	789	840	3,900	76	7.1
		05-Dec-12	849	869	3,800	-47	7.3
MW-70-105	BR	01-May-12	76.3	77.9	3,000	-30	7.9
		12-Sep-12	80.8	85.6	3,300	-150	7.9
		04-Dec-12	65.1	71.1	3,500	18	8.0
MW-70BR-225	BR	17-May-12	2,460	2,460	14,000	42	7.4
		17-May-12 FD	2,380	2,550	14,000	FD	FD

Refer to table footnotes for data qualifier explanation.

Table 3-1
Groundwater Sampling Results, September 2011 through December 2012
Fourth Quarter 2012 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Location ID	Aquifer Zone	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Selected Field Parameters	
						ORP (mV)	Field pH
MW-70BR-225	BR	18-Sep-12	2,410	2,500	14,000	42	7.2
		13-Dec-12	1,980	1,980	14,000	-39	7.4
MW-71-035	SA	03-May-12	ND (1.0)	ND (1.0)	7,100	21	7.5
		19-Sep-12	ND (0.2)	ND (1.0)	7,500	120	7.1
		08-Nov-12	ND (0.2)	ND (1.0)	9,300	190	7.4
MW-72-080	BR	01-May-12	87.6	89.0	16,000	-26	7.7
		19-Sep-12	151	158	15,000	37	7.7
		05-Dec-12	150	150	16,000	89	7.8
MW-72BR-200	BR	13-Sep-12	3.9	4.5	15,000	-200	8.7
		13-Sep-12 FD	3.8	4.3	15,000	FD	FD
		14-Nov-12	6.4	7.3	16,000	-99	8.3
MW-73-080	BR	02-May-12	32.9	38.0	11,000	15	7.2
		13-Sep-12	37.3	39.3	11,000	-15	7.3
		05-Dec-12	35.6	36.2	11,000	47	7.2
MW-74-240	BR	10-May-12	ND (0.2)	ND (1.0)	1,300	-240	9.7
		27-Sep-12	0.28	ND (1.0)	1,200	-210	9.6
		20-Dec-12	ND (0.2)	ND (1.0)	1,100	-12	9.0
		20-Dec-12 FD	ND (0.2)	ND (1.0)	1,100	FD	FD
OW-3S	SA	05-Dec-11	27.9	29.1	1,500	67	7.7
		13-Nov-12	26.8	23.5	1,500	65	7.6
OW-3M	MA	05-Dec-11	17.8	18.7	5,600	15	8.0
		13-Nov-12	16.5	15.2	5,600	17	7.8
OW-3D	DA	06-Dec-11	9.5	11.0	8,900	40	8.1
		13-Nov-12	9.5	10.8	8,600	12	7.7
PE-1	DA	06-Sep-11	9.5	9.0	5,040	---	---
		04-Oct-11	11.1	10.1	4,930	---	---
		01-Nov-11	10.3	10.3	4,960	---	---
		06-Dec-11	10.9	10.8	4,900	---	---
		03-Jan-12	11.6	12.3	4,960	---	---
		07-Feb-12	9.2	9.9	4,840	---	---
		06-Mar-12	7.9	9.0	4,910	---	---
		03-Apr-12	7.4	7.5	4,910	---	---
		01-May-12	6.9	7.7	5,040	---	---
		05-Jun-12	6.5	6.8	4,960	---	---

Refer to table footnotes for data qualifier explanation.

Table 3-1
Groundwater Sampling Results, September 2011 through December 2012
Fourth Quarter 2012 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Location ID	Aquifer Zone	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Selected Field Parameters	
						ORP (mV)	Field pH
PE-1	DA	02-Jul-12	6.6	6.9	4,870	---	---
		07-Aug-12	6.2	7.3	4,830	---	---
		04-Sep-12	6.8	8.8	4,770	---	---
		02-Oct-12	6.3	7.0	4,700	---	---
		06-Nov-12	6.9	8.0	4,760	---	---
		04-Dec-12	7.0	7.3	4,760	---	---
PGE-7BR	BR	07-Dec-11	ND (1.0)	ND (1.0)	18,000	-310	7.3
		11-Dec-12	ND (1.0)	ND (1.0)	18,000	-230	7.7
PGE-8	BR	08-Dec-11	ND (1.0)	2.1	18,000	-320	8.1
		07-Nov-12	ND (1.0)	1.6	23,000	-300	8.4
Park Moabi-3	MA	12-Dec-11	6.6	7.0 UF	1,400	13	7.5
		08-Nov-12	7.2	8.3 UF	1,600	-13	7.8
Park Moabi-4	MA	12-Dec-11	18.9	18.2 UF	1,800	---	7.7
		08-Nov-12	21.3	23.0 UF	2,200	430	7.8
TW-1	SA-MA-DA	28-Sep-11	3,200	3,040	7,000	170	7.3
		15-Dec-11	3,610	3,510	7,400	130	7.2
		10-Feb-12	3,460	3,680	7,200	130	7.2
		16-May-12	3,090	3,400	7,100	41	7.3
		01-Oct-12	3,190	3,190	7,400	110	7.3
		11-Dec-12	3,100	3,230	7,300	-15	7.2
		11-Dec-12 FD	2,980	3,090	7,600	FD	FD
TW-2S	SA-MA	12-Dec-11	619	662	2,400	140	7.7
		12-Dec-11 FD	511	680	2,300	FD	FD
		13-Dec-12	478	516	2,400	-27	7.6
TW-2D	DA	12-Dec-11	339	362	9,000	190	7.3
		13-Dec-12	192	228	9,000	-33	7.1
TW-3D	DA	06-Sep-11	1,000	992	8,510	---	---
		04-Oct-11	991	1,010	8,420	---	---
		01-Nov-11	1,060	1,070	8,610	---	---
		06-Dec-11	1,080	1,150	8,430	---	---
		03-Jan-12	938	1,080	8,530	---	---
		07-Feb-12	987	1,040	8,650	---	---
		06-Mar-12	1,040	1,250	8,560	---	---
		03-Apr-12	937	929	8,450	---	---

Refer to table footnotes for data qualifier explanation.

Table 3-1
Groundwater Sampling Results, September 2011 through December 2012
Fourth Quarter 2012 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Location ID	Aquifer Zone	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Selected Field Parameters	
						ORP (mV)	Field pH
TW-3D	DA	01-May-12	951	990	8,470	---	---
		05-Jun-12	922	906	8,370	---	---
		02-Jul-12	922	878	8,290	---	---
		07-Aug-12	885	946	8,200	---	---
		04-Sep-12	788	931	8,260	---	---
		02-Oct-12	1,000	975	8,250	---	---
		06-Nov-12	953	891	8,300	---	---
		04-Dec-12	893	879	8,470	---	---
TW-4	DA	08-Dec-11	9.0	9.9	19,000	29	7.7
		15-Nov-12	7.7	9.1	22,000	120	7.5
TW-5	DA	06-Dec-11	14.0	14.6	15,000	49	7.9
		15-Nov-12	13.5	15.6	16,000	160	7.4

Refer to table footnotes for data qualifier explanation.

Notes:

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

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

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

Monitoring wells MW-11, MW-24A, MW-24B, MW-38S, and MW-38D are currently sampled as part of the upland in-situ pilot test monitoring. Results from these wells are presented in the in-situ pilot test reports (ARCADIS, 2012) and are not included in this table.

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

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

Table 3-2
Groundwater COPCs, In Situ Byproducts, and Other Analytes Sampling Results, January 2012 through December 2012
Fourth Quarter 2012 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California

Well ID	Aquifer Zone	Sample Date	Arsenic Dissolved (µg/L)	Fluoride Dissolved (mg/L)	Molybdenum Dissolved (µg/L)	Selenium Dissolved (µg/L)	Manganese Dissolved (µg/L)	Nitrate as N (mg/L)
MW-9	SA	05-Dec-12	---	---	1.7	5.2	ND (0.5)	11.0
MW-10	SA	15-May-12	---	5.00	39.0	6.2	---	10.0
		10-Dec-12	5.4	6.90	57.0	5.2	ND (0.5)	12.5
MW-12	SA	09-Feb-12	47.0	---	12.0	11.0	---	9.80
		07-May-12	47.0	---	9.9	13.0	---	11.0
		02-Oct-12	42.4	---	10.3	13.0	ND (0.5)	10.0
		27-Nov-12	38.5	---	12.7	13.6	ND (0.5)	13.1
MW-13	SA	11-Dec-12	2.0	---	---	---	ND (0.5)	4.80
MW-14	SA	13-Dec-12	---	---	---	---	ND (0.5)	5.16
MW-15	SA	15-Nov-12	---	---	---	---	ND (0.5)	4.73
MW-16	SA	24-Apr-12	11.0	---	13.0	1.7	ND (0.5)	---
		08-Nov-12	11.0	---	13.0	1.9	ND (0.5)	3.56
MW-17	SA	25-Apr-12	1.4	---	15.0	10.0	ND (0.5)	---
		03-Dec-12	1.4	---	23.0	9.7	ND (0.5)	4.87
MW-18	SA	04-Dec-12	---	---	---	---	ND (0.5)	4.36
MW-19	SA	04-Oct-12	0.83	---	6.5	ND (5.0)	ND (0.5)	4.20
		26-Nov-12	1.0	---	6.5	ND (5.0)	ND (0.5)	4.88
MW-20-70	SA	07-May-12	---	---	41.0	7.3	---	10.0
		04-Oct-12	2.6	---	39.5	6.3	ND (0.5)	8.40
		27-Nov-12	1.9	---	38.9	5.9	0.55	10.6
MW-20-100	MA	08-May-12	---	---	3.9	11.0	---	15.0
		04-Oct-12	1.7	---	3.9	6.8	ND (0.5)	12.0
		29-Nov-12	2.9	---	4.3	5.1	ND (0.5)	12.9
MW-20-130	DA	10-May-12	5.8	---	43.0	20.0	ND (2.5)	11.0
		09-Oct-12	5.6	---	43.0	27.0	ND (0.5)	12.0
		29-Nov-12	5.3 J	---	40.5	20.4	ND (0.5)	14.1
		29-Nov-12 FD	1.3 J	---	41.3	20.7	ND (0.5)	14.1
MW-21	SA	26-Apr-12	---	---	60.0	17.0	---	1.80
		13-Nov-12	---	---	76.0	40.0	120	2.18
MW-22	SA	11-Apr-12	12.0	---	32.0	ND (2.5)	2900	---
		10-Dec-12	16.0	---	30.0	8.3	7200	0.0257
MW-23-060	BR	14-Feb-12	3.3	---	9.6	4.5 J	ND (10)	---
		30-Apr-12	2.6	---	---	---	ND (2.5)	---
		30-Apr-12 FD	2.2	---	---	---	ND (2.5)	---
		12-Sep-12	5.9	---	---	---	ND (0.5)	---
		08-Nov-12	5.3	---	---	---	ND (0.5)	5.73

Table 3-2
Groundwater COPCs, In Situ Byproducts, and Other Analytes Sampling Results, January 2012 through December 2012
Fourth Quarter 2012 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California

Well ID	Aquifer Zone	Sample Date	Arsenic Dissolved (µg/L)	Fluoride Dissolved (mg/L)	Molybdenum Dissolved (µg/L)	Selenium Dissolved (µg/L)	Manganese Dissolved (µg/L)	Nitrate as N (mg/L)
MW-23-080	BR	14-Feb-12	3.7	---	31.0	5.3	ND (10)	---
		30-Apr-12	4.1	---	---	---	ND (12)	---
		12-Sep-12	3.3	---	---	---	ND (0.5)	---
		12-Sep-12 FD	3.0	---	---	---	ND (2.5)	---
		08-Nov-12	2.7	---	---	---	ND (0.5)	6.82
MW-24BR	BR	13-Nov-12	---	---	---	---	330	0.01
MW-25	SA	11-Dec-12	1.3	---	---	---	0.63	7.25
MW-26	SA	07-May-12	1.7	---	30.0	41.0	ND (2.5)	16.0
		04-Oct-12	1.7	---	26.5	40.5	ND (0.5)	14.0
		27-Nov-12	1.7	---	28.4	37.5	ND (0.5)	15.6
MW-27-20	SA	03-Dec-12	2.4	---	7.6	ND (0.5)	120	ND (0.01)
MW-27-60	MA	07-Feb-12	9.6	1.50	5.5	ND (0.5)	40.0	ND (0.5)
		01-Oct-12	7.4	0.69	3.5	ND (0.5)	120	ND (0.5)
		03-Dec-12	7.6	0.71	4.0	ND (0.5)	140	ND (0.01)
MW-27-85	DA	07-Feb-12	1.4	ND (10)	21.0	ND (2.5)	---	ND (2.5)
		09-Apr-12	1.4	---	---	---	---	---
		01-Oct-12	1.5	ND (5.0)	22.0	ND (0.5)	77.0	ND (2.5)
		03-Dec-12	1.8	ND (5.0)	24.0	ND (0.5)	92.0	0.0116
MW-28-25	SA	10-Apr-12	2.3	---	4.6	ND (5.0)	140	ND (0.5)
		05-Dec-12	1.5	---	5.4	0.53	21.0	0.0128
MW-28-90	DA	07-Feb-12	1.8	3.50	18.0	ND (2.5)	---	ND (1.0) J
		10-Apr-12	2.0 J	ND (5.0)	19.0	ND (2.5)	170	ND (1.0)
		10-Apr-12 FD	2.4 J	ND (5.0)	19.0	ND (5.0)	170	ND (1.0)
		10-Sep-12	2.0	3.10 J	20.0	ND (0.5)	160	ND (1.0)
		05-Dec-12	2.0	ND (2.5)	21.0	ND (0.5)	150	0.0111
MW-29	SA	10-Apr-12	7.9	---	23.0	5.1	---	ND (0.5)
		05-Dec-12	19.0 J	---	30.0 J	3.2 J	260	0.0765
		05-Dec-12 FD	14.0 J	---	23.0 J	4.3 J	260	0.0648
MW-30-30	SA	10-Apr-12	---	---	24.0	ND (2.5)	---	ND (2.5)
		03-Dec-12	2.0	---	87.0	ND (2.5)	350	0.0269
MW-30-50	MA	03-Dec-12	3.8	---	5.4	ND (0.5)	110	ND (0.01)
MW-31-60	SA	16-May-12	1.2	---	---	---	ND (0.5)	---
		13-Nov-12	1.2	---	---	---	ND (0.5)	3.30
MW-31-135	DA	15-Nov-12	3.7	---	26.0	ND (0.5)	ND (0.5)	0.774
MW-32-20	SA	05-Dec-12	3.4	---	---	---	660	1.16
MW-32-35	SA	09-Apr-12	30.0	---	---	---	1900	---

Table 3-2
Groundwater COPCs, In Situ Byproducts, and Other Analytes Sampling Results, January 2012 through December 2012
Fourth Quarter 2012 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California

Well ID	Aquifer Zone	Sample Date	Arsenic Dissolved (µg/L)	Fluoride Dissolved (mg/L)	Molybdenum Dissolved (µg/L)	Selenium Dissolved (µg/L)	Manganese Dissolved (µg/L)	Nitrate as N (mg/L)
MW-32-35	SA	05-Dec-12	28.0	---	---	---	1600	0.0274
MW-33-40	SA	08-Feb-12	15.0	13.0	200	3.2	---	ND (1.0)
		23-Apr-12	17.0	9.30	170	ND (0.5)	4.9	ND (1.0)
		10-Sep-12	13.0	12.0 J	250	0.82	3.5	ND (2.5)
		05-Dec-12	14.0	13.0	200	ND (0.5)	8.3 J	0.115
		05-Dec-12 FD	14.0	13.0	220	ND (0.5)	6.6 J	0.123
MW-33-90	MA	09-Feb-12	---	5.50	20.0	1.3	---	1.60
		30-Apr-12	---	4.20	20.0	ND (2.5)	ND (2.5)	1.50
		24-Sep-12	1.6	ND (5.0)	17.8	ND (5.0)	2.2	ND (2.5)
		08-Nov-12	1.1	5.50	19.4	ND (5.0)	2.1	1.57
MW-33-150	DA	09-Feb-12	1.8	ND (10)	39.0	0.62	5.1	ND (2.5)
		23-Apr-12	---	ND (10)	39.0	ND (2.5)	13.0 J	ND (2.5)
		23-Apr-12 FD	---	ND (10)	38.0	ND (2.5)	ND (0.5) J	ND (2.5)
		11-Sep-12	2.2	ND (10)	39.0	ND (2.5)	ND (2.5)	ND (2.5)
		06-Dec-12	2.0	ND (5.0)	41.0	0.76	6.0	1.43
MW-33-210	DA	09-Feb-12	1.2	ND (10)	17.0	ND (2.5)	5.5	ND (2.5)
		23-Apr-12	---	ND (10)	16.0	ND (2.5)	10.0	ND (2.5)
		11-Sep-12	1.3	ND (10)	17.0	ND (2.5)	5.5	ND (2.5)
		06-Dec-12	1.4	ND (5.0)	18.0	0.7	3.9	1.52
MW-34-55	MA	12-Dec-12	3.0	---	5.5	ND (0.5)	77.0	ND (0.01)
MW-34-80	DA	07-Feb-12	1.4	---	---	---	---	---
		09-Apr-12	1.4	---	---	---	39.0	---
		01-Oct-12	1.7	---	---	---	---	---
		12-Dec-12	1.4	---	---	---	33.0	ND (0.01)
		12-Dec-12 FD	1.5	---	---	---	32.0	ND (0.01)
MW-34-100	DA	18-Jan-12	2.2	---	---	---	---	---
		07-Feb-12	1.6	---	---	---	---	---
		07-Feb-12 FD	1.5	---	---	---	---	---
		09-Apr-12	1.6	---	---	---	---	---
		09-Apr-12 FD	1.1	---	---	---	---	---
		01-Oct-12	1.5	---	---	---	---	---
		01-Oct-12 FD	1.6	---	---	---	---	---
		26-Nov-12	1.8	---	52.0	ND (2.5)	17.0	0.444
		26-Nov-12 FD	1.9	---	55.0	ND (2.5)	16.0	0.421
		12-Dec-12	1.5	---	---	---	---	---
MW-35-60	SA	06-Feb-12	0.97	---	8.7	ND (2.5)	ND (0.5)	1.90
		26-Apr-12	1.1	---	10.0	1.1	ND (0.5)	2.00

Table 3-2
Groundwater COPCs, In Situ Byproducts, and Other Analytes Sampling Results, January 2012 through December 2012
Fourth Quarter 2012 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California

Well ID	Aquifer Zone	Sample Date	Arsenic Dissolved (µg/L)	Fluoride Dissolved (mg/L)	Molybdenum Dissolved (µg/L)	Selenium Dissolved (µg/L)	Manganese Dissolved (µg/L)	Nitrate as N (mg/L)
MW-35-60	SA	10-Sep-12	1.1	---	8.3	0.86	ND (0.5)	1.80
		04-Dec-12	1.1	---	9.3	1.0	ND (0.5)	2.18
MW-35-135	DA	26-Apr-12	---	---	22.0	ND (2.5)	---	2.50
		04-Dec-12	1.0	---	28.0	1.3	ND (0.5)	2.85
MW-36-20	SA	04-Dec-12	1.9	---	---	---	170	0.0396 J
		04-Dec-12 FD	1.8	---	---	---	170	ND (0.01) J
MW-36-40	SA	04-Dec-12	4.8	---	9.4	ND (0.5)	170	ND (0.01)
MW-36-50	MA	04-Dec-12	4.2	---	---	---	220	ND (0.01)
MW-36-70	MA	04-Dec-12	5.1	---	---	---	110	ND (0.01)
MW-36-90	DA	10-Apr-12	19.0	---	---	---	---	---
		04-Dec-12	22.0	---	---	---	7.5	ND (0.01)
MW-36-100	DA	10-Apr-12	7.4	---	39.0	ND (2.5)	71.0	ND (2.5)
		10-Oct-12	7.7	---	35.0	ND (0.5)	80.0	ND (2.5)
		08-Nov-12	6.2	---	34.9	ND (5.0)	85.3	0.0957
MW-37D	DA	04-Dec-12	---	---	45.0	ND (0.5)	ND (0.5)	0.207
MW-37S	MA	14-Nov-12	1.9	---	---	---	ND (0.5)	1.47
MW-39-50	MA	03-Dec-12	7.0	---	7.1	ND (0.5)	44.0	ND (0.01)
MW-39-60	MA	03-Dec-12	7.6	---	14.0	ND (0.5)	25.0	ND (0.01)
MW-39-70	MA	03-Dec-12	---	---	---	---	0.58	ND (0.01)
MW-39-80	DA	03-Dec-12	---	---	---	---	4.9	ND (0.01)
MW-39-100	DA	13-Dec-12	2.2	---	7.8	1.7	17.0	ND (0.01)
MW-40D	DA	03-Dec-12	4.7	---	53.0	2.1	5.4	3.32
MW-40S	SA	03-Dec-12	1.4	---	8.8	2.9	ND (0.5)	3.98
MW-41D	DA	26-Apr-12	2.7	---	---	---	56.0	---
		05-Nov-12	2.9	---	---	---	70.0	0.474
MW-41M	DA	05-Nov-12	2.5	---	---	---	ND (0.5)	0.72
MW-41S	SA	03-Dec-12	2.1	---	17.0	0.83	ND (0.5)	1.41
MW-42-30	SA	06-Dec-12	---	---	70.0	0.96	---	0.0121
MW-42-55	MA	07-Feb-12	13.0	---	---	---	---	---
		09-Apr-12	12.0	---	---	---	---	---
		11-Sep-12	12.0	---	---	---	---	---
		11-Sep-12 FD	12.0	---	---	---	---	---
		06-Dec-12	13.0	---	---	---	75.0	ND (0.01)
MW-42-65	MA	07-Feb-12	2.4	---	---	---	1700	---
		09-Apr-12	2.8	---	---	---	1200	---
		11-Sep-12	2.8	---	---	---	1000	---

Table 3-2
Groundwater COPCs, In Situ Byproducts, and Other Analytes Sampling Results, January 2012 through December 2012
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Well ID	Aquifer Zone	Sample Date	Arsenic Dissolved (µg/L)	Fluoride Dissolved (mg/L)	Molybdenum Dissolved (µg/L)	Selenium Dissolved (µg/L)	Manganese Dissolved (µg/L)	Nitrate as N (mg/L)
MW-42-65	MA	06-Dec-12	2.6	---	---	---	1300	ND (0.01)
MW-43-25	SA	10-Dec-12	23.0	---	---	---	240	0.0162
MW-43-75	DA	10-Dec-12	13.0	---	---	---	490	ND (0.01)
MW-43-90	DA	10-Dec-12	3.4	---	---	---	930	ND (0.01)
MW-44-70	MA	12-Apr-12	3.9	---	---	---	110	---
		06-Dec-12	4.5	---	---	---	110	ND (0.01)
MW-44-115	DA	08-Feb-12	5.5	---	82.0	3.4	2.1	ND (2.5)
		12-Apr-12	5.8	---	84.0	ND (2.5)	2.5	ND (2.5)
		12-Apr-12 FD	6.1	---	85.0	ND (2.5)	3.0	ND (2.5)
		27-Sep-12	3.6	---	77.0	ND (5.0)	5.0	ND (2.5)
		26-Nov-12	5.4	---	73.2	ND (5.0)	4.6	0.29
MW-44-125	DA	08-Feb-12	4.3	---	160	ND (2.5)	490	ND (2.5)
		08-Feb-12 FD	4.1	---	150	3.4	490	ND (1.0)
		12-Apr-12	3.7	---	69.0	ND (2.5)	380	ND (2.5)
		13-Sep-12	3.6	---	125	ND (5.0)	670	ND (2.5)
		13-Sep-12 FD	3.7	---	134	ND (5.0)	682	ND (2.5)
		06-Nov-12	3.6	---	141	ND (5.0)	508	0.384
		06-Nov-12 FD	3.4	---	148	ND (5.0)	493	0.363
MW-45-095a	DA	13-Dec-12	3.7	---	---	---	1.5	0.0472
MW-46-175	DA	08-Feb-12	---	---	190	ND (12)	---	ND (2.5)
		23-Apr-12	---	---	160	ND (2.5)	---	ND (2.5)
		26-Sep-12	1.2	---	158	ND (5.0)	9.9	ND (2.5)
		09-Nov-12	2.0	---	194	ND (5.0)	9.5	0.922
MW-46-205	DA	12-Dec-12	---	---	---	---	29.0	0.967
MW-47-55	SA	25-Apr-12	1.1	---	---	---	ND (0.5)	---
		24-Sep-12	1.4	---	9.3	ND (5.0)	0.61	1.60
		07-Nov-12	1.1	---	11.1	ND (5.0)	ND (0.5)	2.19
MW-47-115	DA	25-Sep-12	1.4	---	23.1	ND (5.0)	2.8	ND (2.5)
		07-Nov-12	1.7	---	24.2	ND (5.0)	2.4	2.09
MW-48	BR	07-Nov-12	---	---	---	---	19.0	0.0668
MW-49-135	DA	11-Dec-12	4.6	---	---	---	670	1.21
MW-49-275	DA	11-Dec-12	---	---	---	---	390	0.709
MW-49-365	DA	11-Dec-12	---	---	---	---	150	0.0129
MW-50-095	MA	19-Sep-12	2.4	---	16.0	ND (5.0)	ND (0.5)	1.40
		05-Nov-12	2.3	---	16.2	ND (5.0)	ND (0.5)	1.49
MW-50-200	DA	03-Oct-12	3.8	---	39.3	ND (5.0)	0.56	5.20

Table 3-2
Groundwater COPCs, In Situ Byproducts, and Other Analytes Sampling Results, January 2012 through December 2012
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Well ID	Aquifer Zone	Sample Date	Arsenic Dissolved (µg/L)	Fluoride Dissolved (mg/L)	Molybdenum Dissolved (µg/L)	Selenium Dissolved (µg/L)	Manganese Dissolved (µg/L)	Nitrate as N (mg/L)
MW-50-200	DA	03-Oct-12 FD	3.4	---	40.2	ND (5.0)	0.83	5.20
		29-Nov-12	3.8	---	38.3	ND (5.0)	1.7	5.80
MW-51	MA	08-May-12	4.1	---	43.0	16.0	ND (2.5)	10.0
		09-Oct-12	4.3	---	42.0	17.0	ND (0.5)	10.0
		28-Nov-12	4.9	---	40.0	14.6	ND (0.5)	12.4
MW-52D	DA	11-Apr-12	3.5	---	---	---	270	---
		05-Dec-12	3.7	---	---	---	260	ND (0.01)
MW-52M	DA	11-Apr-12	1.3	---	---	---	160	---
		05-Dec-12	1.7	---	---	---	150	ND (0.01)
MW-52S	MA	11-Apr-12	ND (1.0)	---	---	---	1000	---
		05-Dec-12	0.25	---	---	---	790	0.0198
MW-53D	DA	11-Apr-12	3.5	---	---	---	1800	---
		06-Dec-12	3.0	---	---	---	1500	ND (0.01)
MW-53M	DA	11-Apr-12	1.1	---	---	---	420	---
		05-Dec-12	1.0	---	---	---	420	0.0176
		05-Dec-12 FD	1.1	---	---	---	380	ND (0.01)
MW-54-85	DA	24-Apr-12	4.9	---	---	---	774	---
		12-Dec-12	3.3	---	---	---	897	0.23
MW-54-140	DA	24-Apr-12	ND (5.0)	---	---	---	197	---
		12-Dec-12	2.9	---	---	---	157	0.86
MW-54-195	DA	24-Apr-12	ND (5.0)	---	---	---	519	---
		24-Apr-12 FD	ND (5.0)	---	---	---	522	---
		12-Dec-12	ND (5.0)	---	---	---	657	ND (0.1)
MW-55-45	MA	03-Apr-12	4.7	---	29.0	ND (0.5)	---	---
		12-Dec-12	---	---	---	---	1080	ND (0.1)
MW-55-120	DA	03-Apr-12	5.2	---	26.0 J	ND (2.5)	---	---
		12-Dec-12	---	---	---	---	ND (10)	1.40
		12-Dec-12 FD	---	---	---	---	ND (10)	1.40
MW-56D	DA	06-Dec-12	---	---	---	---	742	ND (0.1)
MW-56M	DA	06-Dec-12	---	---	---	---	756	ND (0.1)
MW-56S	SA	06-Dec-12	---	---	---	---	846	1.13
MW-57-070	BR	15-Feb-12	1.2	---	ND (5.0)	3.6	---	---
		03-May-12	1.6	---	4.4	2.7	6.3	5.20
		13-Dec-12	1.4	---	2.2	3.5	5.4	8.35
		13-Dec-12 FD	1.4	---	2.3	3.4	5.8	7.99
MW-57-185	BR	10-Feb-12	12.0	---	69.0	ND (2.5)	470	ND (2.5)

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Groundwater COPCs, In Situ Byproducts, and Other Analytes Sampling Results, January 2012 through December 2012
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Well ID	Aquifer Zone	Sample Date	Arsenic Dissolved (µg/L)	Fluoride Dissolved (mg/L)	Molybdenum Dissolved (µg/L)	Selenium Dissolved (µg/L)	Manganese Dissolved (µg/L)	Nitrate as N (mg/L)
MW-57-185	BR	10-Feb-12 FD	13.0	---	72.0	ND (2.5)	500	ND (2.5)
		30-Apr-12	14.0	---	93.0	ND (2.5)	470	ND (2.5)
		11-Sep-12	14.0	---	86.0	ND (2.5)	400	ND (2.5)
		08-Nov-12	13.0	---	85.0	ND (0.5)	400	0.0298
MW-58BR-LWR-160	BR	09-Feb-12	1.6	---	17.0	1.9	---	---
		04-Oct-12	0.71	---	---	---	---	---
MW-58BR-UPR-160	BR	08-Feb-12	ND (0.5)	---	19.0	ND (2.5)	---	---
		03-Oct-12	0.49	---	---	---	---	---
MW-59-100	SA	22-Feb-12	2.0	---	ND (5.0)	3.8	ND (10)	4.10
		08-May-12	2.1	---	5.7	4.6	11.0	3.20
		02-Oct-12	2.9	---	4.9	ND (5.0)	1.3	3.60
		28-Nov-12	4.4	---	4.3	ND (5.0)	0.78	4.52
MW-60-125	BR	15-Feb-12	1.2	---	14.0	5.5	15.0	3.50
		03-May-12	1.7	---	19.0	5.4	11.0	3.00
		20-Sep-12	1.7	---	18.0	5.2	10.0	2.90
		06-Dec-12	1.8	---	21.0	6.2	14.0	4.26
MW-60BR-245	BR	16-Feb-12	4.0	---	43.0	ND (12) J	13.0	ND (2.5)
		17-May-12	8.8	---	56.0	ND (2.5)	12.0	ND (2.5)
		19-Sep-12	8.1	---	54.0	ND (2.5)	5.9	ND (2.5)
		05-Dec-12	8.1	---	62.0	2.1	9.6	0.231
MW-61-110	BR	15-Feb-12	3.2	---	16.0	ND (2.5)	220	ND (2.5)
		03-May-12	3.2	---	22.0	ND (2.5)	280	ND (2.5)
		27-Sep-12	2.0	---	24.1	ND (5.0)	172	ND (2.5)
		27-Sep-12 FD	2.1	---	20.2	ND (5.0)	165	ND (2.5)
		27-Nov-12	3.2	---	21.9	ND (5.0)	165	0.866
		27-Nov-12 FD	3.1	---	20.9	ND (5.0)	179	0.899
MW-62-065	BR	17-Feb-12	1.5	---	11.0	3.1	---	---
		02-May-12	1.8	---	18.0	ND (2.5)	4.2	2.90
		10-Dec-12	1.4	---	15.0	3.5	1.1	3.70
MW-62-110	BR	16-Feb-12	6.3	---	44.0	ND (12)	190	3.20
		10-May-12	8.8	---	50.0	3.4	180	2.90
		13-Sep-12	8.5	---	45.0	3.6	140	4.20
		11-Dec-12	12.0	---	46.0	3.4	130	3.61
MW-62-190	BR	16-Feb-12	6.4	---	63.0	ND (12)	840	ND (2.5)
		10-May-12	5.4	---	68.0	ND (2.5)	760	ND (2.5)
		13-Sep-12	5.9	---	76.0	ND (2.5)	790	ND (2.5)
		11-Dec-12	5.8	---	82.0	3.3	710	0.0304

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Well ID	Aquifer Zone	Sample Date	Arsenic Dissolved (µg/L)	Fluoride Dissolved (mg/L)	Molybdenum Dissolved (µg/L)	Selenium Dissolved (µg/L)	Manganese Dissolved (µg/L)	Nitrate as N (mg/L)
MW-63-065	BR	13-Feb-12	1.2	---	21.0	0.83	44.0	ND (1.0)
		26-Apr-12	1.2	---	26.0	ND (2.5)	30.0	1.10
		10-Sep-12	1.7	---	20.0	1.8	11.0	1.10
		07-Nov-12	1.5	---	19.0	0.93	140	1.05
MW-64BR-LWR-150	BR	16-Feb-12	3.6	---	57.0	ND (2.5)	---	---
		10-Oct-12	1.7	---	---	---	---	---
MW-64BR-UPR-150	BR	13-Feb-12	1.7	---	49.0	1.8	---	---
		08-Oct-12	7.4	---	---	---	---	---
MW-65-160	SA	16-Feb-12	0.82	---	28.0	6.2	250	7.60
		01-May-12	0.96	---	31.0	7.1	140	8.00
		18-Sep-12	0.9	---	29.0	6.4	68.0	8.60
		04-Dec-12	0.88	---	29.0	8.5	33.0	11.4
MW-65-225	DA	16-Feb-12	2.0	---	31.0	5.1	190	5.60
		02-May-12	2.2	---	38.0	4.1	140	5.00
		18-Sep-12	2.3	---	34.0	5.8	91.0	8.10
		05-Dec-12	2.3	---	38.0	8.1	49.0	11.2
MW-66-165	SA	17-Feb-12	1.3	---	6.0	40.0	12.0	32.0
		02-May-12	1.3	---	7.4	43.0	ND (2.5)	30.0
		17-Sep-12	1.8	---	6.4	36.0	ND (2.5)	30.0
		06-Dec-12	1.3	---	7.1	37.0	ND (0.5)	38.4
MW-66-230	DA	22-Feb-12	4.1	---	77.0	6.5	41.0	8.80
		10-May-12	4.8	---	82.0	9.6	27.0	9.50
		10-May-12 FD	5.4	---	86.0	9.9	29.0	9.40
		17-Sep-12	6.9	---	79.0	10.0	26.0	12.0
		10-Dec-12	6.3	---	84.0	12.0	18.0	15.2
MW-66BR-270	BR	16-Jan-12	0.32	ND (10)	39.0	ND (0.5)	ND (10)	ND (2.5)
		07-Mar-12	ND (0.5)	---	19.0	ND (12)	11.0	ND (2.5)
		24-May-12	ND (0.5)	---	27.0	ND (2.5)	73.0	ND (2.5)
		02-Oct-12	0.32	---	28.0	7.5	ND (0.5)	ND (2.5)
		20-Dec-12	0.24	---	36.0	0.85	41.0	0.0776
MW-67-185	SA	21-Feb-12	1.8	---	15.0	55.0	31.0	14.0
		03-May-12	1.7	---	16.0	100	8.3	19.0
		20-Sep-12	1.7	---	14.0	86.0	5.6	19.0
		06-Dec-12	1.8	---	12.0	110	ND (0.5)	21.6
MW-67-225	MA	21-Feb-12	2.5	---	30.0	63.0	110	17.0
		21-Feb-12 FD	2.8	---	30.0	75.0	110	17.0
		07-May-12	2.8	---	33.0	79.0	83.0	18.0

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Well ID	Aquifer Zone	Sample Date	Arsenic Dissolved (µg/L)	Fluoride Dissolved (mg/L)	Molybdenum Dissolved (µg/L)	Selenium Dissolved (µg/L)	Manganese Dissolved (µg/L)	Nitrate as N (mg/L)
MW-67-225	MA	20-Sep-12	2.8	---	33.0	67.0	42.0	19.0
		10-Dec-12	3.2	---	33.0	80.0	32.0	20.6
MW-67-260	DA	21-Feb-12	8.4	---	78.0	ND (2.5)	390	ND (2.5)
		07-May-12	12.0	---	81.0	ND (2.5)	230	ND (2.5)
		20-Sep-12	11.0	---	81.0	1.6	190	ND (5.0)
		06-Dec-12	12.0	---	85.0	2.1	170	1.56
MW-68-180	SA	22-Feb-12	2.5	---	39.0	13.0	ND (10)	24.0
		10-May-12	2.9	---	37.0	10.0	ND (2.5)	12.0
		20-Sep-12	2.2	---	42.0	13.0	ND (0.5)	25.0
		11-Dec-12	2.7	---	47.0	18.0 J	ND (0.5) J	31.0
		11-Dec-12 FD	2.8	---	47.0	25.0 J	41.0 J	30.5
MW-68-240	DA	17-Feb-12	1.6	---	13.0	4.9	150	3.50
		03-May-12	1.9	---	21.0	4.8	140	3.60
		20-Sep-12	1.7	---	19.0	4.1	100	ND (5.0)
		06-Dec-12	2.0	---	23.0	5.1	94.0	4.82
MW-68BR-280	BR	14-Feb-12	1.8	---	65.0	ND (2.5)	340	ND (2.5)
		09-May-12	2.4	---	94.0	ND (2.5)	270	ND (2.5)
		03-Oct-12	2.5	---	95.0	ND (2.5)	220	ND (2.5)
		12-Nov-12	2.1	---	90.0	ND (2.5)	300	0.01
MW-69-195	BR	17-Feb-12	2.4	---	41.0	12.0	14.0	17.0
		02-May-12	2.1	---	46.0	15.0	6.7	19.0
		19-Sep-12	2.1	---	50.0	14.0	3.9	22.0
		05-Dec-12	2.1	---	57.0	15.0	1.8	20.3
MW-70-105	BR	16-Feb-12	4.5	---	130	0.87	230	0.88
		01-May-12	5.4	---	120	2.0	220	2.00
		12-Sep-12	6.2	---	120	2.2	220	2.00
		04-Dec-12	5.2	---	110	2.2	210	2.05
MW-70BR-225	BR	16-Feb-12	1.9	---	12.0	2.7	ND (10)	3.40
		17-May-12	2.0	---	18.0	ND (2.5)	ND (0.5)	3.60
		17-May-12 FD	2.1	---	18.0	2.6	ND (0.5)	3.60
		18-Sep-12	2.1	---	16.0	ND (5.0)	ND (0.5)	3.60
		13-Dec-12	1.9	---	19.0	3.1	ND (0.5)	3.80
MW-71-035	SA	15-Feb-12	1.8	---	64.0	2.4	340	2.70
		03-May-12	1.7	---	91.0	ND (2.5)	65.0	ND (2.5)
		19-Sep-12	1.7	---	58.0	2.5	190	1.30
		08-Nov-12	1.4	---	65.0	2.3	69.0	1.66
MW-72-080	BR	13-Feb-12	9.4	---	68.0	ND (2.5)	200	ND (2.5)

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Well ID	Aquifer Zone	Sample Date	Arsenic Dissolved (µg/L)	Fluoride Dissolved (mg/L)	Molybdenum Dissolved (µg/L)	Selenium Dissolved (µg/L)	Manganese Dissolved (µg/L)	Nitrate as N (mg/L)
MW-72-080	BR	01-May-12	9.7	---	75.0	ND (2.5)	210	ND (2.5)
		19-Sep-12	11.0	---	76.0	2.0	120	ND (2.5)
		05-Dec-12	11.0	---	77.0	1.8	100	1.47
MW-72BR-200	BR	23-Jul-12	13.0	---	65.0	ND (2.5)	---	---
		24-Jul-12	9.2	---	57.0	ND (2.5)	---	---
		13-Sep-12	15.0	ND (10)	63.0	ND (2.5)	28.0	ND (2.5)
		13-Sep-12 FD	15.0	ND (10)	63.0	ND (2.5)	30.0	ND (2.5)
		14-Nov-12	15.0	---	77.0	ND (0.5)	15.0	0.0982
MW-73-080	BR	14-Feb-12	1.3	---	17.0	4.7	37.0	5.30
		02-May-12	1.4	---	23.0	5.4	33.0	4.80
		13-Sep-12	1.6	---	23.0	6.2	22.0	4.60
		05-Dec-12	1.5	---	24.0	4.8	21.0	4.98
MW-74-240	BR	16-Jan-12	58.0	4.70	190	3.6	ND (10)	ND (0.5)
		17-Feb-12	15.0	---	150	2.7	ND (10)	ND (0.5)
		10-May-12	15.0	---	210	ND (2.5)	ND (2.5)	ND (0.5)
		27-Sep-12	9.3	---	47.0	3.8	4.9	ND (0.5)
		20-Dec-12	15.0	---	110	1.4	3.3	0.0739 J
		20-Dec-12 FD	16.0	---	110	1.1	3.3	0.0549 J
OW-3D	DA	13-Nov-12	2.6	---	26.0	0.54	ND (0.5)	0.699
OW-3M	MA	13-Nov-12	---	---	---	---	ND (0.5)	0.974
OW-3S	SA	13-Nov-12	---	---	---	---	ND (0.5)	3.50
PE-1	DA	04-Dec-12	---	---	---	---	44.2	ND (0.5)
PGE-7BR	BR	11-Dec-12	---	---	---	---	400	2.14
PGE-8	BR	07-Nov-12	---	---	100	ND (0.5)	580	0.0111
Park Moabi-3	MA	08-Nov-12	---	---	---	---	ND (0.5)	3.12
Park Moabi-4	MA	08-Nov-12	---	---	---	---	4.6	2.52
TW-1	SA-MA-DA	10-Feb-12	---	---	15.0	24.0	---	24.0
		16-May-12	---	---	15.0	22.0	---	22.0
		01-Oct-12	---	---	14.0	20.0	---	22.0
		11-Dec-12	---	---	15.0	23.0	ND (0.5)	23.1
		11-Dec-12 FD	---	---	15.0	24.0	1.5	22.7
TW-2D	DA	13-Dec-12	---	---	---	---	7.9	1.32
TW-2S	SA-MA	13-Dec-12	---	---	---	---	ND (0.5)	4.68
TW-3D	DA	04-Dec-12	---	---	---	---	5.8	4.01
TW-4	DA	15-Nov-12	---	---	---	---	58.0	1.25
TW-5	DA	15-Nov-12	---	---	---	---	ND (0.5)	1.26

Notes:

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

Starting in Fourth Quarter 2012, nitrate samples were analyzed using USEPA method 353.2, except for TW-3D and PE-1, which were still analyzed using USEPA method 300.0. USEPA method 353.2 reports a combination of nitrate and nitrite as nitrogen. The contribution of nitrite to the reported result of nitrate plus nitrite as nitrogen is expected to be negligible; therefore, sample results for USEPA method 353.2 are expected to be essentially the same as previous samples analyzed using USEPA method 300.0 and reported as nitrate as nitrogen.

The Background Study Upper Tolerance Limit (UTL) for arsenic is 24.3 µg/L.
The USEPA and California maximum contaminant level (MCL) for arsenic is 10 µg/L.
The Background Study UTL for molybdenum is 36.3 µg/L.
There is no USEPA or California MCL for molybdenum.
The Background Study UTL for selenium is 10.3 µg/L.
The USEPA and California MCL for selenium is 50.0 µg/L.
The secondary USEPA and California MCL for manganese is 50 ug/L.
The Background Study UTL for nitrate as N is 5.03 mg/L.
The USEPA and California MCL for nitrate as N 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).
BR-S = well completed in shallow portion of BR.
BR-M = well completed in middle portion of BR.
BR-D = well completed in deep portion of BR.

Table 3-3
Title 22 Metals Results, January 2012 through December 2012
Fourth Quarter 2012 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Well ID	Sample Date	Antimony	Arsenic	Barium	Beryllium	Cadmium	Cobalt	Chromium	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
	California MCL:	6	10	1,000	4	5	NE	50	1,000*	15	2	NE	100	50	100*	2	NE	5,000*
MW-10	12/10/2012	ND (0.5)	5.4	46.0	ND (1.0)	ND (3.0)	ND (3.0)	461	ND (5.0)	ND (10)	ND (0.2)	57.0	ND (5.0)	5.2	ND (3.0)	ND (0.5)	26.0	100 J
MW-12	02/09/2012	ND (10)	47.0	58.0	ND (1.0)	ND (3.0)	ND (3.0)	3,100	ND (5.0)	ND (10)	ND (0.2)	12.0	ND (5.0)	11.0	ND (3.0)	ND (2.5)	15.0	ND (10)
	05/07/2012	ND (2.5)	47.0	58.0	ND (1.0) J	ND (3.0)	ND (3.0)	2,880	ND (5.0)	ND (10)	ND (0.2)	9.9	ND (5.0)	13.0	ND (3.0)	ND (2.5)	12.0	ND (10)
	10/02/2012	7.1	42.4	61.8	ND (0.5)	ND (1.0)	ND (5.0)	2,970	ND (5.0)	ND (1.0)	ND (1.0)	10.3	ND (2.0)	13.0	ND (5.0)	ND (1.0)	19.0	ND (10)
	11/27/2012	ND (2.0)	38.5	56.5	ND (0.5)	ND (1.0)	ND (5.0)	2,630	ND (5.0)	ND (1.0)	ND (0.5)	12.7	ND (2.0)	13.6	ND (5.0)	ND (1.0)	19.6	ND (20)
MW-22	04/11/2012	ND (2.5)	12.0	50.0	ND (2.5)	ND (2.5)	ND (15)	ND (1.0)	ND (25)	ND (10)	ND (0.2)	32.0	ND (25)	ND (2.5)	ND (15)	ND (5.0)	ND (15)	ND (50)
	12/10/2012	ND (0.5)	16.0	99.0	ND (2.0)	ND (6.0)	ND (6.0)	ND (1.0)	10.0	ND (50)	ND (0.2)	30.0	ND (10)	8.3	18.0	ND (2.5)	ND (6.0)	ND (20)

Notes:
* = Secondary USEPA MCL.
FD = field duplicate sample.
MCL = maximum contaminant level
ND = not detected at listed reporting limit.
NE = not established.
USEPA = United States Environmental Protection Agency
µg/L = micrograms per liter.

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

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

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

Metals analyzed by Methods SW6010B or SW6020A OR SW7470A.

Table 3-4
Surface Water Sampling Results, January 2012 through December 2012
Fourth Quarter 2012 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Location	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Lab pH
In-channel Locations					
C-BNS-D	01/10/2012	ND (0.2)	ND (1.0)	910	8.0 J
C-BNS-D	02/28/2012	ND (0.2)	ND (1.0)	915	8.0 J
C-BNS-D	05/22/2012	ND (0.2)	ND (1.0)	908	8.2 J
C-BNS-D	08/21/2012	ND (0.2)	ND (1.0)	897	7.9 J
C-BNS-D	11/01/2012	ND (0.2)	ND (1.0)	893	8.2 J
C-CON-S	01/11/2012	ND (0.2)	ND (1.0)	921	8.0 J
C-CON-S	02/29/2012	ND (0.2)	ND (1.0)	914	8.1 J
C-CON-S	05/23/2012	ND (0.2)	ND (1.0)	899	8.1 J
C-CON-S	08/22/2012	ND (0.2)	ND (1.0)	894	8.1 J
C-CON-S	11/02/2012	ND (0.2)	ND (1.0)	900	8.3 J
C-CON-D	01/11/2012	ND (0.2)	ND (1.0)	920	8.0 J
C-CON-D	02/29/2012	ND (0.2)	ND (1.0)	911	8.0 J
C-CON-D	05/23/2012	ND (0.2)	ND (1.0)	907	8.1 J
C-CON-D	08/22/2012	ND (0.2)	ND (1.0)	893	8.1 J
C-CON-D	11/02/2012	ND (0.2)	ND (1.0)	890	8.3 J
C-I-3-S	01/10/2012	ND (0.2)	ND (1.0)	890	8.2 J
C-I-3-S	02/28/2012	ND (0.2)	ND (1.0)	911	8.1 J
C-I-3-S	05/22/2012	ND (0.2)	ND (1.0)	892	8.2 J
C-I-3-S	08/21/2012	ND (0.2)	ND (1.0)	897	8.0 J
C-I-3-S	11/01/2012	ND (0.2)	ND (1.0)	895	8.2 J
C-I-3-D	01/10/2012	ND (0.2)	ND (1.0)	878	8.2 J
C-I-3-D	02/28/2012	ND (0.2)	ND (1.0)	914	8.0 J
C-I-3-D	05/22/2012	ND (0.2)	ND (1.0)	907	8.2 J
C-I-3-D	08/21/2012	ND (0.2)	ND (1.0)	898	8.0 J
C-I-3-D	11/01/2012	ND (0.2)	ND (1.0)	893	8.2 J
C-MAR-S	01/11/2012	ND (0.2)	ND (1.0)	915	8.1 J
C-MAR-S	02/28/2012	ND (0.2)	ND (1.0)	996	7.6 J
C-MAR-S	05/23/2012	ND (0.2)	ND (1.0)	920	7.7 J
C-MAR-S	08/21/2012	ND (0.2)	ND (1.0)	947	7.8 J
C-MAR-S	11/01/2012	ND (0.2)	ND (1.0)	972	7.7 J
C-MAR-D	01/11/2012	ND (0.2)	ND (1.0)	921	8.1 J
C-MAR-D	02/28/2012	ND (0.2)	ND (1.0)	998	7.7 J
C-MAR-D	05/23/2012	ND (0.2)	ND (1.0)	919	7.8 J
C-MAR-D	08/21/2012	ND (0.2)	ND (1.0)	935	7.8 J
C-MAR-D	11/01/2012	ND (0.2)	ND (1.0)	967	7.7 J
C-NR1-S	01/11/2012	ND (0.2)	ND (1.0)	916	8.1 J
C-NR1-S	02/29/2012	ND (0.2)	ND (1.0)	911	8.1 J

Table 3-4
Surface Water Sampling Results, January 2012 through December 2012
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Location	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Lab pH
In-channel Locations					
C-NR1-S	05/23/2012	ND (0.2)	ND (1.0)	910	8.1 J
C-NR1-S	08/22/2012	ND (0.2)	ND (1.0)	898	8.1 J
C-NR1-S	11/02/2012	ND (0.2)	ND (1.0)	899	8.3 J
C-NR1-D	01/11/2012	ND (0.2)	ND (1.0)	916	8.1 J
C-NR1-D	02/29/2012	ND (0.2)	ND (1.0)	912	8.1 J
C-NR1-D	05/23/2012	ND (0.2)	ND (1.0)	908	8.1 J
C-NR1-D	08/22/2012	ND (0.2)	ND (1.0)	893	8.1 J
C-NR1-D	11/02/2012	ND (0.2)	ND (1.0)	895	8.3 J
C-NR3-S	01/10/2012	ND (0.2)	ND (1.0)	918	8.2 J
C-NR3-S	02/29/2012	ND (0.2)	ND (1.0)	914	8.1 J
C-NR3-S	05/23/2012	ND (0.2)	ND (1.0)	909	8.2 J
C-NR3-S	08/22/2012	ND (0.2)	ND (1.0)	900	8.1 J
C-NR3-S	11/02/2012	ND (0.2)	ND (1.0)	896	8.1 J
C-NR3-D	01/10/2012	ND (0.2)	ND (1.0)	893	8.1 J
C-NR3-D	02/29/2012	ND (0.2)	ND (1.0)	910	8.1 J
C-NR3-D	05/23/2012	ND (0.2)	ND (1.0)	908	8.2 J
C-NR3-D	08/22/2012	ND (0.2)	ND (1.0)	899	8.1 J
C-NR3-D	11/02/2012	ND (0.2)	ND (1.0)	893	8.3 J
C-NR4-S	01/11/2012	ND (0.2)	ND (1.0)	913	8.2 J
C-NR4-S	02/29/2012	ND (0.2)	ND (1.0)	915	8.2 J
C-NR4-S	05/23/2012	ND (0.2)	ND (1.0)	905	8.2 J
C-NR4-S	08/22/2012	ND (0.2)	ND (1.0)	897	8.1 J
C-NR4-S	11/02/2012	ND (0.2)	ND (1.0)	883	8.2 J
C-NR4-D	01/11/2012	ND (0.2)	ND (1.0)	916	8.1 J
C-NR4-D	02/29/2012	ND (0.2)	ND (1.0)	914	8.2 J
C-NR4-D	05/23/2012	ND (0.2)	ND (1.0)	906	8.1 J
C-NR4-D	08/22/2012	ND (0.2)	ND (1.0)	896	8.1 J
C-NR4-D	11/02/2012	ND (0.2)	ND (1.0)	899	8.3 J
C-R22a-S	01/10/2012	ND (0.2)	ND (1.0)	932	8.3 J
C-R22a-S	02/28/2012	ND (0.2)	ND (1.0)	916	8.1 J
C-R22a-S	05/22/2012	ND (0.2)	ND (1.0)	905	8.2 J
C-R22a-S	08/21/2012	ND (0.2)	ND (1.0)	890	8.1 J
C-R22a-S	11/01/2012	ND (0.2)	ND (1.0)	892	8.2 J
C-R22a-D	01/10/2012	ND (0.2)	ND (1.0)	932	8.2 J
C-R22a-D	02/28/2012	ND (0.2)	ND (1.0)	909	8.0 J
C-R22a-D	05/22/2012	ND (0.2)	ND (1.0)	908	8.2 J
C-R22a-D	08/21/2012	ND (0.2)	ND (1.0)	899	8.1 J

Table 3-4
Surface Water Sampling Results, January 2012 through December 2012
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Location	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Lab pH
In-channel Locations					
C-R22a-D	11/01/2012	ND (0.2)	ND (1.0)	893	8.2 J
C-R27-S	01/10/2012	ND (0.2)	ND (1.0)	921	8.3 J
C-R27-S	02/28/2012	ND (0.2)	ND (1.0)	906	8.1 J
C-R27-S	05/22/2012	ND (0.2)	ND (1.0)	907	8.2 J
C-R27-S	08/21/2012	ND (0.2)	ND (1.0)	894	8.1 J
C-R27-S	11/01/2012	ND (0.2)	ND (1.0)	891	8.2 J
C-R27-D	01/10/2012	ND (0.2)	ND (1.0)	931	8.2 J
C-R27-D	02/28/2012	ND (0.2)	ND (1.0)	915	8.1 J
C-R27-D	05/22/2012	ND (0.2)	ND (1.0)	905	8.2 J
C-R27-D	08/21/2012	ND (0.2)	ND (1.0)	890	8.1 J
C-R27-D	11/01/2012	ND (0.2)	ND (1.0)	892	8.2 J
C-TAZ-S	01/10/2012	ND (0.2)	ND (1.0)	913	8.1 J
C-TAZ-S	02/28/2012	ND (0.2)	ND (1.0)	917	8.1 J
C-TAZ-S	05/22/2012	ND (0.2)	ND (1.0)	901	8.2 J
C-TAZ-S	08/21/2012	ND (0.2)	ND (1.0)	896	8.1 J
C-TAZ-S	11/01/2012	ND (0.2)	ND (1.0)	889	8.2 J
C-TAZ-D	01/10/2012	ND (0.2)	ND (1.0)	913	8.2 J
C-TAZ-D	02/28/2012	ND (0.2)	ND (1.0)	911	8.1 J
C-TAZ-D	05/22/2012	ND (0.2)	ND (1.0)	903	8.2 J
C-TAZ-D	08/21/2012	ND (0.2)	ND (1.0)	899	8.1 J
C-TAZ-D	11/01/2012	ND (0.2)	ND (1.0)	890	8.2 J
Shoreline Samples					
R-19	01/11/2012	ND (0.2)	ND (1.0)	920	8.2 J
R-19	02/29/2012	ND (0.2)	ND (1.0)	915	8.2 J
R-19	05/22/2012	ND (0.2)	ND (1.0)	908	8.2 J
R-19	08/22/2012	ND (0.2)	ND (1.0)	896	8.2 J
R-19	11/01/2012	ND (0.2)	ND (1.0)	896	8.2 J
R-28	01/11/2012	ND (0.2)	ND (1.0)	907	8.3 J
R-28	02/29/2012	ND (0.2)	ND (1.0)	911	8.2 J
R-28	05/22/2012	ND (0.2)	ND (1.0)	904	8.2 J
R-28	08/22/2012	ND (0.2)	ND (1.0)	895	8.2 J
R-28	11/01/2012	ND (0.2)	ND (1.0)	899	8.2 J
R63	01/10/2012	ND (0.2)	ND (1.0)	914	8.2 J
R63	02/28/2012	ND (0.2)	ND (1.0)	913	8.1 J
R63	05/22/2012	ND (0.2)	ND (1.0)	904	8.2 J
R63	08/21/2012	ND (0.2)	ND (1.0)	891	8.1 J
R63	11/01/2012	ND (0.2)	ND (1.0)	892	8.2 J

Table 3-4
Surface Water Sampling Results, January 2012 through December 2012
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Location	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Lab pH
Shoreline Samples					
RRB	01/11/2012	ND (0.2)	ND (1.0)	931	8.0 J
RRB	02/29/2012	ND (0.2)	ND (1.0)	931	8.1 J
RRB	05/23/2012	ND (0.2)	ND (1.0)	908	8.2 J
RRB	08/22/2012	ND (0.2)	ND (1.0)	898	7.9 J
RRB	11/01/2012	ND (0.2)	ND (1.0)	899	8.2 J
Other Surface Water Monitoring Locations					
SW1	01/10/2012	ND (0.2)	ND (1.0)	998	7.7 J
SW1	02/28/2012	ND (0.2)	ND (1.0)	965	7.6 J
SW1	05/22/2012	ND (0.2)	ND (1.0)	931	7.4 J
SW1	08/21/2012	ND (0.2)	ND (1.0)	916	7.7 J
SW1	11/02/2012	ND (0.2)	ND (1.0)	960	7.5 J
SW2	01/10/2012	ND (0.2)	ND (1.0)	928	7.9 J
SW2	02/28/2012	ND (0.2)	ND (1.0)	973	7.5 J
SW2	05/22/2012	ND (0.2)	ND (1.0)	931	7.6 J
SW2	08/21/2012	ND (0.2)	ND (1.0)	912	7.7 J
SW2	11/02/2012	ND (0.2)	ND (1.0)	933	7.6 J

Notes:

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

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

Other analytical methods: dissolved chromium - method SW6020A, specific conductance - EPA 120.1, pH -SM4500-HB.

pH is reported to two significant figures.

Table 3-5
COPCs, In Situ Byproducts, and Geochemical Indicator Parameters in Surface Water Samples, January 2012 through December 2012
Fourth Quarter 2012 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California

Location	Sample Date	Alkalinity, bicarbonate as CaCO3 mg/L	Alkalinity, carbonate as CaCO3 mg/L	Alkalinity, total as CaCO3 mg/L	Arsenic, dissolved µg/L	Iron, Total µg/L	Iron, dissolved µg/L	Manganese, dissolved µg/L	Molybdenum, dissolved µg/L	Nitrate as Nitrogen mg/L	Selenium, dissolved µg/L	Total suspended solids mg/L
In-channel Locations												
C-BNS-D	01/10/2012	140	ND (5.0)	140	2.5	28.8	ND (20.0)	ND (10.0)	ND (10.0)	ND (0.5)	ND (10.0)	ND (10.0)
C-BNS-D	02/28/2012	132	ND (5.0)	132	2.4	20.0	ND (20.0)	ND (10.0)	ND (10.0)	ND (0.5)	ND (10.0)	ND (10.0)
C-BNS-D	05/22/2012	127	ND (5.0)	127	2.1	ND (20.0)	ND (20.0)	0.7	ND (10.0)	ND (0.5)	ND (10.0)	ND (10.0)
C-BNS-D	08/21/2012	130	ND (5.0)	130	2.6	36.5	ND (20.0)	0.94	5.3	ND (0.5)	ND (5.0)	ND (10.0)
C-BNS-D	11/01/2012	126	ND (5.0)	126	2.5	39.3	ND (20.0)	ND (0.5)	4.3	ND (0.5)	1.7	ND (10.0)
C-CON-S	01/11/2012	127	ND (5.0)	127	2.5	ND (20.0)	ND (20.0)	ND (10.0)	ND (5.0)	ND (0.5)	ND (10.0)	ND (10.0)
C-CON-S	02/29/2012	131	ND (5.0)	131	2.0	ND (20.0)	ND (20.0)	ND (10.0)	ND (10.0)	ND (0.5)	ND (10.0)	ND (10.0)
C-CON-S	05/23/2012	128	ND (5.0)	128	1.9	ND (20.0)	ND (20.0)	0.68	ND (10.0)	ND (0.5)	ND (10.0)	ND (10.0)
C-CON-S	08/22/2012	128	ND (5.0)	128	2.4	32.0	ND (20.0)	1.0	4.3	ND (0.5)	ND (5.0)	ND (10.0)
C-CON-S	11/02/2012	122	ND (5.0)	122	2.3	20.2	ND (20.0)	0.98	6.0	ND (0.5)	ND (5.0)	19.6
C-CON-D	01/11/2012	128	ND (5.0)	128	2.8	ND (20.0)	ND (20.0)	ND (10.0)	ND (5.0)	ND (0.5)	ND (10.0)	ND (10.0)
C-CON-D	02/29/2012	111	ND (5.0)	111	2.5	ND (20.0)	ND (20.0)	ND (10.0)	ND (10.0)	ND (0.5)	ND (10.0)	ND (10.0)
C-CON-D	05/23/2012	120	ND (5.0)	120	2.1	ND (20.0)	ND (20.0)	0.67	ND (10.0)	ND (0.5)	ND (10.0)	ND (10.0)
C-CON-D	08/22/2012	132	ND (5.0)	132	2.6	39.6	ND (20.0)	0.96	5.0	ND (0.5)	ND (5.0)	ND (10.0)
C-CON-D	11/02/2012	125	ND (5.0)	125	2.4	32.5	ND (20.0)	1.0	5.1	ND (0.5)	ND (5.0)	11.6
C-I-3-S	01/10/2012	131	ND (5.0)	131	2.2	ND (20.0)	ND (20.0)	ND (10.0)	ND (10.0)	0.53	ND (10.0)	ND (10.0)
C-I-3-S	02/28/2012	133	ND (5.0)	133	1.9	ND (20.0)	ND (20.0)	ND (10.0)	ND (10.0)	ND (0.5)	ND (10.0)	ND (10.0)
C-I-3-S	05/22/2012	125	ND (5.0)	125	2.1	ND (20.0)	ND (20.0)	0.65	ND (10.0)	ND (0.5)	ND (10.0)	ND (10.0)
C-I-3-S	08/21/2012	129	ND (5.0)	129	2.5	ND (20.0)	ND (20.0)	0.72	5.1	ND (0.5)	ND (5.0)	ND (10.0)
C-I-3-S	11/01/2012	124	ND (5.0)	124	2.6	25.5	ND (20.0)	ND (0.5)	4.5	0.65	1.5	ND (10.0)
C-I-3-D	01/10/2012	124	ND (5.0)	124	2.0	20.6	ND (20.0)	ND (10.0)	ND (10.0)	ND (0.5)	ND (10.0)	ND (10.0)
C-I-3-D	02/28/2012	139	ND (5.0)	139	2.4	ND (20.0)	ND (20.0)	ND (10.0)	ND (10.0)	ND (0.5)	ND (10.0)	ND (10.0)
C-I-3-D	05/22/2012	126	ND (5.0)	126	2.1	ND (20.0)	ND (20.0)	0.62	ND (10.0)	ND (0.5)	ND (10.0)	ND (10.0)
C-I-3-D	08/21/2012	126	ND (5.0)	126	2.7	62.4	ND (20.0)	0.71	4.5	ND (0.5)	ND (5.0)	ND (10.0)
C-I-3-D	11/01/2012	128	ND (5.0)	128	2.6	32.6	ND (20.0)	ND (0.5)	4.4	ND (0.5)	1.6	ND (10.0)
C-MAR-S	01/11/2012	115	ND (5.0)	115	2.6	122	ND (20.0)	ND (10.0)	ND (5.0)	ND (0.5)	ND (10.0)	ND (10.0)
C-MAR-S	02/28/2012	139	ND (5.0)	139	2.0	760	ND (20.0)	16.5	ND (10.0)	ND (0.5)	ND (10.0)	12.8
C-MAR-S	05/23/2012	128	ND (5.0)	128	2.0	239	ND (20.0)	8.4	ND (10.0)	ND (0.5)	ND (10.0)	ND (10.0)
C-MAR-S	08/21/2012	123	ND (5.0)	123	2.8	2410	395	50.6	5.2	ND (0.5)	ND (5.0)	74.8
C-MAR-S	11/01/2012	132	ND (5.0)	132	2.5	899	132	25.0	4.5	ND (0.5)	1.4	35.2
C-MAR-D	01/11/2012	132	ND (5.0)	132	2.9	262	ND (20.0)	ND (10.0)	ND (5.0)	ND (0.5)	ND (10.0)	ND (10.0)
C-MAR-D	02/28/2012	144	ND (5.0)	144	2.1	639	29.1	15.4	ND (10.0)	ND (0.5)	ND (10.0)	13.4
C-MAR-D	05/23/2012	119	ND (5.0)	119	2.1	198	ND (20.0)	7.3	ND (10.0)	ND (0.5)	ND (10.0)	ND (10.0)
C-MAR-D	08/21/2012	137	ND (5.0)	137	2.8	2540	25.5	44.9	5.2	ND (0.5)	ND (5.0)	77.6
C-MAR-D	11/01/2012	130	ND (5.0)	130	2.3	717	ND (20.0)	22.0	4.4	ND (0.5)	1.4	43.2
C-NR1-S	01/11/2012	124	ND (5.0)	124	2.5	ND (20.0)	ND (20.0)	ND (10.0)	ND (5.0)	0.64	ND (10.0)	ND (10.0)
C-NR1-S	02/29/2012	123	ND (5.0)	123	2.6	ND (20.0)	ND (20.0)	ND (10.0)	ND (10.0)	ND (0.5)	ND (10.0)	ND (10.0)
C-NR1-S	05/23/2012	139	ND (5.0)	139	2.0	ND (20.0)	ND (20.0)	0.78	ND (10.0)	ND (0.5)	ND (10.0)	ND (10.0)
C-NR1-S	08/22/2012	130	ND (5.0)	130	2.4	27.6	25.7	1.2	4.5	ND (0.5)	ND (5.0)	ND (10.0)
C-NR1-S	11/02/2012	122	ND (5.0)	122	2.2	24.7	ND (20.0)	1.1	4.8	ND (0.5)	ND (5.0)	ND (10.0)
C-NR1-D	01/11/2012	132	ND (5.0)	132	2.4	ND (20.0)	ND (20.0)	ND (10.0)	ND (5.0)	ND (0.5)	ND (10.0)	ND (10.0)
C-NR1-D	02/29/2012	120	ND (5.0)	120	2.3	20.4	ND (20.0)	ND (10.0)	ND (10.0)	ND (0.5)	ND (10.0)	ND (10.0)

Table 3-5
COPCs, In Situ Byproducts, and Geochemical Indicator Parameters in Surface Water Samples, January 2012 through December 2012
Fourth Quarter 2012 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Location	Sample Date	Alkalinity, bicarbonate as CaCO3 mg/L	Alkalinity, carbonate as CaCO3 mg/L	Alkalinity, total as CaCO3 mg/L	Arsenic, dissolved µg/L	Iron, Total µg/L	Iron, dissolved µg/L	Manganese, dissolved µg/L	Molybdenum, dissolved µg/L	Nitrate as Nitrogen mg/L	Selenium, dissolved µg/L	Total suspended solids mg/L
In-channel Locations												
C-NR1-D	05/23/2012	124	ND (5.0)	124	2.0	ND (20.0)	ND (20.0)	0.76	ND (10.0)	ND (0.5)	ND (10.0)	ND (10.0)
C-NR1-D	08/22/2012	123	ND (5.0)	123	2.4	23.6	ND (20.0)	1.1	4.8	ND (0.5)	ND (5.0)	ND (10.0)
C-NR1-D	11/02/2012	130	ND (5.0)	130	2.2	24.5	ND (20.0)	0.98	5.0	ND (0.5)	ND (5.0)	ND (10.0)
C-NR3-S	01/10/2012	137	ND (5.0)	137	2.2	ND (20.0)	ND (20.0)	ND (10.0)	ND (10.0)	ND (0.5)	ND (10.0)	ND (10.0)
C-NR3-S	02/29/2012	112	ND (5.0)	112	2.1	ND (20.0)	ND (20.0)	ND (10.0)	ND (10.0)	ND (0.5)	ND (10.0)	ND (10.0)
C-NR3-S	05/23/2012	119	ND (5.0)	119	1.9	ND (20.0)	ND (20.0)	0.7	ND (10.0)	ND (0.5)	ND (10.0)	ND (10.0)
C-NR3-S	08/22/2012	121	ND (5.0)	121	2.4	27.4	ND (20.0)	1.1	4.6	ND (0.5)	ND (5.0)	ND (10.0)
C-NR3-S	11/02/2012	115	ND (5.0)	115	2.4	21.1	ND (20.0)	1.1	4.7	ND (0.5)	ND (5.0)	ND (10.0)
C-NR3-D	01/10/2012	132	ND (5.0)	132	2.6	ND (20.0)	ND (20.0)	ND (10.0)	ND (10.0)	ND (0.5)	ND (10.0)	ND (10.0)
C-NR3-D	02/29/2012	122	ND (5.0)	122	2.1	ND (20.0)	ND (20.0)	ND (10.0)	ND (10.0)	ND (0.5)	ND (10.0)	ND (10.0)
C-NR3-D	05/23/2012	134	ND (5.0)	134	2.1	ND (20.0)	ND (20.0)	0.76	ND (10.0)	ND (0.5)	ND (10.0)	ND (10.0)
C-NR3-D	08/22/2012	118	ND (5.0)	118	2.4	45.0	ND (20.0)	1.0	4.6	ND (0.5)	ND (5.0)	ND (10.0)
C-NR3-D	11/02/2012	119	ND (5.0)	119	2.3	22.7	ND (20.0)	1.0	4.6	ND (0.5)	ND (5.0)	ND (10.0)
C-NR4-S	01/11/2012	124	ND (5.0)	124	2.5	29.2	ND (20.0)	ND (10.0)	ND (5.0)	1.6	ND (10.0)	ND (10.0)
C-NR4-S	02/29/2012	116	ND (5.0)	116	2.1	28.0	ND (20.0)	ND (10.0)	ND (10.0)	ND (0.5)	ND (10.0)	ND (10.0)
C-NR4-S	05/23/2012	120	ND (5.0)	120	1.9	ND (20.0)	ND (20.0)	0.74	ND (10.0)	ND (0.5)	ND (10.0)	ND (10.0)
C-NR4-S	08/22/2012	127	ND (5.0)	127	2.6	22.0	ND (20.0)	0.9	4.2	ND (0.5)	ND (5.0)	ND (10.0)
C-NR4-S	11/02/2012	129	ND (5.0)	129	2.4	ND (20.0)	ND (20.0)	0.86	4.6	ND (0.5)	ND (5.0)	ND (10.0)
C-NR4-D	01/11/2012	125	ND (5.0)	125	2.5	ND (20.0)	ND (20.0)	ND (10.0)	ND (5.0)	ND (0.5)	ND (10.0)	ND (10.0)
C-NR4-D	02/29/2012	130	ND (5.0)	130	2.0	ND (20.0)	ND (20.0)	ND (10.0)	ND (10.0)	ND (0.5)	ND (10.0)	ND (10.0)
C-NR4-D	05/23/2012	133	ND (5.0)	133	2.0	ND (20.0)	ND (20.0)	0.78	ND (10.0)	ND (0.5)	ND (10.0)	ND (10.0)
C-NR4-D	08/22/2012	118	ND (5.0)	118	2.4	28.4	ND (20.0)	1.0	4.0	ND (0.5)	ND (5.0)	ND (10.0)
C-NR4-D	11/02/2012	127	ND (5.0)	127	2.3	ND (20.0)	ND (20.0)	1.1	4.6	ND (0.5)	ND (5.0)	ND (10.0)
C-R22a-S	01/10/2012	134	ND (5.0)	134	2.4	34.6	ND (20.0)	ND (10.0)	ND (10.0)	ND (0.5)	ND (10.0)	ND (10.0)
C-R22a-S	02/28/2012	135	ND (5.0)	135	2.2	31.9	ND (20.0)	ND (10.0)	ND (10.0)	ND (0.5)	ND (10.0)	ND (10.0)
C-R22a-S	05/22/2012	132	ND (5.0)	132	2.0	20.7	ND (20.0)	0.82	ND (10.0)	ND (0.5)	ND (10.0)	ND (10.0)
C-R22a-S	08/21/2012	131	ND (5.0)	131	2.7	35.3	ND (20.0)	1.3	5.0	ND (0.5)	ND (5.0)	ND (10.0)
C-R22a-S	11/01/2012	125	ND (5.0)	125	2.5	33.7	ND (20.0)	ND (0.5)	4.2	ND (0.5)	1.7	ND (10.0)
C-R22a-D	01/10/2012	132	ND (5.0)	132	2.4	28.2	ND (20.0)	ND (10.0)	ND (10.0)	ND (0.5)	ND (10.0)	ND (10.0)
C-R22a-D	02/28/2012	137	ND (5.0)	137	2.3	75.6	ND (20.0)	ND (10.0)	ND (10.0)	ND (0.5)	ND (10.0)	ND (10.0)
C-R22a-D	05/22/2012	127	ND (5.0)	127	2.0	ND (20.0)	ND (20.0)	0.72	ND (10.0)	ND (0.5)	ND (10.0)	ND (10.0)
C-R22a-D	08/21/2012	123	ND (5.0)	123	2.5	31.5	ND (20.0)	1.5	4.5	ND (0.5)	ND (5.0)	ND (10.0)
C-R22a-D	11/01/2012	121	ND (5.0)	121	2.5	32.6	ND (20.0)	ND (0.5)	4.2	ND (0.5)	1.4	ND (10.0)
C-R27-S	01/10/2012	125	ND (5.0)	125	2.4	ND (20.0)	ND (20.0)	ND (10.0)	ND (10.0)	ND (0.5)	ND (10.0)	ND (10.0)
C-R27-S	02/28/2012	136	ND (5.0)	136	2.3	ND (20.0)	ND (20.0)	ND (10.0)	ND (10.0)	ND (0.5)	ND (10.0)	ND (10.0)
C-R27-S	05/22/2012	122	ND (5.0)	122	2.1	ND (20.0)	ND (20.0)	0.79	ND (10.0)	ND (0.5)	ND (10.0)	ND (10.0)
C-R27-S	08/21/2012	125	ND (5.0)	125	2.3	ND (20.0)	ND (20.0)	1.1	4.4	ND (0.5)	ND (5.0)	ND (10.0)
C-R27-S	11/01/2012	123	ND (5.0)	123	2.5	21.8	ND (20.0)	ND (0.5)	4.3	ND (0.5)	1.6	ND (10.0)
C-R27-D	01/10/2012	135	ND (5.0)	135	2.4	22.6	ND (20.0)	ND (10.0)	ND (10.0)	ND (0.5)	ND (10.0)	ND (10.0)
C-R27-D	02/28/2012	130	ND (5.0)	130	2.3	ND (20.0)	ND (20.0)	ND (10.0)	ND (10.0)	ND (0.5)	ND (10.0)	ND (10.0)
C-R27-D	05/22/2012	112	ND (5.0)	112	2.1	ND (20.0)	ND (20.0)	0.73	ND (10.0)	ND (0.5)	ND (10.0)	ND (10.0)
C-R27-D	08/21/2012	132	ND (5.0)	132	2.7	35.2	ND (20.0)	1.1	5.5	ND (0.5)	ND (5.0)	ND (10.0)

Table 3-5
COPCs, In Situ Byproducts, and Geochemical Indicator Parameters in Surface Water Samples, January 2012 through December 2012
Fourth Quarter 2012 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California

Location	Sample Date	Alkalinity, bicarbonate as CaCO3 mg/L	Alkalinity, carbonate as CaCO3 mg/L	Alkalinity, total as CaCO3 mg/L	Arsenic, dissolved µg/L	Iron, Total µg/L	Iron, dissolved µg/L	Manganese, dissolved µg/L	Molybdenum, dissolved µg/L	Nitrate as Nitrogen mg/L	Selenium, dissolved µg/L	Total suspended solids mg/L
In-channel Locations												
C-R27-D	11/01/2012	125	ND (5.0)	125	2.5	34.1	ND (20.0)	ND (0.5)	4.4	ND (0.5)	1.5	ND (10.0)
C-TAZ-S	01/10/2012	134	ND (5.0)	134	2.2	20.8	ND (20.0)	ND (10.0)	ND (10.0)	ND (0.5)	ND (10.0)	ND (10.0)
C-TAZ-S	02/28/2012	135	ND (5.0)	135	2.1	21.8	ND (20.0)	ND (10.0)	ND (10.0)	ND (0.5)	ND (10.0)	ND (10.0)
C-TAZ-S	05/22/2012	118	ND (5.0)	118	2.0	ND (20.0)	ND (20.0)	0.66	ND (10.0)	ND (0.5)	ND (10.0)	ND (10.0)
C-TAZ-S	08/21/2012	133	ND (5.0)	133	2.4	ND (20.0)	ND (20.0)	0.8	5.3	ND (0.5)	ND (5.0)	ND (10.0)
C-TAZ-S	11/01/2012	129	ND (5.0)	129	2.5	31.8	ND (20.0)	ND (0.5)	4.3	ND (0.5)	1.6	ND (10.0)
C-TAZ-D	01/10/2012	125	ND (5.0)	125	2.8	25.1	ND (20.0)	ND (10.0)	ND (10.0)	ND (0.5)	ND (10.0)	ND (10.0)
C-TAZ-D	02/28/2012	140	ND (5.0)	140	2.2	ND (20.0)	ND (20.0)	ND (10.0)	ND (10.0)	ND (0.5)	ND (10.0)	ND (10.0)
C-TAZ-D	05/22/2012	128	ND (5.0)	128	2.1	ND (20.0)	ND (20.0)	0.58	ND (10.0)	ND (0.5)	ND (10.0)	ND (10.0)
C-TAZ-D	08/21/2012	137	ND (5.0)	137	2.6	42.7	ND (20.0)	0.9	4.7	ND (0.5)	ND (5.0)	ND (10.0)
C-TAZ-D	11/01/2012	122	ND (5.0)	122	2.6	35.6	ND (20.0)	ND (0.5)	4.4	ND (0.5)	1.4	ND (10.0)
Shoreline Samples												
R-19	01/11/2012	136	ND (5.0)	136	2.5	ND (20.0)	ND (20.0)	ND (10.0)	ND (5.0)	ND (0.5)	ND (10.0)	ND (10.0)
R-19	02/29/2012	120	ND (5.0)	120	2.3	28.2	ND (20.0)	ND (10.0)	ND (10.0)	ND (0.5)	ND (10.0)	ND (10.0)
R-19	05/22/2012	133	ND (5.0)	133	2.0	37.4	ND (20.0)	1.2	ND (10.0)	ND (0.5)	ND (10.0)	ND (10.0)
R-19	08/22/2012	126	ND (5.0)	126	2.3	41.8	ND (20.0)	1.4	4.0	ND (0.5)	ND (5.0)	ND (10.0)
R-19	11/01/2012	123	ND (5.0)	123	2.4	43.3	ND (20.0)	ND (0.5)	4.2	ND (0.5)	1.5	ND (10.0)
R-28	01/11/2012	127	ND (5.0)	127	2.4	23.1	ND (20.0)	ND (10.0)	ND (5.0)	ND (0.5)	ND (10.0)	ND (10.0)
R-28	02/29/2012	123	ND (5.0)	123	2.0	81.2	ND (20.0)	ND (10.0)	ND (10.0)	ND (0.5)	ND (10.0)	24.8
R-28	05/22/2012	124	ND (5.0)	124	2.1	29.4	ND (20.0)	1.1	ND (10.0)	ND (0.5)	ND (10.0)	ND (10.0)
R-28	08/22/2012	126	ND (5.0)	126	2.7	48.9	ND (20.0)	1.4	4.8	ND (0.5)	ND (5.0)	ND (10.0)
R-28	11/01/2012	132	ND (5.0)	132	2.6	32.0	ND (20.0)	ND (0.5)	4.5	ND (0.5)	1.6	ND (10.0)
R63	01/10/2012	129	ND (5.0)	129	2.3	22.8	ND (20.0)	ND (10.0)	ND (10.0)	ND (0.5)	ND (10.0)	ND (10.0)
R63	02/28/2012	139	ND (5.0)	139	2.0	26.2	ND (20.0)	ND (10.0)	ND (10.0)	ND (0.5)	ND (10.0)	ND (10.0)
R63	05/22/2012	117	ND (5.0)	117	2.0	26.6	ND (20.0)	2.6	ND (10.0)	ND (0.5)	ND (10.0)	ND (10.0)
R63	08/21/2012	125	ND (5.0)	125	2.5	31.3	ND (20.0)	4.3	4.7	ND (0.5)	ND (5.0)	ND (10.0)
R63	11/01/2012	124	ND (5.0)	124	2.5	69.4	ND (20.0)	0.67	4.2	ND (0.5)	1.6	ND (10.0)
RRB	01/11/2012	125	ND (5.0)	125	2.3	25.5	ND (20.0)	ND (10.0)	ND (5.0)	ND (0.5)	ND (10.0)	ND (10.0)
RRB	02/29/2012	131	ND (5.0)	131	2.0	65.6	26.2	ND (10.0)	ND (10.0)	ND (0.5)	ND (10.0)	ND (10.0)
RRB	05/23/2012	130	ND (5.0)	130	2.0	32.6	ND (20.0)	2.9	ND (10.0)	ND (0.5)	ND (10.0)	ND (10.0)
RRB	08/22/2012	121	ND (5.0)	121	2.3	65.8	ND (20.0)	3.0	4.8	ND (0.5)	ND (5.0)	ND (10.0)
RRB	11/01/2012	127	ND (5.0)	127	2.7	127	ND (20.0)	12.0	4.5	ND (0.5)	1.6	ND (10.0)

Notes:
COPC = Contaminants of Potential Concern (Molybdenum, Selenium, and Nitrate).
J = concentration or reporting limit estimated by laboratory or data validation.
mg/L = milligrams per liter.
ND = not detected at listed reporting limit.
TSS = total suspended solids.
µg/L = micrograms per liter.

In Situ Byproducts (Arsenic, Iron and Manganese).
Geo chemical Indicator Parameters (TSS and alkalinity).

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

Table 4-1

Pumping Rate and Extracted Volume for IM System, Fourth Quarter 2012 and Annual 2012

Fourth Quarter 2012 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,

PG&E Topock Compressor Station, Needles, California

Extraction Well ID	November 2012		December 2012		Fourth Quarter 2012		Annual 2012	
	Average Pumping Rate [a] (gpm)	Volume Pumped (gal)	Average Pumping Rate [a] (gpm)	Volume Pumped (gal)	Average Pumping Rate [a] (gpm)	Volume Pumped (gal)	Average Pumping Rate [a] (gpm)	Volume Pumped (gal)
TW-02S	0.00	0	0.10	4,649	0.05	4,649	0.01	4,649
TW-02D	0.00	0	0.19	8,361	0.09	8,361	0.02	8,361
TW-03D	107.10	4,626,744	105.46	4,707,780	106.28	9,334,525	104.69	55,007,216
PE-01	24.70	1,067,058	25.22	1,125,739	24.96	2,192,797	24.71	12,981,591
TOTAL	**131.8**	**5,693,802**	**131.0**	**5,846,530**	**131.4**	**11,540,332**	**129.4**	**68,001,817**

Chromium Removed This Quarter (kg)	48.3
Chromium Removed This Year (kg)	201
Chromium Removed Project to Date (kg)	3370
Chromium Removed This Quarter (lb)	106
Chromium Removed This Year (lb)	444
Chromium Removed Project to Date (lb)	7430

Notes:

ac-ft = acre-feet.
DTSC = Department of Toxic Substances Control.
gal = gallons.
GMP = Groundwater Monitoring Program.
gpm = gallons per minute.
kg = kilograms.
lb = pounds.
PMP = Performance Monitoring Program.

[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 October 1, 2012 through December 31, 2012. On July 23, 2010 DTSC approved a revised reporting schedule for this report that included a revised IM-3 sample collection period from October 1, 2012 through December 31, 2012; this IM-3 sample collection period is in line with previous reports prior to combining the GMP with the PMP reports.

Table 4-2
Average Hydraulic Gradients Measured at Well Pairs, Fourth Quarter 2012
Fourth Quarter 2012 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Well Pair [a]	**Reporting Period**	**Mean landward** [b] **Hydraulic Gradient (feet/foot)**	**Days in** [c] **Monthly Average**
	November	0.0042	NA
Overall Average	December	0.0052	NA
Northern Gradient Pair	November	0.0020	30 / 30
MW-31-135 / MW-33-150	December	0.0018	31 / 31
Central Gradient Pair	November	0.0076	30 / 30
MW-45-95 / MW-34-100	December	0.0106	22 / 31
Southern Gradient Pair	November	0.0029	30 / 30
MW-45-95 / MW-27-85	December	0.0031	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.

MW-34-100 data unavailable from December 23, 2012, through December 31, 2012, due to equipment malfunction.

Table 4-3
Predicted and Actual Monthly Average Davis Dam Discharge and Colorado River Elevation at I-3
Fourth Quarter 2012 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California

	Davis Dam Release			Colorado River Elevation at I-3		
Month	Projected (cfs)	Actual (cfs)	Difference (cfs)	Predicted (ft amsl)	Actual (ft amsl)	Difference (feet)
January 2010	9,900	7,415	2,485	453.9	453.36	-0.5
February 2010	7,700	7,961	-261	453.0	453.41	0.4
March 2010	14,700	14,014	686	455.5	455.40	-0.1
April 2010	16,100	14,762	1,338	455.3	455.94	0.7
May 2010	15,500	15,246	254	456.2	456.41	0.3
June 2010	15,800	15,332	468	456.4	456.45	0.0
July 2010	14,500	14,841	-341	455.9	456.34	0.4
August 2010	13,500	13,627	-127	455.4	455.87	0.5
September 2010	13,400	13,555	-155	455.2	455.79	0.6
October 2010	12,300	12,463	-163	454.7	455.41	0.7
November 2010	10,900	10,597	303	454.3	454.92	0.6
December 2010	9,800	9,286	514	453.9	453.86	-0.1
January 2011	7,700	8,172	-472	453.1	453.34	0.2
February 2011	11,000	10,547	453	454.2	454.38	0.2
March 2011	15,900	15,875	25	455.9	456.22	0.3
April 2011	17,900	17,595	305	456.9	457.02	0.2
May 2011	16,400	15,437	963	456.6	456.40	-0.2
June 2011	16,100	16,024	76	456.5	456.75	0.2
July 2011	15,500	15,333	167	456.3	456.30	0.1
August 2011	13,300	13,368	-68	455.4	455.67	0.3
September 2011	12,700	12,052	648	455.2	455.25	0.1
October 2011	9,200	9,934	-734	453.9	454.30	0.4
November 2011	8,600	7,838	762	453.7	453.61	-0.1
December 2011	6,600	6,262	338	452.6	452.49	-0.1
January 2012	9,800	10,378	-578	453.7	453.99	0.3
Febraury 2012	12,300	12,614	-314	454.8	455.25	0.4
March 2012	14,800	15,134	-334	455.8	455.88	0.1
April 2012	18,300	18,330	-30	457.1	457.33	0.2
May 2012	15,900	15,938	-38	456.4	456.63	0.2
June 2012	15,900	15,996	-96	456.4	456.59	0.2
July 2012	14,500	13,087	1,413	456.0	455.72	-0.3
August 2012	12,200	12,104	96	455.2	455.45	0.3
September 2012	13,000	12,147	853	455.2	455.31	0.1
October 2012	8,400	9,037	-637	453.6	453.95	0.3
November 2012	8,500	8,390	110	453.6	NA	NA
December 2012	6,300	6,427	-127	452.6	NA	NA
January 2013	8,300			453.2		

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

Projected river level for each month in the past is calculated based on the preceding months U.S. Bureau of Reclamation (BOR) projections of Davis Dam release and stage in Lake Havasu. Future projections of river level at I-3 are based upon January 2013 BOR projections. These data are reported monthly by the U.S. 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 2010, please see: *Fourth Quarter 2011 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station,* Needles, California (CH2MHILL, 2012a)

Table 5-1
Summary of Pumping Rate and Extracted Volume for 2012 Reporting Period
Fourth Quarter 2012 and Annual Interim Measures Performance
Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Reporting Period	Target Pump Rate (gpm)	Actual Monthly Pump Rate (gpm)	Individual Extraction Well Operations				Total Volume (gallons)
			TW-2S (gallons)	TW-2D (gallons)	TW-3D (gallons)	PE-1 (gallons)	
Jan-12	135	132.5	0	0	4,763,260	1,153,008	5,916,268
Feb-12	135	131.3	0	0	4,414,359	1,066,772	5,481,131
Mar-12	135	129.2	0	0	4,650,288	1,118,205	5,768,493
Apr-12	135	115.5	0	0	4,070,373	918,734	4,989,107
May-12	135	132.2	0	0	4,747,379	1,153,512	5,900,892
Jun-12	135	133.8	0	0	4,667,629	1,113,252	5,780,881
Jul-12	135	133.4	0	0	4,825,040	1,130,244	5,955,284
Aug-12	135	114.2	0	0	4,119,794	976,201	5,095,995
Sep-12	135	131.4	0	0	4,601,500	1,076,633	5,678,133
Oct-12	135	132.1	0	0	4,813,068	1,082,232	5,895,301
Nov-12	135	131.8	0	0	4,626,744	1,067,058	5,693,802
Dec-12	135	131	4,649	8,361	4,707,780	1,125,739	5,846,530
Totals for 2012 Annual Period		129.4	4,649	8,361	55,007,216	12,981,591	68,001,817

Notes:
gpm: gallons per minute
The target pumping rate of 135 gpm, excluding periods of planned and unplanned downtime, was maintained by pumping from extraction wells TW-3D and PE-1 during the 2012 reporting period.
Extraction well TW-2D was only used for interim service or to support field operations.

Table 5-2

Analytical Results for Extraction Wells, January 2012 through December 2012
Fourth Quarter 2012 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Well ID	Sample Date	Dissolved Chromium (µg/L)	Hexavalent Chromium (µg/L)	Total Dissolved Solids (mg/L)
TW-3D	03-Jan-12	1,080 LF	938	5,040
	07-Feb-12	1,040 LF	987	5,240
	06-Mar-12	1,250 LF	1,040	5,300
	03-Apr-12	929 LF	937	5,300
	01-May-12	990 LF	951	5,230
	05-Jun-12	906 LF	922	4,760
	02-Jul-12	878 LF	922	5,020
	07-Aug-12	946 LF	885	5,570
	04-Sep-12	931 LF	788	5,040
	02-Oct-12	975 LF	1,000	4,890
	06-Nov-12	891 LF	953	5,020
	04-Dec-12	879 LF	893	5,060
PE-1	03-Jan-12	12.3 LF	11.6	2,960
	07-Feb-12	9.90 LF	9.20	2,840
	06-Mar-12	9.00 LF	7.90	2,960
	03-Apr-12	7.50 LF	7.40	2,800
	01-May-12	7.70 LF	6.90	2,960
	05-Jun-12	6.80 LF	6.50	2,840
	02-Jul-12	6.90 LF	6.60	2,840
	07-Aug-12	7.30 LF	6.20	2,870
	04-Sep-12	8.80 LF	6.80	2,800
	02-Oct-12	7.00 LF	6.30	2,720
	06-Nov-12	8.00 LF	6.90	2,710
	04-Dec-12	7.30 LF	7.00	2,780

Notes:

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

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

Dissolved chromium was analyzed by Method SW6020A or EPA200.8 or EPA200.7, hexavalent chromium analyzed by Method SM3500-CrB or EPA218.6 and total dissolved solids were analyzed by Method SM2540C.

Table 5-3
Calculated Hydraulic Gradients for Well Pairs by Month for 2012 Reporting Period
Fourth Quarter 2012 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California

	Mean Landward Hydraulic Gradient (ft/ft)[a]			
Reporting Period 2012	Overall Average[b]	Northern Gradient Pair[c] MW-31-135 / MW-33-150	Central Gradient Pair MW-45-95 / MW-34-100	Southern Gradient Pair MW-45-95 / MW-27-85
January	0.0052	0.0022	0.0097	0.0038
February	0.0052	0.0022	0.0096	0.0039
March	0.0049	0.0023	0.0089	0.0036
April	0.0035	0.0022	0.0056	0.0027
May	0.0051	0.0021	0.0097	0.0035
June	0.0051	0.0022	0.0096	0.0036
July	0.0051	0.0020	0.0094	0.0037
August	0.0032	0.0017	0.0058	0.0022
September	0.0040	0.0023	0.0071	0.0027
October	0.0036	0.0020	0.0062	0.0026
November	0.0042	0.0020	0.0076	0.0029
December	0.0052	0.0018	0.0106	0.0031

Notes:
a. For Interim measures pumping, the target landward gradient for the selected well pairs is 0.001 ft/ft
b. Overall average gradients are calculated using all available data.
c. Refer to Figure 1-4 for location of well pairs and Tables E-1 and E-2 for number of days in reporting period.

ft/ft = feet/foot

Table 7-1
Proposed Schedule Changes for GMP-PMP Reporting
Fourth Quarter 2012 and Annual Interim Measure Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Period	Sampling Event	Approximate Number of Wells	GMP Sample Date	Current IM-3 Sample Date	Current Reporting Period	Current Report Date	Proposed IM-3 Sample Date[c]	Proposed Revised Reporting Date	Months from End of GMP Sample Date to Report
1st Period	Quarterly	58	Early February to early March	End of February	January through March	30-Apr	End of March	15-May	2
2nd Period	Semiannually	98	April to mid May[a]	End of May	April through June	15-Aug	End of June	No Change	3
3rd Period	Quarterly	58	Late September to mid October[b]	End of September	July through October	30-Nov	No Change	15-Dec	2
4th Period	Annually/Biennially	139	Early to mid December	End of December	November through December	15-Mar	No Change	30-Mar	3

Notes:

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

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

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

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

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

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

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

Table 7-2
Proposed Groundwater Monitoring Program Sampling Frequency and Analytical Suite Modifications
Fourth Quarter 2012 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

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

Table 7-2
Proposed Groundwater Monitoring Program Sampling Frequency and Analytical Suite Modifications
Fourth Quarter 2012 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Well ID	Current Frequency	Proposed Frequency	Current Analytes	Proposed Analytes	Location vs. Plume	Remedy Role	Trends	Typical [Cr(VI)] ug/L (approx.)	Comments
MW-28-090	Quarterly	**Semiannual**	Cr, COPC, F, BP, AWQ, As, rdx	Cr, COPC, BP, F, BWQ, rdx	FP outside plume	NTH IRZ RE	Cr sta	ND	IMCP
MW-29	Semiannual	NC	Cr, COPC, AWQ, As, rdx	Cr, COPC, BP, BWQ, rdx	FP outside plume	NTH IRZ DG, RE	Cr sta	ND	
MW-30-030	Semiannual	**Annual**	Cr, COPC, AWQ, As	Cr, COPC, BP, BWQ	FP outside plume	NTH IRZ DG, RE	Cr sta	ND	
MW-30-050	Annual	**Biennial**	Cr, COPC, BP, AWQ, OD, rdx	Cr, COPC, BP, BWQ+OD, rdx	FP outside plume	NTH IRZ DG, RE	Cr sta	ND	
MW-31-60	Semiannual	**NC**	Cr, BP, AWQ, PMP, OD, rdx	Cr, BP, BWQ+OD, rdx	FP in plume		Cr var;	350	
MW-31-135	Annual	**Biennial**	Cr, BP, AWQ, OD, rdx	Cr, BP, BWQ+OD, rdx	FP in plume		Cr dec;	13	IM3 CZ
MW-32-020	Annual	**Biennial**	Cr, BP, AWQ, As, rdx	Cr, BP, BWQ, rdx	FP outside plume	NTH IRZ DG, RE	Cr sta	ND	IMCP
MW-32-035	Semiannual	**Annual**	Cr, BP, AWQ, PMP, OD, As, rdx	Cr, BP, BWQ+OD, rdx	FP outside plume	NTH IRZ DG, RE	Cr sta	ND	IMCP
MW-33-040	Quarterly	**Semiannual**	Cr, COPC, F, BP, AWQ, rdx	Cr, COPC, BP, F, BWQ, rdx	FP outside plume	NTH IRZ DG, RE	Cr sta; COPC var	ND	IMCP
MW-33-090	Quarterly	**Semiannual**	Cr, COPC, F, BP, AWQ, OD, rdx	Cr, COPC, BP, F, BWQ+OD, rdx	FP outside plume	NTH IRZ DG, RE	Cr var;	17	IMCP
MW-33-150	Quarterly	**Semiannual**	Cr, COPC, F, BP, AWQ, OD, rdx	Cr, COPC, BP, F, BWQ+OD, rdx	FP outside plume	NTH IRZ DG, RE	Cr inc;	12	IMCP
MW-33-210	Quarterly	**Annual**	Cr, COPC, F, BP, AWQ, OD, rdx	Cr, COPC, BP, F, BWQ+OD, rdx	FP outside plume	NTH IRZ DG, RE	Cr sta	12	IMCP
MW-34-055	Annual	NC	Cr, COPC, BP, AWQ, PMP, OD, rdx	Cr, COPC, BP, BWQ+OD, rdx	FP outside plume	NTH IRZ RE	Cr sta	ND	
MW-34-080	Quarterly	**Semiannual**	Cr, BP, AWQ, PMP, OD, rdx	Cr, BP, BWQ+OD, rdx	FP outside plume	NTH IRZ RE	Cr sta	ND	IMCP
MW-34-0100	Quarterly + M	**Quarterly**	Cr, COPC, BP, AWQ, PMP, OD, rdx	Cr, COPC, BP, BWQ+OD, rdx	FP in plume	NTH IRZ RE	Cr dec	200	IMCP
MW-35-060	Quarterly	**Semiannual**	Cr, COPC, BP, AWQ, OD, rdx	Cr, COPC, BP, BWQ+OD, rdx	FP outside plume	NTH IRZ	Cr sta	25	
MW-35-135	Semiannual	NC	Cr, COPC, AWQ, OD, As, rdx	Cr, COPC, BP, BWQ+OD, rdx	FP in plume	NTH IRZ	Cr sta	31	
MW-36-020	Annual	**Biennial**	Cr, AWQ, As, rdx	Cr, BP, BWQ, rdx	FP outside plume	NTH IRZ DG, RE	Cr sta	ND	
MW-36-040	Annual	**Biennial**	Cr, COPC, BP, AWQ, As, rdx	Cr, COPC, BP, BWQ, rdx	FP outside plume	NTH IRZ DG, RE	Cr sta	ND	
MW-36-050	Annual	**Biennial**	Cr, BP, AWQ, rdx	Cr, BP, BWQ, rdx	FP outside plume	NTH IRZ DG, RE	Cr sta	ND	
MW-36-070	Annual	**Biennial**	Cr, BP, AWQ, rdx	Cr, BP, BWQ, rdx	FP outside plume	NTH IRZ DG, RE	Cr sta	ND	IMCP
MW-36-090	Semiannual	**Annual**	Cr, AWQ, OD, As, rdx	Cr, BP, BWQ+OD, rdx	FP outside plume	NTH IRZ DG, RE	Cr dec	ND	
MW-36-100	Semiannual	**Annual**	Cr, COPC, BP, AWQ, OD, As, rdx	Cr, COPC, BP, BWQ+OD, rdx	FP in plume	NTH IRZ DG, RE	Cr dec	67	
MW-37D	Annual	NC	Cr, COPC, AWQ	Cr, COPC, BWQ	BCW outside plume	IRL DG	Cr dec	40	
MW-37S	Annual	NC	Cr, BP, AWQ	Cr, BP, BWQ	BCW in plume	IRL DG	Cr sta	10	
MW-38D	Annual	Annual & **Q x 2**	Cr, COPC, BP, AWQ, ISPT	Cr, COPC, BP, BWQ, ISPT	BCW outside plume		Cr sta		ISPT; 2 consecutive Q events after repair
MW-38S	Annual	Annual & **Q x 2**	Cr, COPC, BP, AWQ, ISPT	Cr, COPC, BP, BWQ, ISPT	BCW outside plume		Cr sta		ISPT; 2 consecutive Q events after repair
MW-39-040	Biennial	**Biennial**	Cr, As	Cr, BP	FP outside plume	NTH IRZ DG, RE	Cr dec	ND	IMCP
MW-39-050	Annual	**Biennial**	Cr, BP, AWQ, rdx	Cr, BP, BWQ, rdx	FP outside plume	NTH IRZ DG, RE	Cr dec	ND	
MW-39-060	Annual	**Biennial**	Cr, COPC, BP, AWQ, As, rdx	Cr, COCP+BP, BWQ, rdx	FP outside plume	NTH IRZ DG, RE	Cr dec	ND	
MW-39-070	Annual	**Biennial**	Cr, AWQ, OD, rdx	Cr, BWQ+OD, rdx	FP outside plume	NTH IRZ DG, RE	Cr dec	ND	
MW-39-080	Annual	**Biennial**	Cr, AWQ, OD, rdx	Cr, BWQ+OD, rdx	FP outside plume	NTH IRZ DG, RE	Cr dec	ND	
MW-39-100	Annual	NC	Cr, COPC, BP, AWQ, OD, rdx	Cr, COPC, BP, BWQ+OD, rdx	FP in plume	NTH IRZ DG, RE	Cr dec	110	

Table 7-2
Proposed Groundwater Monitoring Program Sampling Frequency and Analytical Suite Modifications
Fourth Quarter 2012 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Well ID	Current Frequency	Proposed Frequency	Current Analytes	Proposed Analytes	Location vs. Plume	Remedy Role	Trends	Typical [Cr(VI)] ug/L (approx.)	Comments
MW-40D	Annual	NC	Cr, COPC, BP, AWQ	Cr, COPC, BP, BWQ	W of BCW in plume		Cr inc; COPC sta	160	
MW-40S	Annual	NC	Cr, COPC, BP	Cr, COPC, BP	BCW outside plume		Cr sta	8	
MW-41D	Semiannual	**Annual**	Cr, BP, AWQ	Cr, BP, BWQ	BCW outside plume	IRL DG	Cr sta	3	
MW-41M	Annual	NC	Cr, BP, AWQ	Cr, BP, BWQ	BCW outside plume	IRL DG	Cr sta	10	
MW-41S	Annual	NC	Cr, BP, AWQ	Cr, BP, BWQ	BCW outside plume	IRL DG	Cr sta	19	
MW-42-030	Biennial	NC	Cr, COPC, OD, As	Cr, COPC, BP, OD	FP outside plume	NTH IRZ DG, RE	Cr sta	ND	
MW-42-055	Quarterly	NC	Cr, AWQ, OD, As, rdx	Cr, BP, BWQ+OD, rdx	FP outside plume	NTH IRZ DG, RE	Cr inc	ND	IMCP
MW-42-065	Quarterly	**Semiannual**	Cr, BP, AWQ, OD, As, rdx	Cr, BP, BWQ+OD, rdx	FP outside plume	NTH IRZ DG, RE	Cr sta	ND	IMCP
MW-43-025	Annual	NC	Cr, BP, AWQ, As, rdx	Cr, BP, BWQ, rdx	FP outside plume	NTH IRZ DG, RE	Cr sta	ND	
MW-43-075	Annual	NC	Cr, BP, AWQ, As, rdx	Cr, BP, BWQ, rdx	FP outside plume	NTH IRZ DG, RE	Cr sta	ND	IMCP
MW-43-090	Annual	NC	Cr, BP, AWQ, As, rdx	Cr, BP, BWQ, rdx	FP outside plume	NTH IRZ DG, RE	Cr sta	ND	IMCP
MW-44-070	Semiannual	**Biennial**	Cr, BP, AWQ, OD, As, rdx	Cr, BP, BWQ+OD, rdx	FP outside plume	NTH IRZ DG, RE	Cr sta	ND	IMCP
MW-44-115	Quarterly	**Semiannual**	Cr, COPC, BP, AWQ, OD, rdx	Cr, COPC, BP, BWQ+OD, rdx	FP in plume	NTH IRZ DG, RE	Cr dec; COPC var	100	IMCP
MW-44-125	Quarterly	**Semiannual**	Cr, COPC, BP, AWQ, OD, rdx	Cr, COPC, BP, BWQ+OD, rdx	FP in plume	NTH IRZ DG, RE	Cr dec; COPC var	ND	IMCP
MW-45-095a	Annual	**Biennial**	Cr, AWQ, As, rdx	Cr, BP, BWQ, rdx	FP in plume	NTH IRZ RE	Cr dec	25	
MW-46-175	Quarterly + M	**Quarterly**	Cr, COPC, AWQ, OD, rdx	Cr, COPC, BWQ+OD, rdx	FP in plume	NTH IRZ DG, RE	Cr var; COPC var	80	IMCP
MW-46-205	Semiannual	NC	Cr, AWQ, rdx	Cr, BWQ, rdx	FP in plume	NTH IRZ DG, RE	Cr sta	5 to ND	IMCP
MW-47-055	Semiannual	NC	Cr, BP, AWQ, OD, rdx	Cr, BP, BWQ+OD, rdx	FP in plume	NTH IRZ DR	Cr var;	25	IMCP
MW-47-115	Semiannual	NC	Cr, AWQ, OD, rdx	Cr, BWQ+OD, rdx	FP in plume	NTH IRZ DR	Cr inc;	20	IMCP
MW-48	Quarterly	**Semiannual**	Cr, AWQ	Cr, BWQ	N of TCS outside plume	TCS loop	Cr dec	ND	
MW-49-135	Annual	NC	Cr, BP, AWQ, OD, rdx	Cr, BP, BWQ+OD, rdx	FP outside plume	NTH IRZ RE	Cr sta	1.5 to ND	
MW-49-275	Annual	**Biennial**	Cr, AWQ, OD, rdx	Cr, BWQ+OD, rdx	FP outside plume	NTH IRZ RE	Cr sta	ND	
MW-49-365	Annual	**Biennial**	Cr, AWQ, OD, rdx	Cr, BWQ+OD, rdx	FP outside plume	NTH IRZ RE	Cr sta	ND	
MW-50-095	Semiannual	**Annual**	Cr, AWQ, rdx	Cr, BWQ, rdx	NTH outside plume		Cr dec;	14	
MW-50-200	Quarterly	**Semiannual**	Cr, AWQ, rdx	Cr, BWQ, rdx	NTH in plume		Cr sta	8,000	
MW-51	Semiannual	NC	Cr, COPC, BP, AWQ, rdx	Cr, COPC, BP, BWQ, rdx	NTH in plume	NTH IRZ DR	Cr dec;	4,700	
MW-52S	Semiannual	**Annual**	Cr, BP, AWQ, As, rdx	Cr, BP, BWQ, rdx	FP outside plume	NTH IRZ DG, RE	Cr sta	ND	
MW-52M	Semiannual	**Annual**	Cr, BP, AWQ, As, rdx	Cr, BP, BWQ, rdx	FP outside plume	NTH IRZ DG, RE	Cr sta	ND	
MW-52D	Semiannual	**Annual**	Cr, BP, AWQ, As, rdx	Cr, BP, BWQ, rdx	FP outside plume	NTH IRZ DG, RE	Cr sta	ND	
MW-53M	Semiannual	**Annual**	Cr, BP, AWQ, As, rdx	Cr, BP, BWQ, rdx	FP outside plume	NTH IRZ DG, RE	Cr sta	ND	
MW-53D	Semiannual	**Annual**	Cr, BP, AWQ, As, rdx	Cr, BP, BWQ, rdx	FP outside plume	NTH IRZ DG, RE	Cr sta	ND	
OW-3S	Annual	**Biennial**	Cr, AWQ	Cr, BWQ	W of BCW, outside plume	FWI	Cr inc;	27	
OW-3M	Annual	**Biennial**	Cr, AWQ	Cr, BWQ	W of BCW, outside plume	FWI	Cr sta	17	
OW-3D	Annual	**Biennial**	Cr, COPC, BP, AWQ	Cr, BWQ	W of BCW, outside plume	FWI	Cr sta	10	
PGE-7BR	Annual	**Biennial**	Cr, AWQ	Cr, BWQ	TCS outside plume		Cr sta	ND	ND Cr
PGE-8	Annual	**Biennial**	Cr, COPC, AWQ	Cr, COPC, BWQ	TCS outside plume		Cr dec	ND	

Table 7-2
Proposed Groundwater Monitoring Program Sampling Frequency and Analytical Suite Modifications
Fourth Quarter 2012 and Annual Interim Measures Performance Monitoring and Site-wide
Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Well ID	Current Frequency	Proposed Frequency	Current Analytes	Proposed Analytes	Location vs. Plume	Remedy Role	Trends	Typical [Cr(VI)] ug/L (approx.)	Comments
TEST WELLS									
PE-1	Monthly	NC	Cr, AWQ	Cr, BWQ	FP in plume		Cr dec	7	
TW-1	Quarterly	NC	Cr, COPC, AWQ	Cr, COPC, BWQ	TCS in plume		Cr sta	3,000	
TW-2S	Annual	**Biennial**	Cr, COPC, AWQ	Cr, COPC, BWQ	FP in plume		Cr dec	500	
TW-2D	Annual	**Biennial**	Cr, AWQ	Cr, BWQ	FP in plume		Cr dec	200	
TW-3D	Monthly	NC	Cr, AWQ	Cr, BWQ	FP in plume		Cr sta	900	
TW-4	Annual	**Biennial**	Cr, AWQ	Cr, BWQ	FP in plume		Cr dec	9	
TW-5	Annual	**Biennial**	Cr, AWQ	Cr, BWQ	NTH in plume		Cr sta	14	
PARK MOABI									
PM-03	Annual	NC	Cr, AWQ, rdx	Cr, BWQ, rdx			Cr sta	7	water supply well
PM-04	Annual	NC	Cr, AWQ, rdx	Cr, BWQ, rdx			Cr sta	20	water supply well
ARIZONA									
MW-54-085	Semiannual	**Annual**	Cr, BP, AWQ, rdx	Cr, BP, BWQ, rdx	outside plume		Cr sta	ND	
MW-54-140	Semiannual	**Annual**	Cr, BP, AWQ, rdx	Cr, BP, BWQ, rdx	outside plume		Cr sta	ND	
MW-54-195	Semiannual	**Annual**	Cr, BP, AWQ, rdx	Cr, BP, BWQ, rdx	outside plume		Cr sta	ND	
MW-55-045	Annual	**Annual**	Cr, AWQ	Cr, BWQ	outside plume		Cr sta	ND	
MW-55-120	Annual	**Annual**	Cr, AWQ	Cr, BWQ	outside plume		Cr sta	7	
MW-56S	Semiannual	**Annual**	Cr, AWQ, rdx	Cr, BWQ, rdx	FP outside plume		Cr sta	ND	same freq CA slant wells
MW-56M	Semiannual	**Annual**	Cr, AWQ, rdx	Cr, BWQ, rdx	FP outside plume		Cr sta	ND	same freq CA slant wells
MW-56D	Semiannual	**Annual**	Cr, AWQ, rdx	Cr, BWQ, rdx	FP outside plume		Cr sta	ND	same freq CA slant wells

Notes:

Frequency -	Quarterly + M		Quarterly, with additional monthly sampling during Colorado River low water level interval from November through February
	ER or BCW flow		to be sampled in the next quarterly event following a runoff event with flow in the well location wash (East Ravine or Bat Cave Wash)
	Q x 2		for MW-38 cluster only. Two quarterly rounds will be performed after well repairs are completed.
	NC		No change in frequency proposed.
Trends -	sta	stable	
	inc	increasing	
	dec	decreasing	
	var	variable	Trend descriptions based on Appendix C plots and historical data review
Analytes -	Cr	current/new	Hexavalent and dissolved total Chromium, Cr(VI) and Cr.
	COPC, F	current/new	Additional contaminants of potential concern derived from risk assessment: Mo, Se, and nitrate. At a small number of wells, fluoride (F) is added.
	BP	current/new	In situ reduction possible byproducts: As and Mn
	PMP	current/new	Performance monitoring suite: cations (Ca, Mg, Na, Fe, Mn, B), TDS, anions (bromide, chloride, sulfate, nitrate), alkalinity, stable isotopes (see "OD").
	OD	current/new	Oxygen and deuterium stable isotopes
	AWQ	current	annual water quality snapshot: cations (Ca, Mg, Na, Fe, Mn), anions (chloride, sulfate, nitrate), alkalinity

Table 7-2
Proposed Groundwater Monitoring Program Sampling Frequency and Analytical Suite Modifications
Fourth Quarter 2012 and Annual Interim Measures Performance Monitoring and Site-wide
Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Notes:

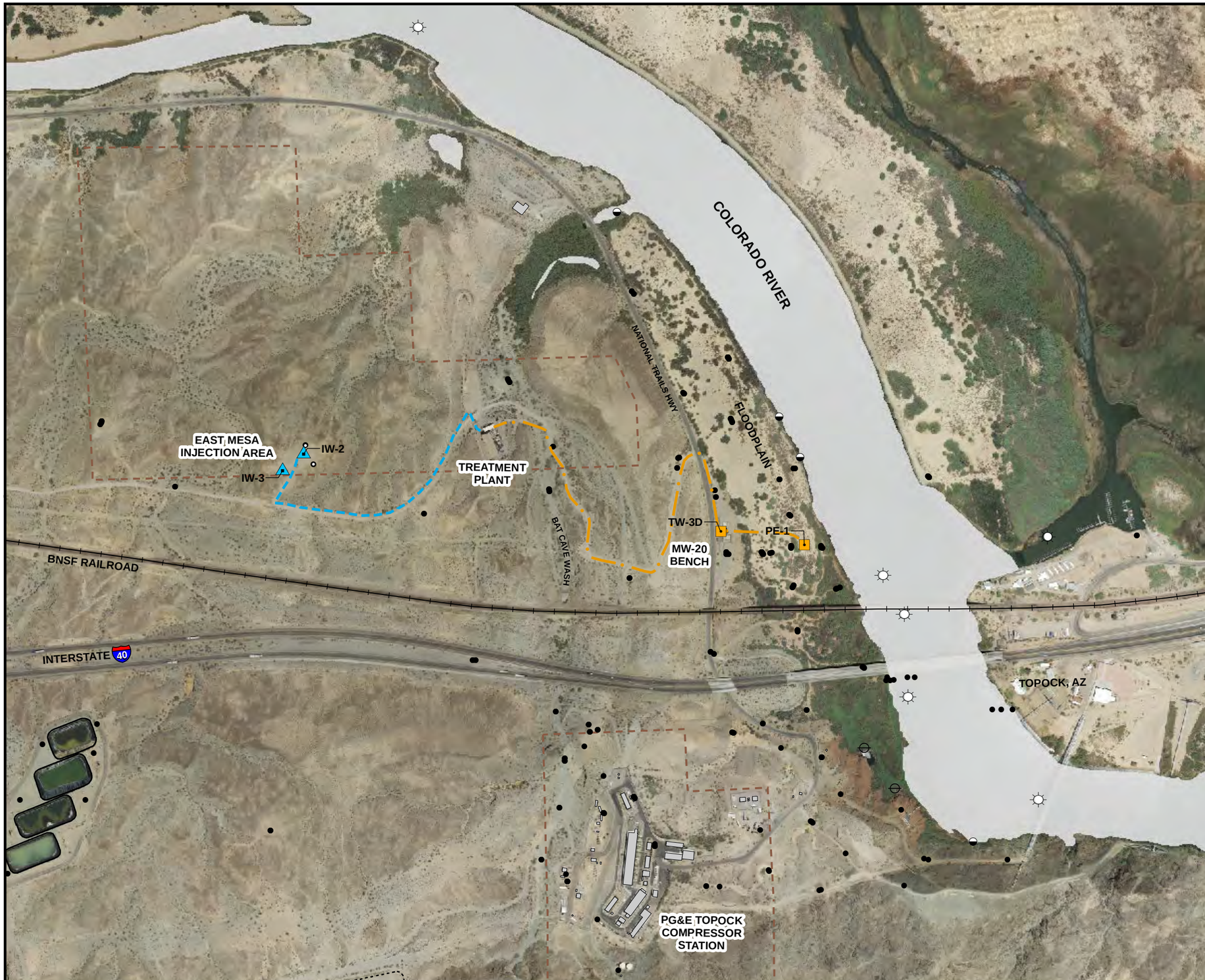
Analytes -	**BWQ**	**new**	new biennial water quality suite, for collection with the 3Q/4Q 2013 & 4Q 2015 GMP events:	cations (Ca, Mg, Na, Fe, Mn, B), TDS, anions (bromide, chloride, sulfate), alkalinity, and COPC metals (Mo, Se). **BWQ+OD** indicates biennial stable isotope analyses are added.
	BKG	current	Background Study metals list	Al, Sb, As, Ba, Be, B, Ca, Cd, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn
	T22	current	Title 22 metals list	Sb, As, Ba, Be, Cd, Cr, Co, Cu, Pb, Hg, Mo, Ni, Se, Ag, Tl, V, Zn
	As	current	Arsenic	
	rdx	current/new	Additional redox indicator	Ammonia added to AWQ, PMP, or BWQ allows for chemical evaluation of redox conditions.

Location vs. Plume -	BCW, ER, TCS	Bat Cave Wash, East Ravine, Topock Compressor Station
	FP, NTH	Floodplain (area east of NTH along Colorado River) and NTH or National Trails Highway
	N, E, S, W	north, east, south or west relative to location (e.g., E of BCW)
Remedy Role -	DR, DG, RE	Dose-response monitoring, or down gradient monitoring, or riverbank extraction monitoring
	NTH IRZ	National Trails Highway in situ reduction zone
	IRL	Inner Recirculation Loop
	TCS	Topock Compressor Station Loop, including Transwestern Bench and East Ravine Extraction remedy monitoring
	FWI	Freshwater injection monitoring well
Comments -	IMCP	This well is part of the IM chemical performance monitoring plan and has an assigned Cr(VI) trigger level.
	IM-3 CZ	This well is located within the IM-3 capture zone

Acronyms and Abbrevations -

µg/L	micrograms per liter	DR	dose-response monitoring	NE	northeast
Ag	silver	E	east	Ni	nickel
Al	aluminum	ER	East Ravine	NTH	National Trails Highway
As	arsenic	F	fluoride	OD	oxygen and deuterium stable isotopes (defined as an analytical suite)
AWQ	annual water quality analysis (defined as an analytical suite)	Fe	iron		
B	boron	FP	floodplain	Pb	lead
Ba	barium	FWI	freshwater injection monitoring well	PMP	Performance Monitoring Program (defined as an analytical suite)
BCW	Bat Cave Wash	Hg	mercury		
Be	beryllium	IM	interim measure	rdx	redox conditions
BKG	Background (already defined as an analytical suite)	IR	in situ site reduction	RE	riverbank extraction monitoring
BP	Byproduct (already defined as an analytical suite)	IRL	inner recirculation loop	S	south
BWQ	biennial water quality analysis (defined as an analytical suite)	IRZ	in situ reduction zone	Sb	antimony
Ca	calcium	ISPT	In situ pilot test	Se	selenium
Cd	cadmium	Mg	magnesium	T22	Title 22 metals (defined as an analytical suite)
Co	cobalt	Mn	manganese	TCS	Topock Compressor Station
COPC	contaminant of potential concern	Mo	molybdenum	TDS	total dissolved solids
Cr	chromium	N	north	Tl	thallium
Cr(VI)	hexavalent chromium	Na	sodium	Vn	vanadium
Cu	copper	NC	no change	W	west
DG	downgradient monitoring	ND	non-detect	Zn	zinc

Figures



VICINITY MAP

LEGEND

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

Notes: 1. Location map shows Interim Measure No. 3 (IM-3) active facilities as of current report.

2. See Figures 1-2 and 1-3 for complete monitoring locations and identifications.

N

0 600 1,200 Feet

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

FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORIING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

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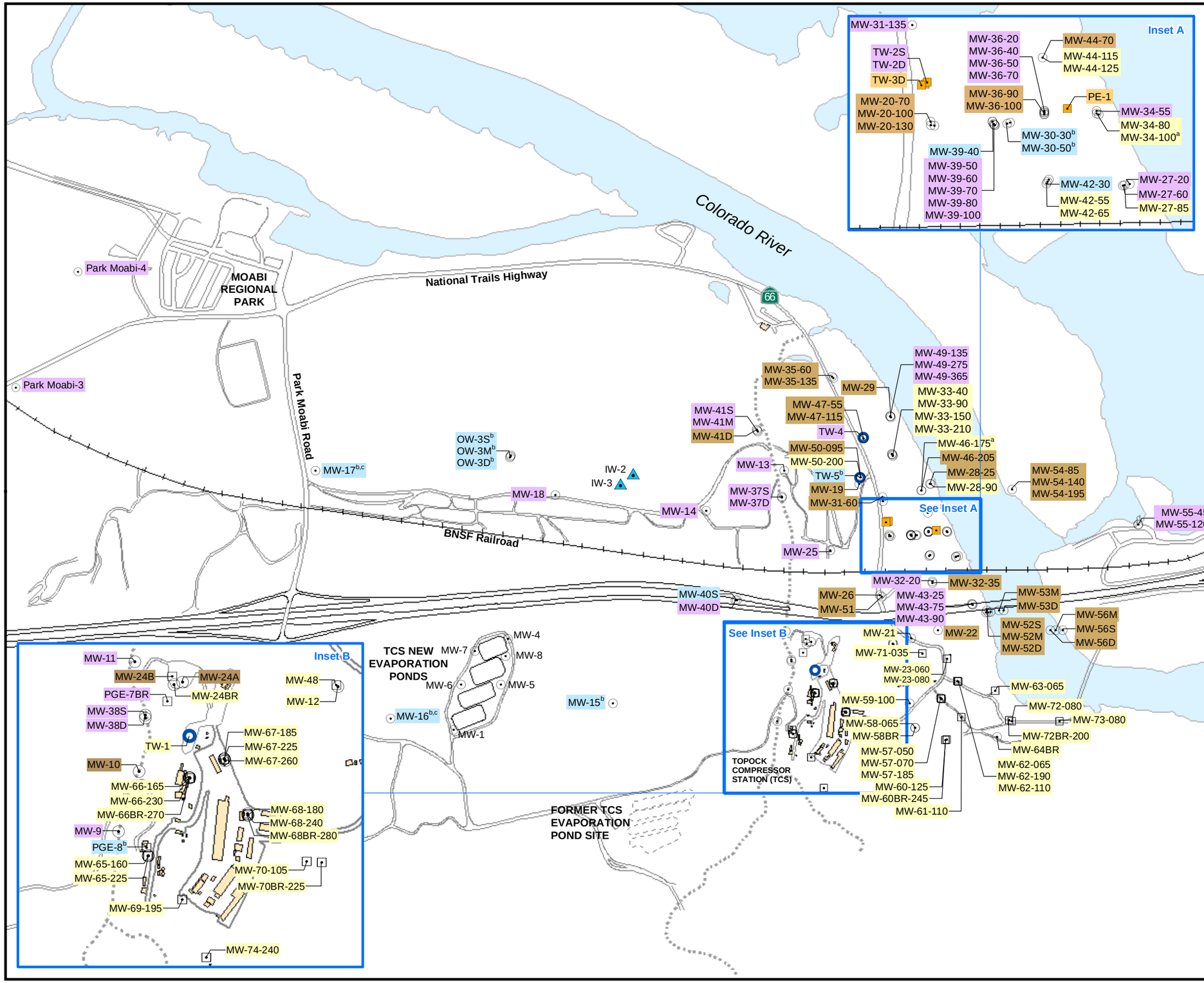

LEGEND

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

Sampling Frequency for Groundwater Monitoring Program (GMP)

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

Notes:

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

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

[c] **Background metals collected semiannually.**

N

0 500 1,000 Feet

California State Plane NAD83 Zone 5 US Feet

FIGURE 1-2
MONITORING LOCATIONS AND SAMPLING FREQUENCY FOR GMP

FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORIING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

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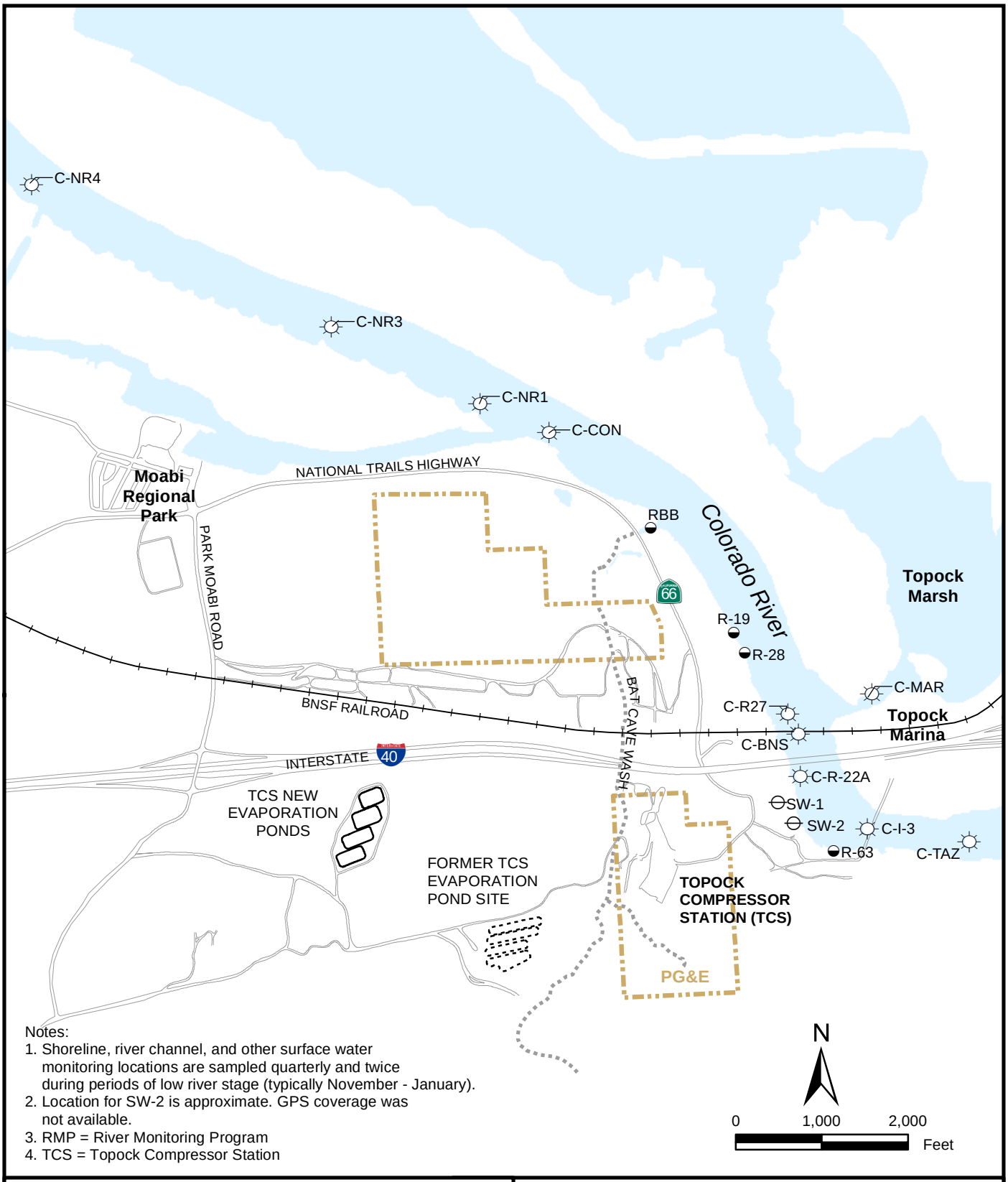

Notes:
1. Shoreline, river channel, and other surface water monitoring locations are sampled quarterly and twice during periods of low river stage (typically November - January).
2. Location for SW-2 is approximate. GPS coverage was not available.
3. RMP = River Monitoring Program
4. TCS = Topock Compressor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

LEGEND

- Shoreline Surface Water Monitoring Location
- River Channel Surface Water Monitoring Location
- Other Surface Water Monitoring Location

FIGURE 1-3
MONITORING LOCATIONS AND SAMPLING FREQUENCY FOR RMP

FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORIING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

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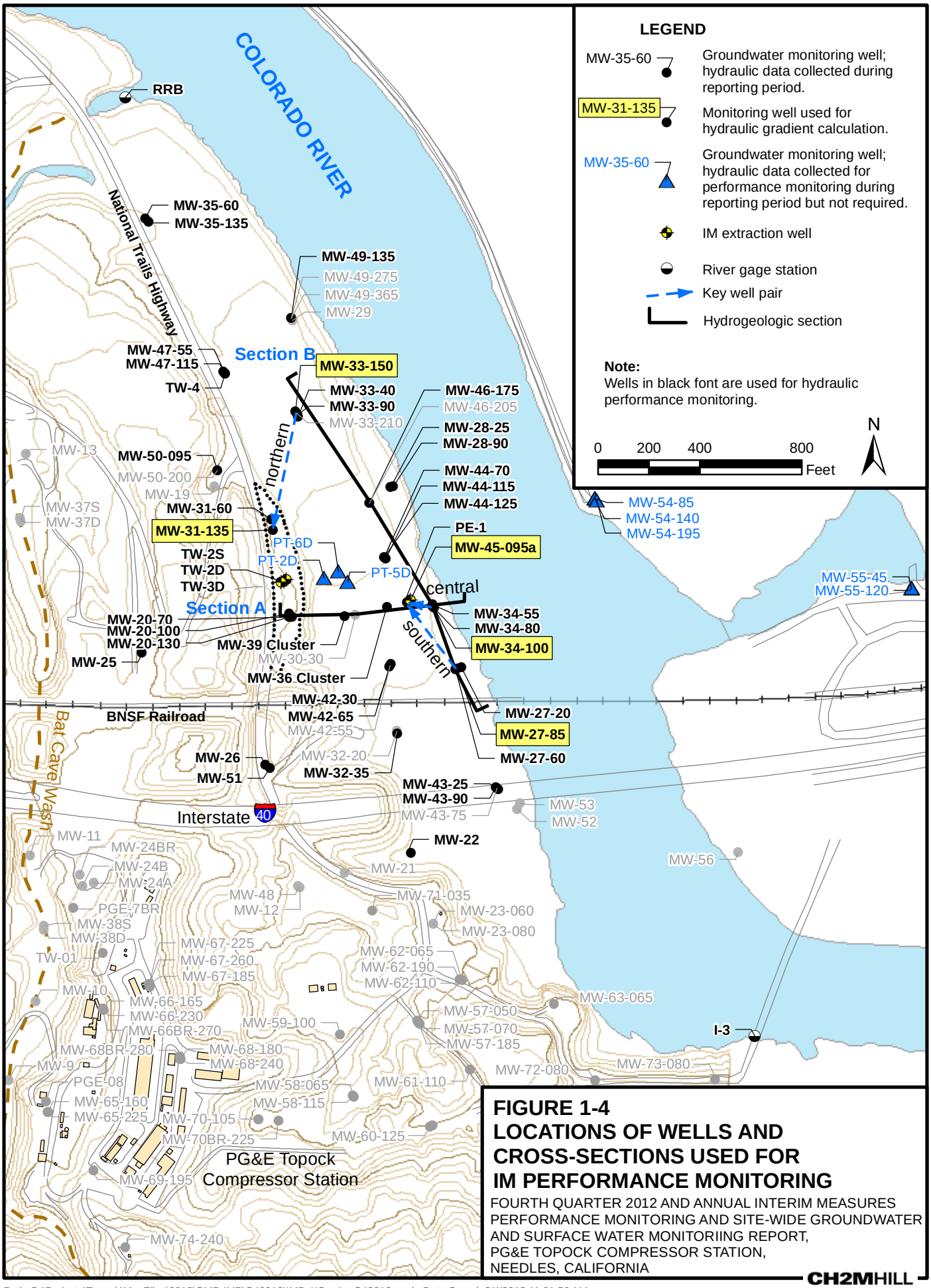

FIGURE 1-4
LOCATIONS OF WELLS AND CROSS-SECTIONS USED FOR IM PERFORMANCE MONITORING

FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORIING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

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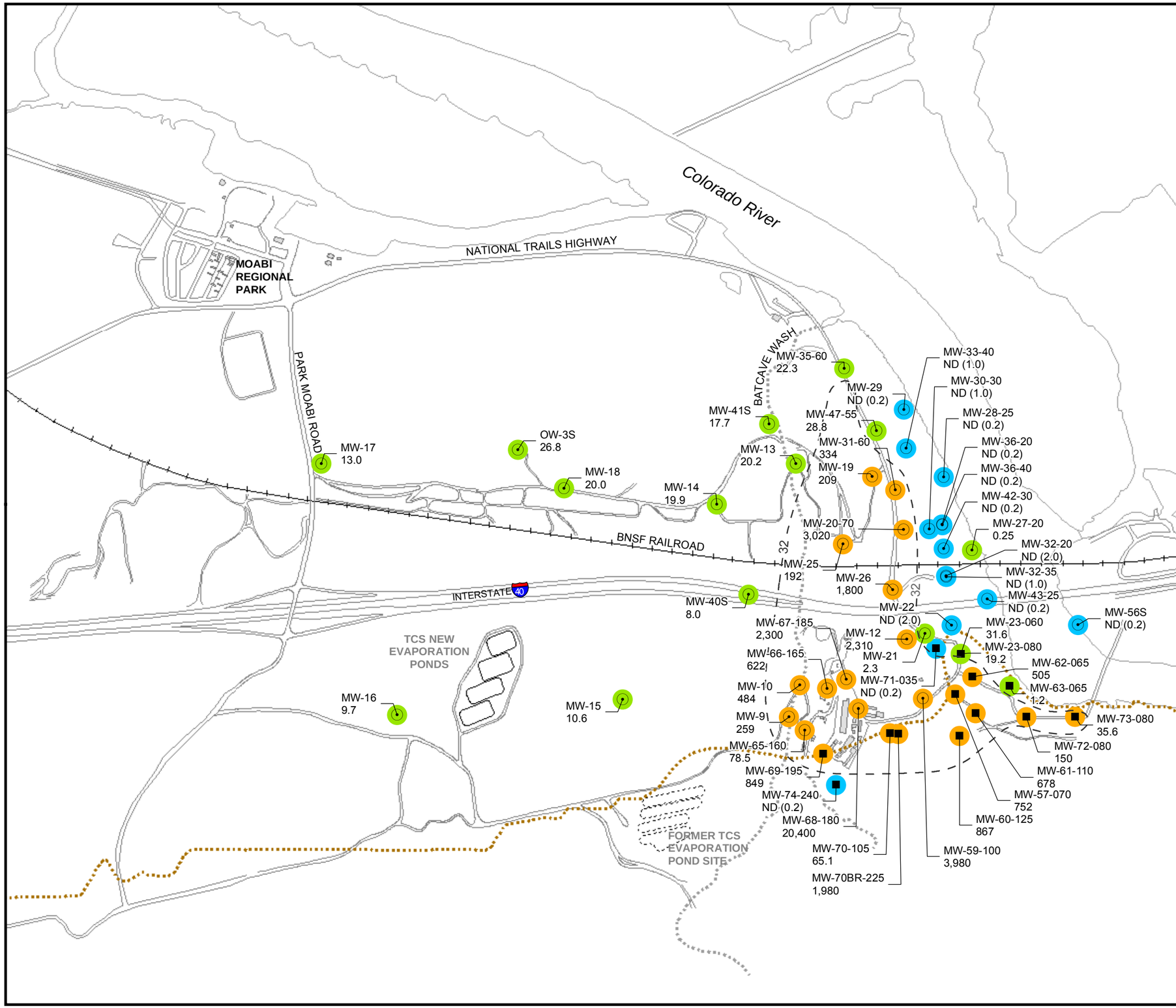

LEGEND

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

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

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

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

Cr(VI) Concentrations - Fourth Quarter 2012

- 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 fourth quarter 2012 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, FOURTH QUARTER 2012

FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURE PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

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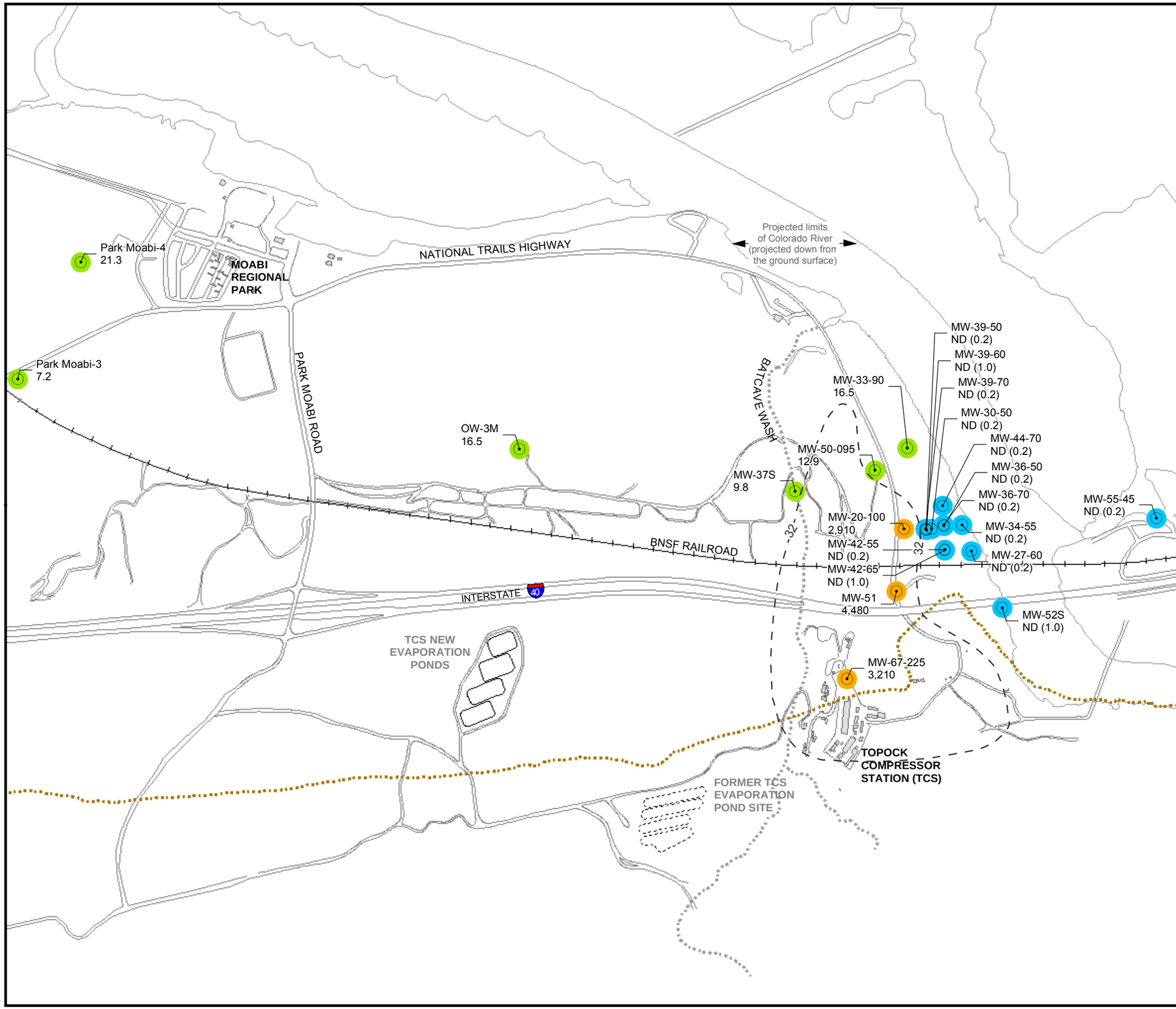

LEGEND

- 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 **Mid-Depth zone** of Alluvial Aquifer and Bedrock.

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

Cr(VI) Concentrations - Fourth Quarter 2012

- 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 fourth quarter 2012 groundwater sampling results.

Approximate bedrock contact at 425 feet above mean sea level.

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

N

0 500 1,000 Feet

FIGURE 3-1b
Cr(VI) SAMPLING RESULTS MID-DEPTH WELLS IN ALLUVIAL AQUIFER AND BEDROCK, FOURTH QUARTER 2012

FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURE PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

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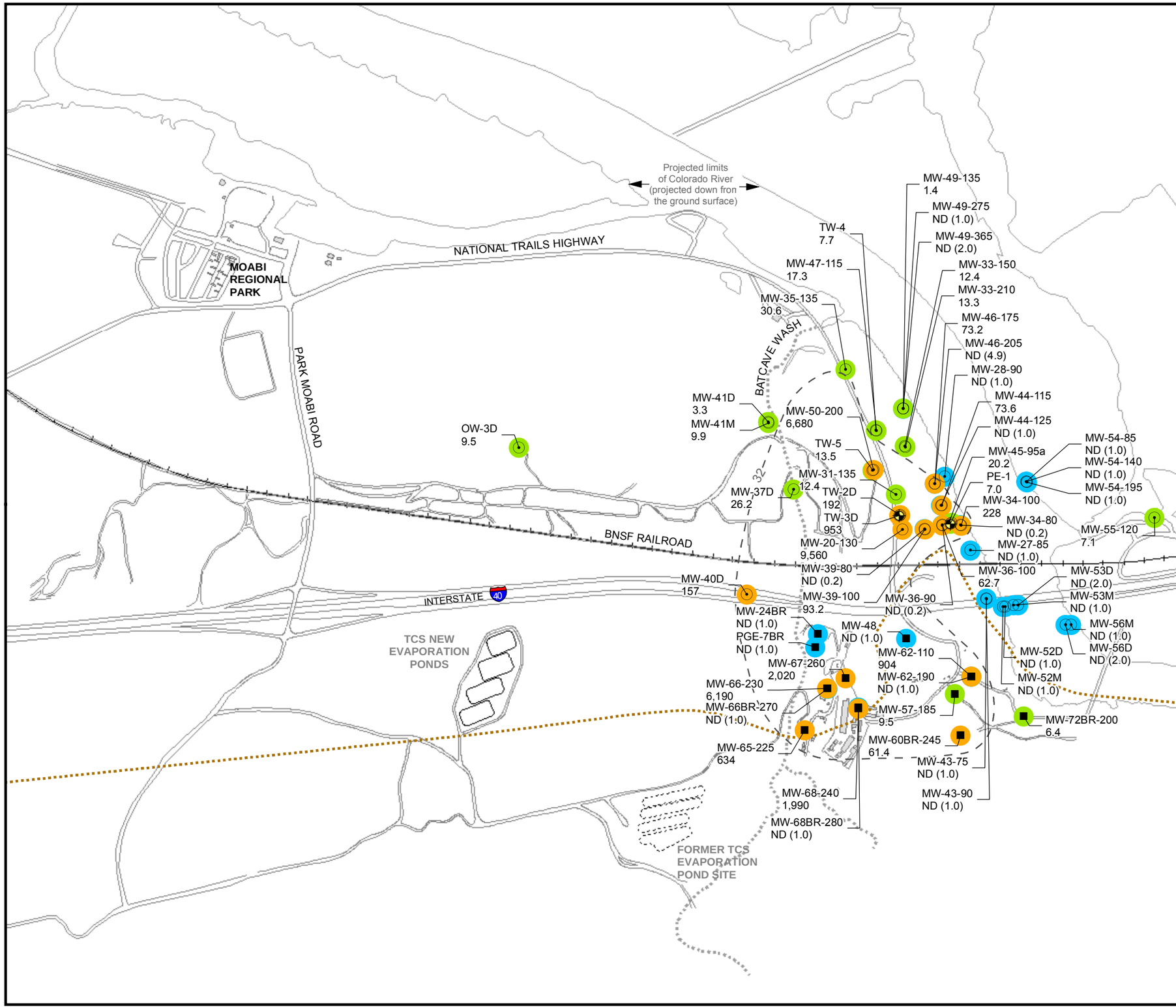

LEGEND

- Extraction well sampled during sampling event
- 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 **Deep zone** of Alluvial Aquifer and Bedrock.

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

Cr(VI) Concentrations - Fourth Quarter 2012

- 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 fourth quarter 2012 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 32 µg/L line for Cr(VI) in deep zone (80-90 feet below Colorado River) is estimated based on available groundwater sampling, hydrogeologic and geochemical data. There are no data confirming the existence of Cr(VI) under the Colorado River.
3. Long screened wells and wells screened across more than one depth interval are generally not posted on this map. See Table 3-1 for complete results.
4. TCS = Topock Compressor Station

N

0 500 1,000 Feet

FIGURE 3-1c
Cr(VI) SAMPLING RESULTS, DEEP WELLS IN ALLUVIAL AQUIFER AND BEDROCK, FOURTH QUARTER 2012

FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURE PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

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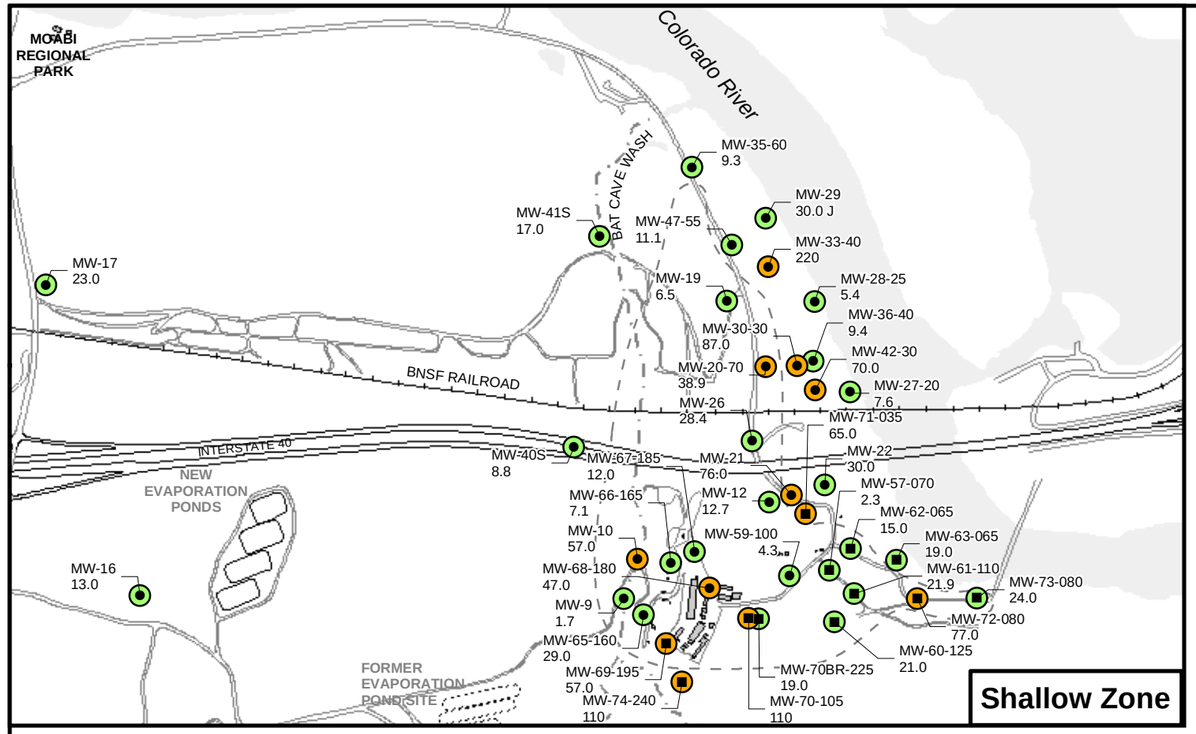

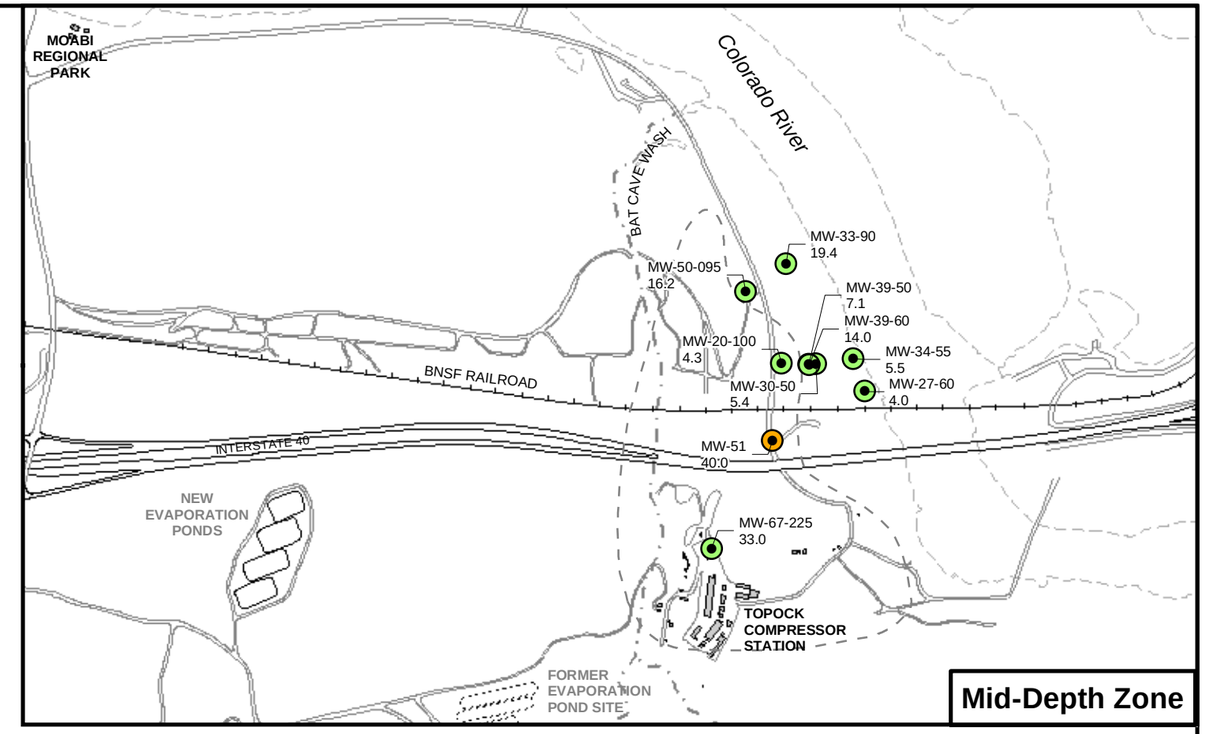

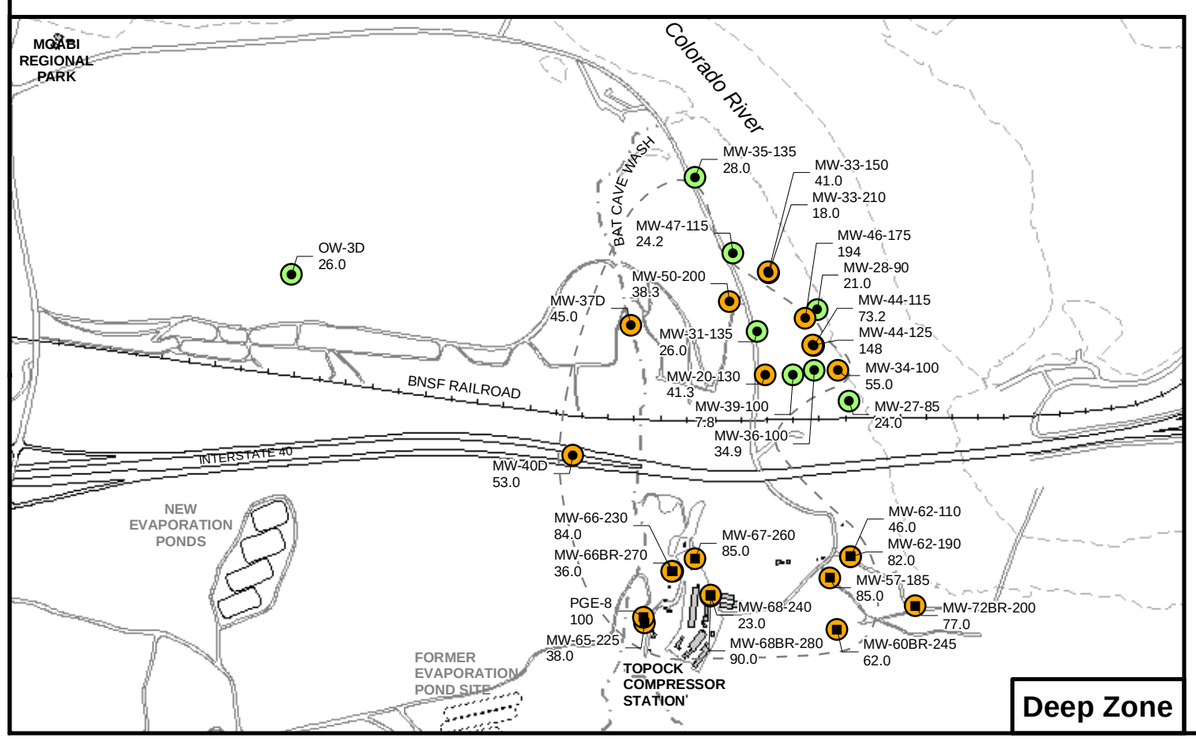

LEGEND

- Groundwater well completed in Alluvial Aquifer
- Groundwater well completed in bedrock
- Not detected
- Concentration < 36.3 µg/L
- Concentration > 36.3 µg/L
- Approximate Outline of Cr(VI) in Alluvial Aquifer depth zone >= 32 µg/L, December 2012

Dissolved Molybdenum Concentrations

MW-10 ← Well ID

5.8 ← Concentration in µg/L

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

Notes:
1. Molybdenum Background Study Upper Tolerance Limit (UTL) = 36.3 µg/L
2. There is no USEPA and California Maximum Contaminant Level for Molybdenum.
3. ND = Not detected at listed reporting limit (RL)
4. Long screened wells and wells screened across more than one depth interval are generally not posted on this map. See Table 3-2 for complete results and Table A-1 for well construction information.

FIGURE 3-2a
MOLYBDENUM SAMPLING RESULTS, FOURTH QUARTER 2012
FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURE PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

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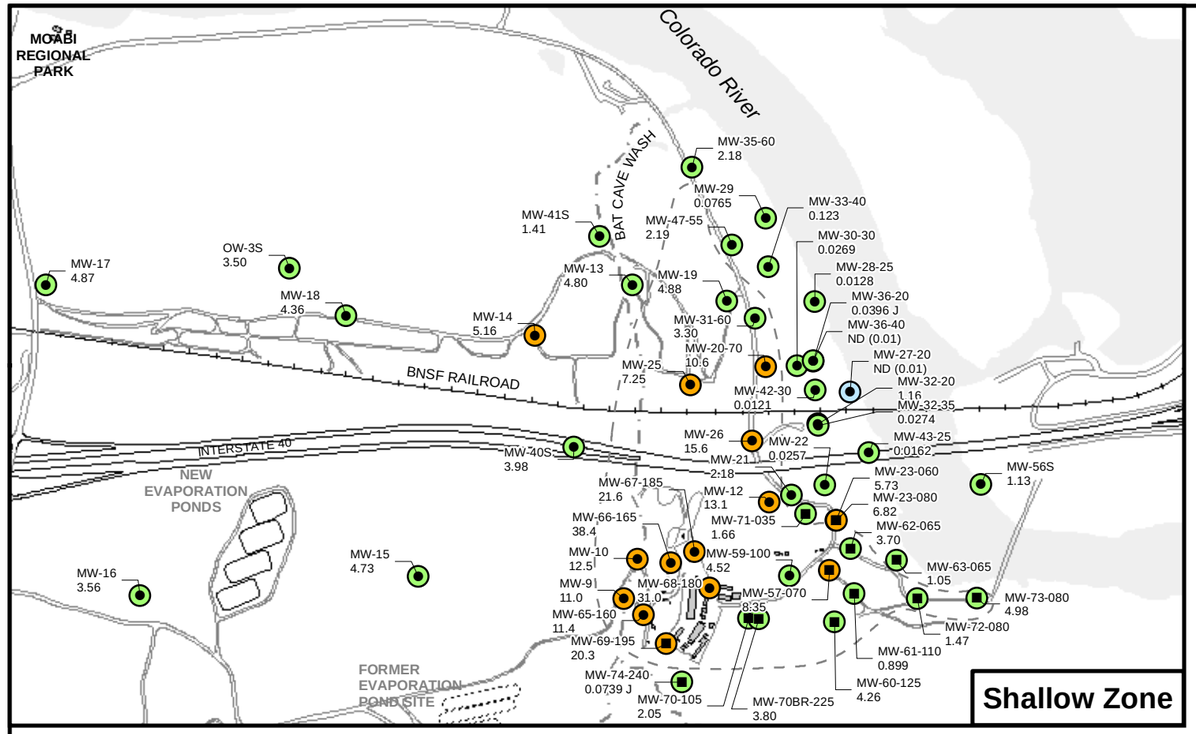

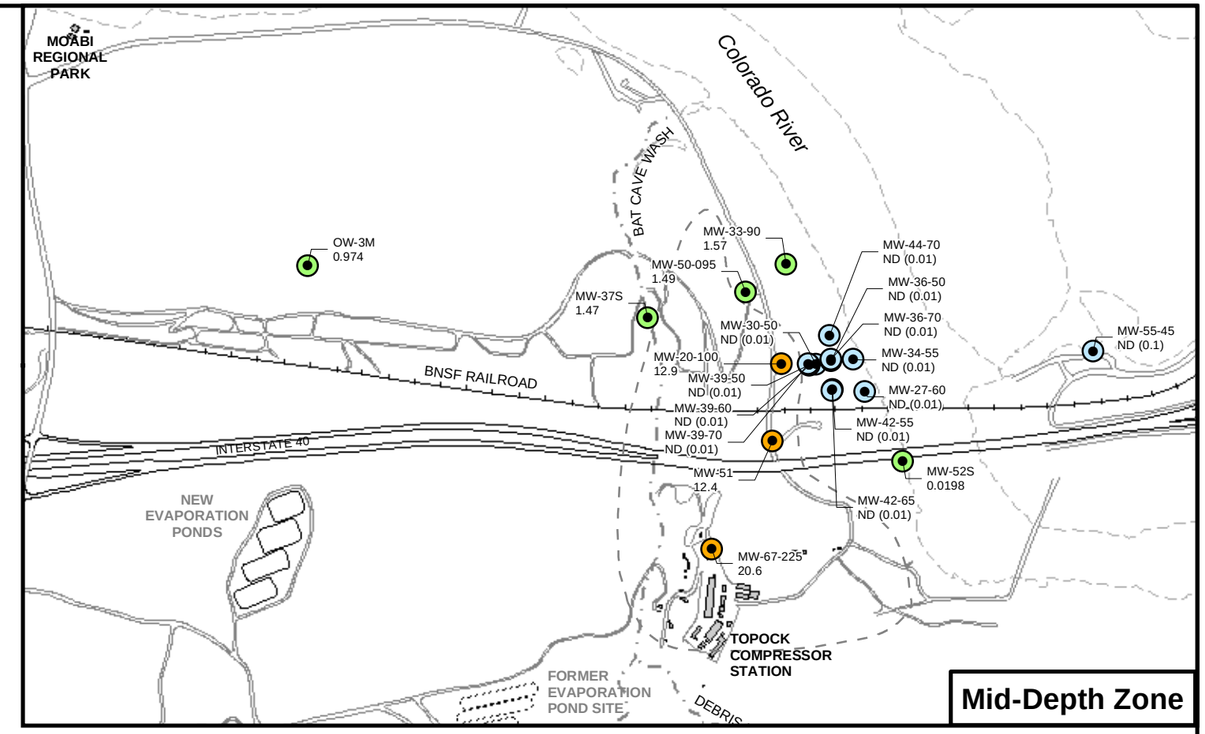

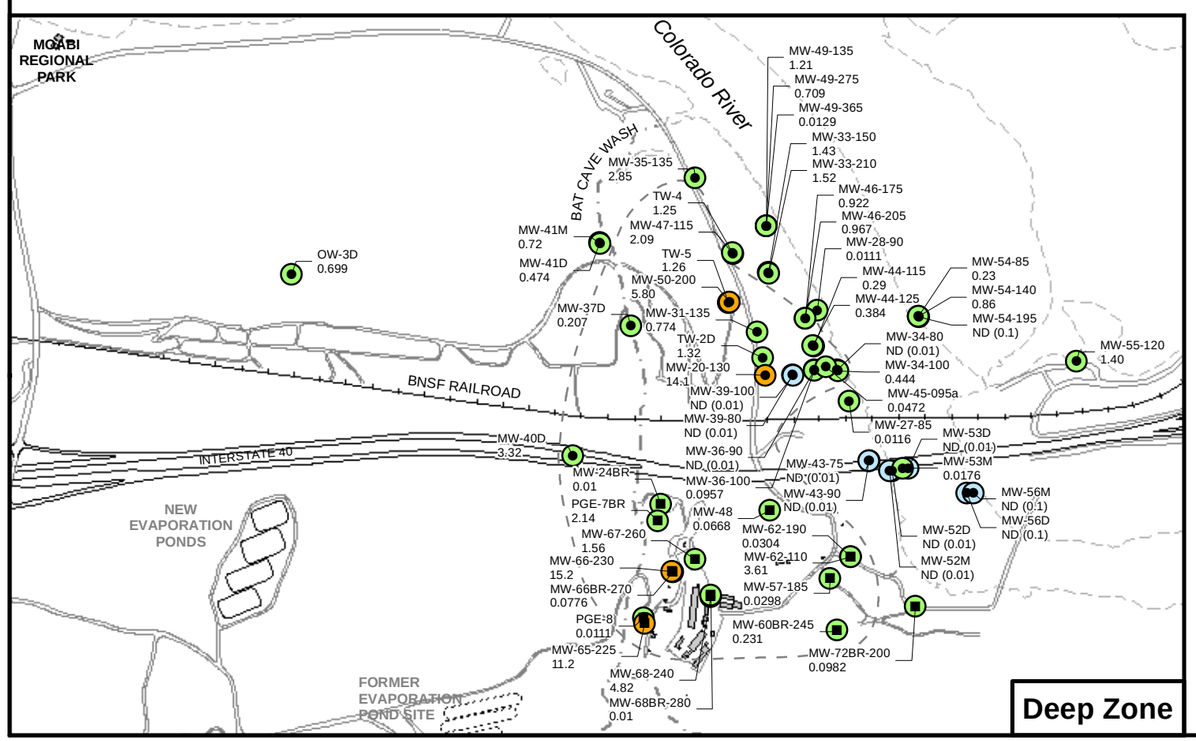

LEGEND

- Groundwater well completed in Alluvial Aquifer
- Groundwater well completed in bedrock
- Not detected
- Concentration < 5.03 mg/L
- Concentration > 5.03 mg/L
- Approximate outline of Cr(VI) in Alluvial Aquifer depth zone >= 32 µg/L, December 2012

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

Dissolved Nitrate as Nitrogen (N) Concentrations

MW-10 ← Well ID

5.8 ← Concentration in mg/L

Notes:

1. Nitrate as N Background Study Upper Tolerance Limit = 5.03 mg/L
2. Nitrate as N maximum contaminant level = 10 mg/L
3. ND = not detected at listed reporting limit (RL)
4. Long screened wells and wells screened across more than one depth interval are generally not posted on this map. See Table 3-2 for complete results and Table A-1 for well construction information.

FIGURE 3-2b
NITRATE SAMPLING RESULTS, FOURTH QUARTER 2012

FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURE PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

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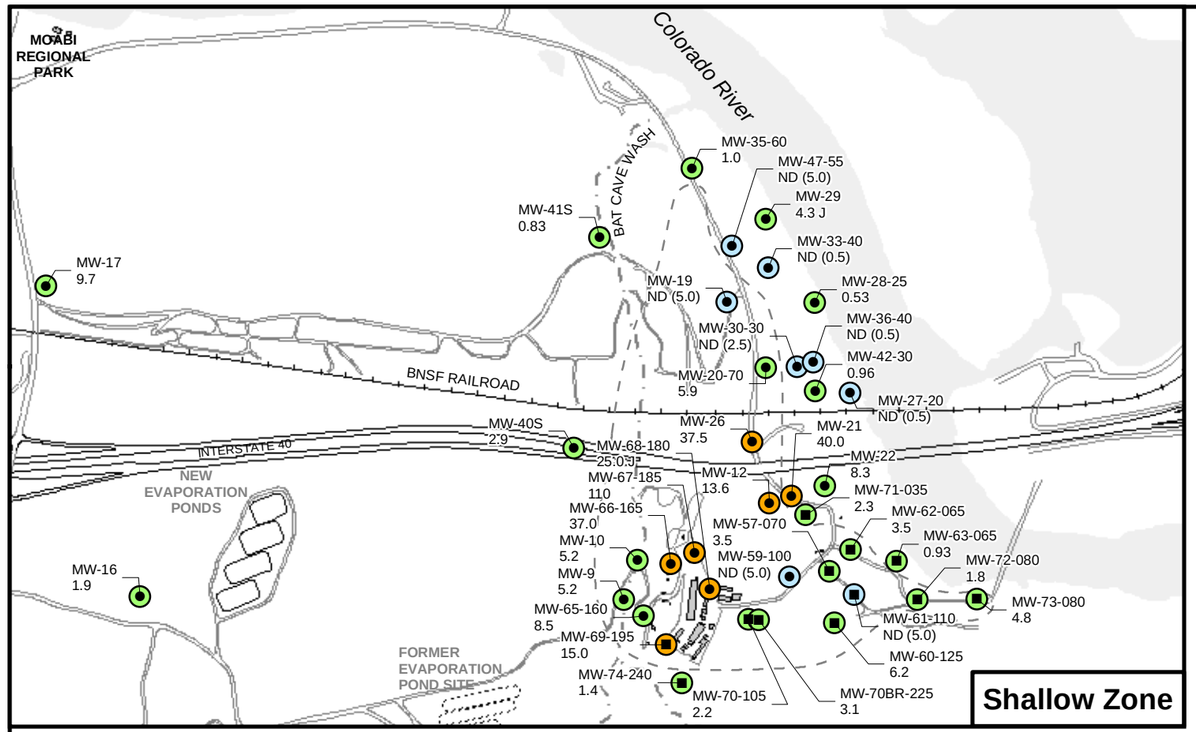
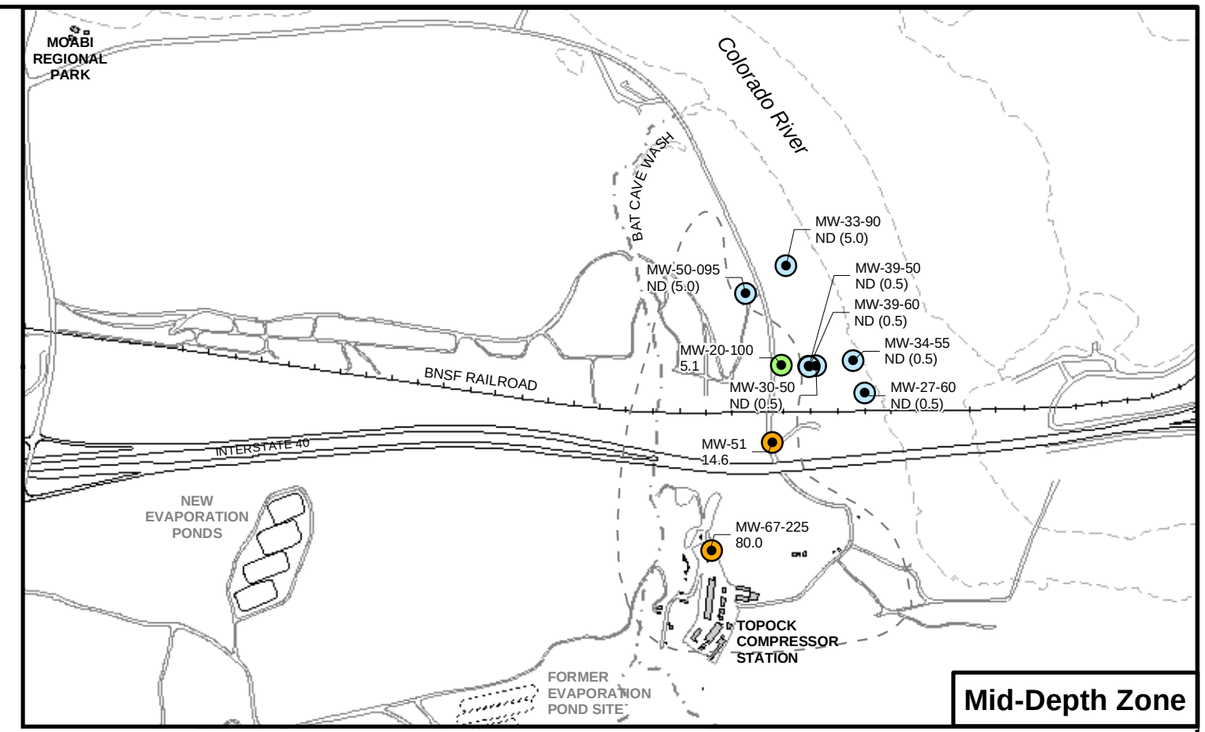
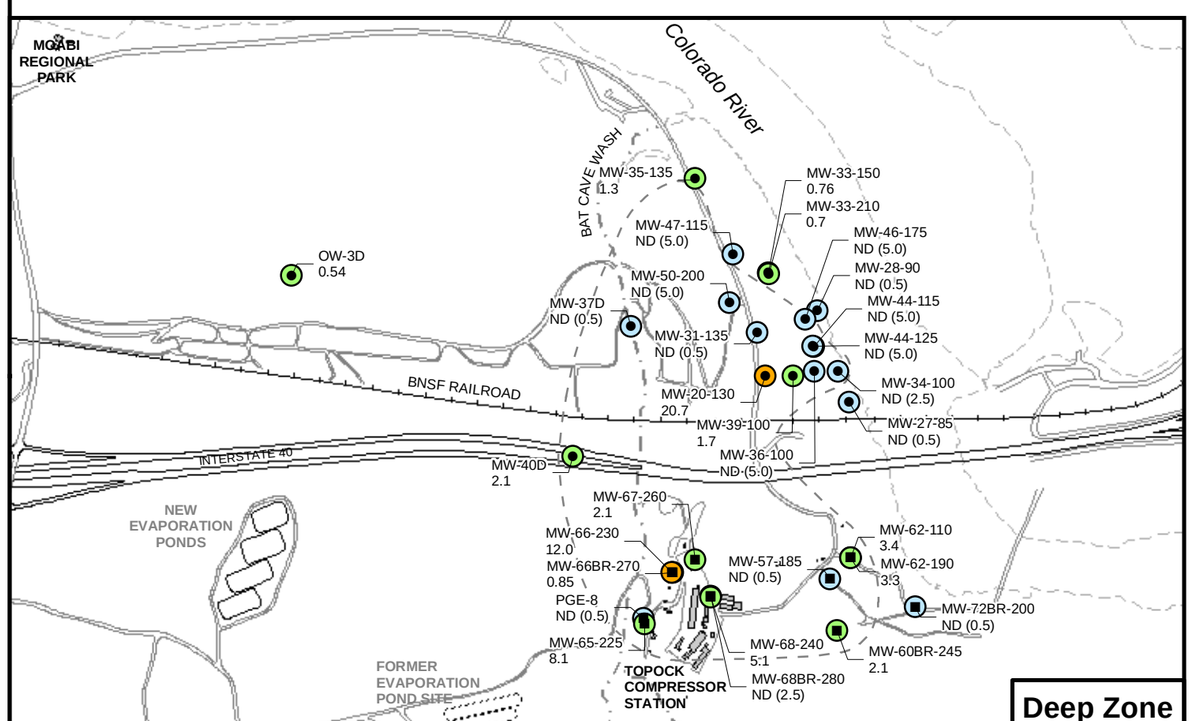


Shallow Zone



Mid-Depth Zone



Deep Zone

LEGEND

- Groundwater well completed in Alluvial Aquifer
- Groundwater well completed in bedrock
- Not detected
- Concentration < 10.3 µg/L
- Concentration > 10.3 µg/L
- Approximate outline of Cr(VI) in Alluvial Aquifer depth zone >= 32 µg/L, December 2012

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

Dissolved Selenium Concentrations

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

Notes:
1. Selenium Background Study Upper Tolerance Limit = 10.3 µg/L
2. Selenium applicable or relavant and appropriate requirement (ARAR) = 50.0 µg/L
3. ND = Not Detected at listed reporting limit (RL)
4. Long screened wells and wells screened across more than one depth interval are generally not posted on this map. See Table 3-2 for complete results and Table A-1 for well construction information.

FIGURE 3-2c
SELENIUM SAMPLING RESULTS, FOURTH QUARTER 2012

FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURE PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

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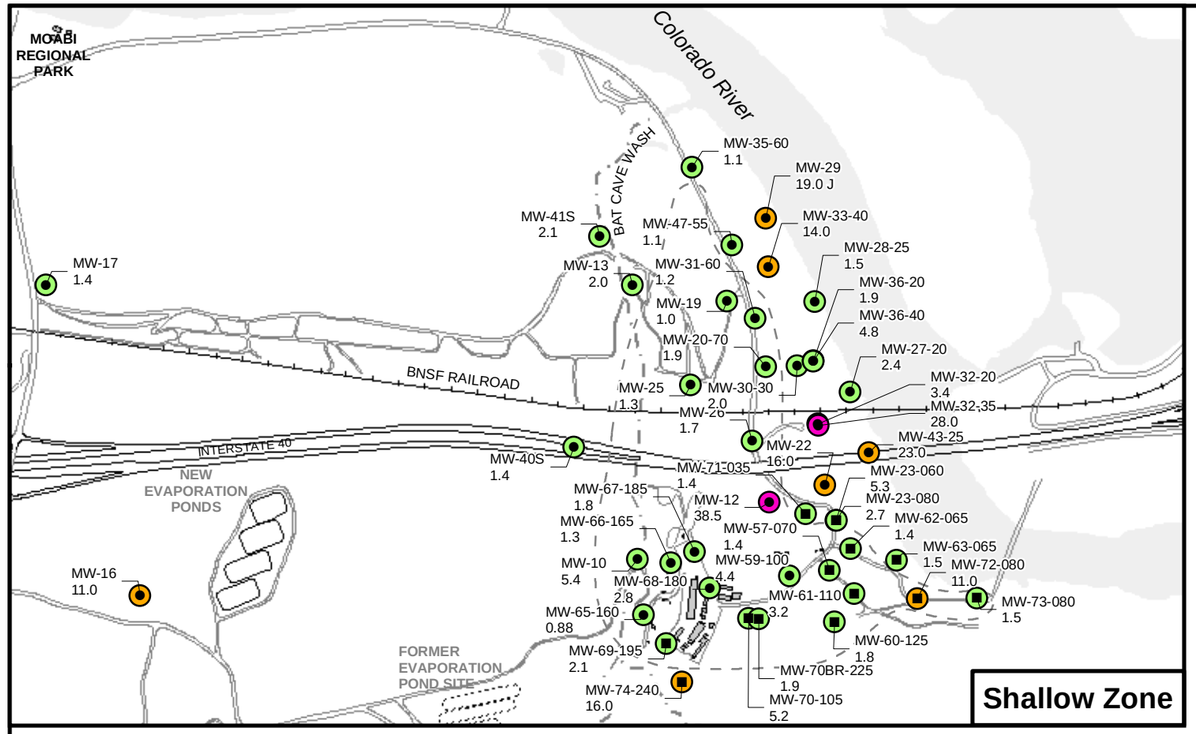

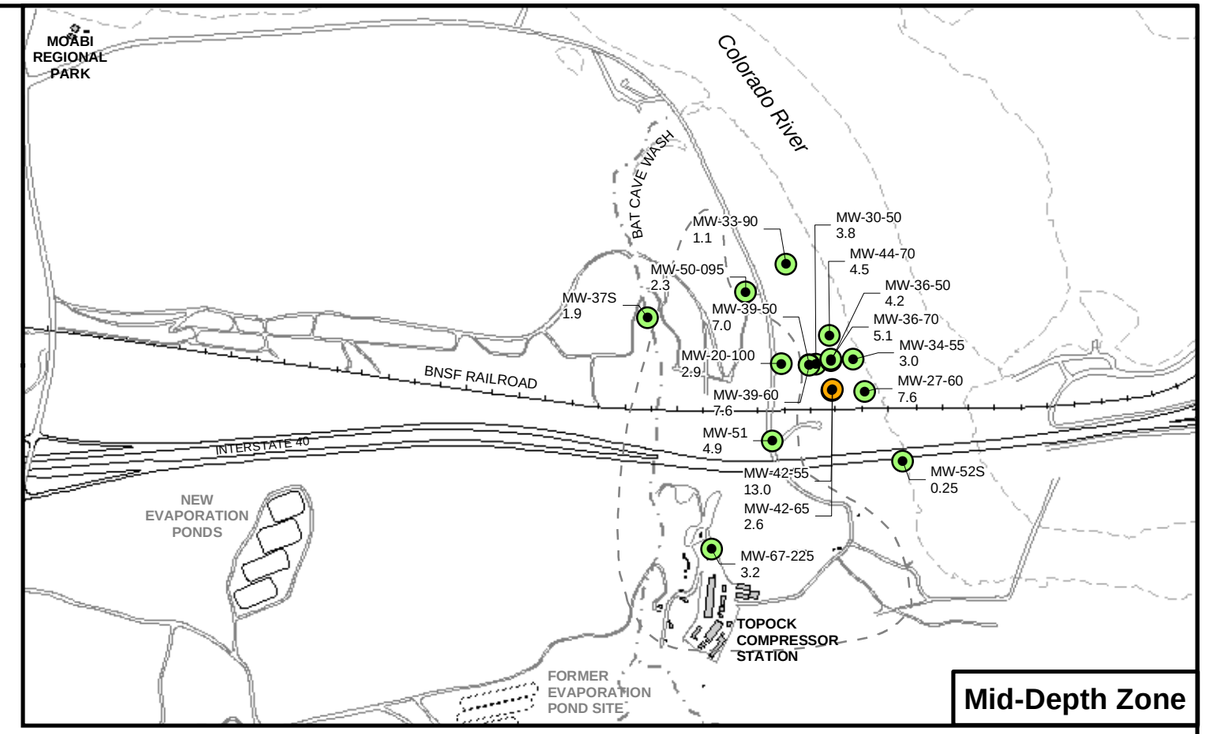

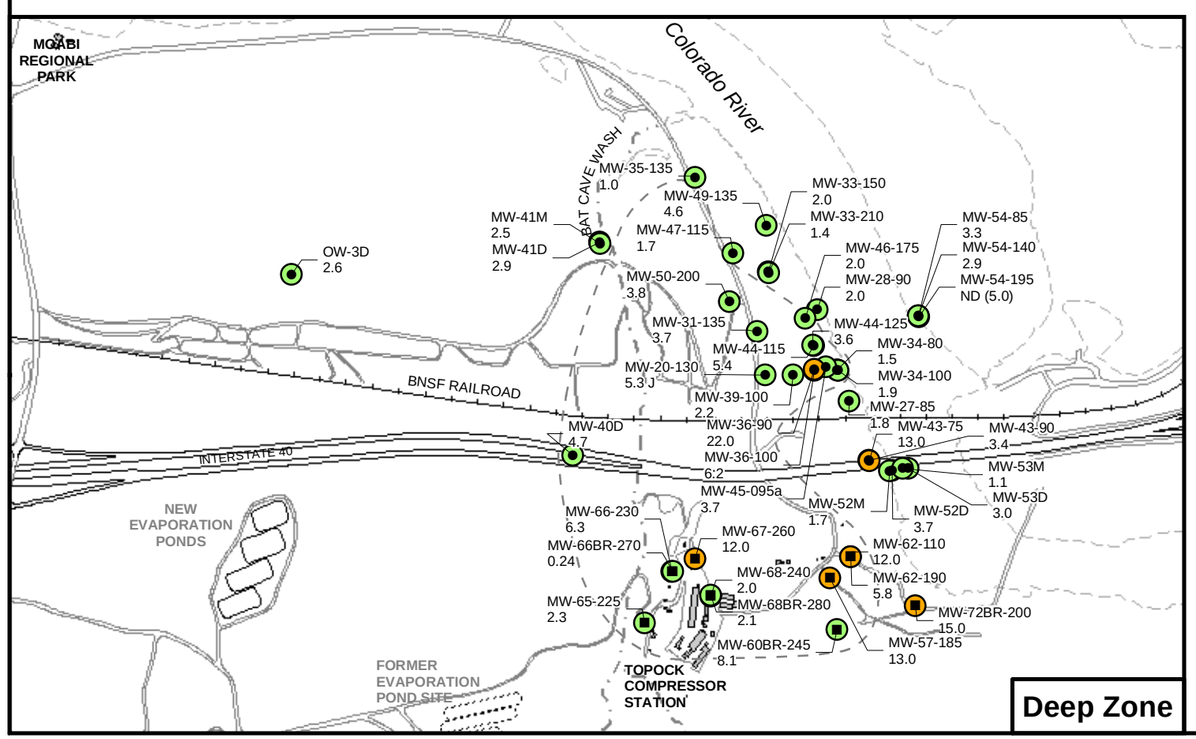

LEGEND

- ● Groundwater well completed in Alluvial Aquifer
- ■ Groundwater well completed in bedrock
- Not detected
- Concentration < 10 µg/L
- Concentration 10.1 to 24.3 µg/L
- Concentration > 24.3 µg/L
- Approximate outline of Cr(VI) in Alluvial Aquifer depth zone >= 32 µg/L, December 2012

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

Dissolved Arsenic Concentrations

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

Notes:
1. Arsenic Background Study Upper Tolerance Limit = 24.3 ug/L.
2. Arsenic Maximum Contaminant Level = 10.0 ug/L.
3. ND = not detected at listed reporting limit (RL)
4. Long screened wells and wells screened across more than one depth interval are generally not posted on this map. See Table 3-2 for complete results and Table A-1 for well construction information.

FIGURE 3-2d
ARSENIC SAMPLING RESULTS, FOURTH QUARTER 2012

FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURE PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

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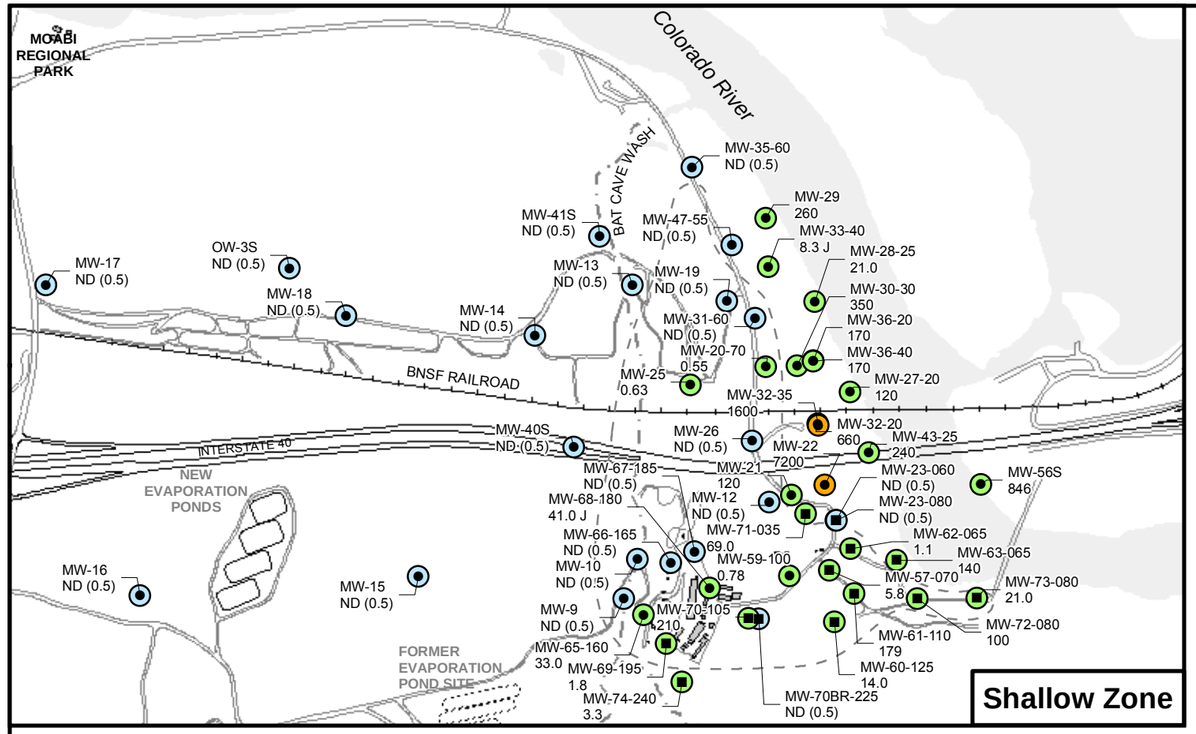

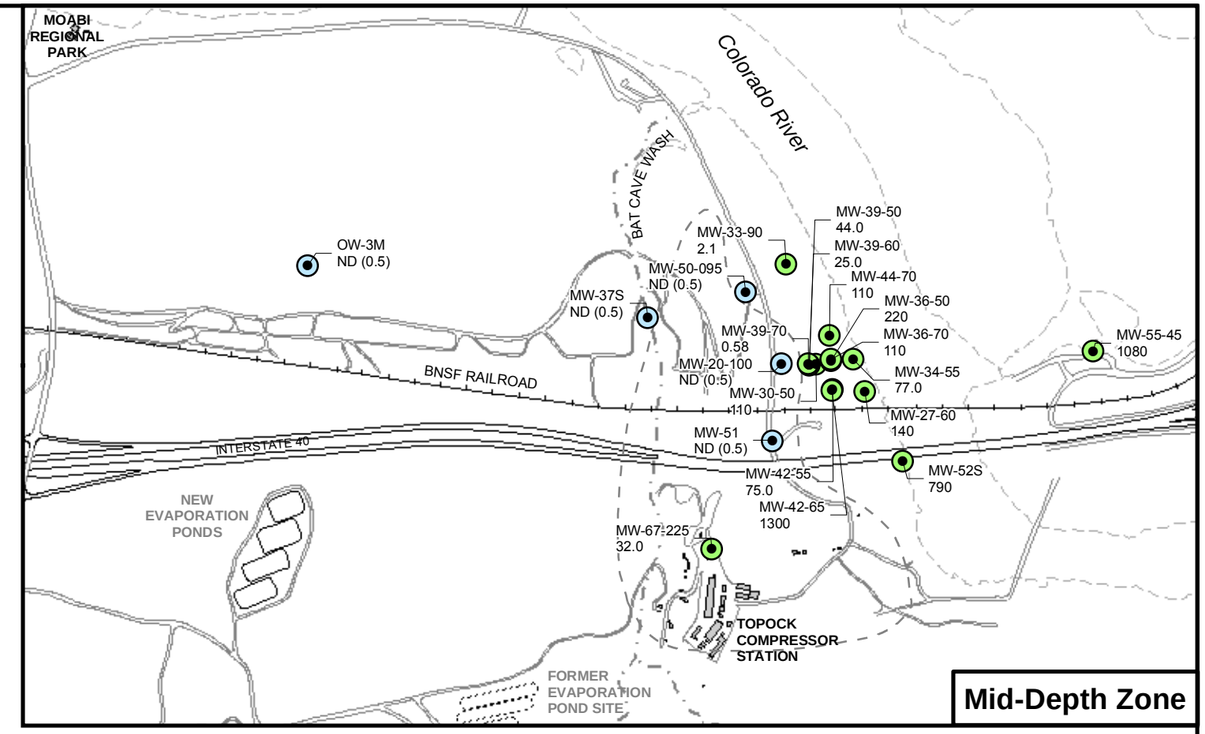

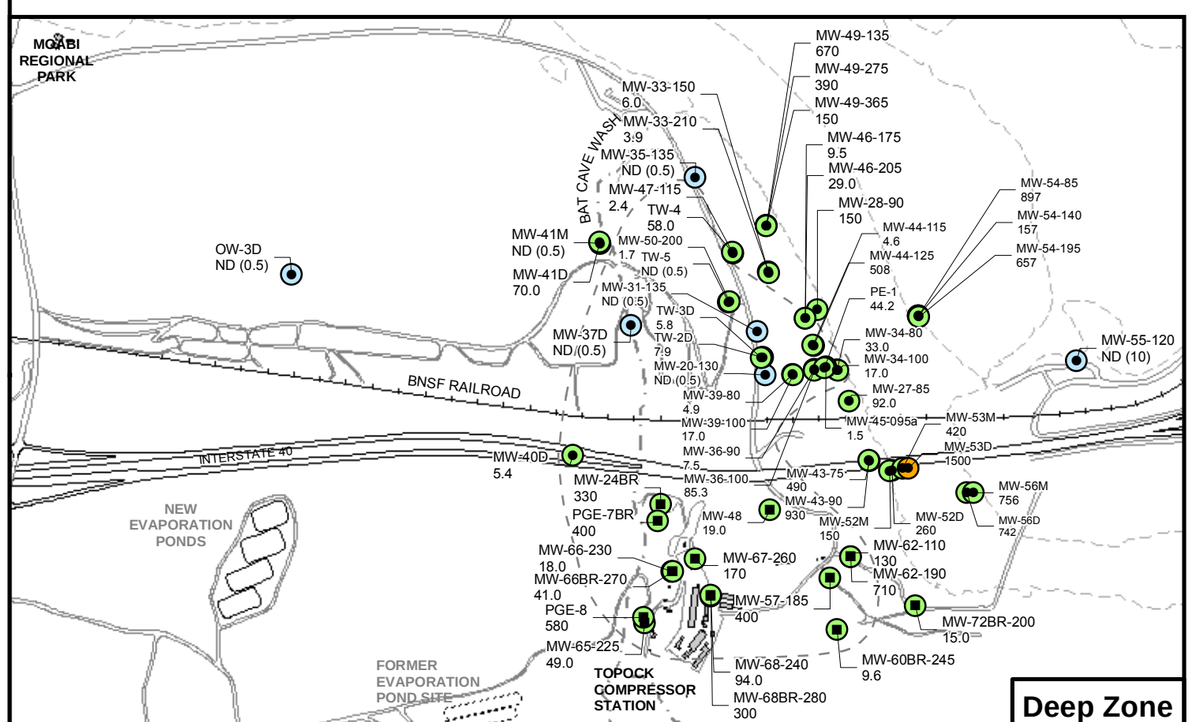

LEGEND

- ● Groundwater well completed in Allivual Aquifer
- ■ Groundwater well completed in bedrock
- Not detected
- Concentration < 1,320 µg/L
- Concentration >1,320 µg/L
- Approximate outline of Cr(VI) in Alluvial Aquifer depth zone >= 32 µg/L, December 2012

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

Dissolved Manganese Concentrations

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

Notes:
1. Manganese Background Study Report Upper Tolerance Limit = 1,320 ug/L.
2. There is no primary USEPA and california maximum contaminant level (MCL) for Manganese. The secondary MCL is 50 µg/L
3. ND = not detected at listed reporting limit (RL)
4. Long screened wells and wells screened across more than one depth interval are generally not posted on this map. See Table 3-2 for complete results and Table A-1 for well construction information

FIGURE 3-2e
MANGANESE SAMPLING RESULTS, FOURTH QUARTER 2012

FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURE PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

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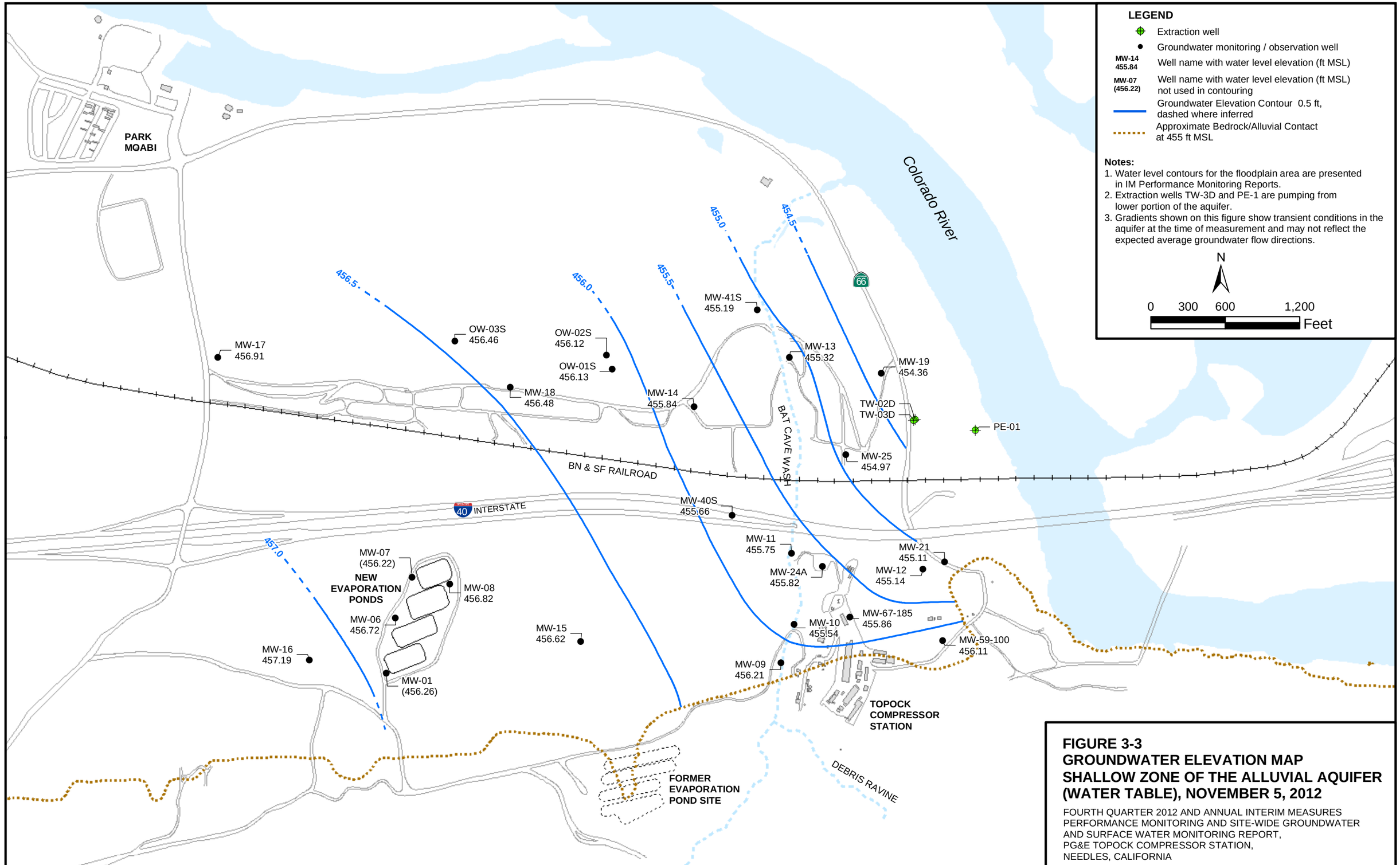

FIGURE 3-3
GROUNDWATER ELEVATION MAP
SHALLOW ZONE OF THE ALLUVIAL AQUIFER (WATER TABLE), NOVEMBER 5, 2012

FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

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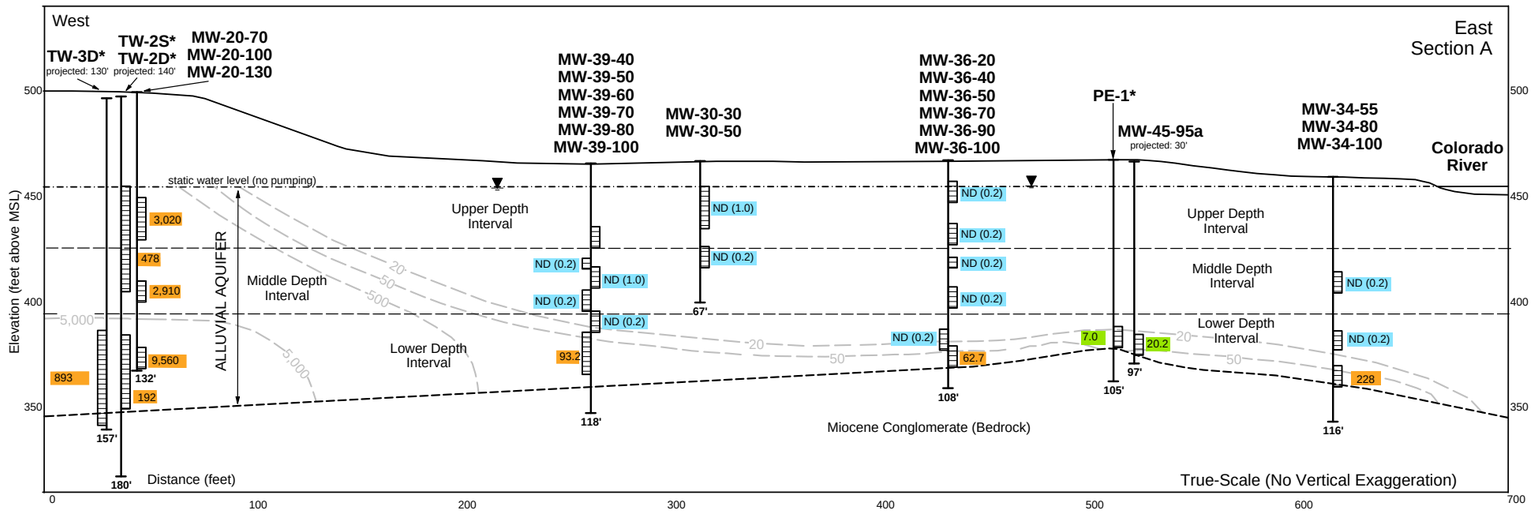
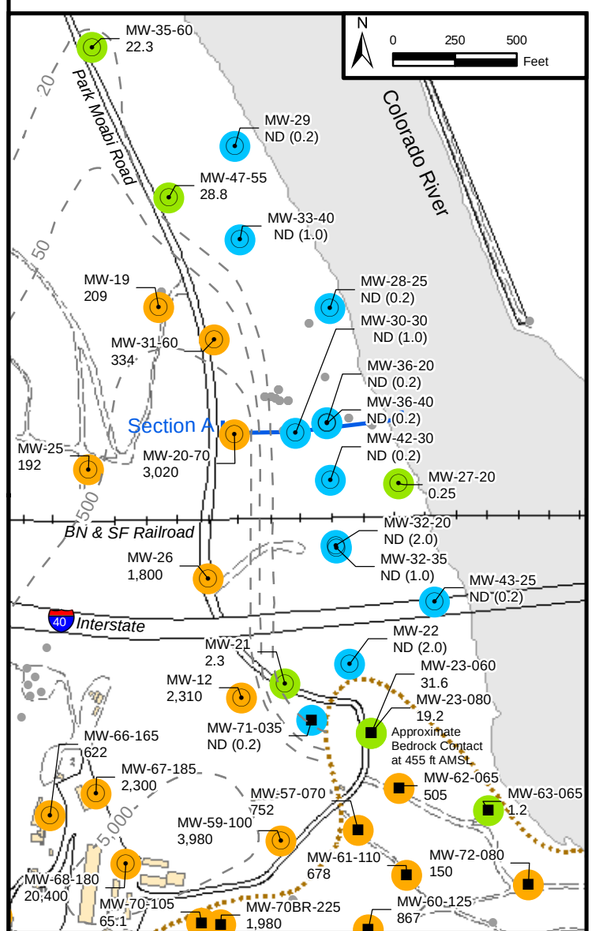
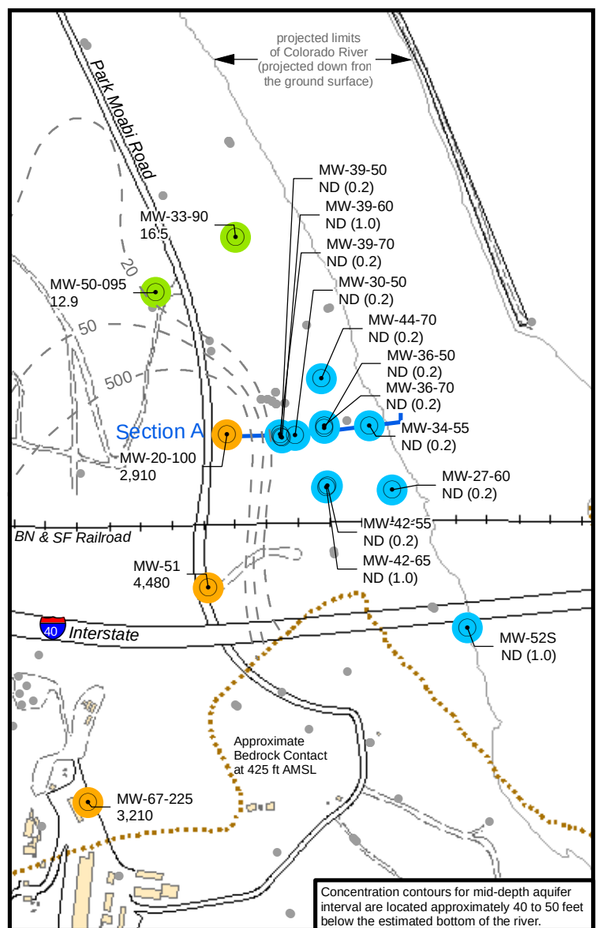
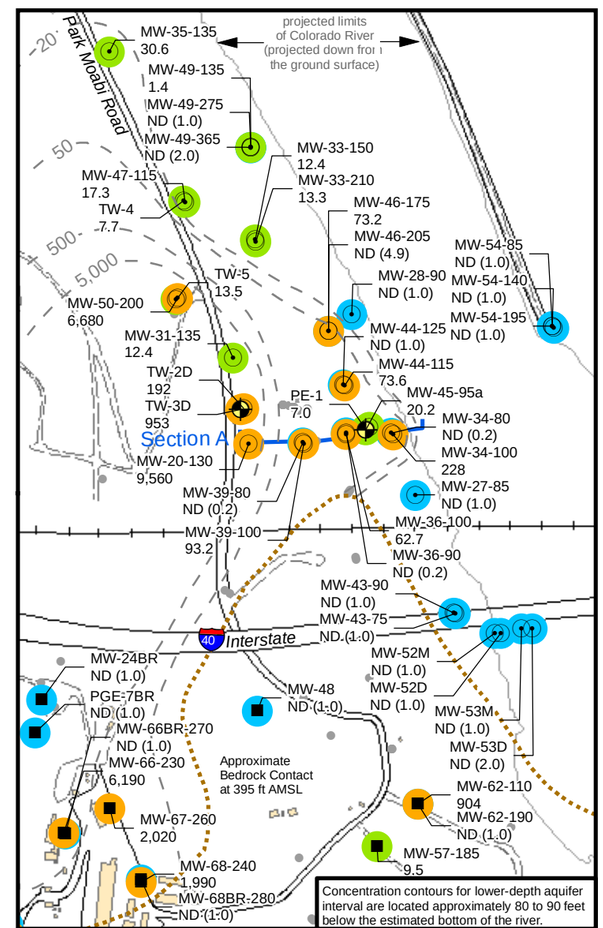




Shallow Wells (Upper Depth Interval)



Mid-Depth Wells (Middle-Depth Interval)



Deep Wells (Lower Depth Interval)

LEGEND

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

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

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

Cr(VI) Concentrations - Fourth Quarter 2012

- Not detected at analytical reporting limit
- Concentration between reporting limit and 32 µg/L
- Concentration ≥ 32 µg/L
- 50 — Inferred Cr(VI) concentration contour within Alluvial aquifer depth interval based on fourth quarter 2012 groundwater sampling results.
- Hydrogeologic Section A
- Approximate bedrock contact

Notes:

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

FIGURE 4-1
MAXIMUM Cr(VI) CONCENTRATIONS IN ALLUVIAL AQUIFER AND BEDROCK, FOURTH QUARTER 2012

FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURE PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

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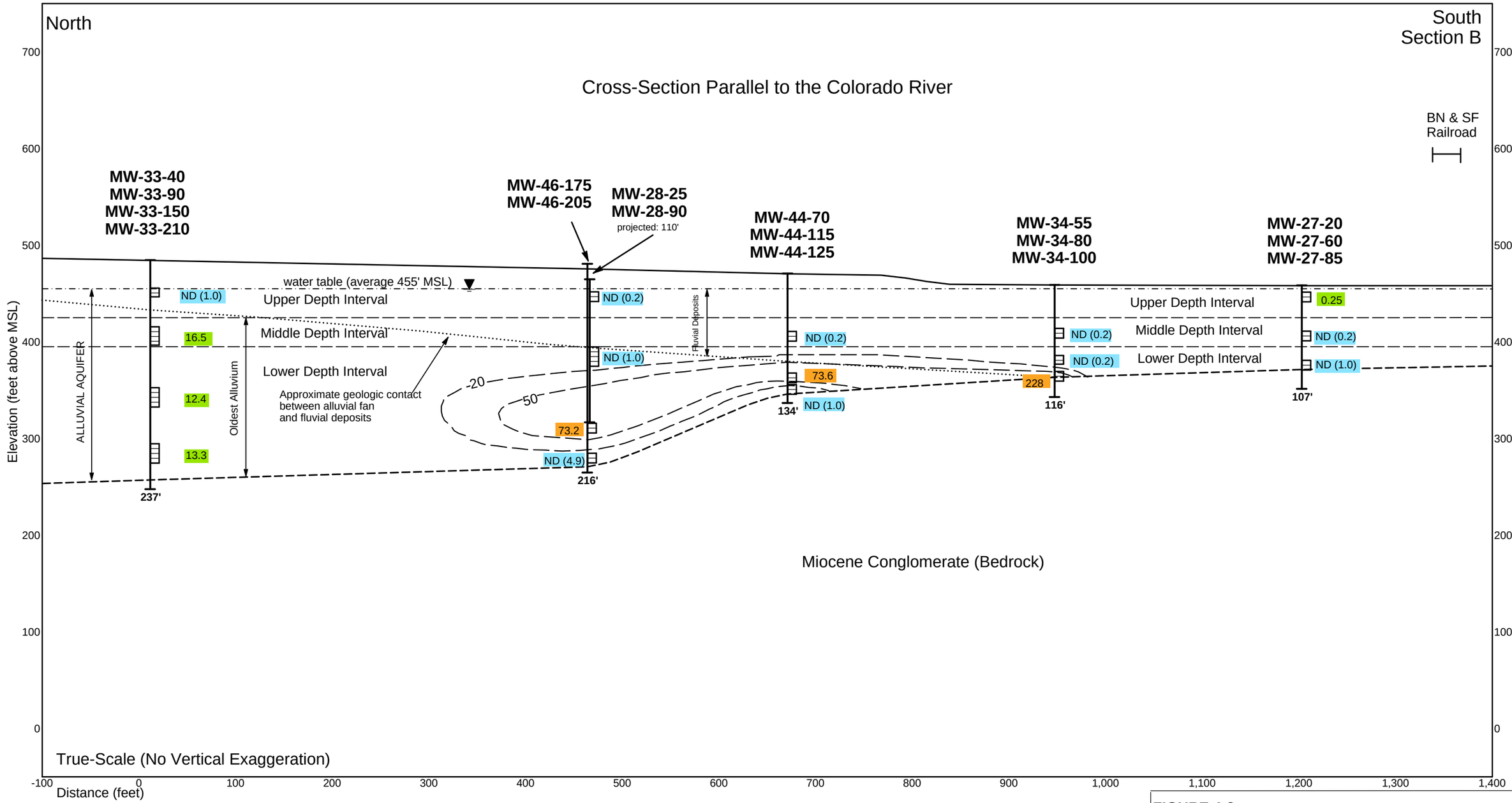

Notes:

1. ND = Not detected at listed reporting limit.
2. See Table 3-1 for additional sampling data and prior results for wells on this figure.
3. See Figure 1-4 for location of this cross-section.

water level

well screen

3,810

boring depth (feet) 103'

-— —- 50 -— —-

Inferred hexavalent chromium contours (µg/L) in Alluvial Aquifer from fourth quarter 2012.

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

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

FIGURE 4-2
Cr(VI) CONCENTRATIONS
FLOODPLAIN CROSS-SECTION B,
FOURTH QUARTER 2012

FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

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C:\USERS\E2USER\DOCUMENTS\TOPOCK\GINT\2012_4Q\FIGURE_4-2_XSECB_CR.GDW;

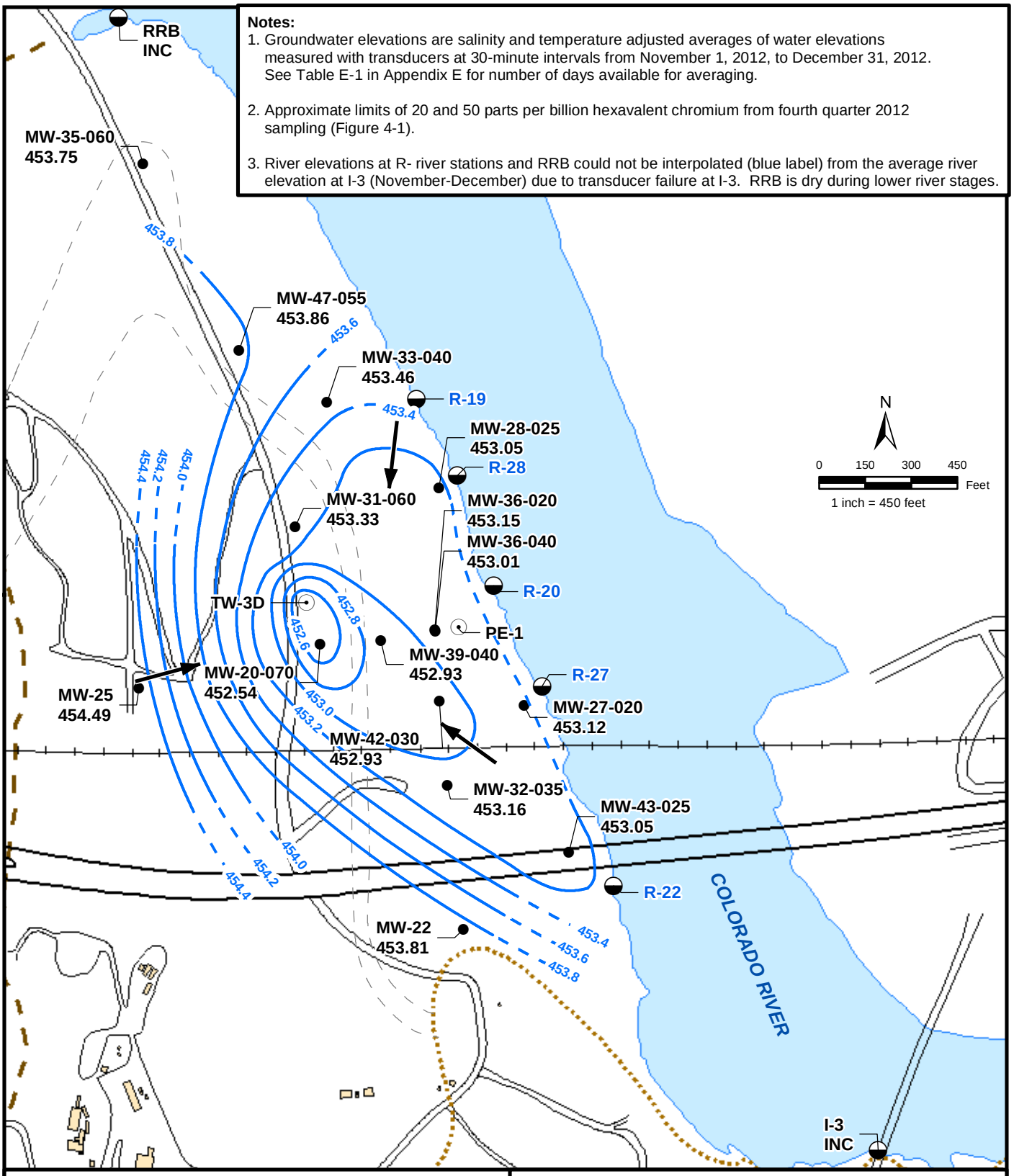

FIGURE 4-3a
AVERAGE GROUNDWATER ELEVATIONS IN SHALLOW WELLS, FOURTH QUARTER 2012

FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORIING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

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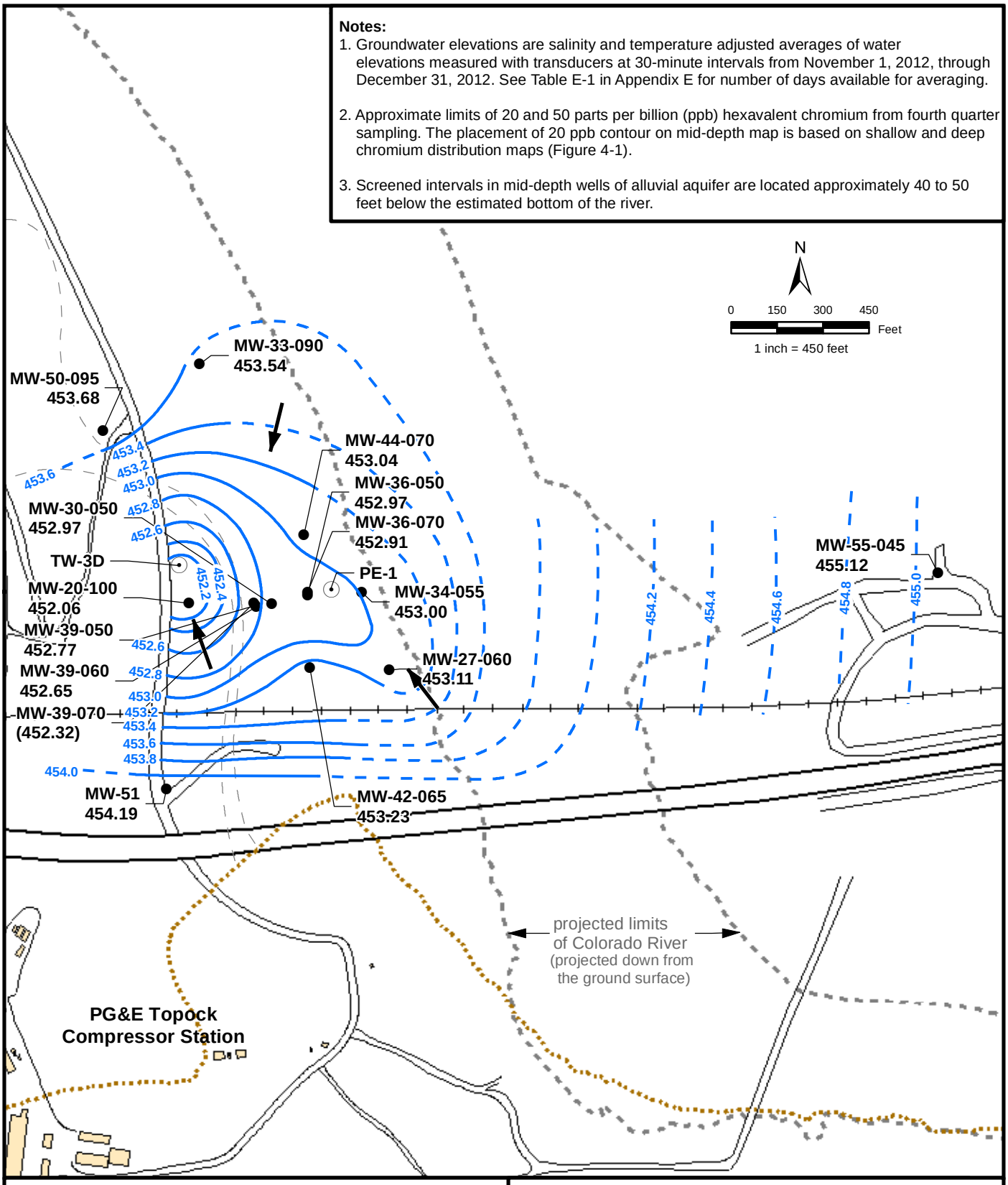
Notes:

1. Groundwater elevations are salinity and temperature adjusted averages of water elevations measured with transducers at 30-minute intervals from November 1, 2012, through December 31, 2012. See Table E-1 in Appendix E for number of days available for averaging.

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

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



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

FIGURE 4-3b
AVERAGE GROUNDWATER ELEVATIONS IN MID-DEPTH WELLS, FOURTH QUARTER 2012

FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORIING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

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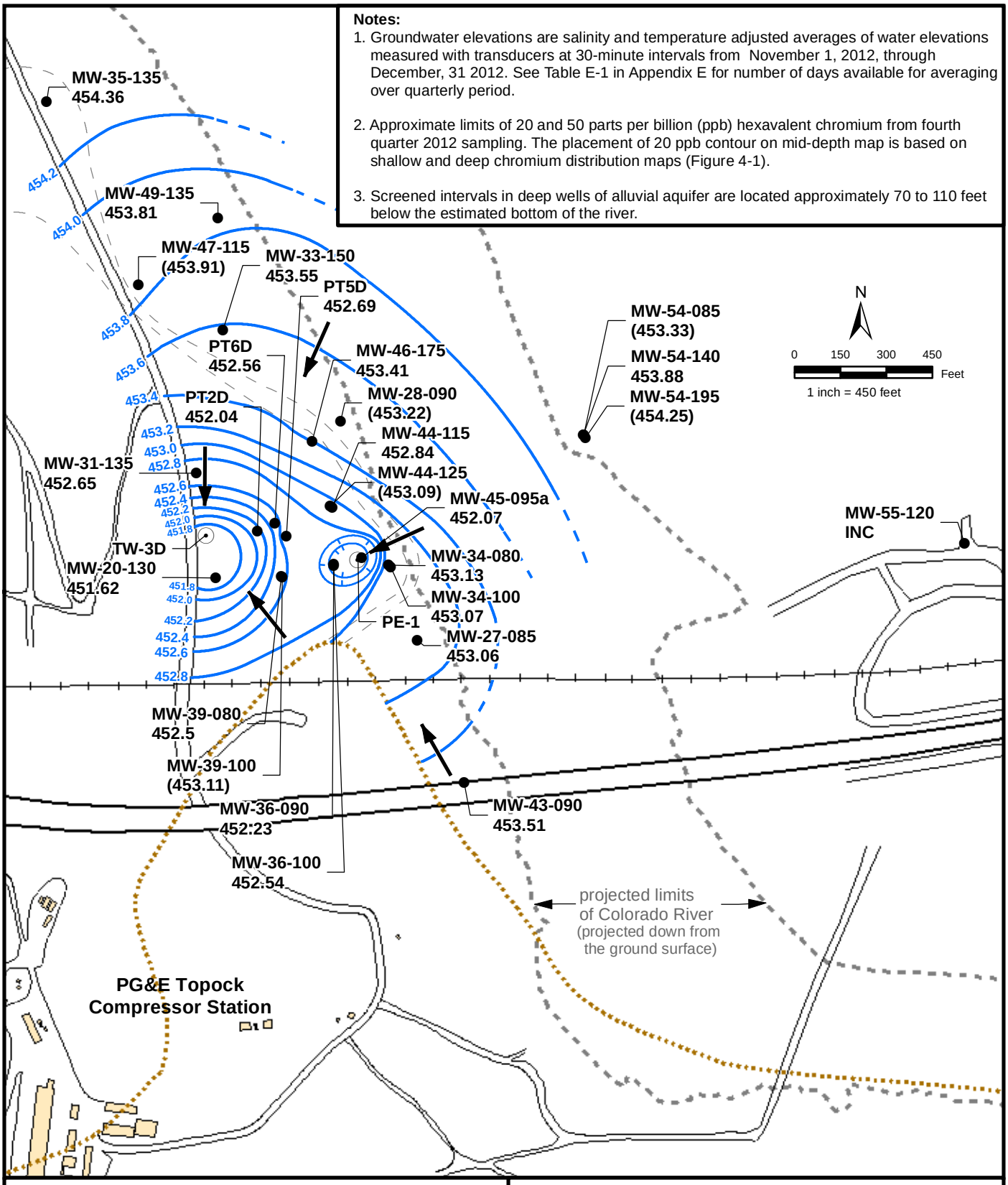
Notes:

1. Groundwater elevations are salinity and temperature adjusted averages of water elevations measured with transducers at 30-minute intervals from November 1, 2012, through December, 31 2012. See Table E-1 in Appendix E for number of days available for averaging over quarterly period.

2. Approximate limits of 20 and 50 parts per billion (ppb) hexavalent chromium from fourth quarter 2012 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 deep wells of alluvial aquifer are located approximately 70 to 110 feet below the estimated bottom of the river.



MW-29 455.85	Average Groundwater Elevation at Monitoring Station (ft AMSL)	Monitoring Well	
		River Station	
MW-29 (455.85)	Average Groundwater Elevation at Monitoring Station (ft AMSL) Not Used for Contouring	Extraction Well	
Interpreted Groundwater Flow Direction		Groundwater Elevation Contour 0.2 ft (dashed where inferred)	
Bedrock Contact at 395 ft elevation		INC	Data incomplete for reporting period

FIGURE 4-3c
AVERAGE GROUNDWATER ELEVATIONS IN DEEP WELLS, FOURTH QUARTER 2012

FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORIING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

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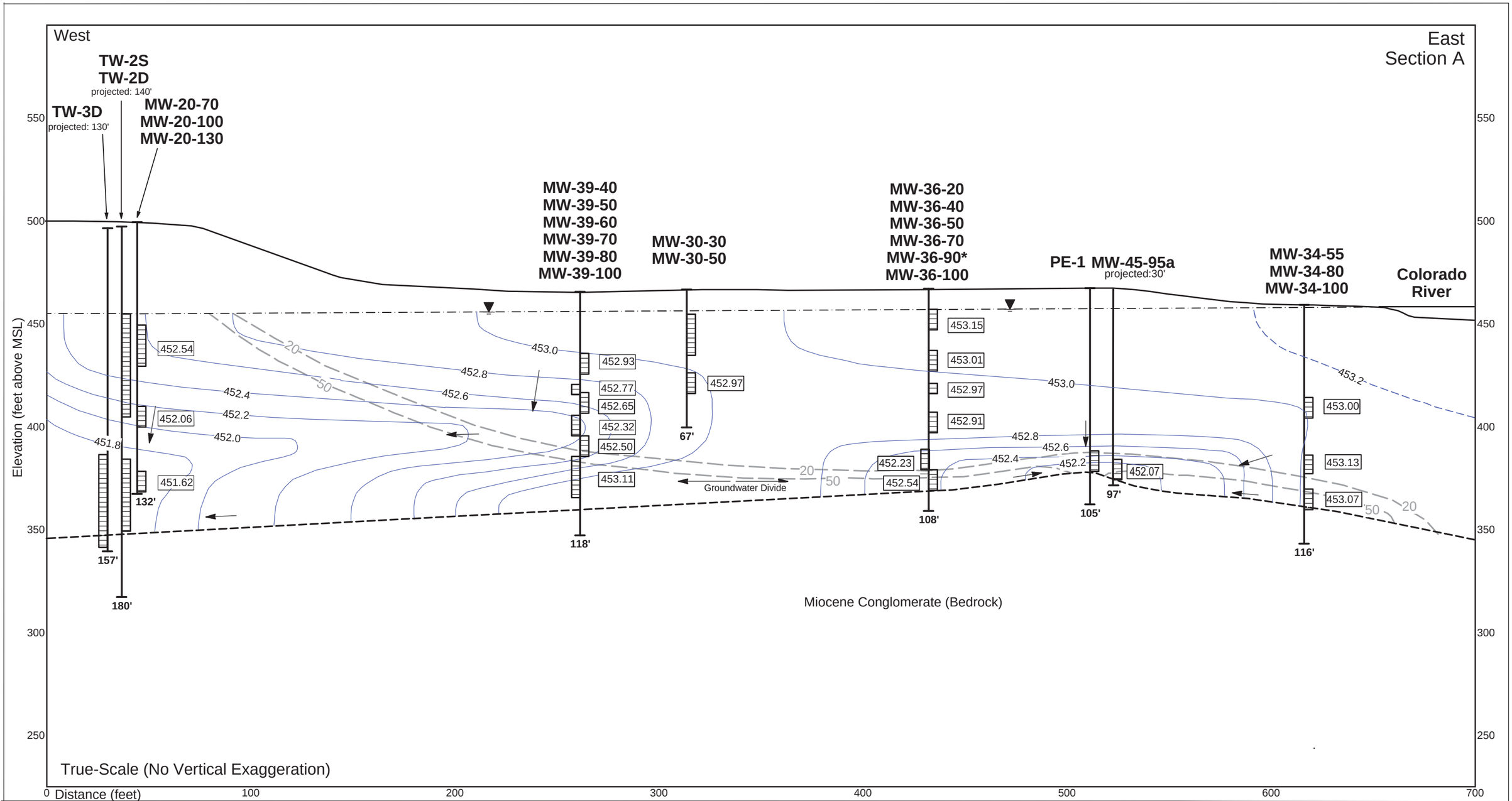


Notes:
Results show average groundwater elevations for November 1, 2012 through December 31, 2012 measured with transducers at 30 minute intervals.

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

Legend:

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

20 — Inferred hexavalent chromium contour (ppb) in Alluvial Aquifer from Fourth Quarter 2012.

453.5 — Groundwater head contour

453.5 — Inferred groundwater head contour

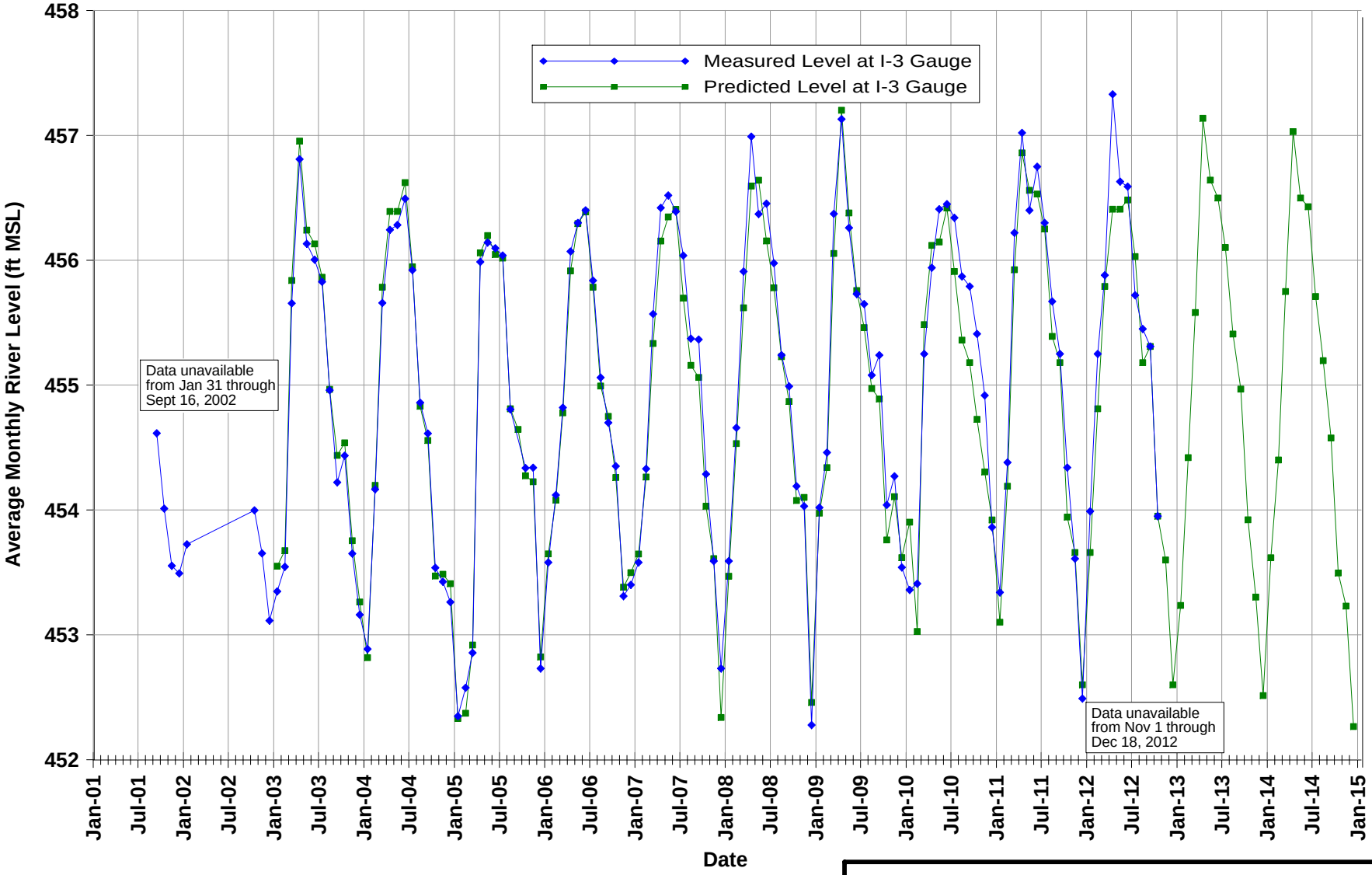
Interpreted groundwater flow direction

FIGURE 4-4
AVERAGE GROUNDWATER ELEVATIONS FOR WELLS IN FLOODPLAIN CROSS-SECTION A, FOURTH QUARTER 2012

FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

C:\USERS\E2USER\DOCUMENTS\TOPOCK\GINT\2012_4Q\FIGURE_4-4_XSECA_GW.GDW;



Note:
Projected river level for each month in the past is calculated based on the preceding months' U.S. Bureau of Reclamation (BOR) projections of Davis Dam release and stage in Lake Havasu. Future projections of river level at I-3 are based upon January 2013 BOR projections. These data are reported monthly by the U.S. Department of Interior at http://www.usbr.gov/lc/region/g4000/24mo.pdf

FIGURE 4-5
PAST AND PREDICTED FUTURE RIVER LEVELS AT TOPOCK COMPRESSOR STATION

FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

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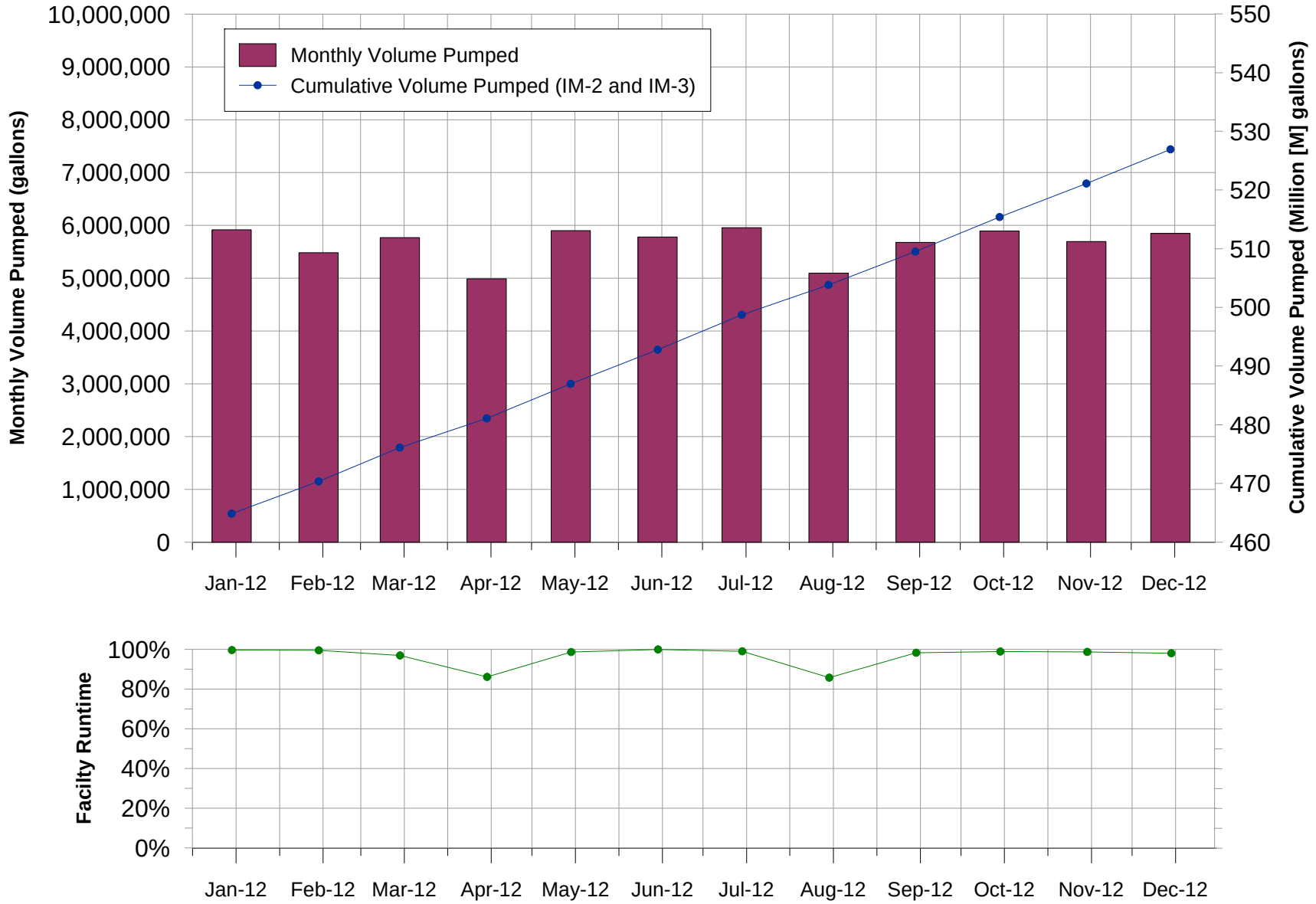

FIGURE 5-1
MONTHLY COMBINED PUMPING VOLUMES AND PERCENT UPTIME, 2012 REPORTING PERIOD
FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

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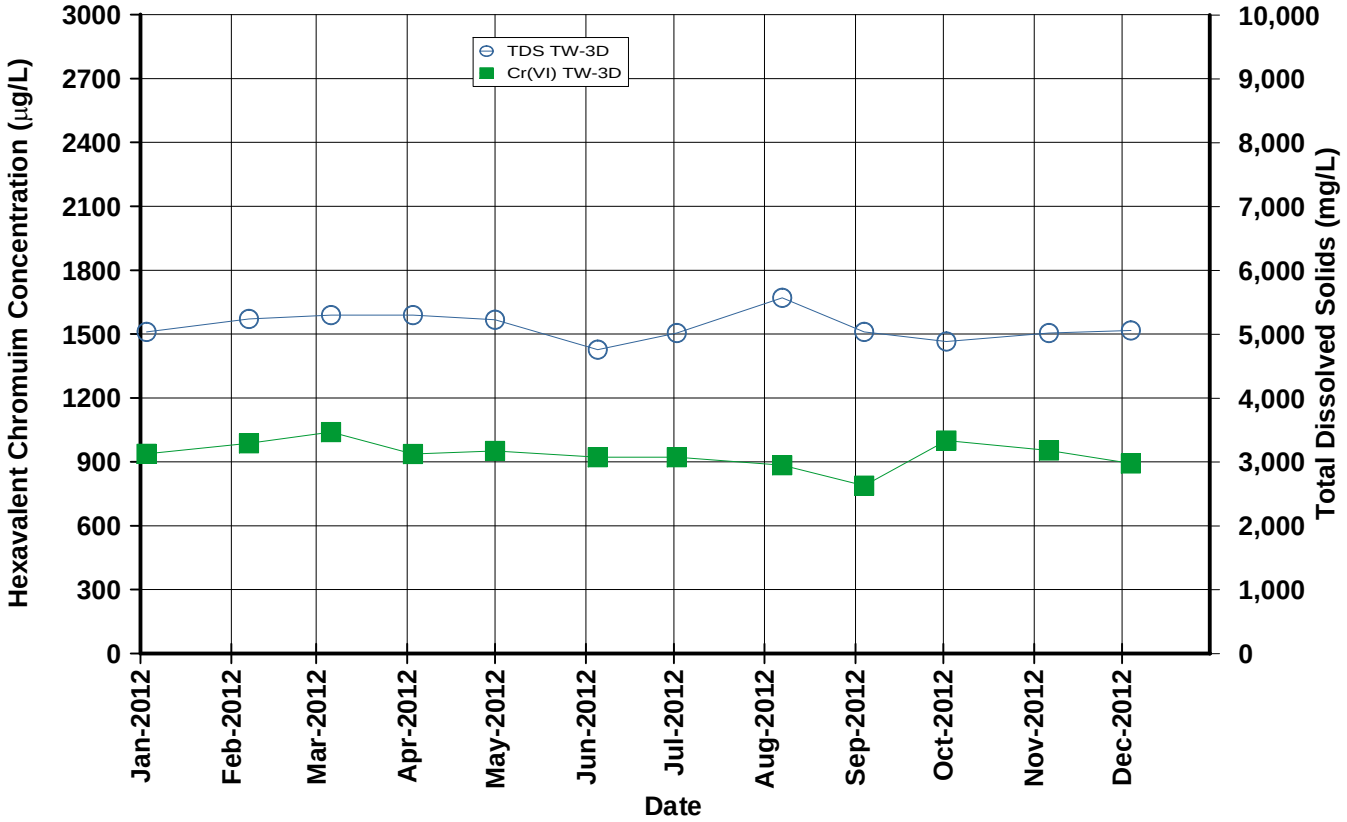

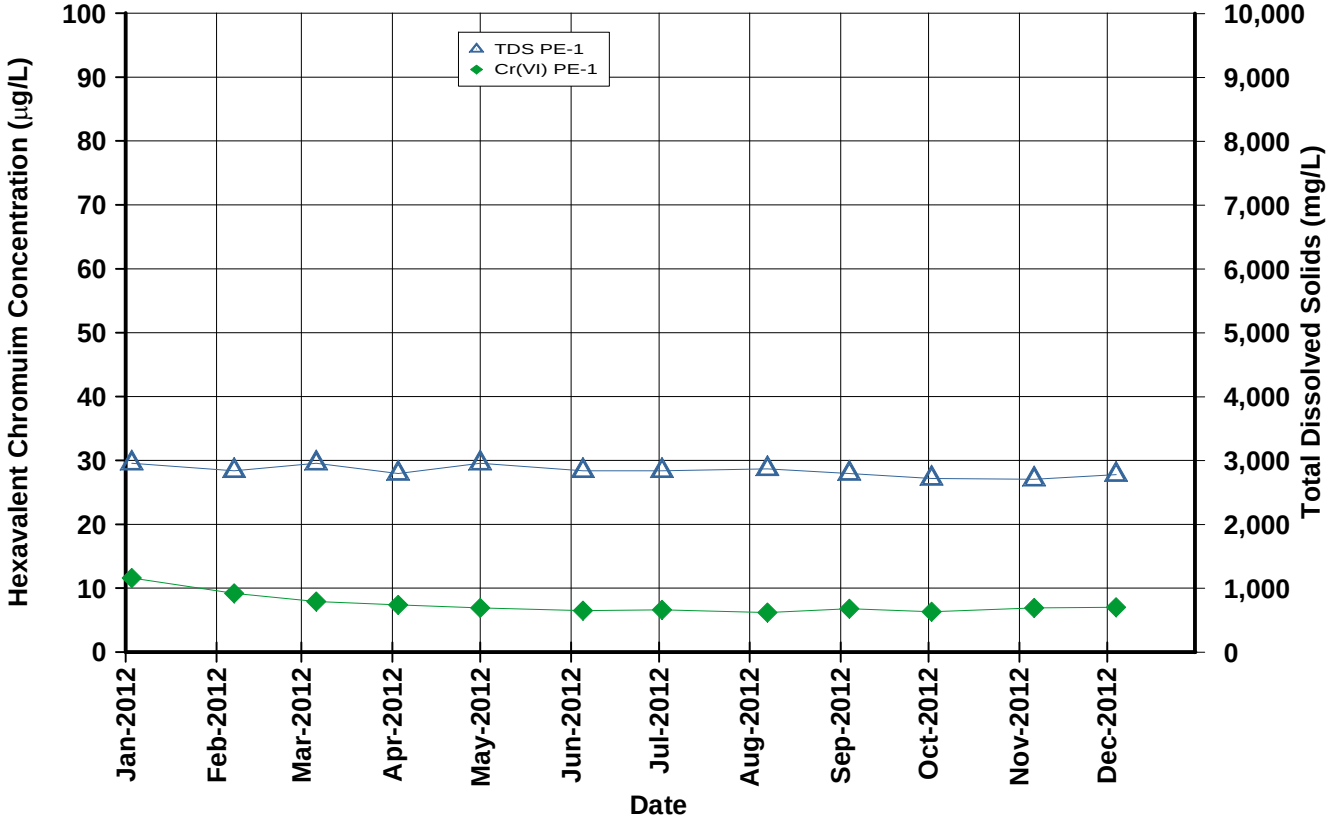

Notes:
gpm = gallons per minute.
µg/L = micrograms per liter.
mg/L = milligrams per liter.

TW-3D pumping began on 20-Dec-05.
TW-3D average extraction rate during 2012 was 104.4 gpm.
PE-1 pumping began on 26-Jan-06.
PE-01 average extractopm rate during 2012 was 24.6 gpm.

FIGURE 5-2
Cr(VI) AND TOTAL DISSOLVED SOLIDS CONCENTRATIONS IN EXTRACTION WELLS TW-3D AND PE-1, 2012 REPORTING PERIOD
FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

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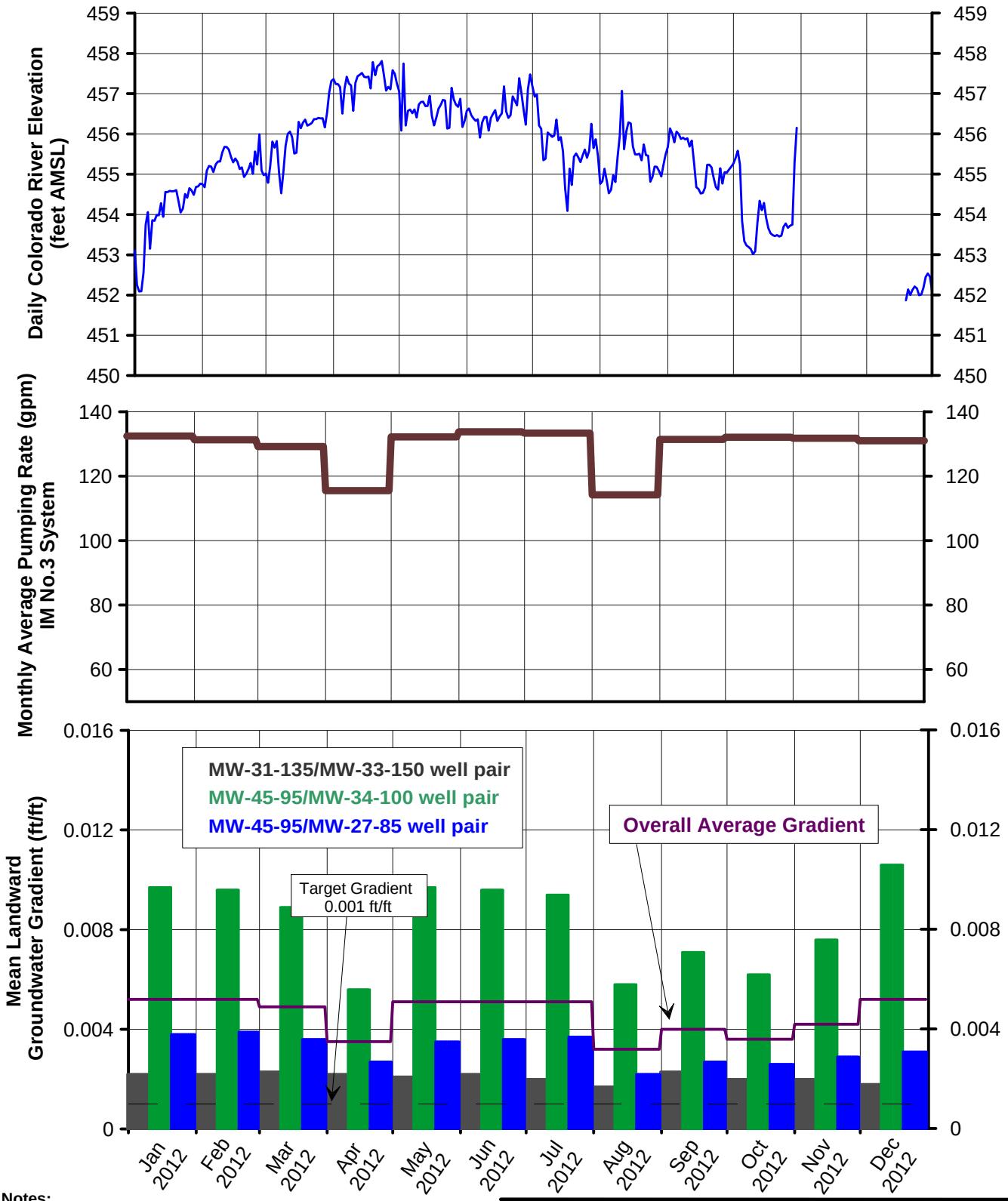

Notes:

1. For IM pumping, the target landward gradient for well pairs is 0.001 feet/foot.
2. Refer to Table 4-1 and Section 4.4 for discussion of pumping data.
3. Pumping rate plotted is the combined rate of extraction wells TW-3D and PE-1 in operation each month.
4. Refer to Table 4-2 and Section 4.5 for discussion of gradient data.
5. I-3 data unavailable from October 30, 2012, through December 19, 2012, due to equipment malfunction.
6. AMSL = above mean sea level.

FIGURE 5-3
MEASURED HYDRAULIC GRADIENTS, RIVER ELEVATION, AND PUMPING RATE, 2012 REPORTING PERIOD

FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

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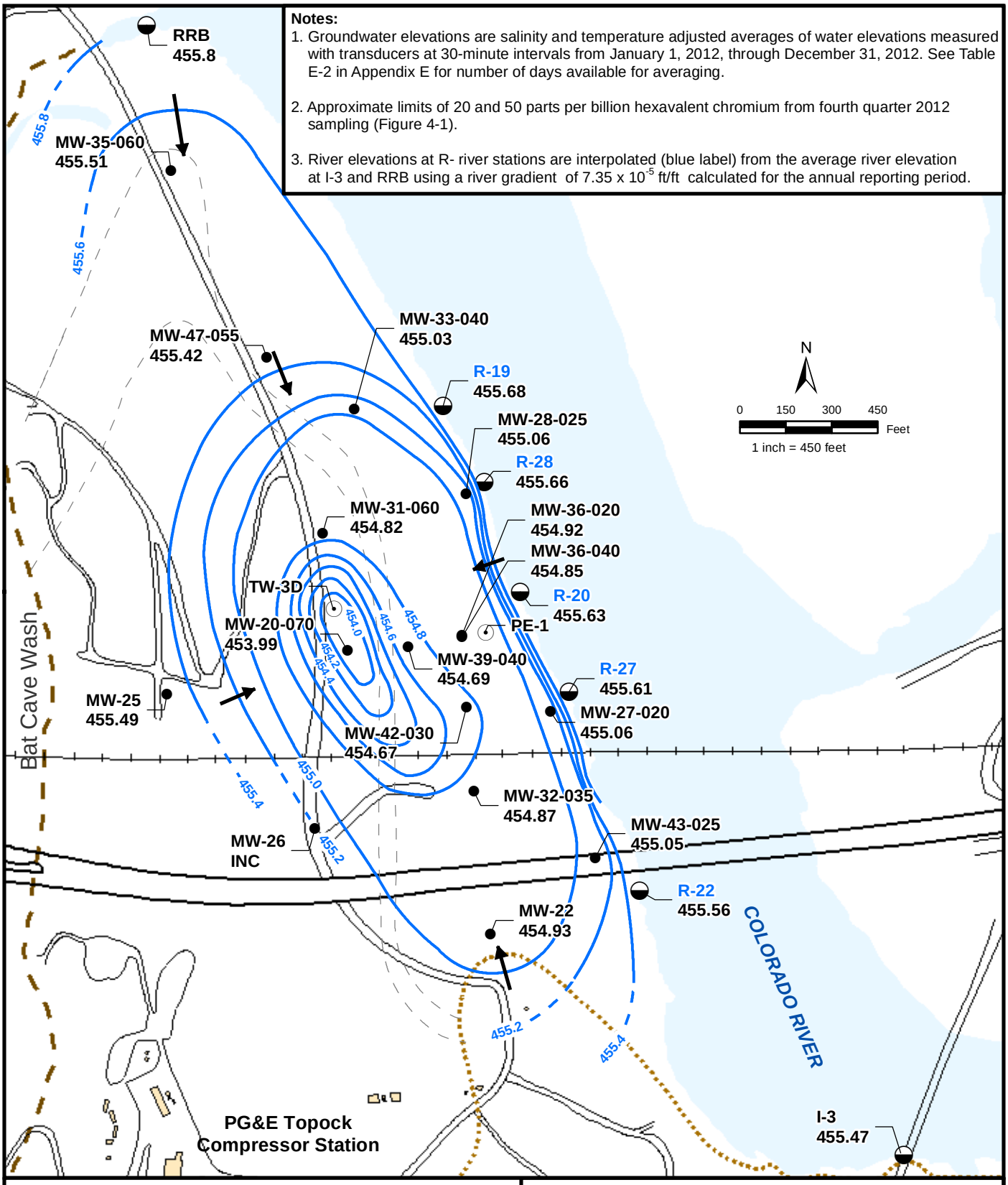

Notes:

1. Groundwater elevations are salinity and temperature adjusted averages of water elevations measured with transducers at 30-minute intervals from January 1, 2012, through December 31, 2012. See Table E-2 in Appendix E for number of days available for averaging.

2. Approximate limits of 20 and 50 parts per billion hexavalent chromium from fourth quarter 2012 sampling (Figure 4-1).

3. River elevations at R- river stations are interpolated (blue label) from the average river elevation at I-3 and RRB using a river gradient of 7.35 x 10^{-5} ft/ft calculated for the annual reporting period.

MW-29 455.85	Average Groundwater Elevation at Monitoring Station (ft AMSL)	Monitoring Well	
R-22 455.56	River Elevation (ft MSL) Interpolated Average	River Station	
	Interpreted Groundwater Flow Direction	Extraction Well	
	Bedrock Contact at 455 ft elevation	Groundwater Elevation Contour 0.2 ft (dashed where inferred)	
		INC	Data incomplete for reporting period

FIGURE 5-4a
AVERAGE GROUNDWATER ELEVATIONS IN SHALLOW WELLS AND RIVER ELEVATIONS, 2012 REPORTING PERIOD

FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORIING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

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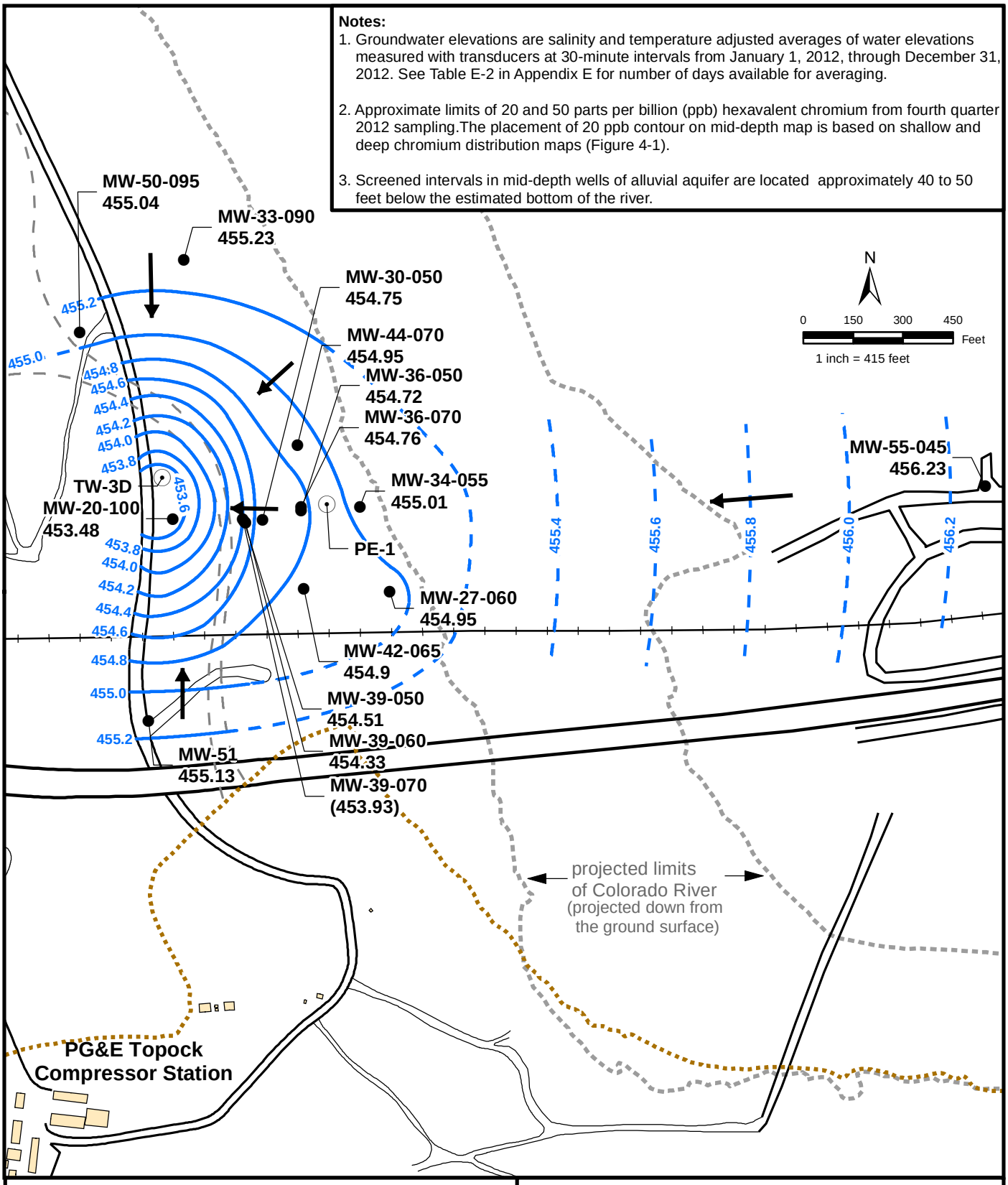
Notes:

1. Groundwater elevations are salinity and temperature adjusted averages of water elevations measured with transducers at 30-minute intervals from January 1, 2012, through December 31, 2012. See Table E-2 in Appendix E for number of days available for averaging.

2. Approximate limits of 20 and 50 parts per billion (ppb) hexavalent chromium from fourth quarter 2012 sampling.The placement of 20 ppb contour on mid-depth map is based on shallow and deep chromium distribution maps (Figure 4-1).

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



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

FIGURE 5-4b
AVERAGE GROUNDWATER ELEVATIONS IN MID-DEPTH WELLS
2012 REPORTING PERIOD

FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORIING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

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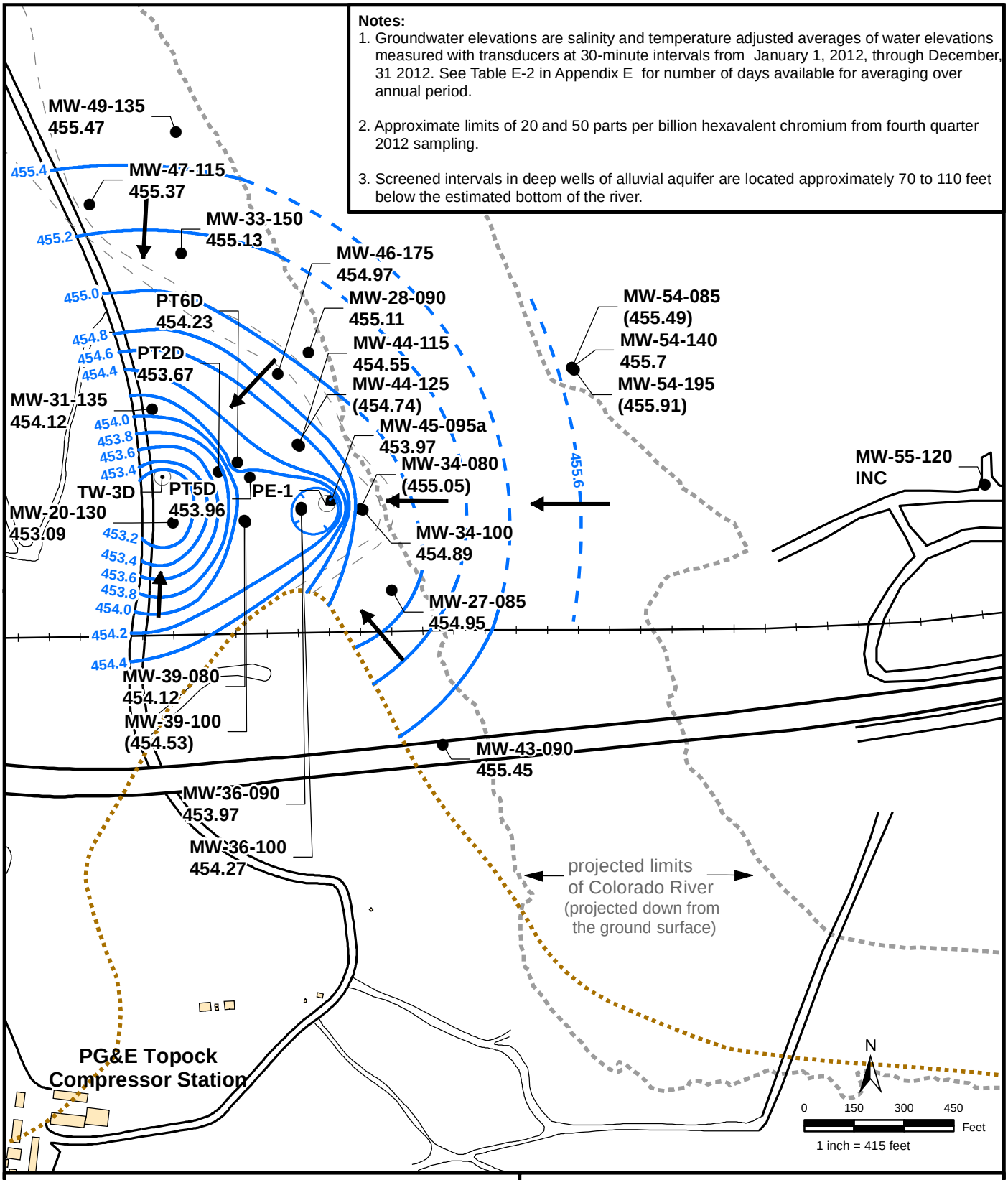

MW-29 455.85 — Average Groundwater Elevation at Monitoring Station (ft AMSL)

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

Interpreted Groundwater Flow Direction

Bedrock Contact at 395 ft elevation

Monitoring Well

River Station

Extraction Well

Groundwater Elevation Contour 0.2 ft (dashed where inferred)

INC — Data incomplete for reporting period

FIGURE 5-4c
AVERAGE GROUNDWATER ELEVATIONS IN DEEP WELLS, 2012 REPORTING PERIOD

FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORIING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

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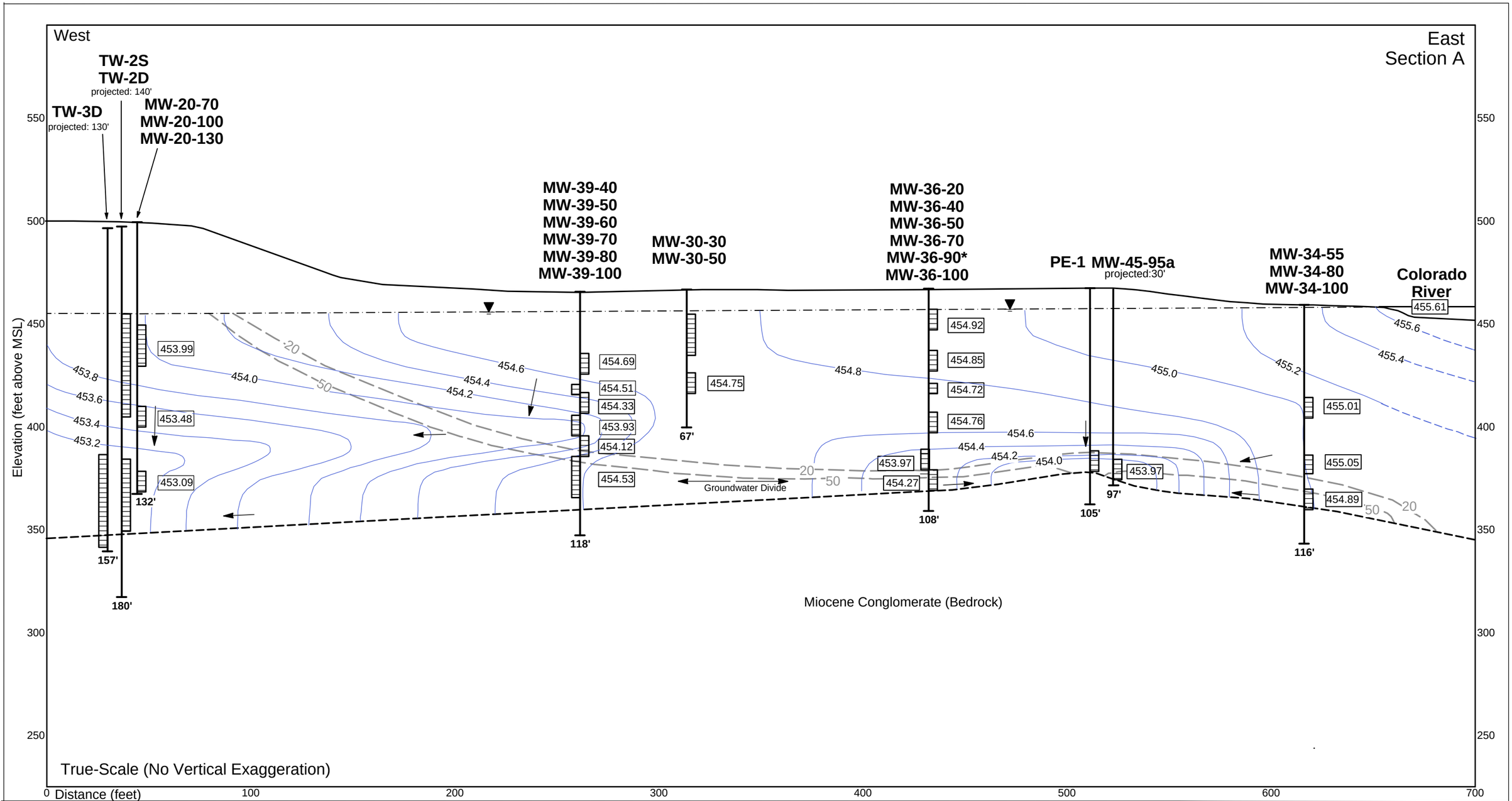

Notes:

1. Results show average groundwater elevations for January 1, 2012, through December 31, 2012, measured with transducers at 30-minute intervals.

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

Legend:

MW-30-50 — Inferred water table

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

103 — boring depth (feet)

20 — Inferred hexavalent chromium contours (ppb) in Alluvial Aquifer from fourth quarter 2012.

453.5 — Groundwater head contour

453.5 — Inferred groundwater head contour

Interpreted groundwater flow direction

FIGURE 5-5
AVERAGE GROUNDWATER ELEVATIONS FOR WELLS IN FLOODPLAIN CROSS-SECTION A, 2012 REPORTING PERIOD

FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

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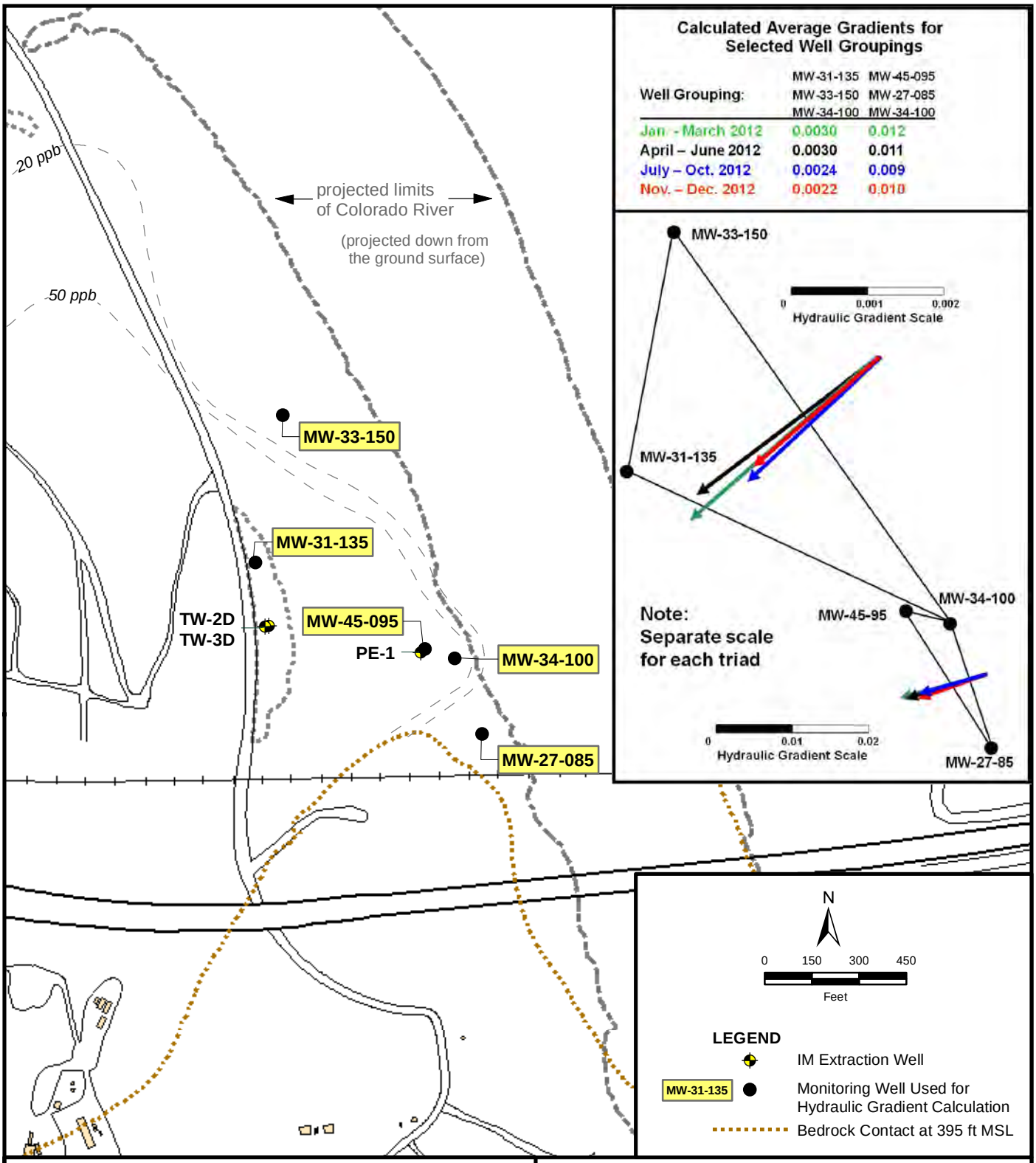
C:\USERS\E2USER\DOCUMENTS\TOPOCK\GINT\2012_4Q\FIGURE_5-5_XSECA_GW-ANNUAL.GDW;



Notes:

1. Direction and magnitude of hydraulic gradient for each well triad (MW-45-095, MW-33-150, MW-31-135 and MW-45-095, MW-34-100, MW-27-085) were calculated using triangulation with linear interpretation and average head values for each quaterly reporting period.
2. Approximate limits of 20 and 50 parts per billion hexavalent chromium from fourth quarter 2012 sampling.
3. Screened intervals in deep wells of alluvial aquifer are located approximately 80 to 90 feet below the estimated bottom of the river.

FIGURE 5-6
MAGNITUDE AND DIRECTION OF HYDRAULIC GRADIENTS IN LOWER DEPTH INTERVAL DURING 2012 ANNUAL PERIOD

FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORIING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

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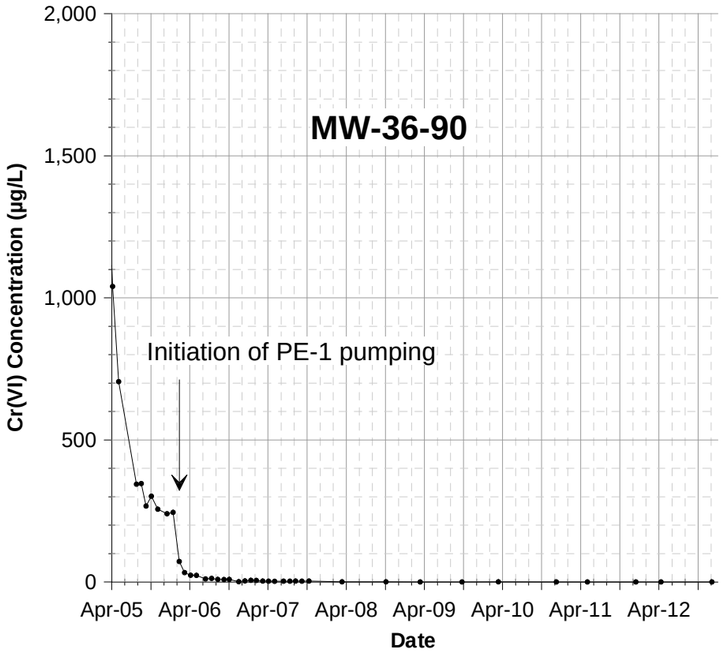

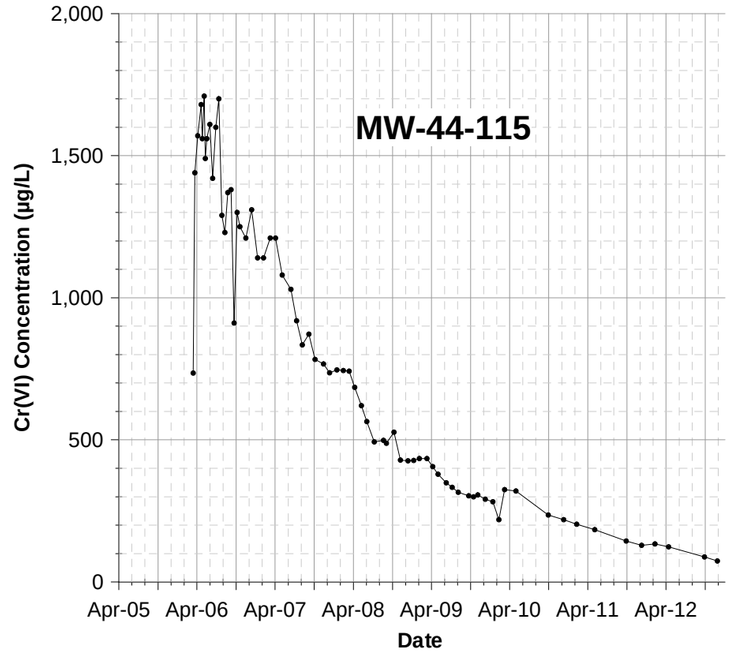

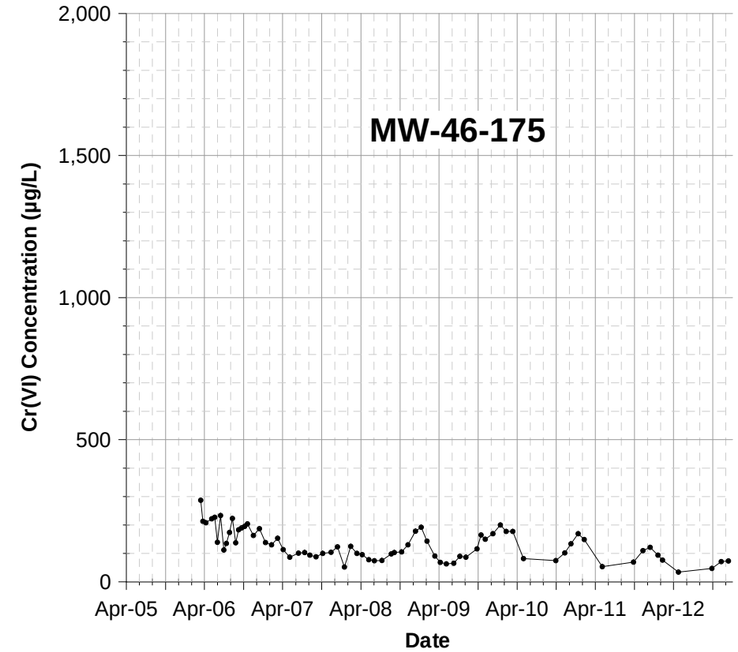

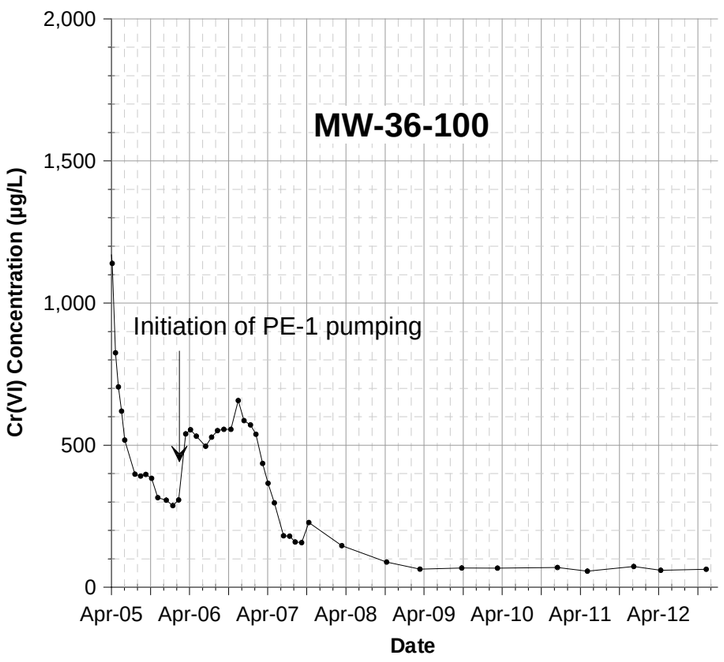

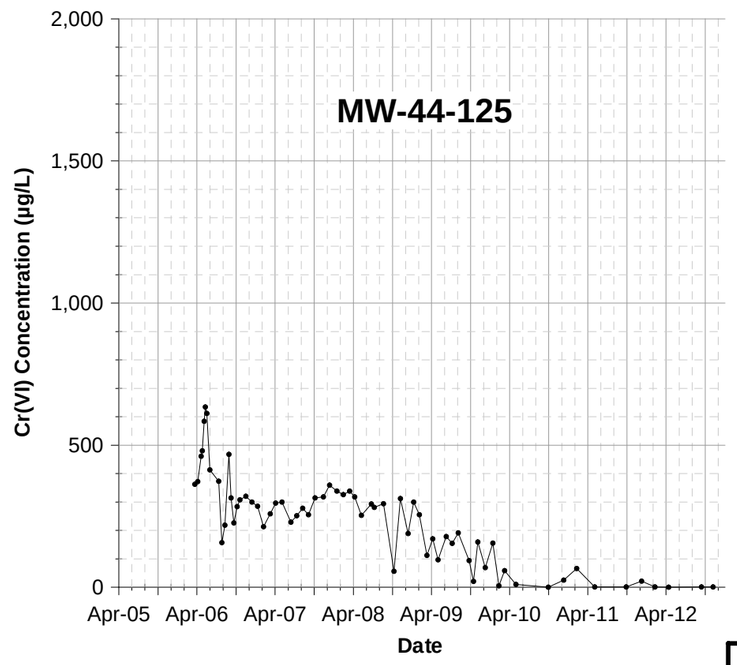

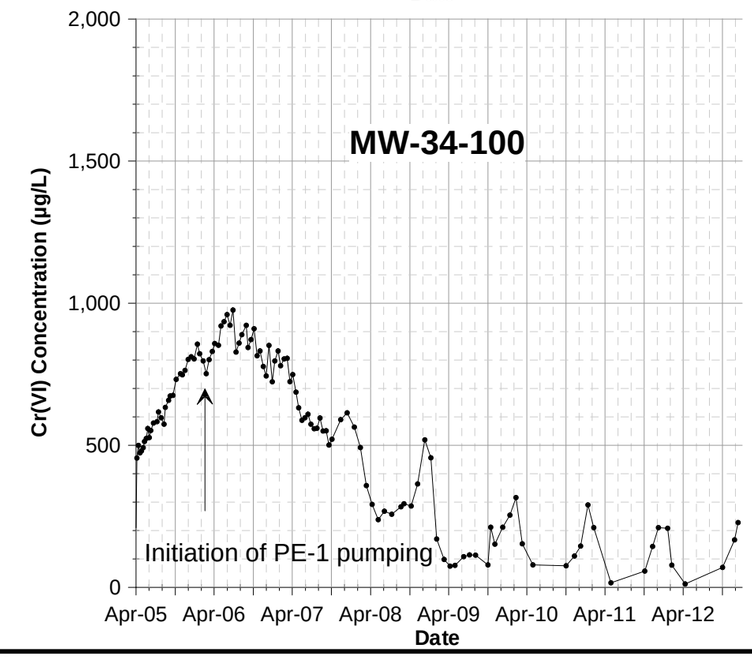

Notes:

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

FIGURE 5-7
Cr(VI) CONCENTRATION TRENDS IN SELECTED PERFORMANCE MONITORING WELLS, APRIL 2005 THROUGH DECEMBER 2012

FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

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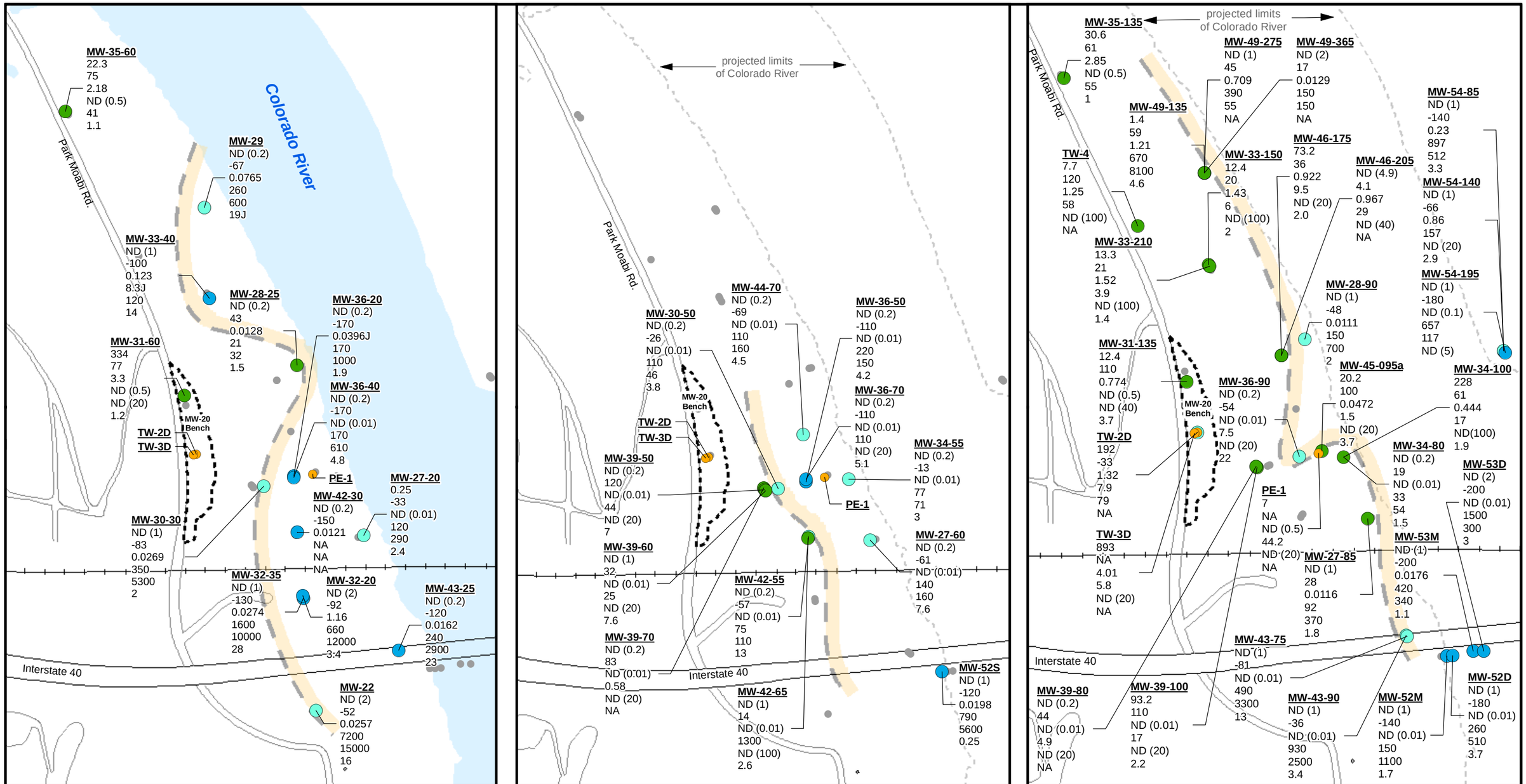

Shallow Wells (Upper Depth Interval) - 2012

Intermediate Wells (Middle Depth Interval) - 2012

Deep Wells (Lower Depth Interval) - 2012

LEGEND

- Groundwater ORP < -90 mV
- Groundwater -90 mV < ORP < 1 mV
- Groundwater ORP > 1 mV
- IM3 Extraction Wells (TW-2D, TW-3D, and PE-1)

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

MW-22	Groundwater Results, Fourth Quarter 2012
ND (1)	Hexavalent chromium, micrograms per liter (µg/L)
-65.7	Oxidation reduction potential (ORP), millivolts (mV)
ND (2.5)	Nitrate as N or Nitrate/Nitrate as N, milligrams per liter (mg/L)
4400	Manganese (Mn), mircrograms per liter (µg/L)
9400	Iron (Fe), mircrograms per liter (µg/L)
12	Arsenic (As), mircrograms per liter (µg/L)

Approximate limit of reducing groundwater based upon a combination of redox indicator parameters.

N

0 400 800 Feet

FIGURE 5-8
DISTRIBUTION OF Cr(VI), GEOCHEMICAL INDICATOR PARAMETERS, AND IN SITU BYPRODUCTS IN FLOODPLAIN WELLS

FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORIING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

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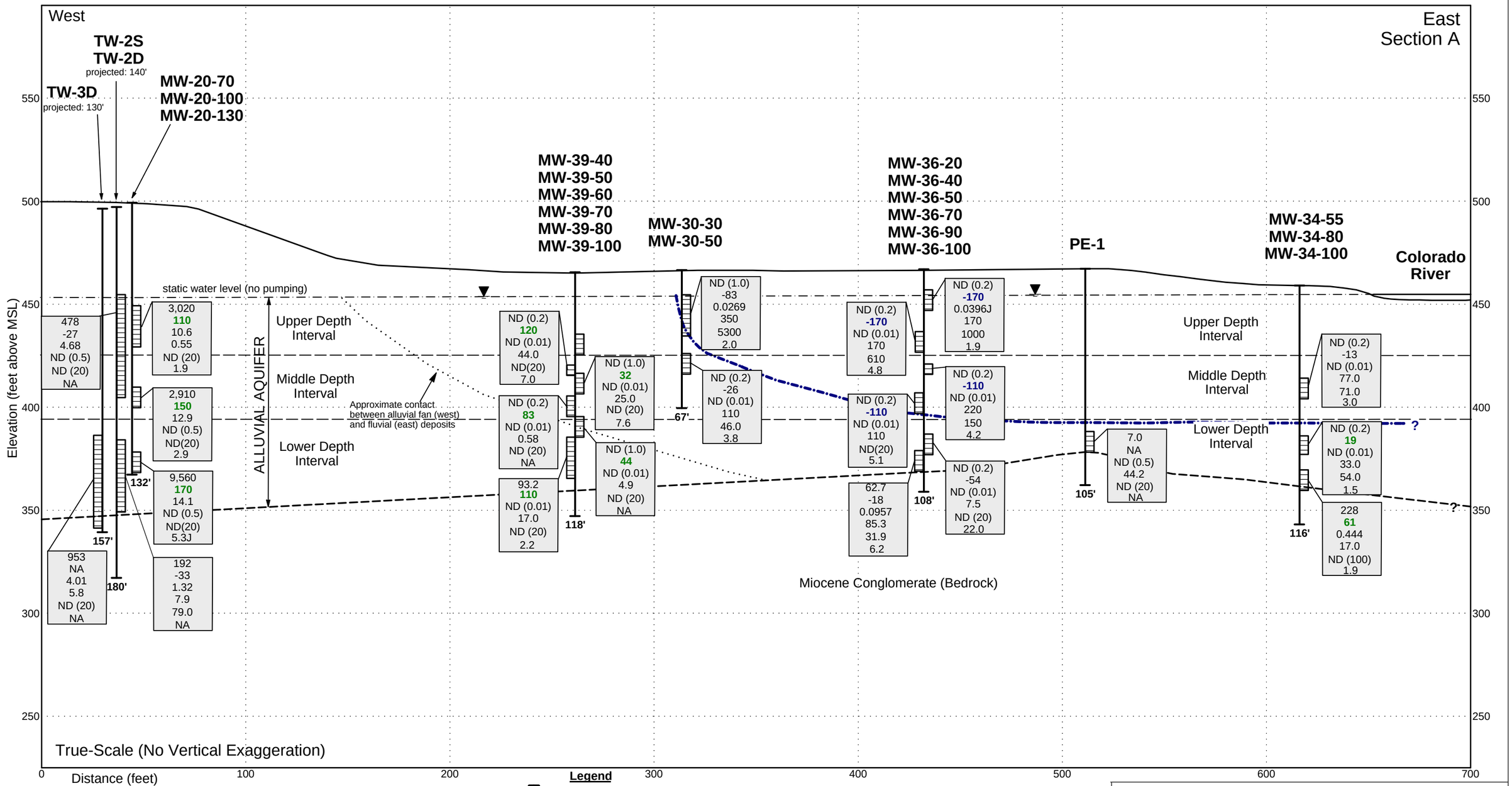

Legend

water level

well screen

boring depth (feet) 103

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

Groundwater Results, Fourth Quarter 2012

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

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

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

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

Notes:
ND = not detected at listed reporting limit.
NA = data not collected during reporting period.

FIGURE 5-9
DISTRIBUTION OF Cr(VI), GEOCHEMICAL INDICATOR PARAMETERS, AND IN SITU BYPRODUCTS IN FLOODPLAIN WELLS CROSS-SECTION A, FOURTH QUARTER 2012

FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

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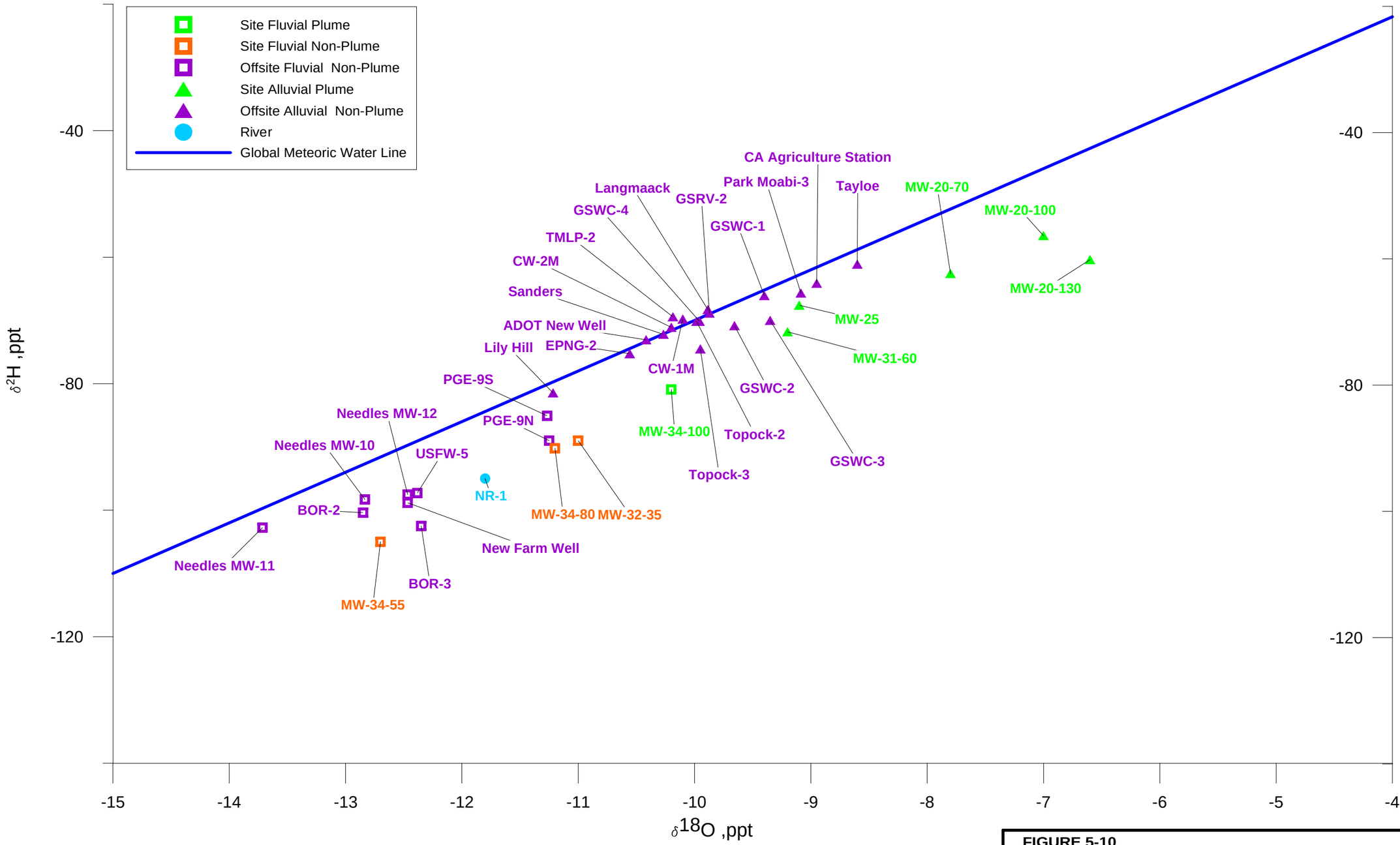
C:\USERS\E2USER\DOCUMENTS\TOPOCK\GINT\2012_4Q\FIGURE_5-9_X-SEC_GEOCHEM_ANNUAL_2012.GDW;



Notes:
ppt = part per trillion.

1. Values for Performance Monitoring Program Wells are averages from the 2012 reporting period.
2. Values from Background Wells are cumulative averages from all years.

FIGURE 5-10
AVERAGE STABLE ISOTOPES OF OXYGEN AND DEUTERIUM
JANUARY 2012 THROUGH DECEMBER 2012
FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

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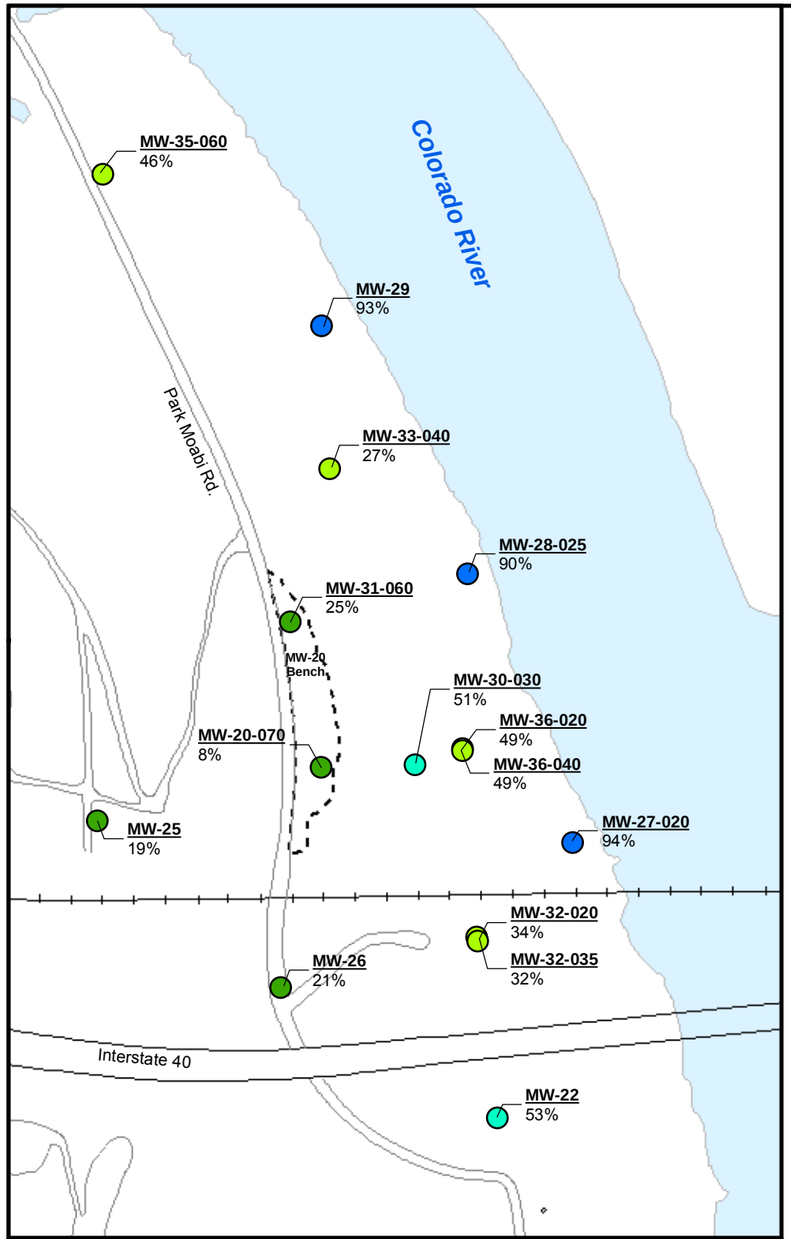
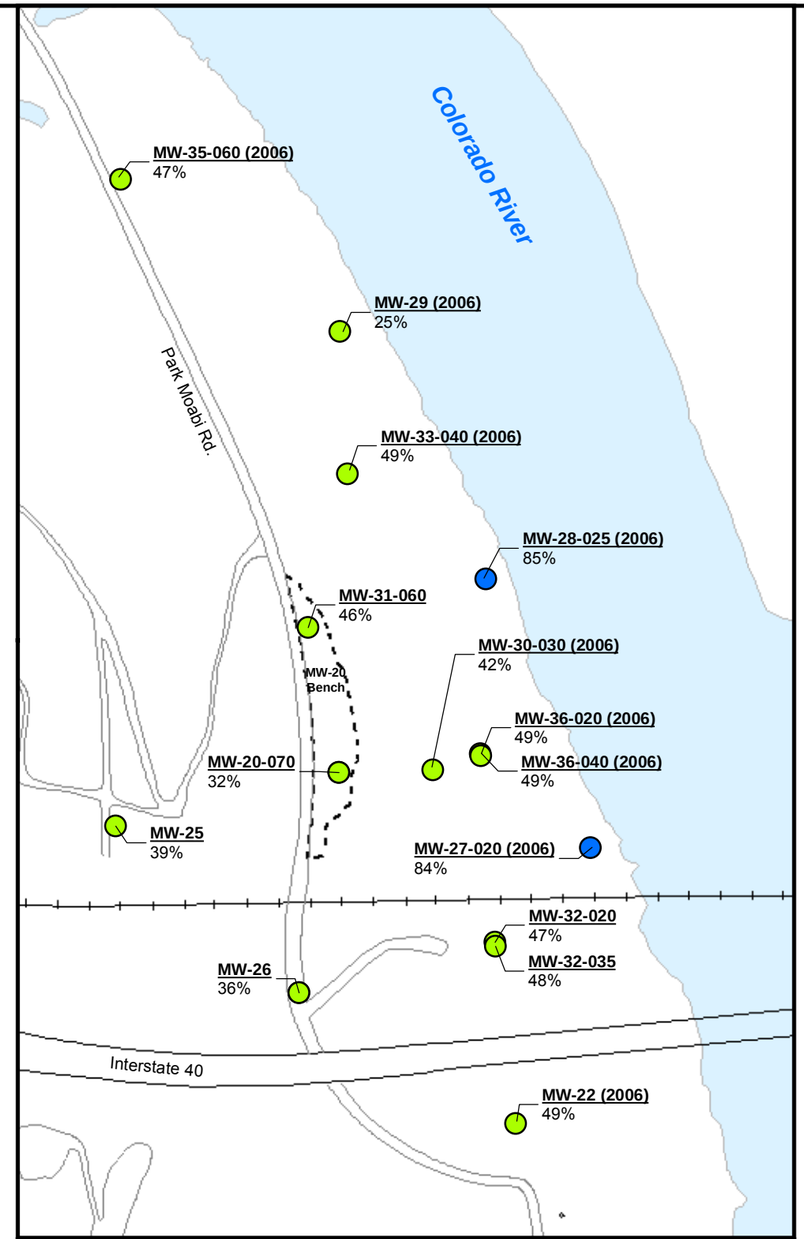
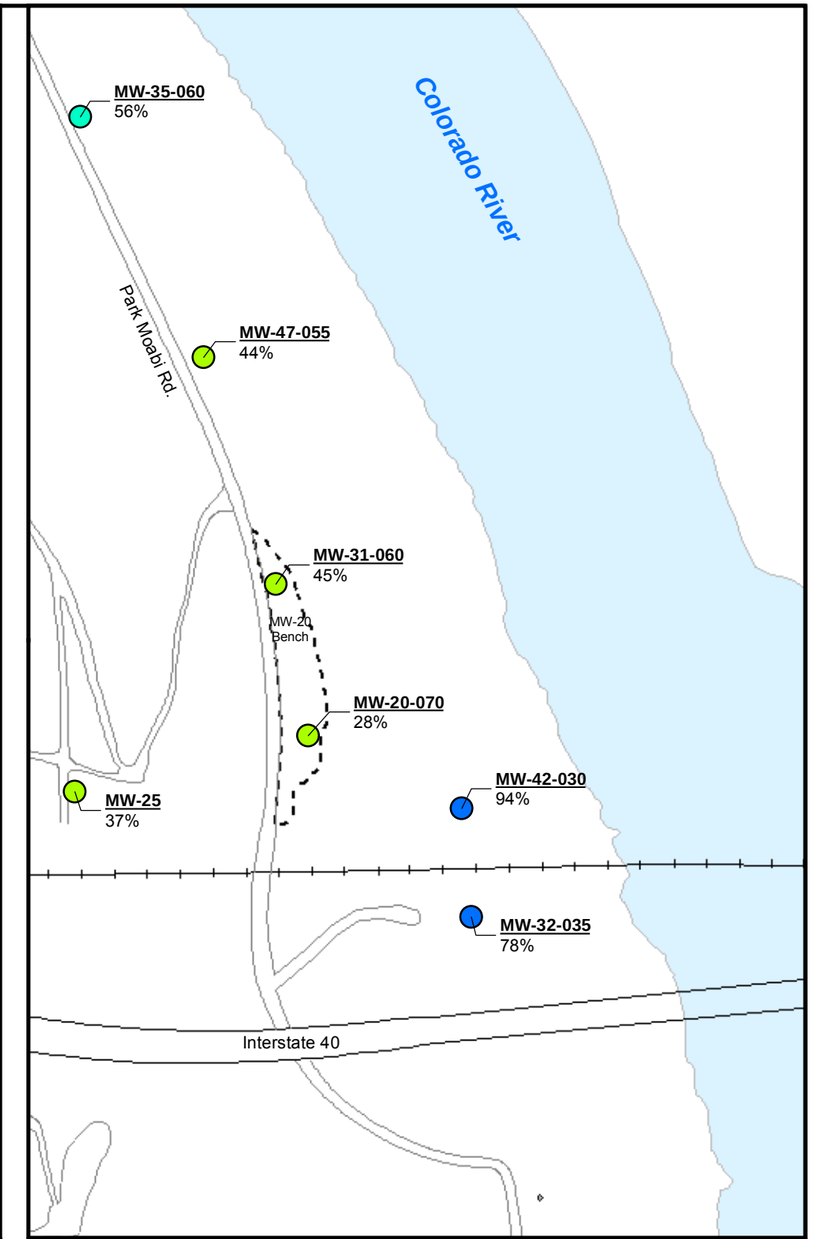


Shallow Wells (Upper Depth Interval) - 2004



Shallow Wells (Upper Depth Interval) - 2006 and 2008



Shallow Wells (Upper Depth Interval) - 2012

LEGEND

Calculated Riverine Signature

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

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

Note:
Percent river water signature was calculated using composite statistics for deuterium isotope data from site river water samples and plume groundwater samples between 2004 and 2012. The posted percentages each represent the sample's calculated river water signature percentage, with 100% being essentially the same deuterium signature as river water, and 0% being equal to the plume water signature.

N

0 400 800 Feet

FIGURE 5-11a
DISTRIBUTION OF RIVER SIGNATURE IN FLOODPLAIN WELLS, SHALLOW WELLS (UPPER DEPTH INTERVAL)
FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORIING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

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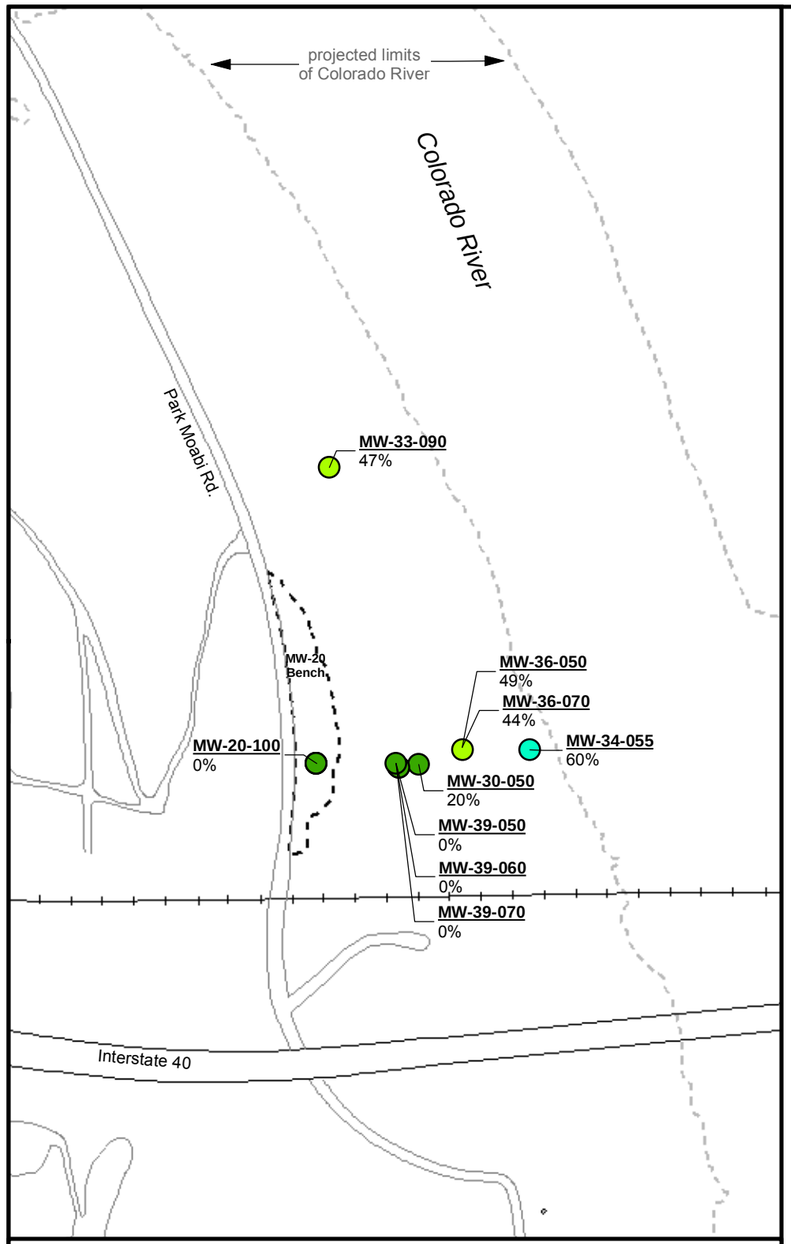
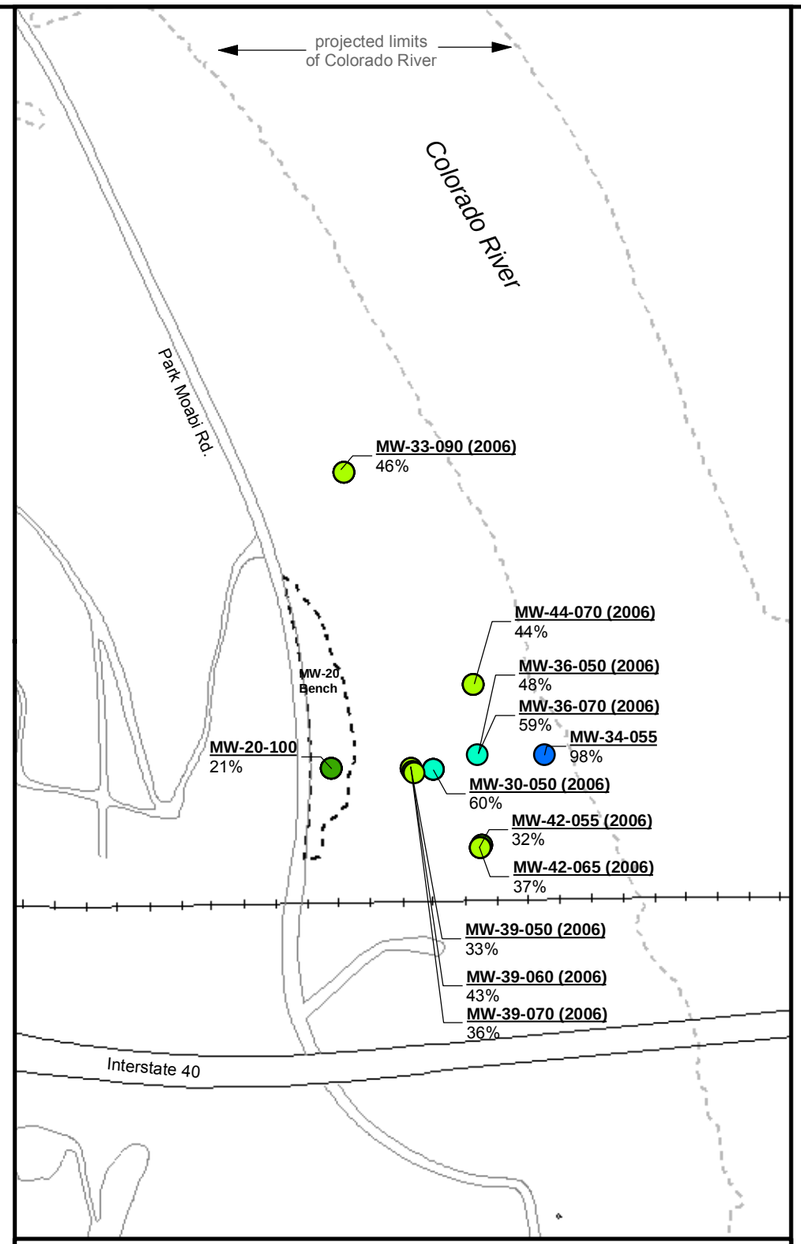
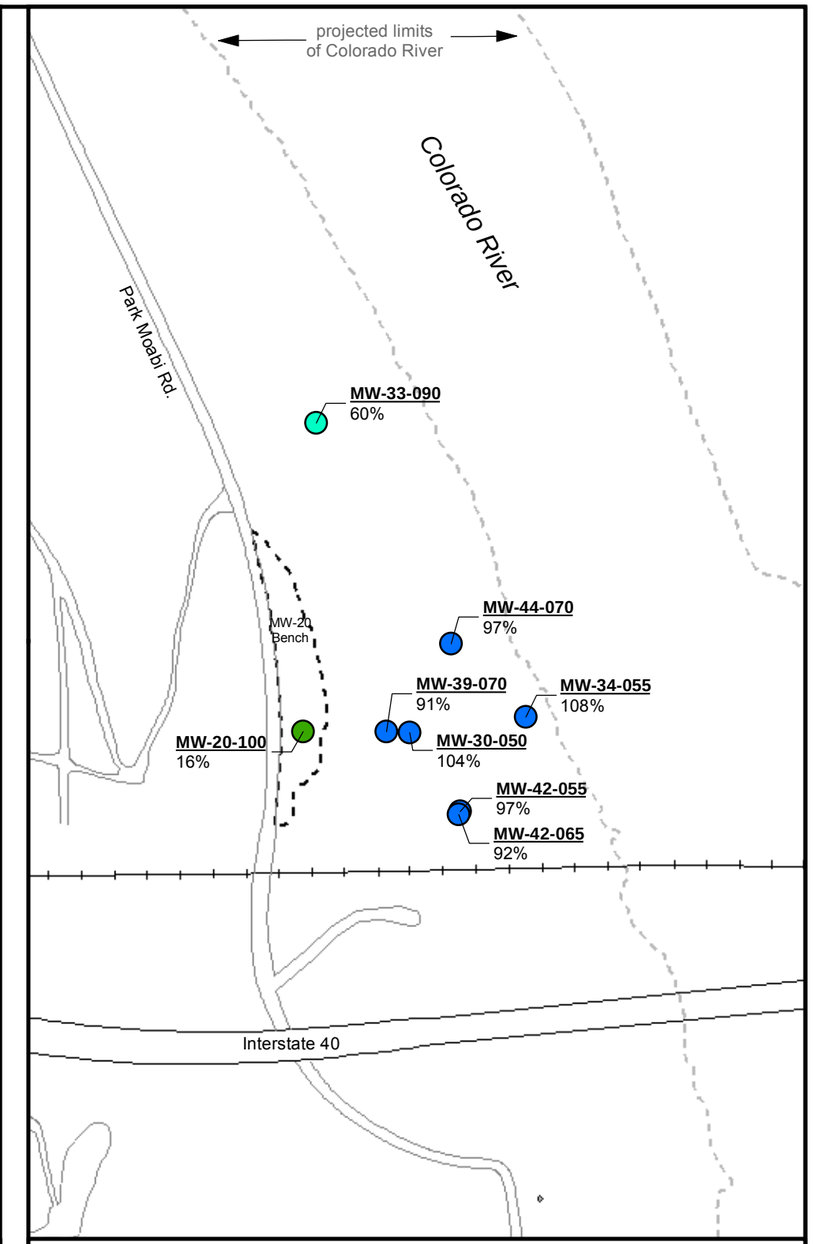


Mid-Depth Wells (Middle Depth Interval) - 2004



Mid-Depth Wells (Middle Depth Interval) - 2006 and 2008



Mid-Depth Wells (Middle Depth Interval) - 2012

LEGEND

Calculated Riverine Signature

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

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

Note:
Percent river water signature was calculated using composite statistics for deuterium isotope data from site river water samples and plume groundwater samples between 2004 and 2012. The posted percentages each represent the sample's calculated river water signature percentage, with 100% being essentially the same deuterium signature as river water, and 0% being equal to the plume water signature.

N

0 400 800 Feet

FIGURE 5-11b
DISTRIBUTION OF RIVER SIGNATURE IN FLOODPLAIN WELLS, MID-DEPTH WELLS (MIDDLE DEPTH INTERVAL)
FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORIING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

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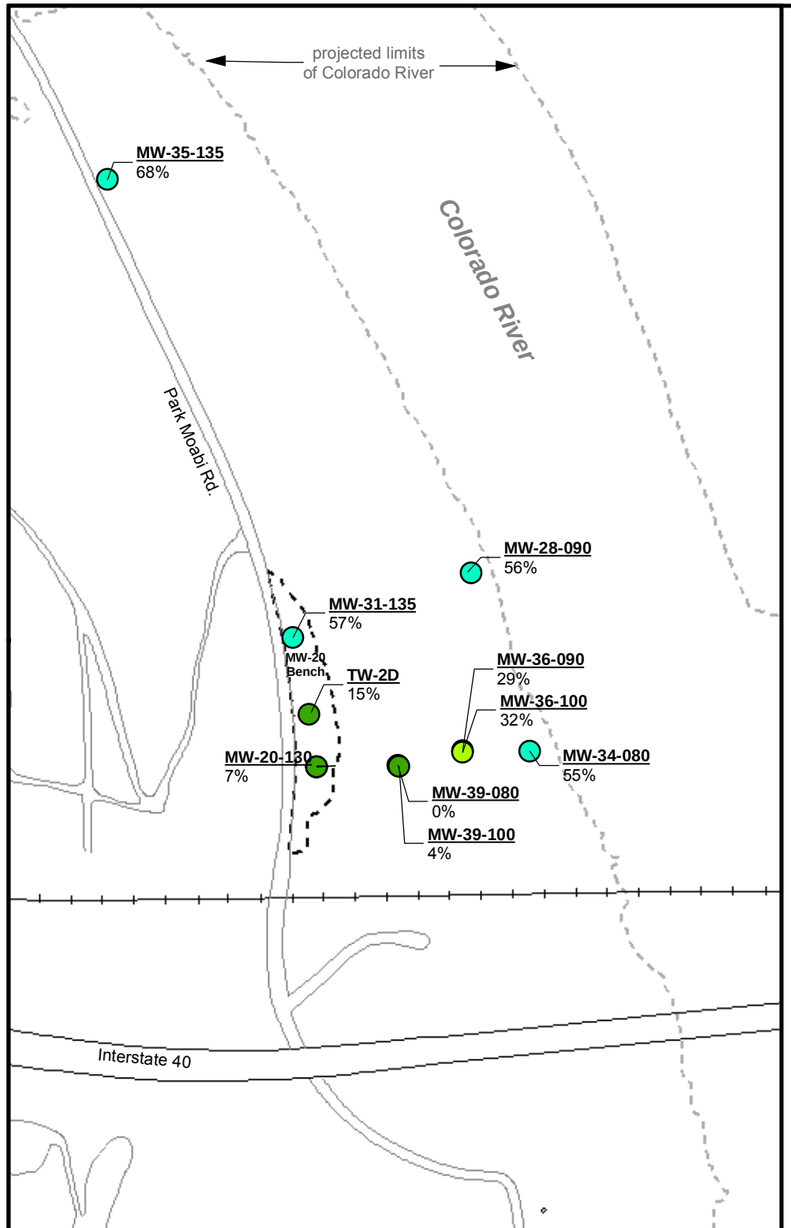
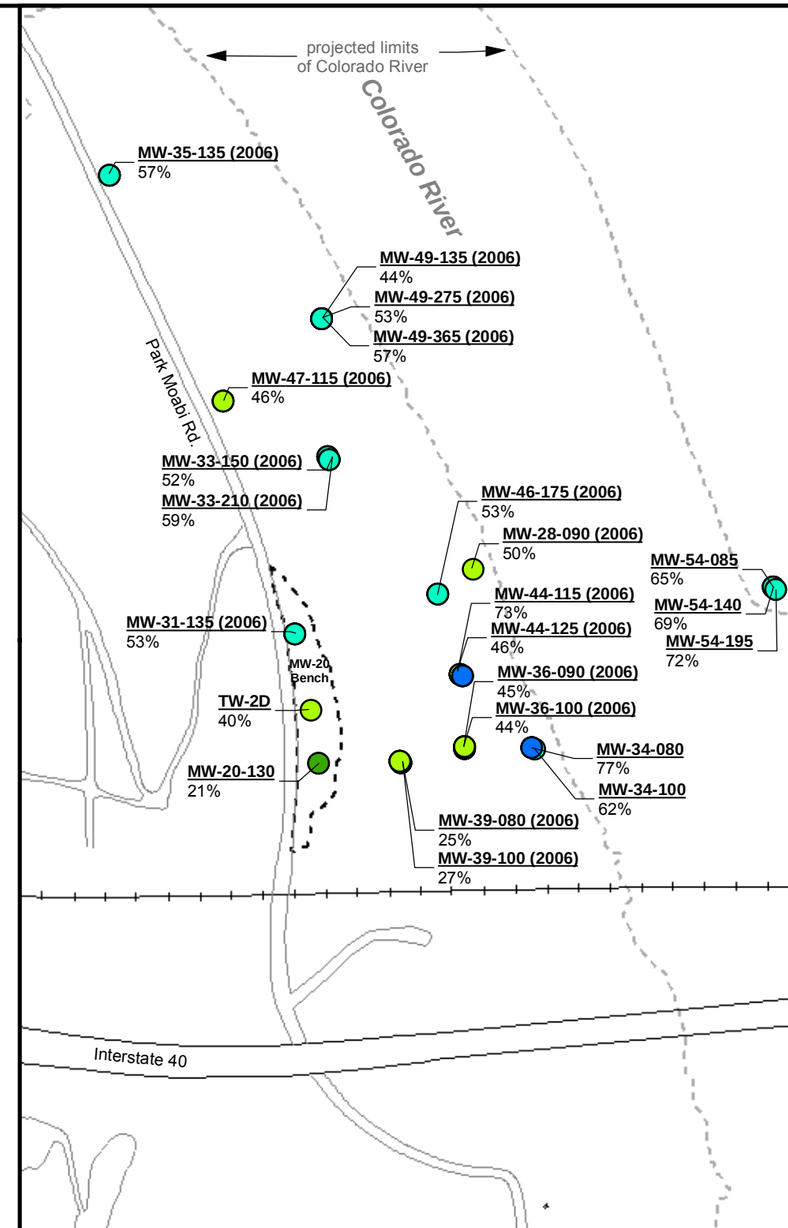
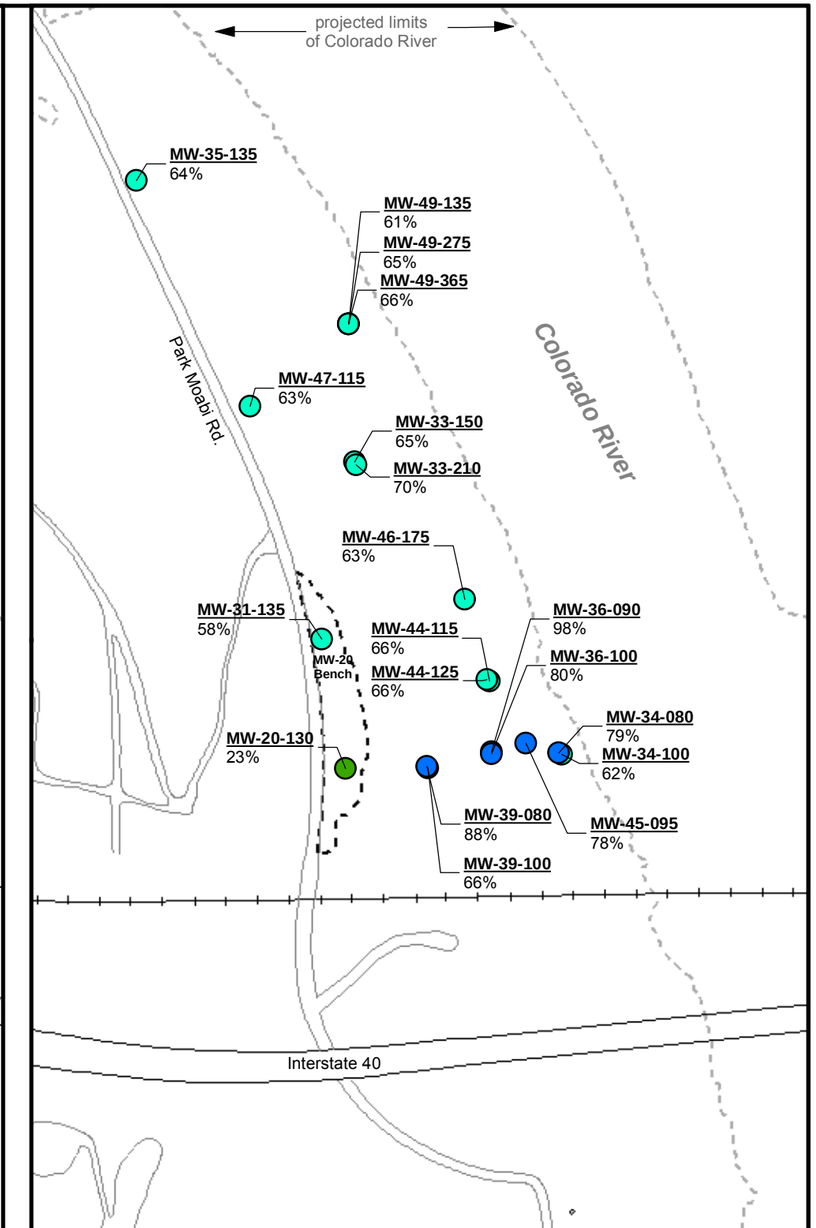


Deep Wells (Lower Depth Interval) - 2004



Deep Wells (Lower Depth Interval) -2006 and 2008



Deep Wells (Lower Depth Interval) - 2012

LEGEND

Calculated Riverine Signature

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

MW-22	Well ID
22%	Percent River Signature

Note:
Percent river water signature was calculated using composite statistics for deuterium isotope data from site river water samples and plume groundwater samples between 2004 and 2012. The posted percentages each represent the sample's calculated river water signature percentage, with 100% being essentially the same deuterium signature as river water, and 0% being equal to the plume water signature.

N

0 400 800 Feet

FIGURE 5-11c
DISTRIBUTION OF RIVER SIGNATURE IN FLOODPLAIN WELLS, DEEP WELLS (LOWER DEPTH INTERVAL)
FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORIING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

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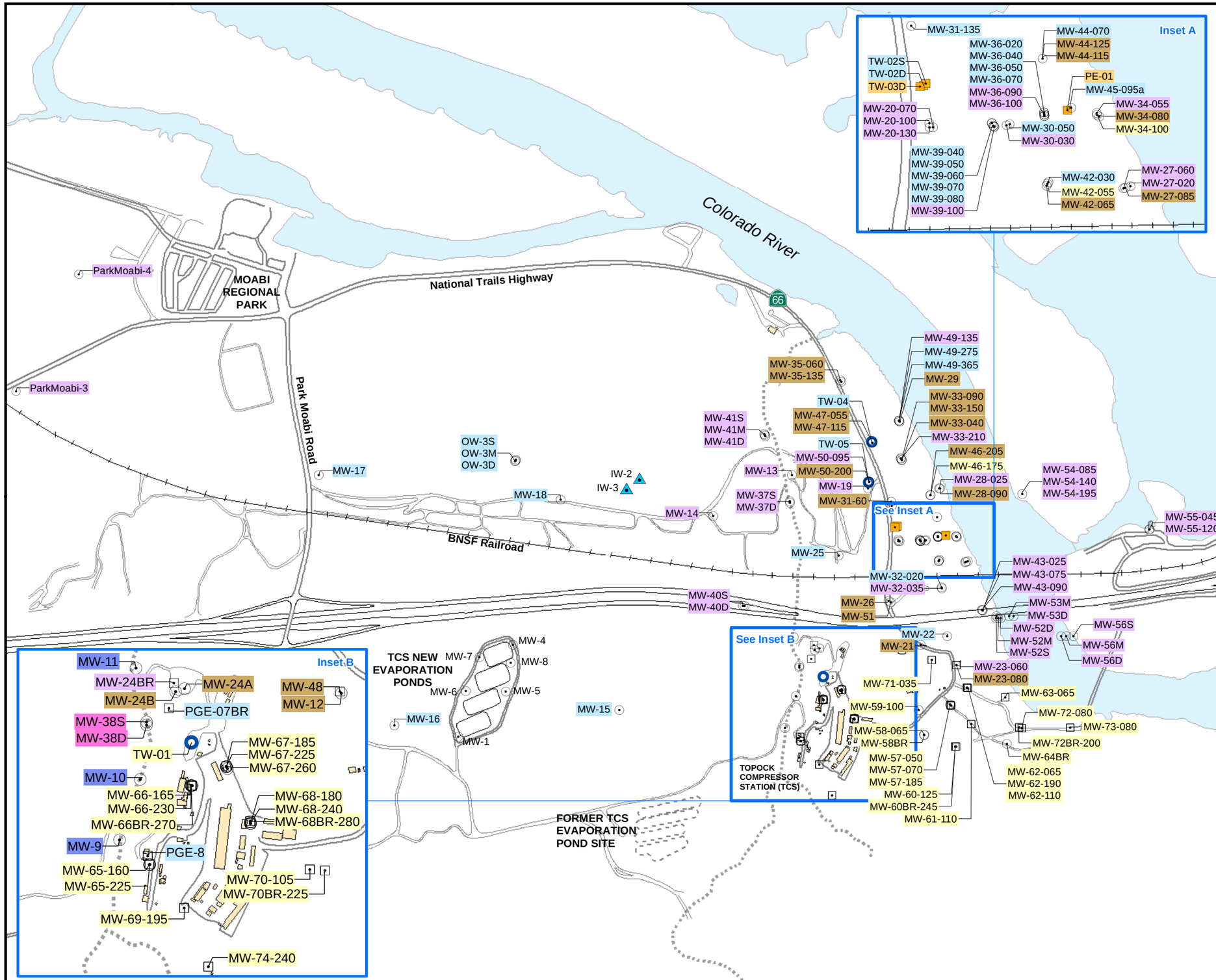

LEGEND

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

Sampling Frequency for Groundwater Monitoring Program (GMP)

MW-17	Biennial sampling
MW-13	Annual sampling
MW-38S	Annual Sampling (Plus 2 quarterly rounds once fixed)
MW-09	Annual; quarterly when channel full flow in Bat Cave Wash
MW-21	Semiannual sampling
TW-01	Quarterly sampling
TW-3D	Monthly sampling

N

0 500 1,000 Feet

California State Plane NAD83 Zone 5 US Feet

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

FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORIING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

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Appendix A
Well Construction

Table A-1

Well Construction and Sampling Summary, Fourth Quarter 2012

Fourth Quarter 2012 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California

Well ID	Site Area	Measuring Point Elevation (ft MSL)	Screen Interval (ft bgs)	Well Screen Lithology	Well Casing (inches)	Well Depth (ft bgs)	Depth to Water (ft btoc)	Sampling System	Typical Purge Rate (gpm)	Typical Purge Volume (gallons)	Remarks
GMP Monitoring Wells											
MW-9	Bat Cave Wash	536.56	77 - 87	Alluvial	4 in PVC	89.4	80.4	Temp. pump	2	11	
MW-10	Bat Cave Wash	530.65	74 - 94	Alluvial	4 in PVC	96.9	75.1	CD pump	5	40	
MW-11	Bat Cave Wash	522.61	62.5 - 82.5	Alluvial	4 in PVC	86.1	66.8	CD pump	5	30	
MW-12	East of Station	484.01	27.5 - 47.5	Alluvial	4 in PVC	50.4	29.1	Temp. pump	3	40	
MW-13	Bat Cave Wash	488.64	28.5 - 48.5	Alluvial	4 in PVC	52.0	34.0	CD pump	4	30	
MW-14	East Mesa	570.99	111 - 131	Alluvial	4 in PVC	133.8	115.6	CD pump	4	30	
MW-15	East of New Ponds	641.52	180.5 - 200.5	Alluvial	4 in PVC	203.0	184.9	CD pump	5	30	
MW-16	Near New Ponds	657.31	198 - 218	Alluvial	4 in PVC	218.1	199.8	Temp. pump	2	35	
MW-17	West of Mesa Area	589.96	130 - 150	Alluvial	4 in PVC	153.6	133.0	CD pump	7	32	
MW-18	West Mesa	545.32	85 - 105	Alluvial	4 in PVC	106.7	89.2	Temp. pump	2	30	
MW-19	Route 66	499.92	46 - 66	Alluvial	4 in PVC	65.8	45.6	CD pump	7	41	
MW-20-70	MW-20 bench	500.15	50 - 70	Alluvial	4 in PVC	69.6	47.2	Temp. pump	4	53	
MW-20-100	MW-20 bench	500.58	89.5 - 99.5	Alluvial	4 in PVC	101.4	49.1	Temp. pump	5	110	
MW-20-130	MW-20 bench	500.66	121 - 131	Alluvial	4 in PVC	132.3	49.0	Temp. pump	5	180	
MW-21	Route 66	505.55	39 - 59	Alluvial	4 in PVC	58.5	51.7	Temp. pump	2	10	low recharge well; typically purges dry at 1 casing volume
MW-22	Floodplain	460.72	5.5 - 10.5	Fluvial	2 in PVC	12.4	7.2	Peristaltic	0.2	4	
MW-23-060	East Ravine	504.08	50 - 60	Bedrock	2 in Sch 40 PVC	60.2	40.8	Temp. pump	NA	NA	
MW-23-080	East Ravine	504.13	75 - 80	Bedrock	2 in Sch 40 PVC	80.8	52.2	Temp. pump	NA	NA	
MW-24A	MW-24 Bench	567.16	104 - 124	Alluvial	4 in PVC	127.5	111.3	CD pump	3	30	
MW-24B	MW-24 Bench	564.76	193 - 213	Alluvial	4 in PVC	214.8	109.5	CD pump	7	210	
MW-24BR	MW-24 Bench	563.95	378 - 437	Bedrock	4 in PVC	441.0	107.9	Temp. pump	5	185	low recharge well; typically purges dry at 1 casing volume

Table A-1

Well Construction and Sampling Summary, Fourth Quarter 2012

Fourth Quarter 2012 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California

Well ID	Site Area	Measuring Point Elevation (ft MSL)	Screen Interval (ft bgs)	Well Screen Lithology	Well Casing (inches)	Well Depth (ft bgs)	Depth to Water (ft btoc)	Sampling System	Typical Purge Rate (gpm)	Typical Purge Volume (gallons)	Remarks
GMP Monitoring Wells											
MW-25	Near Bat Cave Wash	542.90	84.5 - 104.5	Alluvial	4 in PVC	106.5	88.4	CD pump	7	32	
MW-26	Route 66	502.22	51.5 - 71.5	Alluvial	2 in PVC	70.1	47.9	CD pump	7	50	
MW-27-20	Floodplain	460.56	7 - 17	Fluvial	2 in PVC	14.4	6.9	Temp. pump	1	7	
MW-27-60	Floodplain	461.38	47.3 - 57.3	Fluvial	2 in PVC	59.0	6.9	Temp. pump	2	25	
MW-27-85	Floodplain	460.99	77.5 - 87.5	Fluvial	2 in PVC	80.0	7.0	Temp. pump	2	36	
MW-28-25	Floodplain	466.77	13 - 23	Fluvial	2 in PVC	21.1	13.9	Ded. RF	1	5	
MW-28-90	Floodplain	467.53	70 - 90	Fluvial	2 in PVC	98.4	14.1	Temp. pump	2	50	
MW-29	Floodplain	485.21	29.5 - 39.5	Fluvial	2 in PVC	41.5	31.2	Temp. pump	0.5	6	
MW-30-30	Floodplain	468.12	12 - 32	Fluvial	2 in PVC	26.9	14.8	Ded. RF	1	10	
MW-30-50	Floodplain	468.81	40 - 50	Fluvial	4 in PVC	52.6	15.8	Ded. RF	2	75	
MW-31-60	MW-20 Bench	496.81	41.5 - 61.5	Alluvial	4 in PVC	64.0	43.1	CD pump	10	40	
MW-31-135	MW-20 Bench	498.11	113 - 133	Alluvial	2 in PVC	135.4	45.2	Temp. pump	3	60	
MW-32-20	Floodplain	461.51	10 - 20	Fluvial	2 in PVC	19.6	8.3	Ded. RF	1.5	6	
MW-32-35	Floodplain	461.63	27.5 - 35	Fluvial	4 in PVC	37.2	8.7	Ded. RF	2	60	
MW-33-40	Floodplain	487.38	29 - 39	Fluvial	2 in PVC	41.8	34.0	Temp. pump	0.5	4	
MW-33-90	Floodplain	487.55	69 - 89	Alluvial	4 in PVC	88.3	33.2	Temp. pump	2	110	
MW-33-150	Floodplain	487.77	132 - 152	Alluvial	2 in PVC	155.4	34.6	Temp. pump	3	60	
MW-33-210	Floodplain	487.25	190 - 210	Alluvial	2 in PVC	223.0	34.2	Temp. pump	3	90	
MW-34-55	Floodplain	460.95	45 - 55	Fluvial	4 in PVC	56.6	8.1	Ded. RF	2	100	
MW-34-80	Floodplain	461.20	73 - 83	Fluvial	4 in PVC	84.3	7.4	Temp. pump	3	150	
MW-34-100	Floodplain	460.97	89.5 - 99.5	Fluvial	2 in PVC	117.0	7.8	Ded. RF	2	55	

Table A-1

Well Construction and Sampling Summary, Fourth Quarter 2012

Fourth Quarter 2012 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California

Well ID	Site Area	Measuring Point Elevation (ft MSL)	Screen Interval (ft bgs)	Well Screen Lithology	Well Casing (inches)	Well Depth (ft bgs)	Depth to Water (ft btoc)	Sampling System	Typical Purge Rate (gpm)	Typical Purge Volume (gallons)	Remarks
GMP Monitoring Wells											
MW-35-60	Route 66	484.33	41 - 61	Alluvial	2 in PVC	56.8	30.6	Temp. pump	2	18	
MW-35-135	Route 66	484.24	116 - 136	Alluvial	2 in PVC	158.7	30.0	Temp. pump	3	66	
MW-36-20	Floodplain	469.33	10 - 20	Fluvial	1 in PVC	20.3	16.4	Peristaltic	0.5	4	
MW-36-40	Floodplain	469.59	30 - 40	Fluvial	1 in PVC	40.3	16.6	Peristaltic	0.5	4	
MW-36-50	Floodplain	469.62	46 - 51	Fluvial	1 in PVC	108.0	16.8	Peristaltic	0.75	5	
MW-36-70	Floodplain	469.27	60 - 70	Fluvial	1 in PVC	70.3	16.6	Peristaltic	0.5	7	
MW-36-90	Floodplain	469.64	80 - 90	Fluvial	1 in PVC	90.3	17.4	Peristaltic	0.4	10	
MW-36-100	Floodplain	469.65	88 - 98	Fluvial	2 in PVC	108.0	17.6	Ded. RF	2	45	
MW-37D	Bat Cave Wash	486.19	180 - 200	Alluvial	2 in PVC	226.7	31.5	Temp. pump	3	100	
MW-37S	Bat Cave Wash	485.97	64 - 84	Alluvial	2 in PVC	85.0	31.4	Temp. pump	2	30	
MW-38D	Bat Cave Wash	525.31	163 - 183	Alluvial	2 in PVC	190.9	70.0	Temp. pump	3	60	
MW-38S	Bat Cave Wash	525.51	75 - 95	Alluvial	2 in PVC	98.1	70.0	Temp. pump	1	13	
MW-39-40	Floodplain	468.02	30 - 40	Fluvial	1 in PVC	42.1	15.3	Peristaltic	0.5	3.5	
MW-39-50	Floodplain	467.93	47 - 52	Fluvial	1 in PVC	54.6	14.8	Peristaltic	0.5	5	
MW-39-60	Floodplain	468.00	49 - 59	Alluvial	1 in PVC	66.3	15.4	Peristaltic	0.5	6	
MW-39-70	Floodplain	468.02	60 - 70	Alluvial	1 in PVC	71.7	15.6	Peristaltic	0.5	7	
MW-39-80	Floodplain	467.92	70 - 80	Alluvial	1 in PVC	82.6	15.4	Peristaltic	0.5	9	
MW-39-100	Floodplain	468.12	80 - 100	Alluvial	2 in PVC	117.7	15.9	Ded. RF	2	45	
MW-40D	I-40 Median	566.08	240 - 260	Alluvial	2 in PVC	266.0	111.2	Temp. pump	3	75	
MW-40S	I-40 Median	566.04	115 - 135	Alluvial	2 in PVC	134.0	110.6	Temp. pump	2	13	
MW-41D	Bat Cave Wash	479.42	271 - 291	Alluvial	2 in PVC	311.5	24.5	Temp. pump	5	145	

Table A-1

Well Construction and Sampling Summary, Fourth Quarter 2012

Fourth Quarter 2012 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California

Well ID	Site Area	Measuring Point Elevation (ft MSL)	Screen Interval (ft bgs)	Well Screen Lithology	Well Casing (inches)	Well Depth (ft bgs)	Depth to Water (ft btoc)	Sampling System	Typical Purge Rate (gpm)	Typical Purge Volume (gallons)	Remarks
GMP Monitoring Wells											
MW-41M	Bat Cave Wash	479.84	170 - 190	Alluvial	2 in PVC	190.0	24.3	Temp. pump	3	85	
MW-41S	Bat Cave Wash	480.07	40 - 60	Alluvial	2 in PVC	60.0	25.3	Temp. pump	2	42	
MW-42-30	Floodplain	463.74	9.8 - 29.8	Fluvial	2 in Sch 40 PVC	30.1	11.1	Temp. pump	2	28	
MW-42-55	Floodplain	463.85	42.5 - 52.5	Fluvial	2 in PVC	52.8	10.3	Temp. pump	3	21	
MW-42-65	Floodplain	463.37	56.2 - 66.2	Fluvial	2 in PVC	80.0	9.8	Temp. pump	3	36	
MW-43-25	Floodplain	462.54	15 - 25	Fluvial	2 in PVC	25.0	9.5	Temp. pump	1	9	
MW-43-75	Floodplain	462.71	65 - 75	Fluvial	2 in PVC	75.0	9.8	Ded. RF	2	28	
MW-43-90	Floodplain	462.76	80 - 90	Fluvial	2 in PVC	97.0	10.2	Temp. pump	2	47	
MW-44-70	Floodplain	471.90	61 - 71	Fluvial	2 in PVC	70.0	19.4	Temp. pump	1.5	38	
MW-44-115	Floodplain	472.01	105 - 115	Alluvial	2 in PVC	113.5	18.8	Ded. RF	3	60	
MW-44-125	Floodplain	472.04	116 - 125	Alluvial	2 in PVC	128.8	10.1	Ded. RF	0.35	57	
MW-45-095a	Floodplain	470.03	83 - 93	Fluvial	2 in PVC	97.0	18.2	Temp. pump	1	40	pressure transducer location
MW-46-175	Floodplain	482.16	165 - 175	Alluvial	2 in PVC	175.5	29.5	Ded. RF	1.5	100	
MW-46-205	Floodplain	482.23	196.5 - 206.5	Alluvial	2 in PVC	206.5	29.7	Temp. pump	2	90	
MW-47-55	Floodplain	484.04	45 - 55	Alluvial	2 in PVC	55.0	30.0	Temp. pump	2	30	
MW-47-115	Floodplain	484.17	105 - 115	Alluvial	2 in PVC	115.0	28.4	Temp. pump	1.5	55	
MW-48	East of Station	486.22	124 - 134	Bedrock	2 in PVC	138.0	32.3	Temp. pump	0.5	22	low recharge well; typically purges dry at 1 casing volume
MW-49-135	Floodplain	484.02	125 - 135	Alluvial	1.5 in PVC	135.0	30.9	Temp. pump	0.6	30	
MW-49-275	Floodplain	483.95	255 - 275	Alluvial	2 in PVC	274.7	31.4	Temp. pump	3	126	
MW-49-365	Floodplain	484.01	346 - 366	Alluvial	2 in PVC	367.4	32.8	Temp. pump	2	180	
MW-50-095	Route 66	496.49	85 - 95	Alluvial	2 in PVC	95.0	42.4	Temp. pump	2	36	

Table A-1

Well Construction and Sampling Summary, Fourth Quarter 2012

Fourth Quarter 2012 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California

Well ID	Site Area	Measuring Point Elevation (ft MSL)	Screen Interval (ft bgs)	Well Screen Lithology	Well Casing (inches)	Well Depth (ft bgs)	Depth to Water (ft btoc)	Sampling System	Typical Purge Rate (gpm)	Typical Purge Volume (gallons)	Remarks
GMP Monitoring Wells											
MW-50-200	Route 66	496.35	190 - 200	Alluvial	2 in PVC	204.5	42.8	Temp. pump	5	85	
MW-51	Route 66	501.56	97 - 112	Alluvial	4 in PVC	113.3	47.3	Temp. pump	4	180	
MW-52D	Floodplain	462.16	85 - 87	Fluvial	0.75 in MLABS	89.5	14.9	Peristaltic	0.2	4.5	
MW-52M	Floodplain	462.16	66 - 68	Fluvial	0.75 in MLABS	70.5	11.3	Peristaltic	0.2	4.5	
MW-52S	Floodplain	462.16	47 - 49	Fluvial	0.75 in MLABS	51.5	9.8	Peristaltic	0.2	4.5	
MW-53D	Floodplain	461.32	123.5 - 125	Fluvial	0.75 in MLABS	---	14.3	Peristaltic	0.2	5.1	
MW-53M	Floodplain	461.32	98.5 - 100	Fluvial	0.75 in MLABS	---	13.7	Peristaltic	0.06	5.4	
MW-54-85	Arizona	466.10	77 - 87	Fluvial	2 in PVC	93.2	13.1	---	NA	NA	
MW-54-140	Arizona	465.98	128 - 138	Fluvial	2 in PVC	138.0	12.7	---	NA	NA	
MW-54-195	Arizona	466.32	185 - 195	Fluvial	2 in PVC	195.0	13.4	---	NA	NA	
MW-55-45	Arizona	463.41	37 - 47	Fluvial	2 in PVC	51.8	8.4	---	NA	NA	
MW-55-120	Arizona	463.21	108 - 118	Fluvial	2 in PVC	118.0	8.0	---	NA	NA	
MW-56D	Arizona	461.36	103.5 - 105.5	Fluvial	0.75 in MLABS	---	16.3	---	NA	NA	
MW-56M	Arizona	461.36	73.5 - 75.5	Fluvial	0.75 in MLABS	---	15.2	---	NA	NA	
MW-56S	Arizona	461.36	33.5 - 35.5	Fluvial	0.75 in MLABS	---	14.1	---	NA	NA	
MW-57-050	East Ravine	508.76	40 - 50	Bedrock	2 in Sch 40 PVC	50.0	---	Temp. pump	NA	NA	Dry
MW-57-070	East Ravine	509.37	55 - 70	Bedrock	2 in Sch 40 PVC	70.0	53.8	Temp. pump	0.3	10	
MW-57-185	East Ravine	508.97	70 - 184	Bedrock	3 in Sch 40 PVC	184.7	53.7	Temp. pump	3	270	
MW-58-065	East Ravine	523.26	54 - 64	Bedrock	2 in Sch 40 PVC	66.0	66.2	Temp. pump	NA	NA	Dry/Damaged
MW-58BR	East Ravine	---	0 - 0	Bedrock	---	---	---	Temp. pump	NA	NA	
MW-59-100	East Ravine	541.61	86 - 101	Alluvial	2 in Sch 40 PVC	101.0	85.8	Temp. pump	0.5	8	

Table A-1

Well Construction and Sampling Summary, Fourth Quarter 2012

Fourth Quarter 2012 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California

Well ID	Site Area	Measuring Point Elevation (ft MSL)	Screen Interval (ft bgs)	Well Screen Lithology	Well Casing (inches)	Well Depth (ft bgs)	Depth to Water (ft btoc)	Sampling System	Typical Purge Rate (gpm)	Typical Purge Volume (gallons)	Remarks
GMP Monitoring Wells											
MW-60-125	East Ravine	555.47	103 - 123	Bedrock	2 in Sch 40 PVC	122.5	100.1	Temp. pump	0.3	13	
MW-60BR-245	East Ravine	554.95	-	Bedrock	5 in	244.1	97.2	---	NA	NA	
MW-61-110	East Ravine	544.03	92 - 112	Bedrock	2 in Sch 40 PVC	112.5	88.4	Temp. pump	0.4	14	
MW-62-065	East Ravine	503.56	44.5 - 64.5	Bedrock	2 in Sch 40 PVC	67.4	48.6	Temp. pump	0.3	9	
MW-62-110	East Ravine	504.05	85 - 110	Bedrock	---	110.0	37.5	Flute	NA	2	
MW-62-190	East Ravine	504.05	155 - 192	Bedrock	---	190.0	36.5	Flute	NA	2	
MW-63-065	East Ravine	504.47	46 - 66	Bedrock	2 in Sch 40 PVC	65.6	50.4	Temp. pump	0.5	10	
MW-64BR	East Ravine	575.60	2 - 258	Bedrock	3 in	260.0	118.9	Temp. pump	NA	NA	
MW-65-160	Topock Compressor Station	596.59	150 - 160	Alluvial	2 in PVC	160.1	141.3	Temp. pump	NA	NA	
MW-65-225	Topock Compressor Station	596.58	215 - 225	Alluvial	2 in PVC	225.1	141.1	Temp. pump	NA	NA	
MW-66-165	Topock Compressor Station	586.16	142 - 162	Alluvial	2 in PVC	162.1	131.2	Temp. pump	NA	NA	
MW-66-230	Topock Compressor Station	586.22	218 - 228	Alluvial	2 in PVC	228.1	131.5	Temp. pump	NA	NA	
MW-66BR-270	Topock Compressor Station	586.15	-	Bedrock	5 in	270.6	153.0	Temp. pump	3.4	92.3	
MW-67-185	Topock Compressor Station	625.91	177 - 187	Alluvial	2 in	186.7	170.9	---	NA	NA	
MW-67-225	Topock Compressor Station	625.83	210 - 225	Alluvial	2 in PVC	225.0	171.0	Temp. pump	NA	NA	
MW-67-260	Topock Compressor Station	625.81	250 - 260	Alluvial	2 in PVC	260.0	171.2	Temp. pump	NA	NA	
MW-68-180	Topock Compressor Station	621.17	165 - 180	Alluvial	2 in PVC	180.1	166.1	Temp. pump	NA	NA	
MW-68-240	Topock Compressor Station	621.17	220 - 240	Alluvial	2 in PVC	240.1	166.3	Temp. pump	NA	NA	
MW-68BR-280	Topock Compressor Station	620.64	-	Bedrock	5 in	278.2	165.9	Ded. RF	0.034	61	
MW-69-195	Topock Compressor Station	631.36	176 - 196	Bedrock	2 in	195.5	175.6	---	NA	NA	
MW-70-105	East Ravine	541.47	85 - 105	Bedrock	2 in PVC	107.8	85.4	Temp. pump	NA	NA	

Table A-1

Well Construction and Sampling Summary, Fourth Quarter 2012

Fourth Quarter 2012 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California

Well ID	Site Area	Measuring Point Elevation (ft MSL)	Screen Interval (ft bgs)	Well Screen Lithology	Well Casing (inches)	Well Depth (ft bgs)	Depth to Water (ft btoc)	Sampling System	Typical Purge Rate (gpm)	Typical Purge Volume (gallons)	Remarks
GMP Monitoring Wells											
MW-70BR-225	East Ravine	539.84	-	Bedrock	5 in	229.3	83.4	Temp. pump	3.5	308	
MW-71-035	East Ravine	483.69	26 - 36	Alluvial	2 in	36.2	29.5	---	NA	NA	
MW-72-080	East Ravine	513.32	60 - 80	Bedrock	2 in	80.1	58.6	---	NA	NA	
MW-72BR-200	East Ravine	513.79	0 - 0	Bedrock	---	---	58.9	Ded. RF	NA	401	
MW-73-080	East Ravine	505.84	60.2 - 80.2	Bedrock	2 in	79.9	58.6	---	NA	NA	
MW-74-240	East Ravine	672.34	220 - 240	Bedrock	2 in	239.7	215.7	---	NA	NA	
OW-3D	West Mesa	558.63	242 - 262	Alluvial	2 in Sch 40 PVC	272.5	102.4	Temp. pump	3	90	
OW-3M	West Mesa	558.90	180 - 200	Alluvial	2 in Sch 40 PVC	200.3	102.4	Temp. pump	3	54	
OW-3S	West Mesa	558.58	86 - 116	Alluvial	2 in Sch 40 PVC	116.3	102.1	Temp. pump	2	30	
PGE-7BR	MW-24 Bench	---	249 - 300	Bedrock	7 in	300.0	110.2	---	NA	NA	
PGE-8	Station	596.01	405 - 554	Bedrock	6.75 in Steel	564.0	140.0	CD pump	20	1900	inactive injection
Other Site Wells not in GMP											
MW-1	New Ponds	661.76	201 - 211	Alluvial	4 in PVC	217.0	205.5	Ded. RF	NA	NA	active PG&E pond monitoring well
MW-3	New Ponds	650.51	193 - 203	Alluvial	4 in PVC	205.0	194.6	Ded. RF	NA	NA	active PG&E pond monitoring well
MW-4	New Ponds	625.73	164.5 - 174.5	Alluvial	4 in PVC	176.3	169.1	Ded. RF	NA	NA	active PG&E pond monitoring well
MW-5	New Ponds	635.69	175.9 - 184.9	Alluvial	4 in PVC	186.2	178.8	Ded. RF	NA	NA	active PG&E pond monitoring well
MW-6	New Ponds	642.84	184.5 - 193.5	Alluvial	4 in PVC	194.9	186.1	Ded. RF	NA	NA	active PG&E pond monitoring well
MW-7	New Ponds	631.91	172.7 - 182.7	Alluvial	4 in PVC	185.0	175.7	Ded. RF	NA	NA	active PG&E pond monitoring well
MW-8	New Ponds	627.54	169 - 178	Alluvial	4 in PVC	179.9	170.7	Ded. RF	NA	NA	active PG&E pond monitoring well
Test and Extraction Wells											
PE-1	Floodplain	457.52	79 - 89	Fluvial	6 in Sch 40 PVC	99.0	16.4	CD pump	3	400	active IM extraction well
TW-1	Plan B Test	620.55	169 - 269	Alluvial	5 in PVC	271.0	160.0	CD pump	20	200	inactive pilot test well

Table A-1

Well Construction and Sampling Summary, Fourth Quarter 2012

Fourth Quarter 2012 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California

Well ID	Site Area	Measuring Point Elevation (ft MSL)	Screen Interval (ft bgs)	Well Screen Lithology	Well Casing (inches)	Well Depth (ft bgs)	Depth to Water (ft btoc)	Sampling System	Typical Purge Rate (gpm)	Typical Purge Volume (gallons)	Remarks
Test and Extraction Wells											
TW-2D	MW-20 bench	493.29	113 - 148	Alluvial	6 in Sch 80 PVC	150.0	69.3	CD pump	70.1	160	inactive IM extraction well
TW-2S	MW-20 bench	499.05	42.5 - 92.5	Alluvial	6 in Sch 80 PVC	97.5	34.0	CD pump	6	75	inactive IM extraction well
TW-3D	MW-20 bench	498.09	111 - 156	Alluvial	8 in PVC	156.0	46.5	CD pump	NA	NA	active IM extraction well
TW-4	Floodplain	484.11	210 - 250	Alluvial	4 in PVC	255.0	30.2	Temp. pump	NA	NA	
TW-5	Route 66	496.30	110 - 150	Alluvial	4 in PVC	155.0	42.1	Temp. pump	3	150	
Water Supply Wells											
Park Moabi-3	Park Moabi	518.55	80 - 200	Alluvial	8 in Steel	252.0	61.3	active supply well	NA	NA	call Park Ranger to schedule sampling
Park Moabi-4	Park Moabi	---	93 - 140	Alluvial	Steel	---	---	---	NA	NA	

Notes:

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

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

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

Appendix B
Lab Reports, November through December 2012
(Provided on CD-ROM Only with Hard Copy Submittal)

EMAX
LABORATORIES, INC.
1835 W. 205th Street
Torrance, CA 90501
Tel: (310) 618-8889
Fax: (310) 618-0818

Date: 12-28-2012
EMAX Batch No.: 12L088

Attn: Shawn Duffy

CH2M HILL
2525 Airpark Drive
Redding CA 96001

Subject: Laboratory Report
Project: PG&E's Topock Gas Compressor Stat

Enclosed is the Laboratory report for samples received on 12/12/12.
The data reported relate only to samples listed below :

Sample ID	Control #	Col Date	Matrix	Analysis
MW-56D-188	L088-01	12/06/12	WATER	SPECIFIC CONDUCTANCE AMMONIA-N BY SM4500-NH3 F ALKALINITY DISSOLVED METALS IN WATER/WASTE NITRATE/NITRITE AS N ANIONS BY IC CHROMIUM HEXAVALENT BY IC
MW-56M-188	L088-02	12/06/12	WATER	SPECIFIC CONDUCTANCE AMMONIA-N BY SM4500-NH3 F ALKALINITY DISSOLVED METALS IN WATER/WASTE NITRATE/NITRITE AS N ANIONS BY IC CHROMIUM HEXAVALENT BY IC
MW-56S-188	L088-03	12/06/12	WATER	SPECIFIC CONDUCTANCE AMMONIA-N BY SM4500-NH3 F ALKALINITY DISSOLVED METALS IN WATER/WASTE NITRATE/NITRITE AS N

Sample ID	Control #	Col Date	Matrix	Analysis
				ANIONS BY IC
				CHROMIUM HEXAVALENT BY IC

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.

NELAC Accredited Certificate Number 02116CA
L-A-B Accredited DoD ELAP and ISO/IEC 17025 Certificate Number L2278 Testing

12L088

CH2MHILL

CHAIN OF CUSTODY RECORD

12/11/2012 11:06:36 AM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.05.AZ
Task Order
Project 2012-GMP-188-AZ
Turnaround Time 12 Days
Shipping Date: 12/11/2012
COC Number: 1

			Container:	2x250 ml Poly	2x500 ml Poly	2x500 ml Poly	2x500 ml Poly	2x1 Liter	2x1 Liter	2x1 Liter	1 Liter Poly	1 Liter Poly			
			Preservatives:	(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	4°C	4°C	4°C	H2SO4, pH<2, 4°C	H2SO4, pH<2, 4°C			
			Filtered:	Field	Field	Field	Field	NA	NA	NA	NA	NA			
			Holding Time:	28	180	180	180	14	14	14	28	28			
				Cr6 (E218.6R) Field Filtered	Metals (6010BFF) Field Filtered Cations:Ca,Mg,Na,Fe	Metals (SW6010B/SW6020Adis) Field Filtered Chromium	Metals (6020AFF) Field Filtered Mn	Specific Conductance (E120.1)	Anions (E300.0) Chloride,Sulfate	Alkalinity (SM2320B)	Ammonia (SM4500NH3)	Nitrate/Nitrite (E353.3)		Number of Containers	COMMENTS
	DATE	TIME	Matrix												
1	MW-56D-188	12/6/2012	12:45	Water	X	X	X	X	X	X	X	X	X	7	
2	MW-56M-188	12/6/2012	13:48	Water	X	X	X	X	X	X	X	X	X	7	
3	MW-56S-188	12/6/2012	14:40	Water	X	X	X	X	X	X	X	X	X	7	
													TOTAL NUMBER OF CONTAINERS	21	

T = 2.4°C

Signatures		Date/Time
Approved by		12-11-12 1600
Sampled by		
Relinquished by		
Received by	Rafael Davila	12-11-12 16:00
Relinquished by	Rafael Davila	12-11-12 22:30
Received by	Linda, TLI	12/11/12 22:30
	Keith Stout	12/12/12 9:30

Shipping Details

Method of Shipment: courier
On Ice: yes / no
Airbill No:
Lab Name: Emax
Lab Phone:

Rel-Shed by TLI, Linda, 12/12/12 09:30
Keith Stout 12/12/12 1530

ATTN:
Sample Custody

Special Instructions:
November 5-16, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

Int Sample 12/12/12 1520

LABORATORIES, INC.

SAMPLE RECEIPT FORM 1

Type of Delivery	Airbill / Tracking Number	
☐ Fedex ☐ UPS ☐ GSO ☐ Others		ECN 12L088
☑ EMAX Courier ☐ Client Delivery		Recipient J - LUNA
		Date 12/12/12 Time 1520

COC Inspection

☑ Client Name	☑ Client PM/FC	☑ Sampler Name	☑ Sampling Date/Time/Location	☑ Sample ID	☑ Matrix
☑ Address	☑ Tel # / Fax #	☑ Courier Signature	☑ Analysis Required	☑ Preservative (if any)	☑ TAT
Safety Issues (if any)	☐ High concentrations expected		☐ Superfund Site samples	☐ Rad screening required	

Comments:

Packaging Inspection

Container	* ☑ Cooler	☐ Box	☐ Other		
Condition	☐ Custody Seal	☑ Intact	☐ Damaged		
Packaging	☐ Bubble Pack	☐ Styrofoam	☐ Popcorn	☑ Sufficient	☐
Temperatures (Cool, =6 °C but not frozen)	☑ Cooler 1 2.4 °C	☐ Cooler 2 °C	☐ Cooler 3 °C	☐ Cooler 4 °C	☐ Cooler 5 °C
	☐ Cooler 6 °C	☐ Cooler 7 °C	☐ Cooler 8 °C	☐ Cooler 9 °C	☐ Cooler 10 °C
Thermometer:	*A - S/N 101541371*	*B - S/N 101541382*	*C - S/N 122091701*	*D - S/N 122091758*	

Comments: ☐ **Temperature is out of range. PM was informed IMMEDIATELY.**

Note: pH holding time requirement for water samples is 15 mins. Water samples for pH analysis are received beyond 15 minutes from sampling time.

* NOT SEALED - Courier packed samples at pick up location.

DISCREPANCIES

LSID	LSCID	Description Code	Sample Label ID / Information	Corrective Action Code
				AM 12/13/12

☐ **Continue to next page.**

REVIEWS

Sample Labeling: Date 12/12/12 12/12/12

SRF: Date 12/13/12

PM: AM for Molly Date 12/13/12

LEGEND:

Code	Description- Sample Management
A1	Analysis is not indicated in COC.
A2	Analysis is not indicated in label.
A3	Analysis is inconsistent in COC vis-à-vis label.
B1	Sample ID is not indicated in COC.
B2	Sample ID is not indicated in label.
B3	Sample ID is inconsistent in COC vis-à-vis label.
C1	Improper container
C2	Broken container
C3	Leaking container
D1	Date and/or time is not indicated in COC.
D2	Date and/or time is not indicated in label.
D3	Date and/or time is inconsistent in COC vis-à-vis label.
F1	Improper preservation
F2	Insufficient Sample
F3	Bubble is > 6mm. Use vial with smallest bubble first.
F4	Bubble is > 6mm in all vials.
F5	>20 % solid particle
F6	Out of Holding Time

Code	Description-Sample Management
G1	Sample indicated in COC is not received.
G2	MS/MSD is not indicated in COC.
G3	No identified trip blank, proceed as indicated in COC.
G4	Trip Blank is designated in SDG _____
G5	Trip Blank has no sampling date & time. Log-in with earliest sampling date and 0:00 time.
H1	

Code	Description-Project Management
R1	Hold sample(s); wait for further instructions
R2	Proceed as indicated in COC and inform client.
R3	Refer to attached instruction
R4	Cancel the analysis
R5	Inform client.
R6	Proceed as indicated in COC

CLIENT: CH2M HILL TOPOCK

SDG: 12L088

Analyst names:

1. 200.8 : Christopher Capulong
2. 120.1 : Tyler Kosaka
3. 218.6 : Viet Le
4. 300.0 : Jadelyn Chun
5. SM2320B : Tyler Kosaka
6. SM4500NH3-C: Tyler Kosaka
7. SM4500NO3 : Geralyn Gatbonton

CASE NARRATIVE

Client : CH2M HILL

Project : PG&E'S TOPOCK GAS COMPRESSOR STAT

SDG : 12L088

METHOD 200.8
DISSOLVED METALS BY ICP-MS

A total of three (3) water samples were received on 12/12/12 for Dissolved Metals In Water/Waste analysis, Method 200.8 in accordance with Project QAPP.

Holding Time
Samples were analyzed within the prescribed holding time.

Calibration
Initial Calibration was established as prescribed by the method and was verified using a secondary source. 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 analyzed at the frequency required by the project. For this SDG, one method blank was analyzed with the samples. Results were compliant to project requirement.

Lab Control Sample
A set of LCS/LCD was analyzed with the samples in this SDG.
Percent recoveries for IML013WL/C were all within QC limits.

Matrix QC Sample
Matrix QC sample was analyzed at the frequency prescribed by the project. Percent recoveries were within project QC limits except for results qualified with [*] in L088-03M/S summary form, most likely due to high level in a parent sample compared to pre-spiking levels. Check QC summary form for details. In addition, analytical spike and serial dilution were analyzed for matrix interference evaluation. Results were within method acceptance criteria.

Sample Analysis
Samples were analyzed according to prescribed analytical procedures. All project requirements were met; otherwise, anomalies were discussed within the associated QC parameter.

LAB CHRONICLE
DISSOLVED METALS BY ICP-MS

Client : CH2M HILL
Project : PG&E'S TOPOCK GAS COMPRESSOR STAT

SDG NO. : 12L088
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
MW-56S-188MS	L088-03M	1	NA	12/18/1218:56	12/14/1211:00	F6L07102	F6L07097	IML013W	Matrix Spike Sample (MS)
MW-56S-188MSD	L088-03S	1	NA	12/18/1219:01	12/14/1211:00	F6L07103	F6L07097	IML013W	MS Duplicate (MSD)
MW-56S-188AS	L088-03A	1	NA	12/18/1219:05	12/14/1211:00	F6L07104	F6L07097	IML013W	Analytical Spike Sample
MW-56S-188	L088-03	1	NA	12/18/1219:09	12/14/1211:00	F6L07105	F6L07097	IML013W	Field Sample
MW-56S-188DL	L088-03J	5	NA	12/18/1219:13	12/14/1211:00	F6L07106	F6L07097	IML013W	Diluted Sample
MW-56D-188	L088-01	1	NA	12/18/1219:35	12/14/1211:00	F6L07111	F6L07109	IML013W	Field Sample
MW-56M-188	L088-02	1	NA	12/18/1219:39	12/14/1211:00	F6L07112	F6L07109	IML013W	Field Sample
MBLK1W	IML013WB	1	NA	12/20/1214:43	12/14/1211:00	F6L08029	F6L08027	IML013W	Method Blank
LCS1W	IML013WL	1	NA	12/20/1214:47	12/14/1211:00	F6L08030	F6L08027	IML013W	Lab Control Sample (LCS)
LCD1W	IML013WC	1	NA	12/20/1214:51	12/14/1211:00	F6L08031	F6L08027	IML013W	LCS Duplicate

FN - Filename
% Moist - Percent Moisture

METHOD 200.8
DISSOLVED METALS BY ICP-MS

Client	: CH2M HILL	Date Collected:	12/06/12
Project	: PG&E'S TOPOCK GAS COMPRESSOR STAT	Date Received:	12/12/12
SDG NO.	: 12L088	Date Extracted:	12/14/12 11:00
Sample ID:	MW-56D-188	Date Analyzed:	12/18/12 19:35 # 12/20/12 14:21
Lab Samp ID:	L088-01 #L088-01K	Dilution Factor:	1 # 50
Lab File ID:	F6L07111 #F6L08024	Matrix :	WATER
Ext Btch ID:	IML013W	% Moisture :	NA
Calib. Ref.:	F6L07109 #F6L08015	Instrument ID :	T-IF6

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
Chromium	ND	1.00	0.200
# Calcium	404000	5000	1250
Iron	685	20.0	10.0
# Magnesium	86500	5000	500
# Manganese	742	500	10.0
# Sodium	4460000	25000	2500

Members of the Associated File

METHOD 200.8
DISSOLVED METALS BY ICP-MS

Client	: CH2M HILL	Date Collected:	12/06/12
Project	: PG&E'S TOPOCK GAS COMPRESSOR STAT	Date Received:	12/12/12
SDG NO.	: 12L088	Date Extracted:	12/14/12 11:00
Sample ID:	MW-56D-188	Date Analyzed:	12/18/12 19:35
Lab Samp ID:	L088-01	Dilution Factor:	1
Lab File ID:	F6L07111	Matrix :	WATER
Ext Btch ID:	IML013W	% Moisture :	NA
Calib. Ref.:	F6L07109	Instrument ID :	T-IF6

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
Chromium	ND	1.00	0.200
Calcium	397000E	100	25.0
Iron	685	20.0	10.0
Magnesium	60100E	100	10.0
Manganese	681E	10.0	0.200
Sodium	NDE	500	50.0

RECORD ONLY

METHOD 200.8
DISSOLVED METALS BY ICP-MS

Client	: CH2M HILL	Date Collected:	12/06/12
Project	: PG&E'S TOPOCK GAS COMPRESSOR STAT	Date Received:	12/12/12
SDG NO.	: 12L088	Date Extracted:	12/14/12 11:00
Sample ID:	MW-56D-188DL	Date Analyzed:	12/20/12 14:21
Lab Samp ID:	L088-01K	Dilution Factor:	50
Lab File ID:	F6L08024	Matrix :	WATER
Ext Btch ID:	IML013W	% Moisture :	NA
Calib. Ref.:	F6L08015	Instrument ID :	T-IF6

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
Chromium	ND	50.0	10.0
Calcium	404000	5000	1250
Iron	ND	1000	500
Magnesium	86500	5000	500
Manganese	742	500	10.0
Sodium	4460000	25000	2500

RECORD ONLY

METHOD 200.8
DISSOLVED METALS BY ICP-MS

Client	: CH2M HILL	Date Collected:	12/06/12
Project	: PG&E'S TOPOCK GAS COMPRESSOR STAT	Date Received:	12/12/12
SDG NO.	: 12L088	Date Extracted:	12/14/12 11:00
Sample ID:	MW-56M-188	Date Analyzed:	12/18/12 19:39 # 12/20/12 14:17
Lab Samp ID:	L088-02 #L088-02I	Dilution Factor:	1 # 10
Lab File ID:	F6L07112 #F6L08023	Matrix :	WATER
Ext Btch ID:	IML013W	% Moisture :	NA
Calib. Ref.:	F6L07109 #F6L08015	Instrument ID :	T-IF6

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
Chromium	ND	1.00	0.200
# Calcium	385000	1000	250
Iron	2960	20.0	10.0
# Magnesium	111000	1000	100
# Manganese	756	100	2.00
# Sodium	2760000	5000	500

Members of the Associated File

7886

METHOD 200.8
DISSOLVED METALS BY ICP-MS

Client	: CH2M HILL	Date Collected:	12/06/12
Project	: PG&E'S TOPOCK GAS COMPRESSOR STAT	Date Received:	12/12/12
SDG NO.	: 12L088	Date Extracted:	12/14/12 11:00
Sample ID:	MW-56M-188	Date Analyzed:	12/18/12 19:39
Lab Samp ID:	L088-02	Dilution Factor:	1
Lab File ID:	F6L07112	Matrix :	WATER
Ext Btch ID:	IML013W	% Moisture :	NA
Calib. Ref.:	F6L07109	Instrument ID :	T-IF6

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
Chromium	ND	1.00	0.200
Calcium	370000E	100	25.0
Iron	2960	20.0	10.0
Magnesium	80800E	100	10.0
Manganese	701E	10.0	0.200
Sodium	2720000E	500	50.0

RECORD ONLY

METHOD 200.8
DISSOLVED METALS BY ICP-MS

Client	: CH2M HILL	Date Collected:	12/06/12
Project	: PG&E'S TOPOCK GAS COMPRESSOR STAT	Date Received:	12/12/12
SDG NO.	: 12L088	Date Extracted:	12/14/12 11:00
Sample ID:	MW-56M-188DL	Date Analyzed:	12/20/12 14:17
Lab Samp ID:	L088-02I	Dilution Factor:	10
Lab File ID:	F6L08023	Matrix :	WATER
Ext Btch ID:	IML013W	% Moisture :	NA
Calib. Ref.:	F6L08015	Instrument ID :	T-IF6

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
Chromium	ND	10.0	2.00
Calcium	385000	1000	250
Iron	3310	200	100
Magnesium	111000	1000	100
Manganese	756	100	2.00
Sodium	2760000	5000	500

RECORD ONLY

METHOD 200.8
DISSOLVED METALS BY ICP-MS

Client	: CH2M HILL	Date Collected:	12/06/12
Project	: PG&E'S TOPOCK GAS COMPRESSOR STAT	Date Received:	12/12/12
SDG NO.	: 12L088	Date Extracted:	12/14/12 11:00
Sample ID:	MW-56S-188	Date Analyzed:	12/18/12 19:09 # 12/20/12 14:04
Lab Samp ID:	L088-03 #L088-03I	Dilution Factor:	1 # 10
Lab File ID:	F6L07105 #F6L08020	Matrix :	WATER
Ext Btch ID:	IML013W	% Moisture :	NA
Calib. Ref.:	F6L07097 #F6L08015	Instrument ID :	T-IF6

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
Chromium	ND	1.00	0.200
Calcium	131000	100	25.0
Iron	4490	20.0	10.0
Magnesium	42100	100	10.0
Manganese	846	10.0	0.200
# Sodium	1010000	5000	500

Members of the Associated File

METHOD 200.8
DISSOLVED METALS BY ICP-MS

Client	: CH2M HILL	Date Collected:	12/06/12
Project	: PG&E'S TOPOCK GAS COMPRESSOR STAT	Date Received:	12/12/12
SDG NO.	: 12L088	Date Extracted:	12/14/12 11:00
Sample ID:	MW-56S-188	Date Analyzed:	12/18/12 19:09
Lab Samp ID:	L088-03	Dilution Factor:	1
Lab File ID:	F6L07105	Matrix :	WATER
Ext Btch ID:	IML013W	% Moisture :	NA
Calib. Ref.:	F6L07097	Instrument ID :	T-IF6

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
Chromium	ND	1.00	0.200
Calcium	131000	100	25.0
Iron	4490	20.0	10.0
Magnesium	42100	100	10.0
Manganese	846	10.0	0.200
Sodium	990000E	500	50.0

RECORD ONLY

METHOD 200.8
DISSOLVED METALS BY ICP-MS

Client	: CH2M HILL	Date Collected:	12/06/12
Project	: PG&E'S TOPOCK GAS COMPRESSOR STAT	Date Received:	12/12/12
SDG NO.	: 12L088	Date Extracted:	12/14/12 11:00
Sample ID:	MW-56S-188DL	Date Analyzed:	12/20/12 14:04
Lab Samp ID:	L088-03I	Dilution Factor:	10
Lab File ID:	F6L08020	Matrix :	WATER
Ext Btch ID:	IML013W	% Moisture :	NA
Calib. Ref.:	F6L08015	Instrument ID :	T-IF6

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
Chromium	ND	10.0	2.00
Calcium	135000	1000	250
Iron	4910	200	100
Magnesium	49100	1000	100
Manganese	918	100	2.00
Sodium	1010000	5000	500

RECORD ONLY

METHOD 200.8
DISSOLVED METALS BY ICP-MS

Client	: CH2M HILL	Date Collected:	NA
Project	: PG&E'S TOPOCK GAS COMPRESSOR STAT	Date Received:	12/14/12
SDG NO.	: 12L088	Date Extracted:	12/14/12 11:00
Sample ID:	MBLK1W	Date Analyzed:	12/20/12 14:43
Lab Samp ID:	IML013WB	Dilution Factor:	1
Lab File ID:	F6L08029	Matrix :	WATER
Ext Btch ID:	IML013W	% Moisture :	NA
Calib. Ref.:	F6L08027	Instrument ID :	T-IF6

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
Chromium	ND	1.00	0.200
Calcium	ND	100	25.0
Iron	ND	20.0	10.0
Magnesium	ND	100	10.0
Manganese	ND	10.0	0.200
Sodium	ND	500	50.0

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: CH2M HILL
PROJECT: PG&E'S TOPOCK GAS COMPRESSOR STAT
SDG NO.: 12L088
METHOD: METHOD 200.8 (DISSOLVED)

MATRIX:	WATER			% MOISTURE:	NA
DILTN FACTR:	1	1	1		
SAMPLE ID:	MBLK1W				
CONTROL NO.:	IML013WB	IML013WL	IML013WC		
LAB FILE ID:	F6L08029	F6L08030	F6L08031		
DATIME EXTRCTD:	12/14/1211:00	12/14/1211:00	12/14/1211:00	DATE COLLECTED:	NA
DATIME ANALYZD:	12/20/1214:43	12/20/1214:47	12/20/1214:51	DATE RECEIVED:	12/14/12
PREP. BATCH:	IML013W	IML013W	IML013W		
CALIB. REF:	F6L08027	F6L08027	F6L08027		

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	25.0	24.9	99	25.0	24.2	97	3	85-115	20
Calcium	ND	2500	2730	109	2500	2660	106	3	85-115	20
Iron	ND	2500	2630	105	2500	2540	101	3	85-115	20
Magnesium	ND	2500	2840	114	2500	2710	108	5	85-115	20
Manganese	ND	25.0	25.2	101	25.0	24.3	97	4	85-115	20
Sodium	ND	2500	2690	107	2500	2580	103	4	85-115	20

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT: CH2M HILL
PROJECT: PG&E'S TOPOCK GAS COMPRESSOR STAT
SDG NO.: 12L088
METHOD: METHOD 200.8 (DISSOLVED)

MATRIX:	WATER			% MOISTURE:	NA
DILTN FACTR:	1	1	1		
SAMPLE ID:	MW-56S-188				
CONTROL NO.:	L088-03	L088-03M	L088-03S		
LAB FILE ID:	F6L07105	F6L07102	F6L07103		
DATIME EXTRCTD:	12/14/1211:00	12/14/1211:00	12/14/1211:00	DATE COLLECTED:	12/06/12
DATIME ANALYZD:	12/18/1219:09	12/18/1218:56	12/18/1219:01	DATE RECEIVED:	12/12/12
PREP. BATCH:	IML013W	IML013W	IML013W		
CALIB. REF:	F6L07097	F6L07097	F6L07097		

ACCESSION:

PARAMETER	SMPL RSLT ug/L	SPIKE AMT ug/L	MS RSLT ug/L	MS % REC	SPIKE AMT ug/L	MSD RSLT ug/L	MSD % REC	RPD %	QC LIMIT %	MAX RPD %
Chromium	ND	25.0	22.5	90	25.0	23.6	94	5	75-125	20
Calcium	131000	2500	133000	88	2500	136000	220*	2	75-125	20
Iron	4490	2500	6750	91	2500	6970	99	3	75-125	20
Magnesium	42100	2500	42800	27*	2500	44300	88	3	75-125	20
Manganese	846	50.0	844	-3*	50.0	872	52*	3	75-125	20
Sodium	990000	2500	976000	-556*	2500	1010000	712*	3	75-125	20

EMAX QUALITY CONTROL DATA
SERIAL DILUTION ANALYSIS

CLIENT: CH2M HILL
PROJECT: PG&E'S TOPOCK GAS COMPRESSOR STAT
BATCH NO.: 12L088
METHOD: METHOD 200.8 (DISSOLVED)

MATRIX:	WATER		% MOISTURE:	NA
DILUTION FACTOR:	1	5		
SAMPLE ID:	MW-56S-188	MW-56S-188DL		
EMAX SAMP ID:	L088-03	L088-03J		
LAB FILE ID:	F6L07105	F6L07106		
DATE EXTRACTED:	12/14/1211:00	12/14/1211:00	DATE COLLECTED:	12/06/12
DATE ANALYZED:	12/18/1219:09	12/18/1219:13	DATE RECEIVED:	12/12/12
PREP. BATCH:	IML013W	IML013W		
CALIB. REF:	F6L07097	F6L07097		

ACCESSION:

PARAMETER	SMPL RSLT (ug/L)	SERIAL DIL RSLT (ug/L)	DIF RSLT %	QC LIMIT (%)
Chromium	ND	ND	0	10
Calcium	131000	131000	0	10
Iron	4490	4780	7	10
Magnesium	42100	45800	9	10
Manganese	846	889	5	10
Sodium	990000	1020000	3	10

EMAX QUALITY CONTROL DATA
ANALYTICAL SPIKE ANALYSIS

CLIENT: CH2M HILL
PROJECT: PG&E'S TOPOCK GAS COMPRESSOR STAT
SDG NO.: 12L088
METHOD: METHOD 200.8 (DISSOLVED)

MATRIX:	WATER		% MOISTURE:	NA
DILTN FACTR:	1	1		
SAMPLE ID:	MW-56S-188			
CONTROL NO.:	L088-03	L088-03A		
LAB FILE ID:	F6L07105	F6L07104		
DATIME EXTRCTD:	12/14/1211:00	12/14/1211:00	DATE COLLECTED:	12/06/12
DATIME ANALYZD:	12/18/1219:09	12/18/1219:05	DATE RECEIVED:	12/12/12
PREP. BATCH:	IML013W	IML013W		
CALIB. REF:	F6L07097	F6L07097		

ACCESSION:

PARAMETER	SMPL RSLT (ug/L)	SPIKE AMT (ug/L)	AS RSLT (ug/L)	AS % REC	QC LIMIT (%)
Chromium	ND	25.0	23.9	95	75-125
Calcium	131000	2500	133000	92	75-125
Iron	4490	2500	7210	109	75-125
Magnesium	42100	2500	43500	55*	75-125
Manganese	846	50.0	849	6*	75-125
Sodium	990000	2500	984000	-248*	75-125

CASE NARRATIVE

Client : CH2M HILL

Project : PG&E'S TOPOCK GAS COMPRESSOR STAT

SDG : 12L088

METHOD 120.1
SPECIFIC CONDUCTANCE

A total of three (3) water samples were received on 12/12/12 for Specific Conductance analysis, Method 120.1 in accordance with Methods for the Chemical Analysis of Water and Wastes (MCAWW) (EPA/600/4-79/020).

Holding Time
Samples were analyzed within the prescribed holding time.

Calibration
Calibration was performed as prescribed by the method. All calibration requirements were within acceptance criteria.

Matrix QC Sample
No matrix QC sample was designated for this SDG.

Sample Analysis
Samples were analyzed according to prescribed analytical procedures. All project requirements were met; otherwise, anomalies were discussed within the associated QC parameter.

METHOD 120.1
SPECIFIC CONDUCTANCE

Client : CH2M HILL
Project : PG&E'S TOPOCK GAS COMPRESSOR STAT
Batch No. : 12L088

Matrix : WATER
InstrumentID : D4

CLIENT SAMPLE ID	EMAX SAMPLE ID	RESULTS (umhos/cm)	PREP FACTOR	MOIST (%)	LOQ (umhos/cm)	LOD (umhos/cm)	ANALYSIS DATETIME	PREPARATION DATETIME	DATA FILE ID	CAL REF	PREP BATCH	COLLECTION DATETIME	RECEIVE DATETIM
MW-56D-188	L088-01	21400	1	NA	2	2	12/21/1217:52	NA	12ECL002W01	12ECL002	ECL002W	12/06/1212:45	12/12/12
MW-56M-188	L088-02	14500	1	NA	2	2	12/21/1217:56	NA	12ECL002W02	12ECL002	ECL002W	12/06/1213:48	12/12/12
MW-56S-188	L088-03	5380	1	NA	2	2	12/21/1217:57	NA	12ECL002W03	12ECL002	ECL002W	12/06/1214:40	12/12/12

CASE NARRATIVE

Client : CH2M HILL

Project : PG&E'S TOPOCK GAS COMPRESSOR STAT

SDG : 12L088

METHOD 218.6
HEXAVALENT CHROMIUM

A total of three (3) water samples were received on 12/12/12 for Chromium Hexavalent by IC analysis, Method 218.6 in accordance with Project QAPP.

Holding Time
Samples were analyzed within the prescribed holding time.

Calibration
Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using a secondary source. Continuing calibration verifications were carried out at the frequency specified by the project. All calibration requirements were within acceptance criteria.

Method Blank
Method blanks were analyzed at the frequency required by the project. For this SDG, two (2) method blanks were analyzed with the samples. All results were compliant to project requirement. Refer to QC result summary forms for details.

Lab Control Sample
Two (2) sets of LCS/LCD were analyzed with the samples in this SDG.
Percent recoveries for HCL008WL/C were all within QC limits.
Percent recoveries for HCL009WL/C were all within QC limits.

Matrix QC Sample
No matrix QC sample was designated for this SDG.

Sample Analysis
Samples were analyzed according to prescribed analytical procedures. All project requirements were met; otherwise, anomalies were discussed within the associated QC parameter. L088-01 was reported from DF=10 due to matrix interference. L088-02 was reported from DF=5 due to matrix interference.

METHOD 218.6
HEXAVALENT CHROMIUM

Client : CH2M HILL
Project : PG&E'S TOPOCK GAS COMPRESSOR STAT
Batch No. : 12L088

Matrix : WATER
Instrument ID : I59

SAMPLE ID	EMAX SAMPLE ID	RESULTS (ug/L)	DLF	MOIST	RL (ug/L)	MDL (ug/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	HCL008WB	ND	1	NA	0.200	0.100	12/17/1216:30	NA	IL17014	IL17012	HCL008W	NA	NA
LCS1W	HCL008WL	2.0	1	NA	0.200	0.100	12/17/1216:41	NA	IL17015	IL17012	HCL008W	NA	NA
LCD1W	HCL008WC	1.9	1	NA	0.200	0.100	12/17/1216:51	NA	IL17016	IL17012	HCL008W	NA	NA
MW-56S-188	L088-03	ND	1	NA	0.200	0.100	12/17/1217:43	NA	IL17021	IL17012	HCL008W	12/06/1214:40	12/12/12
MW-56S-188MS	L088-03M	0.95	1	NA	0.200	0.100	12/17/1217:53	NA	IL17022	IL17012	HCL008W	12/06/1214:40	12/12/12
MBLK2W	HCL009WB	ND	1	NA	0.200	0.100	12/18/1213:05	NA	IL18003	IL18001	HCL009W	NA	NA
LCS2W	HCL009WL	2.0	1	NA	0.200	0.100	12/18/1213:16	NA	IL18004	IL18001	HCL009W	NA	NA
LCD2W	HCL009WC	2.1	1	NA	0.200	0.100	12/18/1213:26	NA	IL18005	IL18001	HCL009W	NA	NA
MW-56D-188	L088-01J	ND	10	NA	2.00	1.00	12/18/1214:13	NA	IL18008	IL18001	HCL009W	12/06/1212:45	12/12/12
MW-56D-188MS	L088-01G	9.7	10	NA	2.00	1.00	12/18/1214:34	NA	IL18009	IL18001	HCL009W	12/06/1212:45	12/12/12
MW-56M-188	L088-02I	ND	5	NA	1.00	0.500	12/18/1214:45	NA	IL18010	IL18001	HCL009W	12/06/1213:48	12/12/12
MW-56M-188MS	L088-02U	5.2	5	NA	1.00	0.500	12/18/1214:55	NA	IL18011	IL18001	HCL009W	12/06/1213:48	12/12/12

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: CH2M HILL
PROJECT: PG&E'S TOPOCK GAS COMPRESSOR STAT
BATCH NO.: 12L088
METHOD: METHOD 218.6

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK1W				
LAB SAMP ID:	HCL008WB	HCL008WL	HCL008WC		
LAB FILE ID:	IL17014	IL17015	IL17016		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	12/17/1216:30	12/17/1216:41	12/17/1216:51	DATE RECEIVED:	NA
PREP. BATCH:	HCL008W	HCL008W	HCL008W		
CALIB. REF:	IL17012	IL17012	IL17012		

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 (%)
Hexavalent Chromium	ND	2	2.0	100	2	1.9	95	5	90-110	20

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: CH2M HILL
PROJECT: PG&E'S TOPOCK GAS COMPRESSOR STAT
BATCH NO.: 12L088
METHOD: METHOD 218.6

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK2W				
LAB SAMP ID:	HCL009WB	HCL009WL	HCL009WC		
LAB FILE ID:	IL18003	IL18004	IL18005		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	12/18/1213:05	12/18/1213:16	12/18/1213:26	DATE RECEIVED:	NA
PREP. BATCH:	HCL009W	HCL009W	HCL009W		
CALIB. REF:	IL18001	IL18001	IL18001		

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 (%)
Hexavalent Chromium	ND	2	2.0	100	2	2.1	105	5	90-110	20

EMAX QUALITY CONTROL DATA
MS ANALYSIS

CLIENT: CH2M HILL
PROJECT: PG&E'S TOPOCK GAS COMPRESSOR STAT
BATCH NO.: 12L088
METHOD: METHOD 218.6

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MATRIX:	WATER		% MOISTURE:	NA
DILUTION FACTOR:	10	10		
SAMPLE ID:	MW-56D-188			
LAB SAMP ID:	L088-01J	L088-01G		
LAB FILE ID:	IL18008	IL18009		
DATE EXTRACTED:	NA	NA	DATE COLLECTED:	12/06/12 12:45
DATE ANALYZED:	12/18/1214:13	12/18/1214:34	DATE RECEIVED:	12/12/12
PREP. BATCH:	HCL009W	HCL009W		
CALIB. REF:	IL18001	IL18001		

ACCESSION:

PARAMETER	SMPL RSLT (ug/L)	SPIKE AMT (ug/L)	MS RSLT (ug/L)	MS % REC	QC LIMIT (%)
Hexavalent Chromium	ND	10	9.7	97	90-110

EMAX QUALITY CONTROL DATA
MS ANALYSIS

CLIENT: CH2M HILL
PROJECT: PG&E'S TOPOCK GAS COMPRESSOR STAT
BATCH NO.: 12L088
METHOD: METHOD 218.6

MATRIX:	WATER		% MOISTURE:	NA
DILUTION FACTOR:	5	5		
SAMPLE ID:	MW-56M-188			
LAB SAMP ID:	L088-02I	L088-02U		
LAB FILE ID:	IL18010	IL18011		
DATE EXTRACTED:	NA	NA	DATE COLLECTED:	12/06/12 13:48
DATE ANALYZED:	12/18/1214:45	12/18/1214:55	DATE RECEIVED:	12/12/12
PREP. BATCH:	HCL009W	HCL009W		
CALIB. REF:	IL18001	IL18001		

ACCESSION:

PARAMETER	SMPL RSLT (ug/L)	SPIKE AMT (ug/L)	MS RSLT (ug/L)	MS % REC	QC LIMIT (%)
Hexavalent Chromium	ND	5	5.2	104	90-110

EMAX QUALITY CONTROL DATA
MS ANALYSIS

CLIENT: CH2M HILL
PROJECT: PG&E'S TOPOCK GAS COMPRESSOR STAT
BATCH NO.: 12L088
METHOD: METHOD 218.6

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MATRIX:	WATER		% MOISTURE:	NA
DILUTION FACTOR:	1	1		
SAMPLE ID:	MW-56S-188			
LAB SAMP ID:	L088-03	L088-03M		
LAB FILE ID:	IL17021	IL17022		
DATE EXTRACTED:	NA	NA	DATE COLLECTED:	12/06/12 14:40
DATE ANALYZED:	12/17/1217:43	12/17/1217:53	DATE RECEIVED:	12/12/12
PREP. BATCH:	HCL008W	HCL008W		
CALIB. REF:	IL17012	IL17012		

ACCESSION:

PARAMETER	SMPL RSLT (ug/L)	SPIKE AMT (ug/L)	MS RSLT (ug/L)	MS % REC	QC LIMIT (%)
Hexavalent Chromium	ND	1	.95	95	90-110

CASE NARRATIVE

Client : CH2M HILL

Project : PG&E'S TOPOCK GAS COMPRESSOR STAT

SDG : 12L088

METHOD 300.0
ANIONS BY IC

A total of three (3) water samples were received on 12/12/12 for Anions (Chloride and Sulfate) by IC analysis, Method 300.0 in accordance with Project QAPP.

Holding Time
Samples were analyzed within the prescribed holding time.

Calibration
Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using a secondary source. Continuing calibration verifications were carried out at the frequency specified by the project. All calibration requirements were within acceptance criteria.

Method Blank
Method blanks were analyzed at the frequency required by the project. For this SDG, two (2) method blanks were analyzed with the samples. All results were compliant to project requirement. Refer to QC result summary forms for details.

Lab Control Sample
Two (2) sets of LCS/LCD were analyzed with the samples in this SDG.
Percent recoveries for ICL045WL/C were all within QC limits.
Percent recoveries for ICL047WL/C were all within QC limits.

Matrix QC Sample
No matrix QC sample was designated for this SDG.

Sample Analysis
Samples were analyzed according to prescribed analytical procedures. All project requirements were met; otherwise, anomalies were discussed within the associated QC parameter.

METHOD 300.0
CHLORIDE

Client : CH2M HILL
Project : PG&E'S TOPOCK GAS COMPRESSOR STAT
Batch No. : 12L088

Matrix : WATER
Instrument ID : DO

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	ICL045WB	ND	1	NA	0.500	0.100	12/18/1201:33	NA	AL21-16	AL21-14	ICL045W	NA	NA
LCS1W	ICL045WL	1.97	1	NA	0.500	0.100	12/18/1201:51	NA	AL21-17	AL21-14	ICL045W	NA	NA
LCD1W	ICL045WC	1.97	1	NA	0.500	0.100	12/18/1202:08	NA	AL21-18	AL21-14	ICL045W	NA	NA
MW-56S-188	L088-03I	1180	100	NA	50.0	10.0	12/18/1207:17	NA	AL21-36	AL21-26	ICL045W	12/06/1214:40	12/12/12
MBLK3W	ICL047WB	ND	1	NA	0.500	0.100	12/18/1214:48	NA	AL23-03	AL23-01	ICL047W	NA	NA
LCS2W	ICL047WL	1.98	1	NA	0.500	0.100	12/18/1215:05	NA	AL23-04	AL23-01	ICL047W	NA	NA
LCD2W	ICL047WC	1.98	1	NA	0.500	0.100	12/18/1215:22	NA	AL23-05	AL23-01	ICL047W	NA	NA
MW-56D-188	L088-01I	7190	1000	NA	500	100	12/18/1221:52	NA	AL23-23	AL23-13	ICL047W	12/06/1212:45	12/12/12
MW-56M-188	L088-02I	4450	1000	NA	500	100	12/18/1222:10	NA	AL23-24	AL23-13	ICL047W	12/06/1213:48	12/12/12

METHOD 300.0
SULFATE

Client : CH2M HILL
Project : PG&E'S TOPOCK GAS COMPRESSOR STAT
Batch No. : 12L088

Matrix : WATER
Instrument ID : DO

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	ICL045WB	ND	1	NA	0.500	0.250	12/18/1201:33	NA	AL21-16	AL21-14	ICL045W	NA	NA
LCS1W	ICL045WL	4.88	1	NA	0.500	0.250	12/18/1201:51	NA	AL21-17	AL21-14	ICL045W	NA	NA
LCD1W	ICL045WC	4.87	1	NA	0.500	0.250	12/18/1202:08	NA	AL21-18	AL21-14	ICL045W	NA	NA
MW-56D-188	L088-01I	1410	100	NA	50.0	25.0	12/18/1206:42	NA	AL21-34	AL21-26	ICL045W	12/06/1212:45	12/12/12
MW-56M-188	L088-02I	1000	100	NA	50.0	25.0	12/18/1206:59	NA	AL21-35	AL21-26	ICL045W	12/06/1213:48	12/12/12
MW-56S-188	L088-03I	593	100	NA	50.0	25.0	12/18/1207:17	NA	AL21-36	AL21-26	ICL045W	12/06/1214:40	12/12/12

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: CH2M HILL
PROJECT: PG&E'S TOPOCK GAS COMPRESSOR STAT
BATCH NO.: 12L088
METHOD: METHOD 300.0

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK1W				
LAB SAMP ID:	ICL045WB	ICL045WL	ICL045WC		
LAB FILE ID:	AL21-16	AL21-17	AL21-18		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	12/18/1201:33	12/18/1201:51	12/18/1202:08	DATE RECEIVED:	NA
PREP. BATCH:	ICL045W	ICL045W	ICL045W		
CALIB. REF:	AL21-14	AL21-14	AL21-14		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Chloride-Cl	ND	2	1.97	99	2	1.97	99	0	90-110	20

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: CH2M HILL
PROJECT: PG&E'S TOPOCK GAS COMPRESSOR STAT
BATCH NO.: 12L088
METHOD: METHOD 300.0

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK3W				
LAB SAMP ID:	ICL047WB	ICL047WL	ICL047WC		
LAB FILE ID:	AL23-03	AL23-04	AL23-05		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	12/18/1214:48	12/18/1215:05	12/18/1215:22	DATE RECEIVED:	NA
PREP. BATCH:	ICL047W	ICL047W	ICL047W		
CALIB. REF:	AL23-01	AL23-01	AL23-01		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Chloride-Cl	ND	2	1.98	99	2	1.98	99	0	90-110	20

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: CH2M HILL
PROJECT: PG&E'S TOPOCK GAS COMPRESSOR STAT
BATCH NO.: 12L088
METHOD: METHOD 300.0

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK1W				
LAB SAMP ID:	ICL045WB	ICL045WL	ICL045WC		
LAB FILE ID:	AL21-16	AL21-17	AL21-18		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	12/18/1201:33	12/18/1201:51	12/18/1202:08	DATE RECEIVED:	NA
PREP. BATCH:	ICL045W	ICL045W	ICL045W		
CALIB. REF:	AL21-14	AL21-14	AL21-14		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
SULFATE	ND	5	4.88	98	5	4.87	97	0	90-110	20

CASE NARRATIVE

Client : CH2M HILL

Project : PG&E'S TOPOCK GAS COMPRESSOR STAT

SDG : 12L088

METHOD SM2320B
ALKALINITY

A total of three (3) water samples were received on 12/12/12 for (Bicarbonate, Carbonate and Total) Alkalinity analysis, Method SM2320B in accordance with Project QAPP.

Holding Time
Samples were analyzed within the prescribed holding time.

Calibration
Calibration was performed as prescribed by the method. All calibration requirements were within acceptance criteria.

Method Blank
Method blank was analyzed at the frequency required by the project. For this SDG, one method blank was analyzed with the samples. Result was compliant to project requirement.

Lab Control Sample
A set of LCS/LCD was analyzed with the samples in this SDG.
Percent recoveries for ALL003WL/C were all within QC limits.

Matrix QC Sample
No matrix QC sample was designated for this SDG.

Sample Analysis
Samples were analyzed according to prescribed analytical procedures. All project requirements were met; otherwise, anomalies were discussed within the associated QC parameter.

METHOD SM2320B
TOTAL ALKALINITY

Client : CH2M HILL
Project : PG&E'S TOPOCK GAS COMPRESSOR STAT
Batch No. : 12L088

Matrix : WATER
InstrumentID : E5

CLIENT SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	PREP. FACTOR	MOIST (%)	RL (mg/L)	MDL (mg/L)	ANALYSIS DATETIME	PREPARATION DATETIME	DATA FILE ID	CAL REF	PREP BATCH	COLLECTION DATETIME	RECEIVED DATETIME
MBLK1W	ALL003WB	ND	1	NA	5	5	12/18/1217:44	NA	12E5L0304	12E5L03	ALL003W	NA	NA
LCS1W	ALL003WL	154	1	NA	5	5	12/18/1217:51	NA	12E5L0305	12E5L03	ALL003W	NA	NA
LCD1W	ALL003WC	155	1	NA	5	5	12/18/1217:58	NA	12E5L0306	12E5L03	ALL003W	NA	NA
MW-56D-188	L088-01	134	1	NA	5	5	12/18/1218:06	NA	12E5L0307	12E5L03	ALL003W	12/06/1212:45	12/12/12
MW-56M-188	L088-02	509	1	NA	5	5	12/18/1218:17	NA	12E5L0308	12E5L03	ALL003W	12/06/1213:48	12/12/12
MW-56S-188	L088-03	534	1	NA	5	5	12/18/1218:26	NA	12E5L0309	12E5L03	ALL003W	12/06/1214:40	12/12/12

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : CH2M HILL
PROJECT : PG&E'S TOPOCK GAS COMPRESSOR STAT
BATCH NO. : 12L088
METHOD : METHOD SM2320B

MATRIX : WATER % MOISTURE: NA

DILUTION FACTOR:	1	1	1
SAMPLE ID :	MBLK1W	LCS1W	LCD1W
LAB SAMPLE ID :	ALL003WB	ALL003WL	ALL003WC
LAB FILE ID :	12E5L0304	12E5L0305	12E5L0306
DATE PREPARED :	NA	NA	NA
DATE ANALYZED :	12/18/1217:44	12/18/1217:51	12/18/1217:58
PREP BATCH :	ALL003W	ALL003W	ALL003W
CALIBRATION REF:	12E5L03	12E5L03	12E5L03

ACCESSION:

PARAMETER	MB RESULT (mg/L)	SPIKE AMT (mg/L)	BS RESULT (mg/L)	BS REC (%)	SPIKE AMT (mg/L)	BSD RESULT (mg/L)	BSD REC (%)	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Alkalinity	ND	150	154	103	150	155	103	1	85-115	20

METHOD SM2320B
BICARBONATE ALKALINITY

Client : CH2M HILL
Project : PG&E'S TOPOCK GAS COMPRESSOR STAT
Batch No. : 12L088

Matrix : WATER
InstrumentID : E5

CLIENT SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	PREP. FACTOR	MOIST (%)	RL (mg/L)	MDL (mg/L)	ANALYSIS DATETIME	PREPARATION DATETIME	DATA FILE ID	CAL REF	PREP BATCH	COLLECTION DATETIME	RECEIVED DATETIME
MBLK1W	ALL003WB	ND	1	NA	5	5	12/18/1217:44	NA	12E5L0304	12E5L03	ALL003W	NA	NA
MW-56D-188	L088-01	134	1	NA	5	5	12/18/1218:06	NA	12E5L0307	12E5L03	ALL003W	12/06/1212:45	12/12/12
MW-56M-188	L088-02	509	1	NA	5	5	12/18/1218:17	NA	12E5L0308	12E5L03	ALL003W	12/06/1213:48	12/12/12
MW-56S-188	L088-03	534	1	NA	5	5	12/18/1218:26	NA	12E5L0309	12E5L03	ALL003W	12/06/1214:40	12/12/12

METHOD SM2320B
CARBONATE ALKALINITY

Client : CH2M HILL
Project : PG&E'S TOPOCK GAS COMPRESSOR STAT
Batch No. : 12L088

Matrix : WATER
InstrumentID : E5

CLIENT SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	PREP. FACTOR	MOIST (%)	RL (mg/L)	MDL (mg/L)	ANALYSIS DATETIME	PREPARATION DATETIME	DATA FILE ID	CAL REF	PREP BATCH	COLLECTION DATETIME	RECEIVED DATETIME
MBLK1W	ALL003WB	ND	1	NA	5	5	12/18/1217:44	NA	12E5L0304	12E5L03	ALL003W	NA	NA
MW-56D-188	L088-01	ND	1	NA	5	5	12/18/1218:06	NA	12E5L0307	12E5L03	ALL003W	12/06/1212:45	12/12/12
MW-56M-188	L088-02	ND	1	NA	5	5	12/18/1218:17	NA	12E5L0308	12E5L03	ALL003W	12/06/1213:48	12/12/12
MW-56S-188	L088-03	ND	1	NA	5	5	12/18/1218:26	NA	12E5L0309	12E5L03	ALL003W	12/06/1214:40	12/12/12

CASE NARRATIVE

Client : CH2M HILL

Project : PG&E'S TOPOCK GAS COMPRESSOR STAT

SDG : 12L088

METHOD SM4500NH3-C
AMMONIA (NH3-N)

A total of three (3) water samples were received on 12/12/12 for Ammonia-N by SM4500-NH3 C analysis, Method SM4500NH3-C in accordance with Project QAPP.

Holding Time
Samples were analyzed within the prescribed holding time.

Calibration
Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using a secondary source. Continuing calibration verifications were carried out at the frequency specified by the project. All calibration requirements were within acceptance criteria.

Method Blank
Method blank was analyzed at the frequency required by the project. For this SDG, one method blank was analyzed with the samples. Result was compliant to project requirement.

Lab Control Sample
A set of LCS/LCD was analyzed with the samples in this SDG.
Percent recoveries for NHL008WL/C were all within QC limits.

Matrix QC Sample
No matrix QC sample was designated for this SDG.

Sample Analysis
Samples were analyzed according to prescribed analytical procedures. All project requirements were met; otherwise, anomalies were discussed within the associated QC parameter.

METHOD SM4500NH3-C
AMMONIA (NH3-N)

Client : CH2M HILL
Project : PG&E'S TOPOCK GAS COMPRESSOR STAT
Batch No. : 12L088

Matrix : WATER
InstrumentID : 70

CLIENT SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	PREP. FACTOR	MOIST (%)	RL (mg/L)	MDL (mg/L)	ANALYSIS DATETIME	PREPARATION DATETIME	DATA FILE ID	CAL REF	PREP BATCH	COLLECTION DATETIME	RECEIVED DATETIME
MBLK1W	NHL008WB	ND	1	NA	0.1	0.06	12/21/1212:54	12/20/1214:46	12NHL00813	12NHL008	NHL008W	NA	NA
LCS1W	NHL008WL	0.953	1	NA	0.1	0.06	12/21/1212:54	12/20/1214:46	12NHL00814	12NHL008	NHL008W	NA	NA
LCD1W	NHL008WC	0.901	1	NA	0.1	0.06	12/21/1212:55	12/20/1214:46	12NHL00815	12NHL008	NHL008W	NA	NA
MW-56D-188	L088-01	ND	1	NA	0.1	0.06	12/21/1213:02	12/20/1214:46	12NHL00824	12NHL008	NHL008W	12/06/1212:45	12/12/12
MW-56M-188	L088-02	0.365	1	NA	0.1	0.06	12/21/1213:02	12/20/1214:46	12NHL00825	12NHL008	NHL008W	12/06/1213:48	12/12/12
MW-56S-188	L088-03	0.217	1	NA	0.1	0.06	12/21/1213:05	12/20/1214:46	12NHL00826	12NHL008	NHL008W	12/06/1214:40	12/12/12

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : CH2M HILL
PROJECT : PG&E'S TOPOCK GAS COMPRESSOR STAT
BATCH NO. : 12L088
METHOD : SM4500NH3-C

MATRIX : WATER % MOISTURE: NA

DILUTION FACTOR:	1	1	1
SAMPLE ID :	MBLK1W	LCS1W	LCD1W
LAB SAMPLE ID :	NHL008WB	NHL008WL	NHL008WC
LAB FILE ID :	12NHL00813	12NHL00814	12NHL00815
DATE PREPARED :	12/20/1214:46	12/20/1214:46	12/20/1214:46
DATE ANALYZED :	12/21/1212:54	12/21/1212:54	12/21/1212:55
PREP BATCH :	NHL008W	NHL008W	NHL008W
CALIBRATION REF:	12NHL008	12NHL008	12NHL008

ACCESSION:

PARAMETER	MB RESULT (mg/L)	SPIKE AMT (mg/L)	BS RESULT (mg/L)	BS REC (%)	SPIKE AMT (mg/L)	BSD RESULT (mg/L)	BSD REC (%)	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Ammonia (NH3-N)	ND	1	0.953	95	1	0.901	90	6	85-115	20

CASE NARRATIVE

Client : CH2M HILL

Project : PG&E'S TOPOCK GAS COMPRESSOR STAT

SDG : 12L088

METHOD SM4500NO3
NITRATE/NITRITE-N

A total of three (3) water samples were received on 12/12/12 for Nitrate/Nitrite as N analysis, Method SM4500NO3 in accordance with Project QAPP.

Holding Time
Samples were analyzed within the prescribed holding time.

Calibration
Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using a secondary source. Continuing calibration verifications were carried out at the frequency specified by the project. All calibration requirements were within acceptance criteria.

Method Blank
Method blank was analyzed at the frequency required by the project. For this SDG, one method blank was analyzed with the samples. Result was compliant to project requirement.

Lab Control Sample
A set of LCS/LCD was analyzed with the samples in this SDG.
Percent recoveries for NAL001WL/C were all within QC limits.

Matrix QC Sample
No matrix QC sample was designated for this SDG.

Sample Analysis
Samples were analyzed according to prescribed analytical procedures. All project requirements were met; otherwise, anomalies were discussed within the associated QC parameter.

METHOD SM4500NO3
NITRATE/NITRITE-N

Client : CH2M HILL
Project : PG&E'S TOPOCK GAS COMPRESSOR STAT
Batch No. : 12L088

Matrix : WATER
InstrumentID : 70

CLIENT SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	PREP. FACTOR	MOIST (%)	RL (mg/L)	MDL (mg/L)	ANALYSIS DATETIME	PREPARATION DATETIME	DATA FILE ID	CAL REF	PREP BATCH	COLLECTION DATETIME	RECEIVED DATETIME
MBLK1W	NAL001WB	ND	1	NA	0.1	0.02	12/20/1217:28	NA	12NAL00110	12NAL001	NAL001W	NA	NA
LCS1W	NAL001WL	0.483	1	NA	0.1	0.02	12/20/1217:29	NA	12NAL00111	12NAL001	NAL001W	NA	NA
LCD1W	NAL001WC	0.466	1	NA	0.1	0.02	12/20/1217:29	NA	12NAL00112	12NAL001	NAL001W	NA	NA
MW-56D-188	L088-01	ND	1	NA	0.1	0.02	12/20/1217:37	NA	12NAL00121	12NAL001	NAL001W	12/06/1212:45	12/12/12
MW-56M-188	L088-02	ND	1	NA	0.1	0.02	12/20/1217:37	NA	12NAL00122	12NAL001	NAL001W	12/06/1213:48	12/12/12
MW-56S-188	L088-03I	1.13	2	NA	0.2	0.04	12/20/1217:39	NA	12NAL00124	12NAL001	NAL001W	12/06/1214:40	12/12/12

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EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : CH2M HILL
PROJECT : PG&E'S TOPOCK GAS COMPRESSOR STAT
BATCH NO. : 12L088
METHOD : METHOD SM4500NO3

==========

MATRIX : WATER % MOISTURE: NA

DILUTION FACTOR:	1	1	1
SAMPLE ID :	MBLK1W	LCS1W	LCD1W
LAB SAMPLE ID :	NAL001WB	NAL001WL	NAL001WC
LAB FILE ID :	12NAL00110	12NAL00111	12NAL00112
DATE PREPARED :	NA	NA	NA
DATE ANALYZED :	12/20/1217:28	12/20/1217:29	12/20/1217:29
PREP BATCH :	NAL001W	NAL001W	NAL001W
CALIBRATION REF:	12NAL001	12NAL001	12NAL001

ACCESSION:

PARAMETER	MB RESULT (mg/L)	SPIKE AMT (mg/L)	BS RESULT (mg/L)	BS REC (%)	SPIKE AMT (mg/L)	BSD RESULT (mg/L)	BSD REC (%)	RPD (%)	QC LIMIT (%)	MAX RPD (%)
NITRATE + NITRITE-N	ND	0.5	0.483	97	0.5	0.466	93	4	85-115	20

LABORATORIES, INC.
1835 W. 205th Street
Torrance, CA 90501
Tel: (310) 618-8889
Fax: (310) 618-0818

Date: 01-07-2013
EMAX Batch No.: 12L136

Attn: Shawn Duffy

CH2M HILL
2525 Airpark Drive
Redding CA 96001

Subject: Laboratory Report
Project: PG&E's Topock Gas Compressor Stat

Enclosed is the Laboratory report for samples received on 12/17/12.
The data reported relate only to samples listed below :

Sample ID	Control #	Col Date	Matrix	Analysis
MW-54-085-188	L136-01	12/12/12	WATER	SPECIFIC CONDUCTANCE
				AMMONIA-N BY SM4500-NH3 F
				ALKALINITY
				DISSOLVED METALS IN WATER/WASTE
				NITRATE/NITRITE AS N
				ANIONS BY IC
				CHROMIUM HEXAVALENT BY IC
MW-54-085-188-EB	L136-02	12/12/12	WATER	DISSOLVED METALS IN WATER/WASTE
				CHROMIUM HEXAVALENT BY IC
MW-54-140-188	L136-03	12/12/12	WATER	SPECIFIC CONDUCTANCE
				AMMONIA-N BY SM4500-NH3 F
				ALKALINITY
				DISSOLVED METALS IN WATER/WASTE
				NITRATE/NITRITE AS N
				ANIONS BY IC
				CHROMIUM HEXAVALENT BY IC
MW-54-140-188-EB	L136-04	12/12/12	WATER	DISSOLVED METALS IN WATER/WASTE
				CHROMIUM HEXAVALENT BY IC
MW-54-195-188	L136-05	12/12/12	WATER	SPECIFIC CONDUCTANCE

Sample ID	Control #	Col Date	Matrix	Analysis
				AMMONIA-N BY SM4500-NH3 F
				ALKALINITY
				DISSOLVED METALS IN WATER/WASTE
				NITRATE/NITRITE AS N
				ANIONS BY IC
				CHROMIUM HEXAVALENT BY IC
MW-54-195-188-EB	L136-06	12/12/12	WATER	DISSOLVED METALS IN WATER/WASTE
				CHROMIUM HEXAVALENT BY IC
MW-55-045-188	L136-07	12/12/12	WATER	SPECIFIC CONDUCTANCE
				ANIONS BY IC
				ALKALINITY
				DISSOLVED METALS IN WATER/WASTE
				NITRATE/NITRITE AS N
				CHROMIUM HEXAVALENT BY IC
MW-55-045-188-EB	L136-08	12/12/12	WATER	DISSOLVED METALS IN WATER/WASTE
				CHROMIUM HEXAVALENT BY IC
MW-55-120-188	L136-09	12/12/12	WATER	SPECIFIC CONDUCTANCE
				ANIONS BY IC
				ALKALINITY
				DISSOLVED METALS IN WATER/WASTE
				NITRATE/NITRITE AS N
				CHROMIUM HEXAVALENT BY IC
MW-88-188	L136-10	12/12/12	WATER	CHROMIUM HEXAVALENT BY IC
MW-90-120-188	L136-11	12/12/12	WATER	SPECIFIC CONDUCTANCE
				ANIONS BY IC
				ALKALINITY
				DISSOLVED METALS IN WATER/WASTE
				NITRATE/NITRITE AS N
				CHROMIUM HEXAVALENT BY IC

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.

NELAC Accredited Certificate Number 02116CA
L-A-B Accredited DoD ELAP and ISO/IEC 17025 Certificate Number L2278 Testing

12L136

CH2MHILL

CHAIN OF CUSTODY RECORD

12/12/2012 4:42:55 PM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.05.AZ
Task Order
Project 2012-GMP-188-AZ
Turnaround Time 12 Days
Shipping Date: 11/2/2012
COC Number: Emax-188az

				Container:	2x250 ml Poly	2x500 ml Poly	2x500 ml Poly	2x500 ml Poly	2x500 ml Poly	2x1 Liter	2x1 Liter	2x1 Liter	1 Liter Poly	1 Liter Poly		
				Preservatives:	(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	4°C	4°C	4°C	H2SO4, pH<2, 4°C	H2SO4, pH<2, 4°C		
				Filtered:	Field	Field	Field	Field	Field	NA	NA	NA	NA	NA		
				Holding Time:	28	180	180	180	180	14	14	14	28	28		
		DATE	TIME	Matrix	Cr6 (E218.6R) Field Filtered	Arsenic (6020A) Field Filtered	Metals (6010BFF) Field Filtered Cations:Ca,Mg,Na,Fe	Metals (SW6010B/SW6020Adis) Field Filtered Chromium	Metals (6020AFF) Field Filtered Mn	Specific Conductance (E120.1)	Anions (E300.0) Chloride,Sulfate	Alkalinity (SM2320B)	Ammonia (SM4500NH3)	Nitrate/Nitrite (E353.3)		Number of Containers	COMMENTS
1	MW-54-085-188	12/12/2012	12:34	Water	X	X	X	X	X	X	X	X	X	X		7	
2	MW-54-085-188-EB	12/12/2012	11:55	Water	X			X								4	
3	MW-54-140-188	12/12/2012	13:44	Water	X	X	X	X	X	X	X	X	X	X		7	
4	MW-54-140-188-EB	12/12/2012	13:00	Water	X			X								4	
5	MW-54-195-188	12/12/2012	15:07	Water	X	X	X	X	X	X	X	X	X	X		7	
6	MW-54-195-188-EB	12/12/2012	13:59	Water	X			X								4	
7	MW-55-045-188	12/12/2012	8:47	Water	X		X	X	X	X	X	X		X		7	
8	MW-55-045-188-EB	12/12/2012	8:20	Water	X			X								4	
9	MW-55-120-188	12/12/2012	9:46	Water	X		X	X	X	X	X	X		X		7	
10	MW-88-188	12/12/2012	16:22	Water	X											2	
11	MW-90-120-188	12/12/2012	12:12	Water	X		X	X	X	X	X	X		X		7	
															TOTAL NUMBER OF CONTAINERS	60	

1) T = 2.4°C
2) T = 2.8°C

	Signatures	Date/Time
Approved by		12-13-12
Sampled by		1610
Relinquished by		
Received by	Rafael Davila	12-14-12 9:45 AM
Relinquished by	Rafael Davila	12-14-12 2:45
Received by	Linda TLI,	12/14/12 2:45
	Keith Stout	12/17/12 9:50

Shipping Details
Method of Shipment: FedEx
On Ice: yes / no
Airbill No:
Lab Name: EMAX
Lab Phone:

Rel-Sled by: TLI 12/17/12 09:58
Keith Stout 12/17/12 15:13

ATTN:
Sample Custody

Special Instructions:
November 5-16, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

NOT Sealed x 2 12/17/12 15

EMAX LABORATORIES, INC.

SAMPLE RECEIPT FORM 1

Type of Delivery	Airbill / Tracking Number	ECN 12L136
☐ Fedex ☐ UPS ☐ GSO ☐ Others		Recipient L-LUNA
☑ EMAX Courier ☐ Client Delivery		Date 12/17/12 Time 1513

COC Inspection

☑ Client Name ☑ Client PM/FC ☑ Sampler Name ☑ Sampling Date/Time/Location ☑ Sample ID ☑ Matrix

☐ Address ☑ Tel # / Fax # ☑ Courier Signature ☑ Analysis Required ☑ Preservative (if any) ☑ TAT

Safety Issues (if any) ☐ High concentrations expected ☐ Superfund Site samples ☐ Rad screening required

Comments:

Packaging Inspection

Container * ☑ Cooler ☐ Box ☐ Other

Condition ☐ Custody Seal ☑ Intact ☐ Damaged

Packaging ☐ Bubble Pack ☐ Styrofoam ☐ Popcorn ☑ Sufficient ☐

Temperatures (Cool, =6 °C but not frozen) ☑ Cooler 1 2.4 °C ☑ Cooler 2 2.8 °C ☐ Cooler 3 °C ☐ Cooler 4 °C ☐ Cooler 5 °C ☐ Cooler 6 °C ☐ Cooler 7 °C ☐ Cooler 8 °C ☐ Cooler 9 °C ☐ Cooler 10 °C

Thermometer: *A - S/N 101541371* *B - S/N 101541382* *C - S/N 122091701* *D - S/N 122091758*

Comments: ☐ **Temperature is out of range. PM was informed IMMEDIATELY.**

Note: **pH holding time requirement for water samples is 15 mins. Water samples for pH analysis are received beyond 15 minutes from sampling time.**

* NOT SEALED

DISCREPANCIES

LSID	LSCID	Description Code	Sample Label ID / Information	Corrective Action Code
02, 04, 06, 08		H1		OK
10		H1		

☐ **Continue to next page.**

REVIEWS Sample Labeling Date 12/17/12 SRF Date 12/17/12 PM Date 12/17/12

LEGEND:

Code	Description- Sample Management
A1	Analysis is not indicated in COC.
A2	Analysis is not indicated in label.
A3	Analysis is inconsistent in COC vis-à-vis label.
B1	Sample ID is not indicated in COC.
B2	Sample ID is not indicated in label.
B3	Sample ID is inconsistent in COC vis-à-vis label.
C1	Improper container
C2	Broken container
C3	Leaking container
D1	Date and/or time is not indicated in COC.
D2	Date and/or time is not indicated in label.
D3	Date and/or time is inconsistent in COC vis-à-vis label.
F1	Improper preservation
F2	Insufficient Sample
F3	Bubble is > 6mm. Use vial with smallest bubble first.
F4	Bubble is > 6mm in all vials.
F5	>20 % solid particle
F6	Out of Holding Time

Code	Description-Sample Management
G1	Sample indicated in COC is not received.
G2	MS/MSD is not indicated in COC.
G3	No identified trip blank, proceed as indicated in COC.
G4	Trip Blank is designated in SDG _____
G5	Trip Blank has no sampling date & time. Log-in with earliest sampling date and 0:00 time.
H1	NOTE: RECVD ONLY 1 CONTAINER PER SAMPLE (2X IN COC)

Code	Description-Project Management
R1	Hold sample(s); wait for further instructions
R2	Proceed as indicated in COC and inform client.
R3	Refer to attached instruction
R4	Cancel the analysis
R5	Inform client.
R6	Proceed as indicated in COC

CLIENT: CH2M HILL TOPOCK

SDG: 12L136

Analyst names:

1. 200.8 : Christopher Capulong
2. 120.1 : Tyler Kosaka
3. 218.6 : Viet Le
4. 300.0 : Jadelyn Chun
5. SM2320B : Tyler Kosaka
6. SM4500NH3-C: Tyler Kosaka
7. SM4500NO3 : Geralyn Gatbonton

CASE NARRATIVE

Client : CH2M HILL

Project : PG&E'S TOPOCK GAS COMPRESSOR STAT

SDG : 12L136

METHOD 200.8
DISSOLVED METALS BY ICP-MS

A total of ten (10) water samples were received on 12/17/12 for Dissolved Metals In Water/Waste analysis, Method 200.8 in accordance with Project QAPP.

Holding Time
Samples were analyzed within the prescribed holding time.

Calibration
Initial Calibration was established as prescribed by the method and was verified using a secondary source. 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 analyzed at the frequency required by the project. For this SDG, one method blank was analyzed with the samples. Results were compliant to project requirement.

Lab Control Sample
A set of LCS/LCD was analyzed with the samples in this SDG.
Percent recoveries for IML024WL/C were all within QC limits.

Matrix QC Sample
Matrix QC sample was analyzed at the frequency prescribed by the project. Percent recoveries were within project QC limits except for results for Dissolved Metals and was qualified with [*] in L136-11M/S summary form , most likely due to matrix interference or high levels in a parent sample compared to pre spiking level. Check QC summary form for details.
In addition, analytical spike and serial dilution were analyzed for matrix interference evaluation. Results were within method acceptance criteria.

Sample Analysis
Samples were analyzed according to prescribed analytical procedures. All project requirements were met; otherwise, anomalies were discussed within the associated QC parameter.

LAB CHRONICLE
DISSOLVED METALS BY ICP-MS

Client : CH2M HILL
Project : PG&E'S TOPOCK GAS COMPRESSOR STAT

SDG NO. : 12L136
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
MW-90-120-188MS	L136-11M	1	NA	12/26/1217:39	12/20/1217:00	F6L10068	F6L10063	IML024W	Matrix Spike Sample (MS)
MW-90-120-188MSD	L136-11S	1	NA	12/26/1217:43	12/20/1217:00	F6L10069	F6L10063	IML024W	MS Duplicate (MSD)
MW-90-120-188AS	L136-11A	1	NA	12/26/1217:47	12/20/1217:00	F6L10070	F6L10063	IML024W	Analytical Spike Sample
MW-90-120-188	L136-11	1	NA	12/26/1217:52	12/20/1217:00	F6L10071	F6L10063	IML024W	Field Sample
MW-90-120-188DL	L136-11J	5	NA	12/26/1217:56	12/20/1217:00	F6L10072	F6L10063	IML024W	Diluted Sample
MW-54-140-188	L136-03	1	NA	12/26/1218:51	12/20/1217:00	F6L10078	F6L10075	IML024W	Field Sample
MW-55-120-188	L136-09	1	NA	12/26/1219:17	12/20/1217:00	F6L10084	F6L10075	IML024W	Field Sample
MBLK1W	IML024WB	1	NA	12/27/1214:58	12/20/1217:00	F6L11017	F6L11015	IML024W	Method Blank
LCS1W	IML024WL	1	NA	12/27/1215:02	12/20/1217:00	F6L11018	F6L11015	IML024W	Lab Control Sample (LCS)
LCD1W	IML024WC	1	NA	12/27/1215:07	12/20/1217:00	F6L11019	F6L11015	IML024W	LCS Duplicate
MW-55-045-188	L136-07N	1	NA	12/27/1215:11	12/20/1217:00	F6L11020	F6L11015	IML024W	Field Sample
MW-54-085-188	L136-01I	10	NA	12/27/1215:49	12/20/1217:00	F6L11029	F6L11027	IML024W	Diluted Sample
MW-54-195-188	L136-05I	5	NA	12/27/1215:57	12/20/1217:00	F6L11031	F6L11027	IML024W	Diluted Sample

FN - Filename
% Moist - Percent Moisture

7002

METHOD 200.8
DISSOLVED METALS BY ICP-MS

Client	: CH2M HILL	Date Collected:	12/12/12
Project	: PG&E'S TOPOCK GAS COMPRESSOR STAT	Date Received:	12/17/12
SDG NO.	: 12L136	Date Extracted:	12/20/12 17:00
Sample ID:	MW-54-085-188	Date Analyzed:	12/27/12 15:49
Lab Samp ID:	L136-01I	Dilution Factor:	10
Lab File ID:	F6L11029	Matrix :	WATER
Ext Btch ID:	IML024W	% Moisture :	NA
Calib. Ref.:	F6L11027	Instrument ID :	T-IF6

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
Calcium	171000	1000	250
Iron	512	200	100
Magnesium	89200	1000	100
Manganese	897	100	2.00
Sodium	1850000	5000	500

METHOD 200.8
DISSOLVED METALS BY ICP-MS

Client	: CH2M HILL	Date Collected:	12/12/12
Project	: PG&E'S TOPOCK GAS COMPRESSOR STAT	Date Received:	12/17/12
SDG NO.	: 12L136	Date Extracted:	12/20/12 17:00
Sample ID:	MW-54-140-188	Date Analyzed:	12/26/12 18:51 # 12/27/12 16:11
Lab Samp ID:	L136-03 #L136-03K	Dilution Factor:	1 # 10
Lab File ID:	F6L10078 #F6L11034	Matrix :	WATER
Ext Btch ID:	IML024W	% Moisture :	NA
Calib. Ref.:	F6L10075 #F6L11027	Instrument ID :	T-IF6

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
Calcium	147000	100	25.0
Iron	ND	20.0	10.0
# Magnesium	11800	1000	100
# Manganese	157	100	2.00
# Sodium	2650000	5000	500

Members of the Associated File

METHOD 200.8
DISSOLVED METALS BY ICP-MS

Client	: CH2M HILL	Date Collected:	12/12/12
Project	: PG&E'S TOPOCK GAS COMPRESSOR STAT	Date Received:	12/17/12
SDG NO.	: 12L136	Date Extracted:	12/20/12 17:00
Sample ID:	MW-54-195-188	Date Analyzed:	12/27/12 15:57 # 12/27/12 16:02
Lab Samp ID:	L136-05I #L136-05K	Dilution Factor:	5 # 50
Lab File ID:	F6L11031 #F6L11032	Matrix	: WATER
Ext Btch ID:	IML024W	% Moisture	: NA
Calib. Ref.:	F6L11027	Instrument ID	: T-IF6

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
Calcium	128000	500	125
Iron	117	100	50.0
Magnesium	4420	500	50.0
Manganese	657	50.0	1.00
# Sodium	4360000	25000	2500

Members of the Associated File

METHOD 200.8
DISSOLVED METALS BY ICP-MS

Client	: CH2M HILL	Date Collected:	12/12/12
Project	: PG&E'S TOPOCK GAS COMPRESSOR STAT	Date Received:	12/17/12
SDG NO.	: 12L136	Date Extracted:	12/20/12 17:00
Sample ID:	MW-55-045-188	Date Analyzed:	12/27/12 15:11
Lab Samp ID:	L136-07N	Dilution Factor:	1
Lab File ID:	F6L11020	Matrix :	WATER
Ext Btch ID:	IML024W	% Moisture :	NA
Calib. Ref.:	F6L11015	Instrument ID :	T-IF6

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
Calcium	41800	100	25.0
Iron	67.1	20.0	10.0
Magnesium	9290	100	10.0
Manganese	1080	10.0	0.200
Sodium	238000	500	50.0

METHOD 200.8
DISSOLVED METALS BY ICP-MS

Client	: CH2M HILL	Date Collected:	12/12/12
Project	: PG&E'S TOPOCK GAS COMPRESSOR STAT	Date Received:	12/17/12
SDG NO.	: 12L136	Date Extracted:	12/20/12 17:00
Sample ID:	MW-55-120-188	Date Analyzed:	12/26/12 19:17 # 12/27/12 16:06
Lab Samp ID:	L136-09 #L136-09I	Dilution Factor:	1 # 10
Lab File ID:	F6L10084 #F6L11033	Matrix :	WATER
Ext Btch ID:	IML024W	% Moisture :	NA
Calib. Ref.:	F6L10075 #F6L11027	Instrument ID :	T-IF6

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
Calcium	110000	100	25.0
Iron	ND	20.0	10.0
Magnesium	2020	100	10.0
Manganese	ND	10.0	0.200
# Sodium	1980000	5000	500

Members of the Associated File

METHOD 200.8
DISSOLVED METALS BY ICP-MS

Client	: CH2M HILL	Date Collected:	12/12/12
Project	: PG&E'S TOPOCK GAS COMPRESSOR STAT	Date Received:	12/17/12
SDG NO.	: 12L136	Date Extracted:	12/20/12 17:00
Sample ID:	MW-90-120-188	Date Analyzed:	12/26/12 17:52 # 12/27/12 15:28
Lab Samp ID:	L136-11 #L136-11I	Dilution Factor:	1 # 10
Lab File ID:	F6L10071 #F6L11024	Matrix :	WATER
Ext Btch ID:	IML024W	% Moisture :	NA
Calib. Ref.:	F6L10063 #F6L11015	Instrument ID :	T-IF6

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
Calcium	110000	100	25.0
Iron	ND	20.0	10.0
Magnesium	2080	100	10.0
Manganese	ND	10.0	0.200
# Sodium	1730000	5000	500

Members of the Associated File

METHOD 200.8
DISSOLVED METALS BY ICP-MS

Client	: CH2M HILL	Date Collected:	NA
Project	: PG&E'S TOPOCK GAS COMPRESSOR STAT	Date Received:	12/20/12
SDG NO.	: 12L136	Date Extracted:	12/20/12 17:00
Sample ID:	MBLK1W	Date Analyzed:	12/27/12 14:58
Lab Samp ID:	IML024WB	Dilution Factor:	1
Lab File ID:	F6L11017	Matrix :	WATER
Ext Btch ID:	IML024W	% Moisture :	NA
Calib. Ref.:	F6L11015	Instrument ID :	T-IF6

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
Calcium	ND	100	25.0
Iron	ND	20.0	10.0
Magnesium	ND	100	10.0
Manganese	ND	10.0	0.200
Sodium	ND	500	50.0

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: CH2M HILL
PROJECT: PG&E'S TOPOCK GAS COMPRESSOR STAT
SDG NO.: 12L136
METHOD: 200.8 (DISSOLVED)

MATRIX:	WATER			% MOISTURE:	NA
DILTN FACTR:	1	1	1		
SAMPLE ID:	MBLK1W				
CONTROL NO.:	IML024WB	IML024WL	IML024WC		
LAB FILE ID:	F6L11017	F6L11018	F6L11019		
DATIME EXTRCTD:	12/20/1217:00	12/20/1217:00	12/20/1217:00	DATE COLLECTED:	NA
DATIME ANALYZD:	12/27/1214:58	12/27/1215:02	12/27/1215:07	DATE RECEIVED:	12/20/12
PREP. BATCH:	IML024W	IML024W	IML024W		
CALIB. REF:	F6L11015	F6L11015	F6L11015		

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 %
Calcium	ND	2500	2600	104	2500	2580	103	0	85-115	20
Iron	ND	2500	2610	104	2500	2580	103	1	85-115	20
Magnesium	ND	2500	2440	98	2500	2440	98	0	85-115	20
Manganese	ND	25.0	25.1	100	25.0	25.5	102	2	85-115	20
Sodium	ND	2500	2490	99	2500	2440	98	2	85-115	20

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT: CH2M HILL
PROJECT: PG&E'S TOPOCK GAS COMPRESSOR STAT
SDG NO.: 12L136
METHOD: 200.8 (DISSOLVED)

MATRIX:	WATER			% MOISTURE:	NA
DILTN FACTR:	1	1	1		
SAMPLE ID:	MW-90-120-188				
CONTROL NO.:	L136-11	L136-11M	L136-11S		
LAB FILE ID:	F6L10071	F6L10068	F6L10069		
DATIME EXTRCTD:	12/20/1217:00	12/20/1217:00	12/20/1217:00	DATE COLLECTED:	12/12/12
DATIME ANALYZD:	12/26/1217:52	12/26/1217:39	12/26/1217:43	DATE RECEIVED:	12/17/12
PREP. BATCH:	IML024W	IML024W	IML024W		
CALIB. REF:	F6L10063	F6L10063	F6L10063		

ACCESSION:

PARAMETER	SMPL RSLT ug/L	SPIKE AMT ug/L	MS RSLT ug/L	MS % REC	SPIKE AMT ug/L	MSD RSLT ug/L	MSD % REC	RPD %	QC LIMIT %	MAX RPD %
Calcium	110000	2500	114000	152*	2500	114000	148*	0	75-125	20
Iron	ND	2500	2340	94	2500	2340	94	0	75-125	20
Magnesium	2080	2500	4140	82	2500	4140	82	0	75-125	20
Manganese	ND	25.0	32.3	129*	25.0	32.2	129*	0	75-125	20
Sodium	1730000	2500	1740000	480*	2500	1740000	320*	0	75-125	20

EMAX QUALITY CONTROL DATA
SERIAL DILUTION ANALYSIS

CLIENT: CH2M HILL
PROJECT: PG&E'S TOPOCK GAS COMPRESSOR STAT
BATCH NO.: 12L136
METHOD: 200.8 (DISSOLVED)

MATRIX:	WATER		% MOISTURE:	NA
DILUTION FACTOR:	1	5		
SAMPLE ID:	MW-90-120-188	MW-90-120-188DL		
EMAX SAMP ID:	L136-11	L136-11J		
LAB FILE ID:	F6L10071	F6L10072		
DATE EXTRACTED:	12/20/1217:00	12/20/1217:00	DATE COLLECTED:	12/12/12
DATE ANALYZED:	12/26/1217:52	12/26/1217:56	DATE RECEIVED:	12/17/12
PREP. BATCH:	IML024W	IML024W		
CALIB. REF:	F6L10063	F6L10063		

ACCESSION:

PARAMETER	SMPL RSLT (ug/L)	SERIAL DIL RSLT (ug/L)	DIF RSLT %	QC LIMIT (%)
Calcium	110000	111000	1	10
Iron	ND	ND	0	10
Magnesium	2080	2320	11*	10
Manganese	ND	ND	0	10
Sodium^	1730000	1700000	2	10

^ L136-11/11J : Analyzed at DF 10/50 on 12/27/12 15:28/15:32 | File ID F6L11024/25

EMAX QUALITY CONTROL DATA
ANALYTICAL SPIKE ANALYSIS

CLIENT: CH2M HILL
PROJECT: PG&E'S TOPOCK GAS COMPRESSOR STAT
SDG NO.: 12L136
METHOD: 200.8 (DISSOLVED)

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MATRIX:	WATER		% MOISTURE:	NA
DILTN FACTR:	1	1		
SAMPLE ID:	MW-90-120-188			
CONTROL NO.:	L136-11	L136-11A		
LAB FILE ID:	F6L10071	F6L10070		
DATIME EXTRCTD:	12/20/1217:00	12/20/1217:00	DATE COLLECTED:	12/12/12
DATIME ANALYZD:	12/26/1217:52	12/26/1217:47	DATE RECEIVED:	12/17/12
PREP. BATCH:	IML024W	IML024W		
CALIB. REF:	F6L10063	F6L10063		

ACCESSION:

PARAMETER	SMPL RSLT (ug/L)	SPIKE AMT (ug/L)	AS RSLT (ug/L)	AS % REC	QC LIMIT (%)
Calcium	110000	2500	112000	84	75-125
Iron	ND	2500	2740	110	75-125
Magnesium	2080	2500	4480	96	75-125
Manganese	ND	25.0	33.2	133*	75-125
Sodium^	1730000	25000	1750000	72*	75-125

^ L136-11A : Analyzed at DF 10 on 12/27/12 15:23 | File ID F6L11023

LAB CHRONICLE
DISSOLVED ARSENIC BY ICP-MS

Client : CH2M HILL
Project : PG&E'S TOPOCK GAS COMPRESSOR STAT

SDG NO. : 12L136
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
MW-90-120-188AS	L136-11A	1	NA	12/26/1217:47	12/20/1217:00	F6L10070	F6L10063	IML024W	Analytical Spike Sample
MW-90-120-188	L136-11	1	NA	12/26/1217:52	12/20/1217:00	F6L10071	F6L10063	IML024W	Field Sample
MW-90-120-188DL	L136-11J	5	NA	12/26/1217:56	12/20/1217:00	F6L10072	F6L10063	IML024W	Diluted Sample
MW-54-085-188	L136-01	1	NA	12/26/1218:00	12/20/1217:00	F6L10073	F6L10063	IML024W	Field Sample
MW-54-140-188	L136-03	1	NA	12/26/1218:51	12/20/1217:00	F6L10078	F6L10075	IML024W	Field Sample
MBLK1W	IML024WB	1	NA	12/27/1214:58	12/20/1217:00	F6L11017	F6L11015	IML024W	Method Blank
LCS1W	IML024WL	1	NA	12/27/1215:02	12/20/1217:00	F6L11018	F6L11015	IML024W	Lab Control Sample (LCS)
LCD1W	IML024WC	1	NA	12/27/1215:07	12/20/1217:00	F6L11019	F6L11015	IML024W	LCS Duplicate
MW-54-195-188	L136-05I	5	NA	12/27/1215:57	12/20/1217:00	F6L11031	F6L11027	IML024W	Diluted Sample

FN - Filename
% Moist - Percent Moisture

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METHOD 200.8
DISSOLVED ARSENIC BY ICP-MS

Client	: CH2M HILL	Date Collected:	12/12/12
Project	: PG&E'S TOPOCK GAS COMPRESSOR STAT	Date Received:	12/17/12
SDG NO.	: 12L136	Date Extracted:	12/20/12 17:00
Sample ID:	MW-54-085-188	Date Analyzed:	12/26/12 18:00
Lab Samp ID:	L136-01	Dilution Factor:	1
Lab File ID:	F6L10073	Matrix :	WATER
Ext Btch ID:	IML024W	% Moisture :	NA
Calib. Ref.:	F6L10063	Instrument ID :	T-IF6

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
Arsenic	3.3	1.00	0.200

METHOD 200.8
DISSOLVED ARSENIC BY ICP-MS

Client	: CH2M HILL	Date Collected:	12/12/12
Project	: PG&E'S TOPOCK GAS COMPRESSOR STAT	Date Received:	12/17/12
SDG NO.	: 12L136	Date Extracted:	12/20/12 17:00
Sample ID:	MW-54-140-188	Date Analyzed:	12/26/12 18:51
Lab Samp ID:	L136-03	Dilution Factor:	1
Lab File ID:	F6L10078	Matrix :	WATER
Ext Btch ID:	IML024W	% Moisture :	NA
Calib. Ref.:	F6L10075	Instrument ID :	T-IF6

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
Arsenic	2.9	1.00	0.200

METHOD 200.8
DISSOLVED ARSENIC BY ICP-MS

Client	: CH2M HILL	Date Collected:	12/12/12
Project	: PG&E'S TOPOCK GAS COMPRESSOR STAT	Date Received:	12/17/12
SDG NO.	: 12L136	Date Extracted:	12/20/12 17:00
Sample ID:	MW-54-195-188	Date Analyzed:	12/27/12 15:57
Lab Samp ID:	L136-05I	Dilution Factor:	5
Lab File ID:	F6L11031	Matrix :	WATER
Ext Btch ID:	IML024W	% Moisture :	NA
Calib. Ref.:	F6L11027	Instrument ID :	T-IF6

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
Arsenic	ND	5.00	1.00

METHOD 200.8
DISSOLVED ARSENIC BY ICP-MS

Client	: CH2M HILL	Date Collected:	NA
Project	: PG&E'S TOPOCK GAS COMPRESSOR STAT	Date Received:	12/20/12
SDG NO.	: 12L136	Date Extracted:	12/20/12 17:00
Sample ID:	MBLK1W	Date Analyzed:	12/27/12 14:58
Lab Samp ID:	IML024WB	Dilution Factor:	1
Lab File ID:	F6L11017	Matrix :	WATER
Ext Btch ID:	IML024W	% Moisture :	NA
Calib. Ref.:	F6L11015	Instrument ID :	T-IF6

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
Arsenic	ND	1.00	0.200

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: CH2M HILL
PROJECT: PG&E'S TOPOCK GAS COMPRESSOR STAT
SDG NO.: 12L136
METHOD: 200.8 (DISSOLVED)

MATRIX:	WATER			% MOISTURE:	NA
DILTN FACTR:	1	1	1		
SAMPLE ID:	MBLK1W				
CONTROL NO.:	IML024WB	IML024WL	IML024WC		
LAB FILE ID:	F6L11017	F6L11018	F6L11019		
DATIME EXTRCTD:	12/20/1217:00	12/20/1217:00	12/20/1217:00	DATE COLLECTED:	NA
DATIME ANALYZD:	12/27/1214:58	12/27/1215:02	12/27/1215:07	DATE RECEIVED:	12/20/12
PREP. BATCH:	IML024W	IML024W	IML024W		
CALIB. REF:	F6L11015	F6L11015	F6L11015		

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 %
Arsenic	ND	25.0	24.7	99	25.0	25.2	101	2	85-115	20

EMAX QUALITY CONTROL DATA
ANALYTICAL SPIKE ANALYSIS

CLIENT: CH2M HILL
PROJECT: PG&E'S TOPOCK GAS COMPRESSOR STAT
SDG NO.: 12L136
METHOD: 200.8 (DISSOLVED)

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MATRIX:	WATER		% MOISTURE:	NA
DILTN FACTR:	1	1		
SAMPLE ID:	MW-90-120-188			
CONTROL NO.:	L136-11	L136-11A		
LAB FILE ID:	F6L10071	F6L10070		
DATIME EXTRCTD:	12/20/1217:00	12/20/1217:00	DATE COLLECTED:	12/12/12
DATIME ANALYZD:	12/26/1217:52	12/26/1217:47	DATE RECEIVED:	12/17/12
PREP. BATCH:	IML024W	IML024W		
CALIB. REF:	F6L10063	F6L10063		

ACCESSION:

PARAMETER	SMPL RSLT (ug/L)	SPIKE AMT (ug/L)	AS RSLT (ug/L)	AS % REC	QC LIMIT (%)
Arsenic	4.9	25.0	30.4	102	75-125

LAB CHRONICLE
DISSOLVED CHROMIUM BY ICP-MS

Client : CH2M HILL
Project : PG&E'S TOPOCK GAS COMPRESSOR STAT

SDG NO. : 12L136
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
MW-90-120-188MS	L136-11M	1	NA	12/26/1217:39	12/20/1217:00	F6L10068	F6L10063	IML024W	Matrix Spike Sample (MS)
MW-90-120-188MSD	L136-11S	1	NA	12/26/1217:43	12/20/1217:00	F6L10069	F6L10063	IML024W	MS Duplicate (MSD)
MW-90-120-188AS	L136-11A	1	NA	12/26/1217:47	12/20/1217:00	F6L10070	F6L10063	IML024W	Analytical Spike Sample
MW-90-120-188	L136-11	1	NA	12/26/1217:52	12/20/1217:00	F6L10071	F6L10063	IML024W	Field Sample
MW-90-120-188DL	L136-11J	5	NA	12/26/1217:56	12/20/1217:00	F6L10072	F6L10063	IML024W	Diluted Sample
MW-54-085-188	L136-01	1	NA	12/26/1218:00	12/20/1217:00	F6L10073	F6L10063	IML024W	Field Sample
MW-54-085-188-EB	L136-02	1	NA	12/26/1218:47	12/20/1217:00	F6L10077	F6L10075	IML024W	Field Sample
MW-54-140-188	L136-03	1	NA	12/26/1218:51	12/20/1217:00	F6L10078	F6L10075	IML024W	Field Sample
MW-54-140-188-EB	L136-04	1	NA	12/26/1218:56	12/20/1217:00	F6L10079	F6L10075	IML024W	Field Sample
MW-54-195-188	L136-05	1	NA	12/26/1219:00	12/20/1217:00	F6L10080	F6L10075	IML024W	Field Sample
MW-54-195-188-EB	L136-06	1	NA	12/26/1219:04	12/20/1217:00	F6L10081	F6L10075	IML024W	Field Sample
MW-55-045-188-EB	L136-08	1	NA	12/26/1219:13	12/20/1217:00	F6L10083	F6L10075	IML024W	Field Sample
MW-55-120-188	L136-09	1	NA	12/26/1219:17	12/20/1217:00	F6L10084	F6L10075	IML024W	Field Sample
MBLK1W	IML024WB	1	NA	12/27/1214:58	12/20/1217:00	F6L11017	F6L11015	IML024W	Method Blank
LCS1W	IML024WL	1	NA	12/27/1215:02	12/20/1217:00	F6L11018	F6L11015	IML024W	Lab Control Sample (LCS)
LCD1W	IML024WC	1	NA	12/27/1215:07	12/20/1217:00	F6L11019	F6L11015	IML024W	LCS Duplicate
MW-55-045-188	L136-07N	1	NA	12/27/1215:11	12/20/1217:00	F6L11020	F6L11015	IML024W	Field Sample

FN - Filename
% Moist - Percent Moisture

METHOD 200.8
DISSOLVED CHROMIUM BY ICP-MS

Client	: CH2M HILL	Date Collected:	12/12/12
Project	: PG&E'S TOPOCK GAS COMPRESSOR STAT	Date Received:	12/17/12
SDG NO.	: 12L136	Date Extracted:	12/20/12 17:00
Sample ID:	MW-54-085-188	Date Analyzed:	12/26/12 18:00
Lab Samp ID:	L136-01	Dilution Factor:	1
Lab File ID:	F6L10073	Matrix :	WATER
Ext Btch ID:	IML024W	% Moisture :	NA
Calib. Ref.:	F6L10063	Instrument ID :	T-IF6

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
Chromium	ND	1.00	0.200

METHOD 200.8
DISSOLVED CHROMIUM BY ICP-MS

Client	: CH2M HILL	Date Collected:	12/12/12
Project	: PG&E'S TOPOCK GAS COMPRESSOR STAT	Date Received:	12/17/12
SDG NO.	: 12L136	Date Extracted:	12/20/12 17:00
Sample ID:	MW-54-085-188-EB	Date Analyzed:	12/26/12 18:47
Lab Samp ID:	L136-02	Dilution Factor:	1
Lab File ID:	F6L10077	Matrix :	WATER
Ext Btch ID:	IML024W	% Moisture :	NA
Calib. Ref.:	F6L10075	Instrument ID :	T-IF6

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
Chromium	ND	1.00	0.200

METHOD 200.8
DISSOLVED CHROMIUM BY ICP-MS

Client	: CH2M HILL	Date Collected:	12/12/12
Project	: PG&E'S TOPOCK GAS COMPRESSOR STAT	Date Received:	12/17/12
SDG NO.	: 12L136	Date Extracted:	12/20/12 17:00
Sample ID:	MW-54-140-188	Date Analyzed:	12/26/12 18:51
Lab Samp ID:	L136-03	Dilution Factor:	1
Lab File ID:	F6L10078	Matrix :	WATER
Ext Btch ID:	IML024W	% Moisture :	NA
Calib. Ref.:	F6L10075	Instrument ID :	T-IF6

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
Chromium	ND	1.00	0.200

METHOD 200.8
DISSOLVED CHROMIUM BY ICP-MS

Client	: CH2M HILL	Date Collected:	12/12/12
Project	: PG&E'S TOPOCK GAS COMPRESSOR STAT	Date Received:	12/17/12
SDG NO.	: 12L136	Date Extracted:	12/20/12 17:00
Sample ID:	MW-54-140-188-EB	Date Analyzed:	12/26/12 18:56
Lab Samp ID:	L136-04	Dilution Factor:	1
Lab File ID:	F6L10079	Matrix :	WATER
Ext Btch ID:	IML024W	% Moisture :	NA
Calib. Ref.:	F6L10075	Instrument ID :	T-IF6

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
Chromium	ND	1.00	0.200

METHOD 200.8
DISSOLVED CHROMIUM BY ICP-MS

Client	: CH2M HILL	Date Collected:	12/12/12
Project	: PG&E'S TOPOCK GAS COMPRESSOR STAT	Date Received:	12/17/12
SDG NO.	: 12L136	Date Extracted:	12/20/12 17:00
Sample ID:	MW-54-195-188	Date Analyzed:	12/26/12 19:00
Lab Samp ID:	L136-05	Dilution Factor:	1
Lab File ID:	F6L10080	Matrix :	WATER
Ext Btch ID:	IML024W	% Moisture :	NA
Calib. Ref.:	F6L10075	Instrument ID :	T-IF6

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
Chromium	ND	1.00	0.200

METHOD 200.8
DISSOLVED CHROMIUM BY ICP-MS

Client	: CH2M HILL	Date Collected:	12/12/12
Project	: PG&E'S TOPOCK GAS COMPRESSOR STAT	Date Received:	12/17/12
SDG NO.	: 12L136	Date Extracted:	12/20/12 17:00
Sample ID:	MW-54-195-188-EB	Date Analyzed:	12/26/12 19:04
Lab Samp ID:	L136-06	Dilution Factor:	1
Lab File ID:	F6L10081	Matrix :	WATER
Ext Btch ID:	IML024W	% Moisture :	NA
Calib. Ref.:	F6L10075	Instrument ID :	T-IF6

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
Chromium	ND	1.00	0.200

METHOD 200.8
DISSOLVED CHROMIUM BY ICP-MS

Client	: CH2M HILL	Date Collected:	12/12/12
Project	: PG&E'S TOPOCK GAS COMPRESSOR STAT	Date Received:	12/17/12
SDG NO.	: 12L136	Date Extracted:	12/20/12 17:00
Sample ID:	MW-55-045-188	Date Analyzed:	12/27/12 15:11
Lab Samp ID:	L136-07N	Dilution Factor:	1
Lab File ID:	F6L11020	Matrix :	WATER
Ext Btch ID:	IML024W	% Moisture :	NA
Calib. Ref.:	F6L11015	Instrument ID :	T-IF6

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
Chromium	ND	1.00	0.200

METHOD 200.8
DISSOLVED CHROMIUM BY ICP-MS

Client	: CH2M HILL	Date Collected:	12/12/12
Project	: PG&E'S TOPOCK GAS COMPRESSOR STAT	Date Received:	12/17/12
SDG NO.	: 12L136	Date Extracted:	12/20/12 17:00
Sample ID:	MW-55-045-188-EB	Date Analyzed:	12/26/12 19:13
Lab Samp ID:	L136-08	Dilution Factor:	1
Lab File ID:	F6L10083	Matrix :	WATER
Ext Btch ID:	IML024W	% Moisture :	NA
Calib. Ref.:	F6L10075	Instrument ID :	T-IF6

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
Chromium	ND	1.00	0.200

METHOD 200.8
DISSOLVED CHROMIUM BY ICP-MS

Client	: CH2M HILL	Date Collected:	12/12/12
Project	: PG&E'S TOPOCK GAS COMPRESSOR STAT	Date Received:	12/17/12
SDG NO.	: 12L136	Date Extracted:	12/20/12 17:00
Sample ID:	MW-55-120-188	Date Analyzed:	12/26/12 19:17
Lab Samp ID:	L136-09	Dilution Factor:	1
Lab File ID:	F6L10084	Matrix :	WATER
Ext Btch ID:	IML024W	% Moisture :	NA
Calib. Ref.:	F6L10075	Instrument ID :	T-IF6

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
Chromium	6.8	1.00	0.200

METHOD 200.8
DISSOLVED CHROMIUM BY ICP-MS

Client	: CH2M HILL	Date Collected:	12/12/12
Project	: PG&E'S TOPOCK GAS COMPRESSOR STAT	Date Received:	12/17/12
SDG NO.	: 12L136	Date Extracted:	12/20/12 17:00
Sample ID:	MW-90-120-188	Date Analyzed:	12/26/12 17:52
Lab Samp ID:	L136-11	Dilution Factor:	1
Lab File ID:	F6L10071	Matrix :	WATER
Ext Btch ID:	IML024W	% Moisture :	NA
Calib. Ref.:	F6L10063	Instrument ID :	T-IF6

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
Chromium	6.9	1.00	0.200

METHOD 200.8
DISSOLVED CHROMIUM BY ICP-MS

Client	: CH2M HILL	Date Collected:	NA
Project	: PG&E'S TOPOCK GAS COMPRESSOR STAT	Date Received:	12/20/12
SDG NO.	: 12L136	Date Extracted:	12/20/12 17:00
Sample ID:	MBLK1W	Date Analyzed:	12/27/12 14:58
Lab Samp ID:	IML024WB	Dilution Factor:	1
Lab File ID:	F6L11017	Matrix :	WATER
Ext Btch ID:	IML024W	% Moisture :	NA
Calib. Ref.:	F6L11015	Instrument ID :	T-IF6

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
Chromium	ND	1.00	0.200

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: CH2M HILL
PROJECT: PG&E'S TOPOCK GAS COMPRESSOR STAT
SDG NO.: 12L136
METHOD: METHOD 200.8 (DISSOLVED)

MATRIX:	WATER			% MOISTURE:	NA
DILTN FACTR:	1	1	1		
SAMPLE ID:	MBLK1W				
CONTROL NO.:	IML024WB	IML024WL	IML024WC		
LAB FILE ID:	F6L11017	F6L11018	F6L11019		
DATIME EXTRCTD:	12/20/1217:00	12/20/1217:00	12/20/1217:00	DATE COLLECTED:	NA
DATIME ANALYZD:	12/27/1214:58	12/27/1215:02	12/27/1215:07	DATE RECEIVED:	12/20/12
PREP. BATCH:	IML024W	IML024W	IML024W		
CALIB. REF:	F6L11015	F6L11015	F6L11015		

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	25.0	24.8	99	25.0	25.0	100	1	85-115	20

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT: CH2M HILL
PROJECT: PG&E'S TOPOCK GAS COMPRESSOR STAT
SDG NO.: 12L136
METHOD: METHOD 200.8 (DISSOLVED)

MATRIX:	WATER			% MOISTURE:	NA
DILTN FACTR:	1	1	1		
SAMPLE ID:	MW-90-120-188				
CONTROL NO.:	L136-11	L136-11M	L136-11S		
LAB FILE ID:	F6L10071	F6L10068	F6L10069		
DATIME EXTRCTD:	12/20/1217:00	12/20/1217:00	12/20/1217:00	DATE COLLECTED:	12/12/12
DATIME ANALYZD:	12/26/1217:52	12/26/1217:39	12/26/1217:43	DATE RECEIVED:	12/17/12
PREP. BATCH:	IML024W	IML024W	IML024W		
CALIB. REF:	F6L10063	F6L10063	F6L10063		

ACCESSION:

PARAMETER	SMPL RSLT ug/L	SPIKE AMT ug/L	MS RSLT ug/L	MS % REC	SPIKE AMT ug/L	MSD RSLT ug/L	MSD % REC	RPD %	QC LIMIT %	MAX RPD %
Chromium	6.9	25.0	29.4	90	25.0	29.7	91	1	75-125	20

EMAX QUALITY CONTROL DATA
SERIAL DILUTION ANALYSIS

CLIENT: CH2M HILL
PROJECT: PG&E'S TOPOCK GAS COMPRESSOR STAT
BATCH NO.: 12L136
METHOD: METHOD 200.8 (DISSOLVED)

MATRIX:	WATER		% MOISTURE:	NA
DILUTION FACTOR:	1	5		
SAMPLE ID:	MW-90-120-188	MW-90-120-188DL		
EMAX SAMP ID:	L136-11	L136-11J		
LAB FILE ID:	F6L10071	F6L10072		
DATE EXTRACTED:	12/20/1217:00	12/20/1217:00	DATE COLLECTED:	12/12/12
DATE ANALYZED:	12/26/1217:52	12/26/1217:56	DATE RECEIVED:	12/17/12
PREP. BATCH:	IML024W	IML024W		
CALIB. REF:	F6L10063	F6L10063		

ACCESSION:

PARAMETER	SMPL RSLT (ug/L)	SERIAL DIL RSLT (ug/L)	DIF RSLT %	QC LIMIT (%)
Chromium	6.9	7.3	5	10

EMAX QUALITY CONTROL DATA
ANALYTICAL SPIKE ANALYSIS

CLIENT: CH2M HILL
PROJECT: PG&E'S TOPOCK GAS COMPRESSOR STAT
SDG NO.: 12L136
METHOD: METHOD 200.8 (DISSOLVED)

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MATRIX:	WATER		% MOISTURE:	NA
DILTN FACTR:	1	1		
SAMPLE ID:	MW-90-120-188			
CONTROL NO.:	L136-11	L136-11A		
LAB FILE ID:	F6L10071	F6L10070		
DATIME EXTRCTD:	12/20/1217:00	12/20/1217:00	DATE COLLECTED:	12/12/12
DATIME ANALYZD:	12/26/1217:52	12/26/1217:47	DATE RECEIVED:	12/17/12
PREP. BATCH:	IML024W	IML024W		
CALIB. REF:	F6L10063	F6L10063		

ACCESSION:

PARAMETER	SMPL RSLT (ug/L)	SPIKE AMT (ug/L)	AS RSLT (ug/L)	AS % REC	QC LIMIT (%)
Chromium	6.9	25.0	30.8	95	75-125

CASE NARRATIVE

Client : CH2M HILL

Project : PG&E'S TOPOCK GAS COMPRESSOR STAT

SDG : 12L136

METHOD 120.1
SPECIFIC CONDUCTANCE

A total of six (6) water samples were received on 12/17/12 for Specific Conductance analysis, Method 120.1 in accordance with Methods for the Chemical Analysis of Water and Wastes (MCAWW) (EPA/600/4-79/020).

Holding Time
Samples were analyzed within the prescribed holding time.

Calibration
Calibration was performed as prescribed by the method. All calibration requirements were within acceptance criteria.

Matrix QC Sample
No matrix QC sample was designated for this SDG.

Sample Analysis
Samples were analyzed according to prescribed analytical procedures. All project requirements were met; otherwise, anomalies were discussed within the associated QC parameter.

METHOD 120.1
SPECIFIC CONDUCTANCE

Client : CH2M HILL
Project : PG&E'S TOPOCK GAS COMPRESSOR STAT
Batch No. : 12L136

Matrix : WATER
InstrumentID : D4

CLIENT SAMPLE ID	EMAX SAMPLE ID	RESULTS (umhos/cm)	PREP FACTOR	MOIST (%)	LOQ (umhos/cm)	LOD (umhos/cm)	ANALYSIS DATETIME	PREPARATION DATETIME	DATA FILE ID	CAL REF	PREP BATCH	COLLECTION DATETIME	RECEIVE DATETIM
MW-54-085-188	L136-01	10100	1	NA	2	2	12/21/1218:03	NA	12ECL002W07	12ECL002	ECL002W	12/12/1212:34	12/17/12
MW-54-140-188	L136-03	12700	1	NA	2	2	12/21/1218:04	NA	12ECL002W08	12ECL002	ECL002W	12/12/1213:44	12/17/12
MW-54-195-188	L136-05	19200	1	NA	2	2	12/21/1218:06	NA	12ECL002W09	12ECL002	ECL002W	12/12/1215:07	12/17/12
MW-55-045-188	L136-07	1510	1	NA	2	2	12/21/1218:07	NA	12ECL002W10	12ECL002	ECL002W	12/12/1208:47	12/17/12
MW-55-120-188	L136-09	8840	1	NA	2	2	12/21/1218:09	NA	12ECL002W11	12ECL002	ECL002W	12/12/1209:46	12/17/12
MW-90-120-188	L136-11	8800	1	NA	2	2	12/21/1218:10	NA	12ECL002W12	12ECL002	ECL002W	12/12/1212:12	12/17/12

CASE NARRATIVE

Client : CH2M HILL

Project : PG&E'S TOPOCK GAS COMPRESSOR STAT

SDG : 12L136

METHOD 218.6
HEXAVALENT CHROMIUM

A total of eleven (11) water samples were received on 12/17/12 for Chromium Hexavalent by IC analysis, Method 218.6 in accordance with Project QAPP.

Holding Time
Samples were analyzed within the prescribed holding time.

Calibration
Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using a secondary source. Continuing calibration verifications were carried out at the frequency specified by the project. All calibration requirements were within acceptance criteria.

Method Blank
Method blanks were analyzed at the frequency required by the project. For this SDG, two (2) method blanks were analyzed with the samples. All results were compliant to project requirement. Refer to QC result summary forms for details.

Lab Control Sample
Two (2) sets of LCS/LCD were analyzed with the samples in this SDG.
Percent recoveries for HCA002WL/C were all within QC limits.
Percent recoveries for HCL009WL/C were all within QC limits.

Matrix QC Sample
Percent recoveries for Matrix Spike were all within QC limits.

Sample Analysis
Samples were analyzed according to prescribed analytical procedures. All project requirements were met; otherwise, anomalies were discussed within the associated QC parameter. Samples L136-01, -03, -05, -06, -08, -09, and -11 were reported from DF=5 due to matrix interference.

METHOD 218.6
HEXAVALENT CHROMIUM

Client : CH2M HILL
Project : PG&E'S TOPOCK GAS COMPRESSOR STAT
Batch No. : 12L136

Matrix : WATER
Instrument ID : I59

SAMPLE ID	EMAX SAMPLE ID	RESULTS (ug/L)	DLF	MOIST	RL (ug/L)	MDL (ug/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	HCL009WB	ND	1	NA	0.200	0.100	12/18/1213:05	NA	IL18003	IL18001	HCL009W	NA	NA
LCS1W	HCL009WL	2.0	1	NA	0.200	0.100	12/18/1213:16	NA	IL18004	IL18001	HCL009W	NA	NA
LCD1W	HCL009WC	2.1	1	NA	0.200	0.100	12/18/1213:26	NA	IL18005	IL18001	HCL009W	NA	NA
MW-54-085-188	L136-01I	ND	5	NA	1.00	0.500	12/18/1215:26	NA	IL18014	IL18012	HCL009W	12/12/1212:34	12/17/12
MW-54-085-188MS	L136-01U	4.6	5	NA	1.00	0.500	12/18/1215:37	NA	IL18015	IL18012	HCL009W	12/12/1212:34	12/17/12
MW-54-085-188-EB	L136-02	ND	1	NA	0.200	0.100	12/18/1215:47	NA	IL18016	IL18012	HCL009W	12/12/1211:55	12/17/12
MW-54-085-188-EBMS	L136-02M	0.94	1	NA	0.200	0.100	12/18/1215:57	NA	IL18017	IL18012	HCL009W	12/12/1211:55	12/17/12
MW-54-140-188	L136-03I	ND	5	NA	1.00	0.500	12/18/1216:13	NA	IL18018	IL18012	HCL009W	12/12/1213:44	12/17/12
MW-54-140-188MS	L136-03U	4.7	5	NA	1.00	0.500	12/18/1216:23	NA	IL18019	IL18012	HCL009W	12/12/1213:44	12/17/12
MW-54-195-188	L136-05I	ND	5	NA	1.00	0.500	12/18/1216:54	NA	IL18022	IL18012	HCL009W	12/12/1215:07	12/17/12
MW-54-195-188MS	L136-05U	4.7	5	NA	1.00	0.500	12/18/1217:05	NA	IL18023	IL18012	HCL009W	12/12/1215:07	12/17/12
MW-55-120-188	L136-09I	7.1	5	NA	1.00	0.500	12/18/1218:38	NA	IL18032	IL18024	HCL009W	12/12/1209:46	12/17/12
MW-55-120-188MS	L136-09U	11.7	5	NA	1.00	0.500	12/18/1218:49	NA	IL18033	IL18024	HCL009W	12/12/1209:46	12/17/12
MW-90-120-188	L136-11I	7.0	5	NA	1.00	0.500	12/18/1218:59	NA	IL18034	IL18024	HCL009W	12/12/1212:12	12/17/12
MW-90-120-188MS	L136-11U	11.8	5	NA	1.00	0.500	12/18/1219:10	NA	IL18035	IL18024	HCL009W	12/12/1212:12	12/17/12
MW-54-195-188-EB	L136-06I	ND	5	NA	1.00	0.500	12/18/1219:41	NA	IL18038	IL18036	HCL009W	12/12/1213:59	12/17/12
MW-54-195-188-EBMS	L136-06U	4.6	5	NA	1.00	0.500	12/18/1219:51	NA	IL18039	IL18036	HCL009W	12/12/1213:59	12/17/12
MW-55-045-188-EB	L136-08I	ND	5	NA	1.00	0.500	12/18/1220:02	NA	IL18040	IL18036	HCL009W	12/12/1208:20	12/17/12
MW-55-045-188-EBMS	L136-08U	5.1	5	NA	1.00	0.500	12/18/1220:12	NA	IL18041	IL18036	HCL009W	12/12/1208:20	12/17/12
MBLK2W	HCA002WB	ND	1	NA	0.200	0.100	01/03/1312:58	NA	IA03003	IA03001	HCA002W	NA	NA
LCS2W	HCA002WL	1.8	1	NA	0.200	0.100	01/03/1313:09	NA	IA03004	IA03001	HCA002W	NA	NA
LCD2W	HCA002WC	1.9	1	NA	0.200	0.100	01/03/1313:19	NA	IA03005	IA03001	HCA002W	NA	NA
MW-54-140-188-EB	L136-04	ND	1	NA	0.200	0.100	01/03/1313:29	NA	IA03006	IA03001	HCA002W	12/12/1213:00	12/17/12
MW-54-140-188-EBMS	L136-04M	0.98	1	NA	0.200	0.100	01/03/1313:40	NA	IA03007	IA03001	HCA002W	12/12/1213:00	12/17/12
MW-55-045-188	L136-07	ND	1	NA	0.200	0.100	01/03/1313:50	NA	IA03008	IA03001	HCA002W	12/12/1208:47	12/17/12
MW-55-045-188MS	L136-07M	1.0	1	NA	0.200	0.100	01/03/1314:01	NA	IA03009	IA03001	HCA002W	12/12/1208:47	12/17/12
MW-88-188	L136-10	ND	1	NA	0.200	0.100	01/03/1314:11	NA	IA03010	IA03001	HCA002W	12/12/1216:22	12/17/12
MW-88-188MS	L136-10M	0.96	1	NA	0.200	0.100	01/03/1314:21	NA	IA03011	IA03001	HCA002W	12/12/1216:22	12/17/12

0005

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: CH2M HILL
PROJECT: PG&E'S TOPOCK GAS COMPRESSOR STAT
BATCH NO.: 12L136
METHOD: METHOD 218.6

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK1W				
LAB SAMP ID:	HCL009WB	HCL009WL	HCL009WC		
LAB FILE ID:	IL18003	IL18004	IL18005		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	12/18/1213:05	12/18/1213:16	12/18/1213:26	DATE RECEIVED:	NA
PREP. BATCH:	HCL009W	HCL009W	HCL009W		
CALIB. REF:	IL18001	IL18001	IL18001		

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 (%)
Hexavalent Chromium	ND	2	2.0	102	2	2.1	105	3	90-110	20

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: CH2M HILL
PROJECT: PG&E'S TOPOCK GAS COMPRESSOR STAT
BATCH NO.: 12L136
METHOD: METHOD 218.6

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK2W				
LAB SAMP ID:	HCA002WB	HCA002WL	HCA002WC		
LAB FILE ID:	IA03003	IA03004	IA03005		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	01/03/1312:58	01/03/1313:09	01/03/1313:19	DATE RECEIVED:	NA
PREP. BATCH:	HCA002W	HCA002W	HCA002W		
CALIB. REF:	IA03001	IA03001	IA03001		

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 (%)
Hexavalent Chromium	ND	2	1.8	91	2	1.91	95	4	90-110	20

EMAX QUALITY CONTROL DATA
MS ANALYSIS

CLIENT: CH2M HILL
PROJECT: PG&E'S TOPOCK GAS COMPRESSOR STAT
BATCH NO.: 12L136
METHOD: METHOD 218.6

==========

MATRIX:	WATER		% MOISTURE:	NA
DILUTION FACTOR:	5	5		
SAMPLE ID:	MW-54-085-188			
LAB SAMP ID:	L136-01I	L136-01U		
LAB FILE ID:	IL18014	IL18015		
DATE EXTRACTED:	NA	NA	DATE COLLECTED:	12/12/12 12:34
DATE ANALYZED:	12/18/1215:26	12/18/1215:37	DATE RECEIVED:	12/17/12
PREP. BATCH:	HCL009W	HCL009W		
CALIB. REF:	IL18012	IL18012		

ACCESSION:

PARAMETER	SMPL RSLT (ug/L)	SPIKE AMT (ug/L)	MS RSLT (ug/L)	MS % REC	QC LIMIT (%)
Hexavalent Chromium	ND	5	4.6	93	90-110

EMAX QUALITY CONTROL DATA
MS ANALYSIS

CLIENT: CH2M HILL
PROJECT: PG&E'S TOPOCK GAS COMPRESSOR STAT
BATCH NO.: 12L136
METHOD: METHOD 218.6

==========

MATRIX:	WATER		% MOISTURE:	NA
DILUTION FACTOR:	1	1		
SAMPLE ID:	MW-54-085-188-EB			
LAB SAMP ID:	L136-02	L136-02M		
LAB FILE ID:	IL18016	IL18017		
DATE EXTRACTED:	NA	NA	DATE COLLECTED:	12/12/12 11:55
DATE ANALYZED:	12/18/1215:47	12/18/1215:57	DATE RECEIVED:	12/17/12
PREP. BATCH:	HCL009W	HCL009W		
CALIB. REF:	IL18012	IL18012		

ACCESSION:

PARAMETER	SMPL RSLT (ug/L)	SPIKE AMT (ug/L)	MS RSLT (ug/L)	MS % REC	QC LIMIT (%)
Hexavalent Chromium	ND	1	0.94	94	90-110

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EMAX QUALITY CONTROL DATA
MS ANALYSIS

CLIENT: CH2M HILL
PROJECT: PG&E'S TOPOCK GAS COMPRESSOR STAT
BATCH NO.: 12L136
METHOD: METHOD 218.6

==========

MATRIX: WATER % MOISTURE: NA
DILUTION FACTOR: 5 5
SAMPLE ID: MW-54-140-188
LAB SAMP ID: L136-03I L136-03U
LAB FILE ID: IL18018 IL18019
DATE EXTRACTED: NA NA DATE COLLECTED: 12/12/12 13:44
DATE ANALYZED: 12/18/1216:13 12/18/1216:23 DATE RECEIVED: 12/17/12
PREP. BATCH: HCL009W HCL009W
CALIB. REF: IL18012 IL18012

ACCESSION:

PARAMETER	SMPL RSLT (ug/L)	SPIKE AMT (ug/L)	MS RSLT (ug/L)	MS % REC	QC LIMIT (%)
Hexavalent Chromium	ND	5	4.7	93	90-110

EMAX QUALITY CONTROL DATA
MS ANALYSIS

CLIENT: CH2M HILL
PROJECT: PG&E'S TOPOCK GAS COMPRESSOR STAT
BATCH NO.: 12L136
METHOD: METHOD 218.6

==========

MATRIX: WATER % MOISTURE: NA
DILUTION FACTOR: 1 1
SAMPLE ID: MW-54-140-188-EB
LAB SAMP ID: L136-04 L136-04M
LAB FILE ID: IA03006 IA03007
DATE EXTRACTED: NA NA DATE COLLECTED: 12/12/12 13:00
DATE ANALYZED: 01/03/1313:29 01/03/1313:40 DATE RECEIVED: 12/17/12
PREP. BATCH: HCA002W HCA002W
CALIB. REF: IA03001 IA03001

ACCESSION:

PARAMETER	SMPL RSLT (ug/L)	SPIKE AMT (ug/L)	MS RSLT (ug/L)	MS % REC	QC LIMIT (%)
Hexavalent Chromium	ND	1	0.98	98	90-110

EMAX QUALITY CONTROL DATA
MS ANALYSIS

CLIENT: CH2M HILL
PROJECT: PG&E'S TOPOCK GAS COMPRESSOR STAT
BATCH NO.: 12L136
METHOD: METHOD 218.6

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MATRIX: WATER % MOISTURE: NA
DILUTION FACTOR: 5 5
SAMPLE ID: MW-54-195-188
LAB SAMP ID: L136-05I L136-05U
LAB FILE ID: IL18022 IL18023
DATE EXTRACTED: NA NA DATE COLLECTED: 12/12/12 15:07
DATE ANALYZED: 12/18/1216:54 12/18/1217:05 DATE RECEIVED: 12/17/12
PREP. BATCH: HCL009W HCL009W
CALIB. REF: IL18012 IL18012

ACCESSION:

PARAMETER	SMPL RSLT (ug/L)	SPIKE AMT (ug/L)	MS RSLT (ug/L)	MS % REC	QC LIMIT (%)
Hexavalent Chromium	ND	5	4.7	93	90-110

EMAX QUALITY CONTROL DATA
MS ANALYSIS

CLIENT: CH2M HILL
PROJECT: PG&E'S TOPOCK GAS COMPRESSOR STAT
BATCH NO.: 12L136
METHOD: METHOD 218.6

==========

MATRIX: WATER % MOISTURE: NA
DILUTION FACTOR: 5 5
SAMPLE ID: MW-54-195-188-EB
LAB SAMP ID: L136-06I L136-06U
LAB FILE ID: IL18038 IL18039
DATE EXTRACTED: NA NA DATE COLLECTED: 12/12/12 13:59
DATE ANALYZED: 12/18/1219:41 12/18/1219:51 DATE RECEIVED: 12/17/12
PREP. BATCH: HCL009W HCL009W
CALIB. REF: IL18036 IL18036

ACCESSION:

PARAMETER	SMPL RSLT (ug/L)	SPIKE AMT (ug/L)	MS RSLT (ug/L)	MS % REC	QC LIMIT (%)
Hexavalent Chromium	ND	5	4.6	92	90-110

EMAX QUALITY CONTROL DATA
MS ANALYSIS

CLIENT: CH2M HILL
PROJECT: PG&E'S TOPOCK GAS COMPRESSOR STAT
BATCH NO.: 12L136
METHOD: METHOD 218.6

==========

MATRIX:	WATER		% MOISTURE:	NA
DILUTION FACTOR:	1	1		
SAMPLE ID:	MW-55-045-188			
LAB SAMP ID:	L136-07	L136-07M		
LAB FILE ID:	IA03008	IA03009		
DATE EXTRACTED:	NA	NA	DATE COLLECTED:	12/12/12 08:47
DATE ANALYZED:	01/03/1313:50	01/03/1314:01	DATE RECEIVED:	12/17/12
PREP. BATCH:	HCA002W	HCA002W		
CALIB. REF:	IA03001	IA03001		

ACCESSION:

PARAMETER	SMPL RSLT (ug/L)	SPIKE AMT (ug/L)	MS RSLT (ug/L)	MS % REC	QC LIMIT (%)
Hexavalent Chromium	ND	1	1.0	104	90-110

EMAX QUALITY CONTROL DATA
MS ANALYSIS

CLIENT: CH2M HILL
PROJECT: PG&E'S TOPOCK GAS COMPRESSOR STAT
BATCH NO.: 12L136
METHOD: METHOD 218.6

==========

MATRIX:	WATER		% MOISTURE:	NA
DILUTION FACTOR:	5	5		
SAMPLE ID:	MW-55-045-188-EB			
LAB SAMP ID:	L136-08I	L136-08U		
LAB FILE ID:	IL18040	IL18041		
DATE EXTRACTED:	NA	NA	DATE COLLECTED:	12/12/12 08:20
DATE ANALYZED:	12/18/1220:02	12/18/1220:12	DATE RECEIVED:	12/17/12
PREP. BATCH:	HCL009W	HCL009W		
CALIB. REF:	IL18036	IL18036		

ACCESSION:

PARAMETER	SMPL RSLT (ug/L)	SPIKE AMT (ug/L)	MS RSLT (ug/L)	MS % REC	QC LIMIT (%)
Hexavalent Chromium	ND	5	5.1	103	90-110

EMAX QUALITY CONTROL DATA
MS ANALYSIS

CLIENT: CH2M HILL
PROJECT: PG&E'S TOPOCK GAS COMPRESSOR STAT
BATCH NO.: 12L136
METHOD: METHOD 218.6

==========

MATRIX:	WATER		% MOISTURE:	NA
DILUTION FACTOR:	5	5		
SAMPLE ID:	MW-55-120-188			
LAB SAMP ID:	L136-09I	L136-09U		
LAB FILE ID:	IL18032	IL18033		
DATE EXTRACTED:	NA	NA	DATE COLLECTED:	12/12/12 09:46
DATE ANALYZED:	12/18/1218:38	12/18/1218:49	DATE RECEIVED:	12/17/12
PREP. BATCH:	HCL009W	HCL009W		
CALIB. REF:	IL18024	IL18024		

ACCESSION:

PARAMETER	SMPL RSLT (ug/L)	SPIKE AMT (ug/L)	MS RSLT (ug/L)	MS % REC	QC LIMIT (%)
Hexavalent Chromium	7.1	5	11.7	93	90-110

EMAX QUALITY CONTROL DATA
MS ANALYSIS

CLIENT: CH2M HILL
PROJECT: PG&E'S TOPOCK GAS COMPRESSOR STAT
BATCH NO.: 12L136
METHOD: METHOD 218.6

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MATRIX: WATER % MOISTURE: NA
DILUTION FACTOR: 1 1
SAMPLE ID: MW-88-188
LAB SAMP ID: L136-10 L136-10M
LAB FILE ID: IA03010 IA03011
DATE EXTRACTED: NA NA DATE COLLECTED: 12/12/12 16:22
DATE ANALYZED: 01/03/1314:11 01/03/1314:21 DATE RECEIVED: 12/17/12
PREP. BATCH: HCA002W HCA002W
CALIB. REF: IA03001 IA03001

ACCESSION:

PARAMETER	SMPL RSLT (ug/L)	SPIKE AMT (ug/L)	MS RSLT (ug/L)	MS % REC	QC LIMIT (%)
Hexavalent Chromium	ND	1	0.96	96	90-110

EMAX QUALITY CONTROL DATA
MS ANALYSIS

CLIENT: CH2M HILL
PROJECT: PG&E'S TOPOCK GAS COMPRESSOR STAT
BATCH NO.: 12L136
METHOD: METHOD 218.6

==========

MATRIX:	WATER		% MOISTURE:	NA
DILUTION FACTOR:	5	5		
SAMPLE ID:	MW-90-120-188			
LAB SAMP ID:	L136-11I	L136-11U		
LAB FILE ID:	IL18034	IL18035		
DATE EXTRACTED:	NA	NA	DATE COLLECTED:	12/12/12 12:12
DATE ANALYZED:	12/18/1218:59	12/18/1219:10	DATE RECEIVED:	12/17/12
PREP. BATCH:	HCL009W	HCL009W		
CALIB. REF:	IL18024	IL18024		

ACCESSION:

PARAMETER	SMPL RSLT (ug/L)	SPIKE AMT (ug/L)	MS RSLT (ug/L)	MS % REC	QC LIMIT (%)
Hexavalent Chromium	7.0	5	11.8	96	90-110

CASE NARRATIVE

Client : CH2M HILL

Project : PG&E'S TOPOCK GAS COMPRESSOR STAT

SDG : 12L136

METHOD 300.0
ANIONS BY IC

A total of six (6) water samples were received on 12/17/12 for Anions (Chloride and Sulfate) by IC analysis, Method 300.0 in accordance with Project QAPP.

Holding Time
Samples were analyzed within the prescribed holding time.

Calibration
Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using a secondary source. Continuing calibration verifications were carried out at the frequency specified by the project. All calibration requirements were within acceptance criteria.

Method Blank
Method blanks were analyzed at the frequency required by the project. For this SDG, three (3) method blanks were analyzed with the samples. All results were compliant to project requirement. Refer to QC result summary forms for details.

Lab Control Sample
Three (3) sets of LCS/LCD were analyzed with the samples in this SDG.
Percent recoveries for ICL061WL/C were all within QC limits.
Percent recoveries for ICL063WL/C were all within QC limits.
Percent recoveries for ICL065WL/C were all within QC limits.

Matrix QC Sample
No matrix QC sample was designated for this SDG.

Sample Analysis
Samples were analyzed according to prescribed analytical procedures. All project requirements were met; otherwise, anomalies were discussed within the associated QC parameter.

METHOD 300.0
CHLORIDE

Client : CH2M HILL
Project : PG&E'S TOPOCK GAS COMPRESSOR STAT
Batch No. : 12L136

Matrix : WATER
Instrument ID : DO

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
LCS1W	ICL061WL	1.87	1	NA	0.500	0.100	12/21/1208:17	NA	AL25-64	AL25-60	ICL061W	NA	NA
LCD1W	ICL061WC	1.87	1	NA	0.500	0.100	12/21/1208:34	NA	AL25-65	AL25-60	ICL061W	NA	NA
MBLK1W	ICL061WB	ND	1	NA	0.500	0.100	12/21/1208:51	NA	AL25-66	AL25-60	ICL061W	NA	NA
MW-54-085-188	L136-01J	3200	500	NA	250	50.0	12/21/1212:59	NA	AL25-78	AL25-72	ICL061W	12/12/1212:34	12/17/12
MW-54-140-188	L136-03J	4070	500	NA	250	50.0	12/21/1213:17	NA	AL25-79	AL25-72	ICL061W	12/12/1213:44	12/17/12
MW-54-195-188	L136-05J	6420	500	NA	250	50.0	12/21/1213:34	NA	AL25-80	AL25-72	ICL061W	12/12/1215:07	12/17/12
MW-55-120-188	L136-09J	2840	500	NA	250	50.0	12/21/1214:08	NA	AL25-82	AL25-72	ICL061W	12/12/1209:46	12/17/12
MW-90-120-188	L136-11J	2820	500	NA	250	50.0	12/21/1214:25	NA	AL25-83	AL25-72	ICL061W	12/12/1212:12	12/17/12
LCS3W	ICL065WL	1.92	1	NA	0.500	0.100	12/22/1205:00	NA	AL25-134	AL25-130	ICL065W	NA	NA
LCD3W	ICL065WC	1.91	1	NA	0.500	0.100	12/22/1205:17	NA	AL25-135	AL25-130	ICL065W	NA	NA
MBLK3W	ICL065WB	ND	1	NA	0.500	0.100	12/22/1205:34	NA	AL25-136	AL25-130	ICL065W	NA	NA
MW-55-045-188	L136-07J	324	50	NA	25.0	5.00	12/22/1205:52	NA	AL25-137	AL25-130	ICL065W	12/12/1208:47	12/17/12

METHOD 300.0
SULFATE

Client : CH2M HILL
Project : PG&E'S TOPOCK GAS COMPRESSOR STAT
Batch No. : 12L136

Matrix : WATER
Instrument ID : DO

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	ICL063WB	ND	1	NA	0.500	0.250	12/21/1219:00	NA	AL25-99	AL25-94	ICL063W	NA	NA
LCS1W	ICL063WL	4.71	1	NA	0.500	0.250	12/21/1219:17	NA	AL25-100	AL25-94	ICL063W	NA	NA
LCD1W	ICL063WC	4.71	1	NA	0.500	0.250	12/21/1219:34	NA	AL25-101	AL25-94	ICL063W	NA	NA
MW-54-085-188	L136-01I	500	50	NA	25.0	12.5	12/22/1203:17	NA	AL25-128	AL25-118	ICL063W	12/12/1212:34	12/17/12
MW-54-140-188	L136-03I	505	50	NA	25.0	12.5	12/22/1203:34	NA	AL25-129	AL25-118	ICL063W	12/12/1213:44	12/17/12
MW-54-195-188	L136-05I	966	100	NA	50.0	25.0	12/22/1204:26	NA	AL25-132	AL25-130	ICL063W	12/12/1215:07	12/17/12
MW-55-045-188	L136-07I	50.0	5	NA	2.50	1.25	12/22/1204:43	NA	AL25-133	AL25-130	ICL063W	12/12/1208:47	12/17/12
LCS2W	ICL065WL	4.72	1	NA	0.500	0.250	12/22/1205:00	NA	AL25-134	AL25-130	ICL065W	NA	NA
LCD2W	ICL065WC	4.70	1	NA	0.500	0.250	12/22/1205:17	NA	AL25-135	AL25-130	ICL065W	NA	NA
MBLK2W	ICL065WB	ND	1	NA	0.500	0.250	12/22/1205:34	NA	AL25-136	AL25-130	ICL065W	NA	NA
MW-55-120-188	L136-09I	307	20	NA	10.0	5.00	12/22/1206:09	NA	AL25-138	AL25-130	ICL065W	12/12/1209:46	12/17/12
MW-90-120-188	L136-11I	317	20	NA	10.0	5.00	12/22/1206:26	NA	AL25-139	AL25-130	ICL065W	12/12/1212:12	12/17/12

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: CH2M HILL
PROJECT: PG&E'S TOPOCK GAS COMPRESSOR STAT
BATCH NO.: 12L136
METHOD: METHOD 300.0

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK1W				
LAB SAMP ID:	ICL061WB	ICL061WL	ICL061WC		
LAB FILE ID:	AL25-66	AL25-64	AL25-65		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	12/21/1208:51	12/21/1208:17	12/21/1208:34	DATE RECEIVED:	NA
PREP. BATCH:	ICL061W	ICL061W	ICL061W		
CALIB. REF:	AL25-60	AL25-60	AL25-60		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Chloride-Cl	ND	2	1.87	94	2	1.87	94	0	90-110	20

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EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: CH2M HILL
PROJECT: PG&E'S TOPOCK GAS COMPRESSOR STAT
BATCH NO.: 12L136
METHOD: METHOD 300.0

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK3W				
LAB SAMP ID:	ICL065WB	ICL065WL	ICL065WC		
LAB FILE ID:	AL25-136	AL25-134	AL25-135		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	12/22/1205:34	12/22/1205:00	12/22/1205:17	DATE RECEIVED:	NA
PREP. BATCH:	ICL065W	ICL065W	ICL065W		
CALIB. REF:	AL25-130	AL25-130	AL25-130		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Chloride-Cl	ND	2	1.92	96	2	1.91	96	1	90-110	20

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: CH2M HILL
PROJECT: PG&E'S TOPOCK GAS COMPRESSOR STAT
BATCH NO.: 12L136
METHOD: METHOD 300.0

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK1W				
LAB SAMP ID:	ICL063WB	ICL063WL	ICL063WC		
LAB FILE ID:	AL25-99	AL25-100	AL25-101		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	12/21/1219:00	12/21/1219:17	12/21/1219:34	DATE RECEIVED:	NA
PREP. BATCH:	ICL063W	ICL063W	ICL063W		
CALIB. REF:	AL25-94	AL25-94	AL25-94		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
SULFATE	ND	5	4.71	94	5	4.71	94	0	90-110	20

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: CH2M HILL
PROJECT: PG&E'S TOPOCK GAS COMPRESSOR STAT
BATCH NO.: 12L136
METHOD: METHOD 300.0

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK2W				
LAB SAMP ID:	ICL065WB	ICL065WL	ICL065WC		
LAB FILE ID:	AL25-136	AL25-134	AL25-135		
DATE EXTRACTED:	NA	NA	NA	DATE COLLECTED:	NA
DATE ANALYZED:	12/22/1205:34	12/22/1205:00	12/22/1205:17	DATE RECEIVED:	NA
PREP. BATCH:	ICL065W	ICL065W	ICL065W		
CALIB. REF:	AL25-130	AL25-130	AL25-130		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
SULFATE	ND	5	4.72	94	5	4.7	94	0	90-110	20

CASE NARRATIVE

Client : CH2M HILL

Project : PG&E'S TOPOCK GAS COMPRESSOR STAT

SDG : 12L136

METHOD SM2320B
ALKALINITY

A total of six (6) water samples were received on 12/17/12 for (Bicarbonate, Carbonate and Total) Alkalinity analysis, Method SM2320B in accordance with Standard Methods for the Examination of Water and Wastewater, 20th Edition and Project QAPP.

Holding Time
Samples were analyzed within the prescribed holding time.

Calibration
Calibration was performed as prescribed by the method. All calibration requirements were within acceptance criteria.

Method Blank
Method blank was analyzed at the frequency required by the project. For this SDG, one method blank was analyzed with the samples. Results were compliant to project requirement.

Lab Control Sample
A set of LCS/LCD was analyzed with the samples in this SDG.
Percent recoveries for ALL006WL/C were all within QC limits.

Matrix QC Sample
No matrix QC sample was designated for this SDG. However, sample duplicate was analyzed with the samples. RPD was within project limit.

Sample Analysis
Samples were analyzed according to prescribed analytical procedures. All project requirements were met; otherwise, anomalies were discussed within the associated QC parameter.

METHOD SM2320B
TOTAL ALKALINITY

Client : CH2M HILL
Project : PG&E'S TOPOCK GAS COMPRESSOR STAT
Batch No. : 12L136

Matrix : WATER
InstrumentID : E5

CLIENT SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	PREP. FACTOR	MOIST (%)	RL (mg/L)	MDL (mg/L)	ANALYSIS DATETIME	PREPARATION DATETIME	DATA FILE ID	CAL REF	PREP BATCH	COLLECTION DATETIME	RECEIVED DATETIME
MBLK1W	ALL006WB	ND	1	NA	5	5	12/19/1218:32	NA	12E5L0404	12E5L04	ALL006W	NA	NA
LCS1W	ALL006WL	146	1	NA	5	5	12/19/1218:39	NA	12E5L0405	12E5L04	ALL006W	NA	NA
LCD1W	ALL006WC	147	1	NA	5	5	12/19/1218:46	NA	12E5L0406	12E5L04	ALL006W	NA	NA
MW-54-085-188	L136-01	149	1	NA	5	5	12/19/1218:53	NA	12E5L0407	12E5L04	ALL006W	12/12/1212:34	12/17/12
MW-54-140-188	L136-03	99.5	1	NA	5	5	12/19/1219:00	NA	12E5L0408	12E5L04	ALL006W	12/12/1213:44	12/17/12
MW-54-195-188	L136-05	58.1	1	NA	5	5	12/19/1219:07	NA	12E5L0409	12E5L04	ALL006W	12/12/1215:07	12/17/12
MW-55-045-188	L136-07	195	1	NA	5	5	12/19/1219:14	NA	12E5L0410	12E5L04	ALL006W	12/12/1208:47	12/17/12
MW-55-120-188	L136-09	59.9	1	NA	5	5	12/19/1219:23	NA	12E5L0411	12E5L04	ALL006W	12/12/1209:46	12/17/12
MW-90-120-188	L136-11	59.5	1	NA	5	5	12/19/1219:30	NA	12E5L0412	12E5L04	ALL006W	12/12/1212:12	12/17/12
MW-90-120-188DUP	L136-11D	59.4	1	NA	5	5	12/19/1219:37	NA	12E5L0413	12E5L04	ALL006W	12/12/1212:12	12/17/12

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EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : CH2M HILL
PROJECT : PG&E'S TOPOCK GAS COMPRESSOR STAT
BATCH NO. : 12L136
METHOD : METHOD SM2320B

==========

MATRIX	: WATER		% MOISTURE: NA
DILUTION FACTOR	: 1	1	1
SAMPLE ID	: MBLK1W	LCS1W	LCD1W
LAB SAMPLE ID	: ALL006WB	ALL006WL	ALL006WC
LAB FILE ID	: 12E5L0404	12E5L0405	12E5L0406
DATE PREPARED	: NA	NA	NA
DATE ANALYZED	: 12/19/1218:32	12/19/1218:39	12/19/1218:46
PREP BATCH	: ALL006W	ALL006W	ALL006W
CALIBRATION REF	: 12E5L04	12E5L04	12E5L04

ACCESSION:

PARAMETER	MB RESULT (mg/L)	SPIKE AMT (mg/L)	BS RESULT (mg/L)	BS REC (%)	SPIKE AMT (mg/L)	BSD RESULT (mg/L)	BSD REC (%)	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Alkalinity	ND	150	146	97	150	147	98	1	85-115	20

EMAX QUALITY CONTROL DATA
SAMPLE DUPLICATE ANALYSIS

CLIENT : CH2M HILL
PROJECT : PG&E'S TOPOCK GAS COMPRESSOR STAT
BATCH NO. : 12L136
METHOD : METHOD SM2320B

==========

MATRIX : WATER % MOISTURE:
DILUTION FACTOR: 1 1
SAMPLE ID : MW-90-120-188 MW-90-120-188DUP
LAB SAMPLE ID : L136-11 L136-11D
LAB FILE ID : 12E5L0412 12E5L0413
DATE PREPARED : NA NA
DATE ANALYZED : 12/19/1219:30 12/19/1219:37
PREP BATCH : ALL006W ALL006W
CALIBRATION REF: 12E5L04 12E5L04

ACCESSION:

PARAMETER	PARENT RESULT (mg/L)	DUP RESULT (mg/L)	DIFF (%)	MAX DIFF (%)
Alkalinity	59.5	59.4	0	20

METHOD SM2320B
BICARBONATE ALKALINITY

Client : CH2M HILL
Project : PG&E'S TOPOCK GAS COMPRESSOR STAT
Batch No. : 12L136
Matrix : WATER
InstrumentID : E5

CLIENT SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	PREP. FACTOR	MOIST (%)	RL (mg/L)	MDL (mg/L)	ANALYSIS DATETIME	PREPARATION DATETIME	DATA FILE ID	CAL REF	PREP BATCH	COLLECTION DATETIME	RECEIVED DATETIME
MBLK1W	ALL006WB	ND	1	NA	5	5	12/19/1218:32	NA	12E5L0404	12E5L04	ALL006W	NA	NA
MW-54-085-188	L136-01	149	1	NA	5	5	12/19/1218:53	NA	12E5L0407	12E5L04	ALL006W	12/12/1212:34	12/17/12
MW-54-140-188	L136-03	99.5	1	NA	5	5	12/19/1219:00	NA	12E5L0408	12E5L04	ALL006W	12/12/1213:44	12/17/12
MW-54-195-188	L136-05	58.1	1	NA	5	5	12/19/1219:07	NA	12E5L0409	12E5L04	ALL006W	12/12/1215:07	12/17/12
MW-55-045-188	L136-07	195	1	NA	5	5	12/19/1219:14	NA	12E5L0410	12E5L04	ALL006W	12/12/1208:47	12/17/12
MW-55-120-188	L136-09	59.9	1	NA	5	5	12/19/1219:23	NA	12E5L0411	12E5L04	ALL006W	12/12/1209:46	12/17/12
MW-90-120-188	L136-11	59.5	1	NA	5	5	12/19/1219:30	NA	12E5L0412	12E5L04	ALL006W	12/12/1212:12	12/17/12
MW-90-120-188DUP	L136-11D	59.4	1	NA	5	5	12/19/1219:37	NA	12E5L0413	12E5L04	ALL006W	12/12/1212:12	12/17/12

EMAX QUALITY CONTROL DATA
SAMPLE DUPLICATE ANALYSIS

CLIENT : CH2M HILL
PROJECT : PG&E'S TOPOCK GAS COMPRESSOR STAT
BATCH NO. : 12L136
METHOD : METHOD SM2320B

==========

MATRIX : WATER % MOISTURE:
DILUTION FACTOR: 1 1
SAMPLE ID : MW-90-120-188 MW-90-120-188DUP
LAB SAMPLE ID : L136-11 L136-11D
LAB FILE ID : 12E5L0412 12E5L0413
DATE PREPARED : NA NA
DATE ANALYZED : 12/19/1219:30 12/19/1219:37
PREP BATCH : ALL006W ALL006W
CALIBRATION REF: 12E5L04 12E5L04

ACCESSION:

PARAMETER	PARENT RESULT (mg/L)	DUP RESULT (mg/L)	DIFF (%)	MAX DIFF (%)
Bicarbonate	59.5	59.4	0	20

METHOD SM2320B
CARBONATE ALKALINITY

Client : CH2M HILL
Project : PG&E'S TOPOCK GAS COMPRESSOR STAT
Batch No. : 12L136

Matrix : WATER
InstrumentID : E5

CLIENT SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	PREP. FACTOR	MOIST (%)	RL (mg/L)	MDL (mg/L)	ANALYSIS DATETIME	PREPARATION DATETIME	DATA FILE ID	CAL REF	PREP BATCH	COLLECTION DATETIME	RECEIVED DATETIME
MBLK1W	ALL006WB	ND	1	NA	5	5	12/19/1218:32	NA	12E5L0404	12E5L04	ALL006W	NA	NA
MW-54-085-188	L136-01	ND	1	NA	5	5	12/19/1218:53	NA	12E5L0407	12E5L04	ALL006W	12/12/1212:34	12/17/12
MW-54-140-188	L136-03	ND	1	NA	5	5	12/19/1219:00	NA	12E5L0408	12E5L04	ALL006W	12/12/1213:44	12/17/12
MW-54-195-188	L136-05	ND	1	NA	5	5	12/19/1219:07	NA	12E5L0409	12E5L04	ALL006W	12/12/1215:07	12/17/12
MW-55-045-188	L136-07	ND	1	NA	5	5	12/19/1219:14	NA	12E5L0410	12E5L04	ALL006W	12/12/1208:47	12/17/12
MW-55-120-188	L136-09	ND	1	NA	5	5	12/19/1219:23	NA	12E5L0411	12E5L04	ALL006W	12/12/1209:46	12/17/12
MW-90-120-188	L136-11	ND	1	NA	5	5	12/19/1219:30	NA	12E5L0412	12E5L04	ALL006W	12/12/1212:12	12/17/12
MW-90-120-188DUP	L136-11D	ND	1	NA	5	5	12/19/1219:37	NA	12E5L0413	12E5L04	ALL006W	12/12/1212:12	12/17/12

0213

EMAX QUALITY CONTROL DATA
SAMPLE DUPLICATE ANALYSIS

CLIENT : CH2M HILL
PROJECT : PG&E'S TOPOCK GAS COMPRESSOR STAT
BATCH NO. : 12L136
METHOD : METHOD SM2320B

==========

MATRIX	: WATER		% MOISTURE:
DILUTION FACTOR	: 1	1	
SAMPLE ID	: MW-90-120-188	MW-90-120-188DUP	
LAB SAMPLE ID	: L136-11	L136-11D	
LAB FILE ID	: 12E5L0412	12E5L0413	
DATE PREPARED	: NA	NA	
DATE ANALYZED	: 12/19/1219:30	12/19/1219:37	
PREP BATCH	: ALL006W	ALL006W	
CALIBRATION REF	: 12E5L04	12E5L04	

ACCESSION:

PARAMETER	PARENT RESULT (mg/L)	DUP RESULT (mg/L)	DIFF (%)	MAX DIFF (%)
Carbonate	ND	ND	0	20

8214

CASE NARRATIVE

Client : CH2M HILL

Project : PG&E'S TOPOCK GAS COMPRESSOR STAT

SDG : 12L136

METHOD SM4500NH3-C
AMMONIA (NH3-N)

A total of three (3) water samples were received on 12/17/12 for Ammonia-N by SM4500-NH3 C analysis, Method SM4500NH3-C in accordance with Project QAPP.

Holding Time
Samples were analyzed within the prescribed holding time.

Calibration
Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using a secondary source. Continuing calibration verifications were carried out at the frequency specified by the project. All calibration requirements were within acceptance criteria.

Method Blank
Method blank was analyzed at the frequency required by the project. For this SDG, one method blank was analyzed with the samples. Result was compliant to project requirement.

Lab Control Sample
A set of LCS/LCD was analyzed with the samples in this SDG.
Percent recoveries for NHL008WL/C were all within QC limits.

Matrix QC Sample
No matrix QC sample was designated for this SDG.

Sample Analysis
Samples were analyzed according to prescribed analytical procedures. All project requirements were met; otherwise, anomalies were discussed within the associated QC parameter.

METHOD SM4500NH3-C
AMMONIA (NH3-N)

Client : CH2M HILL
Project : PG&E'S TOPOCK GAS COMPRESSOR STAT
Batch No. : 12L136

Matrix : WATER
InstrumentID : 70

CLIENT SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	PREP. FACTOR	MOIST (%)	RL (mg/L)	MDL (mg/L)	ANALYSIS DATETIME	PREPARATION DATETIME	DATA FILE ID	CAL REF	PREP BATCH	COLLECTION DATETIME	RECEIVED DATETIME
MBLK1W	NHL008WB	ND	1	NA	0.1	0.06	12/21/1212:54	12/20/1214:46	12NHL00813	12NHL008	NHL008W	NA	NA
LCS1W	NHL008WL	0.953	1	NA	0.1	0.06	12/21/1212:54	12/20/1214:46	12NHL00814	12NHL008	NHL008W	NA	NA
LCD1W	NHL008WC	0.901	1	NA	0.1	0.06	12/21/1212:55	12/20/1214:46	12NHL00815	12NHL008	NHL008W	NA	NA
MW-54-085-188	L136-01	ND	1	NA	0.1	0.06	12/21/1213:06	12/20/1214:46	12NHL00827	12NHL008	NHL008W	12/12/1212:34	12/17/12
MW-54-140-188	L136-03	ND	1	NA	0.1	0.06	12/21/1213:06	12/20/1214:46	12NHL00828	12NHL008	NHL008W	12/12/1213:44	12/17/12
MW-54-195-188	L136-05	ND	1	NA	0.1	0.06	12/21/1213:07	12/20/1214:46	12NHL00829	12NHL008	NHL008W	12/12/1215:07	12/17/12

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : CH2M HILL
PROJECT : PG&E'S TOPOCK GAS COMPRESSOR STAT
BATCH NO. : 12L136
METHOD : SM4500NH3-C

MATRIX : WATER % MOISTURE: NA

DILUTION FACTOR:	1	1	1
SAMPLE ID :	MBLK1W	LCS1W	LCD1W
LAB SAMPLE ID :	NHL008WB	NHL008WL	NHL008WC
LAB FILE ID :	12NHL00813	12NHL00814	12NHL00815
DATE PREPARED :	12/20/1214:46	12/20/1214:46	12/20/1214:46
DATE ANALYZED :	12/21/1212:54	12/21/1212:54	12/21/1212:55
PREP BATCH :	NHL008W	NHL008W	NHL008W
CALIBRATION REF:	12NHL008	12NHL008	12NHL008

ACCESSION:

PARAMETER	MB RESULT (mg/L)	SPIKE AMT (mg/L)	BS RESULT (mg/L)	BS REC (%)	SPIKE AMT (mg/L)	BSD RESULT (mg/L)	BSD REC (%)	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Ammonia (NH3-N)	ND	1	0.953	95	1	0.901	90	6	85-115	20

CASE NARRATIVE

Client : CH2M HILL

Project : PG&E'S TOPOCK GAS COMPRESSOR STAT

SDG : 12L136

METHOD SM4500NO3
NITRATE/NITRITE-N

A total of six (6) water samples were received on 12/17/12 for Nitrate/Nitrite as N analysis, Method SM4500NO3 in accordance with Project QAPP.

Holding Time
Samples were analyzed within the prescribed holding time.

Calibration
Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using a secondary source. Continuing calibration verifications were carried out at the frequency specified by the project. All calibration requirements were within acceptance criteria.

Method Blank
Method blank was analyzed at the frequency required by the project. For this SDG, one method blank was analyzed with the samples. Result was compliant to project requirement.

Lab Control Sample
A set of LCS/LCD was analyzed with the samples in this SDG.
Percent recoveries for NAL002WL/C were all within QC limits.

Matrix QC Sample
Matrix QC sample was analyzed at the frequency prescribed by the project.
Percent recovery for L136-11M was within project QC limits.
Sample duplicate was also analyzed with the samples. RPD was within project limit.

Sample Analysis
Samples were analyzed according to prescribed analytical procedures. All project requirements were met; otherwise, anomalies were discussed within the associated QC parameter.

METHOD SM4500NO3
NITRATE/NITRITE-N

Client : CH2M HILL
Project : PG&E'S TOPOCK GAS COMPRESSOR STAT
Batch No. : 12L136

Matrix : WATER
InstrumentID : 70

CLIENT SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	PREP. FACTOR	MOIST (%)	RL (mg/L)	MDL (mg/L)	ANALYSIS DATETIME	PREPARATION DATETIME	DATA FILE ID	CAL REF	PREP BATCH	COLLECTION DATETIME	RECEIVED DATETIME
MBLK1W	NAL002WB	ND	1	NA	0.1	0.02	12/27/1216:18	NA	12NAL00210	12NAL002	NAL002W	NA	NA
LCS1W	NAL002WL	0.521	1	NA	0.1	0.02	12/27/1216:19	NA	12NAL00211	12NAL002	NAL002W	NA	NA
LCD1W	NAL002WC	0.525	1	NA	0.1	0.02	12/27/1216:19	NA	12NAL00212	12NAL002	NAL002W	NA	NA
MW-54-085-188	L136-01	0.230	1	NA	0.1	0.02	12/27/1216:37	NA	12NAL00213	12NAL002	NAL002W	12/12/1212:34	12/17/12
MW-54-140-188	L136-03	0.860	1	NA	0.1	0.02	12/27/1216:38	NA	12NAL00214	12NAL002	NAL002W	12/12/1213:44	12/17/12
MW-54-195-188	L136-05	ND	1	NA	0.1	0.02	12/27/1216:38	NA	12NAL00215	12NAL002	NAL002W	12/12/1215:07	12/17/12
MW-55-045-188	L136-07	ND	1	NA	0.1	0.02	12/27/1216:39	NA	12NAL00216	12NAL002	NAL002W	12/12/1208:47	12/17/12
MW-55-120-188	L136-09I	1.4	2	NA	0.2	0.04	12/27/1216:40	NA	12NAL00220	12NAL002	NAL002W	12/12/1209:46	12/17/12
MW-90-120-188	L136-11I	1.4	5	NA	0.5	0.1	12/27/1216:56	NA	12NAL00222	12NAL002	NAL002W	12/12/1212:12	12/17/12
MW-90-120-188DUP	L136-11D	1.4	5	NA	0.5	0.1	12/27/1216:57	NA	12NAL00223	12NAL002	NAL002W	12/12/1212:12	12/17/12
MW-90-120-188MS	L136-11M	3.9	5	NA	0.5	0.1	12/27/1216:57	NA	12NAL00224	12NAL002	NAL002W	12/12/1212:12	12/17/12

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : CH2M HILL
PROJECT : PG&E'S TOPOCK GAS COMPRESSOR STAT
BATCH NO. : 12L136
METHOD : METHOD SM4500NO3

MATRIX : WATER % MOISTURE: NA

DILUTION FACTOR:	1	1	1
SAMPLE ID :	MBLK1W	LCS1W	LCD1W
LAB SAMPLE ID :	NAL002WB	NAL002WL	NAL002WC
LAB FILE ID :	12NAL00210	12NAL00211	12NAL00212
DATE PREPARED :	NA	NA	NA
DATE ANALYZED :	12/27/1216:18	12/27/1216:19	12/27/1216:19
PREP BATCH :	NAL002W	NAL002W	NAL002W
CALIBRATION REF:	12NAL002	12NAL002	12NAL002

ACCESSION:

PARAMETER	MB RESULT (mg/L)	SPIKE AMT (mg/L)	BS RESULT (mg/L)	BS REC (%)	SPIKE AMT (mg/L)	BSD RESULT (mg/L)	BSD REC (%)	RPD (%)	QC LIMIT (%)	MAX RPD (%)
NITRATE + NITRITE-N	ND	0.5	0.521	104	0.5	0.525	105	1	85-115	20

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EMAX QUALITY CONTROL DATA
MATRIX SPIKE ANALYSIS

CLIENT : CH2M HILL
PROJECT : PG&E'S TOPOCK GAS COMPRESSOR STAT
BATCH NO. : 12L136
METHOD : METHOD SM4500NO3

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MATRIX : WATER % MOISTURE:
DILUTION FACTOR: 5 5
SAMPLE ID : MW-90-120-188 MW-90-120-188MS
LAB SAMPLE ID : L136-11I L136-11M
LAB FILE ID : 12NAL00222 12NAL00224
DATE PREPARED : NA NA
DATE ANALYZED : 12/27/1216:56 12/27/1216:57
PREP BATCH : NAL002W NAL002W
CALIBRATION REF: 12NAL002 12NAL002

ACCESSION:

PARAMETER	PARENT RESULT (mg/L)	SPIKE AMT (mg/L)	MS RESULT (mg/L)	MS REC (%)	QC LIMIT (%)
NITRATE + NITRITE-N	1.4	2.5	3.9	100	75-125

EMAX QUALITY CONTROL DATA
SAMPLE DUPLICATE ANALYSIS

CLIENT : CH2M HILL
PROJECT : PG&E'S TOPOCK GAS COMPRESSOR STAT
BATCH NO. : 12L136
METHOD : METHOD SM4500NO3

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MATRIX : WATER % MOISTURE:
DILUTION FACTOR: 5 5
SAMPLE ID : MW-90-120-188 MW-90-120-188DUP
LAB SAMPLE ID : L136-11I L136-11D
LAB FILE ID : 12NAL00222 12NAL00223
DATE PREPARED : NA NA
DATE ANALYZED : 12/27/1216:56 12/27/1216:57
PREP BATCH : NAL002W NAL002W
CALIBRATION REF: 12NAL002 12NAL002

ACCESSION:

PARAMETER	PARENT RESULT (mg/L)	DUP RESULT (mg/L)	RPD (%)	MAX RPD (%)
NITRATE + NITRITE-N	1.4	1.4	0	20

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ZymaX FORENSICS

REPORT OF ENVIRONMENTAL FORENSICS ISOTOPE ANALYSES

Date Received: December 7th, 2012
Date Reported: January 2nd, 2013

Water samples from Truesdail Lab (Sean Condon) for $\delta^{18}O$ and δD (‰ VSMOW) stable isotope analysis

ZymaX ID	Sample ID	$\delta^{18}O$	δD
42898-1	MW-31-135-188	-10.0	-78.5
42898-2	MW-34-100-188	-10.1	-80.5
42898-3	MW-93-188	-10.2	-80.9

ZymaX ID	$\delta^{18}O$	δD
QC-01	-4.7	-36.3
QC-02	-4.6	-36.9
Mean	-4.7	-36.6
Precision (STDEV)	0.1	0.4

ZYMAX FORENSICS ISOTOPE LABORATORY ANALYSES

Gas

^{13}C and D of C1 to C4; ^{13}C of CO_2; C-14 of Methane and CO_2; ^{34}S of H_2S; ^{15}N and ^{18}O of N_2O gas

Oil, Extract, Fraction and Kerogen

Compound-Specific ^{13}C and D of MTBE,Chlorinated Solvents,PAH,Gasoline,Oil; Bulk ^{13}C, D/H, ^{34}S, and ^{15}N

Water

D and ^{18}O; ^{34}S and ^{18}O of dissolved sulfate; ^{34}S of dissolved H_2S; ^{37}Cl, ^{13}C and D of chlorinated solvents

^{15}N and ^{18}O of dissolved Nitrate; ^{15}N of Ammonia; ^{13}C of dissolved CO_2 and Carbonate/Bicarbonate

Soil and Minerals:

^{13}C, ^{15}N, ^{34}S, D/H, ^{18}O; C-14 of carbonate or organics

CH2MHILL CHAIN OF CUSTODY RECORD 11/26/2012 2:57:57 PM Page 1 OF 1

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.01
Task Order
Project 2012-GMP-188-Q4
Turnaround Time 10 Days
Shipping Date: 11/27/2012
COC Number: 13

	DATE	TIME	Matrix	Oxy_Deut (CF-IRMS)		Number of Containers	COMMENTS
Container:				250 ml Poly			
Preservatives:				4°C			
Filtered:				NA			
Holding Time:				NA			
MW-31-135-188	11/15/2012	13:25	Water	x	42898-1	1	
MW-34-100-188	11/26/2012	13:03	Water	x	-2	1	
MW-93-188	11/26/2012	7:05	Water	x	-3	1	
					TOTAL NUMBER OF CONTAINERS	3	

Received by: Ryan Woon 12/7/12 9:30

	Signatures	Date/Time
Approved by		11-27-12
Sampled by		1600
Relinquished by		
Received by	Rafael Davila	11-27-12 16:00
Relinquished by	Rafael Davila	11-27-12 22:00
Received by	Linda, TLT	11/27/12 22:00

Shipping Details
Method of Shipment: courier
On Ice: yes / no
Airbill No:
Lab Name: Zymax Envirotechnology
Lab Phone: (805) 544-4696

ATTN:
Sample Custody
and
Michael Ng

Special Instructions:
Nov 5 - Dec 14, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

Sean Condon
Project Manager
Truesdail Laboratories
14201 Frankline Avenue
Tustin, CA 92780
Tel: 714.730.6239
Project: 2012-GMP-188-Q4
Project No.: 423575.MP.02.GM.01
Email: seanc@truesdail.com

Dr. Yi Wang
Director of ZymaX Forensics Isotope
Senior Environmental Geochemist of DPRA
600 S. Andreasen Dr., Suite B
Escondido, CA 92029
Tel: 760.781.3338 ext 43
Fax: 760.781.3339
Cell: 609.721.2843
Email: yi.wang@zymaxusa.com

ZymaX FORENSICS

REPORT OF ENVIRONMENTAL FORENSICS ISOTOPE ANALYSES

Date Received: December 7th, 2012
Date Reported: January 2nd, 2013

Water samples from Truesdail Lab (Sean Condon) for $\delta^{18}O$ and δD (‰ VSMOW) stable isotope analysis

ZymaX ID	Sample ID	$\delta^{18}O$	δD
42900-1	MW-30-050-188	-12.5	-103.2
42900-2	MW-39-070-188	-12.2	-98.5
42900-3	MW-39-080-188	-11.7	-94.7
42900-4	MW-35-060-188	-9.8	-77.7
42900-5	MW-35-135-188	-10.5	-81.9
42900-6	MW-36-090-188	-12.3	-99.7

ZymaX ID	$\delta^{18}O$	δD
QC-01	-4.7	-36.3
QC-02	-4.6	-36.9
Mean	-4.7	-36.6
Precision (STDEV)	0.1	0.4

ZYMAX FORENSICS ISOTOPE LABORATORY ANALYSES

Gas

^{13}C and D of C1 to C4; ^{13}C of CO_2; C-14 of Methane and CO_2; ^{34}S of H_2S; ^{15}N and ^{18}O of N_2O gas

Oil, Extract, Fraction and Kerogen

Compound-Specific ^{13}C and D of MTBE,Chlorinated Solvents,PAH,Gasoline,Oil; Bulk ^{13}C, D/H, ^{34}S, and ^{15}N

Water

D and ^{18}O; ^{34}S and ^{18}O of dissolved sulfate; ^{34}S of dissolved H_2S; ^{37}Cl, ^{13}C and D of chlorinated solvents
^{15}N and ^{18}O of dissolved Nitrate; ^{15}N of Ammonia; ^{13}C of dissolved CO_2 and Carbonate/Bicarbonate

Soil and Minerals:

^{13}C, ^{15}N, ^{34}S, D/H, ^{18}O; C-14 of carbonate or organics

CH2MHILL CHAIN OF CUSTODY RECORD 12/4/2012 4:14:42 PM Page 1 OF 1

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy

Project Number 423575.MP.02.GM.0
Task Order
Project 2012-GMP-188-Q4
Turnaround Time 10 Days
Shipping Date: 12/4/2012
COC Number: 15

				Container:	250 ml Poly			
				Preservatives:	4°C			
				Filtered:	NA			
				Holding Time:	NA			
	DATE	TIME	Matrix		Oxy_Deut (CF-IRMS)		Number of Containers	COMMENTS
MW-30-050-188	12/3/2012	14:11	Water		x	42900-1	1	
MW-39-070-188	12/3/2012	14:52	Water		x	-2	1	
MW-39-080-188	12/3/2012	13:14	Water		x	-3	1	
MW-35-060-188	12/4/2012	8:50	Water		x	-4	1	
MW-35-135-188	12/4/2012	10:04	Water		x	-5	1	
MW-36-090-188	12/4/2012	11:06	Water		x	-6	1	
						TOTAL NUMBER OF CONTAINERS	6	

Received by: Ryan Woon 12/7/12 9:30

	Signatures	Date/Time
Approved by		12-4-12
Sampled by		1620
Relinquished by		
Received by	Rafael Davila	12/4/12 16:20
Relinquished by	Rafael Davila	12-4-12 22:30
Received by	Linda, TLI	12/4/12 22:30
Released by TLI		12/4/12

Shipping Details
Method of Shipment: courier
On Ice: yes / no
Airbill No:
Lab Name: Zymax Envirotechnology
Lab Phone: (805) 544-4696

ATTN:
Sample Custody
and
Michael Ng

Special Instructions:
Nov 5 - Dec 14, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

December 7, 2012

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

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK 2012-GMP-188-Q4, GROUNDWATER MONITORING PROJECT, TLI NO.: 804725

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2012-GMP-188-Q4 groundwater-monitoring project. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, quality control data, and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data are under Section 5.

The samples were received and delivered with the chain of custody November 6, 2012, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

Due to the discrepancy between the Total Dissolved Chromium (4.4 ug/L) and Hexavalent Chromium (3.3 ug/L) results for sample MW-41D-188, sample from the Total Dissolved Chromium and Hexavalent Chromium sample containers were digested and analyzed for Total Dissolved Chromium. The results were both 4.6 ug/L. The original digestate was re-analyzed for confirmation and yielded a result of 5.5 ug/L. The original result was reported.

Due to the discrepancy between the Total Dissolved Chromium (13.4 ug/L) and Hexavalent Chromium (9.9 ug/L) results for sample MW-41S-188, sample from the Total Dissolved Chromium and Hexavalent Chromium sample containers were digested and analyzed for Total Dissolved Chromium. The results were 14.9 ug/L and 14.1 ug/L, respectively. The original digestate was re-analyzed for confirmation and yielded a result of 14.4 ug/L. The original result was reported.

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

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

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

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

Laboratory No.: 804725
Date Received: November 6, 2012

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

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
804725-001	MW-41D-188	E218.6	FLDFLT	11/5/2012	14:45	Chromium, Hexavalent	3.3	ug/L	1.0
804725-001	MW-41D-188	SW6020	FLDFLT	11/5/2012	14:45	Chromium	4.4	ug/L	1.0
804725-002	MW-41M-188	E218.6	FLDFLT	11/5/2012	16:35	Chromium, Hexavalent	9.9	ug/L	1.0
804725-002	MW-41M-188	SW6020	FLDFLT	11/5/2012	16:35	Chromium	13.4	ug/L	1.0

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

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

TRUESDAIL LABORATORIES, INC.

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

REPORT

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

Laboratory No. 804725

Printed 12/7/2012

Samples Received on 11/6/2012 11:45:00 PM

Field ID	Lab ID	Collected	Matrix
MW-41D-188	804725-001	11/05/2012 14:45	Water
MW-41M-188	804725-002	11/05/2012 16:35	Water

Chrome VI by EPA 218.6 Batch 11CrH12D

Parameter	Unit	Analyzed	DF	MDL	RL	Result
804725-001 Chromium, Hexavalent	ug/L	11/08/2012 10:59	5.00	0.0460	1.0	3.3
804725-002 Chromium, Hexavalent	ug/L	11/08/2012 11:09	5.00	0.0460	1.0	9.9

Method Blank

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

Duplicate — Lab ID = 804723-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	6.87	6.88	0.141	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.195	0.200	97.7	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.95	5.00	99.0	90 - 110

Matrix Spike — Lab ID = 804722-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.07	1.09(1.00)	97.8	90 - 110

Matrix Spike — Lab ID = 804722-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	1720	1760(1000)	96.1	90 - 110

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Matrix Spike — Lab ID = 804723-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	16.4	16.9(10.0)	95.4	90 - 110

Matrix Spike — Lab ID = 804724-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.0300	29.0	29.0(15.0)	99.7	90 - 110

Matrix Spike — Lab ID = 804724-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.0300	28.0	28.0(15.0)	100	90 - 110

Matrix Spike — Lab ID = 804725-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	8.10	8.35(5.00)	95.1	90 - 110

Matrix Spike — Lab ID = 804725-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	34.1	34.9(25.0)	96.9	90 - 110

Matrix Spike — Lab ID = 804726-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.0300	27.8	27.9(15.0)	99.5	90 - 110

Matrix Spike — Lab ID = 804726-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.936	1.00(1.00)	93.6	90 - 110

Matrix Spike — Lab ID = 804726-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.971	1.00(1.00)	97.1	90 - 110

Matrix Spike — Lab ID = 804726-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.973	1.00(1.00)	97.3	90 - 110

Matrix Spike — Lab ID = 804726-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.962	1.00(1.00)	96.2	90 - 110

Matrix Spike — Lab ID = 804747-011

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	8.14	8.36(5.00)	95.6	90 - 110

Matrix Spike — Lab ID = 804747-012

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.83	1.87(1.00)	96.7	90 - 110

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project
Project Number: 423575.MP.02.GM.01

Printed 12/7/2012

Metals by EPA 6020A, Dissolved

Batch 112712A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
804725-001 Chromium	ug/L	11/27/2012 14:30	2.50	0.230	1.0	4.4
804725-002 Chromium	ug/L	11/27/2012 14:37	2.50	0.230	1.0	13.4

Method Blank

Parameter	Unit	DF	Result
Chromium	ug/L	1.00	ND

Duplicate — Lab ID = 804723-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	2.50	7.91	8.04	1.58	0 - 20

Low Level Calibration Verification

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

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	2.50	50.0	50.0	100	85 - 115

Matrix Spike — Lab ID = 804723-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.50	54.6	58.0(50.0)	93.1	75 - 125

Matrix Spike Duplicate — Lab ID = 804723-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.50	56.8	58.0(50.0)	97.5	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.1	20.0	101	90 - 110

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.6	20.0	103	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.6	20.0	98.2	90 - 110

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Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project
Project Number: 423575.MP.02.GM.01 Printed 12/7/2012

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.9	20.0	99.5	90 - 110

Interference Check Standard A

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

Interference Check Standard A

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

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.7	20.0	98.7	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.0	20.0	95.2	80 - 120

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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CH2MHILL

CHAIN OF CUSTODY RECORD

804725

11/6/2012 3:32:07 PM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy

Project Number 423575.MP.02.GM.01
Task Order
Project 2012-GMP-188-Q4
Turnaround Time 10 Days
Shipping Date: 11/6/2012
COC Number: 2

Rec'd 11/06/12
S 804725

				Container:	250 ml Poly	1x500 ml Poly			
				Preservatives:	(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C			
				Filtered:	Field	Field			
				Holding Time:	28	180			
	DATE	TIME	Matrix		Cr6 (E218.6) Field Filtered	Metals (6020AFF) Field Filtered Chromium		Number of Containers	COMMENTS
-1	MW-41D-188	11/5/2012	14:45	Water	X	X		2	pH=2
-2	MW-41M-188	11/5/2012	16:35	Water	X	X		2	pH=2
							TOTAL NUMBER OF CONTAINERS	4	602 only

For Sample Conditions See Form Attached

ALERT !!
Level III QC

	Signatures	Date/Time
Approved by		11/6/12
Sampled by		1730
Relinquished by		
Received by	Rafael Davila	11-6-12 17:30
Relinquished by	Rafael Davila	11-6-12 23:45
Received by	L. Shakumura	11/6/12 23:45

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

ATTN:
Sample Custody

Special Instructions:
Nov 5 - Dec 14, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

Hexavalent Chromium

Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
11/7/12	804724-1	9.5	N/A	N/A	N/A	[illegible]
	-2					
	804725-1					
	-2					
	804726-1					
	-2					
	-3					
	-4					
	-5					
11/8/12	804777-11	7	2mL / 100mL (Total)	9.5	8:15 Am	[illegible]
	-12				8:25 Am	
11/9/12	804777-1	7	2mL / 100mL (Total)	9.5	8:10 Am	[illegible]
	-2				8:15 Am	
	-3				8:20 Am	
	-4				8:25 Am	
	-5				8:30 Am	
	-6				8:35 Am	
	-7				8:40 Am	
	-8				8:45 Am	
	-9				8:50 Am	
	-10				8:55 Am	
	-11				9:00 Am	
11/9/12	804778-1	9.5	N/A	N/A	N/A	HAV
	-2					
	-3					
	-4					
11/9/12	804779-1	9.5	N/A	N/A	N/A	HAV
	-2					
	-3					
	-4					
	-5					
	-6					

C:\My Documents\Templates\Hexavalent Chromium\Cr6+ pH Log

[illegible] 11/14/12

HAV 11/12/12

TRUESDAIL LABORATORIES, INC.

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
804625	>1	<2	11-2-12	BE	3010A			
804626	↓	↓	↓	↓	↓			
804627	↓	↓	↓	↓	↓			
804600	<1	>2	↓	↓	NO	7:00 AM	11-4	PH<2
804617 (10-12)	↓	↓	↓	↓	↓	↓	↓	↓
804635 (1-3)	↓	↓	↓	↓	↓	↓	↓	↓
804636 (1-15)	<1	<2	11/05/12	M-M	3010A			
804652 (1-2 ~~B~~)	↓	↓	↓	↓	↓			
804647	>1	<2	11/05/12	MM	3010A			
804648	↓	↓	↓	↓	↓			
804649	↓	↓	↓	↓	↓			
804658 (1,2,4)	<1	>2	11/5/12	MM	NO	4 pm	10.6	PH<2
804683 (1,2,3)	<1	>1	11-6-12	BE	NO	5 pm	11-7	↓
804726 (1,5)	<1	<2	11-7-12	M.M	3010A			
804725 (1,2)	↓	↓	↓	↓				
804722 (1,2)	↓	<2,2>2	↓	↓				
804723 (1,2)	↓	>2	↓	↓				
804724 (1,2)	↓	↓	↓	↓				
804690	—	— MM	11/07/12	M.M	TTLC	13:00	11/07/12	pH<2
804678-1	>1	~~>2~~ <2	11/07/12	MM	3010A			
804679	↓	<2	↓	↓	↓			
804680	↓	<2	↓	↓	↓			
804691	↓	↓	↓	↓	↓			
804692	↓	↓	↓	↓	↓			
804693	↓	↓	↓	↓	↓			
804694	↓	↓	↓	↓	↓			
804695	↓	↓	↓	↓	↓			
804706	↓	↓	↓	↓	↓			
804707	↓	↓	↓	↓	↓			
804708	↓	↓	↓	↓	↓			
804709	↓	↓	↓	↓	↓			
804721	↓	↓	↓	↓	↓			
804731	↓	~~>2~~	↓	↓	↓	13:00	11/07/12	pH<2
804678-2	>1	>2	11/07/2	M.M	3010A	13:00	11/07/12	pH<1
-3	↓	↓		↓	↓	↓	↓	↓
~~804300-02, 804300~~								
804300	<1	<2	10/16/12	M.M	3010A			
804301-302	↓	↓	↓	↓	↓			
804304-305	↓	↓	↓	↓	↓			
804733 (1-3)	<1	>2	11-8-12	B.E	NO	5:30 pm		
804720	↓	↓	↓	↓	↓	↓		
804743 (10-12)	↓	↓	↓	↓	↓	↓		

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

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: E2 **Lab #** 804725

Date Delivered: 11 / 07 / 12 **Time:** 23:45 **By:** ☐Mail ☒Field Service ☐Client

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

ALERT !!
Level III QC

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

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January 16, 2013

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

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK 2012-GMP-188-Q4, GROUNDWATER MONITORING PROJECT, TLI NO.: 804843

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2012-GMP-188-Q4 groundwater-monitoring project for Hexavalent and Total Dissolved Chromium analysis. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, quality control data, and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data are under Section 5.

The samples were received and delivered with the chain of custody November 13, 2012, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

Due to the discrepancy between the Total Dissolved Chromium (2.0 ug/L) and Hexavalent Chromium (1.2 ug/L) results for sample MW-63-065-188, sample from the Total Dissolved Chromium and Hexavalent Chromium sample containers were digested and analyzed for Total Dissolved Chromium. The results were 2.0 ug/L and 1.4 ug/L, respectively. The original digestate was re-analyzed for confirmation and yielded a result of 1.8 ug/L. The original result was reported.

Due to the discrepancy between the Total Dissolved Chromium (1.6 ug/L) and Hexavalent Chromium (ND<1.0 ug/L) results for sample PGE-08-188, sample from the Total Dissolved Chromium and Hexavalent Chromium sample containers were digested and analyzed for Total Dissolved Chromium. The results were 1.3 ug/L and 2.0 ug/L, respectively. The original digestate was re-analyzed for confirmation and yielded a result of 1.4 ug/L. The original result was reported.

Due to the discrepancy between the Total Dissolved Chromium (2.6 ug/L) and Hexavalent Chromium (1.4 ug/L) results for sample MW-21-188-EB, sample from the Total Dissolved Chromium and Hexavalent Chromium sample containers were digested and analyzed for Total Dissolved Chromium. Due to the continued discrepancy, the samples were re-digested two more times and analyzed for Total Dissolved Chromium. See the table summarizing the results on page 4. After discussing the results with Mr. Duffy, the original results were reported.

Due to the discrepancy between the Total Dissolved Chromium (3.1 ug/L) and Hexavalent Chromium (2.3 ug/L) results for sample MW-21-188, sample from the Total Dissolved Chromium and Hexavalent Chromium sample containers were digested and analyzed for Total Dissolved Chromium. The results were 3.1 ug/L and 2.5 ug/L, respectively. The original digestate was re-analyzed for confirmation and yielded a result of 2.8 ug/L. The original result was reported.

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

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

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

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Total Dissolved Chromium re-analysis table

Laboratory Number	Sample ID	Digestion date	Cr ICP/MS Run 1	Cr ICP/MS Run 2	Cr ICP/MS Run 3	Cr analysis from Cr6 Bottle	Cr6 result
804843-11	MW-21-188-EB	11/15/12	2.6	2.2	2.1		1.4
		12/3/12	7.5	6.1		10.5	
		12/17/12	3.2			7.8	
		1/10/13	2.5			5.1	

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

Laboratory No.: 804843
Date Received: November 13, 2012

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

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
804843-001	MW-48-188	E218.6	FLDFLT	11/7/2012	12:57	Chromium, Hexavalent	ND	ug/L	1.0
804843-001	MW-48-188	SW6020	FLDFLT	11/7/2012	12:57	Chromium	ND	ug/L	1.0
804843-002	MW-63-065-188	E218.6	FLDFLT	11/7/2012	15:23	Chromium, Hexavalent	1.2	ug/L	0.20
804843-002	MW-63-065-188	SW6020	FLDFLT	11/7/2012	15:23	Chromium	2.0	ug/L	1.0
804843-003	PGE-08-188	E218.6	FLDFLT	11/7/2012	11:26	Chromium, Hexavalent	ND	ug/L	1.0
804843-003	PGE-08-188	SW6020	FLDFLT	11/7/2012	11:26	Chromium	1.6	ug/L	1.0
804843-004	MW-16-188	E218.6	FLDFLT	11/8/2012	15:26	Chromium, Hexavalent	9.7	ug/L	0.20
804843-004	MW-16-188	SW6020	FLDFLT	11/8/2012	15:26	Chromium	9.8	ug/L	1.0
804843-005	MW-23-060-188	E218.6	FLDFLT	11/8/2012	9:18	Chromium, Hexavalent	31.6	ug/L	1.0
804843-005	MW-23-060-188	SW6020	FLDFLT	11/8/2012	9:18	Chromium	35.5	ug/L	1.0
804843-006	MW-23-080-188	E218.6	FLDFLT	11/8/2012	10:44	Chromium, Hexavalent	19.2	ug/L	1.0
804843-006	MW-23-080-188	SW6020	FLDFLT	11/8/2012	10:44	Chromium	21.6	ug/L	1.0
804843-007	MW-57-185-188	E218.6	FLDFLT	11/8/2012	13:28	Chromium, Hexavalent	9.5	ug/L	1.0
804843-007	MW-57-185-188	SW6020	FLDFLT	11/8/2012	13:28	Chromium	10.7	ug/L	1.0
804843-008	MW-71-035-188	E218.6	FLDFLT	11/8/2012	7:57	Chromium, Hexavalent	ND	ug/L	0.20
804843-008	MW-71-035-188	SW6020	FLDFLT	11/8/2012	7:57	Chromium	ND	ug/L	1.0
804843-009	PM-03-188	E200.8	NONE	11/8/2012	14:58	Chromium	8.3	ug/L	1.0
804843-009	PM-03-188	E218.6	FLDFLT	11/8/2012	14:58	Chromium, Hexavalent	7.2	ug/L	0.20
804843-010	PM-04-188	E200.8	NONE	11/8/2012	15:40	Chromium	23.0	ug/L	1.0
804843-010	PM-04-188	E218.6	FLDFLT	11/8/2012	15:40	Chromium, Hexavalent	21.3	ug/L	0.20
804843-011	MW-21-188-EB	E218.6	FLDFLT	11/12/2012	10:30	Chromium, Hexavalent	1.4	ug/L	0.20
804843-011	MW-21-188-EB	SW6020	FLDFLT	11/12/2012	10:30	Chromium	2.6	ug/L	1.0
804843-012	MW-68BR-280-188	E218.6	FLDFLT	11/12/2012	13:59	Chromium, Hexavalent	ND	ug/L	1.0
804843-012	MW-68BR-280-188	SW6020	FLDFLT	11/12/2012	13:59	Chromium	ND	ug/L	1.0

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Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
804843-013	MW-21-188	E218.6	FLDFLT	11/13/2012	9:27	Chromium, Hexavalent	2.3	ug/L	0.20
804843-013	MW-21-188	SW6020	FLDFLT	11/13/2012	9:27	Chromium	3.1	ug/L	1.0
804843-014	MW-24BR-188	E218.6	FLDFLT	11/13/2012	8:24	Chromium, Hexavalent	ND	ug/L	1.0
804843-014	MW-24BR-188	SW6020	FLDFLT	11/13/2012	8:24	Chromium	ND	ug/L	1.0
804843-015	MW-31-060-188	SM3500-CrB	FLDFLT	11/13/2012	15:29	Chromium, Hexavalent	334	ug/L	100
804843-015	MW-31-060-188	SW6020	FLDFLT	11/13/2012	15:29	Chromium	369	ug/L	2.0
804843-016	OW-03D-188	E218.6	FLDFLT	11/13/2012	12:10	Chromium, Hexavalent	9.5	ug/L	0.20
804843-016	OW-03D-188	SW6020	FLDFLT	11/13/2012	12:10	Chromium	10.8	ug/L	1.0
804843-017	OW-03M-188	E218.6	FLDFLT	11/13/2012	12:55	Chromium, Hexavalent	16.5	ug/L	0.20
804843-017	OW-03M-188	SW6020	FLDFLT	11/13/2012	12:55	Chromium	15.2	ug/L	1.0
804843-018	OW-03S-188	E218.6	FLDFLT	11/13/2012	13:31	Chromium, Hexavalent	26.8	ug/L	0.20
804843-018	OW-03S-188	SW6020	FLDFLT	11/13/2012	13:31	Chromium	23.5	ug/L	1.0

ND: Non Detected (below reporting limit)

mg/L: Milligrams per liter.

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

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

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

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

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REPORT

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

Laboratory No. 804843

Printed 1/16/2013

Samples Received on 11/13/2012 11:00:00 PM

Field ID	Lab ID	Collected	Matrix
MW-48-188	804843-001	11/07/2012 12:57	Water
MW-63-065-188	804843-002	11/07/2012 15:23	Water
PGE-08-188	804843-003	11/07/2012 11:26	Water
MW-16-188	804843-004	11/08/2012 15:26	Water
MW-23-060-188	804843-005	11/08/2012 09:18	Water
MW-23-080-188	804843-006	11/08/2012 10:44	Water
MW-57-185-188	804843-007	11/08/2012 13:28	Water
MW-71-035-188	804843-008	11/08/2012 07:57	Water
PM-03-188	804843-009	11/08/2012 14:58	Water
PM-04-188	804843-010	11/08/2012 15:40	Water
MW-21-188-EB	804843-011	11/12/2012 10:30	Water
MW-68BR-280-188	804843-012	11/12/2012 13:59	Water
MW-21-188	804843-013	11/13/2012 09:27	Water
MW-24BR-188	804843-014	11/13/2012 08:24	Water
MW-31-060-188	804843-015	11/13/2012 15:29	Water
OW-03D-188	804843-016	11/13/2012 12:10	Water
OW-03M-188	804843-017	11/13/2012 12:55	Water
OW-03S-188	804843-018	11/13/2012 13:31	Water

Chrome VI by EPA 218.6

Batch 11CrH12H

Parameter	Unit	Analyzed	DF	MDL	RL	Result
804843-001 Chromium, Hexavalent	ug/L	11/16/2012 16:54	5.00	0.0460	1.0	ND
804843-002 Chromium, Hexavalent	ug/L	11/16/2012 15:21	1.00	0.00920	0.20	1.2
804843-003 Chromium, Hexavalent	ug/L	11/16/2012 17:05	5.00	0.0460	1.0	ND

Method Blank

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

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Duplicate — Lab ID = 804842-005

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	17.3	17.3	0.150	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.191	0.200	95.6	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.95	5.00	99.0	90 - 110

Matrix Spike — Lab ID = 804841-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.04	1.07(1.00)	97.0	90 - 110

Matrix Spike — Lab ID = 804842-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.93	5.10(5.00)	96.7	90 - 110

Matrix Spike — Lab ID = 804842-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.01	1.10(1.00)	90.5	90 - 110

Matrix Spike — Lab ID = 804842-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.03	1.08(1.00)	94.9	90 - 110

Matrix Spike — Lab ID = 804842-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.94	5.12(5.00)	96.5	90 - 110

Matrix Spike — Lab ID = 804842-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.982	1.00(1.00)	98.2	90 - 110

Matrix Spike — Lab ID = 804842-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	47.5	48.8(20.0)	93.4	90 - 110

Matrix Spike — Lab ID = 804842-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	42.4	42.3(25.0)	100	90 - 110

Matrix Spike — Lab ID = 804842-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	41.6	41.5(25.0)	100	90 - 110

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Matrix Spike — Lab ID = 804842-007

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	140	138(75.0)	104	90 - 110

Matrix Spike — Lab ID = 804842-008

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	145	146(75.0)	98.4	90 - 110

Matrix Spike — Lab ID = 804843-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.94	5.27(5.00)	93.4	90 - 110

Matrix Spike — Lab ID = 804843-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.72	1.00(1.00)	972	90 - 110

Matrix Spike — Lab ID = 804843-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	6.09	6.24(5.00)	97.1	90 - 110

Matrix Spike — Lab ID = 804843-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.84	5.00(5.00)	96.7	90 - 110

Matrix Spike — Lab ID = 804843-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.38	1.00(1.00)	938	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.92	5.00	98.4	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.96	10.0	99.6	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.97	10.0	99.7	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.97	10.0	99.7	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.96	10.0	99.6	95 - 105

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Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project Page 5 of 17
Project Number: 423575.MP.02.GM.01 Printed 1/16/2013

Chrome VI by EPA 218.6

Batch 11CrH12I

Parameter	Unit	Analyzed	DF	MDL	RL	Result
804843-004 Chromium, Hexavalent	ug/L	11/16/2012 14:51	1.00	0.00580	0.20	9.7
804843-005 Chromium, Hexavalent	ug/L	11/16/2012 15:53	5.00	0.0290	1.0	31.6
804843-006 Chromium, Hexavalent	ug/L	11/16/2012 11:12	5.00	0.0290	1.0	19.2
804843-007 Chromium, Hexavalent	ug/L	11/16/2012 11:22	5.00	0.0290	1.0	9.5
804843-008 Chromium, Hexavalent	ug/L	11/16/2012 10:30	1.00	0.00580	0.20	ND
804843-009 Chromium, Hexavalent	ug/L	11/16/2012 10:40	1.00	0.00580	0.20	7.2
804843-010 Chromium, Hexavalent	ug/L	11/16/2012 10:51	1.00	0.00580	0.20	21.3
804843-011 Chromium, Hexavalent	ug/L	11/16/2012 11:01	1.00	0.00580	0.20	1.4
804843-012 Chromium, Hexavalent	ug/L	11/16/2012 15:12	5.00	0.0290	1.0	ND
804843-013 Chromium, Hexavalent	ug/L	11/16/2012 13:17	1.00	0.00580	0.20	2.3
804843-016 Chromium, Hexavalent	ug/L	11/16/2012 14:20	1.00	0.00580	0.20	9.5
804843-017 Chromium, Hexavalent	ug/L	11/16/2012 14:30	1.00	0.00580	0.20	16.5
804843-018 Chromium, Hexavalent	ug/L	11/16/2012 14:41	1.00	0.00580	0.20	26.8

Method Blank

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

Duplicate

Lab ID = 804843-009

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	7.19	7.26	0.967	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.203	0.200	101	70 - 130

Lab Control Sample

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

Matrix Spike

Lab ID = 804843-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	18.9	19.7(10.0)	92.7	90 - 110

Matrix Spike

Lab ID = 804843-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	81.8	81.6(50.0)	100	90 - 110

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Matrix Spike — Lab ID = 804843-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	44.4	44.2(25.0)	101	90 - 110

Matrix Spike — Lab ID = 804843-007

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	34.1	34.5(25.0)	98.6	90 - 110

Matrix Spike — Lab ID = 804843-008

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.14	1.19(1.00)	95.2	90 - 110

Matrix Spike — Lab ID = 804843-009

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	17.0	17.3(10.0)	97.9	90 - 110

Matrix Spike — Lab ID = 804843-010

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	40.5	41.3(20.0)	96.0	90 - 110

Matrix Spike — Lab ID = 804843-011

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	6.53	6.45(5.00)	102	90 - 110

Matrix Spike — Lab ID = 804843-012

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.944	1.00(1.00)	94.4	90 - 110

Matrix Spike — Lab ID = 804843-012

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.83	5.00(5.00)	96.6	90 - 110

Matrix Spike — Lab ID = 804843-013

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	7.07	7.28(5.00)	95.9	90 - 110

Matrix Spike — Lab ID = 804843-014

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

Matrix Spike — Lab ID = 804843-016

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	19.0	19.5(10.0)	95.0	90 - 110

Matrix Spike — Lab ID = 804843-017

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	35.9	36.5(20.0)	97.1	90 - 110

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Matrix Spike — Lab ID = 804843-018

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	44.9	46.8(20.0)	90.6	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.96	5.00	99.3	90 - 110

MRCVS - Primary

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

MRCVS - Primary

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

MRCVS - Primary

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

MRCVS - Primary

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

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Chrome VI by EPA 218.6

Batch 11CrH12J

Parameter	Unit	Analyzed	DF	MDL	RL	Result
804843-014 Chromium, Hexavalent	ug/L	11/19/2012 12:40	5.00	0.0460	1.0	ND

Method Blank

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

Duplicate — Lab ID = 804844-005

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	34.1	34.1	0.0487	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.183	0.200	91.6	70 - 130

Lab Control Sample

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

Matrix Spike — Lab ID = 804843-014

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.50	5.00(5.00)	90.0	90 - 110

Matrix Spike — Lab ID = 804843-014

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.344	1.00(1.00)	34.4	90 - 110

Matrix Spike — Lab ID = 804844-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.968	1.00(1.00)	96.8	90 - 110

Matrix Spike — Lab ID = 804844-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.961	1.00(1.00)	96.1	90 - 110

Matrix Spike — Lab ID = 804844-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	8.70	8.82(5.00)	97.6	90 - 110

Matrix Spike — Lab ID = 804844-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	8.63	8.85(5.00)	95.5	90 - 110

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Metals by EPA 6020A, Dissolved

Batch 120212B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
804843-001 Chromium	ug/L	12/03/2012 05:10	2.50	0.230	1.0	ND
804843-002 Chromium	ug/L	12/03/2012 06:08	2.50	0.230	1.0	2.0
804843-003 Chromium	ug/L	12/03/2012 06:15	2.50	0.230	1.0	1.6
804843-004 Chromium	ug/L	12/03/2012 06:22	2.50	0.230	1.0	9.8
804843-005 Chromium	ug/L	12/03/2012 06:29	2.50	0.230	1.0	35.5
804843-006 Chromium	ug/L	12/03/2012 06:51	2.50	0.230	1.0	21.6
804843-007 Chromium	ug/L	12/03/2012 06:58	2.50	0.230	1.0	10.7
804843-008 Chromium	ug/L	12/03/2012 07:05	2.50	0.230	1.0	ND
804843-011 Chromium	ug/L	12/03/2012 07:52	2.50	0.230	1.0	2.6
804843-012 Chromium	ug/L	12/03/2012 08:00	2.50	0.230	1.0	ND
804843-013 Chromium	ug/L	12/03/2012 08:07	2.50	0.230	1.0	3.1
804843-014 Chromium	ug/L	12/03/2012 08:14	2.50	0.230	1.0	ND
804843-015 Chromium	ug/L	12/03/2012 09:19	10.0	0.920	2.0	369
804843-016 Chromium	ug/L	12/03/2012 08:35	2.50	0.230	1.0	10.8

Method Blank

Parameter	Unit	DF	Result
Chromium	ug/L	1.00	ND

Duplicate

Lab ID = 804843-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	2.50	ND	0	0	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.184	0.200	92.2	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	2.50	51.7	50.0	103	85 - 115

Matrix Spike

Lab ID = 804843-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.50	48.6	50.0(50.0)	97.1	75 - 125

Matrix Spike Duplicate

Lab ID = 804843-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.50	50.3	50.0(50.0)	101	75 - 125

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MRCCS - Secondary

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

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.8	20.0	104	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.1	20.0	101	90 - 110

Interference Check Standard A

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

Interference Check Standard A

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

Interference Check Standard AB

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

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.0	20.0	99.8	80 - 120

Serial Dilution Lab ID = 804843-005

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	12.5	39.0	35.5	9.50	0 - 10

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Metals by EPA 6020A, Dissolved Batch 011513B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
804843-017 Chromium	ug/L	01/15/2013 22:11	1.00	0.0920	1.0	15.2
804843-018 Chromium	ug/L	01/16/2013 07:36	1.00	0.0920	1.0	23.5

Method Blank

Parameter	Unit	DF	Result
Chromium	ug/L	1.00	ND

Duplicate — Lab ID = 804843-017

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	1.00	15.1	15.2	0.806	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.203	0.200	102	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	43.0	50.0	85.9	85 - 115

Matrix Spike — Lab ID = 804843-017

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	1.00	54.0	65.2(50.0)	77.5	75 - 125

Matrix Spike Duplicate — Lab ID = 804843-017

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	1.00	57.8	65.2(50.0)	85.2	75 - 125

MRCCS - Secondary

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

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.6	20.0	93.3	90 - 110

Interference Check Standard A

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

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Metals by EPA 200.8, Total

Batch 120712A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
804843-009 Chromium	ug/L	12/07/2012 21:23	2.50	0.230	1.0	8.3
804843-010 Chromium	ug/L	12/07/2012 21:52	2.50	0.230	1.0	23.0

Method Blank

Parameter	Unit	DF	Result
Chromium	ug/L	1.00	ND

Duplicate

Lab ID = 804843-009

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	2.50	8.19	8.27	0.984	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.176	0.200	88.0	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	2.50	44.6	50.0	89.1	85 - 115

Matrix Spike

Lab ID = 804843-009

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.50	53.7	58.3(50.0)	90.9	75 - 125

Matrix Spike Duplicate

Lab ID = 804843-009

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.50	55.2	58.3(50.0)	93.8	75 - 125

MRCCS - Secondary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.0	20.0	95.2	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.2	20.0	96.0	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.0	20.0	94.8	90 - 110

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project
Project Number: 423575.MP.02.GM.01

Chromium, Hexavalent by SM 3500-Cr B

Batch 11CrH12A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
804843-015 Chromium, Hexavalent	ug/L	11/14/2012 11:45	10.0	15.0	100	334

Method Blank

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

Duplicate — Lab ID = 804723-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	893	953	6.46	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	95.4	100	95.4	90 - 110

Matrix Spike — Lab ID = 804723-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	3520	3450(2500)	103	85 - 115

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	62.0	60.0	103	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	58.4	60.0	97.3	90 - 110

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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804843

CH2MHILL

CHAIN OF CUSTODY RECORD

11/13/2012 4:05:22 PM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.01
Task Order
Project 2012-GMP-188-Q4
Turnaround Time 10 Days
Shipping Date: 11/13/2012
COC Number: 4

			Container:	250 ml Poly	2x250 ml Poly	250 ml Poly	2x500 ml Poly	500 ml Poly	1x500 ml Poly			
			Preservatives:	(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C			
			Filtered:	Field	Field	Field	Field	NA	Field			
			Holding Time:	28	28	28	180	180	180			
				Cr6 (E218.6) Field Filtered	Cr6 (E218.6R) Field Filtered	Cr6 (SM3500B) Field Filtered	Metals (6020AFF) Field Filtered Chromium	Metals (E200.7T) Total Chromium	Metals (6020AFF) Field Filtered Chromium		Number of Containers	COMMENTS
		DATE	TIME	Matrix								
1	MW-48-188	11/7/2012	12:57	Water	X					X	2	pH=2
	MW-53-188	11/7/2012	16:45	Water	X						1	Hold
	MW-54-188	11/7/2012	16:40	Water	X						1	Hold
2	MW-63-065-188	11/7/2012	15:23	Water	X					X	2	
3	PGE-08-188	11/7/2012	11:26	Water	X					X	2	
4	MW-16-188	11/8/2012	15:26	Water	X					X	2	
5	MW-23-060-188	11/8/2012	9:18	Water	X					X	2	pH=2
6	MW-23-080-188	11/8/2012	10:44	Water	X					X	2	
7	MW-57-185-188	11/8/2012	13:28	Water	X					X	2	
8	MW-71-035-188	11/8/2012	7:57	Water	X					X	2	
9	PM-03-188	11/8/2012	14:58	Water	X				X		2	
10	PM-04-188	11/8/2012	15:40	Water	X				X		2	
	MW-55-188	11/9/2012	7:35	Water	X						1	Hold
	MW-56-188	11/9/2012	7:37	Water	X						1	Hold

FH for 6020A/200.7

	Signatures	Date/Time
Approved by		11-13-12 1700
Sampled by		
Relinquished by		
Received by	Rafael Davila	11-13-12 17:00
Relinquished by	Rafael Davila	11-13-12 23:00
Received by	Linda, TCE,	11/13/12 23:00

Shipping Details

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

ATTN:
Sample Custody

Special Instructions:
Nov 5 - Dec 14, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

804843

CH2MHILL **CHAIN OF CUSTODY RECORD** 11/13/2012 4:05:22 PM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.01
Task Order
Project 2012-GMP-188-Q4
Turnaround Time 10 Days
Shipping Date: 11/13/2012
COC Number: 4

				Cr6 (E218.6) Field Filtered	Cr6 (E218.6R) Field Filtered	Cr6 (SM3500B) Field Filtered	Metals (6020AFF) Field Filtered Chromium	Metals (E200.7T) Total Chromium	Metals (6020AFF) Field Filtered Chromium		Number of Containers	COMMENTS
Container:				250 ml Poly	2x250 ml Poly	250 ml Poly	2x500 ml Poly	500 ml Poly	1x500 ml Poly			
Preservatives:				(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C			
Filtered:				Field	Field	Field	Field	NA	Field			
Holding Time:				28	28	28	180	180	180			
	DATE	TIME	Matrix									
11 MW-21-188-EB	11/12/2012	10:30	Water	X					X		2	
12 MW-68BR-280-188	11/12/2012	13:59	Water	X					X		2	
13 MW-21-188	11/13/2012	9:27	Water		X		X				4	pH=2
14 MW-24BR-188	11/13/2012	8:24	Water	X					X		2	
15 MW-31-060-188	11/13/2012	15:29	Water			X			X		2	
MW-57-188	11/13/2012	7:05	Water	X							1	Hold
MW-58-188	11/13/2012	7:07	Water	X							1	Hold
MW-59-188	11/13/2012	16:00	Water	X							1	Hold
MW-60-188	11/13/2012	15:50	Water	X							1	Hold
MW-61-188	11/13/2012	15:55	Water	X							1	Hold
MW-62-188	11/13/2012	16:05	Water	X							1	Hold
16 OW-03D-188	11/13/2012	12:10	Water	X					X		2	
17 OW-03M-188	11/13/2012	12:55	Water	X					X		2	pH=2
18 OW-03S-188	11/13/2012	13:31	Water	X					X		2	

* Where provided w/ multiple bottles for Cr6 + diss. metals Please analyze 1 + hold 1

pH for 6020A

	Signatures	Date/Time
Approved by		
Sampled by		11-13-12 1700
Relinquished by		
Received by	Rafael Davila	11-13-12 17:00
Relinquished by	Rafael Davila	11-13-12 23:00
Received by	Duda, TRI	11/13/12 23:00

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

ATTN: Sample Custody

Special Instructions:
Nov 5 - Dec 14, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

Hexavalent Chromium

Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
11/14/12	804841	7	2ml/100ml (total)	9.5	11 AM	[illegible]
11/14/12	804842-1	9.5	N/A	N/A	N/A	[illegible]
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
11/14/12	804843-1	9.5	N/A	N/A	N/A	[illegible]
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
	-13					
	-14					
	-15					
	-16					
	-17					

[illegible] 11/26/12

TRUESDAIL LABORATORIES, INC.

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
804779 (1-6)	<1	<2	11/09/12	M.M	3010A			
804745								
804749								
804781								
804793								
804795								
804794								
804799	<1	<2	11/12/12	M.M	3010A			
804800			16					
804325	<1	<2	10/17/12	M.M	3010A			
804332 (1-9)			10/17/12					M.M 11/12
804328 (1-5)			10/16/12					
804329 (1-5)								
804330 (1-4)								
804331 (1-3)								
804803 (1-2,4)	<1	>2	11/13/12	KK	NO	@ 1:30pm	11-14	pH<2
804815	<1	>2	11/13/12				11/19/12 (23)	pH<2
804817	>1	<2	11/14/12	M.M	3010A			
804825								
804834								
804835								
804849								
804851	>1	>2						
804841	<1	>2	11/14/12	M.M	3010A			
804842 (1-48)	<1	<2						
804843 (1-18)								
804844 (1-14)								
804840 (1-3)	<1	>2	11/19/12	KK	NO	@ 1:30pm	pH<2	11-23-12
804839								
804859 (10-12)								
804862 (1-3)								
804820-6	<1	>2	11/19/12	ES	NO	@ 4:00		
804887	<1	<1			yes			
804898								
804896								
804927 (1-3)		>2			NO	@ 4:00	11-23-12	pH<2
804966	>1	<2	11/21/12	ES	yes 3010A	3010		
804957								
804873 (1-5)	<1	<2	11/21-12	BE	3010A			
804914 (1-2)								
~~804955 6 7 8 9~~								
804961 (1-3)	<1	>2	11-23-12	BE	NO	@ 9:00 AM		
804982 (10-12)								

11/27/12 [illegible]

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

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: E2 **Lab #** 804843

Date Delivered: 11 / 13 / 12 **Time:** 23:00 **By:** ☐Mail ☒Field Service ☐Client

1. Was a Chain of Custody received and signed? ☒Yes ☐No ☐N/A
2. Does Customer require an acknowledgement of the COC? ☐Yes ☐No ☒N/A
3. Are there any special requirements or notes on the COC? ☐Yes ☐No ☒N/A
4. If a letter was sent with the COC, does it match the COC? ☐Yes ☐No ☒N/A
5. Were all requested analyses understood and acceptable? ☒Yes ☐No ☐N/A
6. Were samples received in a chilled condition? ☒Yes ☐No ☐N/A
   Temperature (if yes)? 2.9°C
7. Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)? ☒Yes ☐No ☐N/A
8. Were sample custody seals intact? ☐Yes ☐No ☒N/A
9. Does the number of samples received agree with COC? ☒Yes ☐No ☐N/A
10. Did sample labels correspond with the client ID's? ☒Yes ☐No ☐N/A
11. Did sample labels indicate proper preservation? ☒Yes ☐No ☐N/A
    Preserved (if yes) by: ☒Truesdail ☐Client
12. Were samples pH checked? pH = See C.O.C ☒Yes ☐No ☐N/A
13. Were all analyses within holding time at time of receipt? ☒Yes ☐No ☐N/A
    If not, notify Project Manager.
14. Have Project due dates been checked and accepted? ☒Yes ☐No ☐N/A
    Turn Around Time (TAT): ☐ RUSH ☒ Std
15. **Sample Matrix:** ☐Liquid ☐Drinking Water ☐Ground Water ☐Waste Water ☐Sludge ☐Soil ☐Wipe ☐Paint ☐Solid ☒Other Water
16. Comments: _____
17. Sample Check-In completed by **Truesdail** Log-In/Receiving: L. Shabnow

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

ALERT !!
Level III QC

Sean Condon
Project Manager
Truesdail Laboratories
14201 Frankline Avenue
Tustin, CA 92780
Tel: 714.730.6239
Project: 2012-GMP-188-Q4
Project No.: 423575.MP.02.GM.01
Email: seanc@truesdail.com

Dr. Yi Wang
Director of ZymaX Forensics Isotope
Senior Environmental Geochemist of DPRA
600 S. Andreasen Dr., Suite B
Escondido, CA 92029
Tel: 760.781.3338 ext 43
Fax: 760.781.3339
Cell: 609.721.2843
Email: yi.wang@zymaxusa.com

ZymaX FORENSICS

REPORT OF ENVIRONMENTAL FORENSICS ISOTOPE ANALYSES

Date Received: November 20th, 2012
Date Reported: December 10th, 2012

Water samples from Truesdail Lab (Sean Condon) for $\delta^{18}O$ and δD (‰ VSMOW) stable isotope analysis

ZymaX ID	Sample ID	$\delta^{18}O$	δD
42887-1	MW-31-060-188	-9.2	-71.8

ZymaX ID	$\delta^{18}O$	δD
QC-01	-4.7	-37.3
QC-02	-4.6	-36.8
Mean	-4.7	-37.1
Precision (STDEV)	0.1	0.4

ZYMAX FORENSICS ISOTOPE LABORATORY ANALYSES

Gas

^{13}C and D of C1 to C4; ^{13}C of CO_2; C-14 of Methane and CO_2; ^{34}S of H_2S; ^{15}N and ^{18}O of N_2O gas

Oil, Extract, Fraction and Kerogen

Compound-Specific ^{13}C and D of MTBE,Chlorinated Solvents,PAH,Gasoline,Oil; Bulk ^{13}C, D/H, ^{34}S, and ^{15}N

Water

D and ^{18}O; ^{34}S and ^{18}O of dissolved sulfate; ^{34}S of dissolved H_2S; ^{37}Cl, ^{13}C and D of chlorinated solvents
^{15}N and ^{18}O of dissolved Nitrate; ^{15}N of Ammonia; ^{13}C of dissolved CO_2 and Carbonate/Bicarbonate

Soil and Minerals:

^{13}C, ^{15}N, ^{34}S, D/H, ^{18}O; C-14 of carbonate or organics

804917

CH2MHILL CHAIN OF CUSTODY RECORD 11/13/2012 4:06:23 PM Page 1 OF 1

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.01
Task Order
Project 2012-GMP-188-Q4
Turnaround Time 10 Days
Shipping Date: 11/13/2012
COC Number: 5

Container:				250 ml Poly			
Preservatives:				4°C			
Filtered:				NA			
Holding Time:				NA			
	DATE	TIME	Matrix	Oxy_Deut (CF-IRMS)		Number of Containers	COMMENTS
MW-31-060-188	11/13/2012	15:29	Water	x	42887-1	1	
					TOTAL NUMBER OF CONTAINERS	1	

Received by: Ryan Woon 11/20/12 11:00

	Signatures	Date/Time
Approved by		11-13-12
Sampled by		1700
Relinquished by		
Received by	Rafael Davila	11-13-12 17:00
Relinquished by	Rafael Davila	11-13-12 23:00
Received by	Linda [illegible]	11/13/12 23:00
Rel-Sent:	[illegible]	[illegible]

Shipping Details
Method of Shipment: courier
On Ice: yes / no
Airbill No:
Lab Name: Zymax Envirotechnology
Lab Phone: (805) 544-4696

ATTN:
Sample Custody
and
Michael Ng

Special Instructions:
Nov 5 - Dec 14, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

December 7, 2012

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

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK 2012-GMP-188-Q4, GROUNDWATER MONITORING PROJECT, TLI NO.: 804968

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2012-GMP-188-Q4 groundwater-monitoring project for Hexavalent and Total Dissolved Chromium analysis. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, quality control data, and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data are under Section 5.

The samples were received and delivered with the chain of custody November 20, 2012, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

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

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

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.
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Established 1931

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

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

Laboratory No.: 804968
Date Received: November 20, 2012

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

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
804968-001	MW-37S-188	E218.6	FLDFLT	11/14/2012	15:00	Chromium, Hexavalent	9.8	ug/L	0.20
804968-001	MW-37S-188	SW6020	FLDFLT	11/14/2012	15:00	Chromium	10.3	ug/L	1.0
804968-002	MW-72BR-200-188	E218.6	FLDFLT	11/14/2012	12:21	Chromium, Hexavalent	6.4	ug/L	1.0
804968-002	MW-72BR-200-188	SW6020	FLDFLT	11/14/2012	12:21	Chromium	7.3	ug/L	1.0
804968-003	MW-15-188	E218.6	FLDFLT	11/15/2012	15:00	Chromium, Hexavalent	10.6	ug/L	0.20
804968-003	MW-15-188	SW6020	FLDFLT	11/15/2012	15:00	Chromium	11.4	ug/L	1.0
804968-004	MW-31-135-188	E218.6	FLDFLT	11/15/2012	13:25	Chromium, Hexavalent	12.4	ug/L	1.0
804968-004	MW-31-135-188	SW6020	FLDFLT	11/15/2012	13:25	Chromium	13.4	ug/L	1.0
804968-005	TW-04-188	E218.6	FLDFLT	11/15/2012	11:41	Chromium, Hexavalent	7.7	ug/L	1.0
804968-005	TW-04-188	SW6020	FLDFLT	11/15/2012	11:41	Chromium	9.1	ug/L	1.0
804968-006	TW-05-188	E218.6	FLDFLT	11/15/2012	8:39	Chromium, Hexavalent	13.5	ug/L	1.0
804968-006	TW-05-188	SW6020	FLDFLT	11/15/2012	8:39	Chromium	15.6	ug/L	1.0

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

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

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REPORT

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

Laboratory No. 804968

Printed 12/7/2012

Samples Received on 11/20/2012 8:30:00 PM

Field ID	Lab ID	Collected	Matrix
MW-37S-188	804968-001	11/14/2012 15:00	Water
MW-72BR-200-188	804968-002	11/14/2012 12:21	Water
MW-15-188	804968-003	11/15/2012 15:00	Water
MW-31-135-188	804968-004	11/15/2012 13:25	Water
TW-04-188	804968-005	11/15/2012 11:41	Water
TW-05-188	804968-006	11/15/2012 08:39	Water

Chrome VI by EPA 218.6

Batch 11CrH12L

Parameter	Unit	Analyzed	DF	MDL	RL	Result
804968-001 Chromium, Hexavalent	ug/L	11/23/2012 10:57	1.00	0.00920	0.20	9.8
804968-002 Chromium, Hexavalent	ug/L	11/23/2012 13:23	5.00	0.0460	1.0	6.4
804968-003 Chromium, Hexavalent	ug/L	11/23/2012 11:18	1.00	0.00920	0.20	10.6
804968-004 Chromium, Hexavalent	ug/L	11/23/2012 13:33	5.00	0.0460	1.0	12.4
804968-005 Chromium, Hexavalent	ug/L	11/23/2012 13:44	5.00	0.0460	1.0	7.7
804968-006 Chromium, Hexavalent	ug/L	11/23/2012 14:15	5.00	0.0460	1.0	13.5

Method Blank

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

Duplicate — Lab ID = 804968-003

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	10.5	10.6	0.937	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.185	0.200	92.5	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.84	5.00	96.8	90 - 110

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Matrix Spike — Lab ID = 804844-013

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	174	177(100)	97.3	90 - 110

Matrix Spike — Lab ID = 804844-014

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	178	181(100)	97.6	90 - 110

Matrix Spike — Lab ID = 804967-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.14	1.15(1.00)	98.7	90 - 110

Matrix Spike — Lab ID = 804968-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	19.1	19.8(10.0)	92.6	90 - 110

Matrix Spike — Lab ID = 804968-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	30.4	31.4(25.0)	96.1	90 - 110

Matrix Spike — Lab ID = 804968-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.0300	25.0	25.6(15.0)	95.8	90 - 110

Matrix Spike — Lab ID = 804968-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	35.9	37.4(25.0)	94.0	90 - 110

Matrix Spike — Lab ID = 804968-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	32.2	32.7(25.0)	98.0	90 - 110

Matrix Spike — Lab ID = 804968-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	37.7	38.5(25.0)	96.6	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.82	5.00	96.5	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.97	10.0	99.7	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.97	10.0	99.7	95 - 105

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project
Project Number: 423575.MP.02.GM.01

Printed 12/7/2012

Metals by EPA 6020A, Dissolved

Batch 120412C

Parameter	Unit	Analyzed	DF	MDL	RL	Result
804968-001 Chromium	ug/L	12/05/2012 11:54	2.50	0.230	1.0	10.3
804968-002 Chromium	ug/L	12/05/2012 12:01	2.50	0.230	1.0	7.3
804968-003 Chromium	ug/L	12/05/2012 12:08	2.50	0.230	1.0	11.4
804968-004 Chromium	ug/L	12/05/2012 12:15	2.50	0.230	1.0	13.4
804968-005 Chromium	ug/L	12/05/2012 14:29	2.50	0.230	1.0	9.1
804968-006 Chromium	ug/L	12/05/2012 12:30	2.50	0.230	1.0	15.6

Method Blank

Parameter	Unit	DF	Result
Chromium	ug/L	1.00	ND

Duplicate — Lab ID = 804725-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	5.00	4.66	4.62	0.905	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.193	0.200	96.7	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	2.50	53.4	50.0	107	85 - 115

Matrix Spike — Lab ID = 804725-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	5.00	60.3	54.6(50.0)	111	75 - 125

Matrix Spike Duplicate — Lab ID = 804725-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	5.00	58.0	54.6(50.0)	107	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.6	20.0	98.0	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.0	20.0	94.8	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.6	20.0	92.8	90 - 110

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MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.3	20.0	91.6	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.7	20.0	93.6	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.4	20.0	91.9	90 - 110

Interference Check Standard A

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

Interference Check Standard A

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

Interference Check Standard AB

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

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.6	20.0	98.1	80 - 120

Serial Dilution — Lab ID = 805018-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	25.0	170	169	0.590	0 - 10

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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804968

CH2MHILL

CHAIN OF CUSTODY RECORD

11/15/2012 4:21:07 PM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.01
Task Order
Project 2012-GMP-188-Q4
Turnaround Time 10 Days
Shipping Date: 11/20/2012
COC Number: 8

				Cr6 (E218.6) Field Filtered	Metals (6020AFF) Field Filtered Chromium		Number of Containers	COMMENTS
			Container:	250 ml Poly	1x500 ml Poly			
			Preservatives:	(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C			
			Filtered:	Field	Field			
			Holding Time:	28	180			
	DATE	TIME	Matrix					
-7 MW-37S-188	11/14/2012	15:00	Water	X	X		2	pH2
MW-63-188	11/14/2012	15:55	Water	X			1	Hold
MW-64-188	11/14/2012	15:50	Water	X			1	Hold
.2 MW-72BR-200-188	11/14/2012	12:21	Water	X	X		2	pH2
.3 MW-15-188	11/15/2012	15:00	Water	X	X		2	
-4 MW-31-135-188	11/15/2012	13:25	Water	X	X		2	
MW-65-188	11/15/2012	15:55	Water	X			1	Hold
MW-66-188	11/15/2012	16:00	Water	X			1	Hold
MW-67-188	11/15/2012	16:05	Water	X			1	Hold
-5 TW-04-188	11/15/2012	11:41	Water	X	X		2	pH2
-6 TW-05-188	11/15/2012	8:39	Water	X	X		2	
						TOTAL NUMBER OF CONTAINERS	17	

ALERT !!
Level III QC

For Sample Conditions
See Form Attached

pH for 6020A

	Signatures	Date/Time
Approved by		11-15-12
Sampled by		1700
Relinquished by		
Received by		11-20-12
Relinquished by		11-20-12 20:30
Received by		11-20-12 20:30

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

ATTN:
Sample Custody

Special Instructions:
Nov 5 - Dec 14, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

Hexavalent Chromium

Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
11/9/12	804799	9.5	N/A	N/A	N/A	[illegible]
11/9/12	804800-1	9.5	N/A	N/A	N/A	[illegible]
	-2					
	-3					
	-4					
	-5					
~~11/14/12~~	~~804843~~	~~9.5~~	~~N/A~~	~~N/A~~	~~N/A~~	~~[illegible]~~ [illegible] 11/14/12
11/21/12	804967	7	2mL/100 mL (Total)	9.5	10:15 Am	[illegible]
11/21/12	804968-1	9.5	N/A	N/A	N/A	[illegible]
	-2					
	-3					
	-4					
	-5					
	-6					

[illegible] 12-3-12

HAV 12/3/12

TRUESDAIL LABORATORIES, INC.

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
805213	<1	<2	12/7/12	ES	yes			
805214								
805215								
805239								
805241								
805242								
805244								
805245 - 255								
804968 (1-6)	<1	<2	11/30/12	KH	yes			

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

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: E2 **Lab #** 804968

Date Delivered: 11 / 20 / 12 **Time:** 20:30 **By:** ☐Mail ☒Field Service ☐Client

1. Was a Chain of Custody received and signed? ☒Yes ☐No ☐N/A
2. Does Customer require an acknowledgement of the COC? ☐Yes ☐No ☒N/A
3. Are there any special requirements or notes on the COC? ☐Yes ☐No ☒N/A
4. If a letter was sent with the COC, does it match the COC? ☐Yes ☐No ☒N/A
5. Were all requested analyses understood and acceptable? ☒Yes ☐No ☐N/A
6. Were samples received in a chilled condition? ☒Yes ☐No ☐N/A
   Temperature (if yes)? 4.5°C
7. Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)? ☒Yes ☐No ☐N/A
8. Were sample custody seals intact? ☐Yes ☐No ☒N/A
9. Does the number of samples received agree with COC? ☒Yes ☐No ☐N/A
10. Did sample labels correspond with the client ID's? ☒Yes ☐No ☐N/A
11. Did sample labels indicate proper preservation? ☒Yes ☐No ☐N/A
    Preserved (if yes) by: ☒Truesdail ☐Client
12. Were samples pH checked? pH = See C.O.C. ☒Yes ☐No ☐N/A
13. Were all analyses within holding time at time of receipt? ☒Yes ☐No ☐N/A
    If not, notify Project Manager.
14. Have Project due dates been checked and accepted? ☒Yes ☐No ☐N/A
    Turn Around Time (TAT): ☐ RUSH ☒ Std
15. **Sample Matrix:** ☐Liquid ☐Drinking Water ☐Ground Water ☐Waste Water ☐Sludge ☐Soil ☐Wipe ☐Paint ☐Solid ☒Other Water
16. Comments: _____
17. Sample Check-In completed by **Truesdail** Log-In/Receiving: Lucio

ALERT !!
Level III QC

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

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

December 13, 2012

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

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK 2012-GMP-188-Q4, GROUNDWATER MONITORING PROJECT, TLI NO.: 805018

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2012-GMP-188-Q4 groundwater-monitoring project for Hexavalent and Total Dissolved Chromium analysis. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, quality control data, and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data are under Section 5.

The samples were received and delivered with the chain of custody November 27, 2012, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

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

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

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

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

Laboratory No.: 805018
Date Received: November 27, 2012

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

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
805018-001	MW-34-100-188	E218.6	FLDFLT	11/26/2012	13:03	Chromium, Hexavalent	166	ug/L	2.0
805018-001	MW-34-100-188	SW6020	FLDFLT	11/26/2012	13:03	Chromium	169	ug/L	1.0
805018-002	MW-93-188	E218.6	FLDFLT	11/26/2012	7:05	Chromium, Hexavalent	167	ug/L	2.0
805018-002	MW-93-188	SW6020	FLDFLT	11/26/2012	7:05	Chromium	173	ug/L	1.0

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

004

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

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

REPORT

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

Laboratory No. 805018

Printed 12/13/2012

Samples Received on 11/27/2012 10:00:00 PM

Field ID	Lab ID	Collected	Matrix
MW-34-100-188	805018-001	11/26/2012 13:03	Water
MW-93-188	805018-002	11/26/2012 07:05	Water

Chrome VI by EPA 218.6

Batch 12CrH12A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805018-002 Chromium, Hexavalent	ug/L	12/01/2012 12:41	10.0	0.0920	2.0	167

Method Blank

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

Duplicate — Lab ID = 805019-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	10.0	209	209	0.0161	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.191	0.200	95.6	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.80	5.00	95.9	90 - 110

Matrix Spike — Lab ID = 805017-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.08	1.12(1.00)	95.9	90 - 110

Matrix Spike — Lab ID = 805018-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	10.0	361	367(200)	97.0	90 - 110

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Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project Page 3 of 7
Project Number: 423575.MP.02.GM.01 Printed 12/13/2012

Chrome VI by EPA 218.6

Batch 12CrH12B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805018-001 Chromium, Hexavalent	ug/L	12/03/2012 10:36	10.0	0.0920	2.0	166

Method Blank

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

Duplicate — Lab ID = 805020-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	250	2600	2310	12.0	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.173	0.200	86.7	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.81	5.00	96.2	90 - 110

Matrix Spike — Lab ID = 805018-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	10.0	362	366(200)	98.0	90 - 110

Matrix Spike — Lab ID = 805019-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	10.0	450	459(250)	96.3	90 - 110

Matrix Spike — Lab ID = 805020-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	250	5040	4810(2500)	109	90 - 110

Matrix Spike — Lab ID = 805021-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.943	1.00(1.00)	94.3	90 - 110

Matrix Spike — Lab ID = 805021-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	188	197(100)	90.2	90 - 110

Matrix Spike — Lab ID = 805021-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	185	192(100)	93.2	90 - 110

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project
Project Number: 423575.MP.02.GM.01

Metals by EPA 6020A, Dissolved

Batch 120412C

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805018-001 Chromium	ug/L	12/05/2012 12:37	5.00	0.460	1.0	169
805018-002 Chromium	ug/L	12/05/2012 12:51	5.00	0.460	1.0	173

Method Blank

Parameter	Unit	DF	Result
Chromium	ug/L	1.00	ND

Duplicate — Lab ID = 804725-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	5.00	4.66	4.62	0.905	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.193	0.200	96.7	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	2.50	53.4	50.0	107	85 - 115

Matrix Spike — Lab ID = 804725-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	5.00	60.3	54.6(50.0)	111	75 - 125

Matrix Spike Duplicate — Lab ID = 804725-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	5.00	58.0	54.6(50.0)	107	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.6	20.0	98.0	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.0	20.0	94.8	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.6	20.0	92.8	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.3	20.0	91.6	90 - 110

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

Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project
Project Number: 423575.MP.02.GM.01 Printed 12/13/2012

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.7	20.0	93.6	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.4	20.0	91.9	90 - 110

Interference Check Standard A

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

Interference Check Standard A

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

Interference Check Standard AB

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

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.6	20.0	98.1	80 - 120

Serial Dilution Lab ID = 805018-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	25.0	170	169	0.590	0 - 10

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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

805018

CH2MHILL

CHAIN OF CUSTODY RECORD

11/26/2012 2:59:29 PM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.01
Task Order
Project 2012-GMP-188-Q4
Turnaround Time 10 Days
Shipping Date: 11/27/2012
COC Number: 12

				Cr6 (E218.6) Field Filtered	Metals (6020AFF) Field Filtered Chromium		Number of Containers	COMMENTS
Container:				250 ml Poly	1x500 ml Poly			
Preservatives:				(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C			
Filtered:				Field	Field			
Holding Time:				28	180			
DATE	TIME	Matrix						
-1 MW-34-100-188	11/26/2012	13:03	Water	X	X		2	
-2 MW-93-188	11/26/2012	7:05	Water	X	X		2	pH=2
						TOTAL NUMBER OF CONTAINERS	4	6

ALERT !!
Level III QC

For Sample Conditions
See Form Attached

	Signatures	Date/Time
Approved by		11-27-12 1600
Sampled by		
Relinquished by		
Received by	Rafael Davila	11-27-12 16:00
Relinquished by	Rafael Davila	11-27-12 22:00
Received by	L. Shabecciria	11/27/12 22:00

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

ATTN:
Sample Custody

Special Instructions:
Nov 5 - Dec 14, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

Hexavalent Chromium

Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
11/28/12	805017	7	2ml/100ml (total)	9.5	10 Am	[illegible]
11/28/12	805018-1	9.5	N/A	N/A	N/A	[illegible]
↓	↓ -2	↓	↓	↓	↓	↓
11/28/12	805019-1	9.5	N/A	N/A	N/A	[illegible]
↓	↓ -2	↓	↓	↓	↓	↓
11/28/12	805020-1	9.5	N/A	N/A	N/A	[illegible]
↓	-2	↓	↓	↓	↓	↓
	-3					
	-4					
	-5					
	-6					
11/28/12	805021-1	9.5	N/A	N/A	N/A	[illegible]
↓	-2	↓	↓	↓	↓	↓
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
11/28/12	805022-1	9.5	N/A	N/A	N/A	HAV
↓	-2	↓	↓	↓	↓	↓
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					

HAV 12/04/12

[illegible] 12-10-12

HAV 12/4/12

TRUESDAIL LABORATORIES, INC.

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
805213	<1	<2	12/7/12	ES	yes			
805214								
805215								
805229								
805241								
805242								
805244								
805245 - 255								
804968 (1-6)	<1	<2	11/30/12	KA	yes			
805018 (1-2)								
804930 (1-5)								
805023 (1-5)								
805259	>1	<2	12/12/12	AA	yes			
805260		<2						
805261		<2						
805268-6		>2			No			
805270 (1-4)		>2						-2 For digestion
805217	<1	>2	12/12/12	AA	No	8:30am		
805303	<1	>2		BE	yes	9:30		
805304	<1	<2						

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

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: E2 **Lab #** 805018

Date Delivered: 11 / 27 / 12 **Time:** 22:00 **By:** ☐ Mail ☒ Field Service ☐ Client

1. Was a Chain of Custody received and signed? ☒ Yes ☐ No ☐ N/A
2. Does Customer require an acknowledgement of the COC? ☐ Yes ☐ No ☒ N/A
3. Are there any special requirements or notes on the COC? ☐ Yes ☐ No ☒ N/A
4. If a letter was sent with the COC, does it match the COC? ☐ Yes ☐ No ☒ N/A
5. Were all requested analyses understood and acceptable? ☒ Yes ☐ No ☐ N/A
6. Were samples received in a chilled condition? ☒ Yes ☐ No ☐ N/A
   Temperature (if yes)? 3.8 °C
7. Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)? ☒ Yes ☐ No ☐ N/A
8. Were sample custody seals intact? ☐ Yes ☐ No ☒ N/A
9. Does the number of samples received agree with COC? ☒ Yes ☐ No ☐ N/A
10. Did sample labels correspond with the client ID's? ☒ Yes ☐ No ☐ N/A
11. Did sample labels indicate proper preservation? ☒ Yes ☐ No ☐ N/A
    Preserved (if yes) by: ☒ Truesdail ☐ Client
12. Were samples pH checked? pH = See C.O.C. ☒ Yes ☐ No ☐ N/A
13. Were all analyses within holding time at time of receipt? ☒ Yes ☐ No ☐ N/A
    If not, notify Project Manager.
14. Have Project due dates been checked and accepted? ☒ Yes ☐ No ☐ N/A
    Turn Around Time (TAT): ☐ RUSH ☒ Std
15. **Sample Matrix:** ☐ Liquid ☐ Drinking Water ☐ Ground Water ☐ Waste Water ☐ Sludge ☐ Soil ☐ Wipe ☐ Paint ☐ Solid ☒ Other Water
16. Comments: _____
17. Sample Check-In completed by **Truesdail** Log-In/Receiving: L. Shabenine

ALERT !!
Level III QC

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

TRUESDAIL LABORATORIES, INC.

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

January 10, 2013

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

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK 2012-GMP-188-Q4, GROUNDWATER MONITORING PROJECT, TLI NO.: 805158

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2012-GMP-188-Q4 groundwater-monitoring project for Hexavalent and Total Dissolved Chromium. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, quality control data, and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data are under Section 5.

The samples were received and delivered with the chain of custody December 4, 2012, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

Due to the discrepancy between the Total Dissolved Chromium (1.3 ug/L) and Hexavalent Chromium (0.26 ug/L) results for sample MW-27-020-188, sample from the Total Dissolved Chromium and Hexavalent Chromium sample containers were digested and analyzed for Total Dissolved Chromium. The results were 1.6 ug/L and 1.6 ug/L, respectively. The original digestate was re-analyzed for confirmation and yielded a result of 1.4 ug/L. The original result was reported.

Due to the discrepancy between the Total Dissolved Chromium (5.5 ug/L) and Hexavalent Chromium (ND<1.0 ug/L) results for sample MW-30-030-188, sample from the Total Dissolved Chromium and Hexavalent Chromium sample containers were digested and analyzed for Total Dissolved Chromium. The results were 5.2 ug/L and 3.7 ug/L, respectively. The original result was reported.

Due to the discrepancy between the Total Dissolved Chromium (29.6 ug/L) and Hexavalent Chromium (22.3 ug/L) results for sample MW-35-060-188, sample from the Total Dissolved Chromium and Hexavalent Chromium sample containers were digested and analyzed for Total Dissolved Chromium. The results were 30.0 ug/L and 28.5 ug/L, respectively. The original digestate was re-analyzed for confirmation and yielded a result of 28.8 ug/L. The original result was reported.

Due to the discrepancy between the Total Dissolved Chromium (37.7 ug/L) and Hexavalent Chromium (30.6 ug/L) results for sample MW-35-135-188, sample from the Total Dissolved Chromium and Hexavalent Chromium sample containers were digested and analyzed for Total Dissolved Chromium. The results were 40.8 ug/L and 36.1 ug/L, respectively. The original digestate was re-analyzed for confirmation and yielded a result of 35.7 ug/L. The original result was reported.

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

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

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.
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Established 1931

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

Laboratory No.: 805158
Date Received: December 4, 2012

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

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
805158-001	MW-17-188	E218.6	FLDFLT	12/3/2012	15:18	Chromium, Hexavalent	13.0	ug/L	0.20
805158-001	MW-17-188	SW6020	FLDFLT	12/3/2012	15:18	Chromium	13.2	ug/L	1.0
805158-002	MW-27-020-188	E218.6	FLDFLT	12/3/2012	10:05	Chromium, Hexavalent	0.25	ug/L	0.20
805158-002	MW-27-020-188	SW6020	FLDFLT	12/3/2012	10:05	Chromium	1.3	ug/L	1.0
805158-003	MW-27-060-188	E218.6	FLDFLT	12/3/2012	11:46	Chromium, Hexavalent	ND	ug/L	0.20
805158-003	MW-27-060-188	SW6020	FLDFLT	12/3/2012	11:46	Chromium	ND	ug/L	1.0
805158-004	MW-27-085-188	E218.6	FLDFLT	12/3/2012	12:45	Chromium, Hexavalent	ND	ug/L	1.0
805158-004	MW-27-085-188	SW6020	FLDFLT	12/3/2012	12:45	Chromium	ND	ug/L	1.0
805158-005	MW-30-030-188	E218.6	FLDFLT	12/3/2012	15:36	Chromium, Hexavalent	ND	ug/L	1.0
805158-005	MW-30-030-188	SW6020	FLDFLT	12/3/2012	15:36	Chromium	5.5	ug/L	2.0
805158-006	MW-30-050-188	E218.6	FLDFLT	12/3/2012	14:11	Chromium, Hexavalent	ND	ug/L	0.20
805158-006	MW-30-050-188	SW6020	FLDFLT	12/3/2012	14:11	Chromium	ND	ug/L	1.0
805158-007	MW-39-050-188	E218.6	FLDFLT	12/3/2012	10:46	Chromium, Hexavalent	ND	ug/L	0.20
805158-007	MW-39-050-188	SW6020	FLDFLT	12/3/2012	10:46	Chromium	ND	ug/L	1.0
805158-008	MW-39-060-188	E218.6	FLDFLT	12/3/2012	15:56	Chromium, Hexavalent	ND	ug/L	1.0
805158-008	MW-39-060-188	SW6020	FLDFLT	12/3/2012	15:56	Chromium	ND	ug/L	1.0
805158-009	MW-39-070-188	E218.6	FLDFLT	12/3/2012	14:52	Chromium, Hexavalent	ND	ug/L	0.20
805158-009	MW-39-070-188	SW6020	FLDFLT	12/3/2012	14:52	Chromium	ND	ug/L	1.0
805158-010	MW-39-080-188	E218.6	FLDFLT	12/3/2012	13:14	Chromium, Hexavalent	ND	ug/L	0.20
805158-010	MW-39-080-188	SW6020	FLDFLT	12/3/2012	13:14	Chromium	ND	ug/L	1.0
805158-011	MW-40D-188	E218.6	FLDFLT	12/3/2012	13:24	Chromium, Hexavalent	157	ug/L	2.0
805158-011	MW-40D-188	SW6020	FLDFLT	12/3/2012	13:24	Chromium	176	ug/L	1.0
805158-012	MW-40S-188	E218.6	FLDFLT	12/3/2012	12:15	Chromium, Hexavalent	8.0	ug/L	0.20
805158-012	MW-40S-188	SW6020	FLDFLT	12/3/2012	12:15	Chromium	9.5	ug/L	1.0
805158-013	MW-41S-188	E218.6	FLDFLT	12/3/2012	10:43	Chromium, Hexavalent	17.7	ug/L	0.20
805158-013	MW-41S-188	SW6020	FLDFLT	12/3/2012	10:43	Chromium	19.1	ug/L	1.0

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Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
805158-014	MW-68-188	E218.6	FLDFLT	12/3/2012	16:11	Chromium, Hexavalent	ND	ug/L	0.20
805158-015	MW-69-188	E218.6	FLDFLT	12/3/2012	16:00	Chromium, Hexavalent	ND	ug/L	0.20
805158-016	MW-70-188	E218.6	FLDFLT	12/3/2012	16:00	Chromium, Hexavalent	ND	ug/L	0.20
805158-017	MW-18-188	E218.6	FLDFLT	12/4/2012	8:56	Chromium, Hexavalent	20.0	ug/L	0.20
805158-017	MW-18-188	SW6020	FLDFLT	12/4/2012	8:56	Chromium	20.7	ug/L	1.0
805158-018	MW-35-060-188	E218.6	FLDFLT	12/4/2012	8:50	Chromium, Hexavalent	22.3	ug/L	1.0
805158-018	MW-35-060-188	SW6020	FLDFLT	12/4/2012	8:50	Chromium	29.6	ug/L	1.0
805158-019	MW-35-135-188	E218.6	FLDFLT	12/4/2012	10:04	Chromium, Hexavalent	30.6	ug/L	1.0
805158-019	MW-35-135-188	SW6020	FLDFLT	12/4/2012	10:04	Chromium	37.7	ug/L	1.0
805158-020	MW-36-020-188	E218.6	FLDFLT	12/4/2012	14:04	Chromium, Hexavalent	ND	ug/L	0.20
805158-020	MW-36-020-188	SW6020	FLDFLT	12/4/2012	14:04	Chromium	ND	ug/L	1.0
805158-021	MW-36-040-188	E218.6	FLDFLT	12/4/2012	9:03	Chromium, Hexavalent	ND	ug/L	0.20
805158-021	MW-36-040-188	SW6020	FLDFLT	12/4/2012	9:03	Chromium	ND	ug/L	1.0
805158-022	MW-36-050-188	E218.6	FLDFLT	12/4/2012	12:04	Chromium, Hexavalent	ND	ug/L	0.20
805158-022	MW-36-050-188	SW6020	FLDFLT	12/4/2012	12:04	Chromium	ND	ug/L	1.0
805158-023	MW-36-070-188	E218.6	FLDFLT	12/4/2012	15:17	Chromium, Hexavalent	ND	ug/L	0.20
805158-023	MW-36-070-188	SW6020	FLDFLT	12/4/2012	15:17	Chromium	ND	ug/L	1.0
805158-024	MW-36-090-188	E218.6	FLDFLT	12/4/2012	11:06	Chromium, Hexavalent	ND	ug/L	0.20
805158-024	MW-36-090-188	SW6020	FLDFLT	12/4/2012	11:06	Chromium	ND	ug/L	1.0
805158-025	MW-37D-188	SM3500-CrB	FLDFLT	12/4/2012	13:32	Chromium, Hexavalent	26.2	ug/L	10.0
805158-025	MW-37D-188	SW6020	FLDFLT	12/4/2012	13:32	Chromium	27.7	ug/L	1.0
805158-026	MW-65-160-188	E218.6	FLDFLT	12/4/2012	15:15	Chromium, Hexavalent	78.5	ug/L	1.0
805158-026	MW-65-160-188	SW6020	FLDFLT	12/4/2012	15:15	Chromium	85.1	ug/L	1.0
805158-027	MW-70-105-188	E218.6	FLDFLT	12/4/2012	14:42	Chromium, Hexavalent	65.1	ug/L	1.0
805158-027	MW-70-105-188	SW6020	FLDFLT	12/4/2012	14:42	Chromium	71.1	ug/L	1.0
805158-028	MW-71-188	E218.6	FLDFLT	12/4/2012	15:15	Chromium, Hexavalent	ND	ug/L	0.20
805158-029	MW-72-188	E218.6	FLDFLT	12/4/2012	15:47	Chromium, Hexavalent	ND	ug/L	0.20
805158-030	MW-73-188	E218.6	FLDFLT	12/4/2012	15:35	Chromium, Hexavalent	ND	ug/L	0.20
805158-031	MW-94-188	E218.6	FLDFLT	12/4/2012	7:10	Chromium, Hexavalent	ND	ug/L	0.20
805158-031	MW-94-188	SW6020	FLDFLT	12/4/2012	7:10	Chromium	ND	ug/L	1.0

ND: Non Detected (below reporting limit)

mg/L: Milligrams per liter.

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

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

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

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

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REPORT

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

Laboratory No. 805158

Printed 1/10/2013

Samples Received on 12/4/2012 10:30:00 PM

Field ID	Lab ID	Collected	Matrix
MW-17-188	805158-001	12/03/2012 15:18	Water
MW-27-020-188	805158-002	12/03/2012 10:05	Water
MW-27-060-188	805158-003	12/03/2012 11:46	Water
MW-27-085-188	805158-004	12/03/2012 12:45	Water
MW-30-030-188	805158-005	12/03/2012 15:36	Water
MW-30-050-188	805158-006	12/03/2012 14:11	Water
MW-39-050-188	805158-007	12/03/2012 10:46	Water
MW-39-060-188	805158-008	12/03/2012 15:56	Water
MW-39-070-188	805158-009	12/03/2012 14:52	Water
MW-39-080-188	805158-010	12/03/2012 13:14	Water
MW-40D-188	805158-011	12/03/2012 13:24	Water
MW-40S-188	805158-012	12/03/2012 12:15	Water
MW-41S-188	805158-013	12/03/2012 10:43	Water
MW-68-188	805158-014	12/03/2012 16:11	Water
MW-69-188	805158-015	12/03/2012 16:00	Water
MW-70-188	805158-016	12/03/2012 16:00	Water
MW-18-188	805158-017	12/04/2012 08:56	Water
MW-35-060-188	805158-018	12/04/2012 08:50	Water
MW-35-135-188	805158-019	12/04/2012 10:04	Water
MW-36-020-188	805158-020	12/04/2012 14:04	Water
MW-36-040-188	805158-021	12/04/2012 09:03	Water
MW-36-050-188	805158-022	12/04/2012 12:04	Water
MW-36-070-188	805158-023	12/04/2012 15:17	Water
MW-36-090-188	805158-024	12/04/2012 11:06	Water
MW-37D-188	805158-025	12/04/2012 13:32	Water
MW-65-160-188	805158-026	12/04/2012 15:15	Water
MW-70-105-188	805158-027	12/04/2012 14:42	Water
MW-71-188	805158-028	12/04/2012 15:15	Water
MW-72-188	805158-029	12/04/2012 15:47	Water
MW-73-188	805158-030	12/04/2012 15:35	Water
MW-94-188	805158-031	12/04/2012 07:10	Water

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project
Project Number: 423575.MP.02.GM.01

Printed 1/10/2013

Chrome VI by EPA 218.6

Batch 12CrH12K

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805158-001 Chromium, Hexavalent	ug/L	12/11/2012 13:31	1.00	0.00920	0.20	13.0
805158-002 Chromium, Hexavalent	ug/L	12/11/2012 13:41	1.00	0.00920	0.20	0.25
805158-003 Chromium, Hexavalent	ug/L	12/11/2012 13:52	1.00	0.00920	0.20	ND
805158-004 Chromium, Hexavalent	ug/L	12/12/2012 09:59	5.00	0.0460	1.0	ND
805158-005 Chromium, Hexavalent	ug/L	12/12/2012 10:40	5.00	0.0460	1.0	ND
805158-006 Chromium, Hexavalent	ug/L	12/11/2012 14:33	1.00	0.00920	0.20	ND
805158-007 Chromium, Hexavalent	ug/L	12/11/2012 14:44	1.00	0.00920	0.20	ND
805158-008 Chromium, Hexavalent	ug/L	12/12/2012 10:20	5.00	0.0460	1.0	ND
805158-009 Chromium, Hexavalent	ug/L	12/11/2012 15:25	1.00	0.00920	0.20	ND
805158-010 Chromium, Hexavalent	ug/L	12/11/2012 15:36	1.00	0.00920	0.20	ND
805158-011 Chromium, Hexavalent	ug/L	12/11/2012 15:46	10.0	0.0920	2.0	157
805158-012 Chromium, Hexavalent	ug/L	12/11/2012 15:57	1.00	0.00920	0.20	8.0
805158-013 Chromium, Hexavalent	ug/L	12/11/2012 16:07	1.00	0.00920	0.20	17.7

Method Blank

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

Duplicate

Lab ID = 805158-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	12.9	13.0	0.591	0 - 20

Low Level Calibration Verification

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

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.82	5.00	96.3	90 - 110

Matrix Spike

Lab ID = 805158-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	27.1	28.0(15.0)	94.1	90 - 110

Matrix Spike

Lab ID = 805158-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.29	1.26(1.00)	103	90 - 110

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Matrix Spike — Lab ID = 805158-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.963	1.00(1.00)	96.3	90 - 110

Matrix Spike — Lab ID = 805158-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.901	1.00(1.00)	90.1	90 - 110

Matrix Spike — Lab ID = 805158-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.77	5.00(5.00)	95.4	90 - 110

Matrix Spike — Lab ID = 805158-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.58	5.00(5.00)	91.6	90 - 110

Matrix Spike — Lab ID = 805158-005

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

Matrix Spike — Lab ID = 805158-006

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

Matrix Spike — Lab ID = 805158-007

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.950	1.00(1.00)	95.0	90 - 110

Matrix Spike — Lab ID = 805158-008

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

Matrix Spike — Lab ID = 805158-008

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.76	5.00(5.00)	95.1	90 - 110

Matrix Spike — Lab ID = 805158-009

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.954	1.00(1.00)	95.4	90 - 110

Matrix Spike — Lab ID = 805158-010

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.940	1.00(1.00)	94.0	90 - 110

Matrix Spike — Lab ID = 805158-011

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	10.0	346	357(200)	94.6	90 - 110

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Matrix Spike — Lab ID = 805158-012

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	17.8	18.0(10.0)	97.2	90 - 110

Matrix Spike — Lab ID = 805158-013

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	37.1	37.7(20.0)	97.0	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.81	5.00	96.1	90 - 110

MRCVS - Primary

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

MRCVS - Primary

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

MRCVS - Primary

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

MRCVS - Primary

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

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.96	10.0	99.6	95 - 105

MRCVS - Primary

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

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Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project Page 5 of 20
Project Number: 423575.MP.02.GM.01 Printed 1/10/2013

Chrome VI by EPA 218.6

Batch 12CrH12L

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805158-014 Chromium, Hexavalent	ug/L	12/12/2012 12:14	1.00	0.00920	0.20	ND
805158-015 Chromium, Hexavalent	ug/L	12/12/2012 12:25	1.00	0.00920	0.20	ND
805158-016 Chromium, Hexavalent	ug/L	12/12/2012 12:35	1.00	0.00920	0.20	ND
805158-017 Chromium, Hexavalent	ug/L	12/12/2012 12:45	1.00	0.00920	0.20	20.0
805158-018 Chromium, Hexavalent	ug/L	12/12/2012 12:24	5.00	0.0460	1.0	22.3
805158-019 Chromium, Hexavalent	ug/L	12/12/2012 13:34	5.00	0.0460	1.0	30.6
805158-021 Chromium, Hexavalent	ug/L	12/12/2012 13:58	1.00	0.00920	0.20	ND
805158-022 Chromium, Hexavalent	ug/L	12/12/2012 13:09	1.00	0.00920	0.20	ND
805158-023 Chromium, Hexavalent	ug/L	12/12/2012 14:19	1.00	0.00920	0.20	ND
805158-024 Chromium, Hexavalent	ug/L	12/12/2012 14:29	1.00	0.00920	0.20	ND
805158-026 Chromium, Hexavalent	ug/L	12/12/2012 16:45	5.00	0.0460	1.0	78.5
805158-027 Chromium, Hexavalent	ug/L	12/12/2012 14:50	5.00	0.0460	1.0	65.1
805158-028 Chromium, Hexavalent	ug/L	12/12/2012 15:01	1.00	0.00920	0.20	ND
805158-029 Chromium, Hexavalent	ug/L	12/12/2012 15:11	1.00	0.00920	0.20	ND
805158-030 Chromium, Hexavalent	ug/L	12/12/2012 15:21	1.00	0.00920	0.20	ND
805158-031 Chromium, Hexavalent	ug/L	12/12/2012 15:32	1.00	0.00920	0.20	ND

Method Blank

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

Duplicate

Lab ID = 805158-017

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	20.0	20.0	0.0325	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.207	0.200	104	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.86	5.00	97.3	90 - 110

Matrix Spike

Lab ID = 805158-014

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.962	1.00(1.00)	96.2	90 - 110

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Matrix Spike — Lab ID = 805158-015

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.970	1.00(1.00)	97.0	90 - 110

Matrix Spike — Lab ID = 805158-016

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

Matrix Spike — Lab ID = 805158-017

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	39.0	40.0(20.0)	95.3	90 - 110

Matrix Spike — Lab ID = 805158-018

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	45.6	47.3(25.0)	93.3	90 - 110

Matrix Spike — Lab ID = 805158-019

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	76.9	80.6(50.0)	92.6	90 - 110

Matrix Spike — Lab ID = 805158-021

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.954	1.00(1.00)	95.4	90 - 110

Matrix Spike — Lab ID = 805158-022

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.959	1.00(1.00)	95.9	90 - 110

Matrix Spike — Lab ID = 805158-023

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.971	1.00(1.00)	97.1	90 - 110

Matrix Spike — Lab ID = 805158-024

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.12	1.05(1.00)	107	90 - 110

Matrix Spike — Lab ID = 805158-026

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	174	178(100)	95.4	90 - 110

Matrix Spike — Lab ID = 805158-027

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	136	140(75.0)	94.4	90 - 110

Matrix Spike — Lab ID = 805158-028

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.974	1.00(1.00)	97.4	90 - 110

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Matrix Spike — Lab ID = 805158-029

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.958	1.00(1.00)	95.8	90 - 110

Matrix Spike — Lab ID = 805158-030

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.958	1.00(1.00)	95.8	90 - 110

Matrix Spike — Lab ID = 805158-031

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.980	1.00(1.00)	98.0	90 - 110

Matrix Spike — Lab ID = 805303-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.75	5.18(5.00)	91.4	90 - 110

Matrix Spike — Lab ID = 805304-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	7.97	8.11(5.00)	97.2	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.81	5.00	96.1	90 - 110

MRCVS - Primary

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

MRCVS - Primary

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

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.94	10.0	99.4	95 - 105

MRCVS - Primary

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

MRCVS - Primary

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

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Chrome VI by EPA 218.6

Batch 12CrH12M

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805158-020 Chromium, Hexavalent	ug/L	12/13/2012 10:53	1.00	0.00920	0.20	ND

Method Blank

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

Duplicate — Lab ID = 805159-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	250	4940	4950	0.164	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.204	0.200	102	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.89	5.00	97.7	90 - 110

Matrix Spike — Lab ID = 805158-020

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.984	1.00(1.00)	98.4	90 - 110

Matrix Spike — Lab ID = 805159-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	250	9720	9950(5000)	95.4	90 - 110

Matrix Spike — Lab ID = 805159-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	250	9620	9790(5000)	96.7	90 - 110

Matrix Spike — Lab ID = 805159-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	500	13700	14000(7500)	95.9	90 - 110

Matrix Spike — Lab ID = 805159-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	250	9880	9500(5000)	108	90 - 110

Matrix Spike — Lab ID = 805159-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	500	14400	14400(7500)	99.1	90 - 110

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Metals by EPA 6020A, Dissolved

Batch 121712C

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805158-021 Chromium	ug/L	12/18/2012 03:05	2.50	0.230	1.0	ND
805158-022 Chromium	ug/L	12/18/2012 03:41	2.50	0.230	1.0	ND
805158-023 Chromium	ug/L	12/18/2012 03:49	2.50	0.230	1.0	ND
805158-024 Chromium	ug/L	12/18/2012 03:56	2.50	0.230	1.0	ND
805158-025 Chromium	ug/L	12/18/2012 04:03	2.50	0.230	1.0	27.7
805158-026 Chromium	ug/L	12/18/2012 04:10	2.50	0.230	1.0	85.1
805158-027 Chromium	ug/L	12/18/2012 04:24	2.50	0.230	1.0	71.1
805158-031 Chromium	ug/L	12/18/2012 04:39	2.50	0.230	1.0	ND

Method Blank

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

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	0.168	0.200	84.1	70 - 130
Chromium	ug/L	1.00	0.213	0.200	107	70 - 130
Manganese	ug/L	1.00	0.220	0.200	110	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	2.50	47.3	50.0	94.7	85 - 115
Chromium	ug/L	2.50	51.0	50.0	102	85 - 115
Manganese	ug/L	2.50	51.6	50.0	103	85 - 115

Matrix Spike

Lab ID = 805182-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	2.50	47.2	51.1(50.0)	92.2	75 - 125
Chromium	ug/L	2.50	56.7	57.8(50.0)	97.8	75 - 125
Manganese	ug/L	2.50	62.6	62.1(50.0)	101	75 - 125

Matrix Spike Duplicate

Lab ID = 805182-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	2.50	46.6	51.1(50.0)	91.1	75 - 125
Chromium	ug/L	2.50	62.9	57.8(50.0)	110	75 - 125
Manganese	ug/L	2.50	61.1	62.1(50.0)	97.9	75 - 125

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Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project
Project Number: 423575.MP.02.GM.01 Printed 1/10/2013

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	19.1	20.0	95.6	80 - 120

Serial Dilution Lab ID = 805158-026

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	12.5	83.8	85.1	1.48	0 - 10

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Metals by EPA 6020A, Dissolved

Batch 121712B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805158-001 Chromium	ug/L	12/17/2012 18:28	2.50	0.230	1.0	13.2
805158-002 Chromium	ug/L	12/17/2012 18:35	2.50	0.230	1.0	1.3
805158-003 Chromium	ug/L	12/17/2012 18:42	2.50	0.230	1.0	ND
805158-004 Chromium	ug/L	12/17/2012 18:49	2.50	0.230	1.0	ND
805158-006 Chromium	ug/L	12/17/2012 19:04	2.50	0.230	1.0	ND
805158-007 Chromium	ug/L	12/17/2012 19:11	2.50	0.230	1.0	ND
805158-008 Chromium	ug/L	12/17/2012 19:18	2.50	0.230	1.0	ND
805158-009 Chromium	ug/L	12/17/2012 19:25	2.50	0.230	1.0	ND
805158-010 Chromium	ug/L	12/17/2012 19:32	2.50	0.230	1.0	ND
805158-011 Chromium	ug/L	12/17/2012 20:08	2.50	0.230	1.0	176
805158-012 Chromium	ug/L	12/17/2012 20:23	2.50	0.230	1.0	9.5
805158-013 Chromium	ug/L	12/17/2012 20:30	2.50	0.230	1.0	19.1
805158-017 Chromium	ug/L	12/17/2012 20:37	2.50	0.230	1.0	20.7
805158-018 Chromium	ug/L	12/17/2012 20:44	2.50	0.230	1.0	29.6
805158-019 Chromium	ug/L	12/17/2012 20:51	2.50	0.230	1.0	37.7
805158-020 Chromium	ug/L	12/17/2012 21:06	2.50	0.230	1.0	ND

Method Blank

Parameter	Unit	DF	Result
Chromium	ug/L	1.00	ND

Duplicate

Lab ID = 804842-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	2.50	6.70	6.47	3.49	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.224	0.200	112	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	2.50	48.7	50.0	97.4	85 - 115

Matrix Spike

Lab ID = 804842-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.50	59.4	56.5(50.0)	106	75 - 125

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Matrix Spike Duplicate — Lab ID = 804842-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.50	59.4	56.5(50.0)	106	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.5	20.0	97.4	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.6	20.0	98.2	90 - 110

MRCVS - Primary

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

MRCVS - Primary

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

Interference Check Standard A

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

Interference Check Standard A

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

Interference Check Standard AB

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

Interference Check Standard AB

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

Serial Dilution — Lab ID = 805158-019

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	12.5	36.9	37.7	2.09	0 - 10

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Metals by EPA 6020A, Dissolved

Batch 010213C

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805158-005 Chromium	ug/L	01/03/2013 10:37	10.0	0.920	2.0	5.5

Method Blank

Parameter	Unit	DF	Result
Chromium	ug/L	1.00	ND

Duplicate — Lab ID = 805158-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	5.00	1.31	1.47	11.8	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.186	0.200	93.2	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	5.00	50.2	50.0	100	85 - 115

Matrix Spike — Lab ID = 805158-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	5.00	52.2	51.5(50.0)	102	75 - 125

Matrix Spike Duplicate — Lab ID = 805158-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	5.00	48.5	51.5(50.0)	94.1	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.1	20.0	95.7	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.3	20.0	96.3	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.6	20.0	103	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.8	20.0	98.8	90 - 110

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MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.8	20.0	99.2	90 - 110

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.8	20.0	98.9	90 - 110

Interference Check Standard A

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

Interference Check Standard A

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

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.5	20.0	97.4	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	17.8	20.0	89.2	80 - 120

Serial Dilution Lab ID = 805158-018

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	25.0	29.9	30.0	0.434	0 - 10

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Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project
Project Number: 423575.MP.02.GM.01

Chromium, Hexavalent by SM 3500-Cr B

Batch 12CrH12A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805158-025 Chromium, Hexavalent	ug/L	12/12/2012 15:44	1.00	1.50	10.0	26.2

Method Blank

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

Duplicate — Lab ID = 805155-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	923	893	3.34	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	101	100	101	90 - 110

Matrix Spike — Lab ID = 805155-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	3370	3390(2500)	99.1	85 - 115

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	58.4	60.0	97.3	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	60.8	60.0	101	90 - 110

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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805158

CH2MHILL

CHAIN OF CUSTODY RECORD

12/4/2012 4:14:14 PM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.0
Task Order
Project 2012-GMP-188-Q4
Turnaround Time 10 Days
Shipping Date: 12/4/2012
COC Number: 16

				Container:	250 ml Poly	2x250 ml Poly	250 ml Poly	2x500 ml Poly	1x500 ml Poly			
				Preservatives:	(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C	HNO3, 4°C			
				Filtered:	Field	Field	Field	Field	Field			
				Holding Time:	28	28	28	180	180			
	DATE	TIME	Matrix		Cr6 (E218.6) Field Filtered	Cr6 (E218.6R) Field Filtered	Cr6 (SM3500B) Field Filtered	Metals (6020A-FF) Field Filtered Chromium	Metals (6020A-FF) Field Filtered Chromium			Number of Containers	COMMENTS
-1 MW-17-188	12/3/2012	15:18	Water		X				X			2	pH=2
-2 MW-27-020-188	12/3/2012	10:05	Water			X		X				4	
MW-27-020-188-EB	12/3/2012	9:13	Water		X				X	SPD	Hold	2	
-3 MW-27-060-188	12/3/2012	11:46	Water			X		X				4	pH=2
MW-27-060-188-EB	12/3/2012	10:40	Water		X				X	SPD	Hold	2	
-4 MW-27-085-188	12/3/2012	12:45	Water			X		X				4	pH=2
MW-27-085-188-EB	12/3/2012	12:12	Water		X				X	SPD	Hold	2	
-5 MW-30-030-188	12/3/2012	15:36	Water		X				X			2	
-6 MW-30-050-188	12/3/2012	14:11	Water		X				X			2	
-7 MW-39-050-188	12/3/2012	10:46	Water		X				X			2	pH=2
-8 MW-39-060-188	12/3/2012	15:56	Water		X				X			2	
-9 MW-39-070-188	12/3/2012	14:52	Water		X				X			2	
-10 MW-39-080-188	12/3/2012	13:14	Water		X				X			2	
-11 MW-40D-188	12/3/2012	13:24	Water		X				X			2	

* Where provided w/ multiple Cr6 + diss. metals bottles, please analyze 1 + hold 1

Please note samples with the -EB suffix are on Hold until further notice.

P. Duffy
12/5/2012

For Sample Conditions See Form Attached

ALERT !! Level III QC

	Signatures	Date/Time
Approved by		12-4-12 1620
Sampled by		
Relinquished by		
Received by	Rafael Davila	12/4/12 16:20
Relinquished by	Rafael Davila	12-4-12 22:30
Received by	Linda, TLI	12/4/12 22:30

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

ATTN:
Sample Custody

Special Instructions:
Nov 5 - Dec 14, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

098

805158

CH2MHILL **CHAIN OF CUSTODY RECORD** 12/4/2012 4:14:15 PM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.01
Task Order
Project 2012-GMP-188-Q4
Turnaround Time 10 Days
Shipping Date: 12/4/2012
COC Number: 16

Where provided w/ multiple Cr6 + diss. metals bottles, please analyze 1 + hold 1

	DATE	TIME	Matrix	Cr6 (E218.6) Field Filtered	Cr6 (E218.6R) Field Filtered	Cr6 (SM3500B) Field Filtered	Metals (6020AFF) Field Filtered Chromium	Metals (6020AFF) Field Filtered Chromium	Number of Containers	COMMENTS
Container:				250 ml Poly	2x250 ml Poly	250 ml Poly	2x500 ml Poly	1x500 ml Poly		
Preservatives:				(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C	HNO3, 4°C		
Filtered:				Field	Field	Field	Field	Field		
Holding Time:				28	28	28	180	180		
12 MW-40S-188	12/3/2012	12:15	Water		X		X		4	
13 MW-41S-188	12/3/2012	10:43	Water	X				X	2	pH=2
14 MW-68-188	12/3/2012	16:11	Water	X					1	
15 MW-69-188	12/3/2012	16:00	Water	X					1	
16 MW-70-188	12/3/2012	16:00	Water	X					1	
17 MW-18-188	12/4/2012	8:56	Water	X				X	2	
18 MW-35-060-188	12/4/2012	8:50	Water	X				X	2	
19 MW-35-135-188	12/4/2012	10:04	Water	X				X	2	
20 MW-36-020-188	12/4/2012	14:04	Water	X				X	2	
21 MW-36-040-188	12/4/2012	9:03	Water	X				X	2	pH=2
22 MW-36-050-188	12/4/2012	12:04	Water	X				X	2	
23 MW-36-070-188	12/4/2012	15:17	Water		X		X		4	
24 MW-36-090-188	12/4/2012	11:06	Water	X				X	2	
25 MW-37D-188	12/4/2012	13:32	Water			X		X	2	

ALERT !!
Level III QC

	Signatures	Date/Time
Approved by		12-4-12 1620
Sampled by		
Relinquished by		
Received by	Rafael Davila	12/4/12 16:20
Relinquished by	Rafael Davila	12-4-12 22:30
Received by	Linda, TLI	12/4/12 22:30

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

ATTN:
Sample Custody

Special Instructions:
Nov 5 - Dec 14, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

660

CH2MHILL CHAIN OF CUSTODY RECORD 805158 12/4/2012 4:14:15 PM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.01
Task Order
Project 2012-GMP-188-Q4
Turnaround Time 10 Days
Shipping Date: 12/4/2012
COC Number: 16

				Container:	250 ml Poly	2x250 ml Poly	250 ml Poly	2x500 ml Poly	1x500 ml Poly		Number of Containers	COMMENTS
				Preservatives:	(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C	HNO3, 4°C			
				Filtered:	Field	Field	Field	Field	Field			
				Holding Time:	28	28	28	180	180			
	DATE	TIME	Matrix		Cr6 (E218.6) Field Filtered	Cr6 (E218.6B) Field Filtered	Cr6 (SM3500B) Field Filtered	Metals (6020AFF) Field Filtered Chromium	Metals (6020AFF) Field Filtered Chromium			
26	MW-65-160-188	12/4/2012	15:15	Water	X				X		2	pm=2
27	MW-70-105-188	12/4/2012	14:42	Water	X				X		2	
28	MW-71-188	12/4/2012	15:15	Water	X						1	
29	MW-72-188	12/4/2012	15:47	Water	X						1	
30	MW-73-188	12/4/2012	15:35	Water	X						1	
31	MW-94-188	12/4/2012	7:10	Water	X				X		2	pm=2
										TOTAL NUMBER OF CONTAINERS	72	

ALERT !!
Level III QC

	Signatures	Date/Time
Approved by		12-4-12 620
Sampled by		
Relinquished by	Rafael Davila	12/4/12 16:20
Received by	Rafael Davila	12-4-12 22:30
Relinquished by	Linda, TE	12/4/12 22:30
Received by		

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

ATTN:
Sample Custody

Special Instructions:
Nov 5 - Dec 14, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

100

805158

CH2MHILL

CHAIN OF CUSTODY RECORD

12/4/2012 4:14:14 PM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.0
Task Order
Project 2012-GMP-188-Q4
Turnaround Time 10 Days
Shipping Date: 12/4/2012
COC Number: 16

Container:	250 ml Poly	2x250 ml Poly	250 ml Poly	2x500 ml Poly	1x500 ml Poly
Preservatives:	(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C	HNO3, 4°C
Filtered:	Field	Field	Field	Field	Field
Holding Time:	28	28	28	180	180

* Where provided w/multiple Cr6 + diss. metals bottles, please analyze 1 + hold 1

For Sample Conditions See Form Attached

ALERT !! Level III QC

		DATE	TIME	Matrix	Cr6 (E218.6) Field Filtered	Cr6 (E218.6R) Field Filtered	Cr6 (SM3500B) Field Filtered	Metals (6020AFF) Field Filtered Chromium	Metals (6020AFF) Field Filtered Chromium	Number of Containers	COMMENTS
1	MW-17-188	12/3/2012	15:18	Water	X				X	2	pH for 6020A
2	MW-27-020-188	12/3/2012	10:05	Water		X		X		4	pH=2
	MW-27-020-188-EB	12/3/2012	9:13	Water	X				X	2	
3	MW-27-060-188	12/3/2012	11:46	Water		X		X		4	pH=2
	MW-27-060-188-EB	12/3/2012	10:40	Water	X				X	2	
4	MW-27-085-188	12/3/2012	12:45	Water		X		X		4	pH=2
	MW-27-085-188-EB	12/3/2012	12:12	Water	X				X	2	
5	MW-30-030-188	12/3/2012	15:36	Water	X				X	2	pH=2
6	MW-30-050-188	12/3/2012	14:11	Water	X				X	2	
7	MW-39-050-188	12/3/2012	10:46	Water	X				X	2	
8	MW-39-060-188	12/3/2012	15:56	Water	X				X	2	
9	MW-39-070-188	12/3/2012	14:52	Water	X				X	2	
10	MW-39-080-188	12/3/2012	13:14	Water	X				X	2	
11	MW-40D-188	12/3/2012	13:24	Water	X				X	2	

	Signatures	Date/Time
Approved by		
Sampled by		12-4-12 1620
Relinquished by		
Received by	Rafael Davila	12/4/12 16:20
Relinquished by	Rafael Davila	12-4-12 22:30
Received by	Luda, TLI	12/4/12 22:30

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

ATTN: Sample Custody

Special Instructions:
Nov 5 - Dec 14, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

805158

CH2MHILL

CHAIN OF CUSTODY RECORD

12/4/2012 4:14:15 PM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.01
Task Order
Project 2012-GMP-188-Q4
Turnaround Time 10 Days
Shipping Date: 12/4/2012
COC Number: 16

Where provided w/ multiple Cr6 + diss. metals bottles, please analyze 1 + hold 1

				Container:	250 ml Poly	2x250 ml Poly	250 ml Poly	2x500 ml Poly	1x500 ml Poly			
				Preservatives:	(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C	HNO3, 4°C			
				Filtered:	Field	Field	Field	Field	Field			
				Holding Time:	28	28	28	180	180			
		DATE	TIME	Matrix	Cr6 (E218.6) Field Filtered	Cr6 (E218.6R) Field Filtered	Cr6 (SM3500B) Field Filtered	Metals (6020AFF) Field Filtered Chromium	Metals (6020AFF) Field Filtered Chromium		Number of Containers	COMMENTS
12	MW-40S-188	12/3/2012	12:15	Water		x		x			4	pH for 6020A
13	MW-41S-188	12/3/2012	10:43	Water	x				x		2	pH=2
14	MW-68-188	12/3/2012	16:11	Water	x						1	
15	MW-69-188	12/3/2012	16:00	Water	x						1	
16	MW-70-188	12/3/2012	16:00	Water	x						1	
17	MW-18-188	12/4/2012	8:56	Water	x				x		2	
18	MW-35-060-188	12/4/2012	8:50	Water	x				x		2	
19	MW-35-135-188	12/4/2012	10:04	Water	x				x	ALERT !! Level III QC	2	
20	MW-36-020-188	12/4/2012	14:04	Water	x				x		2	
21	MW-36-040-188	12/4/2012	9:03	Water	x				x		2	pH=2
22	MW-36-050-188	12/4/2012	12:04	Water	x				x		2	
23	MW-36-070-188	12/4/2012	15:17	Water		x		x			4	
24	MW-36-090-188	12/4/2012	11:06	Water	x				x		2	
25	MW-37D-188	12/4/2012	13:32	Water			x		x		2	

	Signatures	Date/Time
Approved by		
Sampled by		12-4-12 1620
Relinquished by		
Received by	Rafael Davila	12/4/12 16:20
Relinquished by	Rafael Davila	12-4-12 22:30
Received by	Linda, TLI	12/4/12 22:30

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

ATTN:
Sample Custody

Special Instructions:
Nov 5 - Dec 14, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

CH2MHILL

CHAIN OF CUSTODY RECORD

805158

12/4/2012 4:14:15 PM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.0)
Task Order
Project 2012-GMP-188-Q4
Turnaround Time 10 Days
Shipping Date: 12/4/2012
COC Number: 16

			Container:	250 ml Poly	2x250 ml Poly	250 ml Poly	2x500 ml Poly	1x500 ml Poly			
			Preservatives:	(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C	HNO3, 4°C			
			Filtered:	Field	Field	Field	Field	Field			
			Holding Time:	28	28	28	180	180			
	DATE	TIME	Matrix	Cr6 (E218.6) Field Filtered	Cr6 (E218.6R) Field Filtered	Cr6 (SM3500B) Field Filtered	Metals (6020AFF) Field Filtered Chromium	Metals (6020AFF) Field Filtered Chromium		Number of Containers	COMMENTS
26 MW-65-160-188	12/4/2012	15:15	Water	X				X		2	pH for 6020.7
27 MW-70-105-188	12/4/2012	14:42	Water	X				X		2	pm=2
28 MW-71-188	12/4/2012	15:15	Water	X						1	
29 MW-72-188	12/4/2012	15:47	Water	X						1	
30 MW-73-188	12/4/2012	15:35	Water	X						1	
31 MW-94-188	12/4/2012	7:10	Water	X				X		2	pm=2
									TOTAL NUMBER OF CONTAINERS	72	

ALERT !!
Level III QC

	Signatures	Date/Time
Approved by		12-4-12 1620
Sampled by		
Relinquished by		
Received by	Rafael Davila	12/4/12 16:20
Relinquished by	Rafael Davila	12-4-12 22:30
Received by	Linda, TLI	12/4/12 22:30

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

ATTN:
Sample Custody

Special Instructions:
Nov 5 - Dec 14, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

Hexavalent Chromium

Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
12/05/12	805158-1	9.5	N/A	N/A	N/A	HAV
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
	-13					
	-14					
	-15					
	-16					
	-17					
	-18					
	-19					
	-20					
	-21					
	-22					
	-23					
	-24					
	-25					
	-26					
	-27					
	-28					
	-29					
	-30					
	-31					

HAV 12/14/12

TRUESDAIL LABORATORIES, INC.

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
805021 (1-5)	<1	<2	12/3/12	ES	yes			
805019 (1-2)								
804967		>2				12:00pm		
805017								
~~8050~~ 12/4								
805116 (1-4)	<1	<2	12/4/12	KK	YES			
804746	<1	<2	11/9/12	KK	YES			
805022 (10)	<1	<2	12/4/12	BE	yes			
805117-1	<1	<2	12/4/12	ES	yes			
805145-(1-3)	<1	>2	12/6/12	AA	NO	8:30am		
805160 (1-3)	<1	>2						
805171 (10-12)	<1	>2						
805175-(1-3)	<1	>2						
805179	<1	<2	12/6/12	BE	yes			
805180 (1-5)	<1	<2	12/6/12	ES	yes			
805076	<1	>2			NO	10:00am		
805114 (17,24)								
805152 (1-3	<1	<2	12/7/12	BE	yes			
12-7/12 BE 805153 (1-2)								
805155 (1-2)		>2					Acidified after filt.	
805156 ~~805156~~ BE (1-2)								
805157 (1-9)		<2						
805159 (1-12)								
805158 (1-13, 17-27, 31)	<1							
BE ~~805~~ 805182 (1-8)								
805181 (6-7)								
805219 (1-5)								
805220 (1-3)								
805221 (1-4)								
~~805214~~ ES 12/7/12								
805095	<1	<2	12/7/12	ES	yes			
805098								
805104								
805106								
805125								
805126								
805127								
805128								
805120								
805130								
805131								
805192								
805190								
805201								

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

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: E2 **Lab #** 805158

Date Delivered: 12 / 4 / 12 **Time:** 22:30 **By:** ☐Mail ☒Field Service ☐Client

1. Was a Chain of Custody received and signed? ☒Yes ☐No ☐N/A
2. Does Customer require an acknowledgement of the COC? ☐Yes ☐No ☒N/A
3. Are there any special requirements or notes on the COC? ☐Yes ☐No ☒N/A
4. If a letter was sent with the COC, does it match the COC? ☐Yes ☐No ☒N/A
5. Were all requested analyses understood and acceptable? ☒Yes ☐No ☐N/A
6. Were samples received in a chilled condition? ☒Yes ☐No ☐N/A
   Temperature (if yes)? 3.6 °C
7. Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)? ☒Yes ☐No ☐N/A
8. Were sample custody seals intact? ☐Yes ☐No ☒N/A
9. Does the number of samples received agree with COC? ☒Yes ☐No ☐N/A
10. Did sample labels correspond with the client ID's? ☒Yes ☐No ☐N/A
11. Did sample labels indicate proper preservation? ☒Yes ☐No ☐N/A
    Preserved (if yes) by: ☒Truesdail ☐Client
12. Were samples pH checked? pH = see C.O.C ☒Yes ☐No ☐N/A
13. Were all analyses within holding time at time of receipt? ☒Yes ☐No ☐N/A
    If not, notify Project Manager.
14. Have Project due dates been checked and accepted? ☒Yes ☐No ☐N/A
    Turn Around Time (TAT): ☐ RUSH ☒ Std
15. **Sample Matrix:** ☐Liquid ☐Drinking Water ☐Ground Water ☐Waste Water ☐Sludge ☐Soil ☐Wipe ☐Paint ☐Solid ☒Other Water
16. Comments: _____
17. Sample Check-In completed by Truesdail Log-In/Receiving: L. Shabunine

ALERT !!
Level III QC

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

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

January 16, 2013

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

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK 2012-GMP-188-Q4, GROUNDWATER MONITORING PROJECT, TLI NO.: 805305

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2012-GMP-188-Q4 groundwater-monitoring project for Hexavalent and Total Dissolved Chromium. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, quality control data, and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data are under Section 5.

The samples were received and delivered with the chain of custody December 11, 2012, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

Due to the discrepancy between the Total Dissolved Chromium (1.4 ug/L) and Hexavalent Chromium (ND<0.20 ug/L) results for sample MW-28-025-188, sample from the Total Dissolved Chromium and Hexavalent Chromium sample containers were digested and analyzed for Total Dissolved Chromium. The results were both ND<1.0 ug/L. The original digestate was re-analyzed for confirmation and yielded a result of 1.1 ug/L. The original result was reported.

Due to the discrepancy between the Total Dissolved Chromium (2.8 ug/L) and Hexavalent Chromium (ND<1.0 ug/L) results for sample MW-33-040-188, sample from the Total Dissolved Chromium and Hexavalent Chromium sample containers were digested and analyzed for Total Dissolved Chromium. The results were 2.7 ug/L and 5.6 ug/L, respectively. The original digestate was re-analyzed for confirmation and yielded a result of 2.8 ug/L. The original result was reported.

Due to the discrepancy between the Total Dissolved Chromium (639 ug/L) and Hexavalent Chromium (849 ug/L) results for sample MW-69-195-188, sample from the Total Dissolved Chromium and Hexavalent Chromium sample containers were digested and analyzed for Total Dissolved Chromium. The results were 869 ug/L and 858 ug/L, respectively. The original digestate was re-analyzed for confirmation and yielded a result of 912 ug/L. The result from the re-digested Total Dissolved Chromium was reported as it more closely matched the Hexavalent Chromium and re-analysis results.

Due to the discrepancy between the Total Dissolved Chromium (2.6 ug/L) and Hexavalent Chromium (ND<0.20 ug/L) results for sample MW-91-188, sample from the Total Dissolved Chromium and Hexavalent Chromium sample containers were digested and analyzed for Total Dissolved Chromium The results were both ND<1.0 ug/L. The original digestate was re-analyzed for confirmation and also yielded a result of ND<1.0 ug/L. The result from the re-digested Total Dissolved Chromium was reported as it more closely matched the Hexavalent Chromium and re-analysis results.

Due to the discrepancy between the Total Dissolved Chromium (2.5 ug/L) and Hexavalent Chromium (ND<1.0 ug/L) results for sample MW-92-188, sample from the Total Dissolved Chromium and Hexavalent Chromium sample containers were digested and analyzed for Total Dissolved Chromium. The results were 2.6 ug/L and 6.7 ug/L, respectively. The original digestate was re-analyzed for confirmation and yielded a result of 2.6 ug/L. The original result was reported.

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

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

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

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

Laboratory No.: 805305
Date Received: December 11, 2012

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

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
805305-001	MW-09-188	SM3500-CrB	FLDFLT	12/5/2012	13:45	Chromium, Hexavalent	259	ug/L	10.0
805305-001	MW-09-188	SW6020	FLDFLT	12/5/2012	13:45	Chromium	257	ug/L	1.0
805305-002	MW-28-025-188	E218.6	FLDFLT	12/5/2012	9:06	Chromium, Hexavalent	ND	ug/L	0.20
805305-002	MW-28-025-188	SW6020	FLDFLT	12/5/2012	9:06	Chromium	1.4	ug/L	1.0
805305-003	MW-28-090-188	E218.6	FLDFLT	12/5/2012	9:53	Chromium, Hexavalent	ND	ug/L	1.0
805305-003	MW-28-090-188	SW6020	FLDFLT	12/5/2012	9:53	Chromium	ND	ug/L	1.0
805305-004	MW-29-188	E218.6	FLDFLT	12/5/2012	10:54	Chromium, Hexavalent	ND	ug/L	0.20
805305-004	MW-29-188	SW6020	FLDFLT	12/5/2012	10:54	Chromium	ND	ug/L	1.0
805305-005	MW-32-020-188	E218.6	FLDFLT	12/5/2012	12:07	Chromium, Hexavalent	ND	ug/L	2.0
805305-005	MW-32-020-188	SW6020	FLDFLT	12/5/2012	12:07	Chromium	ND	ug/L	1.0
805305-006	MW-32-035-188	E218.6	FLDFLT	12/5/2012	13:09	Chromium, Hexavalent	ND	ug/L	1.0
805305-006	MW-32-035-188	SW6020	FLDFLT	12/5/2012	13:09	Chromium	ND	ug/L	1.0
805305-007	MW-33-040-188	E218.6	FLDFLT	12/5/2012	15:31	Chromium, Hexavalent	ND	ug/L	1.0
805305-007	MW-33-040-188	SW6020	FLDFLT	12/5/2012	15:31	Chromium	2.8	ug/L	1.0
805305-008	MW-52D-188	E218.6	FLDFLT	12/5/2012	9:47	Chromium, Hexavalent	ND	ug/L	1.0
805305-008	MW-52D-188	SW6020	FLDFLT	12/5/2012	9:47	Chromium	ND	ug/L	1.0
805305-009	MW-52M-188	E218.6	FLDFLT	12/5/2012	11:25	Chromium, Hexavalent	ND	ug/L	1.0
805305-009	MW-52M-188	SW6020	FLDFLT	12/5/2012	11:25	Chromium	ND	ug/L	1.0
805305-010	MW-52S-188	E218.6	FLDFLT	12/5/2012	12:24	Chromium, Hexavalent	ND	ug/L	1.0
805305-010	MW-52S-188	SW6020	FLDFLT	12/5/2012	12:24	Chromium	ND	ug/L	1.0
805305-011	MW-53M-188	E218.6	FLDFLT	12/5/2012	14:56	Chromium, Hexavalent	ND	ug/L	1.0
805305-011	MW-53M-188	SW6020	FLDFLT	12/5/2012	14:56	Chromium	ND	ug/L	1.0
805305-012	MW-60BR-245-188	E218.6	FLDFLT	12/5/2012	8:01	Chromium, Hexavalent	61.4	ug/L	1.0
805305-012	MW-60BR-245-188	SW6020	FLDFLT	12/5/2012	8:01	Chromium	59.2	ug/L	1.0

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Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
805305-013	MW-65-225-188	E218.6	FLDFLT	12/5/2012	12:35	Chromium, Hexavalent	634	ug/L	10.0
805305-013	MW-65-225-188	SW6020	FLDFLT	12/5/2012	12:35	Chromium	637	ug/L	2.0
805305-014	MW-69-195-188	E218.6	FLDFLT	12/5/2012	15:45	Chromium, Hexavalent	849	ug/L	10.0
805305-014	MW-69-195-188	SW6020	FLDFLT	12/5/2012	15:45	Chromium	869	ug/L	10.0
805305-015	MW-72-080-188	E218.6	FLDFLT	12/5/2012	10:59	Chromium, Hexavalent	150	ug/L	2.0
805305-015	MW-72-080-188	SW6020	FLDFLT	12/5/2012	10:59	Chromium	150	ug/L	1.0
805305-016	MW-73-080-188	E218.6	FLDFLT	12/5/2012	7:50	Chromium, Hexavalent	35.6	ug/L	1.0
805305-016	MW-73-080-188	SW6020	FLDFLT	12/5/2012	7:50	Chromium	36.2	ug/L	1.0
805305-017	MW-74-188	E218.6	FLDFLT	12/5/2012	9:16	Chromium, Hexavalent	ND	ug/L	0.2
805305-018	MW-75-188	E218.6	FLDFLT	12/5/2012	16:16	Chromium, Hexavalent	ND	ug/L	0.2
805305-019	MW-76-188	E218.6	FLDFLT	12/5/2012	16:20	Chromium, Hexavalent	ND	ug/L	0.2
805305-020	MW-77-188	E218.6	FLDFLT	12/5/2012	16:18	Chromium, Hexavalent	ND	ug/L	0.2
805305-021	MW-91-188	E218.6	FLDFLT	12/5/2012	16:58	Chromium, Hexavalent	ND	ug/L	0.2
805305-021	MW-91-188	SW6020	FLDFLT	12/5/2012	16:58	Chromium	ND	ug/L	1.0
805305-022	MW-92-188	E218.6	FLDFLT	12/5/2012	15:34	Chromium, Hexavalent	ND	ug/L	1.0
805305-022	MW-92-188	SW6020	FLDFLT	12/5/2012	15:34	Chromium	2.5	ug/L	1.0
805305-023	MW-33-150-188	E218.6	FLDFLT	12/6/2012	9:30	Chromium, Hexavalent	12.4	ug/L	1.0
805305-023	MW-33-150-188	SW6020	FLDFLT	12/6/2012	9:30	Chromium	12.4	ug/L	1.0

ND: Non Detected (below reporting limit)

mg/L: Milligrams per liter.

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

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

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

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

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REPORT

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

Laboratory No. 805305

Printed 1/16/2013

Samples Received on 12/11/2012 10:30:00 PM

Field ID	Lab ID	Collected	Matrix
MW-09-188	805305-001	12/05/2012 13:45	Water
MW-28-025-188	805305-002	12/05/2012 09:06	Water
MW-28-090-188	805305-003	12/05/2012 09:53	Water
MW-29-188	805305-004	12/05/2012 10:54	Water
MW-32-020-188	805305-005	12/05/2012 12:07	Water
MW-32-035-188	805305-006	12/05/2012 13:09	Water
MW-33-040-188	805305-007	12/05/2012 15:31	Water
MW-52D-188	805305-008	12/05/2012 09:47	Water
MW-52M-188	805305-009	12/05/2012 11:25	Water
MW-52S-188	805305-010	12/05/2012 12:24	Water
MW-53M-188	805305-011	12/05/2012 14:56	Water
MW-60BR-245-188	805305-012	12/05/2012 08:01	Water
MW-65-225-188	805305-013	12/05/2012 12:35	Water
MW-69-195-188	805305-014	12/05/2012 15:45	Water
MW-72-080-188	805305-015	12/05/2012 10:59	Water
MW-73-080-188	805305-016	12/05/2012 07:50	Water
MW-74-188	805305-017	12/05/2012 09:16	Water
MW-75-188	805305-018	12/05/2012 16:16	Water
MW-76-188	805305-019	12/05/2012 16:20	Water
MW-77-188	805305-020	12/05/2012 16:18	Water
MW-91-188	805305-021	12/05/2012 16:58	Water
MW-92-188	805305-022	12/05/2012 15:34	Water
MW-33-150-188	805305-023	12/06/2012 09:30	Water

Chrome VI by EPA 218.6

Batch 12CrH12N

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805305-002 Chromium, Hexavalent	ug/L	12/17/2012 13:01	1.00	0.00920	0.20	ND
805305-003 Chromium, Hexavalent	ug/L	12/17/2012 17:11	5.00	0.0460	1.0	ND
805305-004 Chromium, Hexavalent	ug/L	12/17/2012 13:22	1.00	0.00920	0.20	ND
805305-006 Chromium, Hexavalent	ug/L	12/17/2012 17:01	5.00	0.0460	1.0	ND

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805305-007 Chromium, Hexavalent	ug/L	12/17/2012 17:21	5.00	0.0460	1.0	ND
805305-008 Chromium, Hexavalent	ug/L	12/17/2012 17:32	5.00	0.0460	1.0	ND
805305-009 Chromium, Hexavalent	ug/L	12/17/2012 17:42	5.00	0.0460	1.0	ND

Method Blank

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

Duplicate — Lab ID = 805305-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.0615	0.0713	14.8	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.196	0.200	98.2	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.80	5.00	96.0	90 - 110

Matrix Spike — Lab ID = 805303-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.15	1.15(1.00)	100	90 - 110

Matrix Spike — Lab ID = 805305-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.02	1.07(1.00)	94.7	90 - 110

Matrix Spike — Lab ID = 805305-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.871	1.00(1.00)	87.1	90 - 110

Matrix Spike — Lab ID = 805305-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.74	5.00(5.00)	94.7	90 - 110

Matrix Spike — Lab ID = 805305-004

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

Matrix Spike — Lab ID = 805305-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.18	5.00(5.00)	83.6	90 - 110

Matrix Spike — Lab ID = 805305-005

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

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Matrix Spike — Lab ID = 805305-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.75	5.00(5.00)	95.0	90 - 110

Matrix Spike — Lab ID = 805305-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.922	1.00(1.00)	92.2	90 - 110

Matrix Spike — Lab ID = 805305-007

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.977	1.08(1.00)	90.0	90 - 110

Matrix Spike — Lab ID = 805305-007

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.71	5.00(5.00)	94.3	90 - 110

Matrix Spike — Lab ID = 805305-008

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

Matrix Spike — Lab ID = 805305-008

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.68	5.00(5.00)	93.6	90 - 110

Matrix Spike — Lab ID = 805305-009

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.59	5.00(5.00)	91.8	90 - 110

Matrix Spike — Lab ID = 805305-009

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.921	1.00(1.00)	92.1	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.79	5.00	95.8	90 - 110

MRCVS - Primary

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

MRCVS - Primary

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

MRCVS - Primary

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

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project
Project Number: 423575.MP.02.GM.01

Chrome VI by EPA 218.6

Batch 12CrH12O

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805305-005 Chromium, Hexavalent	ug/L	12/18/2012 09:33	10.0	0.0920	2.0	ND
805305-010 Chromium, Hexavalent	ug/L	12/18/2012 15:58	5.00	0.0460	1.0	ND
805305-011 Chromium, Hexavalent	ug/L	12/18/2012 16:09	5.00	0.0460	1.0	ND
805305-012 Chromium, Hexavalent	ug/L	12/18/2012 09:44	5.00	0.0460	1.0	61.4
805305-013 Chromium, Hexavalent	ug/L	12/18/2012 09:54	50.0	0.460	10.0	634
805305-014 Chromium, Hexavalent	ug/L	12/18/2012 10:05	50.0	0.460	10.0	849
805305-015 Chromium, Hexavalent	ug/L	12/18/2012 11:38	10.0	0.0920	2.0	150
805305-016 Chromium, Hexavalent	ug/L	12/18/2012 10:25	5.00	0.0460	1.0	35.6
805305-017 Chromium, Hexavalent	ug/L	12/18/2012 06:37	1.00	0.00920	0.20	ND
805305-018 Chromium, Hexavalent	ug/L	12/18/2012 07:08	1.00	0.00920	0.20	ND
805305-019 Chromium, Hexavalent	ug/L	12/18/2012 07:18	1.00	0.00920	0.20	ND
805305-020 Chromium, Hexavalent	ug/L	12/18/2012 07:29	1.00	0.00920	0.20	ND
805305-021 Chromium, Hexavalent	ug/L	12/18/2012 10:36	1.00	0.00920	0.20	ND
805305-022 Chromium, Hexavalent	ug/L	12/18/2012 16:19	5.00	0.0460	1.0	ND
805305-023 Chromium, Hexavalent	ug/L	12/18/2012 10:46	5.00	0.0460	1.0	12.4

Method Blank

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

Duplicate

Lab ID = 805305-013

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	632	634	0.264	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.212	0.200	106	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.81	5.00	96.3	90 - 110

Matrix Spike

Lab ID = 805305-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	10.0	9.26	10.0(10.0)	92.6	90 - 110

Matrix Spike

Lab ID = 805305-010

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.77	5.00(5.00)	95.4	90 - 110

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Matrix Spike — Lab ID = 805305-010

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.987	1.00(1.00)	98.7	90 - 110

Matrix Spike — Lab ID = 805305-011

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

Matrix Spike — Lab ID = 805305-011

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.75	5.00(5.00)	95.0	90 - 110

Matrix Spike — Lab ID = 805305-012

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	131	136(75.0)	92.7	90 - 110

Matrix Spike — Lab ID = 805305-013

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	1340	1380(750)	94.2	90 - 110

Matrix Spike — Lab ID = 805305-014

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	1790	1850(1000)	94.0	90 - 110

Matrix Spike — Lab ID = 805305-015

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	10.0	289	300(150)	92.5	90 - 110

Matrix Spike — Lab ID = 805305-016

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	82.4	85.6(50.0)	93.7	90 - 110

Matrix Spike — Lab ID = 805305-017

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

Matrix Spike — Lab ID = 805305-018

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.936	1.00(1.00)	93.6	90 - 110

Matrix Spike — Lab ID = 805305-019

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.987	1.04(1.00)	95.0	90 - 110

Matrix Spike — Lab ID = 805305-020

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.956	1.00(1.00)	95.6	90 - 110

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Matrix Spike — Lab ID = 805305-021

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.966	1.00(1.00)	96.6	90 - 110

Matrix Spike — Lab ID = 805305-022

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.01	1.05(1.00)	96.0	90 - 110

Matrix Spike — Lab ID = 805305-022

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.79	5.00(5.00)	95.7	90 - 110

Matrix Spike — Lab ID = 805305-023

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	35.7	37.4(25.0)	93.4	90 - 110

Matrix Spike — Lab ID = 805306-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	36.7	38.3(25.0)	93.5	90 - 110

Matrix Spike — Lab ID = 805306-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.988	1.06(1.00)	92.6	90 - 110

Matrix Spike — Lab ID = 805306-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.01	1.06(1.00)	94.7	90 - 110

Matrix Spike — Lab ID = 805306-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.882	1.00(1.00)	88.2	90 - 110

Matrix Spike — Lab ID = 805306-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.72	5.00(5.00)	94.4	90 - 110

Matrix Spike — Lab ID = 805306-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.937	1.00(1.00)	93.7	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.84	5.00	96.8	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.96	10.0	99.6	95 - 105

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Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project
Project Number: 423575.MP.02.GM.01

Printed 1/16/2013

Metals by EPA 6020A, Dissolved

Batch 011313A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805305-002 Chromium	ug/L	01/13/2013 23:46	2.50	0.230	1.0	1.4
805305-003 Chromium	ug/L	01/13/2013 23:04	2.50	0.230	1.0	ND
805305-004 Chromium	ug/L	01/13/2013 23:52	2.50	0.230	1.0	ND
805305-005 Chromium	ug/L	01/13/2013 23:58	2.50	0.230	1.0	ND
805305-006 Chromium	ug/L	01/14/2013 00:10	2.50	0.230	1.0	ND
805305-007 Chromium	ug/L	01/14/2013 00:16	2.50	0.230	1.0	2.8
805305-008 Chromium	ug/L	01/14/2013 00:22	2.50	0.230	1.0	ND
805305-009 Chromium	ug/L	01/14/2013 00:28	2.50	0.230	1.0	ND
805305-010 Chromium	ug/L	01/14/2013 00:34	2.50	0.230	1.0	ND
805305-011 Chromium	ug/L	01/14/2013 00:52	2.50	0.230	1.0	ND
805305-012 Chromium	ug/L	01/14/2013 00:58	2.50	0.230	1.0	59.2
805305-013 Chromium	ug/L	01/14/2013 01:10	10.0	0.920	2.0	637
805305-015 Chromium	ug/L	01/14/2013 01:34	2.50	0.230	1.0	150
805305-016 Chromium	ug/L	01/14/2013 01:40	2.50	0.230	1.0	36.2
805305-022 Chromium	ug/L	01/14/2013 02:10	2.50	0.230	1.0	2.5
805305-023 Chromium	ug/L	01/14/2013 02:16	2.50	0.230	1.0	12.4

Method Blank

Parameter	Unit	DF	Result
Chromium	ug/L	1.00	ND

Duplicate

Lab ID = 805305-003

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	2.50	ND	0	0	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.148	0.200	74.0	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	2.50	50.6	50.0	101	85 - 115

Matrix Spike

Lab ID = 805305-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.50	46.9	50.0(50.0)	93.8	75 - 125

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Matrix Spike Duplicate — Lab ID = 805305-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.50	46.4	50.0(50.0)	92.8	75 - 125

MRCCS - Secondary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.5	20.0	92.7	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.1	20.0	95.7	90 - 110

MRCVS - Primary

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

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.4	20.0	96.9	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.6	20.0	92.8	90 - 110

Interference Check Standard A

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

Interference Check Standard A

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

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.6	20.0	98.0	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.1	20.0	90.7	80 - 120

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project
Project Number: 423575.MP.02.GM.01

Printed 1/16/2013

Serial Dilution — Lab ID = 805305-012

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	12.5	59.9	59.2	1.22	0 - 10

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Metals by EPA 6020A, Dissolved

Batch 011513A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805305-014 Chromium	ug/L	01/15/2013 15:46	10.0	0.920	10.0	869
805305-021 Chromium	ug/L	01/15/2013 16:10	1.00	0.0920	1.0	ND

Method Blank

Parameter	Unit	DF	Result
Chromium	ug/L	1.00	ND

Duplicate

Lab ID = 805651-001

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

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.887	1.00	88.7	70 - 130

Lab Control Sample

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

Matrix Spike

Lab ID = 805651-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	1.00	53.8	50.0(50.0)	108	75 - 125

Matrix Spike Duplicate

Lab ID = 805651-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	1.00	46.5	50.0(50.0)	93.0	75 - 125

MRCCS - Secondary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.6	20.0	103	90 - 110

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.9	20.0	99.7	90 - 110

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MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.6	20.0	98.0	90 - 110

Interference Check Standard A

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

Interference Check Standard A

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

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	21.0	20.0	105	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.3	20.0	101	80 - 120

Serial Dilution Lab ID = 805305-014

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	50.0	885	869	1.82	0 - 10

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Metals by EPA 6020A, Dissolved

Batch 011513A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805305-001 Chromium	ug/L	01/15/2013 18:38	1.00	0.0920	1.0	257

Method Blank

Parameter	Unit	DF	Result
Chromium	ug/L	1.00	ND

Duplicate

Lab ID = 805305-003

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

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.887	0.200	444	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	49.1	50.0	98.2	85 - 115

Matrix Spike

Lab ID = 805305-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	1.00	47.1	50.0(50.0)	94.2	75 - 125

Matrix Spike Duplicate

Lab ID = 805305-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	1.00	46.6	50.0(50.0)	93.3	75 - 125

MRCCS - Secondary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.9	20.0	99.7	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.6	20.0	98.0	90 - 110

MRCVS - Primary

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

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MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.6	20.0	103	90 - 110

MRCVS - Primary

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

Interference Check Standard A

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

Interference Check Standard A

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

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.3	20.0	101	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	21.0	20.0	105	80 - 120

Serial Dilution Lab ID = 805305-014

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	50.0	885	869	1.82	0 - 10

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Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project Page 16 of 16
Project Number: 423575.MP.02.GM.01 Printed 1/16/2013

Chromium, Hexavalent by SM 3500-Cr B Batch 12CrH12A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805305-001 Chromium, Hexavalent	ug/L	12/12/2012 15:45	1.00	1.50	10.0	259

Method Blank

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

Duplicate — Lab ID = 805155-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	923	893	3.34	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	101	100	101	90 - 110

Matrix Spike — Lab ID = 805155-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	3370	3390(2500)	99.1	85 - 115

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	58.4	60.0	97.3	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	60.8	60.0	101	90 - 110

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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805305

CH2MHILL **CHAIN OF CUSTODY RECORD** 12/11/2012 10:55:23 AM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.03
Task Order
Project 2012-GMP-188-Q4
Turnaround Time 10 Days
Shipping Date: 12/11/2012
COC Number: 22

				Container:	250 ml Poly	2x250 ml Poly	250 ml Poly	2x500 ml Poly	1x500 ml Poly			
				Preservatives:	(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C	HNO3, 4°C			
				Filtered:	Field	Field	Field	Field	Field			
				Holding Time:	28	28	28	180	180			
		DATE	TIME	Matrix	Cr6 (E218.6) Field Filtered	Cr6 (E218.6R) Field Filtered	Cr6 (SM3500B) Field Filtered	Metals (6020AFF) Field Filtered Chromium	Metals (6020AFF) Field Filtered Chromium		Number of Containers	COMMENTS
1	MW-09-188	12/5/2012	13:45	Water			X		X		2	pH for 6020A
2	MW-28-025-188	12/5/2012	9:06	Water		X		X			4	pH=2
	MW-28-025-188-EB	12/5/2012	8:45	Water	X				X		2	
3	MW-28-090-188	12/5/2012	9:53	Water		X		X			4	pH=2
	MW-28-090-188-EB	12/5/2012	9:21	Water	X				X		2	
4	MW-29-188	12/5/2012	10:54	Water		X		X			4	pH=2
	MW-29-188-EB	12/5/2012	10:30	Water	X				X		2	
5	MW-32-020-188	12/5/2012	12:07	Water		X		X			4	pH=2
6	MW-32-035-188	12/5/2012	13:09	Water		X		X			4	
	MW-32-035-188-EB	12/5/2012	12:25	Water	X				X		2	
7	MW-33-040-188	12/5/2012	15:31	Water		X		X			4	pH=2
	MW-33-040-188-EB	12/5/2012	14:09	Water	X				X		2	
8	MW-52D-188	12/5/2012	9:47	Water		X		X			4	pH=2
9	MW-52M-188	12/5/2012	11:25	Water		X		X			4	

* Where provided w/ multiple bottles for Cr6 + diss. metals - please analyze 1 + hold 1

For Sample Conditions See attached

ALERT !!
Level III QC

	Signatures	Date/Time
Approved by		12-11-12 1600
Sampled by		
Relinquished by		
Received by	Rafael Davila	12-11-12 16:00
Relinquished by	Rafael Davila	12-11-12 22:30
Received by	Linda, FEDEX	12/11/12 22:30

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

ATTN: Sample Custody

Special Instructions: Nov 5 - Dec 14, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

CH2MHILL 805 305 **CHAIN OF CUSTODY RECORD** 12/11/2012 10:55:23 AM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.01
Task Order
Project 2012-GMP-188-Q4
Turnaround Time 10 Days
Shipping Date: 12/11/2012
COC Number: 22

				Container:	250 ml Poly	2x250 ml Poly	250 ml Poly	2x500 ml Poly	1x500 ml Poly		
				Preservatives:	(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C	HNO3, 4°C		
				Filtered:	Field	Field	Field	Field	Field		
				Holding Time:	28	28	28	180	180		
		DATE	TIME	Matrix	Cr6 (E218.6) Field Filtered	Cr6 (E218.6R) Field Filtered	Cr6 (SM3500B) Field Filtered	Metals (6020AFF) Field Filtered Chromium	Metals (6020AFF) Field Filtered Chromium	Number of Containers	COMMENTS
10	MW-52S-188	12/5/2012	12:24	Water		x		x		4	
11	MW-53M-188	12/5/2012	14:56	Water		x		x		4	
12	MW-60BR-245-188	12/5/2012	8:01	Water	x				x	2	
13	MW-65-225-188	12/5/2012	12:35	Water	x				x	2	pH=2
14	MW-69-195-188	12/5/2012	15:45	Water	x				x	2	
15	MW-72-080-188	12/5/2012	10:59	Water	x				x	2	
16	MW-73-080-188	12/5/2012	7:50	Water	x				x	2	
17	MW-74-188	12/5/2012	9:16	Water	x					1	
18	MW-75-188	12/5/2012	16:16	Water	x					1	
19	MW-76-188	12/5/2012	16:20	Water	x					1	
20	MW-77-188	12/5/2012	16:18	Water	x					1	
21	MW-91-188	12/5/2012	16:58	Water		x		x		4	
22	MW-92-188	12/5/2012	15:34	Water		x		x		4	pH=2
23	MW-33-150-188	12/6/2012	9:30	Water	x				x	2	

* Where provided w/ multiple Cr6 + diss. metals bottles please analyze 1 + hold 1

pH for 6020A

ALERT !!
Level III QC

	Signatures	Date/Time
Approved by		12-11-12
Sampled by		1600
Relinquished by		
Received by	Rafael Davila	12-11-12 16:00
Relinquished by	Rafael Davila	12-11-12 22:30
Received by	Linda,	12/11/12 22:30

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

ATTN: Sample Custody

Special Instructions: Nov 5 - Dec 14, 2012

Report Copy to Shawn Duffy (530) 229-3303

Hexavalent Chromium

Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
12/07/12	805221-1	9.5	N/A	N/A	N/A	HAV
	-2					
	-3					
	-4					
12/07/12	805233	9.5	N/A	N/A	N/A	HAV
12/11/12	805270-1	7	2 ml	9.5	12:10 pm	HAV
	-2				12:15 pm	
	-3				12:20 pm	
	-4				12:25 pm	
12/12/12	805303	7	2 ml	9.5	10:00 AM	HAV
12/12/12	805304	9.5	N/A	N/A	N/A	HAV
12/12/12	805305-1	9.5	N/A	N/A	N/A	HAV
	-2					
	-3					
	-4					
	-5	8.5	5 drop 25% NaOH	9.5	10:30 AM	HAV
	-6	9.5	N/A	N/A	N/A	HAV
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
	-13					
	-14					
	-15					
	-16					
	-17					
	-18					
	-19					
	-20					

12-29-12 HAV 12/24/12

Hexavalent Chromium

Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
12/12/12	805305-21	9.5	N/A	N/A	N/A	HAV
	-22					
	-23					
12/12/12	805306-1	9.5	N/A	N/A	N/A	HAV
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
	-13					
	-14					
	-15					
	-16					
	-17	8.5	4 drop 25% NaOH	9.5	10:45 AM	HAV
	-18	9.5	N/A	N/A	N/A	HAV
	-19					
	-20					
	-21					
	-22					
	-23					
	-24					
	-25					
	-26					
12/14/12	805373-1	9.5	N/A	N/A	N/A	HAV
	-2					

12-29-12

HAV 12/26/12

TRUESDAIL LABORATORIES, INC.

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
805213	<1	<2	12/7/12	ES	yes			
805214								
805215								
805239								
805241								
805242								
805244								
805245 - 255								
804968 (1-6)	<1	<2	11/30/12	KB	yes			
805018 (1-2)								
804930 (1-5)								
805023 (1-5)								
805259	>1	<2	12/12/12	AA	yes			
805260		<2						
805261		<2						
805268-6		>2			No			
805270 (1-4)		>2					12/17 pH<2	-2 for digestion
805217	<1	>2	12/12/12	AA	No	8:30am	12-14	pH<2
805303	<1	>2		BE	yes	9:30		
805304	<1	<2						
805293 (1-3)	<1	>2	12/13		No	14:00	12-14	pH<2
805319 (10-12)						14:05		
805281	>1	<2			yes			
805282								
805285								
805286								
805287								
805288								
805289								
805290								
805532								
805306 (20)	<1	<2			yes			
805305 (19)								
805329 (1-5)								
805389 (192, 241)		>2	12/17	BE	No	13:00	12/18	pH<2
805353	>1	<2	12/17/12	MM	yes		3010A	
805372								
805378								
805380								
805382								
805383								
805384								
805394								
805396								

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

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: E2 **Lab #** 805305

Date Delivered: 12 / 11 / 12 **Time:** 22:30 **By:** ☐Mail ☒Field Service ☐Client

1. Was a Chain of Custody received and signed? ☒Yes ☐No ☐N/A
2. Does Customer require an acknowledgement of the COC? ☐Yes ☐No ☒N/A
3. Are there any special requirements or notes on the COC? ☐Yes ☐No ☒N/A
4. If a letter was sent with the COC, does it match the COC? ☐Yes ☐No ☒N/A
5. Were all requested analyses understood and acceptable? ☒Yes ☐No ☐N/A
6. Were samples received in a chilled condition? ☒Yes ☐No ☐N/A
   Temperature (if yes)? 4.1 °C
7. Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)? ☒Yes ☐No ☐N/A
8. Were sample custody seals intact? ☐Yes ☐No ☒N/A
9. Does the number of samples received agree with COC? ☒Yes ☐No ☐N/A
10. Did sample labels correspond with the client ID's? ☒Yes ☐No ☐N/A
11. Did sample labels indicate proper preservation? ☒Yes ☐No ☐N/A
    Preserved (if yes) by: ☒Truesdail ☐Client
12. Were samples pH checked? pH = see c.o.c. ☒Yes ☐No ☐N/A
13. Were all analyses within holding time at time of receipt? ☒Yes ☐No ☐N/A
    If not, notify Project Manager.
14. Have Project due dates been checked and accepted? ☒Yes ☐No ☐N/A
    Turn Around Time (TAT): ☐ RUSH ☒ Std
15. **Sample Matrix:** ☐Liquid ☐Drinking Water ☐Ground Water ☐Waste Water ☐Sludge ☐Soil ☐Wipe ☐Paint ☐Solid ☒Other Water
16. Comments: _____
17. Sample Check-In completed by Truesdail Log-In/Receiving: Linda

ALERT !! Level III QC

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

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January 16, 2013

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

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK 2012-GMP-188-Q4, GROUNDWATER MONITORING PROJECT, TLI NO.: 805306

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2012-GMP-188-Q4 groundwater-monitoring project for Hexavalent and Total Dissolved Chromium. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, quality control data, and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data are under Section 5.

The samples were received and delivered with the chain of custody December 11, 2012, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

Due to the discrepancy between the Total Dissolved Chromium (29.8 ug/L) and Hexavalent Chromium (13.3 ug/L) results for sample MW-33-210-188, sample from the Total Dissolved Chromium and Hexavalent Chromium sample containers were digested and analyzed for Total Dissolved Chromium. The results were 10.9 ug/L and 10.6 ug/L, respectively. The original digestate was re-analyzed for confirmation and yielded a result of 11.5 ug/L. The re-digested result was reported as it more closely matched the Hexavalent Chromium and re-analysis results.

Due to the discrepancy between the Total Dissolved Chromium (1.6 ug/L) and Hexavalent Chromium (ND<0.20 ug/L) results for sample MW-42-030-188, sample from the Total Dissolved Chromium and Hexavalent Chromium sample containers were digested and analyzed for Total Dissolved Chromium. The results were both ND<1.0 ug/L. The original digestate was re-analyzed for confirmation and also yielded a result of ND<1.0 ug/L. The re-digested result was reported as it more closely matched the Hexavalent Chromium and re-analysis results.

Due to the discrepancy between the Total Dissolved Chromium (3.4 ug/L) and Hexavalent Chromium (ND<0.20 ug/L) results for sample MW-42-055-188, sample from the Total Dissolved Chromium and Hexavalent Chromium sample containers were digested and analyzed for Total Dissolved Chromium. The results were 1.4 ug/L and 1.2 ug/L, respectively. The original digestate was re-analyzed for confirmation and yielded a result of 1.3 ug/L. The re-digested result was reported as it more closely matched the Hexavalent Chromium and re-analysis results.

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

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

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

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

Laboratory No.: 805306
Date Received: December 11, 2012

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

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
805306-001	MW-33-210-188	E218.6	FLDFLT	12/6/2012	10:23	Chromium, Hexavalent	13.3	ug/L	1.0
805306-001	MW-33-210-188	SW6020	FLDFLT	12/6/2012	10:23	Chromium	10.9	ug/L	1.0
805306-002	MW-42-030-188	E218.6	FLDFLT	12/6/2012	11:51	Chromium, Hexavalent	ND	ug/L	0.20
805306-002	MW-42-030-188	SW6020	FLDFLT	12/6/2012	11:51	Chromium	ND	ug/L	1.0
805306-003	MW-42-055-188	E218.6	FLDFLT	12/6/2012	13:18	Chromium, Hexavalent	ND	ug/L	0.20
805306-003	MW-42-055-188	SW6020	FLDFLT	12/6/2012	13:18	Chromium	1.4	ug/L	1.0
805306-004	MW-42-065-188	E218.6	FLDFLT	12/6/2012	14:03	Chromium, Hexavalent	ND	ug/L	1.0
805306-004	MW-42-065-188	SW6020	FLDFLT	12/6/2012	14:03	Chromium	ND	ug/L	1.0
805306-005	MW-44-070-188	E218.6	FLDFLT	12/6/2012	15:46	Chromium, Hexavalent	ND	ug/L	0.20
805306-005	MW-44-070-188	SW6020	FLDFLT	12/6/2012	15:46	Chromium	ND	ug/L	1.0
805306-006	MW-53D-188	E218.6	FLDFLT	12/6/2012	9:09	Chromium, Hexavalent	ND	ug/L	2.0
805306-006	MW-53D-188	SW6020	FLDFLT	12/6/2012	9:09	Chromium	ND	ug/L	1.0
805306-007	MW-60-125-188	E218.6	FLDFLT	12/6/2012	10:36	Chromium, Hexavalent	867	ug/L	10.0
805306-007	MW-60-125-188	SW6020	FLDFLT	12/6/2012	10:36	Chromium	804	ug/L	4.0
805306-008	MW-66-165-188	E218.6	FLDFLT	12/6/2012	8:26	Chromium, Hexavalent	622	ug/L	5.0
805306-008	MW-66-165-188	SW6020	FLDFLT	12/6/2012	8:26	Chromium	583	ug/L	4.0
805306-009	MW-67-185-188	E218.6	FLDFLT	12/6/2012	15:01	Chromium, Hexavalent	2300	ug/L	20.0
805306-009	MW-67-185-188	SW6020	FLDFLT	12/6/2012	15:01	Chromium	2270	ug/L	20.0
805306-010	MW-67-260-188	E218.6	FLDFLT	12/6/2012	13:57	Chromium, Hexavalent	2020	ug/L	20.0
805306-010	MW-67-260-188	SW6020	FLDFLT	12/6/2012	13:57	Chromium	1930	ug/L	20.0
805306-011	MW-68-240-188	E218.6	FLDFLT	12/6/2012	11:58	Chromium, Hexavalent	1990	ug/L	20.0
805306-011	MW-68-240-188	SW6020	FLDFLT	12/6/2012	11:58	Chromium	1870	ug/L	20.0
805306-012	MW-78-188	E218.6	FLDFLT	12/6/2012	15:38	Chromium, Hexavalent	ND	ug/L	0.20
805306-013	MW-79-188	E218.6	FLDFLT	12/6/2012	15:35	Chromium, Hexavalent	ND	ug/L	0.20
805306-014	MW-80-188	E218.6	FLDFLT	12/6/2012	16:03	Chromium, Hexavalent	ND	ug/L	0.20

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Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
805306-015	MW-95-188	E218.6	FLDFLT	12/6/2012	7:05	Chromium, Hexavalent	ND	ug/L	1.0
805306-015	MW-95-188	SW6020	FLDFLT	12/6/2012	7:05	Chromium	ND	ug/L	1.0
805306-016	MW-10-188	SM3500-CrB	FLDFLT	12/10/2012	11:48	Chromium, Hexavalent	484	ug/L	10.0
805306-016	MW-10-188	SW6020	FLDFLT	12/10/2012	11:48	Chromium	461	ug/L	2.0
805306-017	MW-22-188	E218.6	FLDFLT	12/10/2012	13:32	Chromium, Hexavalent	ND	ug/L	2.0
805306-017	MW-22-188	SW6020	FLDFLT	12/10/2012	13:32	Chromium	ND	ug/L	1.0
805306-018	MW-43-025-188	E218.6	FLDFLT	12/10/2012	10:00	Chromium, Hexavalent	ND	ug/L	0.20
805306-018	MW-43-025-188	SW6020	FLDFLT	12/10/2012	10:00	Chromium	ND	ug/L	1.0
805306-019	MW-43-075-188	E218.6	FLDFLT	12/10/2012	11:05	Chromium, Hexavalent	ND	ug/L	1.0
805306-019	MW-43-075-188	SW6020	FLDFLT	12/10/2012	11:05	Chromium	ND	ug/L	1.0
805306-020	MW-43-090-188	E218.6	FLDFLT	12/10/2012	12:04	Chromium, Hexavalent	ND	ug/L	1.0
805306-020	MW-43-090-188	SW6020	FLDFLT	12/10/2012	12:04	Chromium	ND	ug/L	1.0
805306-021	MW-62-065-188	E218.6	FLDFLT	12/10/2012	15:01	Chromium, Hexavalent	505	ug/L	5.0
805306-021	MW-62-065-188	SW6020	FLDFLT	12/10/2012	15:01	Chromium	543	ug/L	2.0
805306-022	MW-66-230-188	E218.6	FLDFLT	12/10/2012	13:16	Chromium, Hexavalent	6190	ug/L	50.0
805306-022	MW-66-230-188	SW6020	FLDFLT	12/10/2012	13:16	Chromium	5910	ug/L	20.0
805306-023	MW-67-225-188	E218.6	FLDFLT	12/10/2012	15:07	Chromium, Hexavalent	3210	ug/L	50.0
805306-023	MW-67-225-188	SW6020	FLDFLT	12/10/2012	15:07	Chromium	3110	ug/L	20.0
805306-024	MW-81-188	E218.6	FLDFLT	12/10/2012	15:50	Chromium, Hexavalent	ND	ug/L	0.20
805306-025	MW-83-188	E218.6	FLDFLT	12/10/2012	7:30	Chromium, Hexavalent	ND	ug/L	0.20
805306-026	MW-82-188	E218.6	FLDFLT	12/10/2012	7:36	Chromium, Hexavalent	1.1	ug/L	0.20

ND: Non Detected (below reporting limit)

mg/L: Milligrams per liter.

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

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

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

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

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REPORT

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

Laboratory No. 805306

Printed 1/16/2013

Samples Received on 12/11/2012 10:30:00 PM

Field ID	Lab ID	Collected	Matrix
MW-33-210-188	805306-001	12/06/2012 10:23	Water
MW-42-030-188	805306-002	12/06/2012 11:51	Water
MW-42-055-188	805306-003	12/06/2012 13:18	Water
MW-42-065-188	805306-004	12/06/2012 14:03	Water
MW-44-070-188	805306-005	12/06/2012 15:46	Water
MW-53D-188	805306-006	12/06/2012 09:09	Water
MW-60-125-188	805306-007	12/06/2012 10:36	Water
MW-66-165-188	805306-008	12/06/2012 08:26	Water
MW-67-185-188	805306-009	12/06/2012 15:01	Water
MW-67-260-188	805306-010	12/06/2012 13:57	Water
MW-68-240-188	805306-011	12/06/2012 11:58	Water
MW-78-188	805306-012	12/06/2012 15:38	Water
MW-79-188	805306-013	12/06/2012 15:35	Water
MW-80-188	805306-014	12/06/2012 16:03	Water
MW-95-188	805306-015	12/06/2012 07:05	Water
MW-10-188	805306-016	12/10/2012 11:48	Water
MW-22-188	805306-017	12/10/2012 13:32	Water
MW-43-025-188	805306-018	12/10/2012 10:00	Water
MW-43-075-188	805306-019	12/10/2012 11:05	Water
MW-43-090-188	805306-020	12/10/2012 12:04	Water
MW-62-065-188	805306-021	12/10/2012 15:01	Water
MW-66-230-188	805306-022	12/10/2012 13:16	Water
MW-67-225-188	805306-023	12/10/2012 15:07	Water
MW-81-188	805306-024	12/10/2012 15:50	Water
MW-83-188	805306-025	12/10/2012 07:30	Water
MW-82-188	805306-026	12/10/2012 07:36	Water

Chrome VI by EPA 218.6

Batch 12CrH12O

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805306-001 Chromium, Hexavalent	ug/L	12/18/2012 11:18	5.00	0.0460	1.0	13.3
805306-002 Chromium, Hexavalent	ug/L	12/18/2012 08:21	1.00	0.00920	0.20	ND

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805306-003	Chromium, Hexavalent	ug/L	12/18/2012 08:31	1.00	0.00920	0.20	ND
805306-004	Chromium, Hexavalent	ug/L	12/18/2012 17:33	5.00	0.0460	1.0	ND
805306-005	Chromium, Hexavalent	ug/L	12/18/2012 09:23	1.00	0.00920	0.20	ND

Method Blank

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

Duplicate — Lab ID = 805305-013

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	632	634	0.264	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.212	0.200	106	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.81	5.00	96.3	90 - 110

Matrix Spike — Lab ID = 805305-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	10.0	9.26	10.0(10.0)	92.6	90 - 110

Matrix Spike — Lab ID = 805305-010

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.77	5.00(5.00)	95.4	90 - 110

Matrix Spike — Lab ID = 805305-010

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.987	1.00(1.00)	98.7	90 - 110

Matrix Spike — Lab ID = 805305-011

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

Matrix Spike — Lab ID = 805305-011

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.75	5.00(5.00)	95.0	90 - 110

Matrix Spike — Lab ID = 805305-012

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	131	136(75.0)	92.7	90 - 110

Matrix Spike — Lab ID = 805305-013

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	1340	1380(750)	94.2	90 - 110

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Matrix Spike — Lab ID = 805305-014

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	1790	1850(1000)	94.0	90 - 110

Matrix Spike — Lab ID = 805305-015

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	10.0	289	300(150)	92.5	90 - 110

Matrix Spike — Lab ID = 805305-016

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	82.4	85.6(50.0)	93.7	90 - 110

Matrix Spike — Lab ID = 805305-017

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

Matrix Spike — Lab ID = 805305-018

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.936	1.00(1.00)	93.6	90 - 110

Matrix Spike — Lab ID = 805305-019

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.987	1.04(1.00)	95.0	90 - 110

Matrix Spike — Lab ID = 805305-020

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.956	1.00(1.00)	95.6	90 - 110

Matrix Spike — Lab ID = 805305-021

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.966	1.00(1.00)	96.6	90 - 110

Matrix Spike — Lab ID = 805305-022

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.01	1.05(1.00)	96.0	90 - 110

Matrix Spike — Lab ID = 805305-022

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.79	5.00(5.00)	95.7	90 - 110

Matrix Spike — Lab ID = 805305-023

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	35.7	37.4(25.0)	93.4	90 - 110

Matrix Spike — Lab ID = 805306-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	36.7	38.3(25.0)	93.5	90 - 110

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Matrix Spike — Lab ID = 805306-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.988	1.06(1.00)	92.6	90 - 110

Matrix Spike — Lab ID = 805306-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.01	1.06(1.00)	94.7	90 - 110

Matrix Spike — Lab ID = 805306-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.882	1.00(1.00)	88.2	90 - 110

Matrix Spike — Lab ID = 805306-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.72	5.00(5.00)	94.4	90 - 110

Matrix Spike — Lab ID = 805306-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.937	1.00(1.00)	93.7	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.84	5.00	96.8	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.96	10.0	99.6	95 - 105

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.85	10.0	98.5	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.82	10.0	98.2	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.84	10.0	98.4	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.96	10.0	99.6	95 - 105

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Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project Page 6 of 17
Project Number: 423575.MP.02.GM.01 Printed 1/16/2013

Chrome VI by EPA 218.6

Batch 12CrH12P

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805306-007 Chromium, Hexavalent	ug/L	12/19/2012 10:43	50.0	0.460	10.0	867
805306-008 Chromium, Hexavalent	ug/L	12/19/2012 10:54	25.0	0.230	5.0	622
805306-009 Chromium, Hexavalent	ug/L	12/19/2012 11:04	100	0.920	20.0	2300
805306-010 Chromium, Hexavalent	ug/L	12/19/2012 11:14	100	0.920	20.0	2020
805306-011 Chromium, Hexavalent	ug/L	12/19/2012 11:25	100	0.920	20.0	1990
805306-012 Chromium, Hexavalent	ug/L	12/19/2012 11:35	1.00	0.00920	0.20	ND
805306-013 Chromium, Hexavalent	ug/L	12/19/2012 11:46	1.00	0.00920	0.20	ND
805306-014 Chromium, Hexavalent	ug/L	12/19/2012 12:17	1.00	0.00920	0.20	ND
805306-015 Chromium, Hexavalent	ug/L	12/19/2012 19:23	5.00	0.0460	1.0	ND
805306-018 Chromium, Hexavalent	ug/L	12/19/2012 12:48	1.00	0.00920	0.20	ND
805306-019 Chromium, Hexavalent	ug/L	12/19/2012 20:05	5.00	0.0460	1.0	ND
805306-020 Chromium, Hexavalent	ug/L	12/19/2012 20:47	5.00	0.0460	1.0	ND
805306-021 Chromium, Hexavalent	ug/L	12/19/2012 13:19	25.0	0.230	5.0	505
805306-022 Chromium, Hexavalent	ug/L	12/19/2012 13:30	250	2.30	50.0	6190
805306-023 Chromium, Hexavalent	ug/L	12/19/2012 13:40	250	2.30	50.0	3210
805306-024 Chromium, Hexavalent	ug/L	12/19/2012 13:51	1.00	0.00920	0.20	ND
805306-025 Chromium, Hexavalent	ug/L	12/19/2012 14:22	1.00	0.00920	0.20	ND
805306-026 Chromium, Hexavalent	ug/L	12/19/2012 14:32	1.00	0.00920	0.20	1.1

Method Blank

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

Duplicate

Lab ID = 805306-007

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	864	867	0.280	0 - 20

Low Level Calibration Verification

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

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.81	5.00	96.2	90 - 110

Matrix Spike

Lab ID = 805306-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.40	5.00(5.00)	88.1	90 - 110

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Matrix Spike — Lab ID = 805306-006

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

Matrix Spike — Lab ID = 805306-007

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	1780	1870(1000)	91.5	90 - 110

Matrix Spike — Lab ID = 805306-008

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	1190	1250(625)	90.7	90 - 110

Matrix Spike — Lab ID = 805306-009

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	100	4650	4800(2500)	94.1	90 - 110

Matrix Spike — Lab ID = 805306-010

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	100	4290	4520(2500)	90.9	90 - 110

Matrix Spike — Lab ID = 805306-011

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	100	3810	3990(2000)	91.1	90 - 110

Matrix Spike — Lab ID = 805306-012

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.985	1.00(1.00)	98.5	90 - 110

Matrix Spike — Lab ID = 805306-013

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.00	1.06(1.00)	94.4	90 - 110

Matrix Spike — Lab ID = 805306-014

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.954	1.00(1.00)	95.4	90 - 110

Matrix Spike — Lab ID = 805306-015

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.81	5.00(5.00)	96.1	90 - 110

Matrix Spike — Lab ID = 805306-015

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

Matrix Spike — Lab ID = 805306-017

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

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Matrix Spike — Lab ID = 805306-017

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.45	5.00(5.00)	88.9	90 - 110

Matrix Spike — Lab ID = 805306-018

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

Matrix Spike — Lab ID = 805306-019

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

Matrix Spike — Lab ID = 805306-019

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.78	5.00(5.00)	95.5	90 - 110

Matrix Spike — Lab ID = 805306-020

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.971	1.00(1.00)	97.1	90 - 110

Matrix Spike — Lab ID = 805306-020

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.85	5.00(5.00)	97.1	90 - 110

Matrix Spike — Lab ID = 805306-021

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	1100	1130(625)	94.5	90 - 110

Matrix Spike — Lab ID = 805306-022

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	250	12200	12400(6250)	95.9	90 - 110

Matrix Spike — Lab ID = 805306-023

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	250	6880	6960(3750)	97.8	90 - 110

Matrix Spike — Lab ID = 805306-024

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

Matrix Spike — Lab ID = 805306-025

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.09	1.14(1.00)	95.0	90 - 110

Matrix Spike — Lab ID = 805306-026

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.90	6.10(5.00)	96.0	90 - 110

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Chrome VI by EPA 218.6

Batch 12CrH12Q

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805306-006 Chromium, Hexavalent	ug/L	12/20/2012 11:14	10.0	0.0920	2.0	ND
805306-017 Chromium, Hexavalent	ug/L	12/20/2012 11:35	10.0	0.0920	2.0	ND

Method Blank

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

Duplicate — Lab ID = 805374-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	20.1	20.2	0.574	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.210	0.200	105	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.82	5.00	96.5	90 - 110

Matrix Spike — Lab ID = 805306-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	10.0	9.41	10.0(10.0)	94.1	90 - 110

Matrix Spike — Lab ID = 805306-017

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	10.0	9.44	10.0(10.0)	94.4	90 - 110

Matrix Spike — Lab ID = 805373-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	10.0	459	478(250)	92.3	90 - 110

Matrix Spike — Lab ID = 805373-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	143	148(75.0)	93.6	90 - 110

Matrix Spike — Lab ID = 805374-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.0526	45.4	46.5(26.3)	95.8	90 - 110

Matrix Spike — Lab ID = 805374-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	6.08	6.35(5.00)	94.6	90 - 110

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Metals by EPA 6020A, Dissolved

Batch 011313C

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805306-004 Chromium	ug/L	01/14/2013 06:45	2.50	0.230	1.0	ND
805306-005 Chromium	ug/L	01/14/2013 06:51	2.50	0.230	1.0	ND
805306-006 Chromium	ug/L	01/14/2013 06:57	2.50	0.230	1.0	ND
805306-007 Chromium	ug/L	01/14/2013 07:03	20.0	1.84	4.0	804
805306-008 Chromium	ug/L	01/14/2013 07:15	20.0	1.84	4.0	583
805306-009 Chromium	ug/L	01/14/2013 07:21	100	9.20	20.0	2270
805306-010 Chromium	ug/L	01/14/2013 07:27	100	9.20	20.0	1930
805306-011 Chromium	ug/L	01/14/2013 07:46	100	9.20	20.0	1870
805306-015 Chromium	ug/L	01/14/2013 07:52	2.50	0.230	1.0	ND
805306-016 Chromium	ug/L	01/14/2013 09:49	10.0	0.920	2.0	461
805306-017 Chromium	ug/L	01/14/2013 08:04	2.50	0.230	1.0	ND
805306-018 Chromium	ug/L	01/14/2013 08:10	2.50	0.230	1.0	ND
805306-019 Chromium	ug/L	01/14/2013 09:43	2.50	0.230	1.0	ND
805306-020 Chromium	ug/L	01/14/2013 09:55	2.50	0.230	1.0	ND
805306-021 Chromium	ug/L	01/14/2013 10:01	10.0	0.920	2.0	543
805306-022 Chromium	ug/L	01/14/2013 10:25	100	9.20	20.0	5910
805306-023 Chromium	ug/L	01/14/2013 10:31	100	9.20	20.0	3110

Method Blank

Parameter	Unit	DF	Result
Chromium	ug/L	1.00	ND

Duplicate

Lab ID = 805306-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	2.50	30.0	29.8	0.569	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.178	0.200	89.0	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	2.50	110	100	110	85 - 115

Matrix Spike

Lab ID = 805306-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.50	132	130(100)	102	75 - 125

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Matrix Spike Duplicate — Lab ID = 805306-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.50	135	130(100)	105	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.6	20.0	92.9	90 - 110

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.1	20.0	90.5	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.4	20.0	92.1	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.6	20.0	93.0	90 - 110

Interference Check Standard A

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

Interference Check Standard A

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

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.2	20.0	91.1	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.4	20.0	92.1	80 - 120

Serial Dilution — Lab ID = 805306-007

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	100	829	804	3.05	0 - 10

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Metals by EPA 6020A, Dissolved

Batch 011513B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805306-001 Chromium	ug/L	01/16/2013 07:42	1.00	0.0920	1.0	10.9
805306-002 Chromium	ug/L	01/16/2013 08:00	1.00	0.0920	1.0	ND
805306-003 Chromium	ug/L	01/16/2013 08:18	1.00	0.0920	1.0	1.4

Method Blank

Parameter	Unit	DF	Result
Chromium	ug/L	1.00	ND

Duplicate

Lab ID = 804843-017

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	1.00	15.1	15.2	0.806	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.203	0.200	102	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	43.0	50.0	85.9	85 - 115

Matrix Spike

Lab ID = 804843-017

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	1.00	54.0	65.2(50.0)	77.5	75 - 125

Matrix Spike Duplicate

Lab ID = 804843-017

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	1.00	57.8	65.2(50.0)	85.2	75 - 125

MRCCS - Secondary

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

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.6	20.0	93.3	90 - 110

Interference Check Standard A

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

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Interference Check Standard A

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

Interference Check Standard AB

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

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.6	20.0	93.0	80 - 120

Chromium, Hexavalent by SM 3500-Cr B

Batch 12CrH12A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805306-016 Chromium, Hexavalent	ug/L	12/12/2012 15:46	1.00	1.50	10.0	484

Method Blank

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

Duplicate — Lab ID = 805155-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	923	893	3.34	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	101	100	101	90 - 110

Matrix Spike — Lab ID = 805155-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	3370	3390(2500)	99.1	85 - 115

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	58.4	60.0	97.3	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	60.8	60.0	101	90 - 110

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Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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805306

CH2MHILL **CHAIN OF CUSTODY RECORD** 12/11/2012 10:55:23 AM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.01
Task Order
Project 2012-GMP-188-Q4
Turnaround Time 10 Days
Shipping Date: 12/11/2012
COC Number: 22

			Container:	250 ml Poly	2x250 ml Poly	250 ml Poly	2x500 ml Poly	1x500 ml Poly			
			Preservatives:	(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C	HNO3, 4°C			
			Filtered:	Field	Field	Field	Field	Field			
			Holding Time:	28	28	28	180	180			
		DATE	TIME	Matrix	Cr6 (E218.6) Field Filtered	Cr6 (E218.6R) Field Filtered	Cr6 (SM3500B) Field Filtered	Metals (6020AFF) Field Filtered Chromium	Metals (6020AFF) Field Filtered Chromium		Number of Containers	COMMENTS
-1	MW-33-210-188	12/6/2012	10:23	Water	X				X		2	pH for waste
-2	MW-42-030-188	12/6/2012	11:51	Water	X				X		2	pH=2
	MW-42-030-188-EB	12/6/2012	11:26	Water	X				X		2	
-3	MW-42-055-188	12/6/2012	13:18	Water		X		X			4	pH=2
	MW-42-055-188-EB	12/6/2012	12:48	Water	X				X		2	
-4	MW-42-065-188	12/6/2012	14:03	Water		X		X			4	pH=2
	MW-42-065-188-EB	12/6/2012	13:35	Water	X				X		2	
-5	MW-44-070-188	12/6/2012	15:46	Water		X		X			4	pH=2
	MW-44-070-188-EB	12/6/2012	14:27	Water	X				X		2	
-6	MW-53D-188	12/6/2012	9:09	Water		X		X			4	
-7	MW-60-125-188	12/6/2012	10:36	Water	X				X		2	
-8	MW-66-165-188	12/6/2012	8:26	Water	X				X		2	pH=2
-9	MW-67-185-188	12/6/2012	15:01	Water	X				X		2	
-10	MW-67-260-188	12/6/2012	13:57	Water	X				X		2	

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

For Sample Conditions See Form Attached

ALERT !! Level III QC

	Signatures	Date/Time
Approved by		
Sampled by		12-11-12 1600
Relinquished by		
Received by	Rafael Davila	12-11-12 16:00
Relinquished by	Rafael Davila	12-11-12 22:30
Received by	Linda	12/11/12 22:30

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

ATTN: Sample Custody

Special Instructions:
Nov 5 - Dec 14, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

CH2MHILL 805306 **CHAIN OF CUSTODY RECORD** 12/11/2012 10:55:24 AM Page 4 OF 5

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.01
Task Order
Project 2012-GMP-188-Q4
Turnaround Time 10 Days
Shipping Date: 12/11/2012
COC Number: 22

			Container:	250 ml Poly	2x250 ml Poly	250 ml Poly	2x500 ml Poly	1x500 ml Poly		Number of Containers	COMMENTS
			Preservatives:	(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C	HNO3, 4°C			
			Filtered:	Field	Field	Field	Field	Field			
			Holding Time:	28	28	28	180	180			
	DATE	TIME	Matrix	Cr6 (E218.6) Field Filtered	Cr6 (E218.6R) Field Filtered	Cr6 (SM3500B) Field Filtered	Metals (6020AFF) Field Filtered Chromium	Metals (6020AFF) Field Filtered Chromium			
11 MW-68-240-188	12/6/2012	11:58	Water	X				X		2	~~pH=2~~
12 MW-78-188	12/6/2012	15:38	Water	X						1	
13 MW-79-188	12/6/2012	15:35	Water	X						1	
14 MW-80-188	12/6/2012	16:03	Water	X						1	
15 MW-95-188	12/6/2012	7:05	Water		X		X			4	pH=2
16 MW-10-188	12/10/2012	11:48	Water			X		X		2	
17 MW-22-188	12/10/2012	13:32	Water	X				X		2	
18 MW-43-025-188	12/10/2012	10:00	Water		X		X			4	
MW-43-025-188-EB	12/10/2012	9:22	Water	X				X		2	
19 MW-43-075-188	12/10/2012	11:05	Water		X		X			4	pH=2
MW-43-075-188-EB	12/10/2012	10:10	Water	X				X		2	
20 MW-43-090-188	12/10/2012	12:04	Water		X		X			4	pH=2
MW-43-090-188-EB	12/10/2012	11:25	Water	X				X		2	
21 MW-62-065-188	12/10/2012	15:01	Water	X				X		2	pH=2

* where provided w/ multiple bottles for Cr6 + diss. metals please analyze 1 + hold 1

pH for 6010A

ALERT !!
Level III QC

	Signatures	Date/Time
Approved by		
Sampled by		12-11-12 1600
Relinquished by		
Received by	Rafael Davila	12-11-12 16:00
Relinquished by	Rafael Davila	12-11-12 22:30
Received by	Linda	12/11/12 22:30

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

ATTN:
Sample Custody

Special Instructions:
Nov 5 - Dec 14, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

CH2MHILL 805306 **CHAIN OF CUSTODY RECORD** 12/11/2012 10:55:24 AM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.01
Task Order
Project 2012-GMP-188-Q4
Turnaround Time 10 Days
Shipping Date: 12/11/2012
COC Number: 22

			Container:	250 ml Poly	2x250 ml Poly	250 ml Poly	2x500 ml Poly	1x500 ml Poly			
			Preservatives:	(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C	HNO3, 4°C			
			Filtered:	Field	Field	Field	Field	Field			
			Holding Time:	28	28	28	180	180			
	DATE	TIME	Matrix	Cr6 (E218.6) Field Filtered	Cr6 (E218.6R) Field Filtered	Cr6 (SM3500B) Field Filtered	Metals (6020AFF) Field Filtered Chromium	Metals (6020AFF) Field Filtered Chromium		Number of Containers	COMMENTS
21 MW-66-230-188	12/10/2012	13:16	Water	X				X		2	pH=2
22 MW-67-225-188	12/10/2012	15:07	Water	X				X		2	
23 MW-81-188	12/10/2012	15:50	Water	X						1	
23 MW-83-188	12/10/2012	7:30	Water	X						1	
24 MW-82-188	12/11/2012	7:36	Water	X						1	
									TOTAL NUMBER OF CONTAINERS	152	

ALERT !!
Level III QC

	Signatures	Date/Time
Approved by		
Sampled by		
Relinquished by		12-11-12 1600
Received by	Rafael Davila	12-11-12 16:00
Relinquished by	Rafael Davila	12-11-12 22:30
Received by	Linda	12/11/12 22:20

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

ATTN: Sample Custody

Special Instructions:
Nov 5 - Dec 14, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

Hexavalent Chromium

Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
12/12/12	805305-21	9.5	N/A	N/A	N/A	HAV
	-22					
	-23					
12/12/12	805306-1	9.5	N/A	N/A	N/A	HAV
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
	-13					
	-14					
	-15					
	-16					
	-17	8.5	4 drop 25% NaOH	9.5	10:45 AM	HAV
	-18	9.5	N/A	N/A	N/A	HAV
	-19					
	-20					
	-21					
	-22					
	-23					
	-24					
	-25					
	-26					
12/14/12	805373-1	9.5	N/A	N/A	N/A	HAV
	-2					

12-29-12

HAV 12/26/12

TRUESDAIL LABORATORIES, INC.

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
805213	<1	<2	12/7/12	ES	yes			
805214								
805215								
805239								
805241								
805242								
805244								
805245 - 255								
8049968 (1-6)	<1	<2	11/30/12	KK	YES			
805018 (1-2)								
804930 (1-5)								
805023 (1-5)								
805259	>1	<2	12/12/12	AA	yes			
805260		<2						
805261		<2						
805268-6		>2			No			
805270 (1-4)		>2					12/17 PH<2	-2 For digestion
805217	<1	>2	12/12/12	AA	No	8:30am	12-14	PH<2
805303	<1	>2		BE	yes	9:30		
805304	<1	<2						
805298 (1-3)	<1	>2	12/13		No	14:00	12-14	PH<2
805319 (10-12)						14:00		
805281	>1	<2			yes			
805282								
805285								
805286								
805287								
805288								
805289								
805290								
805332								
805306 (20)	<1	<2			yes			
805305 (19)								
805329 (1-5)								
805389 (192 241)		>2	12/17	BE	No	13:00	12/18	PH<2
805353	>1	<2	12/17/12	MM	YES		9010A	
805372								
805378								
805380								
805382								
805383								
805384								
805394								
805396								

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

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: E2 **Lab #** 805306

Date Delivered: 12 / 11 / 12 **Time:** 22:30 **By:** ☐ Mail ☒ Field Service ☐ Client

1. Was a Chain of Custody received and signed? ☒ Yes ☐ No ☐ N/A
2. Does Customer require an acknowledgement of the COC? ☐ Yes ☐ No ☒ N/A
3. Are there any special requirements or notes on the COC? ☐ Yes ☐ No ☒ N/A
4. If a letter was sent with the COC, does it match the COC? ☐ Yes ☐ No ☒ N/A
5. Were all requested analyses understood and acceptable? ☒ Yes ☐ No ☐ N/A
6. Were samples received in a chilled condition? ☒ Yes ☐ No ☐ N/A
   Temperature (if yes)? 4.1 °C
7. Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)? ☒ Yes ☐ No ☐ N/A
8. Were sample custody seals intact? ☐ Yes ☐ No ☒ N/A
9. Does the number of samples received agree with COC? ☒ Yes ☐ No ☐ N/A
10. Did sample labels correspond with the client ID's? ☒ Yes ☐ No ☐ N/A
11. Did sample labels indicate proper preservation? ☒ Yes ☐ No ☐ N/A
    Preserved (if yes) by: ☒ Truesdail ☐ Client
12. Were samples pH checked? pH = see c.o.c. ☒ Yes ☐ No ☐ N/A
13. Were all analyses within holding time at time of receipt? ☒ Yes ☐ No ☐ N/A
    If not, notify Project Manager.
14. Have Project due dates been checked and accepted? ☒ Yes ☐ No ☐ N/A
    Turn Around Time (TAT): ☐ RUSH ☒ Std
15. **Sample Matrix:** ☐ Liquid ☐ Drinking Water ☐ Ground Water ☐ Waste Water ☐ Sludge ☐ Soil ☐ Wipe ☐ Paint ☐ Solid ☒ Other Water
16. Comments: _____
17. Sample Check-In completed by Truesdail Log-In/Receiving: Linda

ALERT!! Level II QC

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

Sean Condon
Project Manager
Truesdail Laboratories
14201 Frankline Avenue
Tustin, CA 92780
Tel: 714.730.6239
Project: 2012-GMP-188-Q4
Project No.: 423575.MP.02.GM.01
Email: seanc@truesdail.com

Dr. Yi Wang
Director of ZymaX Forensics Isotope
Senior Environmental Geochemist of DPRA
600 S. Andreasen Dr., Suite B
Escondido, CA 92029
Tel: 760.781.3338 ext 43
Fax: 760.781.3339
Cell: 609.721.2843
Email: yi.wang@zymaxusa.com

ZymaX FORENSICS

REPORT OF ENVIRONMENTAL FORENSICS ISOTOPE ANALYSES

Date Received: December 7th, 2012
Date Reported: January 2nd, 2013

Water samples from Truesdail Lab (Sean Condon) for $\delta^{18}O$ and δD (‰ VSMOW) stable isotope analysis

ZymaX ID	Sample ID	$\delta^{18}O$	δD
42912-1	MW-32-035-188	-11.0	-89.0
42912-2	MW-33-150-188	-10.5	-82.1
42912-3	MW-33-210-188	-10.5	-84.9
42912-4	MW-42-030-188	-11.5	-97.8
42912-5	MW-42-055-188	-12.0	-99.4
42912-6	MW-42-065-188	-12.2	-96.5
42912-7	MW-44-070-188	-12.2	-99.5

ZymaX ID	$\delta^{18}O$	δD
QC-01	-4.7	-36.3
QC-02	-4.6	-36.9
Mean	-4.7	-36.6
Precision (STDEV)	0.1	0.4

ZYMAX FORENSICS ISOTOPE LABORATORY ANALYSES

Gas

^{13}C and D of C1 to C4; ^{13}C of CO_2; C-14 of Methane and CO_2; ^{34}S of H_2S; ^{15}N and ^{18}O of N_2O gas

Oil, Extract, Fraction and Kerogen

Compound-Specific ^{13}C and D of MTBE,Chlorinated Solvents,PAH,Gasoline,Oil; Bulk ^{13}C, D/H, ^{34}S, and ^{15}N

Water

D and ^{18}O; ^{34}S and ^{18}O of dissolved sulfate; ^{34}S of dissolved H_2S; ^{37}Cl, ^{13}C and D of chlorinated solvents

^{15}N and ^{18}O of dissolved Nitrate; ^{15}N of Ammonia; ^{13}C of dissolved CO_2 and Carbonate/Bicarbonate

Soil and Minerals:

^{13}C, ^{15}N, ^{34}S, D/H, ^{18}O; C-14 of carbonate or organics

(Truesdail Lab)

CH2MHILL CHAIN OF CUSTODY RECORD 805317 12/11/2012 11:03:41 AM Page 1 OF 1

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.01
Task Order
Project 2012-GMP-188-Q4
Turnaround Time 10 Days
Shipping Date: 12/11/2012
COC Number: 23

Container: 250 ml Poly
Preservatives: 4°C
Filtered: NA
Holding Time: NA

	DATE	TIME	Matrix	Oxy_Deut (CF-IRMS)	Zymax Lab ID	Number of Containers	COMMENTS
MW-32-035-188	12/5/2012	13:09	Water	x	42912-1	1	
MW-33-150-188	12/6/2012	9:30	Water	x	-2	1	
MW-33-210-188	12/6/2012	10:23	Water	x	-3	1	
MW-42-030-188	12/6/2012	11:51	Water	x	-4	1	
MW-42-055-188	12/6/2012	13:18	Water	x	-5	1	
MW-42-065-188	12/6/2012	14:03	Water	x	-6	1	
MW-44-070-188	12/6/2012	15:46	Water	x	-7	1	
					TOTAL NUMBER OF CONTAINERS	7	

	Signatures	Date/Time
Approved by		12-11-12
Sampled by		1600
Relinquished by		
Received by	Rafael Davila	12-11-12 16:00
Relinquished by	Rafael Davila	12-11-12 22:30
Received by	Linda [illegible]	12/11/12 22:30
Rel-Sheet	[illegible]	12/12/12 [illegible]

Shipping Details
Method of Shipment: courier Received
On Ice: yes no
Airbill No: Zymax
Lab Name: Zymax Envirotechnology 12/13/12
Lab Phone: (805) 544-4696 5.3°C 9:30AM

ATTN:
Sample Custody
and
Michael Ng

Special Instructions:
Nov 5 - Dec 14, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

January 10, 2013

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

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK 2012-GMP-189, GROUNDWATER MONITORING PROJECT, TLI NO.: 805373

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2012-GMP-189 groundwater-monitoring project for Hexavalent Chromium and Total Dissolved Arsenic and Chromium. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, quality control data, and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data are under Section 5.

The samples were received and delivered with the chain of custody December 14, 2012, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

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

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

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING

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

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

Laboratory No.: 805373
Date Received: December 14, 2012

Project Name: PG&E Topock Project
Project No.: 423575.MP.02.GM.03
P.O. No.: 423575.MP.02.GM.03

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
805373-001	MW-34-100-189	E218.6	FLDFLT	12/12/2012	11:49	Chromium, Hexavalent	228	ug/L	2.0
805373-001	MW-34-100-189	SW6020	FLDFLT	12/12/2012	11:49	Arsenic	1.5	ug/L	1.0
805373-001	MW-34-100-189	SW6020	FLDFLT	12/12/2012	11:49	Chromium	263	ug/L	2.0
805373-002	MW-46-175-189	E218.6	FLDFLT	12/12/2012	13:48	Chromium, Hexavalent	73.2	ug/L	1.0
805373-002	MW-46-175-189	SW6020	FLDFLT	12/12/2012	13:48	Chromium	79.7	ug/L	2.0

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

004

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

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

REPORT

Client: **E2 Consulting Engineers, Inc.**
155 Grand Avenue, Suite 800
Oakland, CA 94612
Attention: Shawn Duffy
Project Name: PG&E Topock Project
Project Number: 423575.MP.02.GM.03
P.O. Number: 423575.MP.02.GM.03
Release Number:

Laboratory No. 805373

Printed 1/10/2013

Samples Received on 12/14/2012 2:45:00 PM

Field ID	Lab ID	Collected	Matrix
MW-34-100-189	805373-001	12/12/2012 11:49	Water
MW-46-175-189	805373-002	12/12/2012 13:48	Water

Chrome VI by EPA 218.6

Batch 12CrH12Q

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805373-001 Chromium, Hexavalent	ug/L	12/20/2012 15:15	10.0	0.0920	2.0	228
805373-002 Chromium, Hexavalent	ug/L	12/20/2012 12:59	5.00	0.0460	1.0	73.2

Method Blank

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

Duplicate

Lab ID = 805374-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	20.1	20.2	0.574	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.210	0.200	105	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.82	5.00	96.5	90 - 110

Matrix Spike

Lab ID = 805306-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	10.0	9.41	10.0(10.0)	94.1	90 - 110

Matrix Spike

Lab ID = 805306-017

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	10.0	9.44	10.0(10.0)	94.4	90 - 110

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Matrix Spike — Lab ID = 805373-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	10.0	459	478(250)	92.3	90 - 110

Matrix Spike — Lab ID = 805373-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	143	148(75.0)	93.6	90 - 110

Matrix Spike — Lab ID = 805374-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.0526	45.4	46.5(26.3)	95.8	90 - 110

Matrix Spike — Lab ID = 805374-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	6.08	6.35(5.00)	94.6	90 - 110

Matrix Spike — Lab ID = 805374-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.59	5.89(5.00)	94.0	90 - 110

Matrix Spike — Lab ID = 805374-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.54	5.00(5.00)	90.8	90 - 110

Matrix Spike — Lab ID = 805374-006

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

Matrix Spike — Lab ID = 805374-007

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	1870	1900(1000)	96.4	90 - 110

Matrix Spike — Lab ID = 805374-008

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.926	1.00(1.00)	92.6	90 - 110

Matrix Spike — Lab ID = 805374-008

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.67	5.17(5.00)	90.1	90 - 110

Matrix Spike — Lab ID = 805374-009

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1000	45000	45200(25000)	99.0	90 - 110

Matrix Spike — Lab ID = 805374-010

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1000	44900	45400(25000)	98.2	90 - 110

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Metals by EPA 6020A, Dissolved

Batch 010813C

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805373-001 Arsenic	ug/L	01/09/2013 09:43	5.00	0.500	1.0	1.5
Chromium	ug/L	01/09/2013 09:43	5.00	0.460	2.0	263
805373-002 Chromium	ug/L	01/09/2013 09:35	5.00	0.460	2.0	79.7

Method Blank

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

Duplicate

Lab ID = 805158-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Arsenic	ug/L	2.50	2.54	2.59	1.83	0 - 20
Chromium	ug/L	2.50	1.57	1.45	7.95	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	0.242	0.200	121	70 - 130
Chromium	ug/L	1.00	0.452	0.400	113	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	2.50	46.4	50.0	92.8	85 - 115
Chromium	ug/L	2.50	53.2	50.0	106	85 - 115

Matrix Spike

Lab ID = 805158-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	2.50	51.9	52.6(50.0)	98.6	75 - 125
Chromium	ug/L	2.50	55.3	51.4(50.0)	108	75 - 125

Matrix Spike Duplicate

Lab ID = 805158-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	2.50	50.4	52.6(50.0)	95.5	75 - 125
Chromium	ug/L	2.50	51.2	51.4(50.0)	99.4	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	19.6	20.0	98.2	90 - 110
Chromium	ug/L	1.00	20.1	20.0	100	90 - 110

MRCVS - Primary

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

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Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project
Project Number: 423575.MP.02.GM.03

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	19.1	20.0	95.6	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.5	20.0	97.3	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.8	20.0	98.8	80 - 120

Serial Dilution — Lab ID = 805373-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	25.0	238	263	10.0	0 - 10

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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805373

CH2MHILL **CHAIN OF CUSTODY RECORD** 12/12/2012 4:04:28 PM Page 1 OF 1

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.03
Task Order
Project 2012-GMP-189
Turnaround Time 10 Days
Shipping Date: 12/5/2012
COC Number: GMP189

				Container:	250 ml Poly	1x500 ml Poly	1x500 ml Poly			
				Preservatives:	(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C	HNO3, 4°C			
				Filtered:	Field	Field	Field			
				Holding Time:	28	180	180			
		DATE	TIME	Matrix	Cr6 (E218.6) Field Filtered	Metals (6020AFF) Field Filtered Arsenic,Chromium	Metals (6020AFF) Field Filtered Chromium	Rec'd 12/14/12 S14c 805373	Number of Containers	COMMENTS
-1	MW-34-100-189	12/12/2012	11:49	Water	X	X			2	PM=2
-2	MW-46-175-189	12/12/2012	13:48	Water	X		X		2	
								TOTAL NUMBER OF CONTAINERS	4	6020A

For Sample Conditions See Form Attached

ALERT !! Level III QC

	Signatures	Date/Time
Approved by		12-13-12
Sampled by		1715
Relinquished by		
Received by	Rafael Davila	12-14-12 9:45AM
Relinquished by	Rafael Davila	12-14-12 2:45
Received by	Linda, TLI	12/14/12 2:45

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

ATTN: Sample Custody

Special Instructions: Dec, 2012

Report Copy to Shawn Duffy (530) 229-3303

TRUESDAIL LABORATORIES, INC.

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest 3010A	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
805397	>1	<2	12/17/12	MM	yes			
~~805~~ ES 12/17/12								
700830 (1-6)	<1	>2	12/17/12	ES	No	10:00	12/18/12 <2	
805456 (1-3)			12/20/12	BE	NO	8:00	1-2-13	PH<2
805425 (1-3;4)								
BE ~~805~~ 805401 (1-3								
805443								
805404								
805429		>2			yes			
805373		<2						
805375 (1-12)								
805374 (1-12								
805462	>1	<2						
805417								
805418								
805419								
805420								
805421								
805427 (1-3)								
805446								
805442								
805455								
805471								
805472								
805473								
805518	<1	>2	12-31-12	BE	NO	15:00	1-2-13	PH<2
805514 (1-4)	<1	>2	1-02-13	BE	No	9:00 AM		
805519								
805520 (1-4)								
805535 (4-6)						14:00		
805498 (10-12)						14:00		
805505	<1	>2	1-03-13	BE	yes	14:00		
805581		<2						
805508			1-4-13	BE	yes			
805503			12-27-12					
805507								
805557 (1-3)	<1	>2	1-4-13	BE	No	11:00	1-8-13	PH<3
805575 (1-3)							1-7-13	PH<2
805550	<1	>2	1-7-13	BE	No	14:00	1-8-13	
805544 (10-12)								
805609 (1,2,4)								
805572					BE yes			
805571	>1	<2	1-8-13	BE	yes			
805572								

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

Hexavalent Chromium

Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
12/12/12	805305-21	9.5	N/A	N/A	N/A	HAV
	-22					
	-23					
12/12/12	805306-1	9.5	N/A	N/A	N/A	HAV
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
	-13					
	-14					
	-15					
	-16					
	-17	8.5	4 drop 25% NaOH	9.5	10:45 AM	HAV
	-18	9.5	N/A	N/A	N/A	HAV
	-19					
	-20					
	-21					
	-22					
	-23					
	-24					
	-25					
	-26					
12/14/12	805373-1	9.5	N/A	N/A	N/A	HAV
	-2					

1-2-13

HAV 12/27/12

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: E2 **Lab #** 805373

Date Delivered: 12 / 14 / 12 **Time:** 2:45 **By:** ☐Mail ☒Field Service ☐Client

1. Was a Chain of Custody received and signed? ☒Yes ☐No ☐N/A
2. Does Customer require an acknowledgement of the COC? ☐Yes ☐No ☒N/A
3. Are there any special requirements or notes on the COC? ☐Yes ☐No ☒N/A
4. If a letter was sent with the COC, does it match the COC? ☐Yes ☐No ☒N/A
5. Were all requested analyses understood and acceptable? ☒Yes ☐No ☐N/A
6. Were samples received in a chilled condition? ☒Yes ☐No ☐N/A
   Temperature (if yes)? 4.1 °C
7. Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)? ☒Yes ☐No ☐N/A
8. Were sample custody seals intact? ☐Yes ☐No ☒N/A
9. Does the number of samples received agree with COC? ☒Yes ☐No ☐N/A
10. Did sample labels correspond with the client ID's? ☒Yes ☐No ☐N/A
11. Did sample labels indicate proper preservation? ☒Yes ☐No ☐N/A
    Preserved (if yes) by: ☒Truesdail ☐Client
12. Were samples pH checked? pH = See C.O.C ☒Yes ☐No ☐N/A
13. Were all analyses within holding time at time of receipt? ☒Yes ☐No ☐N/A
    If not, notify Project Manager.
14. Have Project due dates been checked and accepted? ☒Yes ☐No ☐N/A
    Turn Around Time (TAT): ☐ RUSH ☒ Std
15. **Sample Matrix:** ☐Liquid ☐Drinking Water ☐Ground Water ☐Waste Water ☐Sludge ☐Soil ☐Wipe ☐Paint ☐Solid ☒Other Water
16. Comments: _____
17. Sample Check-In completed by Truesdail Log-In/Receiving: Linda

ALERT !!
Level III QC

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

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

January 16, 2013

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

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK 2012-GMP-188-Q4, GROUNDWATER MONITORING PROJECT, TLI NO.: 805374

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2012-GMP-188-Q4 groundwater-monitoring project for Hexavalent and Total Dissolved Chromium. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, quality control data, and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data are under Section 5.

The samples were received and delivered with the chain of custody December 14, 2012, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

Due to the discrepancy between the Total Dissolved Chromium (29.3 ug/L) and Hexavalent Chromium (1.4 ug/L) results for sample MW-49-135-188, sample from the Total Dissolved Chromium and Hexavalent Chromium sample containers were digested and analyzed for Total Dissolved Chromium. The results were 28.6 ug/L and 31.1 ug/L, respectively. The original digestate was re-analyzed for confirmation and yielded a result of 29.2 ug/L. Solids were observed in both the Hexavalent Chromium and Total Dissolved Chromium sample containers. Sample was taken from the Hexavalent Chromium sample container, filtered, digested, and analyzed for Total Dissolved Chromium. The result was 1.3 ug/L. After discussing the results with Mr. Duffy, the original results were reported.

Due to the discrepancy between the Total Dissolved Chromium (1.6 ug/L) and Hexavalent Chromium (ND<1.0 ug/L) results for sample MW-49-275-188, sample from the Total Dissolved Chromium and Hexavalent Chromium sample containers were digested and analyzed for Total Dissolved Chromium. The results were 2.0 ug/L and 2.5 ug/L, respectively. The original digestate was re-analyzed for confirmation and yielded a result of 2.0 ug/L. The original result was reported.

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

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

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

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

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

Laboratory No.: 805374
Date Received: December 14, 2012

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

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
805374-001	MW-100-188	SM3500-CrB	FLDFLT	12/11/2012	9:23	Chromium, Hexavalent	2980	ug/L	500
805374-001	MW-100-188	SW6020	FLDFLT	12/11/2012	9:23	Chromium	3090	ug/L	10.0
805374-002	MW-13-188	E218.6	FLDFLT	12/11/2012	12:38	Chromium, Hexavalent	20.2	ug/L	0.20
805374-002	MW-13-188	SW6020	FLDFLT	12/11/2012	12:38	Chromium	24.6	ug/L	1.0
805374-003	MW-25-188	SM3500-CrB	FLDFLT	12/11/2012	23:21	Chromium, Hexavalent	192	ug/L	100
805374-003	MW-25-188	SW6020	FLDFLT	12/11/2012	23:21	Chromium	216	ug/L	1.0
805374-004	MW-49-135-188	E218.6	FLDFLT	12/11/2012	9:33	Chromium, Hexavalent	1.4	ug/L	1.0
805374-004	MW-49-135-188	SW6020	FLDFLT	12/11/2012	9:33	Chromium	29.3	ug/L	1.0
805374-005	MW-49-275-188	E218.6	FLDFLT	12/11/2012	11:08	Chromium, Hexavalent	ND	ug/L	1.0
805374-005	MW-49-275-188	SW6020	FLDFLT	12/11/2012	11:08	Chromium	1.6	ug/L	1.0
805374-006	MW-49-365-188	E218.6	FLDFLT	12/11/2012	16:18	Chromium, Hexavalent	ND	ug/L	2.0
805374-006	MW-49-365-188	SW6020	FLDFLT	12/11/2012	16:18	Chromium	ND	ug/L	1.0
805374-007	MW-62-110-188	E218.6	FLDFLT	12/11/2012	15:22	Chromium, Hexavalent	904	ug/L	10
805374-007	MW-62-110-188	SW6020	FLDFLT	12/11/2012	15:22	Chromium	944	ug/L	4.0
805374-008	MW-62-190-188	E218.6	FLDFLT	12/11/2012	15:30	Chromium, Hexavalent	ND	ug/L	1.0
805374-008	MW-62-190-188	SW6020	FLDFLT	12/11/2012	15:30	Chromium	ND	ug/L	1.0
805374-009	MW-68-180-188	E218.6	FLDFLT	12/11/2012	9:38	Chromium, Hexavalent	20200	ug/L	200
805374-009	MW-68-180-188	SW6020	FLDFLT	12/11/2012	9:38	Chromium	21800	ug/L	50.0
805374-010	MW-99-188	E218.6	FLDFLT	12/11/2012	13:02	Chromium, Hexavalent	20400	ug/L	200
805374-010	MW-99-188	SW6020	FLDFLT	12/11/2012	13:02	Chromium	21700	ug/L	50.0
805374-011	PGE-07BR-188	E218.6	FLDFLT	12/11/2012	16:13	Chromium, Hexavalent	ND	ug/L	1.0
805374-011	PGE-07BR-188	SW6020	FLDFLT	12/11/2012	16:13	Chromium	ND	ug/L	1.0

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Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
805374-012	TW-01-188	SM3500-CrB	FLDFLT	12/11/2012	14:50	Chromium, Hexavalent	3100	ug/L	500
805374-012	TW-01-188	SW6020	FLDFLT	12/11/2012	14:50	Chromium	3230	ug/L	10.0

ND: Non Detected (below reporting limit)

mg/L: Milligrams per liter.

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

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

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

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

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REPORT

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

Laboratory No. 805374

Printed 1/16/2013

Samples Received on 12/14/2012 2:45:00 PM

Field ID	Lab ID	Collected	Matrix
MW-100-188	805374-001	12/11/2012 09:23	Water
MW-13-188	805374-002	12/11/2012 12:38	Water
MW-25-188	805374-003	12/11/2012 23:21	Water
MW-49-135-188	805374-004	12/11/2012 09:33	Water
MW-49-275-188	805374-005	12/11/2012 11:08	Water
MW-49-365-188	805374-006	12/11/2012 16:18	Water
MW-62-110-188	805374-007	12/11/2012 15:22	Water
MW-62-190-188	805374-008	12/11/2012 15:30	Water
MW-68-180-188	805374-009	12/11/2012 09:38	Water
MW-99-188	805374-010	12/11/2012 13:02	Water
PGE-07BR-188	805374-011	12/11/2012 16:13	Water
TW-01-188	805374-012	12/11/2012 14:50	Water

Chrome VI by EPA 218.6

Batch 12CrH12Q

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805374-002 Chromium, Hexavalent	ug/L	12/20/2012 13:10	1.00	0.00920	0.20	20.2
805374-004 Chromium, Hexavalent	ug/L	12/20/2012 15:25	5.00	0.0460	1.0	1.4
805374-005 Chromium, Hexavalent	ug/L	12/20/2012 15:36	5.00	0.0460	1.0	ND
805374-007 Chromium, Hexavalent	ug/L	12/20/2012 13:51	50.0	0.460	10.0	904
805374-008 Chromium, Hexavalent	ug/L	12/20/2012 19:35	5.00	0.0460	1.0	ND
805374-009 Chromium, Hexavalent	ug/L	12/20/2012 15:56	1000	9.20	200	20200
805374-010 Chromium, Hexavalent	ug/L	12/20/2012 16:07	1000	9.20	200	20400
805374-011 Chromium, Hexavalent	ug/L	12/20/2012 20:16	5.00	0.0460	1.0	ND

Method Blank

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

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Duplicate — Lab ID = 805374-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	20.1	20.2	0.574	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.210	0.200	105	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.82	5.00	96.5	90 - 110

Matrix Spike — Lab ID = 805306-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	10.0	9.41	10.0(10.0)	94.1	90 - 110

Matrix Spike — Lab ID = 805306-017

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	10.0	9.44	10.0(10.0)	94.4	90 - 110

Matrix Spike — Lab ID = 805373-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	10.0	459	478(250)	92.3	90 - 110

Matrix Spike — Lab ID = 805373-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	143	148(75.0)	93.6	90 - 110

Matrix Spike — Lab ID = 805374-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.0526	45.4	46.5(26.3)	95.8	90 - 110

Matrix Spike — Lab ID = 805374-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	6.08	6.35(5.00)	94.6	90 - 110

Matrix Spike — Lab ID = 805374-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.59	5.89(5.00)	94.0	90 - 110

Matrix Spike — Lab ID = 805374-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.54	5.00(5.00)	90.8	90 - 110

Matrix Spike — Lab ID = 805374-006

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

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Matrix Spike — Lab ID = 805374-007

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	1870	1900(1000)	96.4	90 - 110

Matrix Spike — Lab ID = 805374-008

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.926	1.00(1.00)	92.6	90 - 110

Matrix Spike — Lab ID = 805374-008

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.67	5.17(5.00)	90.1	90 - 110

Matrix Spike — Lab ID = 805374-009

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1000	45000	45200(25000)	99.0	90 - 110

Matrix Spike — Lab ID = 805374-010

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1000	44900	45400(25000)	98.2	90 - 110

Matrix Spike — Lab ID = 805374-011

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.86	5.17(5.00)	93.8	90 - 110

Matrix Spike — Lab ID = 805374-011

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.928	1.00(1.00)	92.8	90 - 110

Matrix Spike — Lab ID = 805429-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.83	5.20(5.00)	92.6	90 - 110

Matrix Spike — Lab ID = 805429-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.14	1.10(1.00)	104	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.84	5.00	96.8	90 - 110

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.92	10.0	99.2	95 - 105

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project
Project Number: 423575.MP.02.GM.01

Chrome VI by EPA 218.6

Batch 01CrH13A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805374-006 Chromium, Hexavalent	ug/L	01/02/2013 15:34	10.0	0.0920	2.0	ND

Method Blank

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

Duplicate — Lab ID = 805508-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.0322	0.0334	3.66	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.199	0.200	99.4	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.68	5.00	93.7	90 - 110

Matrix Spike — Lab ID = 805374-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	10.0	9.22	10.0(10.0)	92.2	90 - 110

Matrix Spike — Lab ID = 805505-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.976	1.06(1.00)	91.8	90 - 110

Matrix Spike — Lab ID = 805506-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.60	5.00(5.00)	92.0	90 - 110

Matrix Spike — Lab ID = 805506-001

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

Matrix Spike — Lab ID = 805506-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.959	1.02(1.00)	94.3	90 - 110

Matrix Spike — Lab ID = 805506-003

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

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Metals by EPA 6020A, Dissolved

Batch 011013A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805374-001 Chromium	ug/L	01/10/2013 11:02	50.0	4.60	10.0	3090
805374-002 Chromium	ug/L	01/10/2013 11:24	2.50	0.230	1.0	24.6
805374-003 Chromium	ug/L	01/10/2013 11:38	5.00	0.460	1.0	216
805374-004 Chromium	ug/L	01/10/2013 12:21	2.50	0.230	1.0	29.3
805374-005 Chromium	ug/L	01/10/2013 10:19	5.00	0.460	1.0	1.6
805374-006 Chromium	ug/L	01/10/2013 12:36	5.00	0.460	1.0	ND
805374-007 Chromium	ug/L	01/10/2013 13:40	20.0	1.84	4.0	944
805374-008 Chromium	ug/L	01/10/2013 12:57	5.00	0.460	1.0	ND
805374-009 Chromium	ug/L	01/10/2013 14:31	250	23.0	50.0	21800
805374-010 Chromium	ug/L	01/10/2013 14:38	250	23.0	50.0	21700
805374-011 Chromium	ug/L	01/10/2013 13:19	5.00	0.460	1.0	ND
805374-012 Chromium	ug/L	01/10/2013 14:17	50.0	4.60	10.0	3230

Method Blank

Parameter	Unit	DF	Result
Chromium	ug/L	1.00	ND

Duplicate

Lab ID = 805374-005

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	5.00	1.45	1.64	12.4	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.157	0.200	78.7	701 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	2.50	50.4	50.0	101	85 - 115

Matrix Spike

Lab ID = 805374-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	5.00	53.1	51.6(50.0)	103	75 - 125

Matrix Spike Duplicate

Lab ID = 805374-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	5.00	52.6	51.6(50.0)	102	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.8	20.0	94.2	90 - 110

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MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.4	20.0	97.2	90 - 110

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.4	20.0	97.0	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.6	20.0	97.8	90 - 110

MRCVS - Primary

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

Interference Check Standard A

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

Interference Check Standard A

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

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.1	20.0	90.6	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.8	20.0	94.0	80 - 120

Serial Dilution Lab ID = 805374-007

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	100	944	944	0.0212	0 - 10

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project
Project Number: 423575.MP.02.GM.01

Printed 1/16/2013

Chromium, Hexavalent by SM 3500-Cr B

Batch 01CrH13B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805374-001 Chromium, Hexavalent	ug/L	01/03/2013 14:07	50.0	75.0	500	2980
805374-003 Chromium, Hexavalent	ug/L	01/03/2013 14:08	10.0	15.0	100	192
805374-012 Chromium, Hexavalent	ug/L	01/03/2013 14:09	50.0	75.0	500	3100

Method Blank

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

Duplicate — Lab ID = 805561-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	897	897	0	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	102	100	102	90 - 110

Matrix Spike — Lab ID = 805561-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	3510	3400(2500)	105	85 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	63.2	60.0	105	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	60.8	60.0	101	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	60.8	60.0	101	90 - 110

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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805374

CH2MHILL **CHAIN OF CUSTODY RECORD** 12/13/2012 3:01:15 PM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy

Project Number 423575.MP.02.GM.01
Task Order
Project 2012-GMP-188-Q4
Turnaround Time 10 Days
Shipping Date: 12/14/2012
COC Number: 28

				Container:	250 ml Poly	2x250 ml Poly	250 ml Poly	2x500 ml Poly	1x500 ml Poly			
				Preservatives:	(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C	HNO3, 4°C			
				Filtered:	Field	Field	Field	Field	Field			
				Holding Time:	28	28	28	180	180			
		DATE	TIME	Matrix	Cr6 (E218.6) Field Filtered	Cr6 (E218.6R) Field Filtered	Cr6 (SM3500B) Field Filtered	Metals (6020AFF) Field Filtered Chromium	Metals (6020AFF) Field Filtered Chromium		Number of Containers	COMMENTS
1	MW-100-188	12/11/2012	9:23	Water			X		X		2	
2	MW-13-188	12/11/2012	12:38	Water	X				X		2	
3	MW-25-188	12/11/2012	11:21	Water			X		X		2	pH 2
4	MW-49-135-188	12/11/2012	9:33	Water		X		X			4	6020A
5	MW-49-275-188	12/11/2012	11:08	Water		X		X			4	
	MW-49-275-188-EB	12/11/2012	9:50	Water	X				X		2	
6	MW-49-365-188	12/11/2012	16:18	Water		X		X			4	pH 2
	MW-49-365-188-EB	12/11/2012	12:16	Water	X				X		2	6020A
7	MW-62-110-188	12/11/2012	15:22	Water	X				X		2	
8	MW-62-190-188	12/11/2012	15:30	Water	X				X		2	
9	MW-68-180-188	12/11/2012	9:38	Water	X				X		2	pH 2
10	MW-99-188	12/11/2012	13:02	Water	X				X		2	6020A
11	PGE-07BR-188	12/11/2012	16:13	Water	X				X		2	
12	TW-01-188	12/11/2012	14:50	Water			X		X		2	

Sample Conditions
Form Attached

ALERT !!
Level III QC

Rec'd 12/14/12
~~S14c~~ 805374

	Signatures	Date/Time
Approved by		12-13-12
Sampled by		1710
Relinquished by		
Received by	Rafael Davila	12-14-12 9:45 AM
Relinquished by	Rafael Davila	12-14-12 2:45
Received by	Linda, TLI	12/14/12 2:45

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

ATTN:

Sample Custody

Special Instructions:
Nov 5 - Dec 14, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

065

Hexavalent Chromium

Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
12/14/12	805374-1	9.5	N/A	N/A	N/A	HAV
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
12/14/12	805375-1	9.5	N/A	N/A	N/A	HAV
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
	-13					
	-14					
	-15					
	-16					
	-17					
	-18					
12/18/12	805404	7	2 ml	9.5	9:30 AM	HAV

1-2-13

HAV
12/27/12

TRUESDAIL LABORATORIES, INC.

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest 3010A	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
805397	>1	<2	12/17/12	MM	yes			
~~805~~ES 12/17/12								
700830 (1-6)	<1	>2	12/17/12	ES	No	10:00	12/18/12 <2	
805456 (1-3)			12/20/12	BE	NO	8:00	1-2-13	PH<2
805425 (1-3,4)								
BE ~~805~~ 805401 (1-3)								
805443								
805404								
805429		>2			yes			
805373		<2						
805375 (1-12)								
805374 (1-12								
805462	>1	<2						
805417								
805418								
805419								
805420								
805421								
805427 (1-3)								
805446								
805442								
805455								
805471								
805472								
805473								
805518	<1	>2	12-31-12	BE	NO	15:00	1-2-13	PH<2
805514 (1-4)	<1	>2	1-02-13	BE	No	9:00 AM		
805519								
805520 (1-4)								
805535 (4-6)						14:00		
805498 (10-12)						14:00		
805505	<1	>2	1-03-13	BE	yes	14:00		
805581		<2						
805508			1-4-13	BE	yes			
805503			12-27-12					
805507								
805557 (1-3)	<1	>2	1-4-13	BE	NO	11:00	1-8-13	PH<3
805575 (1-3)							1-7-13	PH<2
805550	<1	>2	1-7-13	BE	NO	14:00	1-8-13	
805544 (10-12)								
806609 (1,2,4)								
805572					BE yes			
805571	>1	<2	1-2-13	BE	yes			
805572								

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

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: E2 **Lab #** 805374

Date Delivered: 12 / 14 / 12 **Time:** 2:45 **By:** ☐Mail ☑Field Service ☐Client

1. Was a Chain of Custody received and signed? ☑Yes ☐No ☐N/A
2. Does Customer require an acknowledgement of the COC? ☐Yes ☐No ☑N/A
3. Are there any special requirements or notes on the COC? ☐Yes ☐No ☑N/A
4. If a letter was sent with the COC, does it match the COC? ☐Yes ☐No ☑N/A
5. Were all requested analyses understood and acceptable? ☑Yes ☐No ☐N/A
6. Were samples received in a chilled condition? ☑Yes ☐No ☐N/A
   Temperature (if yes)? 4.1 °C
7. Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)? ☑Yes ☐No ☐N/A
8. Were sample custody seals intact? ☐Yes ☐No ☑N/A
9. Does the number of samples received agree with COC? ☑Yes ☐No ☐N/A
10. Did sample labels correspond with the client ID's? ☑Yes ☐No ☐N/A
11. Did sample labels indicate proper preservation? ☑Yes ☐No ☐N/A
    Preserved (if yes) by: ☑Truesdail ☐Client
12. Were samples pH checked? pH = see C.O.C ☑Yes ☐No ☐N/A
13. Were all analyses within holding time at time of receipt? ☑Yes ☐No ☐N/A
    If not, notify Project Manager.
14. Have Project due dates been checked and accepted? ☑Yes ☐No ☐N/A
    Turn Around Time (TAT): ☐ RUSH ☑ Std
15. **Sample Matrix:** ☐Liquid ☐Drinking Water ☐Ground Water ☐Waste Water ☐Sludge ☐Soil ☐Wipe ☐Paint ☐Solid ☑Other Water
16. Comments: _____
17. Sample Check-In completed by Truesdail Log-In/Receiving: Linda

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

ALERT !!
Level III QC

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

January 14, 2013

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

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK 2012-GMP-188-Q4, GROUNDWATER MONITORING PROJECT, TLI NO.: 805375

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2012-GMP-188-Q4 groundwater-monitoring project for Hexavalent and Total Dissolved Chromium. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, quality control data, and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data are under Section 5.

The samples were received and delivered with the chain of custody December 14, 2012, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

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

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

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.
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(714) 730-6239 · FAX (714) 730-6462 · www.truesdail.com

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

Laboratory No.: 805375
Date Received: December 14, 2012

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

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
805375-001	MW-34-055-188	E218.6	FLDFLT	12/12/2012	8:54	Chromium, Hexavalent	ND	ug/L	0.20
805375-001	MW-34-055-188	SW6020	FLDFLT	12/12/2012	8:54	Chromium	ND	ug/L	1.0
805375-002	MW-34-080-188	E218.6	FLDFLT	12/12/2012	10:55	Chromium, Hexavalent	ND	ug/L	0.20
805375-002	MW-34-080-188	SW6020	FLDFLT	12/12/2012	10:55	Chromium	ND	ug/L	1.0
805375-003	MW-46-205-188	E218.6	FLDFLT	12/12/2012	14:58	Chromium, Hexavalent	4.9	ug/L	1.0
805375-003	MW-46-205-188	SW6020	FLDFLT	12/12/2012	14:58	Chromium	5.1	ug/L	1.0
805375-004	MW-84-188	E218.6	FLDFLT	12/12/2012	7:30	Chromium, Hexavalent	2.0	ug/L	0.20
805375-005	MW-85-188	E218.6	FLDFLT	12/12/2012	7:32	Chromium, Hexavalent	ND	ug/L	0.20
805375-006	MW-86-188	E218.6	FLDFLT	12/12/2012	15:42	Chromium, Hexavalent	ND	ug/L	0.20
805375-007	MW-87-188	E218.6	FLDFLT	12/12/2012	15:45	Chromium, Hexavalent	ND	ug/L	0.20
805375-008	MW-97-188	E218.6	FLDFLT	12/12/2012	10:57	Chromium, Hexavalent	ND	ug/L	0.20
805375-008	MW-97-188	SW6020	FLDFLT	12/12/2012	10:57	Chromium	ND	ug/L	1.0
805375-009	MW-14-188	E218.6	FLDFLT	12/13/2012	11:54	Chromium, Hexavalent	19.9	ug/L	0.20
805375-009	MW-14-188	SW6020	FLDFLT	12/13/2012	11:54	Chromium	21.8	ug/L	1.0
805375-010	MW-39-100-188	SM3500-CrB	FLDFLT	12/13/2012	9:56	Chromium, Hexavalent	93.2	ug/L	20.0
805375-010	MW-39-100-188	SW6020	FLDFLT	12/13/2012	9:56	Chromium	82.0	ug/L	1.0
805375-011	MW-45-095a-188	E218.6	FLDFLT	12/13/2012	8:50	Chromium, Hexavalent	20.2	ug/L	1.0
805375-011	MW-45-095a-188	SW6020	FLDFLT	12/13/2012	8:50	Chromium	20.4	ug/L	1.0
805375-012	MW-57-070-188	E218.6	FLDFLT	12/13/2012	12:29	Chromium, Hexavalent	724	ug/L	10.0
805375-012	MW-57-070-188	SW6020	FLDFLT	12/13/2012	12:29	Chromium	799	ug/L	2.0
805375-013	MW-102-188	E218.6	FLDFLT	12/13/2012	14:33	Chromium, Hexavalent	ND	ug/L	0.20
805375-014	MW-103-188	E218.6	FLDFLT	12/13/2012	14:30	Chromium, Hexavalent	ND	ug/L	0.20
805375-015	MW-70BR-225-188	E218.6	FLDFLT	12/13/2012	10:13	Chromium, Hexavalent	1980	ug/L	20.0
805375-015	MW-70BR-225-188	SW6020	FLDFLT	12/13/2012	10:13	Chromium	1980	ug/L	10.0

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Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
805375-016	MW-96-188	E218.6	FLDFLT	12/13/2012	12:34	Chromium, Hexavalent	752	ug/L	10.0
805375-016	MW-96-188	SW6020	FLDFLT	12/13/2012	12:34	Chromium	851	ug/L	2.0
805375-017	TW-02D-188	SM3500-CrB	FLDFLT	12/13/2012	12:42	Chromium, Hexavalent	192	ug/L	100
805375-017	TW-02D-188	SW6020	FLDFLT	12/13/2012	12:42	Chromium	228	ug/L	1.0
805375-018	TW-02S-188	SM3500-CrB	FLDFLT	12/13/2012	12:58	Chromium, Hexavalent	478	ug/L	100
805375-018	TW-02S-188	SW6020	FLDFLT	12/13/2012	12:58	Chromium	516	ug/L	2.0

ND: Non Detected (below reporting limit)

mg/L: Milligrams per liter.

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

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

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

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

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TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

REPORT

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

Laboratory No. 805375

Printed 1/14/2013

Samples Received on 12/14/2012 2:45:00 PM

Field ID	Lab ID	Collected	Matrix
MW-34-055-188	805375-001	12/12/2012 08:54	Water
MW-34-080-188	805375-002	12/12/2012 10:55	Water
MW-46-205-188	805375-003	12/12/2012 14:58	Water
MW-84-188	805375-004	12/12/2012 07:30	Water
MW-85-188	805375-005	12/12/2012 07:32	Water
MW-86-188	805375-006	12/12/2012 15:42	Water
MW-87-188	805375-007	12/12/2012 15:45	Water
MW-97-188	805375-008	12/12/2012 10:57	Water
MW-14-188	805375-009	12/13/2012 11:54	Water
MW-39-100-188	805375-010	12/13/2012 09:56	Water
MW-45-095a-188	805375-011	12/13/2012 08:50	Water
MW-57-070-188	805375-012	12/13/2012 12:29	Water
MW-102-188	805375-013	12/13/2012 14:33	Water
MW-103-188	805375-014	12/13/2012 14:30	Water
MW-70BR-225-188	805375-015	12/13/2012 10:13	Water
MW-96-188	805375-016	12/13/2012 12:34	Water
TW-02D-188	805375-017	12/13/2012 12:42	Water
TW-02S-188	805375-018	12/13/2012 12:58	Water

Chrome VI by EPA 218.6 Batch 01CrH13B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805375-001 Chromium, Hexavalent	ug/L	01/03/2013 10:39	1.00	0.00920	0.20	ND
805375-002 Chromium, Hexavalent	ug/L	01/03/2013 10:50	1.00	0.00920	0.20	ND
805375-003 Chromium, Hexavalent	ug/L	01/03/2013 13:36	5.00	0.0460	1.0	4.9
805375-004 Chromium, Hexavalent	ug/L	01/03/2013 11:10	1.00	0.00920	0.20	2.0
805375-005 Chromium, Hexavalent	ug/L	01/03/2013 11:21	1.00	0.00920	0.20	ND
805375-006 Chromium, Hexavalent	ug/L	01/03/2013 11:31	1.00	0.00920	0.20	ND
805375-007 Chromium, Hexavalent	ug/L	01/03/2013 11:42	1.00	0.00920	0.20	ND
805375-008 Chromium, Hexavalent	ug/L	01/03/2013 13:57	1.00	0.00920	0.20	ND

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805375-009	Chromium, Hexavalent	ug/L	01/03/2013 12:23	1.00	0.00920	0.20	19.9
805375-011	Chromium, Hexavalent	ug/L	01/03/2013 15:20	5.00	0.0460	1.0	20.2
805375-012	Chromium, Hexavalent	ug/L	01/03/2013 14:38	50.0	0.460	10.0	724
805375-013	Chromium, Hexavalent	ug/L	01/03/2013 14:49	1.00	0.00920	0.20	ND
805375-014	Chromium, Hexavalent	ug/L	01/03/2013 13:05	1.00	0.00920	0.20	ND
805375-015	Chromium, Hexavalent	ug/L	01/03/2013 14:59	100	0.920	20.0	1980
805375-016	Chromium, Hexavalent	ug/L	01/03/2013 15:10	50.0	0.460	10.0	752

Method Blank

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

Duplicate — Lab ID = 805375-004

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.97	2.01	1.90	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.196	0.200	98.0	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.79	5.00	95.8	90 - 110

Matrix Spike — Lab ID = 805375-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.950	1.00(1.00)	95.0	90 - 110

Matrix Spike — Lab ID = 805375-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.915	1.00(1.00)	91.5	90 - 110

Matrix Spike — Lab ID = 805375-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	9.49	9.91(5.00)	91.6	90 - 110

Matrix Spike — Lab ID = 805375-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	6.82	7.01(5.00)	96.3	90 - 110

Matrix Spike — Lab ID = 805375-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.964	1.00(1.00)	96.4	90 - 110

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Matrix Spike — Lab ID = 805375-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.948	1.00(1.00)	94.8	90 - 110

Matrix Spike — Lab ID = 805375-007

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.958	1.00(1.00)	95.8	90 - 110

Matrix Spike — Lab ID = 805375-008

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.901	1.00(1.00)	90.1	90 - 110

Matrix Spike — Lab ID = 805375-009

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	39.1	39.9(20.0)	96.1	90 - 110

Matrix Spike — Lab ID = 805375-011

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	44.3	45.2(25.0)	96.3	90 - 110

Matrix Spike — Lab ID = 805375-012

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	1460	1470(750)	97.6	90 - 110

Matrix Spike — Lab ID = 805375-013

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.982	1.00(1.00)	98.2	90 - 110

Matrix Spike — Lab ID = 805375-014

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.972	1.00(1.00)	97.2	90 - 110

Matrix Spike — Lab ID = 805375-015

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	100	3880	3980(2000)	95.0	90 - 110

Matrix Spike — Lab ID = 805375-016

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	1750	1750(1000)	99.8	90 - 110

Matrix Spike — Lab ID = 805561-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	17.9	18.1(10.0)	98.7	90 - 110

Matrix Spike — Lab ID = 805562-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.938	1.05(1.00)	89.1	90 - 110

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Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project
Project Number: 423575.MP.02.GM.01

Metals by EPA 6020A, Dissolved

Batch 011213A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805375-001 Chromium	ug/L	01/12/2013 17:16	2.50	0.230	1.0	ND
805375-002 Chromium	ug/L	01/12/2013 17:22	2.50	0.230	1.0	ND
805375-003 Chromium	ug/L	01/12/2013 17:28	2.50	0.230	1.0	5.1
805375-008 Chromium	ug/L	01/12/2013 17:34	2.50	0.230	1.0	ND
805375-009 Chromium	ug/L	01/12/2013 17:40	2.50	0.230	1.0	21.8
805375-010 Chromium	ug/L	01/12/2013 17:46	2.50	0.230	1.0	82.0
805375-011 Chromium	ug/L	01/12/2013 17:52	2.50	0.230	1.0	20.4
805375-012 Chromium	ug/L	01/12/2013 17:58	10.0	0.920	2.0	799
805375-015 Chromium	ug/L	01/12/2013 18:10	50.0	4.60	10.0	1980
805375-016 Chromium	ug/L	01/12/2013 18:27	10.0	0.920	2.0	851
805375-017 Chromium	ug/L	01/12/2013 18:45	2.50	0.230	1.0	228

Method Blank

Parameter	Unit	DF	Result
Chromium	ug/L	1.00	ND

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.228	0.200	114	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	2.50	51.4	50.0	103	85 - 115

Matrix Spike

Lab ID = 805504-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.50	50.3	50.0(50.0)	101	75 - 125

Matrix Spike Duplicate

Lab ID = 805504-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.50	49.1	50.0(50.0)	98.3	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	21.0	20.0	105	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.7	20.0	104	90 - 110

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MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.7	20.0	104	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.6	20.0	103	90 - 110

Interference Check Standard A

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

Interference Check Standard A

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

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.6	20.0	97.8	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.5	20.0	97.6	80 - 120

Serial Dilution Lab ID = 805375-012

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	50.0	782	799	2.21	0 - 10

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project
Project Number: 423575.MP.02.GM.01

Printed 1/14/2013

Metals by EPA 6020A, Dissolved

Batch 011313A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805375-018 Chromium	ug/L	01/13/2013 21:53	10.0	0.920	2.0	516

Method Blank

Parameter	Unit	DF	Result
Chromium	ug/L	1.00	ND

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.150	0.200	75.0	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	2.50	50.6	50.0	101	85 - 115

Matrix Spike — Lab ID = 805504-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.50	49.6	50.0(50.0)	99.3	75 - 125

Matrix Spike Duplicate — Lab ID = 805504-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.50	49.6	50.0(50.0)	99.2	75 - 125

MRCCS - Secondary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.5	20.0	92.7	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.6	20.0	92.8	90 - 110

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.1	20.0	95.7	90 - 110

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Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project
Project Number: 423575.MP.02.GM.01

Printed 1/14/2013

Chromium, Hexavalent by SM 3500-Cr B

Batch 01CrH13B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805375-010 Chromium, Hexavalent	ug/L	01/03/2013 14:14	2.00	3.00	20.0	93.2
805375-017 Chromium, Hexavalent	ug/L	01/03/2013 14:15	10.0	15.0	100	192
805375-018 Chromium, Hexavalent	ug/L	01/03/2013 14:16	10.0	15.0	100	478

Method Blank

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

Duplicate — Lab ID = 805561-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	897	897	0	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	102	100	102	90 - 110

Matrix Spike — Lab ID = 805561-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	3510	3400(2500)	105	85 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	63.2	60.0	105	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	60.8	100	60.8	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	60.8	100	60.8	90 - 110

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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CH2MHILL 805375

CHAIN OF CUSTODY RECORD

12/13/2012 3:01:15 PM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy

Project Number 423575.MP.02.GM.01
Task Order
Project 2012-GMP-188-Q4
Turnaround Time 10 Days
Shipping Date: 12/14/2012
COC Number: 28

Please change the sample ID from MW-59-188 to MW-102-188 and MW-63-188 to MW-103-188.

12/19/2012

ALERT !! Level III QC

			Container:	250 ml Poly	2x250 ml Poly	250 ml Poly	2x500 ml Poly	1x500 ml Poly			
			Preservatives:	(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C	HNO3, 4°C			
			Filtered:	Field	Field	Field	Field	Field			
			Holding Time:	28	28	28	180	180			
	DATE	TIME	Matrix	Cr6 (E218.6) Field Filtered	Cr6 (E218.6R) Field Filtered	Cr6 (SM3500B) Field Filtered	Metals (6020A/F) Field Filtered Chromium	Metals (6020A/F) Field Filtered Chromium		Number of Containers	COMMENTS
MW-34-055-188	12/12/2012	8:54	Water		X		X			4	
MW-34-080-188	12/12/2012	10:55	Water		X		X			4	
~~MW-34-080-188-EB~~	12/12/2012	9:05	Water	X				X		2	
MW-46-205-188	12/12/2012	14:58	Water	X				X		2	
MW-84-188	12/12/2012	7:30	Water	X						1	
MW-85-188	12/12/2012	7:32	Water	X						1	
MW-86-188	12/12/2012	15:42	Water	X						1	
MW-87-188	12/12/2012	15:45	Water	X						1	
MW-97-188	12/12/2012	10:57	Water	X				X		2	
MW-14-188	12/13/2012	11:54	Water	X				X		2	
MW-39-100-188	12/13/2012	9:56	Water			X		X		2	
MW-45-095a-188	12/13/2012	8:50	Water	X				X		2	
MW-57-070-188	12/13/2012	12:29	Water	X				X		2	
~~MW-59-188~~	12/13/2012	14:33	Water	X					MW-102-188 SPD	1	

	Signatures	Date/Time
Approved by		12-13-12 1710
Sampled by		
Relinquished by		
Received by	Rafael Davila	12-14-12 9:45 AM
Relinquished by	Rafael Davila	12-14-12 2:45
Received by	Linda, MI	12/14/12 2:45

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

ATTN:

Sample Custody

Special Instructions:
Nov 5 - Dec 14, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

052

805375

CH2MHILL **CHAIN OF CUSTODY RECORD** 12/13/2012 3:01:16 PM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy

Project Number 423575.MP.02.GM.0
Task Order
Project 2012-GMP-188-Q4
Turnaround Time 10 Days
Shipping Date: 12/14/2012
COC Number: 28

				Cr6 (E218.6) Field Filtered	Cr6 (E218.6R) Field Filtered	Cr6 (SM3500B) Field Filtered	Metals (6020AFF) Field Filtered Chromium	Metals (6020AFF) Field Filtered Chromium		Number of Containers	COMMENTS
			Container:	250 ml Poly	2x250 ml Poly	250 ml Poly	2x500 ml Poly	1x500 ml Poly			
			Preservatives:	(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C	HNO3, 4°C			
			Filtered:	Field	Field	Field	Field	Field			
			Holding Time:	28	28	28	180	180			
	DATE	TIME	Matrix								
~~MW-69-188~~	12/13/2012	14:30	Water	X					MW-103-188	1	
MW-70BR-225-188	12/13/2012	10:13	Water	X				X		2	
MW-96-188	12/13/2012	12:34	Water	X				X		2	
TW-02D-188	12/13/2012	12:42	Water			X		X		2	
TW-02S-188	12/13/2012	12:58	Water			X		X		2	
									TOTAL NUMBER OF CONTAINERS	70	

ALERT!! Level III QC

SPD

	Signatures	Date/Time
Approved by		12-13-12 1710
Sampled by		
Relinquished by		
Received by	Rafael Davila	12-14-12 9:45 AM
Relinquished by	Rafael Davila	12-14-12 2:45
Received by	Linda, TLS	12/14/12 2:45

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

ATTN:
Sample Custody

Special Instructions:
Nov 5 - Dec 14, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

CH2MHILL 805375

CHAIN OF CUSTODY RECORD

12/13/2012 3:01:15 PM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.01
Task Order
Project 2012-GMP-188-Q4
Turnaround Time 10 Days
Shipping Date: 12/14/2012
COC Number: 28

				Container:	250 ml Poly	2x250 ml Poly	250 ml Poly	2x500 ml Poly	1x500 ml Poly		Number of Containers	COMMENTS
				Preservatives:	(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C	HNO3, 4°C			
				Filtered:	Field	Field	Field	Field	Field			
				Holding Time:	28	28	28	180	180			
	DATE	TIME	Matrix		Cr6 (E218.6) Field Filtered	Cr6 (E218.6R) Field Filtered	Cr6 (SM3500B) Field Filtered	Metals (6020AFF) Field Filtered Chromium	Metals (6020AFF) Field Filtered Chromium			
1 MW-34-055-188	12/12/2012	8:54	Water			X		X			4	pH for 6020A
2 MW-34-080-188	12/12/2012	10:55	Water			X		X			4	pH 2
MW-34-080-188-EB	12/12/2012	9:05	Water	X					X		2	
3 MW-46-205-188	12/12/2012	14:58	Water	X					X		2	pH 2
4 MW-84-188	12/12/2012	7:30	Water	X							1	
5 MW-85-188	12/12/2012	7:32	Water	X							1	
6 MW-86-188	12/12/2012	15:42	Water	X							1	
7 MW-87-188	12/12/2012	15:45	Water	X							1	
8 MW-97-188	12/12/2012	10:57	Water	X					X		2	
9 MW-14-188	12/13/2012	11:54	Water	X					X		2	
10 MW-39-100-188	12/13/2012	9:56	Water				X		X		2	pH 2
11 MW-45-095a-188	12/13/2012	8:50	Water	X					X		2	
12 MW-57-070-188	12/13/2012	12:29	Water	X					X		2	
13 MW-59-188	12/13/2012	14:33	Water	X							1	

ALERT !!
Level III QC

Rec'd 12/14/12
S14c 805375

For Sample Conditions
See Form Attached

	Signatures	Date/Time
Approved by		12-13-12 1710
Sampled by		
Relinquished by		
Received by	Rafael Davila	12-14-12 9:45 AM
Relinquished by	Rafael Davila	12-14-12 2:45
Received by	Linda, MI	12/14/12 2:45

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

ATTN: Sample Custody

Special Instructions:
Nov 5 - Dec 14, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

805375

CH2MHILL **CHAIN OF CUSTODY RECORD** 12/13/2012 3:01:16 PM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.01
Task Order
Project 2012-GMP-188-Q4
Turnaround Time 10 Days
Shipping Date: 12/14/2012
COC Number: 28

			Container:	250 ml Poly	2x250 ml Poly	250 ml Poly	2x500 ml Poly	1x500 ml Poly			
			Preservatives:	(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C	HNO3, 4°C			
			Filtered:	Field	Field	Field	Field	Field			
			Holding Time:	28	28	28	180	180			
	DATE	TIME	Matrix	Cr6 (E218.6) Field Filtered	Cr6 (E218.6R) Field Filtered	Cr6 (SM3500B) Field Filtered	Metals (6020AFF) Field Filtered Chromium	Metals (6020AFF) Field Filtered Chromium		Number of Containers	COMMENTS
4 MW-63-188	12/13/2012	14:30	Water	X						1	
5 MW-70BR-225-188	12/13/2012	10:13	Water	X				X		2	
6 MW-96-188	12/13/2012	12:34	Water	X				X		2	pH2
7 TW-02D-188	12/13/2012	12:42	Water			X		X		2	6020A
8 TW-02S-188	12/13/2012	12:58	Water			X		X		2	
									TOTAL NUMBER OF CONTAINERS	70	

ALERT !! Level III QC

	Signatures	Date/Time
Approved by		12-13-12
Sampled by		1710
Relinquished by		
Received by	Rafael Davila	12-14-12 9:45 AM
Relinquished by	Rafael Davila	12-14-12 2:45
Received by	Linda, TLI	12/14/12 2:45

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

ATTN: Sample Custody

Special Instructions: Nov 5 - Dec 14, 2012

Report Copy to Shawn Duffy (530) 229-3303

055

Hexavalent Chromium

Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
12/14/12	805374-1	9.5	N/A	N/A	N/A	HAV
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
12/14/12	805375-1	9.5	N/A	N/A	N/A	HAV
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
	-13					
	-14					
	-15					
	-16					
	-17					
	-18					
12/18/12	805404	7	2 ml	9.5	9:30 AM	HAV

1-7-13 HAV

TRUESDAIL LABORATORIES, INC.

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest 3010A	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
805397	>1	<2	12/17/12	MM	yes			
~~705~~ES 12/17/12								
700830(1-6)	<1	>2	12/17/12	ES	No	10:00	12/18/12 <2	
805415(1-3)			12/20/12	BE	NO	8:00	1-2-13	PH<2
805425 (1-3;4)								
BE ~~805~~ 805401(1-3								
805443								
805404								
805429		>2			yes			
805373		<2						
805375(1-12)								
805374(1-12								
805462	>1	<2						
805417								
805418								
805419								
805420								
805421								
805427 (1-3)								
805446								
805442								
805455								
805471								
805472								
805473								
805508	<1	>2	12-31-12	BE	NO	15:00	1-2-13	PH<2
805514(1-4)	<1	>2	1-02-13	BE	NO	9:00 AM		
805519								
805520 (1-4)								
805535(4-6)						14:00		
805498(10-12)						14:00		
805505	<1	>2	1-03-13	BE	yes	14:00		
805581		<2						
805508			1-4-13	BE	yes			
805503			12-27-12					
805507								
805557(1-3)	<1	>2	1-4-13	BE	NO	11:00	1-8-13	PH<3
805575(1-3)							1-7-13	PH<2
805550	<1	>2	1-7-13	BE	NO	14:00	1-8-13	
805544(10-12)								
805609(1;2;4)								
805572					BE yes			
805571	>1	<2	1-2-13	BE	yes			
805572								

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

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: E2 **Lab #** 805375

Date Delivered: 12 / 14 / 12 **Time:** 2:45 **By:** ☐ Mail ☒ Field Service ☐ Client

1. Was a Chain of Custody received and signed? ☒ Yes ☐ No ☐ N/A
2. Does Customer require an acknowledgement of the COC? ☐ Yes ☐ No ☒ N/A
3. Are there any special requirements or notes on the COC? ☐ Yes ☐ No ☒ N/A
4. If a letter was sent with the COC, does it match the COC? ☐ Yes ☐ No ☒ N/A
5. Were all requested analyses understood and acceptable? ☒ Yes ☐ No ☐ N/A
6. Were samples received in a chilled condition? ☒ Yes ☐ No ☐ N/A
   Temperature (if yes)? 4.1 °C
7. Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)? ☒ Yes ☐ No ☐ N/A
8. Were sample custody seals intact? ☐ Yes ☐ No ☒ N/A
9. Does the number of samples received agree with COC? ☒ Yes ☐ No ☐ N/A
10. Did sample labels correspond with the client ID's? ☒ Yes ☐ No ☐ N/A
11. Did sample labels indicate proper preservation? ☒ Yes ☐ No ☐ N/A
    Preserved (if yes) by: ☒ Truesdail ☐ Client
12. Were samples pH checked? pH = see c.o.c ☒ Yes ☐ No ☐ N/A
13. Were all analyses within holding time at time of receipt? ☒ Yes ☐ No ☐ N/A
    If not, notify Project Manager.
14. Have Project due dates been checked and accepted? ☒ Yes ☐ No ☐ N/A
    Turn Around Time (TAT): ☐ RUSH ☒ Std
15. **Sample Matrix:** ☐ Liquid ☐ Drinking Water ☐ Ground Water ☐ Waste Water ☐ Sludge ☐ Soil ☐ Wipe ☐ Paint ☐ Solid ☒ Other Water
16. Comments: _____
17. Sample Check-In completed by Truesdail Log-In/Receiving: Linda

ALERT !!
Level III QC

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

Dr. Yi Wang
Director of ZymaX Forensics Isotope
600 S. Andreasen Dr., Suite B
Escondido, CA 92029
Tel: 760.781.3338 ext 43
Fax: 760.781.3339
Cell: 609.721.2843
Email: yi.wang@zymaxusa.com

REPORT OF ISOTOPE ANALYSES

Date Received: December 20th, 2012
Date Analyzed: January 7th, 2013
Date Reported: January 11th, 2013

Samples from Shawn Duffy and Jay Piper (CH2M HILL) for $\delta^{18}O$ and δD (‰ VSMOW) water isotope analysis

ZymaX ID	Sample ID	$\delta^{18}O$	δD
42930-1	MW-25-188	-9.1	-67.6
42930-2	MW-49-135-188	-10.3	-80.1
42930-3	MW-49-275-188	-10.4	-82.1
42930-4	MW-49-365-188	-10.5	-82.6
42930-5	MW-34-055-188	-12.7	-105.0
42930-6	MW-34-080-188	-11.2	-90.2
42930-7	MW-39-100-188	-10.0	-82.9
42930-8	MW-45-095a-188	-11.2	-89.0
42930-9	MW-97-188	-11.1	-89.3
	Analytical Precision (1σ)	0.1	0.4

ZymaX ID	$\delta^{18}O$	δD
QC-01	-4.7	-36.3
QC-02	-4.6	-36.9
Mean	-4.7	-36.6
STDEV	0.1	0.4

ZYMAX FORENSICS ISOTOPE LABORATORY ANALYSES

Gas

^{13}C and D of C1 to C4; ^{13}C of CO_2; C-14 of Methane and CO_2; ^{34}S of H_2S; ^{15}N and ^{18}O of N_2O gas

Oil, Extract, Fraction and Kerogen

Compound-Specific ^{13}C and D of MTBE,Chlorinated Solvents,PAH,Gasoline,Oil; Bulk ^{13}C, D/H, ^{34}S, and ^{15}N

Water

D and ^{18}O; ^{34}S and ^{18}O of dissolved sulfate; ^{34}S of dissolved H_2S; ^{37}Cl, ^{13}C and D of chlorinated solvents
^{15}N and ^{18}O of dissolved Nitrate; ^{15}N of Ammonia; ^{13}C of dissolved CO_2 and Carbonate/Bicarbonate

Soil and Minerals:

^{13}C, ^{15}N, ^{34}S, D/H, ^{18}O; C-14 of carbonate or organics

CH2MHILL CHAIN OF CUSTODY RECORD 12/13/2012 11:32:14 AM Page 1 OF 1

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.01
Task Order
Project 2012-GMP-188-Q4
Turnaround Time 10 Days
Shipping Date: 12/14/2012
COC Number: 29

Container: 250 ml Poly
Preservatives: 4°C
Filtered: NA
Holding Time: NA

	DATE	TIME	Matrix	Oxy_Deut (CF-IRMS)		Number of Containers	COMMENTS
MW-25-188	12/11/2012	11:21	Water	X	42930-1	1	
MW-49-135-188	12/11/2012	9:33	Water	X	-2	1	
MW-49-275-188	12/11/2012	11:08	Water	X	-3	1	
MW-49-365-188	12/11/2012	16:18	Water	X	-4	1	
MW-34-055-188	12/12/2012	8:54	Water	X	-5	1	
MW-34-080-188	12/12/2012	10:55	Water	X	-6	1	
MW-39-180-188	12/13/2012	9:56	Water	X	-7	1	
MW-45-095a-188	12/13/2012	8:50	Water	X	-8	1	
MW-97-188	12/12/12	10:57		X	SPD -9	8	

TOTAL NUMBER OF CONTAINERS

Please add sample MW97-188

12/19/2012

Received by: Ryan Woon 12/20/12 10:30

	Signatures	Date/Time
Approved by		12-13-12
Sampled by		1710
Relinquished by		
Received by	Rafael Davila	12-14-12 9:45 AM
Relinquished by	Rafael Davila	12-14-12 2:15
Received by	Linda TLJ	12/14/12 2:45

Shipping Details
Method of Shipment: courier
On ice: yes / no
Airbill No:
Lab Name: Zymax Envirotechnology
Lab Phone: (805) 544-4696

ATTN: Sample Custody and Michael Ng

Special Instructions:
Nov 5 - Dec 14, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

Rel-shed: TLJ, Linda, 12/19/12 18:00

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

January 14, 2013

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

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK 2012-GMP-188-Q4, GROUNDWATER MONITORING PROJECT, TLI NO.: 805506

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2012-GMP-188-Q4 groundwater-monitoring project for Hexavalent and Total Dissolved Chromium. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, quality control data, and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data are under Section 5.

The samples were received and delivered with the chain of custody December 26, 2012, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

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

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

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

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

Laboratory No.: 805506
Date Received: December 26, 2012

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

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
805506-001	MW-66BR-270-188	E218.6	FLDFLT	12/20/2012	9:50	Chromium, Hexavalent	ND	ug/L	1.0
805506-001	MW-66BR-270-188	SW6020	FLDFLT	12/20/2012	9:50	Chromium	ND	ug/L	1.0
805506-002	MW-74-240-188	E218.6	FLDFLT	12/20/2012	9:08	Chromium, Hexavalent	ND	ug/L	0.20
805506-002	MW-74-240-188	SW6020	FLDFLT	12/20/2012	9:08	Chromium	ND	ug/L	1.0
805506-003	MW-98-188	E218.6	FLDFLT	12/20/2012	10:00	Chromium, Hexavalent	ND	ug/L	0.20
805506-003	MW-98-188	SW6020	FLDFLT	12/20/2012	10:00	Chromium	ND	ug/L	1.0

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

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

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

REPORT

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

Laboratory No. 805506

Printed 1/14/2013

Samples Received on 12/26/2012 8:00:00 PM

Field ID	Lab ID	Collected	Matrix
MW-66BR-270-188	805506-001	12/20/2012 09:50	Water
MW-74-240-188	805506-002	12/20/2012 09:08	Water
MW-98-188	805506-003	12/20/2012 10:00	Water

Batch 01CrH13A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805506-001 Chromium, Hexavalent	ug/L	01/02/2013 18:43	5.00	0.0460	1.0	ND
805506-002 Chromium, Hexavalent	ug/L	01/02/2013 17:09	1.00	0.00920	0.20	ND
805506-003 Chromium, Hexavalent	ug/L	01/02/2013 17:20	1.00	0.00920	0.20	ND

Method Blank

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

Duplicate — Lab ID = 805508-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.0322	0.0334	3.66	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.199	0.200	99.4	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.68	5.00	93.7	90 - 110

Matrix Spike — Lab ID = 805374-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	10.0	9.22	10.0(10.0)	92.2	90 - 110

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Matrix Spike — Lab ID = 805505-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.976	1.06(1.00)	91.8	90 - 110

Matrix Spike — Lab ID = 805506-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.60	5.00(5.00)	92.0	90 - 110

Matrix Spike — Lab ID = 805506-001

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

Matrix Spike — Lab ID = 805506-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.959	1.02(1.00)	94.3	90 - 110

Matrix Spike — Lab ID = 805506-003

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

Matrix Spike — Lab ID = 805507-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.99	6.26(5.00)	94.5	90 - 110

Matrix Spike — Lab ID = 805507-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.83	6.20(5.00)	92.6	90 - 110

Matrix Spike — Lab ID = 805508-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.01	1.03(1.00)	98.0	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.69	5.00	93.8	90 - 110

MRCVS - Primary

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

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.84	10.0	98.4	95 - 105

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

Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project
Project Number: 423575.MP.02.GM.01

Printed 1/14/2013

Metals by EPA 6020A, Dissolved

Batch 011213A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805506-001 Chromium	ug/L	01/12/2013 18:57	2.50	0.230	1.0	ND
805506-002 Chromium	ug/L	01/12/2013 19:03	2.50	0.230	1.0	ND
805506-003 Chromium	ug/L	01/12/2013 19:09	2.50	0.230	1.0	ND

Method Blank

Parameter	Unit	DF	Result
Chromium	ug/L	1.00	ND

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.228	0.200	114	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	2.50	51.4	50.0	103	85 - 115

Matrix Spike

Lab ID = 805504-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.50	50.3	50.0(50.0)	101	75 - 125

Matrix Spike Duplicate

Lab ID = 805504-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.50	49.1	50.0(50.0)	98.3	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	21.0	20.0	105	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.7	20.0	104	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.7	20.0	104	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.6	20.0	103	90 - 110

Interference Check Standard A

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

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Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project
Project Number: 423575.MP.02.GM.01

Interference Check Standard A

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

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.6	20.0	97.8	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.5	20.0	97.6	80 - 120

Serial Dilution — Lab ID = 805375-012

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	50.0	782	799	2.21	0 - 10

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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

Rec'd 12/26/12

~~S15d~~ 805506

CH2MHILL 805506

CHAIN OF CUSTODY RECORD

12/20/2012 11:52:27 AM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.01
Task Order
Project 2012-GMP-188-Q4
Turnaround Time 10 Days
Shipping Date: 12/26/2012
COC Number: 32

				Cr6 (E218.6) Field Filtered	Metals (6020AFF) Field Filtered Chromium		Number of Containers	COMMENTS
Container:				250 ml Poly	1x500 ml Poly			
Preservatives:				(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C			
Filtered:				Field	Field			
Holding Time:				28	180			
	DATE	TIME	Matrix					
1 MW-66BR-270-188	12/20/2012	9:50	Water	X	X		2	pH 2
2 MW-74-240-188	12/20/2012	9:08	Water	X	X		2	6020A
3 MW-98-188	12/20/2012	10:00	Water	X	X		2	
						TOTAL NUMBER OF CONTAINERS	6	

For Sample Conditions See Form Attached

ALERT !!
Level III QC

	Signatures	Date/Time
Approved by		
Sampled by		12-20-12 1630
Relinquished by		
Received by	Rafael Davila	12-26-12 13:00
Relinquished by	Rafael Davila	12-26-12 20:00
Received by	Linda, TLI	12/26/12 20:00

Shipping Details

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

ATTN: Sample Custody

Special Instructions:
Nov 5 - Dec 14, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

Hexavalent Chromium

Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
12/18/12	805429	7	2 ml	9.5	9:15 AM	HAV
12/27/12	805505	7	2 ml	9.5	10:15 AM	HAV
12/27/12	805506-1	9.5	N/A	N/A	N/A	HAV
↓	↓ -2	↓	↓	↓	↓	↓
↓	↓ -3	↓	↓	↓	↓	↓
12/27/12	805507	9.5	N/A	N/A	N/A	HAV
12/27/12	805508	9.5	N/A	N/A	N/A	HAV

C:\My Documents\Templates\Hexavalent Chromium\Cr6+ pH Log

HAV
01/08/13

TRUESDAIL LABORATORIES, INC.

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
805593	>1 BE	<2	1-8-13	BE	yes		1/10/13	pH <2
805596	>1	↓	↓	↓	↓			
805594	↓	↓	↓	↓	↓			
805597	↓	↓	↓	↓	↓			
805598	↓	↓	↓	↓	↓			
805599(1-4)	↓	↓	↓	↓	↓			
805600(1-4	↓	↓	↓	↓	↓			
805612	↓	↓	↓	↓	↓			
805614(1,2,3)	↓	>2	↓	↓	↓	8:00	1/10/13	pH <2
805380	<1	>2	1-8-13	ES	yes	10:30		
805305(1-16,21-23)	<1	<2	1-8-13	ES	yes			-5,10 turbidity >1
805619-6	<1	>2	↓	↓	NO	1:30	1/10/13	pH <2
805622 (1-4)	↓	↓	↓	↓	↓	↓		
805638	<1	>2	1-9-13	BE	NO	11:00AM	1/10/13	pH <2
805649(1-3)	↓	↓	↓	↓	↓	↓	1/10/13	pH <2
805632	<1	<2	↓	DC	Yes			
805630	<1	<2	↓	↓	↓			
805628	<1	<2	↓	↓	↓			
805631	↓	↓	↓	↓	↓			
805627	↓	↓	↓	↓	↓			
805629	↓	↓	↓	↓	↓			
805633	SOLID		↓	DC	TTLC			
805662	>2	>2	1/10/13	ES	yes	9:00 am		
805504	<2	<2	1/10/13	ES	yes			
805375(1-7,8-12,15-18)	<2	<2	↓	↓	↓			
805506(1-7)	<2	<2	↓	↓	↓			
805528(1-5)	↓	↓	↓	↓	↓			
805561 (1-2)	↓	>2	↓	↓	↓	10:00		Filtered then acidif
805562(1-3	↓	<2	↓	↓	↓			
805650	↓	>2	↓	↓	↓	10:00		

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

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: E2 **Lab #** 805506

Date Delivered: 12 / 26 / 12 **Time:** 20:00 **By:** ☐ Mail ☑ Field Service ☐ Client

1. Was a Chain of Custody received and signed? ☑ Yes ☐ No ☐ N/A
2. Does Customer require an acknowledgement of the COC? ☐ Yes ☐ No ☑ N/A
3. Are there any special requirements or notes on the COC? ☐ Yes ☐ No ☑ N/A
4. If a letter was sent with the COC, does it match the COC? ☐ Yes ☐ No ☑ N/A
5. Were all requested analyses understood and acceptable? ☑ Yes ☐ No ☐ N/A
6. Were samples received in a chilled condition? ☑ Yes ☐ No ☐ N/A
   Temperature (if yes)? 5.1 °C
7. Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)? ☑ Yes ☐ No ☐ N/A
8. Were sample custody seals intact? ☐ Yes ☐ No ☑ N/A
9. Does the number of samples received agree with COC? ☑ Yes ☐ No ☐ N/A
10. Did sample labels correspond with the client ID's? ☑ Yes ☐ No ☐ N/A
11. Did sample labels indicate proper preservation? ☑ Yes ☐ No ☐ N/A
    Preserved (if yes) by: ☑ Truesdail ☐ Client
12. Were samples pH checked? pH = see C.O.C ☑ Yes ☐ No ☐ N/A
13. Were all analyses within holding time at time of receipt? ☑ Yes ☐ No ☐ N/A
    If not, notify Project Manager.
14. Have Project due dates been checked and accepted? ☑ Yes ☐ No ☐ N/A
    Turn Around Time (TAT): ☐ RUSH ☑ Std
15. **Sample Matrix:** ☐ Liquid ☐ Drinking Water ☐ Ground Water ☐ Waste Water ☐ Sludge ☐ Soil ☐ Wipe ☐ Paint ☐ Solid ☑ Other Water
16. Comments: _____
17. Sample Check-In completed by **Truesdail** Log-In/Receiving: L. Shabenne

Truesdail Laboratories

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

CH2MHILL
Applied Sciences Laboratory

ANALYTICAL REPORT

For:
PGE Topock

ASL Report #: L2841
Project ID: 423575.MP.02.GM.01
Attn: Jay Piper
cc:
Data Center/RDD

Authorized and Released By:

Kathy McKinley

Laboratory Project Manager
Kathy McKinley
(541) 758-0235 ext.23144
January 14, 2013

All analyses performed by CH2M HILL are clearly indicated. Any subcontracted analyses are included as appended reports as received from the subcontracted laboratory. The results included in this report only relate to the samples listed on the following Sample Cross-Reference page. This report shall not be reproduced except in full, without the written approval of the laboratory.

Any unusual difficulties encountered during the analysis of your samples are discussed in the attached case narratives.

Oregon (100022)
Arizona (0771)
Louisiana (05031)

ASL Report #: L2841

Sample Receipt Comments

We certify that the test results meet all NELAP requirements.

Sample Cross-Reference

ASL Sample ID	Client Sample ID	Date/Time Collected	Date Received
L284101	MW-41D-188	11/05/12 14:45	11/15/12
L284102	MW-41M-188	11/05/12 16:35	11/15/12
L284103	MW-48-188	11/07/12 12:57	11/15/12
L284104	MW-63-065-188	11/07/12 15:23	11/15/12
L284105	PGE-08-188	11/07/12 11:26	11/15/12
L284106	MW-16-188	11/08/12 15:26	11/15/12
L284107	MW-23-060-188	11/08/12 09:18	11/15/12
L284108	MW-23-080-188	11/08/12 10:44	11/15/12
L284109	MW-57-185-188	11/08/12 13:28	11/15/12
L284110	MW-71-035-188	11/08/12 07:57	11/15/12
L284111	PM-03-188	11/08/12 14:58	11/15/12
L284112	PM-04-188	11/08/12 15:40	11/15/12
L284113	MW-68BR-280-188	11/12/12 13:59	11/15/12
L284114	MW-21-188	11/13/12 09:27	11/15/12
L284115	MW-24BR-188	11/13/12 08:24	11/15/12
L284116	MW-31-060-188	11/13/12 15:29	11/15/12
L284117	OW-03D-188	11/13/12 12:10	11/15/12
L284118	OW-03M-188	11/13/12 12:55	11/15/12
L284119	OW-03S-188	11/13/12 13:31	11/15/12

CASE NARRATIVE
AUTOMATED CHEMISTRY ANALYSIS

Lab Name: CH2M HILL/LAB/CVO ASL SDG#: L2841

Project: PGE Topock Project #: 423575.MP.02.GM.01

I. Method(s):
Analysis: E350.1

II. Receipt/Holding Times:
All acceptance criteria were met.

III. Analysis:

A. Initial Calibration(s):
All acceptance criteria were met.

B. Calibration Verification(s):
All acceptance criteria were met.

C. Blanks:
All acceptance criteria were met.

D. Laboratory Control Sample(s):
All acceptance criteria were met.

E. Matrix Spike/Matrix Spike Duplicate Sample(s):
Analyzed in accordance with standard operating procedure.

F. Analytical Exception(s):
None.

IV. Documentation Exception(s):
None.

V. I certify that this data package is in compliance with the terms and conditions agreed to by the client and CH2M HILL, both technically and for completeness, except for the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or designee, as verified by the following signatures.

Prepared by: Emily [illegible] Date: 1/9/13

Reviewed by: Kathy McKinley Date: 1/8/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-63-065-188

SDG No.: L2841

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L284104

Date Received: 11/15/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	MG/L	1	2 ML	E350.1	11/20/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-23-060-188

SDG No.: L2841

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L284107

Date Received: 11/15/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	MG/L	1	2 ML	E350.1	11/20/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-23-080-188

SDG No.: L2841

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L284108

Date Received: 11/15/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	MG/L	1	2 ML	E350.1	11/20/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-71-035-188

SDG No.: L2841

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L284110

Date Received: 11/15/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	MG/L	1	2 ML	E350.1	11/20/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

PM-03-188

SDG No.: L2841

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L284111

Date Received: 11/15/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	MG/L	1	2 ML	E350.1	11/20/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

PM-04-188

SDG No.: L2841

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L284112

Date Received: 11/15/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	MG/L	1	2 ML	E350.1	11/20/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-68BR-280-188

SDG No.: L2841

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L284113

Date Received: 11/15/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	MG/L	1	2 ML	E350.1	11/20/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-31-060-188

SDG No.: L2841

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L284116

Date Received: 11/15/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	MG/L	1	2 ML	E350.1	11/20/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB1-1120

SDG No.: L2841

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: WB1-1120

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	MG/L	1	2 ML	E350.1	11/20/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB2-1120

SDG No.: L2841

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: WB2-1120

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	MG/L	1	2 ML	E350.1	11/20/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB4-1120

SDG No.: L2841

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: WB4-1120

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	MG/L	1	2 ML	E350.1	11/20/12

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: L2841

Lab Name: CH2M HILL/LAB/CVO

Analysis Method: E350.1

LCS ID: BS1W1120

Initial Calibration ID: 092512NH3LAcal

Date Analyzed: 11/20/12

Matrix: (Soil/Water) WATER

Time Analyzed: 1233

Instrument: LACH8500

Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Ammonia-N	1.09	1.12	103	90-110	

* Values outside of QC limits

Comments:

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: L2841

Lab Name: CH2M HILL/LAB/CVO

Analysis Method: E350.1

LCS ID: BS2W1120

Initial Calibration ID: 092512NH3LAcal

Date Analyzed: 11/20/12

Matrix: (Soil/Water) WATER

Time Analyzed: 1300

Instrument: LACH8500

Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Ammonia-N	1.09	1.10	100	90-110	

* Values outside of QC limits

Comments:

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: L2841

Lab Name: CH2M HILL/LAB/CVO

Analysis Method: E350.1

LCS ID: BS4W1120

Initial Calibration ID: 092512NH3LAcal

Date Analyzed: 11/20/12

Matrix: (Soil/Water) WATER

Time Analyzed: 1407

Instrument: LACH8500

Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Ammonia-N	1.09	1.06	97	90-110	

* Values outside of QC limits

Comments:

CASE NARRATIVE
AUTOMATED CHEMISTRY ANALYSIS

Lab Name: CH2M HILL/LAB/CVO ASL SDG#: L2841

Project: PGE Topock Project #: 423575.MP.02.GM.01

I. Method(s):
Analysis: E353.2

II. Receipt/Holding Times:
All acceptance criteria were met.

III. Analysis:

A. Initial Calibration(s):
All acceptance criteria were met.

B. Calibration Verification(s):
All acceptance criteria were met.

C. Blanks:
All acceptance criteria were met.

D. Laboratory Control Sample(s):
All acceptance criteria were met.

E. Matrix Spike/Matrix Spike Duplicate Sample(s):
Analyzed in accordance with standard operating procedure.

F. Analytical Exception(s):
None.

IV. Documentation Exception(s):
None.

V. I certify that this data package is in compliance with the terms and conditions agreed to by the client and CH2M HILL, both technically and for completeness, except for the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or designee, as verified by the following signatures.

Prepared by: Emily Clark Date: 1/9/13

Reviewed by: Kathy Mercier Date: 1/9/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-41D-188

SDG No.: L2841

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L284101

Date Received: 11/15/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.474		MG/L	1	3 ML	E353.2	11/20/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-41M-188

SDG No.: L2841

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L284102

Date Received: 11/15/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.720		MG/L	1	3 ML	E353.2	11/20/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-48-188

SDG No.: L2841

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L284103

Date Received: 11/15/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0668		MG/L	1	3 ML	E353.2	11/20/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-63-065-188

SDG No.: L2841

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L284104

Date Received: 11/15/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0140	0.0500	1.05		MG/L	5	3 ML	E353.2	11/20/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

PGE-08-188

SDG No.: L2841

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L284105

Date Received: 11/15/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0111		MG/L	1	3 ML	E353.2	11/21/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-16-188

SDG No.: L2841

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L284106

Date Received: 11/15/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0112	0.0400	3.56		MG/L	4	3 ML	E353.2	11/20/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-23-060-188

SDG No.: L2841

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L284107

Date Received: 11/15/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0560	0.200	5.73		MG/L	20	3 ML	E353.2	11/21/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-23-080-188

SDG No.: L2841

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L284108

Date Received: 11/15/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0560	0.200	6.82		MG/L	20	3 ML	E353.2	11/21/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-57-185-188

SDG No.: L2841

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L284109

Date Received: 11/15/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0298		MG/L	1	3 ML	E353.2	11/21/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-71-035-188

SDG No.: L2841

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L284110

Date Received: 11/15/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0140	0.0500	1.66		MG/L	5	3 ML	E353.2	11/20/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

PM-03-188

SDG No.: L2841

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L284111

Date Received: 11/15/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0140	0.0500	3.12		MG/L	5	3 ML	E353.2	11/20/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

PM-04-188

SDG No.: L2841

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L284112

Date Received: 11/15/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0112	0.0400	2.52		MG/L	4	3 ML	E353.2	11/20/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-68BR-280-188

SDG No.: L2841

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L284113

Date Received: 11/15/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	11/20/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-21-188

SDG No.: L2841

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L284114

Date Received: 11/15/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0140	0.0500	2.18		MG/L	5	3 ML	E353.2	11/20/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-24BR-188

SDG No.: L2841

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L284115

Date Received: 11/15/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	11/21/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-31-060-188

SDG No.: L2841

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L284116

Date Received: 11/15/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0112	0.0400	3.30		MG/L	4	3 ML	E353.2	11/20/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

OW-03D-188

SDG No.: L2841

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L284117

Date Received: 11/15/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.699		MG/L	1	3 ML	E353.2	11/20/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

OW-03M-188

SDG No.: L2841

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L284118

Date Received: 11/15/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.974		MG/L	1	3 ML	E353.2	11/20/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

OW-03S-188

SDG No.: L2841

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L284119

Date Received: 11/15/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0112	0.0400	3.50		MG/L	4	3 ML	E353.2	11/20/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB1-112112

SDG No.: L2841

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: WB1-112112

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	11/21/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB2-112012

SDG No.: L2841

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: WB2-112012

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	11/20/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB3-112012

SDG No.: L2841

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: WB3-112012

Date Received: __/__/

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	11/20/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB5-112012

SDG No.: L2841

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: WB5-112012

Date Received: __/__/

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	11/20/12

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: L2841

Lab Name: CH2M HILL/LAB/CVO

Analysis Method: E353.2

LCS ID: BS2W1120

Initial Calibration ID: 052112NO32SMcal

Date Analyzed: 11/20/12

Matrix: (Soil/Water) WATER

Time Analyzed: 1732

Instrument: SMARTCHEM

Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.416	0.430	103	90-110	

* Values outside of QC limits

Comments:

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: L2841

Lab Name: CH2M HILL/LAB/CVO

Analysis Method: E353.2

LCS ID: BS3W1120

Initial Calibration ID: 052112NO32SMcal

Date Analyzed: 11/20/12

Matrix: (Soil/Water) WATER

Time Analyzed: 1803

Instrument: SMARTCHEM

Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.416	0.430	103	90-110	

* Values outside of QC limits

Comments:

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: L2841

Lab Name: CH2M HILL/LAB/CVO

Analysis Method: E353.2

LCS ID: BS5W1120

Initial Calibration ID: 052112NO32SMcal

Date Analyzed: 11/20/12

Matrix: (Soil/Water) WATER

Time Analyzed: 1927

Instrument: SMARTCHEM

Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.416	0.409	98	90-110	

* Values outside of QC limits

Comments:

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: L2841

Lab Name: CH2M HILL/LAB/CVO

Analysis Method: E353.2

LCS ID: BS1W1121

Initial Calibration ID: 052112NO32SMcal

Date Analyzed: 11/21/12

Matrix: (Soil/Water) WATER

Time Analyzed: 1055

Instrument: SMARTCHEM

Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.416	0.427	103	90-110	

* Values outside of QC limits

Comments:

L 2841

CH2MHILL

CHAIN OF CUSTODY RECORD

11/13/2012 4:55:24 PM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.0
Task Order
Project 2012-GMP-188-Q4
Turnaround Time 10 Days
Shipping Date: 11/13/2012
COC Number: 0

			Container:	250 ml Poly	1 Liter Poly	1 Liter Poly			
			Preservatives:	H2SO4, pH<2, 4°C	H2SO4, pH<2, 4°C	H2SO4, pH<2, 4°C			
			Filtered:	NA	NA	NA			
			Holding Time:	28	28	28			
	DATE	TIME	Matrix	Nitrate/Nitrite (E353.3)	Ammonia (SM4500NH3)	Nitrate/Nitrite (E353.3)	1.7	Number of Containers	COMMENTS
MW-41D-188	11/5/2012	14:45	Water	X			1	1	
MW-41M-188	11/5/2012	16:35	Water	X			2	1	
MW-48-188	11/7/2012	12:57	Water	X			3	1	
MW-63-065-188	11/7/2012	15:23	Water		X	X	4	1	
PGE-08-188	11/7/2012	11:26	Water	X			5	1	
MW-16-188	11/8/2012	15:26	Water	X			6	1	
MW-23-060-188	11/8/2012	9:18	Water		X	X	7	1	
MW-23-080-188	11/8/2012	10:44	Water		X	X	8	1	
MW-57-185-188	11/8/2012	13:28	Water	X			9	1	
MW-71-035-188	11/8/2012	7:57	Water		X	X	10	1	
PM-03-188	11/8/2012	14:58	Water		X	X	11	1	
PM-04-188	11/8/2012	15:40	Water		X	X	12	1	
MW-68BR-280-188	11/12/2012	13:59	Water		X	X	13	1	
MW-21-188	11/13/2012	9:27	Water	X			14	1	

	Signatures	Date/Time
Approved by		11-13-12
Sampled by		1700
Relinquished by		11/13/12 1700
Received by		11/13/12 1915
Relinquished by		11/13/12 1915
Received by	MBARTIN	11/13/12 @ 1915

REL BY: 11/12/12 @ 1600

Shipping Details

Method of Shipment: courier
On Ice: ~~yes~~ / no 3.0°C/2.6°C IR#1
Airbill No: CHMC
Lab Name: ~~ADVANCED TECHNOLOGY LABORATO~~
Lab Phone: ~~(702) 307-2659~~ 541-768-3144

Kathen McKenlen 11/15/12 1520

ATTN:

Sample Custody and Marlon

Special Instructions:
Nov 5 - Dec 14, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

L2841

CH2MHILL

CHAIN OF CUSTODY RECORD

11/13/2012 4:55:24 PM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.0
Task Order
Project 2012-GMP-188-Q4
Turnaround Time 10 Days
Shipping Date: 11/13/2012
COC Number: 0

			Container:	250 ml Poly	1 Liter Poly	1 Liter Poly			
			Preservatives:	H2SO4, pH<2, 4°C	H2SO4, pH<2, 4°C	H2SO4, pH<2, 4°C			
			Filtered:	NA	NA	NA			
			Holding Time:	28	28	28			
	DATE	TIME	Matrix	Nitrate/Nitrite (E353.3)	Ammonia (SM4500NH3)	Nitrate/Nitrite (E353.3)		Number of Containers	COMMENTS
MW-24BR-188	11/13/2012	8:24	Water	X			15	1	
MW-31-060-188	11/13/2012	15:29	Water		X	X	16	1	
OW-03D-188	11/13/2012	12:10	Water	X			17	1	
OW-03M-188	11/13/2012	12:55	Water	X			18	1	
OW-03S-188	11/13/2012	13:31	Water	X			19	1	
							TOTAL NUMBER OF CONTAINERS	19	

	Signatures	Date/Time
Approved by		11-13-12 1700
Sampled by		
Relinquished by		
Received by		11/13/12 1700
Relinquished by		11/13/12 1915
Received by		11/13/12 @ 1915
REL BY:		11/14/12 @ 1600

Shipping Details

Method of Shipment: courier
On Ice: ~~yes~~ / no 3.0°C/2.6°C
Airbill No: ice #1
Lab Name: ADVANCED TECHNOLOGY LABORATO
Lab Phone: (702) 307-2659

Kathy Morale 11/15/12 1520

ATTN:
Sample Custody
and
Marion

Special Instructions:
Nov 5 - Dec 14, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

CH2MHILL
Applied Sciences Laboratory (ASL)

Sample Receipt Record

Batch Number: L2841

Client/Project: PGE Topock

Date received: 11/15/12

Checked by: KM

Checked by:

VERIFICATION OF SAMPLE CONDITIONS (verify all items), HD = Client Hand delivered Samples	NA	YES	NO
Radiological Screening for DoD	X		
Were custody seals intact and on the outside of the cooler?		X	
Type of packing material: Ice Blue Ice Bubble wrap			
Was a Chain of Custody (CoC) Provided?		X	
Was the CoC correctly filled out (If No, document in the SRER)		X	
Did the CoC list a correct bottle count and the preservative types (Y=OK, N=Corrected on CoC)		X	
Were the sample containers in good condition (broken or leaking)?		X	
Containers supplied by ASL?			X
Any sample with < 1/2 holding time remaining? If so contact LPM			X
Samples have multi-phase? If yes, document on SRER			X
Was there ice in the cooler? Enter temp. If >6°C contact client/SRER 1.7 °C		X	

All VOCs free of air bubbles? No, document on SRER	X		
pH of all samples checked and met requirements? No, then document in SRER		X	
Enough sample volume provided for analysis? No, document in SRER		X	
Did sample labels agree with COC? No, document in SRER		X	
Dissolved/Soluble metals filtered in the field?	X		
Dissolved/Soluble metals have sediment in bottom of container? Document in SRER	X		

Sample ID	Reagent	Reagent Lot Number	Volume Added	Initials

CH2MHILL
Applied Sciences Laboratory (ASL)

Sample Receipt Exception Report

Sample Batch Number: L2541 **Client/Project** PGE TOPOOK

The following exceptions were noted:		Comments (write number of exception description and the impacted sample numbers)
	1. No custody seal as required by project	11) ASL perform ammonia by E 350.1 COC requested SM 4500 NH3
	2. No chain-of-custody provided	
	3. Analysis, description, date of collection not provided	
	4. Samples broken or leaking on receipt.	
	5. Temperature of samples inappropriate for analysis requested	
	6. Container inappropriate for analysis requested	
	7. Inadequate sample volume.	
	8. Preservation inappropriate for analysis requested	
	9. Samples received out of holding time for analysis requested	
	10. Discrepancies between COC form and container labels.	
X	11. Other.	

ACTION TAKEN:

Originator: Kathy Moenkel Date: 11/15/12

Client was notified on: (Date/Time) 11/15/12 Client Contact: Shawn Duffy

Client Services:

RE: L2841 PN

Duffy, Shawn/RDD
Sent: Thursday, November 15, 2012 4:17 PM
To: McKinley, Kathy/CVO

Can Lab report the Nitrate only on these samples or the nitrate/nitrite and the nitrite only so we can calculate the Nitrate values?

423575.MP.02.GM.01

Shawn

From: McKinley, Kathy/CVO
Sent: Thursday, November 15, 2012 3:48 PM
To: Duffy, Shawn/RDD
Subject: L2841 PN

The project number seems to have cut off
can you provide all the task on the project number
thanks

Kathy McKinley
CH2M HILL ASL
Client Services Manager

CH2MHILL
Applied Sciences Laboratory

ANALYTICAL REPORT

For:
PGE Topock

ASL Report #: L2877
Project ID: 423575.MP.02.GM.01
Attn: Jay Piper
cc:
Data Center/RDD

Authorized and Released By:

Kathy McKinley

Laboratory Project Manager
Kathy McKinley
(541) 758-0235 ext.23144
December 03, 2012

All analyses performed by CH2M HILL are clearly indicated. Any subcontracted analyses are included as appended reports as received from the subcontracted laboratory. The results included in this report only relate to the samples listed on the following Sample Cross-Reference page. This report shall not be reproduced except in full, without the written approval of the laboratory.

Any unusual difficulties encountered during the analysis of your samples are discussed in the attached case narratives.

Oregon (100022)
Arizona (0771)
Louisiana (05031)

ASL Report #: L2877

Sample Receipt Comments

We certify that the test results meet all NELAP requirements.

Sample Cross-Reference

ASL Sample ID	Client Sample ID	Date/Time Collected	Date Received
L287701	MW-37S-188	11/14/12 15:00	11/20/12
L287702	MW-72BR-200-188	11/14/12 12:21	11/20/12
L287703	MW-15-188	11/15/12 15:00	11/20/12
L287704	MW-31-135-188	11/15/12 13:25	11/20/12
L287705	TW-04-188	11/15/12 11:41	11/20/12
L287706	TW-05-188	11/15/12 08:39	11/20/12

CASE NARRATIVE
AUTOMATED CHEMISTRY ANALYSIS

Lab Name: CH2M HILL/LAB/CVO ASL SDG#: L2877

Project: PGE Topock Project #: 423575.MP.02.GM.01

I. Method(s):
Analysis: E350.1

II. Receipt/Holding Times:
All acceptance criteria were met.

III. Analysis:

A. Initial Calibration(s):
All acceptance criteria were met.

B. Calibration Verification(s):
All acceptance criteria were met.

C. Blanks:
All acceptance criteria were met.

D. Laboratory Control Sample(s):
All acceptance criteria were met.

E. Matrix Spike/Matrix Spike Duplicate Sample(s):
Analyzed in accordance with standard operating procedure.

F. Analytical Exception(s):
None.

IV. Documentation Exception(s):
None.

V. I certify that this data package is in compliance with the terms and conditions agreed to by the client and CH2M HILL, both technically and for completeness, except for the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or designee, as verified by the following signatures.

Prepared by: _____ Date: 11/27/2012

Reviewed by: _____ Date: 30 Nov 2012

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-72BR-200-188

SDG No.: L2877

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L287702

Date Received: 11/20/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.228		MG/L	1	2 ML	E350.1	11/27/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-31-135-188

SDG No.: L2877

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L287704

Date Received: 11/20/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	MG/L	1	2 ML	E350.1	11/27/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB1-1127

SDG No.: L2877

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: WB1-1127

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	MG/L	1	2 ML	E350.1	11/27/12

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: L2877

Lab Name: CH2M HILL/LAB/CVO

Analysis Method: E350.1

LCS ID: BS1W1127

Initial Calibration ID: 092512NH3LAcal

Date Analyzed: 11/27/12

Matrix: (Soil/Water) WATER

Time Analyzed: 1126

Instrument: LACH8500

Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Ammonia-N	1.09	1.10	101	90-110	

* Values outside of QC limits

Comments:

CASE NARRATIVE
AUTOMATED CHEMISTRY ANALYSIS

Lab Name: CH2M HILL/LAB/CVO ASL SDG#: L2877

Project: PGE Topock Project #: 423575.MP.02.GM.01

I. Method(s):
Analysis: E353.2

II. Receipt/Holding Times:
All acceptance criteria were met.

III. Analysis:

A. Initial Calibration(s):
All acceptance criteria were met.

B. Calibration Verification(s):
All acceptance criteria were met.

C. Blanks:
All acceptance criteria were met.

D. Laboratory Control Sample(s):
All acceptance criteria were met.

E. Matrix Spike/Matrix Spike Duplicate Sample(s):
Analyzed in accordance with standard operating procedure.

F. Analytical Exception(s):
None.

IV. Documentation Exception(s):
None.

V. I certify that this data package is in compliance with the terms and conditions agreed to by the client and CH2M HILL, both technically and for completeness, except for the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or designee, as verified by the following signatures.

Prepared by: Emily Ohl Date: 11/21/12

Reviewed by: Kathy MacKley Date: 11/28/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-37S-188

SDG No.: L2877

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L287701

Date Received: 11/20/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00560	0.0200	1.47		MG/L	2	3 ML	E353.2	11/20/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-72BR-200-188

SDG No.: L2877

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L287702

Date Received: 11/20/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0982		MG/L	1	3 ML	E353.2	11/20/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-15-188

SDG No.: L2877

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L287703

Date Received: 11/20/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0280	0.100	4.73		MG/L	10	3 ML	E353.2	11/21/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-31-135-188

SDG No.: L2877

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L287704

Date Received: 11/20/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.774		MG/L	1	3 ML	E353.2	11/20/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

TW-04-188

SDG No.: L2877

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L287705

Date Received: 11/20/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00560	0.0200	1.25		MG/L	2	3 ML	E353.2	11/20/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

TW-05-188

SDG No.: L2877

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L287706

Date Received: 11/20/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00560	0.0200	1.26		MG/L	2	3 ML	E353.2	11/20/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB1-112112

SDG No.: L2877

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: WB1-112112

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.00310	J	MG/L	1	3 ML	E353.2	11/21/12

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB3-112012

SDG No.: L2877

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: WB3-112012

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	11/20/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB4-112012

SDG No.: L2877

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: WB4-112012

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.00530	J	MG/L	1	3 ML	E353.2	11/20/12

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: L2877

Lab Name: CH2M HILL/LAB/CVO

Analysis Method: E353.2

LCS ID: BS3W1120

Initial Calibration ID: 052112NO32SMcal

Date Analyzed: 11/20/12

Matrix: (Soil/Water) WATER

Time Analyzed: 1803

Instrument: SMARTCHEM

Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.416	0.430	103	90-110	

* Values outside of QC limits

Comments:

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: L2877

Lab Name: CH2M HILL/LAB/CVO

Analysis Method: E353.2

LCS ID: BS4W1120

Initial Calibration ID: 052112NO32SMcal

Date Analyzed: 11/20/12

Matrix: (Soil/Water) WATER

Time Analyzed: 1838

Instrument: SMARTCHEM

Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.416	0.435	104	90-110	

* Values outside of QC limits

Comments:

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: L2877

Lab Name: CH2M HILL/LAB/CVO

Analysis Method: E353.2

LCS ID: BS1W1121

Initial Calibration ID: 052112NO32SMcal

Date Analyzed: 11/21/12

Matrix: (Soil/Water) WATER

Time Analyzed: 1055

Instrument: SMARTCHEM

Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.416	0.427	103	90-110	

* Values outside of QC limits

Comments:

2.6

CH2MHILL CHAIN OF CUSTODY RECORD 11/15/2012 4:20:16 PM Page 1 OF 1

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.01
Task Order
Project 2012-GMP-188-Q4
Turnaround Time 10 Days
Shipping Date: 11/15/2012
COC Number: 10

L2877

	DATE	TIME	Matrix	Nitrate/Nitrite (E353.3)	Ammonia (SM4500NH3)	Nitrate/Nitrite (E353.3)	~~H005920~~ 11/16/12	Number of Containers	COMMENTS
Container:				250 ml Poly	1 Liter Poly	1 Liter Poly			
Preservatives:				H2SO4, pH<2, 4°C	H2SO4, pH<2, 4°C	H2SO4, pH<2, 4°C			
Filtered:				NA	NA	NA			
Holding Time:				28	28	28			
MW-37S-188	11/14/2012	15:00	Water	X				1	1
MW-72BR-200-188	11/14/2012	12:21	Water		X	X		1	2
MW-15-188	11/15/2012	15:00	Water	X				1	3
MW-31-135-188	11/15/2012	13:25	Water		X	X		1	4
TW-04-188	11/15/2012	11:41	Water	X				1	5
TW-05-188	11/15/2012	8:39	Water	X				1	6
							TOTAL NUMBER OF CONTAINERS	6	

	Signatures	Date/Time
Approved by		11-15-12
Sampled by		1625
Relinquished by		11/15/12 1625
Received by		11/15/12 1621
Relinquished by		11/15/12 1621
Received by		11/15/12 1621

Shipping Details
Method of Shipment: courier
On Ice: ~~yes~~ / no 3.6 °C
Airbill No: 1 R# 1
Lab Name: ADVANCED TECHNOLOGY LABORATO
Lab Phone: (702) 307-2659

ATTN:
Sample Custody
and
Marlon

Special Instructions:
Nov 5 - Dec 14, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

REL BY: MBCARTIN 11/16/12 @ 1700 Carmen Bell 11/20/12 1100.

CH2MHILL
Applied Sciences Laboratory (ASL)

Sample Receipt Record

Batch Number: L2877

Client/Project: TOPOCK - ~~PG&E~~ ROB 11-20-12
PG&E

Date received: 11-20-12

Checked by: CB

Checked by:

VERIFICATION OF SAMPLE CONDITIONS (verify all items), HD = Client Hand delivered Samples	NA	YES	NO
Radiological Screening for DoD	✓		
Were custody seals intact and on the outside of the cooler?		✓	
Type of packing material: Ice Blue Ice Bubble wrap			
Was a Chain of Custody (CoC) Provided?		✓	
Was the CoC correctly filled out (If No, document in the SRER)		✓	
Did the CoC list a correct bottle count and the preservative types (Y=OK, N=Corrected on CoC)		✓	
Were the sample containers in good condition (broken or leaking)?		✓	
Containers supplied by ASL?		✓	
Any sample with < 1/2 holding time remaining? If so contact LPM			✓
Samples have multi-phase? If yes, document on SRER			✓
Was there ice in the cooler? Enter temp. If >6°C contact client/SRER 2.6 °C		✓	
All VOCs free of air bubbles? No, document on SRER	✓		
pH of all samples checked and met requirements? No, then document in SRER		✓	
Enough sample volume provided for analysis? No, document in SRER		✓	
Did sample labels agree with COC? No, document in SRER		✓	
Dissolved/Soluble metals filtered in the field?	✓		
Dissolved/Soluble metals have sediment in bottom of container? Document in SRER	✓		

Sample ID	Reagent	Reagent Lot Number	Volume Added	Initials

CH2MHILL
Applied Sciences Laboratory

ANALYTICAL REPORT

For:
PGE Topock

ASL Report #: L2924
Project ID: 423575.MP.02.GM.01
Attn: Jay Piper/LAS
cc:
Data Center/RDD

Authorized and Released By:

Kathy McKinley

Laboratory Project Manager
Kathy McKinley
(541) 758-0235 ext.23144
December 20, 2012

This data package meets standards requested by client and is not intended or implied to meet any other standard.

All analyses performed by CH2M HILL are clearly indicated. Any subcontracted analyses are included as appended reports as received from the subcontracted laboratory. The results included in this report only relate to the samples listed on the following Sample Cross-Reference page. This report shall not be reproduced except in full, without the written approval of the laboratory.

Any unusual difficulties encountered during the analysis of your samples are discussed in the attached case narratives.

CH2M HILL Applied Sciences Laboratory • 1100 NE Circle Boulevard, Suite 300 • Corvallis, Oregon 97330 • www.ch2mhill.com/asl

ASL Report #: L2924

Sample Receipt Comments

We certify that the test results meet all standard ASL requirements.

Sample Cross-Reference

ASL Sample ID	Client Sample ID	Date/Time Collected	Date Received
L292401	MW-34-100-188	11/26/12 13:03	11/29/12
L292402	MW-93-188	11/26/12 07:05	11/29/12

CASE NARRATIVE
AUTOMATED CHEMISTRY ANALYSIS

Lab Name: CH2M HILL/LAB/CVO ASL SDG#: L2924

Project: PGE Topock Project #: 423575.MP.02.GM.01

I. Method(s):
Analysis: E350.1

II. Receipt/Holding Times:
All acceptance criteria were met.

III. Analysis:

A. Initial Calibration(s):
All acceptance criteria were met.

B. Calibration Verification(s):
All acceptance criteria were met.

C. Blanks:
All acceptance criteria were met.

D. Laboratory Control Sample(s):
All acceptance criteria were met.

E. Matrix Spike/Matrix Spike Duplicate Sample(s):
Analyzed in accordance with standard operating procedure.

F. Analytical Exception(s):
None.

IV. Documentation Exception(s):
None.

V. I certify that this data package is in compliance with the terms and conditions agreed to by the client and CH2M HILL, both technically and for completeness, except for the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or designee, as verified by the following signatures.

Prepared by: _____ Date: 12/6/2012

Reviewed by: Kathy McKinley Date: 12/7/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-34-100-188

SDG No.: L2924

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L292401

Date Received: 11/29/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	MG/L	1	2 ML	E350.1	12/04/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-93-188

SDG No.: L2924

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L292402

Date Received: 11/29/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	MG/L	1	2 ML	E350.1	12/04/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB1-1204

SDG No.: L2924

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: WB1-1204

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	MG/L	1	2 ML	E350.1	12/04/12

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: L2924

Lab Name: CH2M HILL/LAB/CVO

Analysis Method: E350.1

LCS ID: BS1W1204

Initial Calibration ID: 092512NH3LAcal

Date Analyzed: 12/04/12

Matrix: (Soil/Water) WATER

Time Analyzed: 1318

Instrument: LACH8500

Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Ammonia-N	1.09	1.14	105	90-110	

* Values outside of QC limits

Comments:

CASE NARRATIVE
AUTOMATED CHEMISTRY ANALYSIS

Lab Name: CH2M HILL/LAB/CVO ASL SDG#: L2924

Project: PGE Topock Project #: 423575.MP.02.GM.01

I. Method(s):
Analysis: E353.2

II. Receipt/Holding Times:
All acceptance criteria were met.

III. Analysis:

A. Initial Calibration(s):
All acceptance criteria were met.

B. Calibration Verification(s):
All acceptance criteria were met.

C. Blanks:
All acceptance criteria were met.

D. Laboratory Control Sample(s):
All acceptance criteria were met.

E. Matrix Spike/Matrix Spike Duplicate Sample(s):
Analyzed in accordance with standard operating procedure.

F. Analytical Exception(s):
None.

IV. Documentation Exception(s):
None.

V. I certify that this data package is in compliance with the terms and conditions agreed to by the client and CH2M HILL, both technically and for completeness, except for the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or designee, as verified by the following signatures.

Prepared by: Emily Ch Date: 12/13/12

Reviewed by: Kathy McKenzie Date: 12/14/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-34-100-188

SDG No.: L2924

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L292401

Date Received: 11/29/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.444		MG/L	1	3 ML	E353.2	12/12/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-93-188

SDG No.: L2924

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L292402

Date Received: 11/29/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.421		MG/L	1	3 ML	E353.2	12/12/12

EC121213-14:07-L2924-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB2-121212

SDG No.: L2924

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: WB2-121212

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	12/12/12

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: L2924

Lab Name: CH2M HILL/LAB/CVO

Analysis Method: E353.2

LCS ID: BS2W1212

Initial Calibration ID: 120712NO32SM1

Date Analyzed: 12/12/12

Matrix: (Soil/Water) WATER

Time Analyzed: 1600

Instrument: SMARTCHEM

Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.416	0.407	98	90-110	

* Values outside of QC limits

Comments:

L2924

CH2MHILL

CHAIN OF CUSTODY RECORD

11/26/2012 2:53:01 PM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.01
Task Order
Project 2012-GMP-188-Q4
Turnaround Time 10 Days
Shipping Date: 11/27/2012
COC Number: 14

			Container:	1 Liter Poly	1 Liter Poly			
			Preservatives:	H2SO4, pH<2, 4°C	H2SO4, pH<2, 4°C			
			Filtered:	NA	NA			
			Holding Time:	28	28			
	DATE	TIME	Matrix	Ammonia (SM4500NH3)	Nitrate/Nitrite (E353.3)		Number of Containers	COMMENTS
MW-34-100-188	11/26/2012	13:03	Water	X	X		1	1
MW-93-188	11/26/2012	7:05	Water	X	X		1	2
						TOTAL NUMBER OF CONTAINERS	2	

	Signatures	Date/Time
Approved by		11-27-12 1545
Sampled by		
Relinquished by		
Received by		11/27/12 1545
Relinquished by		11/27/12 1800
Received by	MBCARTIN	11/27/12 @ 1800
REL:	MBCARTIN	11/28/12 @ 1500

Shipping Details

Method of Shipment: courier
On Ice: ~~yes~~ no 2.2°C / 3.8°C / 3.4°C IR #1
Airbill No: CHMC
Lab Name: ~~ADVANCED TECHNOLOGY LABORATO~~
Lab Phone: ~~(702) 307-2659~~ 541-768-3144

ATTN:
Sample Custody and Marlon

Carmen Bell 11/29/12 CB

Special Instructions:
Nov 5 - Dec 14, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

CH2MHILL
Applied Sciences Laboratory (ASL)

Sample Receipt Record

Batch Number: L2924
Client/Project: Topock

Date received: 11-29-24
Checked by: CB
Checked by: _____

VERIFICATION OF SAMPLE CONDITIONS (verify all items), HD = Client Hand delivered Samples	NA	YES	NO
Radiological Screening for DoD	✓		
Were custody seals intact and on the outside of the cooler?		✓	
Type of packing material: (Ice) Blue Ice (Bubble wrap)		✓	
Was a Chain of Custody (CoC) Provided?		✓	
Was the CoC correctly filled out (If No, document in the SRER)		✓	
Did the CoC list a correct bottle count and the preservative types (Y=OK, N=Corrected on CoC)		✓	
Were the sample containers in good condition (broken or leaking)?		✓	
Containers supplied by ASL?		✓	
Any sample with < 1/2 holding time remaining? If so contact LPM			✓
Samples have multi-phase? If yes, document on SRER			✓
Was there ice in the cooler? Enter temp. If >6°C contact client/SRER 4.6 °C		✓	
All VOCs free of air bubbles? No, document on SRER	✓		
pH of all samples checked and met requirements? No, then document in SRER		✓	
Enough sample volume provided for analysis? No, document in SRER		✓	
Did sample labels agree with COC? No, document in SRER		✓	
Dissolved/Soluble metals filtered in the field?	✓		
Dissolved/Soluble metals have sediment in bottom of container? Document in SRER	✓		

Sample ID	Reagent	Reagent Lot Number	Volume Added	Initials

CH2MHILL
Applied Sciences Laboratory

ANALYTICAL REPORT

For:
PGE Topock

ASL Report #: L2989
Project ID: 423575.MP.02.GM.01
Attn: Jay Piper
cc:
Data Center/RDD

Authorized and Released By:

Kathy McKinley

Laboratory Project Manager
Kathy McKinley
(541) 758-0235 ext.23144
January 14, 2013

This data package meets standards requested by client and is not intended or implied to meet any other standard.

All analyses performed by CH2M HILL are clearly indicated. Any subcontracted analyses are included as appended reports as received from the subcontracted laboratory. The results included in this report only relate to the samples listed on the following Sample Cross-Reference page. This report shall not be reproduced except in full, without the written approval of the laboratory.

Any unusual difficulties encountered during the analysis of your samples are discussed in the attached case narratives.

CH2M HILL Applied Sciences Laboratory • 1100 NE Circle Boulevard, Suite 300 • Corvallis, Oregon 97330 • www.ch2mhill.com/asl

ASL Report #: L2989

Sample Receipt Comments

We certify that the test results meet all standard ASL requirements.

Sample Cross-Reference

ASL Sample ID	Client Sample ID	Date/Time Collected	Date Received
L298901	MW-17-188	12/03/12 15:18	12/06/12
L298902	MW-39-050-188	12/03/12 10:46	12/06/12
L298903	MW-39-060-188	12/03/12 15:56	12/06/12
L298904	MW-39-070-188	12/03/12 14:52	12/06/12
L298905	MW-39-080-188	12/03/12 13:14	12/06/12
L298906	MW-27-020-188	12/03/12 10:05	12/06/12
L298907	MW-27-060-188	12/03/12 11:46	12/06/12
L298908	MW-27-085-188	12/03/12 12:45	12/06/12
L298909	MW-30-030-188	12/03/12 15:36	12/06/12
L298910	MW-30-050-188	12/03/12 14:11	12/06/12
L298911	MW-40D-188	12/03/12 13:24	12/06/12
L298912	MW-40S-188	12/03/12 12:15	12/06/12
L298913	MW-41S-188	12/03/12 10:43	12/06/12
L298914	MW-35-060-188	12/04/12 08:50	12/06/12
L298915	MW-35-135-188	12/04/12 10:04	12/06/12
L298916	MW-36-020-188	12/04/12 14:04	12/06/12
L298917	MW-36-040-188	12/04/12 09:03	12/06/12
L298918	MW-36-050-188	12/04/12 12:04	12/06/12
L298919	MW-36-070-188	12/04/12 15:17	12/06/12
L298920	MW-18-188	12/04/12 08:56	12/06/12
L298921	MW-37D-188	12/04/12 13:32	12/06/12
L298922	MW-65-160-188	12/04/12 15:15	12/06/12
L298923	MW-70-105-188	12/04/12 14:42	12/06/12
L298924	MW-36-090-188	12/04/12 11:06	12/06/12
L298925	MW-94-188	12/04/12 07:10	12/06/12

CASE NARRATIVE
AUTOMATED CHEMISTRY ANALYSIS

Lab Name: CH2M HILL/LAB/CVO ASL SDG#: L2989

Project: PGE Topock Project #: 423575.MP.02.GM.01

I. Method(s):
Analysis: E350.1

II. Receipt/Holding Times:
All acceptance criteria were met.

III. Analysis:

A. Initial Calibration(s):
All acceptance criteria were met.

B. Calibration Verification(s):
All acceptance criteria were met.

C. Blanks:
All acceptance criteria were met.

D. Laboratory Control Sample(s):
All acceptance criteria were met.

E. Matrix Spike/Matrix Spike Duplicate Sample(s):
Analyzed in accordance with standard operating procedure.

F. Analytical Exception(s):
None.

IV. Documentation Exception(s):
None.

V. I certify that this data package is in compliance with the terms and conditions agreed to by the client and CH2M HILL, both technically and for completeness, except for the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or designee, as verified by the following signatures.

Prepared by: [signature] Date: 1/2/2013

Reviewed by: Kathy Mackey Date: 1/4/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-39-050-188

SDG No.: L2989

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L298902

Date Received: 12/06/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	mg/L	1	2 ML	E350.1	12/19/12

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-39-060-188

SDG No.: L2989

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L298903

Date Received: 12/06/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	mg/L	1	2 ML	E350.1	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-39-070-188

SDG No.: L2989

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L298904

Date Received: 12/06/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	mg/L	1	2 ML	E350.1	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-39-080-188

SDG No.: L2989

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L298905

Date Received: 12/06/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	mg/L	1	2 ML	E350.1	12/19/12

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-27-020-188

SDG No.: L2989

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L298906

Date Received: 12/06/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	mg/L	1	2 ML	E350.1	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-27-060-188

SDG No.: L2989

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L298907

Date Received: 12/06/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	mg/L	1	2 ML	E350.1	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-27-085-188

SDG No.: L2989

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L298908

Date Received: 12/06/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	mg/L	1	2 ML	E350.1	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-30-050-188

SDG No.: L2989

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L298910

Date Received: 12/06/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	mg/L	1	2 ML	E350.1	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-35-060-188

SDG No.: L2989

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L298914

Date Received: 12/06/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	mg/L	1	2 ML	E350.1	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-35-135-188

SDG No.: L2989

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L298915

Date Received: 12/06/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	mg/L	1	2 ML	E350.1	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-36-020-188

SDG No.: L2989

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L298916

Date Received: 12/06/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.273		mg/L	1	2 ML	E350.1	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-36-040-188

SDG No.: L2989

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L298917

Date Received: 12/06/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.239		mg/L	1	2 ML	E350.1	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-36-050-188

SDG No.: L2989

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L298918

Date Received: 12/06/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	mg/L	1	2 ML	E350.1	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-36-070-188

SDG No.: L2989

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L298919

Date Received: 12/06/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	mg/L	1	2 ML	E350.1	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-65-160-188

SDG No.: L2989

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L298922

Date Received: 12/06/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	mg/L	1	2 ML	E350.1	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-70-105-188

SDG No.: L2989

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L298923

Date Received: 12/06/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	mg/L	1	2 ML	E350.1	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-36-090-188

SDG No.: L2989

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L298924

Date Received: 12/06/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	mg/L	1	2 ML	E350.1	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-94-188

SDG No.: L2989

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L298925

Date Received: 12/06/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.319		mg/L	1	2 ML	E350.1	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB1-1219

SDG No.: L2989

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: WB1-1219

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	mg/L	1	2 ML	E350.1	12/19/12

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: L2989

Lab Name: CH2M HILL/LAB/CVO

Analysis Method: E350.1

LCS ID: BS1W1219

Initial Calibration ID: 121912NH3A

Date Analyzed: 12/19/12

Matrix: (Soil/Water) WATER

Time Analyzed: 1211

Instrument: LACH8500

Concentration Units: mg/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Ammonia-N	1.16	1.23	106	90-110	

* Values outside of QC limits

Comments:

CASE NARRATIVE
AUTOMATED CHEMISTRY ANALYSIS

Lab Name: CH2M HILL/LAB/CVO ASL SDG#: L2989

Project: PGE Topock Project #: 423575.MP.02.GM.01

I. Method(s):
Analysis: E353.2

II. Receipt/Holding Times:
All acceptance criteria were met.

III. Analysis:

A. Initial Calibration(s):
All acceptance criteria were met.

B. Calibration Verification(s):
All acceptance criteria were met.

C. Blanks:
All acceptance criteria were met.

D. Laboratory Control Sample(s):
All acceptance criteria were met.

E. Matrix Spike/Matrix Spike Duplicate Sample(s):
Analyzed in accordance with standard operating procedure.

F. Analytical Exception(s):
None.

IV. Documentation Exception(s):
None.

V. I certify that this data package is in compliance with the terms and conditions agreed to by the client and CH2M HILL, both technically and for completeness, except for the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or designee, as verified by the following signatures.

Prepared by: Emily Ebel Date: 12/21/12

Reviewed by: Kathy McKinley Date: 1/2/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-17-188

SDG No.: L2989

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L298901

Date Received: 12/06/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0280	0.100	4.87		MG/L	10	3 ML	E353.2	12/21/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-39-050-188

SDG No.: L2989

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L298902

Date Received: 12/06/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-39-060-188

SDG No.: L2989

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L298903

Date Received: 12/06/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-39-070-188

SDG No.: L2989

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L298904

Date Received: 12/06/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-39-080-188

SDG No.: L2989

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L298905

Date Received: 12/06/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-27-020-188

SDG No.: L2989

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L298906

Date Received: 12/06/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-27-060-188

SDG No.: L2989

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L298907

Date Received: 12/06/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-27-085-188

SDG No.: L2989

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L298908

Date Received: 12/06/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0116		MG/L	1	3 ML	E353.2	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-30-030-188

SDG No.: L2989

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L298909

Date Received: 12/06/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0269		MG/L	1	3 ML	E353.2	12/21/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-30-050-188

SDG No.: L2989

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L298910

Date Received: 12/06/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-40D-188

SDG No.: L2989

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L298911

Date Received: 12/06/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0112	0.0400	3.32		MG/L	4	3 ML	E353.2	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-40S-188

SDG No.: L2989

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L298912

Date Received: 12/06/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0280	0.100	3.98		MG/L	10	3 ML	E353.2	12/21/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-41S-188

SDG No.: L2989

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L298913

Date Received: 12/06/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0112	0.0400	1.41		MG/L	4	3 ML	E353.2	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-35-060-188

SDG No.: L2989

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L298914

Date Received: 12/06/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0112	0.0400	2.18		MG/L	4	3 ML	E353.2	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-35-135-188

SDG No.: L2989

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L298915

Date Received: 12/06/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0112	0.0400	2.85		MG/L	4	3 ML	E353.2	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-36-020-188

SDG No.: L2989

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L298916

Date Received: 12/06/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0396		MG/L	1	3 ML	E353.2	12/21/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-36-040-188

SDG No.: L2989

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L298917

Date Received: 12/06/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-36-050-188

SDG No.: L2989

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L298918

Date Received: 12/06/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-36-070-188

SDG No.: L2989

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L298919

Date Received: 12/06/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-18-188

SDG No.: L2989

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L298920

Date Received: 12/06/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0280	0.100	4.36		MG/L	10	3 ML	E353.2	12/21/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-37D-188

SDG No.: L2989

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L298921

Date Received: 12/06/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.207		MG/L	1	3 ML	E353.2	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-65-160-188

SDG No.: L2989

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L298922

Date Received: 12/06/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0560	0.200	11.4		MG/L	20	3 ML	E353.2	12/21/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-70-105-188

SDG No.: L2989

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L298923

Date Received: 12/06/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0112	0.0400	2.05		MG/L	4	3 ML	E353.2	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-36-090-188

SDG No.: L2989

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L298924

Date Received: 12/06/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-94-188

SDG No.: L2989

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L298925

Date Received: 12/06/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	12/21/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB1-121912

SDG No.: L2989

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: WB1-121912

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB2-121912

SDG No.: L2989

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: WB2-121912

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB7-121912

SDG No.: L2989

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: WB7-121912

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB2-122112

SDG No.: L2989

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: WB2-122112

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	12/21/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB3-122112

SDG No.: L2989

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: WB3-122112

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	12/21/12

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: L2989

Lab Name: CH2M HILL/LAB/CVO

Analysis Method: E353.2

LCS ID: BS1W1219

Initial Calibration ID: 121912NO32SMcal

Date Analyzed: 12/19/12

Matrix: (Soil/Water) WATER

Time Analyzed: 1406

Instrument: SMARTCHEM

Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.416	0.387	93	90-110	

* Values outside of QC limits

Comments:

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: L2989

Lab Name: CH2M HILL/LAB/CVO

Analysis Method: E353.2

LCS ID: BS2W1219

Initial Calibration ID: 121912NO32SMcal

Date Analyzed: 12/19/12

Matrix: (Soil/Water) WATER

Time Analyzed: 1724

Instrument: SMARTCHEM

Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.416	0.397	96	90-110	

* Values outside of QC limits

Comments:

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: L2989

Lab Name: CH2M HILL/LAB/CVO

Analysis Method: E353.2

LCS ID: BS7W1219

Initial Calibration ID: 121912NO32SMcal

Date Analyzed: 12/19/12

Matrix: (Soil/Water) WATER

Time Analyzed: 1930

Instrument: SMARTCHEM

Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.416	0.399	96	90-110	

* Values outside of QC limits

Comments:

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: L2989

Lab Name: CH2M HILL/LAB/CVO

Analysis Method: E353.2

LCS ID: BS2W1221

Initial Calibration ID: 121912NO32SMcal

Date Analyzed: 12/21/12

Matrix: (Soil/Water) WATER

Time Analyzed: 1355

Instrument: SMARTCHEM

Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.416	0.402	97	90-110	

* Values outside of QC limits

Comments:

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: L2989

Lab Name: CH2M HILL/LAB/CVO

Analysis Method: E353.2

LCS ID: BS3W1221

Initial Calibration ID: 121912NO32SMcal

Date Analyzed: 12/21/12

Matrix: (Soil/Water) WATER

Time Analyzed: 1425

Instrument: SMARTCHEM

Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.416	0.377	91	90-110	

* Values outside of QC limits

Comments:

L2989 5.8°C

CH2MHILL

CHAIN OF CUSTODY RECORD

12/4/2012 4:34:31 PM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.0
Task Order
Project 2012-GMP-188-Q4
Turnaround Time 10 Days
Shipping Date: 12/4/2012
COC Number: 19

	DATE	TIME	Matrix	Nitrate/Nitrite (E353.3)	Ammonia (SM4500NH3)	Nitrate/Nitrite (E353.3)		Number of Containers	COMMENTS
Container:				250 ml Poly	1 Liter Poly	1 Liter Poly			
Preservatives:				H2SO4, pH<2, 4°C	H2SO4, pH<2, 4°C	H2SO4, pH<2, 4°C			
Filtered:				NA	NA	NA			
Holding Time:				28	28	28			
MW-17-188	12/3/2012	15:18	Water	X				1	1
MW-39-050-188	12/3/2012	10:46	Water		X	X		1	2
MW-39-060-188	12/3/2012	15:56	Water		X	X		1	3
MW-39-070-188	12/3/2012	14:52	Water		X	X		1	4
MW-39-080-188	12/3/2012	13:14	Water		X	X		1	5
							TOTAL NUMBER OF CONTAINERS	5	

	Signatures	Date/Time
Approved by		12-4-12
Sampled by		1625
Relinquished by		
Received by		12-4-12 1625
Relinquished by		12-4-12 1830
Received by	MBCARTIN	12/4/12@1830

REL: MBCARTIN 12/5/12@1700

Shipping Details

Method of Shipment: courier
On Ice: yes / no 3.4 ICE IR1
Airbill No: CHMC
Lab Name: ~~ADVANCED TECHNOLOGY LABORATO~~
Lab Phone: ~~(702) 307-2659~~ 541-768-3144

ATTN:
Sample Custody
and
Marlon

Special Instructions:
Nov 5 - Dec 14, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

Carmen Bell 12/1/12 1070

L2989

CH2MHILL

CHAIN OF CUSTODY RECORD

12/4/2012 4:15:47 PM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.01
Task Order
Project 2012-GMP-188-Q4
Turnaround Time 10 Days
Shipping Date: 12/4/2012
COC Number: 17

			Container:	250 ml Poly	1 Liter Poly	1 Liter Poly			
			Preservatives:	H2SO4, pH<2, 4°C	H2SO4, pH<2, 4°C	H2SO4, pH<2, 4°C			
			Filtered:	NA	NA	NA			
			Holding Time:	28	28	28			
	DATE	TIME	Matrix	Nitrate/Nitrite (E353.3)	Ammonia (SM4500NH3)	Nitrate/Nitrite (E353.3)		Number of Containers	COMMENTS
MW-27-020-188	12/3/2012	10:05	Water		X	X		1	6
MW-27-060-188	12/3/2012	11:46	Water		X	X		1	7
MW-27-085-188	12/3/2012	12:45	Water		X	X		1	8
MW-30-030-188	12/3/2012	15:36	Water	X				1	9
MW-30-050-188	12/3/2012	14:11	Water		X	X		1	10
MW-40D-188	12/3/2012	13:24	Water	X				1	11
MW-40S-188	12/3/2012	12:15	Water	X				1	12
MW-41S-188	12/3/2012	10:43	Water	X				1	13
MW-35-060-188	12/4/2012	8:50	Water		X	X		1	14
MW-35-135-188	12/4/2012	10:04	Water		X	X		1	15
MW-36-020-188	12/4/2012	14:04	Water		X	X		1	16
MW-36-040-188	12/4/2012	9:03	Water		X	X		1	17
MW-36-050-188	12/4/2012	12:04	Water		X	X		1	18
MW-36-070-188	12/4/2012	15:17	Water		X	X		1	19

	Signatures	Date/Time
Approved by		12-4-12 1625
Sampled by		
Relinquished by		
Received by		12-4-12 1625
Relinquished by		12-4-12 1830
Received by		12/4/12 @ 1830
REL:		12/5/12 @ 1700

Shipping Details

Method of Shipment: courier
On Ice: (yes) / no 3.4 ICE IR1
Airbill No: CHMC
Lab Name: ~~ADVANCED TECHNOLOGY LABORATO~~
Lab Phone: ~~(702) 307-2659~~ 541-768-3144

ATTN:

Sample Custody and Marlon

Special Instructions:

Nov 5 - Dec 14, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

L2989

CH2MHILL CHAIN OF CUSTODY RECORD 12/5/2012 10:01:22 AM Page 1 OF 1

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy

Project Number 423575.MP.02.GM.01
Task Order
Project 2012-GMP-188-Q4
Turnaround Time 10 Days
Shipping Date: 12/4/2012
COC Number: ~~000~~ 17

			Container:	250 ml Poly	1 Liter Poly	1 Liter Poly			
			Preservatives:	H2SO4, pH<2, 4°C	H2SO4, pH<2, 4°C	H2SO4, pH<2, 4°C			
			Filtered:	NA	NA	NA			
			Holding Time:	28	28	28			
	DATE	TIME	Matrix	Nitrate/Nitrite (E353.3)	Ammonia (SM4500NH3)	Nitrate/Nitrite (E353.3)		Number of Containers	COMMENTS
MW-18-188	12/4/2012	8:56	Water	X				1	20
MW-37D-188	12/4/2012	13:32	Water	X				1	21
MW-65-160-188	12/4/2012	15:15	Water		X	X		1	22
MW-70-105-188	12/4/2012	14:42	Water		X	X		1	23
							TOTAL NUMBER OF CONTAINERS	4	

	Signatures	Date/Time
Approved by		12-4-12
Sampled by		1625
Relinquished by		
Received by	MELATTIN	12/4/12 @ 1625
Relinquished by	MELATTIN	12/5/12 @ 1700
Received by		

Shipping Details
Method of Shipment: courier
On Ice: yes / no
Airbill No: CHMC
Lab Name: ~~ADVANCED TECHNOLOGY LABORATO~~
Lab Phone: ~~(702) 307-2659~~ 541-768-3144

ATTN:
Sample Custody
and
Marlon

Special Instructions:
Nov 5 - Dec 14, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

12/6/12 1020

L2989

CH2MHILL CHAIN OF CUSTODY RECORD 12/4/2012 4:15:47 PM Page 2 OF 2

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy

Project Number 423575.MP.02.GM.01
Task Order
Project 2012-GMP-188-Q4
Turnaround Time 10 Days
Shipping Date: 12/4/2012
COC Number: 17

			Container:	250 ml Poly	1 Liter Poly	1 Liter Poly			
			Preservatives:	H2SO4, pH<2, 4°C	H2SO4, pH<2, 4°C	H2SO4, pH<2, 4°C			
			Filtered:	NA	NA	NA			
			Holding Time:	28	28	28			
	DATE	TIME	Matrix	Nitrate/Nitrite (E353.3)	Ammonia (SM4500NH3)	Nitrate/Nitrite (E353.3)		Number of Containers	COMMENTS
MW-36-090-188	12/4/2012	11:06	Water		X	X		1	24
MW-94-188	12/4/2012	7:10	Water		X	X		1	25
							TOTAL NUMBER OF CONTAINERS	16	

	Signatures	Date/Time
Approved by		12-4-12
Sampled by		1625
Relinquished by		
Received by		12-4-12 1625
Relinquished by		12-4-12 1830
Received by	MBCARTIN	12/4/12 @ 1830
REL:	MBCARTIN	12/5/12 @ 1700

Shipping Details
Method of Shipment: courier
On Ice: yes / no 3.2 ICE 1421
Airbill No: CHMC
Lab Name: ~~ADVANCED TECHNOLOGY LABORATO~~
Lab Phone: ~~(702) 307-2659~~ 541-768-3144

ATTN:
Sample Custody
and
Marlon

Special Instructions:
Nov 5 - Dec 14, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

CH2MHILL
Applied Sciences Laboratory (ASL)

Sample Receipt Record

Batch Number: L2989

Client/Project: TOPOCK

Date received: 12/6/12

Checked by: CB

Checked by:

VERIFICATION OF SAMPLE CONDITIONS (verify all items), HD = Client Hand delivered Samples	NA	YES	NO
Radiological Screening for DoD	✓		
Were custody seals intact and on the outside of the cooler?		✓	
Type of packing material: (Ice) Blue Ice Bubble wrap		✓	
Was a Chain of Custody (CoC) Provided?		✓	
Was the CoC correctly filled out (If No, document in the SRER)		✓	
Did the CoC list a correct bottle count and the preservative types (Y=OK, N=Corrected on CoC)		✓	
Were the sample containers in good condition (broken or leaking)?		✓	
Containers supplied by ASL?			✓
Any sample with < 1/2 holding time remaining? If so contact LPM			✓
Samples have multi-phase? If yes, document on SRER			✓
Was there ice in the cooler? Enter temp. If >6°C contact client/SRER 5.8 °C		✓	
All VOCs free of air bubbles? No, document on SRER	✓		
pH of all samples checked and met requirements? No, then document in SRER		✓	
Enough sample volume provided for analysis? No, document in SRER		✓	
Did sample labels agree with COC? No, document in SRER		✓	
Dissolved/Soluble metals filtered in the field?	✓		
Dissolved/Soluble metals have sediment in bottom of container? Document in SRER	✓		

Sample ID	Reagent	Reagent Lot Number	Volume Added	Initials
L2989 - Nut 16 + 25	CB 12-6-12 HNO3 H_2SO_4	2-PRES-58-644	1 mL	CB

CH2MHILL
Applied Sciences Laboratory

ANALYTICAL REPORT

For:
PGE Topock

ASL Report #: L3023
Project ID: 423575.MP.02.GM.01
Attn: Jay Piper
cc:
Data Center/RDD

Authorized and Released By:

Kathy McKinley

Laboratory Project Manager
Kathy McKinley
(541) 758-0235 ext.23144
January 17, 2013

This data package meets standards requested by client and is not intended or implied to meet any other standard.

All analyses performed by CH2M HILL are clearly indicated. Any subcontracted analyses are included as appended reports as received from the subcontracted laboratory. The results included in this report only relate to the samples listed on the following Sample Cross-Reference page. This report shall not be reproduced except in full, without the written approval of the laboratory.

Any unusual difficulties encountered during the analysis of your samples are discussed in the attached case narratives.

CH2M HILL Applied Sciences Laboratory • 1100 NE Circle Boulevard, Suite 300 • Corvallis, Oregon 97330 • www.ch2mhill.com/asl

ASL Report #: L3023

Sample Receipt Comments

We certify that the test results meet all standard ASL requirements.

Sample Cross-Reference

ASL Sample ID	Client Sample ID	Date/Time Collected	Date Received
L302301	MW-09-188	12/05/12 13:45	12/12/12
L302302	MW-28-025-188	12/05/12 09:06	12/12/12
L302303	MW-28-090-188	12/05/12 09:53	12/12/12
L302304	MW-29-188	12/05/12 10:54	12/12/12
L302305	MW-32-020-188	12/05/12 12:07	12/12/12
L302306	MW-32-035-188	12/05/12 13:09	12/12/12
L302307	MW-33-040-188	12/05/12 15:31	12/12/12
L302308	MW-52D-188	12/05/12 09:47	12/12/12
L302309	MW-52M-188	12/05/12 11:25	12/12/12
L302310	MW-52S-188	12/05/12 12:24	12/12/12
L302311	MW-53M-188	12/05/12 14:56	12/12/12
L302312	MW-60BR-245-188	12/05/12 08:01	12/12/12
L302313	MW-65-225-188	12/05/12 12:35	12/12/12
L302314	MW-69-195-188	12/05/12 15:45	12/12/12
L302315	MW-72-080-188	12/05/12 10:59	12/12/12
L302316	MW-73-080-188	12/05/12 07:50	12/12/12
L302317	MW-91-188	12/05/12 16:58	12/12/12
L302318	MW-92-188	12/05/12 15:34	12/12/12
L302319	MW-33-150-188	12/06/12 09:30	12/12/12
L302320	MW-33-210-188	12/06/12 10:23	12/12/12
L302321	MW-42-030-188	12/06/12 11:51	12/12/12
L302322	MW-42-055-188	12/06/12 13:18	12/12/12
L302323	MW-42-065-188	12/06/12 14:03	12/12/12
L302324	MW-44-070-188	12/06/12 15:46	12/12/12
L302325	MW-53D-188	12/06/12 09:09	12/12/12
L302326	MW-60-125-188	12/06/12 10:36	12/12/12
L302327	MW-66-165-188	12/06/12 08:26	12/12/12
L302328	MW-67-185-188	12/06/12 15:01	12/12/12
L302329	MW-67-260-188	12/06/12 13:57	12/12/12
L302330	MW-68-240-188	12/06/12 11:58	12/12/12
L302331	MW-95-188	12/06/12 07:05	12/12/12

CASE NARRATIVE
AUTOMATED CHEMISTRY ANALYSIS

Lab Name: CH2M HILL/LAB/CVO ASL SDG#: L3023

Project: PGE Topock Project #: 423575.MP.02.GM.01

I. Method(s):
Analysis: E350.1

II. Receipt/Holding Times:
All acceptance criteria were met.

III. Analysis:

A. Initial Calibration(s):
All acceptance criteria were met.

B. Calibration Verification(s):
All acceptance criteria were met.

C. Blanks:
All acceptance criteria were met.

D. Laboratory Control Sample(s):
All acceptance criteria were met.

E. Matrix Spike/Matrix Spike Duplicate Sample(s):
Analyzed in accordance with standard operating procedure.

F. Analytical Exception(s):
None.

IV. Documentation Exception(s):
None.

V. I certify that this data package is in compliance with the terms and conditions agreed to by the client and CH2M HILL, both technically and for completeness, except for the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or designee, as verified by the following signatures.

Prepared by: _____ Date: 1/10/2013

Reviewed by: _____ Date: 1/14/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-28-025-188

SDG No.: L3023

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L302302

Date Received: 12/12/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	mg/L	1	2 ML	E350.1	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-28-090-188

SDG No.: L3023

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L302303

Date Received: 12/12/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	mg/L	1	2 ML	E350.1	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-29-188

SDG No.: L3023

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L302304

Date Received: 12/12/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	1.59		mg/L	1	2 ML	E350.1	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-32-020-188

SDG No.: L3023

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L302305

Date Received: 12/12/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0716	0.500	7.59		MG/L	5	2 ML	E350.1	01/10/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-32-035-188

SDG No.: L3023

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L302306

Date Received: 12/12/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0716	0.500	6.48		MG/L	5	2 ML	E350.1	01/10/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-33-040-188

SDG No.: L3023

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L302307

Date Received: 12/12/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	mg/L	1	2 ML	E350.1	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-52D-188

SDG No.: L3023

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L302308

Date Received: 12/12/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	mg/L	1	2 ML	E350.1	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-52M-188

SDG No.: L3023

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L302309

Date Received: 12/12/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	mg/L	1	2 ML	E350.1	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-52S-188

SDG No.: L3023

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L302310

Date Received: 12/12/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.934		mg/L	1	2 ML	E350.1	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-53M-188

SDG No.: L3023

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L302311

Date Received: 12/12/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	mg/L	1	2 ML	E350.1	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-60BR-245-188

SDG No.: L3023

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L302312

Date Received: 12/12/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	mg/L	1	2 ML	E350.1	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-65-225-188

SDG No.: L3023

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L302313

Date Received: 12/12/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	mg/L	1	2 ML	E350.1	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-69-195-188

SDG No.: L3023

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L302314

Date Received: 12/12/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	mg/L	1	2 ML	E350.1	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-72-080-188

SDG No.: L3023

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L302315

Date Received: 12/12/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	mg/L	1	2 ML	E350.1	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-73-080-188

SDG No.: L3023

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L302316

Date Received: 12/12/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	mg/L	1	2 ML	E350.1	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-91-188

SDG No.: L3023

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L302317

Date Received: 12/12/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	1.57		mg/L	1	2 ML	E350.1	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-92-188

SDG No.: L3023

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L302318

Date Received: 12/12/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	mg/L	1	2 ML	E350.1	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-33-150-188

SDG No.: L3023

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L302319

Date Received: 12/12/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	mg/L	1	2 ML	E350.1	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-33-210-188

SDG No.: L3023

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L302320

Date Received: 12/12/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	mg/L	1	2 ML	E350.1	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-42-055-188

SDG No.: L3023

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L302322

Date Received: 12/12/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.256		mg/L	1	2 ML	E350.1	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-42-065-188

SDG No.: L3023

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L302323

Date Received: 12/12/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.970		mg/L	1	2 ML	E350.1	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-44-070-188

SDG No.: L3023

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L302324

Date Received: 12/12/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	mg/L	1	2 ML	E350.1	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-53D-188

SDG No.: L3023

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L302325

Date Received: 12/12/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	mg/L	1	2 ML	E350.1	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-60-125-188

SDG No.: L3023

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L302326

Date Received: 12/12/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	mg/L	1	2 ML	E350.1	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-66-165-188

SDG No.: L3023

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L302327

Date Received: 12/12/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	mg/L	1	2 ML	E350.1	12/27/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-67-185-188

SDG No.: L3023

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L302328

Date Received: 12/12/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	mg/L	1	2 ML	E350.1	12/27/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-67-260-188

SDG No.: L3023

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L302329

Date Received: 12/12/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.123		mg/L	1	2 ML	E350.1	12/27/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-68-240-188

SDG No.: L3023

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L302330

Date Received: 12/12/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	mg/L	1	2 ML	E350.1	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-95-188

SDG No.: L3023

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L302331

Date Received: 12/12/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	mg/L	1	2 ML	E350.1	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB2-1219

SDG No.: L3023

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: WB2-1219

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	mg/L	1	2 ML	E350.1	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB3-1219

SDG No.: L3023

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: WB3-1219

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	mg/L	1	2 ML	E350.1	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB3-1227

SDG No.: L3023

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: WB3-1227

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	mg/L	1	2 ML	E350.1	12/27/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB1-0110

SDG No.: L3023

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: WB1-0110

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	MG/L	1	2 ML	E350.1	01/10/13

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: L3023

Lab Name: CH2M HILL/LAB/CVO

Analysis Method: E350.1

LCS ID: BS2W1219

Initial Calibration ID: 121912NH3A

Date Analyzed: 12/19/12

Matrix: (Soil/Water) WATER

Time Analyzed: 1347

Instrument: LACH8500

Concentration Units: mg/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Ammonia-N	1.16	1.16	100	90-110	

* Values outside of QC limits

Comments:

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: L3023

Lab Name: CH2M HILL/LAB/CVO

Analysis Method: E350.1

LCS ID: BS3W1219

Initial Calibration ID: 121912NH3A

Date Analyzed: 12/19/12

Matrix: (Soil/Water) WATER

Time Analyzed: 1729

Instrument: LACH8500

Concentration Units: mg/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Ammonia-N	1.16	1.15	99	90-110	

* Values outside of QC limits

Comments:

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: L3023

Lab Name: CH2M HILL/LAB/CVO

Analysis Method: E350.1

LCS ID: BS3W1227

Initial Calibration ID: 122812NH3

Date Analyzed: 12/27/12

Matrix: (Soil/Water) WATER

Time Analyzed: 1412

Instrument: LACH8500

Concentration Units: mg/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Ammonia-N	1.16	1.27	110	90-110	

* Values outside of QC limits

Comments:

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: L3023

Lab Name: CH2M HILL/LAB/CVO

Analysis Method: E350.1

LCS ID: BS1W0110

Initial Calibration ID: 122812NH3

Date Analyzed: 01/10/13

Matrix: (Soil/Water) WATER

Time Analyzed: 1528

Instrument: LACH8500

Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Ammonia-N	1.09	1.03	94	90-110	

* Values outside of QC limits

Comments:

CASE NARRATIVE
AUTOMATED CHEMISTRY ANALYSIS

Lab Name: CH2M HILL/LAB/CVO ASL SDG#: L3023

Project: PGE Topock Project #: 423575.MP.02.GM.01

I. Method(s):
Analysis: E353.2

II. Receipt/Holding Times:
All acceptance criteria were met.

III. Analysis:

A. Initial Calibration(s):
All acceptance criteria were met.

B. Calibration Verification(s):
All acceptance criteria were met.

C. Blanks:
All acceptance criteria were met.

D. Laboratory Control Sample(s):
All acceptance criteria were met.

E. Matrix Spike/Matrix Spike Duplicate Sample(s):
Analyzed in accordance with standard operating procedure.

F. Analytical Exception(s):
None.

IV. Documentation Exception(s):
None.

V. I certify that this data package is in compliance with the terms and conditions agreed to by the client and CH2M HILL, both technically and for completeness, except for the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or designee, as verified by the following signatures.

Prepared by: Emily Clark Date: 1/3/13

Reviewed by: Kathy McKinley Date: 1/4/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-09-188

SDG No.: L3023

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L302301

Date Received: 12/12/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0700	0.250	11.0		MG/L	25	3 ML	E353.2	12/21/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-28-025-188

SDG No.: L3023

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L302302

Date Received: 12/12/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0128		MG/L	1	3 ML	E353.2	12/21/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-28-090-188

SDG No.: L3023

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L302303

Date Received: 12/12/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0111		MG/L	1	3 ML	E353.2	12/21/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-29-188

SDG No.: L3023

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L302304

Date Received: 12/12/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0765		MG/L	1	3 ML	E353.2	12/21/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-32-020-188

SDG No.: L3023

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L302305

Date Received: 12/12/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0560	0.200	1.16		MG/L	20	3 ML	E353.2	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-32-035-188

SDG No.: L3023

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L302306

Date Received: 12/12/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0274		MG/L	1	3 ML	E353.2	01/02/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-33-040-188

SDG No.: L3023

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L302307

Date Received: 12/12/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.115		MG/L	1	3 ML	E353.2	12/21/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-52D-188

SDG No.: L3023

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L302308

Date Received: 12/12/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-52M-188

SDG No.: L3023

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L302309

Date Received: 12/12/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-52S-188

SDG No.: L3023

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L302310

Date Received: 12/12/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0198		MG/L	1	3 ML	E353.2	12/21/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-53M-188

SDG No.: L3023

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L302311

Date Received: 12/12/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0176		MG/L	1	3 ML	E353.2	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-60BR-245-188

SDG No.: L3023

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L302312

Date Received: 12/12/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.231		MG/L	1	3 ML	E353.2	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-65-225-188

SDG No.: L3023

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L302313

Date Received: 12/12/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0560	0.200	11.2		MG/L	20	3 ML	E353.2	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-69-195-188

SDG No.: L3023

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L302314

Date Received: 12/12/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.140	0.500	20.3		MG/L	50	3 ML	E353.2	12/21/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-72-080-188

SDG No.: L3023

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L302315

Date Received: 12/12/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0140	0.0500	1.47		MG/L	5	3 ML	E353.2	12/21/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-73-080-188

SDG No.: L3023

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L302316

Date Received: 12/12/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0280	0.100	4.98		MG/L	10	3 ML	E353.2	12/21/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-91-188

SDG No.: L3023

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L302317

Date Received: 12/12/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0648		MG/L	1	3 ML	E353.2	12/21/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-92-188

SDG No.: L3023

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L302318

Date Received: 12/12/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.123		MG/L	1	3 ML	E353.2	12/21/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-33-150-188

SDG No.: L3023

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L302319

Date Received: 12/12/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0140	0.0500	1.43		MG/L	5	3 ML	E353.2	12/21/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-33-210-188

SDG No.: L3023

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L302320

Date Received: 12/12/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0140	0.0500	1.52		MG/L	5	3 ML	E353.2	12/21/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-42-030-188

SDG No.: L3023

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L302321

Date Received: 12/12/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0121		MG/L	1	3 ML	E353.2	12/21/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-42-055-188

SDG No.: L3023

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L302322

Date Received: 12/12/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	12/21/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-42-065-188

SDG No.: L3023

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L302323

Date Received: 12/12/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-44-070-188

SDG No.: L3023

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L302324

Date Received: 12/12/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-53D-188

SDG No.: L3023

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L302325

Date Received: 12/12/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-60-125-188

SDG No.: L3023

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L302326

Date Received: 12/12/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0280	0.100	4.26		MG/L	10	3 ML	E353.2	12/21/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-66-165-188

SDG No.: L3023

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L302327

Date Received: 12/12/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.224	0.800	38.4		MG/L	80	3 ML	E353.2	12/21/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-67-185-188

SDG No.: L3023

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L302328

Date Received: 12/12/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.140	0.500	21.6		MG/L	50	3 ML	E353.2	12/21/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-67-260-188

SDG No.: L3023

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L302329

Date Received: 12/12/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0560	0.200	1.56		MG/L	20	3 ML	E353.2	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-68-240-188

SDG No.: L3023

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L302330

Date Received: 12/12/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0560	0.200	4.82		MG/L	20	3 ML	E353.2	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-95-188

SDG No.: L3023

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L302331

Date Received: 12/12/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB3-121912

SDG No.: L3023

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: WB3-121912

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB4-121912

SDG No.: L3023

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: WB4-121912

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB1-122112

SDG No.: L3023

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: WB1-122112

Date Received: __/__/__

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	12/21/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB3-122112

SDG No.: L3023

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: WB3-122112

Date Received: __/__/__

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	12/21/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB5-010213

SDG No.: L3023

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: WB5-010213

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	01/02/13

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: L3023

Lab Name: CH2M HILL/LAB/CVO

Analysis Method: E353.2

LCS ID: BS3W1219

Initial Calibration ID: 121912NO32SMcal

Date Analyzed: 12/19/12

Matrix: (Soil/Water) WATER

Time Analyzed: 1755

Instrument: SMARTCHEM

Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.416	0.395	95	90-110	

* Values outside of QC limits

Comments:

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: L3023

Lab Name: CH2M HILL/LAB/CVO

Analysis Method: E353.2

LCS ID: BS4W1219

Initial Calibration ID: 121912NO32SMcal

Date Analyzed: 12/19/12

Matrix: (Soil/Water) WATER

Time Analyzed: 1825

Instrument: SMARTCHEM

Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.416	0.403	97	90-110	

* Values outside of QC limits

Comments:

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: L3023

Lab Name: CH2M HILL/LAB/CVO

Analysis Method: E353.2

LCS ID: BS1W1221

Initial Calibration ID: 121912NO32SMcal

Date Analyzed: 12/21/12

Matrix: (Soil/Water) WATER

Time Analyzed: 1248

Instrument: SMARTCHEM

Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.416	0.385	93	90-110	

* Values outside of QC limits

Comments:

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: L3023

Lab Name: CH2M HILL/LAB/CVO

Analysis Method: E353.2

LCS ID: BS3W1221

Initial Calibration ID: 121912NO32SMcal

Date Analyzed: 12/21/12

Matrix: (Soil/Water) WATER

Time Analyzed: 1425

Instrument: SMARTCHEM

Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.416	0.377	91	90-110	

* Values outside of QC limits

Comments:

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: L3023

Lab Name: CH2M HILL/LAB/CVO

Analysis Method: E353.2

LCS ID: BS5W0102

Initial Calibration ID: 121912NO32SMcal

Date Analyzed: 01/02/13

Matrix: (Soil/Water) WATER

Time Analyzed: 1733

Instrument: SMARTCHEM

Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.416	0.403	97	90-110	

* Values outside of QC limits

Comments:

4.4°C

CH2MHILL CHAIN OF CUSTODY RECORD 12/6/2012 4:29:28 PM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.01
Task Order
Project 2012-GMP-188-Q4
Turnaround Time 10 Days
Shipping Date: 12/6/2012
COC Number: 21

L3023

	DATE	TIME	Matrix	Nitrate/Nitrite (E353.3)	Ammonia (SM4500NH3)	Nitrate/Nitrite (E353.3)		Number of Containers	COMMENTS
Container:				250 ml Poly	1 Liter Poly	1 Liter Poly			
Preservatives:				H2SO4, pH<2, 4°C	H2SO4, pH<2, 4°C	H2SO4, pH<2, 4°C			
Filtered:				NA	NA	NA			
Holding Time:				28	28	28			
MW-09-188	12/5/2012	13:45	Water	X				1	1
MW-28-025-188	12/5/2012	9:06	Water		X	X		1	2
MW-28-090-188	12/5/2012	9:53	Water		X	X		1	3
MW-29-188	12/5/2012	10:54	Water		X	X		1	4
MW-32-020-188	12/5/2012	12:07	Water		X	X		1	5
MW-32-035-188	12/5/2012	13:09	Water		X	X		1	6
MW-33-040-188	12/5/2012	15:31	Water		X	X		1	7
MW-52D-188	12/5/2012	9:47	Water		X	X		1	8
MW-52M-188	12/5/2012	11:25	Water		X	X		1	9
MW-52S-188	12/5/2012	12:24	Water		X	X		1	10
MW-53M-188	12/5/2012	14:56	Water		X	X		1	11
MW-60BR-245-188	12/5/2012	8:01	Water		X	X		1	12
MW-65-225-188	12/5/2012	12:35	Water		X	X		1	13
MW-69-195-188	12/5/2012	15:45	Water		X	X		1	14

	Signatures	Date/Time
Approved by		12-6-12
Sampled by		1640
Relinquished by		
Received by		12-6-12 1640
Relinquished by		
Received by		12-6-12 1848

REL: MBCARTIN 12/11/12 @ 1700

Shipping Details
Method of Shipment: courier
On Ice: yes / no 4.1 ICE IRA
Airbill No: CHMC
Lab Name: ~~ADVANCED TECHNOLOGY LABORATO~~
Lab Phone: ~~(702) 307-2659~~ 541-768-3144

ATTN:
Sample Custody and Marlon

Special Instructions:
Nov 5 - Dec 14, 2012
received 12/12/12 15:21
Report Copy to
Shawn Duffy
(530) 229-3303

CH2MHILL

CHAIN OF CUSTODY RECORD

12/6/2012 4:29:29 PM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.01
Task Order
Project 2012-GMP-188-Q4
Turnaround Time 10 Days
Shipping Date: 12/6/2012
COC Number: 21

L3023

			Container:	250 ml Poly	1 Liter Poly	1 Liter Poly			
			Preservatives:	H2SO4, pH<2, 4°C	H2SO4, pH<2, 4°C	H2SO4, pH<2, 4°C			
			Filtered:	NA	NA	NA			
			Holding Time:	28	28	28			
	DATE	TIME	Matrix	Nitrate/Nitrite (E353.3)	Ammonia (SM4500NH3)	Nitrate/Nitrite (E353.3)		Number of Containers	COMMENTS
MW-72-080-188	12/5/2012	10:59	Water		X	X		1	15
MW-73-080-188	12/5/2012	7:50	Water		X	X		1	16
MW-91-188	12/5/2012	16:58	Water		X	X		1	17
MW-92-188	12/5/2012	15:34	Water		X	X		1	18
MW-33-150-188	12/6/2012	9:30	Water		X	X		1	19
MW-33-210-188	12/6/2012	10:23	Water		X	X		1	20
MW-42-030-188	12/6/2012	11:51	Water	X				1	21
MW-42-055-188	12/6/2012	13:18	Water		X	X		1	22
MW-42-065-188	12/6/2012	14:03	Water		X	X		1	23
MW-44-070-188	12/6/2012	15:46	Water		X	X		1	24
MW-53D-188	12/6/2012	9:09	Water		X	X		1	25
MW-60-125-188	12/6/2012	10:36	Water		X	X		1	26
MW-66-165-188	12/6/2012	8:26	Water		X	X		1	27
MW-67-185-188	12/6/2012	15:01	Water		X	X		1	28

Signatures	Date/Time
Approved by	12-6-12
Sampled by	1640
Relinquished by	
Received by	12-6-12 1640
Relinquished by	
Received by	12-6-12 1848

REL: MBCARTIN 12/11/12@1700

Shipping Details

Method of Shipment: courier
On Ice: (yes) / no 4.1 ICE IRS
Airbill No: CHMC
Lab Name: ~~ADVANCED TECHNOLOGY LABORATO~~
Lab Phone: ~~(702) 307-2859~~ 541-768-3144

ATTN:

Sample Custody and Marlon

Special Instructions:

Nov 5 - Dec 14, 2012

Mikio Quinn received 12/12/12 15:21

Report Copy to
Shawn Duffy
(530) 229-3303

L3023

CH2MHILL

CHAIN OF CUSTODY RECORD

12/6/2012 4:29:29 PM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.01
Task Order
Project 2012-GMP-188-Q4
Turnaround Time 10 Days
Shipping Date: 12/6/2012
COC Number: 21

			Container:	250 ml Poly	1 Liter Poly	1 Liter Poly			
			Preservatives:	H2SO4, pH<2, 4°C	H2SO4, pH<2, 4°C	H2SO4, pH<2, 4°C			
			Filtered:	NA	NA	NA			
			Holding Time:	28	28	28			
	DATE	TIME	Matrix	Nitrate/Nitrite (E353.3)	Ammonia (SM4500NH3)	Nitrate/Nitrite (E353.3)		Number of Containers	COMMENTS
MW-67-260-188	12/6/2012	13:57	Water		X	X		1	29
MW-68-240-188	12/6/2012	11:58	Water		X	X		1	30
MW-95-188	12/6/2012	7:05	Water		X	X		1	31
							TOTAL NUMBER OF CONTAINERS	31	

	Signatures	Date/Time
Approved by		12-6-12 1640
Sampled by		
Relinquished by		
Received by		12-6-12 1640
Relinquished by		
Received by		12-6-12 1848

RCL: MBCARTIN 12/6/12 1700

Shipping Details

Method of Shipment: courier
On Ice: (Yes) / no 4.1 ICE IRA
Airbill No: CHMC
Lab Name: ~~ADVANCED TECHNOLOGY LABORATO~~
Lab Phone: ~~(702) 307-2659~~ 541-768-3144

ATTN:

Sample Custody and Marlon

Special Instructions:

Nov 5 - Dec 14, 2012

Mikio Quinn received 12/12/12 15:21

Report Copy to
Shawn Duffy
(530) 229-3303

CH2MHILL
Applied Sciences Laboratory (ASL)

Sample Receipt Record

Batch Number: L3023
Client/Project: TOPOCH

Date received: 12/12/12
Checked by: [illegible]
Checked by: MQ

VERIFICATION OF SAMPLE CONDITIONS (verify all items), HD = Client Hand delivered Samples	NA	YES	NO
Radiological Screening for DoD	✓		
Were custody seals intact and on the outside of the cooler?		✓	
Type of packing material: Ice Blue Ice Bubble wrap			
Was a Chain of Custody (CoC) Provided?		✓	
Was the CoC correctly filled out (If No, document in the SRER)		✓	
Did the CoC list a correct bottle count and the preservative types (Y=OK, N=Corrected on CoC)		✓	
Were the sample containers in good condition (broken or leaking)?		✓	
Containers supplied by ASL?		✓	
Any sample with < 1/2 holding time remaining? If so contact LPM			✓
Samples have multi-phase? If yes, document on SRER			✓
Was there ice in the cooler? Enter temp. If >6°C contact client/SRER 4.4 °C		✓	

All VOCs free of air bubbles? No, document on SRER	✓		
pH of all samples checked and met requirements? No, then document in SRER		✓	
Enough sample volume provided for analysis? No, document in SRER		✓	
Did sample labels agree with COC? No, document in SRER		✓	
Dissolved/Soluble metals filtered in the field?	✓		
Dissolved/Soluble metals have sediment in bottom of container? Document in SRER	✓		

Sample ID	Reagent	Reagent Lot Number	Volume Added	Initials
L3023-4→7,10,17 Nut	H_2SO_4	3-mw-31-21	1 mL	CB/MQ

CH2MHILL
Applied Sciences Laboratory

ANALYTICAL REPORT

For:
PGE Topock

ASL Report #: L3034
Project ID: 423575.MP.02.GM.01
Attn: Jay Piper
cc:
Data Center/RDD
Shawn Duffy/RDD

Authorized and Released By:

Kathy McKinley

Laboratory Project Manager
Kathy McKinley
(541) 758-0235 ext.23144
January 14, 2013

This data package meets standards requested by client and is not intended or implied to meet any other standard.

All analyses performed by CH2M HILL are clearly indicated. Any subcontracted analyses are included as appended reports as received from the subcontracted laboratory. The results included in this report only relate to the samples listed on the following Sample Cross-Reference page. This report shall not be reproduced except in full, without the written approval of the laboratory.

Any unusual difficulties encountered during the analysis of your samples are discussed in the attached case narratives.

CH2M HILL Applied Sciences Laboratory • 1100 NE Circle Boulevard, Suite 300 • Corvallis, Oregon 97330 • www.ch2mhill.com/asl

ASL Report #: L3034

Sample Receipt Comments

We certify that the test results meet all standard ASL requirements.

Sample Cross-Reference

ASL Sample ID	Client Sample ID	Date/Time Collected	Date Received
L303401	MW-10-188	12/10/12 11:48	12/13/12
L303402	MW-22-188	12/10/12 13:32	12/13/12
L303403	MW-43-025-188	12/10/12 10:00	12/13/12
L303404	MW-43-075-188	12/10/12 11:06	12/13/12
L303405	MW-43-090-188	12/10/12 12:04	12/13/12
L303406	MW-62-065-188	12/10/12 15:01	12/13/12
L303407	MW-66-230-188	12/10/12 13:16	12/13/12
L303408	MW-67-225-188	12/10/12 15:07	12/13/12
L303409	MW-100-188	12/11/12 09:23	12/13/12
L303410	MW-13-188	12/11/12 12:38	12/13/12
L303411	MW-25-188	12/11/12 11:21	12/13/12
L303412	MW-49-135-188	12/11/12 09:33	12/13/12
L303413	MW-49-275-188	12/11/12 11:08	12/13/12
L303414	MW-49-365-188	12/11/12 16:18	12/13/12
L303415	MW-62-110-188	12/11/12 15:22	12/13/12
L303416	MW-62-190-188	12/11/12 15:30	12/13/12
L303417	MW-68-180-188	12/11/12 09:38	12/13/12
L303418	MW-99-188	12/11/12 13:02	12/13/12
L303419	PGE-07BR-188	12/11/12 16:13	12/13/12
L303420	TW-01-188	12/11/12 14:50	12/13/12

CASE NARRATIVE
AUTOMATED CHEMISTRY ANALYSIS

Lab Name: CH2M HILL/LAB/CVO ASL SDG#: L3034

Project: PGE Topock Project #: 423575.MP.02.GM.01

I. Method(s):
Analysis: E350.1

II. Receipt/Holding Times:
All acceptance criteria were met.

III. Analysis:

A. Initial Calibration(s):
All acceptance criteria were met.

B. Calibration Verification(s):
All acceptance criteria were met.

C. Blanks:
All acceptance criteria were met.

D. Laboratory Control Sample(s):
All acceptance criteria were met.

E. Matrix Spike/Matrix Spike Duplicate Sample(s):
Analyzed in accordance with standard operating procedure.

F. Analytical Exception(s):
None.

IV. Documentation Exception(s):
None.

V. I certify that this data package is in compliance with the terms and conditions agreed to by the client and CH2M HILL, both technically and for completeness, except for the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or designee, as verified by the following signatures.

Prepared by: _____ Date: 1/14/2013

Reviewed by: _____ Date: 1/14/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-43-025-188

SDG No.: L3034

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L303403

Date Received: 12/13/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	1.88		MG/L	1	2 ML	E350.1	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-43-075-188

SDG No.: L3034

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L303404

Date Received: 12/13/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	MG/L	1	2 ML	E350.1	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-43-090-188

SDG No.: L3034

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L303405

Date Received: 12/13/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.244		MG/L	1	2 ML	E350.1	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-62-065-188

SDG No.: L3034

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L303406

Date Received: 12/13/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	MG/L	1	2 ML	E350.1	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-66-230-188

SDG No.: L3034

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L303407

Date Received: 12/13/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	MG/L	1	2 ML	E350.1	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-67-225-188

SDG No.: L3034

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L303408

Date Received: 12/13/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	MG/L	1	2 ML	E350.1	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-49-135-188

SDG No.: L3034

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L303412

Date Received: 12/13/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	MG/L	1	2 ML	E350.1	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-49-275-188

SDG No.: L3034

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L303413

Date Received: 12/13/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	MG/L	1	2 ML	E350.1	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-49-365-188

SDG No.: L3034

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L303414

Date Received: 12/13/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	MG/L	1	2 ML	E350.1	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-62-110-188

SDG No.: L3034

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L303415

Date Received: 12/13/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	MG/L	1	2 ML	E350.1	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-62-190-188

SDG No.: L3034

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L303416

Date Received: 12/13/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	MG/L	1	2 ML	E350.1	01/10/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-68-180-188

SDG No.: L3034

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L303417

Date Received: 12/13/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	MG/L	1	2 ML	E350.1	01/10/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-99-188

SDG No.: L3034

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L303418

Date Received: 12/13/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	MG/L	1	2 ML	E350.1	01/10/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB4-1219

SDG No.: L3034

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: WB4-1219

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	MG/L	1	2 ML	E350.1	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB1-0110

SDG No.: L3034

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: WB1-0110

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	MG/L	1	2 ML	E350.1	01/10/13

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: L3034

Lab Name: CH2M HILL/LAB/CVO

Analysis Method: E350.1

LCS ID: BS4W1219

Initial Calibration ID: 121912NH3A

Date Analyzed: 12/19/12

Matrix: (Soil/Water) WATER

Time Analyzed: 1756

Instrument: LACH8500

Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Ammonia-N	1.16	1.17	101	90-110	

* Values outside of QC limits

Comments:

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: L3034

Lab Name: CH2M HILL/LAB/CVO

Analysis Method: E350.1

LCS ID: BS1W0110

Initial Calibration ID: 122812NH3

Date Analyzed: 01/10/13

Matrix: (Soil/Water) WATER

Time Analyzed: 1528

Instrument: LACH8500

Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Ammonia-N	1.09	1.03	94	90-110	

* Values outside of QC limits

Comments:

CASE NARRATIVE
AUTOMATED CHEMISTRY ANALYSIS

Lab Name: CH2M HILL/LAB/CVO ASL SDG#: L3034

Project: PGE Topock Project #: 423575.MP.02.GM.01

I. Method(s):
Analysis: E353.2

II. Receipt/Holding Times:
All acceptance criteria were met.

III. Analysis:

A. Initial Calibration(s):
All acceptance criteria were met.

B. Calibration Verification(s):
All acceptance criteria were met.

C. Blanks:
All acceptance criteria were met.

D. Laboratory Control Sample(s):
All acceptance criteria were met.

E. Matrix Spike/Matrix Spike Duplicate Sample(s):
Analyzed in accordance with standard operating procedure.

F. Analytical Exception(s):
None.

IV. Documentation Exception(s):
None.

V. I certify that this data package is in compliance with the terms and conditions agreed to by the client and CH2M HILL, both technically and for completeness, except for the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or designee, as verified by the following signatures.

Prepared by: Emily Clark Date: 1/2/13

Reviewed by: Kathy Merkler Date: 1/3/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-10-188

SDG No.: L3034

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L303401

Date Received: 12/13/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0700	0.250	12.5		MG/L	25	3 ML	E353.2	12/21/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-22-188

SDG No.: L3034

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L303402

Date Received: 12/13/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0257		MG/L	1	3 ML	E353.2	12/21/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-43-025-188

SDG No.: L3034

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L303403

Date Received: 12/13/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0162		MG/L	1	3 ML	E353.2	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-43-075-188

SDG No.: L3034

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L303404

Date Received: 12/13/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-43-090-188

SDG No.: L3034

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L303405

Date Received: 12/13/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-62-065-188

SDG No.: L3034

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L303406

Date Received: 12/13/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0140	0.0500	3.70		MG/L	5	3 ML	E353.2	12/21/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-66-230-188

SDG No.: L3034

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L303407

Date Received: 12/13/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0560	0.200	15.2		MG/L	20	3 ML	E353.2	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-67-225-188

SDG No.: L3034

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L303408

Date Received: 12/13/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.140	0.500	20.6		MG/L	50	3 ML	E353.2	12/21/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-100-188

SDG No.: L3034

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L303409

Date Received: 12/13/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.140	0.500	22.7		MG/L	50	3 ML	E353.2	12/21/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-13-188

SDG No.: L3034

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L303410

Date Received: 12/13/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0560	0.200	4.80		MG/L	20	3 ML	E353.2	12/21/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-25-188

SDG No.: L3034

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L303411

Date Received: 12/13/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0560	0.200	7.25		MG/L	20	3 ML	E353.2	12/21/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-49-135-188

SDG No.: L3034

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L303412

Date Received: 12/13/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0560	0.200	1.21		MG/L	20	3 ML	E353.2	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-49-275-188

SDG No.: L3034

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L303413

Date Received: 12/13/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.709		MG/L	1	3 ML	E353.2	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-49-365-188

SDG No.: L3034

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L303414

Date Received: 12/13/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0129		MG/L	1	3 ML	E353.2	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-62-110-188

SDG No.: L3034

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L303415

Date Received: 12/13/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0280	0.100	3.61		MG/L	10	3 ML	E353.2	12/21/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-62-190-188

SDG No.: L3034

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L303416

Date Received: 12/13/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0304		MG/L	1	3 ML	E353.2	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-68-180-188

SDG No.: L3034

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L303417

Date Received: 12/13/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.140	0.500	31.0		MG/L	50	3 ML	E353.2	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-99-188

SDG No.: L3034

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L303418

Date Received: 12/13/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.140	0.500	30.5		MG/L	50	3 ML	E353.2	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

PGE-07BR-188

SDG No.: L3034

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L303419

Date Received: 12/13/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0560	0.200	2.14		MG/L	20	3 ML	E353.2	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

TW-01-188

SDG No.: L3034

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L303420

Date Received: 12/13/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.280	1.00	23.1		MG/L	100	3 ML	E353.2	12/21/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB2-122112

SDG No.: L3034

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: WB2-122112

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	12/21/12

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB4-121912

SDG No.: L3034

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: WB4-121912

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB5-121912

SDG No.: L3034

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: WB5-121912

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	12/19/12

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: L3034

Lab Name: CH2M HILL/LAB/CVO

Analysis Method: E353.2

LCS ID: BS4W1219

Initial Calibration ID: 121912NO32SMcal

Date Analyzed: 12/19/12

Matrix: (Soil/Water) WATER

Time Analyzed: 1825

Instrument: SMARTCHEM

Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.416	0.403	97	90-110	

* Values outside of QC limits

Comments:

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: L3034

Lab Name: CH2M HILL/LAB/CVO

Analysis Method: E353.2

LCS ID: BS5W1219

Initial Calibration ID: 121912NO32SMcal

Date Analyzed: 12/19/12

Matrix: (Soil/Water) WATER

Time Analyzed: 1856

Instrument: SMARTCHEM

Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.416	0.385	93	90-110	

* Values outside of QC limits

Comments:

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: L3034

Lab Name: CH2M HILL/LAB/CVO

Analysis Method: E353.2

LCS ID: BS2W1221

Initial Calibration ID: 121912NO32SMcal

Date Analyzed: 12/21/12

Matrix: (Soil/Water) WATER

Time Analyzed: 1355

Instrument: SMARTCHEM

Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.416	0.402	97	90-110	

* Values outside of QC limits

Comments:

CH2MHILL CHAIN OF CUSTODY RECORD 12/11/2012 4:53:12 PM Page 1 OF 2

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.01
Task Order
Project 2012-GMP-188-Q4
Turnaround Time 10 Days
Shipping Date: 12/11/2012
COC Number: 25

			Container:	250 ml Poly	1 Liter Poly	1 Liter Poly			
			Preservatives:	H2SO4, pH<2, 4°C	H2SO4, pH<2, 4°C	H2SO4, pH<2, 4°C			
			Filtered:	NA	NA	NA			
			Holding Time:	28	28	28			
	DATE	TIME	Matrix	Nitrate/Nitrite (E353.3)	Ammonia (SM4500NH3)	Nitrate/Nitrite (E353.3)		Number of Containers	COMMENTS
MW-10-188	12/10/2012	11:48	Water	x				1	1
MW-22-188	12/10/2012	13:32	Water	x				1	2
MW-43-025-188	12/10/2012	10:00	Water		x	x		1	3
MW-43-075-188	12/10/2012	11:06	Water		x	x		1	4
MW-43-090-188	12/10/2012	12:04	Water		x	x		1	5
MW-62-065-188	12/10/2012	15:01	Water		x	x		1	6
MW-66-230-188	12/10/2012	13:16	Water		x	x		1	7
MW-67-225-188	12/10/2012	15:07	Water		x	x		1	8
MW-100-188	12/11/2012	9:23	Water	x				1	9
MW-13-188	12/11/2012	12:38	Water	x				1	10
MW-25-188	12/11/2012	11:21	Water	x				1	11
MW-49-135-188	12/11/2012	9:33	Water		x	x		1	12
MW-49-275-188	12/11/2012	11:08	Water		x	x		1	13
MW-49-365-188	12/11/2012	16:18	Water		x	x		1	14

2.8
L3034

	Signatures	Date/Time
Approved by		12-11-12
Sampled by		1655
Relinquished by		
Received by		12/11/12 1605
Relinquished by		
Received by		12/11/12 1900

Shipping Details
Method of Shipment: courier
On Ice: ~~yes~~ / no 3.2 C
Airbill No: CHMC R#1
Lab Name: ~~ADVANCED TECHNOLOGY LABORATO~~
Lab Phone: ~~(702) 307-2659~~ 541-768-3144

ATTN:
Sample Custody
and
Marion

Special Instructions:
Nov 5 - Dec 14, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

REL: MBCARTIN 12/12/12 1700 Carmen Bell 12/13/12 1000

CH2MHILL CHAIN OF CUSTODY RECORD 12/11/2012 4:53:13 PM Page 2 OF 2

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.01
Task Order
Project 2012-GMP-188-Q4
Turnaround Time 10 Days
Shipping Date: 12/11/2012
COC Number: 25

			Container:	250 ml Poly	1 Liter Poly	1 Liter Poly			
			Preservatives:	H2SO4, pH<2, 4°C	H2SO4, pH<2, 4°C	H2SO4, pH<2, 4°C			
			Filtered:	NA	NA	NA			
			Holding Time:	28	28	28			
	DATE	TIME	Matrix	Nitrate/Nitrite (E353.3)	Ammonia (SM4500NH3)	Nitrate/Nitrite (E353.3)		Number of Containers	COMMENTS
MW-62-110-188	12/11/2012	15:22	Water		x	x		1	15
MW-62-190-188	12/11/2012	15:30	Water		x	x		1	16
MW-68-180-188	12/11/2012	9:38	Water		x	x		1	17
MW-99-188	12/11/2012	13:02	Water		x	x		1	18
PGE-07BR-188	12/11/2012	16:13	Water	x				1	19
TW-01-188	12/11/2012	14:50	Water	x				1	20
							TOTAL NUMBER OF CONTAINERS	20	

	Signatures	Date/Time
Approved by		12-11-12
Sampled by		1655
Relinquished by		
Received by		12/11/12 1655
Relinquished by		
Received by		12/11/12 1900

Shipping Details
Method of Shipment: courier
On Ice: ~~yes~~ / no 3.2°C (R#1)
Airbill No:
Lab Name: ~~ADVANCED TECHNOLOGY LABORATO~~
Lab Phone: ~~(702) 307-2659~~ 541-768-3144

ATTN:
Sample Custody and Marion

Special Instructions:
Nov 5 - Dec 14, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

REL: MBCARTIN 12/12/12@1700 Carmen Bell 12/13/12 1000

CH2MHILL
Applied Sciences Laboratory (ASL)

Sample Receipt Record

Batch Number: L3034
Client/Project: TOPGCS

Date received: 12/13/12
Checked by: CB
Checked by:

VERIFICATION OF SAMPLE CONDITIONS (verify all items), HD = Client Hand delivered Samples	NA	YES	NO
Radiological Screening for DoD	✓		
Were custody seals intact and on the outside of the cooler?		✓	
Type of packing material: Ice Blue Ice Bubble wrap		✓	
Was a Chain of Custody (CoC) Provided?		✓	
Was the CoC correctly filled out (If No, document in the SRER)		✓	
Did the CoC list a correct bottle count and the preservative types (Y=OK, N=Corrected on CoC)		✓	
Were the sample containers in good condition (broken or leaking)?		✓	
Containers supplied by ASL?		✓	
Any sample with < 1/2 holding time remaining? If so contact LPM			✓
Samples have multi-phase? If yes, document on SRER			✓
Was there ice in the cooler? Enter temp. If >6°C contact client/SRER 2.8 °C		✓	
All VOCs free of air bubbles? No, document on SRER	✓		
pH of all samples checked and met requirements? No, then document in SRER		✓	
Enough sample volume provided for analysis? No, document in SRER		✓	
Did sample labels agree with COC? No, document in SRER		✓	
Dissolved/Soluble metals filtered in the field?	✓		
Dissolved/Soluble metals have sediment in bottom of container? Document in SRER	✓		

Sample ID	Reagent	Reagent Lot Number	Volume Added	Initials

CH2MHILL
Applied Sciences Laboratory

ANALYTICAL REPORT

For:
PGE Topock

ASL Report #: L3056
Project ID: 423575.MP.02.GM.01
Attn: Jay Piper
cc:
Data Center/RDD
Shawn Duffy/RDD

Authorized and Released By:

Kathy McKinley

Laboratory Project Manager
Kathy McKinley
(541) 758-0235 ext.23144
January 10, 2013

This data package meets standards requested by client and is not intended or implied to meet any other standard.

All analyses performed by CH2M HILL are clearly indicated. Any subcontracted analyses are included as appended reports as received from the subcontracted laboratory. The results included in this report only relate to the samples listed on the following Sample Cross-Reference page. This report shall not be reproduced except in full, without the written approval of the laboratory.

Any unusual difficulties encountered during the analysis of your samples are discussed in the attached case narratives.

CH2M HILL Applied Sciences Laboratory • 1100 NE Circle Boulevard, Suite 300 • Corvallis, Oregon 97330 • www.ch2mhill.com/asl

ASL Report #: L3056

Sample Receipt Comments

We certify that the test results meet all standard ASL requirements.

Sample Cross-Reference

ASL Sample ID	Client Sample ID	Date/Time Collected	Date Received
L305601	MW-34-055-188	12/12/12 08:54	12/18/12
L305602	MW-34-080-188	12/12/12 10:55	12/18/12
L305603	MW-46-205-188	12/12/12 14:58	12/18/12
L305604	MW-97-188	12/12/12 10:57	12/18/12
L305605	MW-14-188	12/13/12 11:54	12/18/12
L305606	MW-39-100-188	12/13/12 09:56	12/18/12
L305607	MW-45-095a-188	12/13/12 08:50	12/18/12
L305608	MW-57-070-188	12/13/12 12:29	12/18/12
L305609	MW-70BR-225-188	12/13/12 10:13	12/18/12
L305610	MW-96-188	12/13/12 12:34	12/18/12
L305611	TW-02D-188	12/13/12 12:42	12/18/12
L305612	TW-02S-188	12/13/12 12:58	12/18/12

CASE NARRATIVE
AUTOMATED CHEMISTRY ANALYSIS

Lab Name: CH2M HILL/LAB/CVO ASL SDG#: L3056

Project: PGE Topock Project #: 423575.MP.02.GM.01

I. Method(s):
Analysis: E350.1

II. Receipt/Holding Times:
All acceptance criteria were met.

III. Analysis:

A. Initial Calibration(s):
All acceptance criteria were met.

B. Calibration Verification(s):
All acceptance criteria were met.

C. Blanks:
All acceptance criteria were met.

D. Laboratory Control Sample(s):
All acceptance criteria were met.

E. Matrix Spike/Matrix Spike Duplicate Sample(s):
Analyzed in accordance with standard operating procedure.

F. Analytical Exception(s):
None.

IV. Documentation Exception(s):
None.

V. I certify that this data package is in compliance with the terms and conditions agreed to by the client and CH2M HILL, both technically and for completeness, except for the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or designee, as verified by the following signatures.

Prepared by: [signature] Date: 1/2/2013

Reviewed by: Kathy McCoy Date: 1/10/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-34-055-188

SDG No.: L3056

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L305601

Date Received: 12/18/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	mg/L	1	2 ML	E350.1	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-34-080-188

SDG No.: L3056

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L305602

Date Received: 12/18/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	mg/L	1	2 ML	E350.1	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-46-205-188

SDG No.: L3056

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L305603

Date Received: 12/18/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	mg/L	1	2 ML	E350.1	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-39-100-188

SDG No.: L3056

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L305606

Date Received: 12/18/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	mg/L	1	2 ML	E350.1	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-45-095a-188

SDG No.: L3056

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L305607

Date Received: 12/18/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	mg/L	1	2 ML	E350.1	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-57-070-188

SDG No.: L3056

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L305608

Date Received: 12/18/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	mg/L	1	2 ML	E350.1	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-70BR-225-188

SDG No.: L3056

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L305609

Date Received: 12/18/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	mg/L	1	2 ML	E350.1	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-96-188

SDG No.: L3056

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L305610

Date Received: 12/18/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	mg/L	1	2 ML	E350.1	12/19/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB3-1219

SDG No.: L3056

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: WB3-1219

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	mg/L	1	2 ML	E350.1	12/19/12

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: L3056

Lab Name: CH2M HILL/LAB/CVO

Analysis Method: E350.1

LCS ID: BS3W1219

Initial Calibration ID: 121912NH3A

Date Analyzed: 12/19/12

Matrix: (Soil/Water) WATER

Time Analyzed: 1729

Instrument: LACH8500

Concentration Units: mg/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Ammonia-N	1.16	1.15	99	90-110	

* Values outside of QC limits

Comments:

CASE NARRATIVE
AUTOMATED CHEMISTRY ANALYSIS

Lab Name: CH2M HILL/LAB/CVO ASL SDG#: L3056

Project: PGE Topock Project #: 423575.MP.02.GM.01

I. Method(s):
Analysis: E353.2

II. Receipt/Holding Times:
All acceptance criteria were met.

III. Analysis:

A. Initial Calibration(s):
All acceptance criteria were met.

B. Calibration Verification(s):
All acceptance criteria were met.

C. Blanks:
All acceptance criteria were met.

D. Laboratory Control Sample(s):
All acceptance criteria were met.

E. Matrix Spike/Matrix Spike Duplicate Sample(s):
Analyzed in accordance with standard operating procedure.

F. Analytical Exception(s):
None.

IV. Documentation Exception(s):
None.

V. I certify that this data package is in compliance with the terms and conditions agreed to by the client and CH2M HILL, both technically and for completeness, except for the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or designee, as verified by the following signatures.

Prepared by: Emily Clark Date: 1/3/13

Reviewed by: Kathy McKinley Date: 1/4/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-34-055-188

SDG No.: L3056

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L305601

Date Received: 12/18/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	01/02/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-34-080-188

SDG No.: L3056

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L305602

Date Received: 12/18/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	01/02/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-46-205-188

SDG No.: L3056

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L305603

Date Received: 12/18/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.967		MG/L	1	3 ML	E353.2	01/02/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-97-188

SDG No.: L3056

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L305604

Date Received: 12/18/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	01/02/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-14-188

SDG No.: L3056

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L305605

Date Received: 12/18/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0280	0.100	5.16		MG/L	10	3 ML	E353.2	01/02/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-39-100-188

SDG No.: L3056

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L305606

Date Received: 12/18/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	01/02/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-45-095a-188

SDG No.: L3056

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L305607

Date Received: 12/18/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0472		MG/L	1	3 ML	E353.2	01/02/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-57-070-188

SDG No.: L3056

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L305608

Date Received: 12/18/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0280	0.100	8.35		MG/L	10	3 ML	E353.2	01/02/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-70BR-225-188

SDG No.: L3056

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L305609

Date Received: 12/18/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0280	0.100	3.80		MG/L	10	3 ML	E353.2	01/02/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-96-188

SDG No.: L3056

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L305610

Date Received: 12/18/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0280	0.100	7.99		MG/L	10	3 ML	E353.2	01/02/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

TW-02D-188

SDG No.: L3056

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L305611

Date Received: 12/18/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0140	0.0500	1.32		MG/L	5	3 ML	E353.2	01/02/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

TW-02S-188

SDG No.: L3056

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L305612

Date Received: 12/18/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0280	0.100	4.68		MG/L	10	3 ML	E353.2	01/02/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB1-010213

SDG No.: L3056

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: WB1-010213

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	01/02/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB4-010213

SDG No.: L3056

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: WB4-010213

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	01/02/13

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: L3056

Lab Name: CH2M HILL/LAB/CVO

Analysis Method: E353.2

LCS ID: BS1W0102

Initial Calibration ID: 121912NO32SMcal

Date Analyzed: 01/02/13

Matrix: (Soil/Water) WATER

Time Analyzed: 1536

Instrument: SMARTCHEM

Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.416	0.389	93	90-110	

* Values outside of QC limits

Comments:

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: L3056

Lab Name: CH2M HILL/LAB/CVO

Analysis Method: E353.2

LCS ID: BS4W0102

Initial Calibration ID: 121912NO32SMcal

Date Analyzed: 01/02/13

Matrix: (Soil/Water) WATER

Time Analyzed: 1724

Instrument: SMARTCHEM

Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.416	0.414	100	90-110	

* Values outside of QC limits

Comments:

ice 4.8°C

L30856

CH2MHILL

CHAIN OF CUSTODY RECORD

12/13/2012 4:09:09 PM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.01
Task Order
Project 2012-GMP-188-Q4
Turnaround Time 10 Days
Shipping Date: 12/13/2012
COC Number: 27

			Container:	250 ml Poly	1 Liter Poly	1 Liter Poly			
			Preservatives:	H2SO4, pH<2, 4°C	H2SO4, pH<2, 4°C	H2SO4, pH<2, 4°C			
			Filtered:	NA	NA	NA			
			Holding Time:	28	28	28			
	DATE	TIME	Matrix	Nitrate/Nitrite (E353.3)	Ammonia (SM4500NH3)	Nitrate/Nitrite (E353.3)		Number of Containers	COMMENTS
MW-34-055-188	12/12/2012	8:54	Water		X	X		1	1
MW-34-080-188	12/12/2012	10:55	Water		X	X		1	2
MW-46-205-188	12/12/2012	14:58	Water		X	X		1	3
MW-97-188	12/12/2012	10:57	Water	X				1	4
MW-14-188	12/13/2012	11:54	Water	X				1	5
MW-39-100-188	12/13/2012	9:56	Water		X	X		1	6
MW-45-095a-188	12/13/2012	8:50	Water		X	X		1	7
MW-57-070-188	12/13/2012	12:29	Water		X	X		1	8
MW-70BR-225-188	12/13/2012	10:13	Water		X	X		1	9
MW-96-188	12/13/2012	12:34	Water		X	X		1	10
TW-02D-188	12/13/2012	12:42	Water	X				1	11
TW-02S-188	12/13/2012	12:58	Water	X				1	12
							TOTAL NUMBER OF CONTAINERS	12	

	Signatures	Date/Time
Approved by		12-13-12 1610
Sampled by		
Relinquished by		12/13/12@1610
Received by		12/17/12@1500
Relinquished by		12/18/12 1030
Received by		

Shipping Details

Method of Shipment: courier
On Ice: yes / no
Airbill No: CHMC
Lab Name: ~~ADVANCED TECHNOLOGY LABORATO~~
Lab Phone: ~~(702) 307-2659~~ 541-768-3144

ATTN:
Sample Custody
and
Marlon

Special Instructions:
Nov 5 - Dec 14, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

CH2MHILL
Applied Sciences Laboratory (ASL)

Sample Receipt Record

Batch Number: L3056
Client/Project: Topock

Date received: 12/18/12
Checked by: CB
Checked by:

VERIFICATION OF SAMPLE CONDITIONS (verify all items), HD = Client Hand delivered Samples	NA	YES	NO
Radiological Screening for DoD	✓		
Were custody seals intact and on the outside of the cooler?		✓	
Type of packing material: Ice Blue Ice Bubble wrap			
Was a Chain of Custody (CoC) Provided?		✓	
Was the CoC correctly filled out (If No, document in the SRER)		✓	
Did the CoC list a correct bottle count and the preservative types (Y=OK, N=Corrected on CoC)		✓	
Were the sample containers in good condition (broken or leaking)?		✓	
Containers supplied by ASL?		✓	
Any sample with < 1/2 holding time remaining? If so contact LPM			✓
Samples have multi-phase? If yes, document on SRER			✓
Was there ice in the cooler? Enter temp. If >6°C contact client/SRER 4.8 °C		✓	
All VOCs free of air bubbles? No, document on SRER	✓		
pH of all samples checked and met requirements? No, then document in SRER		✓	
Enough sample volume provided for analysis? No, document in SRER		✓	
Did sample labels agree with COC? No, document in SRER		✓	
Dissolved/Soluble metals filtered in the field?	✓		
Dissolved/Soluble metals have sediment in bottom of container? Document in SRER	✓		

Sample ID	Reagent	Reagent Lot Number	Volume Added	Initials
L3056-06-NUT1	H_2SO_4	3-MW-31-21	1 mL	MQ

CH2MHILL
Applied Sciences Laboratory

ANALYTICAL REPORT

For:
PGE Topock

ASL Report #: L3088
Project ID: 423575.MP.02.GM.01
Attn: Jay Piper
cc:
Data Center/RDD
Shawn Duffy/RDD

Authorized and Released By:

Kathy McKinley

Laboratory Project Manager
Kathy McKinley
(541) 758-0235 ext.23144
January 10, 2013

This data package meets standards requested by client and is not intended or implied to meet any other standard.

All analyses performed by CH2M HILL are clearly indicated. Any subcontracted analyses are included as appended reports as received from the subcontracted laboratory. The results included in this report only relate to the samples listed on the following Sample Cross-Reference page. This report shall not be reproduced except in full, without the written approval of the laboratory.

Any unusual difficulties encountered during the analysis of your samples are discussed in the attached case narratives.

CH2M HILL Applied Sciences Laboratory • 1100 NE Circle Boulevard, Suite 300 • Corvallis, Oregon 97330 • www.ch2mhill.com/asl

ASL Report #: L3088

Sample Receipt Comments

We certify that the test results meet all standard ASL requirements.

Sample Cross-Reference

ASL Sample ID	Client Sample ID	Date/Time Collected	Date Received
L308801	MW-66BR-270-188	12/20/12 09:50	12/21/12
L308802	MW-74-240-188	12/20/12 09:08	12/21/12
L308803	MW-98-188	12/20/12 10:00	12/21/12

CASE NARRATIVE
AUTOMATED CHEMISTRY ANALYSIS

Lab Name: CH2M HILL/LAB/CVO ASL SDG#: L3088

Project: PGE Topock Project #: 423575.MP.02.GM.01

I. Method(s):
Analysis: E350.1

II. Receipt/Holding Times:
All acceptance criteria were met.

III. Analysis:

A. Initial Calibration(s):
All acceptance criteria were met.

B. Calibration Verification(s):
All acceptance criteria were met.

C. Blanks:
All acceptance criteria were met.

D. Laboratory Control Sample(s):
All acceptance criteria were met.

E. Matrix Spike/Matrix Spike Duplicate Sample(s):
Analyzed in accordance with standard operating procedure.

F. Analytical Exception(s):
None.

IV. Documentation Exception(s):
None.

V. I certify that this data package is in compliance with the terms and conditions agreed to by the client and CH2M HILL, both technically and for completeness, except for the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or designee, as verified by the following signatures.

Prepared by: [signature] Date: 1/8/2013

Reviewed by: Kathy McKeng Date: 1/10/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-66BR-270-188

SDG No.: L3088

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L308801

Date Received: 12/21/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.309		mg/L	1	2 ML	E350.1	12/27/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-74-240-188

SDG No.: L3088

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L308802

Date Received: 12/21/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.535		mg/L	1	2 ML	E350.1	12/27/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-98-188

SDG No.: L3088

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L308803

Date Received: 12/21/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.476		mg/L	1	2 ML	E350.1	12/27/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB2-1227

SDG No.: L3088

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: WB2-1227

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	mg/L	1	2 ML	E350.1	12/27/12

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: L3088

Lab Name: CH2M HILL/LAB/CVO

Analysis Method: E350.1

LCS ID: BS2W1227

Initial Calibration ID: 122812NH3

Date Analyzed: 12/27/12

Matrix: (Soil/Water) WATER

Time Analyzed: 1349

Instrument: LACH8500

Concentration Units: mg/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Ammonia-N	1.16	1.26	109	90-110	

* Values outside of QC limits

Comments:

CASE NARRATIVE
AUTOMATED CHEMISTRY ANALYSIS

Lab Name: CH2M HILL/LAB/CVO ASL SDG#: L3088

Project: PGE Topock Project #: 423575.MP.02.GM.01

I. Method(s):
Analysis: E353.2

II. Receipt/Holding Times:
All acceptance criteria were met.

III. Analysis:

A. Initial Calibration(s):
All acceptance criteria were met.

B. Calibration Verification(s):
All acceptance criteria were met.

C. Blanks:
All acceptance criteria were met.

D. Laboratory Control Sample(s):
All acceptance criteria were met.

E. Matrix Spike/Matrix Spike Duplicate Sample(s):
Analyzed in accordance with standard operating procedure.

F. Analytical Exception(s):
None.

IV. Documentation Exception(s):
None.

V. I certify that this data package is in compliance with the terms and conditions agreed to by the client and CH2M HILL, both technically and for completeness, except for the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or designee, as verified by the following signatures.

Prepared by: Emily Clark Date: 1/3/13

Reviewed by: Kathy Metcalfe Date: 1/4/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-66BR-270-188

SDG No.: L3088

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L308801

Date Received: 12/21/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0776		MG/L	1	3 ML	E353.2	01/02/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-74-240-188

SDG No.: L3088

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L308802

Date Received: 12/21/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0739		MG/L	1	3 ML	E353.2	01/02/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-98-188

SDG No.: L3088

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L308803

Date Received: 12/21/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0549		MG/L	1	3 ML	E353.2	01/02/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB2-010213

SDG No.: L3088

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: WB2-010213

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	01/02/13

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: L3088

Lab Name: CH2M HILL/LAB/CVO

Analysis Method: E353.2

LCS ID: BS2W0102

Initial Calibration ID: 121912NO32SMcal

Date Analyzed: 01/02/13

Matrix: (Soil/Water) WATER

Time Analyzed: 1636

Instrument: SMARTCHEM

Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.416	0.394	95	90-110	

* Values outside of QC limits

Comments:

L 3088

CH2MHILL

CHAIN OF CUSTODY RECORD

12/20/2012 11:20:04 AM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.01
Task Order
Project 2012-GMP-188-Q4
Turnaround Time 10 Days
Shipping Date: 12/20/2012
COC Number: 31

				Ammonia (SM4500NH3)	Nitrate/Nitrite (E353.3)		Number of Containers	COMMENTS
Container:				1 Liter Poly	1 Liter Poly			
Preservatives:				H2SO4, pH<2, 4°C	H2SO4, pH<2, 4°C			
Filtered:				NA	NA			
Holding Time:				28	28			
	DATE	TIME	Matrix					
MW-66BR-270-188	12/20/2012	9:50	Water	X	X		1	1
MW-74-240-188	12/20/2012	9:08	Water	X	X		1	2
MW-98-188	12/20/2012	10:00	Water	X	X		1	3
						TOTAL NUMBER OF CONTAINERS	3	

1.3 °C ice

	Signatures	Date/Time
Approved by		12-20-12 1145
Sampled by		
Relinquished by		12/20/12 1145
Received by		12/20/12 1421
Relinquished by		12/21/12 1030
Received by	Carmen Bell	

Shipping Details

Method of Shipment: courier
On Ice: yes / no 2.2 °C IEH
Airbill No: CHMC
Lab Name: ~~ADVANCED TECHNOLOGY LABORATO~~
Lab Phone: ~~(702) 307-2659~~ 541-768-3144

ATTN:
Sample Custody
and
Marlon

Special Instructions:
Nov 5 - Dec 14, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

CH2MHILL
Applied Sciences Laboratory (ASL)

Sample Receipt Record

Batch Number: L3088
Client/Project: PG&E Topock

Date received: 12/21/12
Checked by: Mikio Quinn
Checked by:

VERIFICATION OF SAMPLE CONDITIONS (verify all items), HD = Client Hand delivered Samples	NA	YES	NO
Radiological Screening for DoD	✓		
Were custody seals intact and on the outside of the cooler?		✓	
Type of packing material: (Ice) Blue Ice Bubble wrap		✓	
Was a Chain of Custody (CoC) Provided?		✓	
Was the CoC correctly filled out (If No, document in the SRER)		✓	
Did the CoC list a correct bottle count and the preservative types (Y=OK, N=Corrected on CoC)		✓	
Were the sample containers in good condition (broken or leaking)?		✓	
Containers supplied by ASL?			✓
Any sample with < 1/2 holding time remaining? If so contact LPM			✓
Samples have multi-phase? If yes, document on SRER			✓
Was there ice in the cooler? Enter temp. If >6°C contact client/SRER ice 1.3 °C		✓	
All VOCs free of air bubbles? No, document on SRER	✓		
pH of all samples checked and met requirements? No, then document in SRER		✓	
Enough sample volume provided for analysis? No, document in SRER		✓	
Did sample labels agree with COC? No, document in SRER			
Dissolved/Soluble metals filtered in the field?	✓		
Dissolved/Soluble metals have sediment in bottom of container? Document in SRER	✓		

Sample ID	Reagent	Reagent Lot Number	Volume Added	Initials

November 26, 2012

Shawn P. Duffy
CH2M HILL
155 Grand Avenue, Suite 1000
Oakland, CA 94612

TEL: (530) 229-3303
FAX: (530) 339-3303

CA-ELAP No.: 2676
NV Cert. No.: NV-009222007A

Workorder No.: N008839

RE: PG&E Topock, 423575.MP.02.GM.0

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on November 06, 2012 by Advanced Technology Laboratories, Inc. . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

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

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

Sincerely,

for Jose Tenorio

Jose Tenorio Jr.
Laboratory Director

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

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.0
Lab Order: N008839

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

Samples were received intact with proper chain of custody documentation.

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

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

Samples were analyzed within method holding time.

Analytical Comments for EPA 6010B:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Calcium, Magnesium and Sodium on QC samples N008839-002AMS and N008839-002AMSD since the analyte concentration in the sample is disproportionate to the spike level. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

Date: *26-Nov-12*

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.0
Lab Order: N008839
Contract No: 2012-GMP-188-

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N008839-001A	MW-41D-188	Water	11/5/2012 2:45:00 PM	11/6/2012	11/26/2012
N008839-001B	MW-41D-188	Water	11/5/2012 2:45:00 PM	11/6/2012	11/26/2012
N008839-002A	MW-41M-188	Water	11/5/2012 4:35:00 PM	11/6/2012	11/26/2012
N008839-002B	MW-41M-188	Water	11/5/2012 4:35:00 PM	11/6/2012	11/26/2012

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *26-Nov-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-41D-188
Lab Order:	N008839	**Collection Date:**	11/5/2012 2:45:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008839-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
EPA 120.1							
RunID: **WETCHEM_121107C**	QC Batch: **R86232**			PrepDate:			Analyst: **KAB**
Specific Conductance	22000	0.10	0.10		umhos/cm	1	11/7/2012

Qualifiers:

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

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *26-Nov-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-41M-188
Lab Order:	N008839	**Collection Date:**	11/5/2012 4:35:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008839-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
EPA 120.1							
RunID: **WETCHEM_121107C**	QC Batch: **R86232**			PrepDate:			Analyst: **KAB**
Specific Conductance	16000	0.10	0.10		umhos/cm	1	11/7/2012

Qualifiers:

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

Advanced Technology Laboratories, Inc.

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Advanced Technology Laboratories, Inc.

Date: *26-Nov-12*

CLIENT: CH2M HILL
Work Order: N008839
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: **LCS-R86232** SampType: **LCS** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86232**
Client ID: **LCSW** Batch ID: **R86232** TestNo: **EPA 120.1** Analysis Date: **11/7/2012** SeqNo: **1470206**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	99900.000	0.10	99800	0	100	85	115				

Sample ID: **N008839-001B-DUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86232**
Client ID: **ZZZZZZ** Batch ID: **R86232** TestNo: **EPA 120.1** Analysis Date: **11/7/2012** SeqNo: **1470208**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	22200.000	0.10						22200	0	10	

Sample ID: **N008839-001B-MS** SampType: **MS** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86232**
Client ID: **ZZZZZZ** Batch ID: **R86232** TestNo: **EPA 120.1** Analysis Date: **11/7/2012** SeqNo: **1470209**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	121200.000	0.20	99800	22200	99.2	75	125				

Sample ID: **N008839-001B-MSD** SampType: **MSD** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86232**
Client ID: **ZZZZZZ** Batch ID: **R86232** TestNo: **EPA 120.1** Analysis Date: **11/7/2012** SeqNo: **1470210**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	121200.000	0.20	99800	22200	99.2	75	125	121200	0	10	

Qualifiers:

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

Advanced Technology Laboratories, Inc.
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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *26-Nov-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-41D-188
Lab Order:	N008839	**Collection Date:**	11/5/2012 2:45:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008839-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121107D**	QC Batch: **R86235**			PrepDate:			Analyst: **KAB**
Alkalinity, Bicarbonate (As CaCO3)	39	1.2	5.0		mg/L	1	11/7/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/7/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/7/2012
Alkalinity, Total (As CaCO3)	39	1.2	5.0		mg/L	1	11/7/2012

Qualifiers:

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

Advanced Technology Laboratories, Inc.

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *26-Nov-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-41M-188
Lab Order:	N008839	**Collection Date:**	11/5/2012 4:35:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008839-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121107D**	QC Batch: **R86235**			PrepDate:			Analyst: **KAB**
Alkalinity, Bicarbonate (As CaCO3)	35	1.2	5.0		mg/L	1	11/7/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/7/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/7/2012
Alkalinity, Total (As CaCO3)	35	1.2	5.0		mg/L	1	11/7/2012

Qualifiers:

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

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

Date: *26-Nov-12*

CLIENT: CH2M HILL
Work Order: N008839
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **LCS-R86235** SampType: **LCS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86235**
Client ID: **LCSW** Batch ID: **R86235** TestNo: **SM 2320 B** Analysis Date: **11/7/2012** SeqNo: **1470313**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	97.403	5.0	100.0	0	97.4	85	115				
Alkalinity, Total (As CaCO3)	99.567	5.0	100.0	0	99.6	85	115				

Sample ID: **LCSD-R86235** SampType: **LCSD** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86235**
Client ID: **LCSS02** Batch ID: **R86235** TestNo: **SM 2320 B** Analysis Date: **11/7/2012** SeqNo: **1470314**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	97.403	5.0	100.0	0	97.4	85	115	97.40	0	20	
Alkalinity, Total (As CaCO3)	99.567	5.0	100.0	0	99.6	85	115	99.57	0	20	

Sample ID: **MB-R86235** SampType: **MBLK** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86235**
Client ID: **PBW** Batch ID: **R86235** TestNo: **SM 2320 B** Analysis Date: **11/7/2012** SeqNo: **1470315**

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: **N008833-001A-DUP** SampType: **DUP** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86235**
Client ID: **ZZZZZZ** Batch ID: **R86235** TestNo: **SM 2320 B** Analysis Date: **11/7/2012** SeqNo: **1470317**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	4.329	5.0						4.329	0	30	
Alkalinity, Carbonate (As CaCO3)	ND	5.0						0	0	30	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0						0	0	30	
Alkalinity, Total (As CaCO3)	4.329	5.0						4.329	0	30	

Qualifiers:

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

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CLIENT: CH2M HILL
Work Order: N008839
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **N008833-001A-MS** SampType: **MS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86235**
Client ID: **ZZZZZZ** Batch ID: **R86235** TestNo: **SM 2320 B** Analysis Date: **11/7/2012** SeqNo: **1470318**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	103.896	5.0	100.0	4.329	99.6	75	125				
Alkalinity, Total (As CaCO3)	103.896	5.0	100.0	4.329	99.6	75	125				

Sample ID: **N008833-001A-MSD** SampType: **MSD** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86235**
Client ID: **ZZZZZZ** Batch ID: **R86235** TestNo: **SM 2320 B** Analysis Date: **11/7/2012** SeqNo: **1470319**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	103.896	5.0	100.0	4.329	99.6	75	125	103.9	0	20	
Alkalinity, Total (As CaCO3)	103.896	5.0	100.0	4.329	99.6	75	125	103.9	0	20	

Sample ID: **N008841-003A-DUP** SampType: **DUP** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86235**
Client ID: **ZZZZZZ** Batch ID: **R86235** TestNo: **SM 2320 B** Analysis Date: **11/7/2012** SeqNo: **1470330**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	104.978	5.0						105.0	0	30	
Alkalinity, Carbonate (As CaCO3)	ND	5.0						0	0	30	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0						0	0	30	
Alkalinity, Total (As CaCO3)	104.978	5.0						105.0	0	30	

Sample ID: **N008841-003A-MS** SampType: **MS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86235**
Client ID: **ZZZZZZ** Batch ID: **R86235** TestNo: **SM 2320 B** Analysis Date: **11/7/2012** SeqNo: **1470331**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	203.463	5.0	100.0	105.0	98.5	75	125				
Alkalinity, Total (As CaCO3)	203.463	5.0	100.0	105.0	98.5	75	125				

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *26-Nov-12*

CLIENT: CH2M HILL
Lab Order: N008839
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008839-001

Client Sample ID: MW-41D-188
Collection Date: 11/5/2012 2:45:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121110A** QC Batch: **R86430** PrepDate: Analyst: **QBM**							
Chloride	7700	22	1000		mg/L	2000	11/10/2012 04:16 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121110A** QC Batch: **R86430** PrepDate: Analyst: **QBM**							
Sulfate	780	3.5	50		mg/L	100	11/10/2012 10:50 AM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *26-Nov-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-41M-188
Lab Order:	N008839	**Collection Date:**	11/5/2012 4:35:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008839-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121110A** QC Batch: **R86430** PrepDate: Analyst: **QBM**							
Chloride	5200	11	500		mg/L	1000	11/10/2012 04:28 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121110A** QC Batch: **R86430** PrepDate: Analyst: **QBM**							
Sulfate	550	1.8	25		mg/L	50	11/10/2012 11:02 AM

Qualifiers:

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

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Advanced Technology Laboratories, Inc.

Date: *26-Nov-12*

CLIENT: CH2M HILL
Work Order: N008839
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **MB-R86430_CL** SampType: **MBLK** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86430**
Client ID: **PBW** Batch ID: **R86430** TestNo: **EPA 300.0** Analysis Date: **11/10/2012** SeqNo: **1477660**

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

Sample ID: **LCS-R86430_CL** SampType: **LCS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86430**
Client ID: **LCSW** Batch ID: **R86430** TestNo: **EPA 300.0** Analysis Date: **11/10/2012** SeqNo: **1477661**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.453	0.50	2.500	0	98.1	90	110				

Sample ID: **N008840-002ADUP** SampType: **DUP** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86430**
Client ID: **ZZZZZZ** Batch ID: **R86430** TestNo: **EPA 300.0** Analysis Date: **11/10/2012** SeqNo: **1477669**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1510.000	250						1512	0.132	20	

Sample ID: **N008840-001AMS** SampType: **MS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86430**
Client ID: **ZZZZZZ** Batch ID: **R86430** TestNo: **EPA 300.0** Analysis Date: **11/10/2012** SeqNo: **1477673**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2800.000	250	1250	1540	101	80	120				

Sample ID: **N008840-001AMSD** SampType: **MSD** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86430**
Client ID: **ZZZZZZ** Batch ID: **R86430** TestNo: **EPA 300.0** Analysis Date: **11/10/2012** SeqNo: **1477674**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2839.000	250	1250	1540	104	80	120	2800	1.38	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: N008839
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **N008840-005AMS** SampType: **MS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86430**
Client ID: **ZZZZZZ** Batch ID: **R86430** TestNo: **EPA 300.0** Analysis Date: **11/10/2012** SeqNo: **1477678**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2538.500	250	1250	1246	103	80	120				

Qualifiers:

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

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CLIENT: CH2M HILL
Work Order: N008839
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **MB-R86430_SO4** SampType: **MBLK** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86430**
Client ID: **PBW** Batch ID: **R86430** TestNo: **EPA 300.0** Analysis Date: **11/10/2012** SeqNo: **1477700**

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

Sample ID: **LCS-R86430_SO4** SampType: **LCS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86430**
Client ID: **LCSW** Batch ID: **R86430** TestNo: **EPA 300.0** Analysis Date: **11/10/2012** SeqNo: **1477701**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	5.024	0.50	5.000	0	100	90	110				

Sample ID: **N008839-001BMS** SampType: **MS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86430**
Client ID: **ZZZZZZ** Batch ID: **R86430** TestNo: **EPA 300.0** Analysis Date: **11/10/2012** SeqNo: **1477706**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	1303.000	50	500.0	780.1	105	80	120				

Sample ID: **N008839-001BMSD** SampType: **MSD** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86430**
Client ID: **ZZZZZZ** Batch ID: **R86430** TestNo: **EPA 300.0** Analysis Date: **11/10/2012** SeqNo: **1477707**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	1306.600	50	500.0	780.1	105	80	120	1303	0.276	20	

Sample ID: **N008839-002BDUP** SampType: **DUP** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86430**
Client ID: **ZZZZZZ** Batch ID: **R86430** TestNo: **EPA 300.0** Analysis Date: **11/10/2012** SeqNo: **1477708**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	551.700	25						552.1	0.0634	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: N008839
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **N008840-001AMS** SampType: **MS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86430**
Client ID: **ZZZZZZ** Batch ID: **R86430** TestNo: **EPA 300.0** Analysis Date: **11/10/2012** SeqNo: **1477709**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	532.000	25	250.0	271.2	104	80	120				

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *26-Nov-12*

CLIENT: CH2M HILL
Lab Order: N008839
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008839-001

Client Sample ID: MW-41D-188
Collection Date: 11/5/2012 2:45:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121114D**	QC Batch: **41132**				PrepDate:	**11/7/2012**	Analyst: **CEI**
Calcium	410000	150	1000		ug/L	2	11/14/2012 12:02 PM
Iron	ND	14	40		ug/L	2	11/14/2012 12:02 PM
Magnesium	31000	26	200		ug/L	2	11/14/2012 12:02 PM
Sodium	2100000	7300	50000		ug/L	100	11/16/2012 10:25 AM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *26-Nov-12*

CLIENT: CH2M HILL
Lab Order: N008839
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008839-002

Client Sample ID: MW-41M-188
Collection Date: 11/5/2012 4:35:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121114D**	QC Batch: **41132**				PrepDate: **11/7/2012**		Analyst: **CEI**
Calcium	410000	150	1000		ug/L	2	11/14/2012 12:13 PM
Iron	ND	14	40		ug/L	2	11/14/2012 12:13 PM
Magnesium	34000	26	200		ug/L	2	11/14/2012 12:13 PM
Sodium	3300000	7300	50000		ug/L	100	11/16/2012 10:27 AM

Qualifiers:

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

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Advanced Technology Laboratories, Inc.

Date: *26-Nov-12*

CLIENT: CH2M HILL
Work Order: N008839
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **MB-41132** SampType: **MBLK** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/7/2012** RunNo: **86415**
Client ID: **PBW** Batch ID: **41132** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/14/2012** SeqNo: **1477421**

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-41132** SampType: **LCS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/7/2012** RunNo: **86415**
Client ID: **LCSW** Batch ID: **41132** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/14/2012** SeqNo: **1477422**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	948.469	500	1000	0	94.8	85	115				
Iron	112.247	20	100.0	0	112	85	115				
Magnesium	1031.223	100	1000	0	103	85	115				

Sample ID: **N008839-002A-MS** SampType: **MS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/7/2012** RunNo: **86415**
Client ID: **ZZZZZZ** Batch ID: **41132** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/14/2012** SeqNo: **1477434**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	406422.496	1000	1000	414600	-817	75	125				S
Iron	118.455	40	100.0	19.44	99.0	75	125				
Magnesium	34021.317	200	1000	33780	24.5	75	125				S

Sample ID: **N008839-002A-MSD** SampType: **MSD** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/7/2012** RunNo: **86415**
Client ID: **ZZZZZZ** Batch ID: **41132** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/14/2012** SeqNo: **1477435**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	407915.901	1000	1000	414600	-668	75	125	406400	0.367	20	S
Iron	117.884	40	100.0	19.44	98.4	75	125	118.5	0.483	20	
Magnesium	34048.923	200	1000	33780	27.3	75	125	34020	0.0811	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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CLIENT: CH2M HILL
Work Order: N008839
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **MB-41132** SampType: **MBLK** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/7/2012** RunNo: **86416**
Client ID: **PBW** Batch ID: **41132** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/16/2012** SeqNo: **1477996**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	ND	500									

Sample ID: **LCS-41132** SampType: **LCS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/7/2012** RunNo: **86416**
Client ID: **LCSW** Batch ID: **41132** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/16/2012** SeqNo: **1477997**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	26323.043	500	25000	0	105	85	115				

Sample ID: **N008839-002A-MS** SampType: **MS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/7/2012** RunNo: **86416**
Client ID: **ZZZZZZ** Batch ID: **41132** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/16/2012** SeqNo: **1478009**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	2993751.700	50000	100000	3300000	-306	75	125				S

Sample ID: **N008839-002A-MSD** SampType: **MSD** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/7/2012** RunNo: **86416**
Client ID: **ZZZZZZ** Batch ID: **41132** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/16/2012** SeqNo: **1478010**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	3081284.574	50000	100000	3300000	-219	75	125	2994000	2.88	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: *26-Nov-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-41D-188
Lab Order:	N008839	**Collection Date:**	11/5/2012 2:45:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008839-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121111B**	QC Batch: **41131**				PrepDate:	**11/7/2012**	Analyst: **CEI**
Arsenic	2.9	0.035	0.10		µg/L	1	11/11/2012 04:12 PM
Manganese	70	0.16	0.50		µg/L	1	11/11/2012 04:12 PM

Qualifiers:

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

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *26-Nov-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-41M-188
Lab Order:	N008839	**Collection Date:**	11/5/2012 4:35:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008839-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121111B**	QC Batch: **41131**				PrepDate:	**11/7/2012**	Analyst: **CEI**
Arsenic	2.5	0.035	0.10		µg/L	1	11/11/2012 04:22 PM
Manganese	ND	0.16	0.50		µg/L	1	11/12/2012 06:26 PM

Qualifiers:

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

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Advanced Technology Laboratories, Inc.

Date: *26-Nov-12*

CLIENT: CH2M HILL
Work Order: N008839
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **MB-41131** SampType: **MBLK** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **11/7/2012** RunNo: **86291**
Client ID: **PBW** Batch ID: **41131** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **11/11/2012** SeqNo: **1472295**

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									

Sample ID: **LCS-41131** SampType: **LCS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **11/7/2012** RunNo: **86291**
Client ID: **LCSW** Batch ID: **41131** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **11/11/2012** SeqNo: **1472296**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.708	0.10	10.00	0	107	85	115				
Manganese	104.370	0.50	100.0	0	104	85	115				

Sample ID: **N008842-001B-MS** SampType: **MS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **11/7/2012** RunNo: **86291**
Client ID: **ZZZZZZ** Batch ID: **41131** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **11/11/2012** SeqNo: **1472300**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.970	0.10	10.00	0.4399	105	75	125				
Manganese	97.359	0.50	100.0	0	97.4	75	125				

Sample ID: **N008842-001B-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **11/7/2012** RunNo: **86291**
Client ID: **ZZZZZZ** Batch ID: **41131** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **11/11/2012** SeqNo: **1472306**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.848	0.10	10.00	0.4399	104	75	125	10.97	1.11	20	
Manganese	95.393	0.50	100.0	0	95.4	75	125	97.36	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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CH2MHILL

CHAIN OF CUSTODY RECORD

11/6/2012 3:29:59 PM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.0
Task Order
Project 2012-GMP-188-Q4
Turnaround Time 10 Days
Shipping Date: 11/6/2012
COC Number: 1

			Container:	1x500 ml Poly	1x500 ml Poly	2x1 Liter	2x1 Liter	2x1 Liter	250 ml Poly			
			Preservatives:	HNO3, 4°C	HNO3, 4°C	4°C	4°C	4°C	H2SO4, pH<2, 4°C			
			Filtered:	Field	Field	NA	NA	NA	NA			
			Holding Time:	180	180	7	7	7	28			
	DATE	TIME	Matrix	Arsenic (6020A) Field Filtered	Metals (SW6010B/SW6020Adis) Field Filtered Ca,Mg,Na,Fe,Mn	Specific Conductance (E120.1)	Anions (E300.0) Chloride,Sulfate	Alkalinity (SM2320B)	Nitrate/Nitrite (E353.3)		Number of Containers	COMMENTS
MW-41D-188	11/5/2012	14:45	Water	X	X	X	X	X	X	N008859_1	3	
MW-41M-188	11/5/2012	16:35	Water	X	X	X	X	X	X	↓ _2	3	
										TOTAL NUMBER OF CONTAINERS	6	

	Signatures	Date/Time
Approved by		11/6/12
Sampled by		1610
Relinquished by		11/6/12 1610
Received by		11/6/12 1844
Relinquished by		11/6/12 1844
Received by		

Shipping Details

Method of Shipment: courier
On Ice: yes / no IR1 ICE 2.2
Airbill No:
Lab Name: ADVANCED TECHNOLOGY LABORATO
Lab Phone: (702) 307-2659

ATTN:
Sample Custody
and
Marlon

Special Instructions:
Nov 5 - Dec 14, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

Advanced Technology Laboratories, Inc.

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

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

Cooler Received/Opened On:	11/6/2012	Workorder:	N008839
Rep sample Temp (Deg C):	2.2	IR Gun ID:	1
Temp Blank:	☐ Yes ☑ No		
Carrier name:	ATL		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

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

Comments:

Checklist Completed B MBC 11/7/12

Reviewed By:

Sample ID: **N008839-001B @ pH 7.64**

A. Standardization of Sulfuric Acid (titrant):

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

Where:

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

Spike Standards

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

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

Therefore,

Normality of Acid = (2.65g/L) (5mL) / (53.00) (11.55mL)

= **0.02165 N**

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

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

Where:

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

Therefore,

Total Alkalinity (as $CaCO_3$), mg/L = (1.80) (0.02165N) (1) * 1000

= **38.97 mg/L**

Reporting results in two significant figures,

= **39 mg/L** as CaCO3

NS for 11/20/09

C. SPECIATED ALKALINITY:

Phenolphthalein Alkalinity

P alkalinity, mg/L as $CaCO_3$ = $P_{vol.}$ * N H_2SO_4 * DF * 1000

= (0) (0.02165 N) (1) * 1000

= **0**

Total Alkalinity

T alkalinity, mg/L as $CaCO_3$ = $M_{vol.}$ * N H_2SO_4 * DF * 1000

= (1.80mL) (0.02165) (1) * 1000

= **38.97 mg/L** as CaCO3

Where:

$P_{vol.}$ - volume titrant used to reach pH 8.3, ml
$M_{vol.}$ - volume titrant used to reach pH 4.5, ml
N - Normality of H_2SO_4
DF - Dilution Factor = (50 ml) / (Vol. of Sample used)

Then OH, CO_3, HCO_3 alkalinities as $CaCO_3$ will be calculated as follows:

Result of Titration	**OH Alkalinity as $CaCO_3$**	**CO_3 Alkalinity as $CaCO_3$**	**HCO_3 Alkalinity as $CaCO_3$**
P = 0	0	0	T
P < ½ T	0	2P	T – 2P
P = ½ T	0	2P	0
P > ½ T	2P – T	2(T – P)	0
P = T	T	0	0

Therefore,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = **38.97 mg/L**

Reporting results in two significant figures,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = **39 mg/L**

Sample Calculation

METHOD: EPA 300
TEST NAME: INORGANIC ANIONS BY IC
MATRIX: WATER

FORMULA:

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

Chloride, mg/L = A * DF

where:

A = mg/L, IC calculated concentration
DF = dilution factor

For **N008839-001B**, concentration in mg/L are calculated as follows:

Chloride, mg/L	=	3.835 * 2000
	=	7670 mg/L

Reporting **N008839-001B** results in two significant figures,

Chloride, mg/L	**=**	**7700**

Sample Calculation

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

FORMULA:

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

Sodium, ug/L = A * DF * PF * CF

where:

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

For Sample **N008839-001A**, the concentration in ug/L is calculated as follows:

Sodium, ug/L = 21.43656283 * 100 * (25/25) * 1000

= 2143656.283

Reporting results in two significant figures,

Sodium, ug/L = 2100000

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N008839
Test Method: EPA 6010
Analysis Date: 11/14/12

Matrix: Water
Batch No.: 41132

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

Comments:

Analyzed By: Mary Claire Ignacio

Dilution Test is not applicable for analytes with concentration < 25X the RL. However the PS @2X passes the criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N008839-002A-DT 10X	Calcium	µg/L	427937.75	PASSED	414592.60	-3.22%	10
N008839-002A-DT 10X	Iron	µg/L	0.00	NA	19.43945165	100.00%	10
N008839-002A-DT 10X	Magnesium	µg/L	35480.28415	PASSED	33776.331	-5.04%	10

Note: NA - Not Applicable

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N008839
Test Method: EPA 6010
Analysis Date: 11/16/12

Matrix: Water
Batch No.: 41132

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

Comments:

Analyzed By: Mary Claire Ignacio

Dilution Test is ~~not applicable for analytes with concentration < 25X the RL~~. However the PS @100X passes the criteria.
DT for Sodium failed. PS met criteria - GG

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N008839-002A 500X	Sodium	ug/L	2924849.69	FAILED	3299810.70	11.36%	10

Note: NA - Not Applicable

Advanced Technology Laboratories, Inc.

Date: *26-Nov-12*

CLIENT: CH2M HILL
Work Order: N008839
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **N008839-002A-PS** SampType: **PS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: RunNo: **86415**
Client ID: **ZZZZZZ** Batch ID: **41132** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/14/2012** SeqNo: **1477426**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	420606.217	1000	5000	414600	120	75	125				
Iron	4793.395	40	5000	19.44	95.5	75	125				
Magnesium	38764.877	200	5000	33780	99.8	75	125				

Sample ID: **N008839-002A-PS** SampType: **PS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/7/2012** RunNo: **86416**
Client ID: **ZZZZZZ** Batch ID: **41132** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/16/2012** SeqNo: **1478006**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	4443860.935	50000	1250000	3300000	91.5	75	125				

Qualifiers:

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

Sample Calculation

METHOD: EPA 6020
TEST NAME: Heavy Metals by ICP-MS
MATRIX: Aqueous

FORMULA:

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

Arsenic, ug/L = A * DF * PF

where:

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

For Sample **N008839-001B**, the concentration in ug/L is calculated as follows:

Arsenic, ug/L = 2.85216552841644 * 1 * (25/25)

= 2.85216552841644

Reporting result in two significant figures,

Arsenic, ug/L = 2.9

SG 11/20/12

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N008839
Test Method: EPA 6020
Analysis Date: 11/11/12

Matrix: Water
Batch No.: 41131

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

Comments:

Analyzed By: Mary Claire Ignacio

Dilution Test is not applicable to As and Mn. The calculated values were <25X RL. PS @ 2X passed criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N008842-001B-DT 5X	Arsenic	µg/L	0.540260563	NA	0.439914479	22.81%	10
N008842-001B-DT 5X	Manganese	µg/L	0	NA	0	0.00%	11

Note: NA - Not applicable

Advanced Technology Laboratories, Inc.

Date: *15-Nov-12*

CLIENT: CH2M HILL
Work Order: N008839
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N008842-001B-PS** SampType: **PS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **86291**
Client ID: **ZZZZZZ** Batch ID: **41131** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **11/11/2012** SeqNo: **1472299**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	21.811	0.20	20.00	0.4399	107	75	125				
Manganese	198.955	1.0	200.0	0	99.5	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

November 29, 2012

Shawn P. Duffy
CH2M HILL
155 Grand Avenue, Suite 1000
Oakland, CA 94612

TEL: (530) 229-3303
FAX: (530) 339-3303

CA-ELAP No.: 2676
NV Cert. No.: NV-009222007A

Workorder No.: N008877

RE: PG&E Topock, 423575.MP.02.GM.0

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on November 08, 2012 by Advanced Technology Laboratories, Inc. . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

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

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

Sincerely,

Jose Tenorio Jr.
Laboratory Director

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

Advanced Technology Laboratories, Inc. **Date:** *29-Nov-12*

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.0
Lab Order: N008877

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

Samples were received intact with proper chain of custody documentation.

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

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

Samples were analyzed within method holding time.

Analytical Comments for EPA 6010B_Dissolved:

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

Dilution was necessary on samples N008877-001, N008877-005, N008877-006 and N008877-007 due to failing internal standard when samples were analyzed at no dilution.

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

Date: *29-Nov-12*

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.0
Lab Order: N008877
Contract No: 2012-GMP-188-

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N008877-001A	MW-48-188	Water	11/7/2012 12:57:00 PM	11/8/2012	11/29/2012
N008877-001B	MW-48-188	Water	11/7/2012 12:57:00 PM	11/8/2012	11/29/2012
N008877-002A	MW-63-065-188	Water	11/7/2012 3:23:00 PM	11/8/2012	11/29/2012
N008877-002B	MW-63-065-188	Water	11/7/2012 3:23:00 PM	11/8/2012	11/29/2012
N008877-003A	PGE-08-188	Water	11/7/2012 11:26:00 AM	11/8/2012	11/29/2012
N008877-003B	PGE-08-188	Water	11/7/2012 11:26:00 AM	11/8/2012	11/29/2012
N008877-004A	MW-16-188	Water	11/8/2012 3:26:00 PM	11/8/2012	11/29/2012
N008877-004B	MW-16-188	Water	11/8/2012 3:26:00 PM	11/8/2012	11/29/2012
N008877-005A	MW-23-060-188	Water	11/8/2012 9:18:00 AM	11/8/2012	11/29/2012
N008877-005B	MW-23-060-188	Water	11/8/2012 9:18:00 AM	11/8/2012	11/29/2012
N008877-006A	MW-23-080-188	Water	11/8/2012 10:44:00 AM	11/8/2012	11/29/2012
N008877-006B	MW-23-080-188	Water	11/8/2012 10:44:00 AM	11/8/2012	11/29/2012
N008877-007A	MW-57-185-188	Water	11/8/2012 1:28:00 PM	11/8/2012	11/29/2012
N008877-007B	MW-57-185-188	Water	11/8/2012 1:28:00 PM	11/8/2012	11/29/2012
N008877-008A	MW-71-035-188	Water	11/8/2012 7:57:00 AM	11/8/2012	11/29/2012
N008877-008B	MW-71-035-188	Water	11/8/2012 7:57:00 AM	11/8/2012	11/29/2012
N008877-009A	PM-03-188	Water	11/8/2012 2:58:00 PM	11/8/2012	11/29/2012
N008877-009B	PM-03-188	Water	11/8/2012 2:58:00 PM	11/8/2012	11/29/2012
N008877-010A	PM-04-188	Water	11/8/2012 3:40:00 PM	11/8/2012	11/29/2012
N008877-010B	PM-04-188	Water	11/8/2012 3:40:00 PM	11/8/2012	11/29/2012

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ANALYTICAL RESULTS

Print Date: *29-Nov-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-48-188
Lab Order:	N008877	**Collection Date:**	11/7/2012 12:57:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008877-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121109C**	QC Batch: **R86267**			PrepDate:			Analyst: **KAB**
Specific Conductance	20000	0.10	0.10		umhos/cm	1	11/9/2012

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

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ANALYTICAL RESULTS

Print Date: *29-Nov-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-63-065-188
Lab Order:	N008877	**Collection Date:**	11/7/2012 3:23:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008877-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121109C**	QC Batch: **R86267**			PrepDate:			Analyst: **KAB**
Specific Conductance	8800	0.10	0.10		umhos/cm	1	11/9/2012

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

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ANALYTICAL RESULTS

Print Date: *29-Nov-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	PGE-08-188
Lab Order:	N008877	**Collection Date:**	11/7/2012 11:26:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008877-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
EPA 120.1							
RunID: **WETCHEM_121109C**	QC Batch: **R86267**			PrepDate:			Analyst: **KAB**
Specific Conductance	23000	0.10	0.10		umhos/cm	1	11/9/2012

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *29-Nov-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-16-188
Lab Order:	N008877	**Collection Date:**	11/8/2012 3:26:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008877-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121109C**	QC Batch: **R86267**			PrepDate:			Analyst: **KAB**
Specific Conductance	1300	0.10	0.10		umhos/cm	1	11/9/2012

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

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ANALYTICAL RESULTS

Print Date: *29-Nov-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-23-060-188
Lab Order:	N008877	**Collection Date:**	11/8/2012 9:18:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008877-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121109C**	QC Batch: **R86267**			PrepDate:			Analyst: **KAB**
Specific Conductance	19000	0.10	0.10		umhos/cm	1	11/9/2012

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *29-Nov-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-23-080-188
Lab Order:	N008877	**Collection Date:**	11/8/2012 10:44:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008877-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121109C**	QC Batch: **R86267**			PrepDate:			Analyst: **KAB**
Specific Conductance	19000	0.10	0.10		umhos/cm	1	11/9/2012

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

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ANALYTICAL RESULTS

Print Date: *29-Nov-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-57-185-188
Lab Order:	N008877	**Collection Date:**	11/8/2012 1:28:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008877-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121109D**	QC Batch: **R86268**			PrepDate:			Analyst: **KAB**
Specific Conductance	21000	0.10	0.10		umhos/cm	1	11/9/2012

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

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ANALYTICAL RESULTS

Print Date: *29-Nov-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-71-035-188
Lab Order:	N008877	**Collection Date:**	11/8/2012 7:57:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008877-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121109D**	QC Batch: **R86268**			PrepDate:			Analyst: **KAB**
Specific Conductance	9300	0.10	0.10		umhos/cm	1	11/9/2012

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

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ANALYTICAL RESULTS

Print Date: *29-Nov-12*

CLIENT: CH2M HILL
Lab Order: N008877
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008877-009

Client Sample ID: PM-03-188
Collection Date: 11/8/2012 2:58:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
EPA 120.1							
RunID: **WETCHEM_121109D**	QC Batch: **R86268**			PrepDate:			Analyst: **KAB**
Specific Conductance	1600	0.10	0.10		umhos/cm	1	11/9/2012

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *29-Nov-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	PM-04-188
Lab Order:	N008877	**Collection Date:**	11/8/2012 3:40:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008877-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
EPA 120.1							
RunID: **WETCHEM_121109D**	QC Batch: **R86268**			PrepDate:			Analyst: **KAB**
Specific Conductance	2200	0.10	0.10		umhos/cm	1	11/9/2012

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

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Date: *29-Nov-12*

CLIENT: CH2M HILL
Work Order: N008877
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: **LCS-R86267** SampType: **LCS** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86267**
Client ID: **LCSW** Batch ID: **R86267** TestNo: **EPA 120.1** Analysis Date: **11/9/2012** SeqNo: **1470854**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	9990.000	0.10	9992	0	100	85	115				

Sample ID: **N008876-001A-DUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86267**
Client ID: **ZZZZZZ** Batch ID: **R86267** TestNo: **EPA 120.1** Analysis Date: **11/9/2012** SeqNo: **1470856**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	5130.000	0.10						5130	0	10	

Sample ID: **N008876-001A-MS** SampType: **MS** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86267**
Client ID: **ZZZZZZ** Batch ID: **R86267** TestNo: **EPA 120.1** Analysis Date: **11/9/2012** SeqNo: **1470857**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	13980.000	0.20	9992	5130	88.6	75	125				

Sample ID: **N008876-001A-MSD** SampType: **MSD** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86267**
Client ID: **ZZZZZZ** Batch ID: **R86267** TestNo: **EPA 120.1** Analysis Date: **11/9/2012** SeqNo: **1470858**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	13980.000	0.20	9992	5130	88.6	75	125	13980	0	10	

Qualifiers:

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

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CLIENT: CH2M HILL
Work Order: N008877
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: **LCS-R86268** SampType: **LCS** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86268**
Client ID: **LCSW** Batch ID: **R86268** TestNo: **EPA 120.1** Analysis Date: **11/9/2012** SeqNo: **1470868**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	99900.000	0.10	99800	0	100	85	115				

Sample ID: **N008878-001A-DUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86268**
Client ID: **ZZZZZZ** Batch ID: **R86268** TestNo: **EPA 120.1** Analysis Date: **11/9/2012** SeqNo: **1470874**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	11050.000	0.10						11050	0	10	

Sample ID: **N008878-001A-MS** SampType: **MS** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86268**
Client ID: **ZZZZZZ** Batch ID: **R86268** TestNo: **EPA 120.1** Analysis Date: **11/9/2012** SeqNo: **1470875**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	112400.000	0.20	99800	11050	102	75	125				

Sample ID: **N008878-001A-MSD** SampType: **MSD** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86268**
Client ID: **ZZZZZZ** Batch ID: **R86268** TestNo: **EPA 120.1** Analysis Date: **11/9/2012** SeqNo: **1470876**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	112400.000	0.20	99800	11050	102	75	125	112400	0	10	

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *29-Nov-12*

CLIENT: CH2M HILL
Lab Order: N008877
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008877-001

Client Sample ID: MW-48-188
Collection Date: 11/7/2012 12:57:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121109F**	QC Batch: **R86270**			PrepDate:			Analyst: **KAB**
Alkalinity, Bicarbonate (As CaCO3)	28	1.2	5.0		mg/L	1	11/9/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/9/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/9/2012
Alkalinity, Total (As CaCO3)	28	1.2	5.0		mg/L	1	11/9/2012

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *29-Nov-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-63-065-188
Lab Order:	N008877	**Collection Date:**	11/7/2012 3:23:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008877-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121109F**	QC Batch: **R86270**			PrepDate:			Analyst: **KAB**
Alkalinity, Bicarbonate (As CaCO3)	200	1.2	5.0		mg/L	1	11/9/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/9/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/9/2012
Alkalinity, Total (As CaCO3)	200	1.2	5.0		mg/L	1	11/9/2012

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *29-Nov-12*

CLIENT: CH2M HILL
Lab Order: N008877
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008877-003

Client Sample ID: PGE-08-188
Collection Date: 11/7/2012 11:26:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121109F**	QC Batch: **R86270**			PrepDate:			Analyst: **KAB**
Alkalinity, Bicarbonate (As CaCO3)	47	1.2	5.0		mg/L	1	11/9/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/9/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/9/2012
Alkalinity, Total (As CaCO3)	47	1.2	5.0		mg/L	1	11/9/2012

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *29-Nov-12*

CLIENT: CH2M HILL
Lab Order: N008877
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008877-004

Client Sample ID: MW-16-188
Collection Date: 11/8/2012 3:26:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121109F**	QC Batch: **R86270**			PrepDate:			Analyst: **KAB**
Alkalinity, Bicarbonate (As CaCO3)	100	1.2	5.0		mg/L	1	11/9/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/9/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/9/2012
Alkalinity, Total (As CaCO3)	100	1.2	5.0		mg/L	1	11/9/2012

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *29-Nov-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-23-060-188
Lab Order:	N008877	**Collection Date:**	11/8/2012 9:18:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008877-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121109F**	QC Batch: **R86270**			PrepDate:			Analyst: **KAB**
Alkalinity, Bicarbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/9/2012
Alkalinity, Carbonate (As CaCO3)	26	1.2	5.0		mg/L	1	11/9/2012
Alkalinity, Hydroxide (As CaCO3)	8.6	1.2	5.0		mg/L	1	11/9/2012
Alkalinity, Total (As CaCO3)	34	1.2	5.0		mg/L	1	11/9/2012

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *29-Nov-12*

CLIENT: CH2M HILL
Lab Order: N008877
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008877-006

Client Sample ID: MW-23-080-188
Collection Date: 11/8/2012 10:44:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121109F**	QC Batch: **R86270**			PrepDate:			Analyst: **KAB**
Alkalinity, Bicarbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/9/2012
Alkalinity, Carbonate (As CaCO3)	19	1.2	5.0		mg/L	1	11/9/2012
Alkalinity, Hydroxide (As CaCO3)	30	1.2	5.0		mg/L	1	11/9/2012
Alkalinity, Total (As CaCO3)	49	1.2	5.0		mg/L	1	11/9/2012

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *29-Nov-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-57-185-188
Lab Order:	N008877	**Collection Date:**	11/8/2012 1:28:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008877-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121109F**	QC Batch: **R86270**			PrepDate:			Analyst: **KAB**
Alkalinity, Bicarbonate (As CaCO3)	21	1.2	5.0		mg/L	1	11/9/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/9/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/9/2012
Alkalinity, Total (As CaCO3)	21	1.2	5.0		mg/L	1	11/9/2012

Qualifiers:

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

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *29-Nov-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-71-035-188
Lab Order:	N008877	**Collection Date:**	11/8/2012 7:57:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008877-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121109F**	QC Batch: **R86270**			PrepDate:			Analyst: **KAB**
Alkalinity, Bicarbonate (As CaCO3)	77	1.2	5.0		mg/L	1	11/9/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/9/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/9/2012
Alkalinity, Total (As CaCO3)	77	1.2	5.0		mg/L	1	11/9/2012

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *29-Nov-12*

CLIENT: CH2M HILL
Lab Order: N008877
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008877-009

Client Sample ID: PM-03-188
Collection Date: 11/8/2012 2:58:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121109F**	QC Batch: **R86270**			PrepDate:			Analyst: **KAB**
Alkalinity, Bicarbonate (As CaCO3)	84	1.2	5.0		mg/L	1	11/9/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/9/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/9/2012
Alkalinity, Total (As CaCO3)	84	1.2	5.0		mg/L	1	11/9/2012

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *29-Nov-12*

CLIENT: CH2M HILL
Lab Order: N008877
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008877-010

Client Sample ID: PM-04-188
Collection Date: 11/8/2012 3:40:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121109F**	QC Batch: **R86270**			PrepDate:			Analyst: **KAB**
Alkalinity, Bicarbonate (As CaCO3)	61	1.2	5.0		mg/L	1	11/9/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/9/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/9/2012
Alkalinity, Total (As CaCO3)	61	1.2	5.0		mg/L	1	11/9/2012

Qualifiers:

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

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Advanced Technology Laboratories, Inc.

Date: *29-Nov-12*

CLIENT: CH2M HILL
Work Order: N008877
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **LCS-R86270** SampType: **LCS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86270**
Client ID: **LCSW** Batch ID: **R86270** TestNo: **SM 2320 B** Analysis Date: **11/9/2012** SeqNo: **1470887**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	93.348	5.0	100.0	0	93.3	85	115				
Alkalinity, Total (As CaCO3)	99.785	5.0	100.0	0	99.8	85	115				

Sample ID: **LCSD-R86270** SampType: **LCSD** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86270**
Client ID: **LCSS02** Batch ID: **R86270** TestNo: **SM 2320 B** Analysis Date: **11/9/2012** SeqNo: **1470888**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	94.421	5.0	100.0	0	94.4	85	115	93.35	1.14	20	
Alkalinity, Total (As CaCO3)	100.858	5.0	100.0	0	101	85	115	99.79	1.07	20	

Sample ID: **MB-R86270** SampType: **MBLK** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86270**
Client ID: **PBW** Batch ID: **R86270** TestNo: **SM 2320 B** Analysis Date: **11/9/2012** SeqNo: **1470889**

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: **N008876-001A-DUP** SampType: **DUP** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86270**
Client ID: **ZZZZZZ** Batch ID: **R86270** TestNo: **SM 2320 B** Analysis Date: **11/9/2012** SeqNo: **1470891**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	66.524	5.0						66.52	0	30	
Alkalinity, Carbonate (As CaCO3)	ND	5.0						0	0	30	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0						0	0	30	
Alkalinity, Total (As CaCO3)	66.524	5.0						66.52	0	30	

Qualifiers:

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

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CLIENT: CH2M HILL
Work Order: N008877
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **N008876-001A-MS** SampType: **MS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86270**
Client ID: **ZZZZZZ** Batch ID: **R86270** TestNo: **SM 2320 B** Analysis Date: **11/9/2012** SeqNo: **1470892**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	167.382	5.0	100.0	66.52	101	75	125				
Alkalinity, Total (As CaCO3)	167.382	5.0	100.0	66.52	101	75	125				

Sample ID: **N008876-001A-MSD** SampType: **MSD** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86270**
Client ID: **ZZZZZZ** Batch ID: **R86270** TestNo: **SM 2320 B** Analysis Date: **11/9/2012** SeqNo: **1470893**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	167.382	5.0	100.0	66.52	101	75	125	167.4	0	20	
Alkalinity, Total (As CaCO3)	167.382	5.0	100.0	66.52	101	75	125	167.4	0	20	

Sample ID: **N008877-001B-DUP** SampType: **DUP** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86270**
Client ID: **ZZZZZZ** Batch ID: **R86270** TestNo: **SM 2320 B** Analysis Date: **11/9/2012** SeqNo: **1470898**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	27.897	5.0						27.90	0	30	
Alkalinity, Carbonate (As CaCO3)	ND	5.0						0	0	30	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0						0	0	30	
Alkalinity, Total (As CaCO3)	27.897	5.0						27.90	0	30	

Sample ID: **N008877-001B-MS** SampType: **MS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86270**
Client ID: **ZZZZZZ** Batch ID: **R86270** TestNo: **SM 2320 B** Analysis Date: **11/9/2012** SeqNo: **1470899**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	126.609	5.0	100.0	27.90	98.7	75	125				
Alkalinity, Total (As CaCO3)	126.609	5.0	100.0	27.90	98.7	75	125				

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *29-Nov-12*

CLIENT: CH2M HILL
Lab Order: N008877
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008877-001

Client Sample ID: MW-48-188
Collection Date: 11/7/2012 12:57:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121110A** QC Batch: **R86430** PrepDate: Analyst: **QBM**							
Chloride	6400	22	1000		mg/L	2000	11/10/2012 07:46 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121110A** QC Batch: **R86430** PrepDate: Analyst: **QBM**							
Sulfate	560	3.5	50		mg/L	100	11/10/2012 01:57 PM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *29-Nov-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-63-065-188
Lab Order:	N008877	**Collection Date:**	11/7/2012 3:23:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008877-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121110A** QC Batch: **R86430** PrepDate: Analyst: **QBM**							
Chloride	2100	5.5	250		mg/L	500	11/10/2012 07:58 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121110A** QC Batch: **R86430** PrepDate: Analyst: **QBM**							
Sulfate	640	1.8	25		mg/L	50	11/10/2012 02:08 PM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *29-Nov-12*

CLIENT: CH2M HILL
Lab Order: N008877
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008877-003

Client Sample ID: PGE-08-188
Collection Date: 11/7/2012 11:26:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121110A** QC Batch: **R86430** PrepDate: Analyst: **QBM**							
Chloride	6900	22	1000		mg/L	2000	11/10/2012 08:09 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121110A** QC Batch: **R86430** PrepDate: Analyst: **QBM**							
Sulfate	1900	7.0	100		mg/L	200	11/10/2012 02:20 PM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *29-Nov-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-16-188
Lab Order:	N008877	**Collection Date:**	11/8/2012 3:26:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008877-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_121110A**	QC Batch: **R86430**			PrepDate:			Analyst: **QBM**
Chloride	190	0.55	25		mg/L	50	11/10/2012 08:21 PM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_121110A**	QC Batch: **R86430**			PrepDate:			Analyst: **QBM**
Sulfate	130	0.70	10		mg/L	20	11/10/2012 02:32 PM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *29-Nov-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-23-060-188
Lab Order:	N008877	**Collection Date:**	11/8/2012 9:18:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008877-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121110A** QC Batch: **R86430** PrepDate: Analyst: **QBM**							
Chloride	6000	22	1000		mg/L	2000	11/10/2012 08:33 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121110A** QC Batch: **R86430** PrepDate: Analyst: **QBM**							
Sulfate	670	3.5	50		mg/L	100	11/10/2012 03:07 PM

Qualifiers:

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

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *29-Nov-12*

CLIENT: CH2M HILL
Lab Order: N008877
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008877-006

Client Sample ID: MW-23-080-188
Collection Date: 11/8/2012 10:44:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121110A** QC Batch: **R86430** PrepDate: Analyst: **QBM**							
Chloride	5900	22	1000		mg/L	2000	11/10/2012 08:44 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121110A** QC Batch: **R86430** PrepDate: Analyst: **QBM**							
Sulfate	880	3.5	50		mg/L	100	11/10/2012 03:18 PM

Qualifiers:

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

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *29-Nov-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-57-185-188
Lab Order:	N008877	**Collection Date:**	11/8/2012 1:28:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008877-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121110A** QC Batch: **R86430** PrepDate: Analyst: **QBM**							
Chloride	6600	22	1000		mg/L	2000	11/10/2012 08:56 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121110A** QC Batch: **R86430** PrepDate: Analyst: **QBM**							
Sulfate	740	3.5	50		mg/L	100	11/10/2012 03:30 PM

Qualifiers:

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

Advanced Technology Laboratories, Inc.

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *29-Nov-12*

CLIENT: CH2M HILL
Lab Order: N008877
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008877-008

Client Sample ID: MW-71-035-188
Collection Date: 11/8/2012 7:57:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121110A** QC Batch: **R86430** PrepDate: Analyst: **QBM**							
Chloride	2500	5.5	250		mg/L	500	11/10/2012 09:08 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121110A** QC Batch: **R86430** PrepDate: Analyst: **QBM**							
Sulfate	540	1.8	25		mg/L	50	11/10/2012 03:42 PM

Qualifiers:

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

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *29-Nov-12*

CLIENT: CH2M HILL
Lab Order: N008877
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008877-009

Client Sample ID: PM-03-188
Collection Date: 11/8/2012 2:58:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_121110A** QC Batch: **R86430**				PrepDate:			Analyst: **QBM**
Chloride	330	1.1	50		mg/L	100	11/10/2012 09:19 PM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_121110A** QC Batch: **R86430**				PrepDate:			Analyst: **QBM**
Sulfate	61	0.35	5.0		mg/L	10	11/10/2012 03:53 PM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *29-Nov-12*

CLIENT: CH2M HILL
Lab Order: N008877
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008877-010

Client Sample ID: PM-04-188
Collection Date: 11/8/2012 3:40:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_121110A** QC Batch: **R86430**				PrepDate:			Analyst: **QBM**
Chloride	490	1.1	50		mg/L	100	11/10/2012 09:31 PM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_121110A** QC Batch: **R86430**				PrepDate:			Analyst: **QBM**
Sulfate	100	0.35	5.0		mg/L	10	11/10/2012 04:05 PM

Qualifiers:

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

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Advanced Technology Laboratories, Inc.

Date: *29-Nov-12*

CLIENT: CH2M HILL
Work Order: N008877
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **MB-R86430_CL** SampType: **MBLK** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86430**
Client ID: **PBW** Batch ID: **R86430** TestNo: **EPA 300.0** Analysis Date: **11/10/2012** SeqNo: **1477660**

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

Sample ID: **LCS-R86430_CL** SampType: **LCS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86430**
Client ID: **LCSW** Batch ID: **R86430** TestNo: **EPA 300.0** Analysis Date: **11/10/2012** SeqNo: **1477661**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.453	0.50	2.500	0	98.1	90	110				

Sample ID: **N008840-002ADUP** SampType: **DUP** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86430**
Client ID: **ZZZZZZ** Batch ID: **R86430** TestNo: **EPA 300.0** Analysis Date: **11/10/2012** SeqNo: **1477669**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1510.000	250						1512	0.132	20	

Sample ID: **N008840-001AMS** SampType: **MS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86430**
Client ID: **ZZZZZZ** Batch ID: **R86430** TestNo: **EPA 300.0** Analysis Date: **11/10/2012** SeqNo: **1477673**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2800.000	250	1250	1540	101	80	120				

Sample ID: **N008840-001AMSD** SampType: **MSD** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86430**
Client ID: **ZZZZZZ** Batch ID: **R86430** TestNo: **EPA 300.0** Analysis Date: **11/10/2012** SeqNo: **1477674**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2839.000	250	1250	1540	104	80	120	2800	1.38	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: N008877
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **N008840-005AMS** SampType: **MS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86430**
Client ID: **ZZZZZZ** Batch ID: **R86430** TestNo: **EPA 300.0** Analysis Date: **11/10/2012** SeqNo: **1477678**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2538.500	250	1250	1246	103	80	120				

Qualifiers:

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

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CLIENT: CH2M HILL
Work Order: N008877
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **MB-R86430_SO4** SampType: **MBLK** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86430**
Client ID: **PBW** Batch ID: **R86430** TestNo: **EPA 300.0** Analysis Date: **11/10/2012** SeqNo: **1477700**

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

Sample ID: **LCS-R86430_SO4** SampType: **LCS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86430**
Client ID: **LCSW** Batch ID: **R86430** TestNo: **EPA 300.0** Analysis Date: **11/10/2012** SeqNo: **1477701**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	5.024	0.50	5.000	0	100	90	110				

Sample ID: **N008839-001BMS** SampType: **MS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86430**
Client ID: **ZZZZZZ** Batch ID: **R86430** TestNo: **EPA 300.0** Analysis Date: **11/10/2012** SeqNo: **1477706**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	1303.000	50	500.0	780.1	105	80	120				

Sample ID: **N008839-001BMSD** SampType: **MSD** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86430**
Client ID: **ZZZZZZ** Batch ID: **R86430** TestNo: **EPA 300.0** Analysis Date: **11/10/2012** SeqNo: **1477707**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	1306.600	50	500.0	780.1	105	80	120	1303	0.276	20	

Sample ID: **N008839-002BDUP** SampType: **DUP** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86430**
Client ID: **ZZZZZZ** Batch ID: **R86430** TestNo: **EPA 300.0** Analysis Date: **11/10/2012** SeqNo: **1477708**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	551.700	25						552.1	0.0634	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: N008877
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **N008840-001AMS** SampType: **MS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86430**
Client ID: **ZZZZZZ** Batch ID: **R86430** TestNo: **EPA 300.0** Analysis Date: **11/10/2012** SeqNo: **1477709**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	532.000	25	250.0	271.2	104	80	120				

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *29-Nov-12*

CLIENT: CH2M HILL
Lab Order: N008877
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008877-001

Client Sample ID: MW-48-188
Collection Date: 11/7/2012 12:57:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121119B**	QC Batch: **41197**				PrepDate: **11/13/2012**		Analyst: **CEI**
Calcium	380000	370	2500		ug/L	5	11/19/2012 03:19 PM
Iron	ND	36	100		ug/L	5	11/19/2012 03:19 PM
Magnesium	35000	65	500		ug/L	5	11/19/2012 03:19 PM
Sodium	3900000	15000	100000		ug/L	200	11/16/2012 11:00 AM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *29-Nov-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-63-065-188
Lab Order:	N008877	**Collection Date:**	11/7/2012 3:23:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008877-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121119B**	QC Batch: **41197**				PrepDate: **11/13/2012**		Analyst: **CEI**
Calcium	230000	75	500		ug/L	1	11/19/2012 02:01 PM
Iron	24	7.2	20		ug/L	1	11/19/2012 02:01 PM
Magnesium	23000	13	100		ug/L	1	11/19/2012 02:01 PM
Sodium	1400000	7300	50000		ug/L	100	11/16/2012 11:03 AM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *29-Nov-12*

CLIENT: CH2M HILL
Lab Order: N008877
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008877-003

Client Sample ID: PGE-08-188
Collection Date: 11/7/2012 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_121119B**	QC Batch: **41197**				PrepDate: **11/13/2012**		Analyst: **CEI**
Calcium	870000	370	2500		ug/L	5	11/19/2012 04:18 PM
Iron	160	36	100		ug/L	5	11/19/2012 04:18 PM
Magnesium	22000	65	500		ug/L	5	11/19/2012 04:18 PM
Sodium	4600000	15000	100000		ug/L	200	11/16/2012 11:10 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: *29-Nov-12*

CLIENT: CH2M HILL
Lab Order: N008877
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008877-004

Client Sample ID: MW-16-188
Collection Date: 11/8/2012 3:26:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121119B**	QC Batch: **41197**				PrepDate: **11/13/2012**		Analyst: **CEI**
Aluminum	ND	7.0	50		ug/L	1	11/19/2012 02:18 PM
Barium	31	0.36	3.0		ug/L	1	11/19/2012 02:18 PM
Beryllium	ND	0.12	1.0		ug/L	1	11/19/2012 02:18 PM
Cadmium	ND	0.37	3.0		ug/L	1	11/19/2012 02:18 PM
Calcium	27000	75	500		ug/L	1	11/19/2012 02:18 PM
Cobalt	ND	0.37	3.0		ug/L	1	11/19/2012 02:18 PM
Copper	ND	2.2	5.0		ug/L	1	11/19/2012 02:18 PM
Iron	ND	7.2	20		ug/L	1	11/19/2012 02:18 PM
Lead	ND	1.6	10		ug/L	1	11/19/2012 02:18 PM
Magnesium	4900	13	100		ug/L	1	11/19/2012 02:18 PM
Nickel	ND	0.70	5.0		ug/L	1	11/19/2012 02:18 PM
Potassium	3900	16	2500		ug/L	5	11/16/2012 11:13 AM
Silver	ND	0.39	3.0		ug/L	1	11/19/2012 02:18 PM
Sodium	200000	370	2500		ug/L	5	11/16/2012 11:13 AM
Vanadium	34	0.31	3.0		ug/L	1	11/26/2012 05:52 PM
Zinc	ND	1.4	10		ug/L	1	11/19/2012 02:18 PM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *29-Nov-12*

CLIENT: CH2M HILL
Lab Order: N008877
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008877-005

Client Sample ID: MW-23-060-188
Collection Date: 11/8/2012 9:18:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121119B**	QC Batch: **41197**				PrepDate: **11/13/2012**		Analyst: **CEI**
Calcium	860000	370	2500		ug/L	5	11/19/2012 04:42 PM
Iron	ND	36	100		ug/L	5	11/19/2012 04:42 PM
Magnesium	7900	65	500		ug/L	5	11/19/2012 04:42 PM
Sodium	3200000	15000	100000		ug/L	200	11/16/2012 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: *29-Nov-12*

CLIENT: CH2M HILL
Lab Order: N008877
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008877-006

Client Sample ID: MW-23-080-188
Collection Date: 11/8/2012 10:44:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121119B**	QC Batch: **41197**				PrepDate: **11/13/2012**		Analyst: **CEI**
Calcium	780000	370	2500		ug/L	5	11/19/2012 04:47 PM
Iron	ND	36	100		ug/L	5	11/19/2012 04:47 PM
Magnesium	15000	65	500		ug/L	5	11/19/2012 04:47 PM
Sodium	3200000	15000	100000		ug/L	200	11/16/2012 11:18 AM

Qualifiers:

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

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *29-Nov-12*

CLIENT: CH2M HILL
Lab Order: N008877
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008877-007

Client Sample ID: MW-57-185-188
Collection Date: 11/8/2012 1:28:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121119B**	QC Batch: **41197**				PrepDate: **11/13/2012**		Analyst: **CEI**
Calcium	350000	370	2500		ug/L	5	11/19/2012 04:53 PM
Iron	ND	36	100		ug/L	5	11/19/2012 04:53 PM
Magnesium	4000	65	500		ug/L	5	11/19/2012 04:53 PM
Sodium	4300000	15000	100000		ug/L	200	11/16/2012 11:48 AM

Qualifiers:

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

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *29-Nov-12*

CLIENT: CH2M HILL
Lab Order: N008877
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008877-008

Client Sample ID: MW-71-035-188
Collection Date: 11/8/2012 7:57:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121119B**	QC Batch: **41197**				PrepDate: **11/13/2012**		Analyst: **CEI**
Calcium	300000	75	500		ug/L	1	11/19/2012 03:48 PM
Iron	ND	7.2	20		ug/L	1	11/19/2012 03:48 PM
Magnesium	23000	13	100		ug/L	1	11/19/2012 03:48 PM
Sodium	71000	370	2500		ug/L	5	11/16/2012 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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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *29-Nov-12*

CLIENT: CH2M HILL
Lab Order: N008877
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008877-009

Client Sample ID: PM-03-188
Collection Date: 11/8/2012 2:58:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121119B**	QC Batch: **41197**				PrepDate: **11/13/2012**		Analyst: **CEI**
Calcium	84000	75	500		ug/L	1	11/19/2012 03:00 PM
Iron	28	7.2	20		ug/L	1	11/19/2012 03:00 PM
Magnesium	16000	13	100		ug/L	1	11/19/2012 03:00 PM
Sodium	160000	730	5000		ug/L	10	11/16/2012 11:28 AM

Qualifiers:

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

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *29-Nov-12*

CLIENT: CH2M HILL
Lab Order: N008877
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008877-010

Client Sample ID: PM-04-188
Collection Date: 11/8/2012 3:40:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121119B**	QC Batch: **41197**				PrepDate: **11/13/2012**		Analyst: **CEI**
Calcium	91000	75	500		ug/L	1	11/19/2012 03:05 PM
Iron	ND	7.2	20		ug/L	1	11/19/2012 03:05 PM
Magnesium	16000	13	100		ug/L	1	11/19/2012 03:05 PM
Sodium	260000	730	5000		ug/L	10	11/16/2012 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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Advanced Technology Laboratories, Inc.

Date: *29-Nov-12*

CLIENT: CH2M HILL
Work Order: N008877
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **MB-41197** SampType: **MBLK** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/13/2012** RunNo: **86416**
Client ID: **PBW** Batch ID: **41197** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/16/2012** SeqNo: **1478011**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	ND	500									
Sodium	ND	500									

Sample ID: **LCS-41197** SampType: **LCS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/13/2012** RunNo: **86416**
Client ID: **LCSW** Batch ID: **41197** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/16/2012** SeqNo: **1478012**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	2456.366	500	2500	0	98.3	85	115				
Sodium	26529.205	500	25000	0	106	85	115				

Sample ID: **N008877-001A-MS** SampType: **MS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/13/2012** RunNo: **86416**
Client ID: **ZZZZZZ** Batch ID: **41197** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/16/2012** SeqNo: **1478029**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	47572.330	100000	5000	41620	119	75	125				
Sodium	4153269.320	100000	100000	3889000	265	75	125				S

Sample ID: **N008877-001A-MSD** SampType: **MSD** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/13/2012** RunNo: **86416**
Client ID: **ZZZZZZ** Batch ID: **41197** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/16/2012** SeqNo: **1478030**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	48982.047	100000	5000	41620	147	75	125	47570	0	20	S
Sodium	4265501.542	100000	100000	3889000	377	75	125	4153000	2.67	20	S

Sample ID: **MB-41197** SampType: **MBLK** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/13/2012** RunNo: **86437**
Client ID: **PBW** Batch ID: **41197** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/19/2012** SeqNo: **1478300**

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: N008877
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **MB-41197** SampType: **MBLK** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/13/2012** RunNo: **86437**
Client ID: **PBW** Batch ID: **41197** TestNo: **EPA 6010B EPA 3010A** Analysis Date: **11/19/2012** SeqNo: **1478300**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	11.007	50									
Barium	ND	3.0									
Beryllium	ND	1.0									
Cadmium	ND	3.0									
Calcium	ND	500									
Cobalt	ND	3.0									
Copper	ND	5.0									
Iron	8.819	20									
Lead	ND	10									
Magnesium	ND	100									
Nickel	ND	5.0									
Silver	ND	3.0									
Zinc	ND	10									

Sample ID: **LCS-41197** SampType: **LCS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/13/2012** RunNo: **86437**
Client ID: **LCSW** Batch ID: **41197** TestNo: **EPA 6010B EPA 3010A** Analysis Date: **11/19/2012** SeqNo: **1478301**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	1037.362	50	1000	0	104	85	115				
Barium	50.365	3.0	50.00	0	101	85	115				
Beryllium	9.042	1.0	10.00	0	90.4	85	115				
Cadmium	9.367	3.0	10.00	0	93.7	85	115				
Calcium	937.442	500	1000	0	93.7	85	115				
Cobalt	10.113	3.0	10.00	0	101	85	115				
Copper	9.454	5.0	10.00	0	94.5	85	115				
Iron	104.323	20	100.0	0	104	85	115				
Lead	47.696	10	50.00	0	95.4	85	115				
Magnesium	951.920	100	1000	0	95.2	85	115				
Nickel	49.871	5.0	50.00	0	99.7	85	115				
Silver	9.575	3.0	10.00	0	95.8	85	115				

Qualifiers:

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

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CLIENT: CH2M HILL
Work Order: N008877
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **LCS-41197** SampType: **LCS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/13/2012** RunNo: **86437**
Client ID: **LCSW** Batch ID: **41197** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/19/2012** SeqNo: **1478301**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Zinc	50.406	10	50.00	0	101	85	115				

Sample ID: **N008877-001A-MS** SampType: **MS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/13/2012** RunNo: **86437**
Client ID: **ZZZZZZ** Batch ID: **41197** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/19/2012** SeqNo: **1478310**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	1032.497	250	1000	0	103	75	125				
Barium	134.490	15	50.00	81.14	107	75	125				
Beryllium	10.263	5.0	10.00	0	103	75	125				
Cadmium	8.038	15	10.00	0	80.4	75	125				
Calcium	372584.331	2500	1000	376000	-340	75	125				S
Cobalt	9.141	15	10.00	0	91.4	75	125				
Copper	13.925	25	10.00	0	139	75	125				S
Iron	145.121	100	100.0	0	145	75	125				S
Lead	37.209	50	50.00	0	74.4	75	125				S
Magnesium	36444.024	500	1000	34650	180	75	125				S
Nickel	49.238	25	50.00	0	98.5	75	125				
Silver	18.202	15	10.00	7.117	111	75	125				
Zinc	66.766	50	50.00	11.15	111	75	125				

Sample ID: **N008877-001A-MSD** SampType: **MSD** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/13/2012** RunNo: **86437**
Client ID: **ZZZZZZ** Batch ID: **41197** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/19/2012** SeqNo: **1478311**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	1049.521	250	1000	0	105	75	125	1032	1.64	20	
Barium	134.165	15	50.00	81.14	106	75	125	134.5	0.242	20	
Beryllium	10.134	5.0	10.00	0	101	75	125	10.26	1.27	20	
Cadmium	7.754	15	10.00	0	77.5	75	125	8.038	0	20	
Calcium	375247.183	2500	1000	376000	-74.1	75	125	372600	0.712	20	S
Cobalt	9.958	15	10.00	0	99.6	75	125	9.141	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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CLIENT: CH2M HILL
Work Order: N008877
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **N008877-001A-MSD** SampType: **MSD** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/13/2012** RunNo: **86437**
Client ID: **ZZZZZZ** Batch ID: **41197** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/19/2012** SeqNo: **1478311**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	14.640	25	10.00	0	146	75	125	13.92	0	20	S
Iron	142.874	100	100.0	0	143	75	125	145.1	1.56	20	S
Lead	39.942	50	50.00	0	79.9	75	125	37.21	0	20	
Magnesium	36059.216	500	1000	34650	141	75	125	36440	1.06	20	S
Nickel	49.334	25	50.00	0	98.7	75	125	49.24	0.193	20	
Silver	18.578	15	10.00	7.117	115	75	125	18.20	2.04	20	
Zinc	65.805	50	50.00	11.15	109	75	125	66.77	1.45	20	

Sample ID: **MB-41197** SampType: **MBLK** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/13/2012** RunNo: **86447**
Client ID: **PBW** Batch ID: **41197** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/26/2012** SeqNo: **1479115**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Vanadium	ND	3.0									

Sample ID: **LCS-41197** SampType: **LCS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/13/2012** RunNo: **86447**
Client ID: **LCSW** Batch ID: **41197** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/26/2012** SeqNo: **1479116**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Vanadium	9.756	3.0	10.00	0	97.6	85	115				

Sample ID: **N008877-001A-MS** SampType: **MS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/13/2012** RunNo: **86447**
Client ID: **ZZZZZZ** Batch ID: **41197** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/26/2012** SeqNo: **1479120**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Vanadium	13.187	15	10.00	2.046	111	75	125				

Qualifiers:

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

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CLIENT: CH2M HILL
Work Order: N008877
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **N008877-001A-MSD** SampType: **MSD** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/13/2012** RunNo: **86447**
Client ID: **ZZZZZZ** Batch ID: **41197** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/26/2012** SeqNo: **1479121**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Vanadium	12.334	15	10.00	2.046	103	75	125	13.19	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: *29-Nov-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-48-188
Lab Order:	N008877	**Collection Date:**	11/7/2012 12:57:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008877-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121118B**	QC Batch: **41212**			PrepDate:	**11/14/2012**		Analyst: **CEI**
Manganese	19	0.16	0.50		µg/L	1	11/18/2012 10:20 AM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *29-Nov-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-63-065-188
Lab Order:	N008877	**Collection Date:**	11/7/2012 3:23:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008877-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121118B**	QC Batch: **41212**				PrepDate:	**11/14/2012**	Analyst: **CEI**
Arsenic	1.5	0.035	0.10		µg/L	1	11/18/2012 10:40 AM
Manganese	140	0.16	0.50		µg/L	1	11/18/2012 10:40 AM
Molybdenum	19	0.074	0.50		µg/L	1	11/18/2012 10:40 AM
Selenium	0.93	0.084	0.50		µg/L	1	11/18/2012 10:40 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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ANALYTICAL RESULTS

Print Date: *29-Nov-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	PGE-08-188
Lab Order:	N008877	**Collection Date:**	11/7/2012 11:26:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008877-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121118B**	QC Batch: **41212**				PrepDate:	**11/14/2012**	Analyst: **CEI**
Manganese	580	0.80	2.5		µg/L	5	11/18/2012 10:45 AM
Molybdenum	100	0.074	0.50		µg/L	1	11/18/2012 10:50 AM
Selenium	ND	0.084	0.50		µg/L	1	11/18/2012 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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ANALYTICAL RESULTS

Print Date: *29-Nov-12*

CLIENT: CH2M HILL
Lab Order: N008877
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008877-004

Client Sample ID: MW-16-188
Collection Date: 11/8/2012 3:26:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121118B**	QC Batch: **41212**				PrepDate: **11/14/2012**		Analyst: **CEI**
Antimony	ND	0.084	0.50		µg/L	1	11/18/2012 10:55 AM
Arsenic	11	0.035	0.10		µg/L	1	11/18/2012 10:55 AM
Chromium	10	0.17	1.0		µg/L	1	11/18/2012 10:55 AM
Manganese	ND	0.16	0.50		µg/L	1	11/18/2012 10:55 AM
Molybdenum	13	0.074	0.50		µg/L	1	11/18/2012 10:55 AM
Selenium	1.9	0.084	0.50		µg/L	1	11/18/2012 10:55 AM
Thallium	ND	0.075	0.50		µg/L	1	11/18/2012 10:55 AM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *29-Nov-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-23-060-188
Lab Order:	N008877	**Collection Date:**	11/8/2012 9:18:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008877-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121118B**	QC Batch: **41212**			PrepDate:	**11/14/2012**		Analyst: **CEI**
Arsenic	5.3	0.035	0.10		µg/L	1	11/18/2012 11:25 AM
Manganese	ND	0.16	0.50		µg/L	1	11/18/2012 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: *29-Nov-12*

CLIENT: CH2M HILL
Lab Order: N008877
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008877-006

Client Sample ID: MW-23-080-188
Collection Date: 11/8/2012 10:44:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **ICP7_121118B**	QC Batch: **41212**				PrepDate: **11/14/2012**		Analyst: **CEI**
Arsenic	2.7	0.035	0.10		µg/L	1	11/18/2012 11:10 AM
Manganese	ND	0.16	0.50		µg/L	1	11/18/2012 11:10 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: *29-Nov-12*

CLIENT: CH2M HILL
Lab Order: N008877
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008877-007

Client Sample ID: MW-57-185-188
Collection Date: 11/8/2012 1:28:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121118B**	QC Batch: **41212**				PrepDate: **11/14/2012**		Analyst: **CEI**
Arsenic	13	0.035	0.10		µg/L	1	11/18/2012 11:15 AM
Manganese	400	0.80	2.5		µg/L	5	11/18/2012 11:20 AM
Molybdenum	85	0.074	0.50		µg/L	1	11/18/2012 11:15 AM
Selenium	ND	0.084	0.50		µg/L	1	11/18/2012 12:59 PM

Qualifiers:

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

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *29-Nov-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-71-035-188
Lab Order:	N008877	**Collection Date:**	11/8/2012 7:57:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008877-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121118B**	QC Batch: **41212**				PrepDate:	**11/14/2012**	Analyst: **CEI**
Arsenic	1.4	0.035	0.10		µg/L	1	11/18/2012 11:30 AM
Manganese	69	0.16	0.50		µg/L	1	11/18/2012 11:30 AM
Molybdenum	65	0.074	0.50		µg/L	1	11/18/2012 11:30 AM
Selenium	2.3	0.084	0.50		µg/L	1	11/18/2012 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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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *29-Nov-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	PM-03-188
Lab Order:	N008877	**Collection Date:**	11/8/2012 2:58:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008877-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121118B**	QC Batch: **41212**			PrepDate:	**11/14/2012**		Analyst: **CEI**
Manganese	ND	0.16	0.50		µg/L	1	11/18/2012 11:45 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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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *29-Nov-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	PM-04-188
Lab Order:	N008877	**Collection Date:**	11/8/2012 3:40:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008877-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **ICP7_121118B**	QC Batch: **41212**			PrepDate:	**11/14/2012**		Analyst: **CEI**
Manganese	4.6	0.16	0.50		µg/L	1	11/18/2012 11:50 AM

Qualifiers:

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

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Advanced Technology Laboratories, Inc.

Date: *29-Nov-12*

CLIENT: CH2M HILL
Work Order: N008877
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **MB-41212** SampType: **MBLK** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **11/14/2012** RunNo: **86407**
Client ID: **PBW** Batch ID: **41212** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **11/18/2012** SeqNo: **1476737**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	ND	0.50									
Arsenic	ND	0.10									
Chromium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									
Thallium	ND	0.50									

Sample ID: **LCS-41212** SampType: **LCS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **11/14/2012** RunNo: **86407**
Client ID: **LCSW** Batch ID: **41212** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **11/18/2012** SeqNo: **1476738**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	9.092	0.50	10.00	0	90.9	85	115				
Arsenic	9.986	0.10	10.00	0	99.9	85	115				
Chromium	10.190	1.0	10.00	0	102	85	115				
Manganese	99.297	0.50	100.0	0	99.3	85	115				
Molybdenum	9.877	0.50	10.00	0	98.8	85	115				
Selenium	9.578	0.50	10.00	0	95.8	85	115				
Thallium	9.876	0.50	10.00	0	98.8	85	115				

Sample ID: **N008898-001B-MS** SampType: **MS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **11/14/2012** RunNo: **86407**
Client ID: **ZZZZZZ** Batch ID: **41212** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **11/18/2012** SeqNo: **1476742**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	9.380	0.50	10.00	0.1206	92.6	75	125				
Arsenic	10.915	0.10	10.00	0.8184	101	75	125				
Chromium	15.396	1.0	10.00	5.500	99.0	75	125				
Manganese	95.360	0.50	100.0	0	95.4	75	125				

Qualifiers:

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

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CLIENT: CH2M HILL
Work Order: N008877
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N008898-001B-MS** SampType: **MS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **11/14/2012** RunNo: **86407**
Client ID: **ZZZZZZ** Batch ID: **41212** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **11/18/2012** SeqNo: **1476742**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	14.897	0.50	10.00	4.361	105	75	125				
Selenium	9.964	0.50	10.00	0.5717	93.9	75	125				
Thallium	10.005	0.50	10.00	0	100	75	125				

Sample ID: **N008898-001B-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **11/14/2012** RunNo: **86407**
Client ID: **ZZZZZZ** Batch ID: **41212** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **11/18/2012** SeqNo: **1476743**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	9.361	0.50	10.00	0.1206	92.4	75	125	9.380	0.198	20	
Arsenic	10.993	0.10	10.00	0.8184	102	75	125	10.91	0.717	20	
Chromium	15.104	1.0	10.00	5.500	96.0	75	125	15.40	1.91	20	
Manganese	93.986	0.50	100.0	0	94.0	75	125	95.36	1.45	20	
Molybdenum	14.976	0.50	10.00	4.361	106	75	125	14.90	0.531	20	
Selenium	10.126	0.50	10.00	0.5717	95.5	75	125	9.964	1.61	20	
Thallium	9.951	0.50	10.00	0	99.5	75	125	10.01	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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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *29-Nov-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-16-188
Lab Order:	N008877	**Collection Date:**	11/8/2012 3:26:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008877-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED MERCURY BY COLD VAPOR TECHNIQUE							
EPA 7470A							
RunID: **AA1_121119B**	QC Batch: **41228**			PrepDate: **11/15/2012**			Analyst: **CEI**
Mercury	ND	0.028	0.20		µg/L	1	11/19/2012

Qualifiers:

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

Advanced Technology Laboratories, Inc.

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Advanced Technology Laboratories, Inc.

Date: *29-Nov-12*

CLIENT: CH2M HILL
Work Order: N008877
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 7470_W_DISSPGE

Sample ID: **LCS-41128** SampType: **LCS** TestCode: **7470_W_DIS** Units: **µg/L** Prep Date: **11/15/2012** RunNo: **86456**
Client ID: **LCSW** Batch ID: **41228** TestNo: **EPA 7470A** Analysis Date: **11/19/2012** SeqNo: **1479278**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	5.162	0.20	5.000	0	103	85	115				

Sample ID: **MB-41228** SampType: **MBLK** TestCode: **7470_W_DIS** Units: **µg/L** Prep Date: **11/15/2012** RunNo: **86456**
Client ID: **PBW** Batch ID: **41228** TestNo: **EPA 7470A** Analysis Date: **11/19/2012** SeqNo: **1479279**

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

Sample ID: **N008877-004A-MS** SampType: **MS** TestCode: **7470_W_DIS** Units: **µg/L** Prep Date: **11/15/2012** RunNo: **86456**
Client ID: **ZZZZZZ** Batch ID: **41228** TestNo: **EPA 7470A** Analysis Date: **11/19/2012** SeqNo: **1479281**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	5.188	0.20	5.000	0	104	75	125				

Sample ID: **N008877-004A-MSD** SampType: **MSD** TestCode: **7470_W_DIS** Units: **µg/L** Prep Date: **11/15/2012** RunNo: **86456**
Client ID: **ZZZZZZ** Batch ID: **41228** TestNo: **EPA 7470A** Analysis Date: **11/19/2012** SeqNo: **1479282**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	5.159	0.20	5.000	0	103	75	125	5.188	0.556	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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CH2MHILL

CHAIN OF CUSTODY RECORD

11/8/2012 5:23:36 PM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.0
Task Order
Project 2012-GMP-188-Q4
Turnaround Time 10 Days
Shipping Date: 11/8/2012
COC Number: 3

			Container:	1x500 ml Poly	1x500 ml Poly	1x500 ml Poly	1x500 ml Poly	2x1 Liter	2x1 Liter	2x1 Liter			
			Preservatives:	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	4°C	4°C	4°C			
			Filtered:	Field	Field	Field	Field	NA	NA	NA			
			Holding Time:	180	180	180	180	7	7	7			
	DATE	TIME	Matrix	Arsenic (6020A) Field Filtered	Metals (SW6010B/SW6020Adis) Field Filtered BKG metals. See list	Metals (SW6010B/SW6020Adis) Field Filtered Ca,Mg,Na,Fe,Mn	Metals (SW6010B/SW6020Adis) Field Filtered Mo,Se	Specific Conductance (E120.1)	Anions (E300.0) Chloride,Sulfate	Alkalinity (SM2320B)		Number of Containers	COMMENTS
MW-48-188	11/7/2012	12:57	Water			X		X	X	X	N00 8877-1	3	
MW-63-065-188	11/7/2012	15:23	Water	X		X	X	X	X	X	-2	3	
PGE-08-188	11/7/2012	11:26	Water			X	X	X	X	X	-3	3	
MW-16-188	11/8/2012	15:26	Water		X			X	X	X	-4	3	
MW-23-060-188	11/8/2012	9:18	Water	X		X		X	X	X	-5	3	
MW-23-080-188	11/8/2012	10:44	Water	X		X		X	X	X	-6	3	
MW-57-185-188	11/8/2012	13:28	Water	X		X	X	X	X	X	-7	3	
MW-71-035-188	11/8/2012	7:57	Water	X		X	X	X	X	X	-8	3	
PM-03-188	11/8/2012	14:58	Water			X		X	X	X	-9	3	
PM-04-188	11/8/2012	15:40	Water			X		X	X	X	-10	3	
											TOTAL NUMBER OF CONTAINERS	30	

	Signatures	Date/Time
Approved by		11-8-12
Sampled by		1815
Relinquished by		
Received by		11-8-12 1815
Relinquished by		11-8-12 2011
Received by		

Shipping Details

Method of Shipment: courier
On Ice: (yes) / no 3.2 IR1 ICE
Airbill No:
Lab Name: ADVANCED TECHNOLOGY LABORATO
Lab Phone: (702) 307-2659

ATTN:
Sample Custody
and
Marlon

Special Instructions:
Nov 5 - Dec 14, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

Advanced Technology Laboratories, Inc.

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

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

Cooler Received/Opened On:	11/8/2012	Workorder:	N008877
Rep sample Temp (Deg C):	3.2	IR Gun ID:	1
Temp Blank:	☐ Yes ☑ No		
Carrier name:	ATL		
Last 4 digits of Tracking No.:	na	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

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

Comments:

Checklist Completed B MBC 11/9/12

Reviewed By:

Sample ID: **N008877-001B @ pH 7.82**

A. Standardization of Sulfuric Acid (titrant):

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

Where:

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

Spike Standards

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

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

Therefore,

Normality of Acid = (2.65g/L) (5mL) / (53.00) (11.65mL)

= **0.02146 N**

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

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

Where:

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

Therefore,

Total Alkalinity (as $CaCO_3$), mg/L = (1.30) (0.02146N) (1) * 1000

= **27.90 mg/L**

Reporting results in two significant figures,

= **28 mg/L** as CaCO3

WS for
11/25/

C. SPECIATED ALKALINITY:

Phenolphthalein Alkalinity

P alkalinity, mg/L as $CaCO_3$ = $P_{vol.}$ * N H_2SO_4 * DF * 1000

= (0) (0.02146 N) (1) * 1000

= **0**

Total Alkalinity

T alkalinity, mg/L as $CaCO_3$ = $M_{vol.}$ * N H_2SO_4 * DF * 1000

= (1.30mL) (0.02146) (1) * 1000

= **27.90 mg/L** as CaCO3

Where:

$P_{vol.}$ - volume titrant used to reach pH 8.3, ml
$M_{vol.}$ - volume titrant used to reach pH 4.5, ml
N - Normality of H_2SO_4
DF - Dilution Factor = (50 ml) / (Vol. of Sample used)

Then OH, CO_3, HCO_3 alkalinities as $CaCO_3$ will be calculated as follows:

Result of Titration	**OH Alkalinity as $CaCO_3$**	**CO_3 Alkalinity as $CaCO_3$**	**HCO_3 Alkalinity as $CaCO_3$**
P = 0	0	0	T
P < ½ T	0	2P	T – 2P
P = ½ T	0	2P	0
P > ½ T	2P – T	2(T – P)	0
P = T	T	0	0

Therefore,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = **27.90 mg/L**

Reporting results in two significant figures,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = **28 mg/L**

Sample Calculation

METHOD: EPA 300
TEST NAME: INORGANIC ANIONS BY IC
MATRIX: WATER

FORMULA:

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

Chloride, mg/L = A * DF

where:

A = mg/L, IC calculated concentration
DF = dilution factor

For **N008877-001B**, concentration in mg/L are calculated as follows:

Chloride, mg/L	=	3.201 * 2000
	=	6402 mg/L

Reporting **N008877-001B** results in two significant figures,

Chloride, mg/L	**=**	**6400**

Sample Calculation

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

FORMULA:

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

Sodium, ug/L = A * DF * PF * CF

where:

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

For Sample **N008877-001A**, the concentration in ug/L is calculated as follows:

Sodium, ug/L = 19.44334174 * 200 * (25/25) * 1000

= 3888668.348

Reporting results in two significant figures,

Sodium, ug/L = 3900000

NS for
n/2gh

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N008877
Test Method: EPA 6010
Analysis Date: 11/16/12

Matrix: Water
Batch No.: 41197

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

Comments:

Analyzed By: Mary Claire Ignacio

~~Dilution Test is not applicable for analytes with concentration < 25X the RL. However the~~ PS @~~2X~~ 200X passes the criteria. ms for 11/29/12
DT for Potassium failed.

Sample ID 1000X	Analyte	&Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N008877-001A ~~5X~~	Sodium	ug/L	3642177.17	PASSED	3888668.35	6.34%	10
N008877-001A ~~5X~~ 1000X	Potassium	ug/L	36129.86	FAILED	41615.75	13.18%	10

Note: NA - Not Applicable

ms for 11/29/12

Advanced Technology Laboratories, Inc.

ICP-Metals in Water **Dilution Test Summary**

Work Order No.: N008877
Test Method: EPA 6010
Analysis Date: 11/19/12

Matrix: Water
Batch No.: 41197

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

Comments: Analyzed By: Mary Claire Ignacio

Dilution Test is not applicable for analytes with concentration < 25X the RL. However the PS @~~2X~~ 5X passes the criteria.

Sample ID 25X	Analyte	&Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N008877-001A 5X	Aluminum	ug/L	0.00	NA	0.00	0.00%	10
N008877-001A 5X	Barium	ug/L	87.41	PASSED	81.14	7.72%	10
N008877-001A 5X	Beryllium	ug/L	0.00	NA	0.00	0.00%	10
N008877-001A 5X	Cadmium	ug/L	0.00	NA	0.00	0.00%	10
N008877-001A 5X	Calcium	ug/L	380712.26	PASSED	375988.41	1.26%	10
N008877-001A 5X	Cobalt	ug/L	0.00	NA	0.00	0.00%	10
N008877-001A 5X	Copper	ug/L	0.00	NA	0.00	0.00%	10
N008877-001A 5X	Iron	ug/L	0.00	NA	0.00	0.00%	10
N008877-001A 5X	Lead	ug/L	0.00	NA	0.00	0.00%	10
N008877-001A 5X	Magnesium	ug/L	36543.81	PASSED	34646.36	5.48%	10
N008877-001A 5X	Manganese	ug/L	0.00	NA	19.41	100.00%	10
N008877-001A 5X	Molybdenum	ug/L	0.00	NA	6.09	100.00%	10
N008877-001A 5X	Nickel	ug/L	0.00	NA	0.00	0.00%	10
N008877-001A 5X	Silver	ug/L	10.96	NA	7.12	54.04%	10
N008877-001A 5X	Zinc	ug/L	0.00	NA	11.15	100.00%	10

Note: NA - Not Applicable MS for n/a's

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N008877
Test Method: EPA 6010
Analysis Date: 11/26/12

Matrix: Water
Batch No.: 41197

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

Comments:

Analyzed By: Mary Claire Ignacio

Dilution Test is not applicable for analytes with concentration < 25X the RL. However the PS @~~2X~~ 5X passes the criteria.

Sample ID ~~2.5X~~	Analyte	&Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N008877-001A ~~5X~~	Vanadium	ug/L	0.00	NA	2.05	100.00%	10

Note: NA - Not Applicable

MI / ICP-02 11/26/2012 10:24:51 PM

Advanced Technology Laboratories, Inc.

Date: *26-Nov-12*

CLIENT: CH2M HILL
Work Order: N008877
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **N008877-001A-PS** SampType: **PS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/13/2012** RunNo: **86416**
Client ID: **ZZZZZZ** Batch ID: **41197** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/16/2012** SeqNo: **1478026**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	164192.750	100000	125000	41620	98.1	75	125				
Sodium	6442782.388	100000	2500000	3889000	102	75	125				

Sample ID: **N008877-001A-PS** SampType: **PS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/13/2012** RunNo: **86437**
Client ID: **ZZZZZZ** Batch ID: **41197** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/19/2012** SeqNo: **1478309**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	13426.957	250	12500	0	107	75	125				
Barium	757.222	15	625.0	81.14	108	75	125				
Beryllium	659.778	5.0	625.0	0	106	75	125				
Cadmium	669.671	15	625.0	0	107	75	125				
Calcium	385446.282	2500	12500	376000	75.7	75	125				
Cobalt	678.147	15	625.0	0	109	75	125				
Copper	662.647	25	625.0	0	106	75	125				
Iron	12641.316	100	12500	0	101	75	125				
Lead	630.087	50	625.0	0	101	75	125				
Magnesium	49632.356	500	12500	34650	120	75	125				
Manganese	1274.339	50	1250	19.41	100	75	125				
Molybdenum	653.174	25	625.0	6.094	104	75	125				
Nickel	679.945	25	625.0	0	109	75	125				
Silver	680.812	15	625.0	7.117	108	75	125				
Zinc	727.708	50	625.0	11.15	115	75	125				

Sample ID: **N008877-001A-PS** SampType: **PS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/13/2012** RunNo: **86447**
Client ID: **ZZZZZZ** Batch ID: **41197** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/26/2012** SeqNo: **1479122**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Vanadium	664.994	15	625.0	2.046	106	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

Sample Calculation

METHOD: EPA 6020
TEST NAME: Heavy Metals by ICP-MS
MATRIX: Aqueous

FORMULA:

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

Manganese, ug/L = A * DF * PF

where:

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

For Sample **N008877-001A**, the concentration in ug/L is calculated as follows:

Manganese, ug/L = 18.6900172807628 * 1 * (25/25)

= 18.6900172807628

Reporting result in two significant figures,

Manganese, ug/L = 19

NS for
11/28/12

Advanced Technology Laboratories, Inc.

ICP-Metals in Water **Dilution Test Summary**

Work Order No.: N008877
Test Method: EPA 6020
Analysis Date: 11/18/12

Matrix: Water
Batch No.: 41212

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

Comments: Analyzed By: Mary Claire Ignacio

Dilution Test is not applicable to Sb, As, Cr, Mn, Mo, Se and Tl. The calculated value was <25X RL. PS @ 2X passed criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N008898-001B-DT 5X	Antimony	µg/L	0	NA	0.120619661	100.00%	10
N008898-001B-DT 5X	Arsenic	µg/L	0.933296602	NA	0.818441488	14.03%	10
N008898-001B-DT 5X	Chromium	µg/L	5.508219866	NA	5.49962169	0.16%	10
N008898-001B-DT 5X	Manganese	µg/L	0	NA	0	0.00%	10
N008898-001B-DT 5X	Molybdenum	µg/L	4.285287261	NA	4.361296801	1.74%	10
N008898-001B-DT 5X	Selenium	µg/L	0.518593441	NA	0.571737417	9.30%	10
N008898-001B-DT 5X	Thallium	µg/L	0	NA	0	0.00%	10

Note: NA - Not applicable

Advanced Technology Laboratories, Inc.

Date: *21-Nov-12*

CLIENT: CH2M HILL
Work Order: N008877
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N008898-001B-PS**	SampType: **PS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **86407**
Client ID: **ZZZZZZ**	Batch ID: **41212**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **11/18/2012**	SeqNo: **1476741**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	18.609	1.0	20.00	0.1206	92.4	75	125				
Arsenic	21.731	0.20	20.00	0.8184	105	75	125				
Chromium	25.839	2.0	20.00	5.500	102	75	125				
Manganese	195.050	1.0	200.0	0	97.5	75	125				
Molybdenum	25.709	1.0	20.00	4.361	107	75	125				
Selenium	19.556	1.0	20.00	0.5717	94.9	75	125				
Thallium	20.217	1.0	20.00	0	101	75	125				

Qualifiers:

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

Sample Calculation

METHOD: EPA 7470
TEST NAME: Mercury in Water by Cold-Vapor Technique
MATRIX: Aqueous

FORMULA:

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

Mercury, ug/L = A * DF * PF * 0.5

where:

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

For Sample **N008877-004A** the concentration in ug/L is calculated as follows:

Mercury, ug/L = -0.04 * 1 * (50/25) * 0.5

= 0.0 ug/L

Reporting results in two significant figures,

Mercury, ug/L = 0.0

Mercury, ug/L = ND

NS fn
11/rah

November 30, 2012

Shawn P. Duffy
CH2M HILL
155 Grand Avenue, Suite 1000
Oakland, CA 94612

TEL: (530) 229-3303
FAX: (530) 339-3303

CA-ELAP No.: 2676
NV Cert. No.: NV-009222007A

Workorder No.: N008906

RE: PG&E Topock, 423575.MP.02.GM.0

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on November 13, 2012 by Advanced Technology Laboratories, Inc. . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

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

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

Sincerely,

for Jose Tenorio

Jose Tenorio Jr.
Laboratory Director

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

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.0
Lab Order: N008906

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

Samples were received intact with proper chain of custody documentation.

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

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

Samples were analyzed within method holding time.

Analytical Comments for EPA 6010B_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Sodium,Calcium 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 Potassium, Iron possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Dilution was necessary on samples N008906-001, N008906-002, N008906-003 and N008906-006 since plasma was extinguished when samples were analyzed at no dilution.

Advanced Technology Laboratories, Inc.
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Advanced Technology Laboratories, Inc.

Date: *30-Nov-12*

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.0
Lab Order: N008906
Contract No: 2012-GMP-188-

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N008906-001A	MW-68BR-280-188	Water	11/12/2012 1:59:00 PM	11/13/2012	11/30/2012
N008906-001B	MW-68BR-280-188	Water	11/12/2012 1:59:00 PM	11/13/2012	11/30/2012
N008906-002A	MW-21-188	Water	11/13/2012 9:27:00 AM	11/13/2012	11/30/2012
N008906-002B	MW-21-188	Water	11/13/2012 9:27:00 AM	11/13/2012	11/30/2012
N008906-003A	MW-24BR-188	Water	11/13/2012 8:24:00 AM	11/13/2012	11/30/2012
N008906-003B	MW-24BR-188	Water	11/13/2012 8:24:00 AM	11/13/2012	11/30/2012
N008906-004A	MW-31-060-188	Water	11/13/2012 3:29:00 PM	11/13/2012	11/30/2012
N008906-004B	MW-31-060-188	Water	11/13/2012 3:29:00 PM	11/13/2012	11/30/2012
N008906-005A	OW-03D-188	Water	11/13/2012 12:10:00 PM	11/13/2012	11/30/2012
N008906-005B	OW-03D-188	Water	11/13/2012 12:10:00 PM	11/13/2012	11/30/2012
N008906-006A	OW-03M-188	Water	11/13/2012 12:55:00 PM	11/13/2012	11/30/2012
N008906-006B	OW-03M-188	Water	11/13/2012 12:55:00 PM	11/13/2012	11/30/2012
N008906-007A	OW-03S-188	Water	11/13/2012 1:31:00 PM	11/13/2012	11/30/2012
N008906-007B	OW-03S-188	Water	11/13/2012 1:31:00 PM	11/13/2012	11/30/2012

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ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *30-Nov-12*

CLIENT: CH2M HILL
Lab Order: N008906
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008906-001

Client Sample ID: MW-68BR-280-188
Collection Date: 11/12/2012 1:59:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
EPA 120.1							
RunID: **WETCHEM_121114B**	QC Batch: **R86488**			PrepDate:			Analyst: **CEI**
Specific Conductance	21000	0.10	0.10		umhos/cm	1	11/14/2012

Qualifiers:

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

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ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *30-Nov-12*

CLIENT: CH2M HILL
Lab Order: N008906
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008906-002

Client Sample ID: MW-21-188
Collection Date: 11/13/2012 9:27:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
EPA 120.1							
RunID: **WETCHEM_121114B**	QC Batch: **R86488**			PrepDate:			Analyst: **CEI**
Specific Conductance	10000	0.10	0.10		umhos/cm	1	11/14/2012

Qualifiers:

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

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ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *30-Nov-12*

CLIENT: CH2M HILL
Lab Order: N008906
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008906-003

Client Sample ID: MW-24BR-188
Collection Date: 11/13/2012 8:24:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
EPA 120.1							
RunID: **WETCHEM_121114B**	QC Batch: **R86488**			PrepDate:			Analyst: **CEI**
Specific Conductance	14000	0.10	0.10		umhos/cm	1	11/14/2012

Qualifiers:

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

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ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *30-Nov-12*

CLIENT: CH2M HILL
Lab Order: N008906
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008906-004

Client Sample ID: MW-31-060-188
Collection Date: 11/13/2012 3:29:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
EPA 120.1							
RunID: **WETCHEM_121114B** QC Batch: **R86488** PrepDate: Analyst: **CEI**							
Specific Conductance	3300	0.10	0.10		umhos/cm	1	11/14/2012

Qualifiers:

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

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ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *30-Nov-12*

CLIENT: CH2M HILL
Lab Order: N008906
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008906-005

Client Sample ID: OW-03D-188
Collection Date: 11/13/2012 12:10:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
EPA 120.1							
RunID: **WETCHEM_121114B**	QC Batch: **R86488**			PrepDate:			Analyst: **CEI**
Specific Conductance	8600	0.10	0.10		umhos/cm	1	11/14/2012

Qualifiers:

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

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ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *30-Nov-12*

CLIENT: CH2M HILL
Lab Order: N008906
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008906-006

Client Sample ID: OW-03M-188
Collection Date: 11/13/2012 12:55:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
EPA 120.1							
RunID: **WETCHEM_121114B**	QC Batch: **R86488**			PrepDate:			Analyst: **CEI**
Specific Conductance	5600	0.10	0.10		umhos/cm	1	11/14/2012

Qualifiers:

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

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ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *30-Nov-12*

CLIENT: CH2M HILL
Lab Order: N008906
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008906-007

Client Sample ID: OW-03S-188
Collection Date: 11/13/2012 1:31:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
EPA 120.1							
RunID: **WETCHEM_121114B**	QC Batch: **R86488**			PrepDate:			Analyst: **CEI**
Specific Conductance	1500	0.10	0.10		umhos/cm	1	11/14/2012

Qualifiers:

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

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Advanced Technology Laboratories, Inc.

Date: *30-Nov-12*

CLIENT: CH2M HILL
Work Order: N008906
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: **LCS-R86488** SampType: **LCS** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86488**
Client ID: **LCSW** Batch ID: **R86488** TestNo: **EPA 120.1** Analysis Date: **11/14/2012** SeqNo: **1480787**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	1444.000	0.10	1414	0	102	85	115				

Sample ID: **N008906-007BDUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86488**
Client ID: **ZZZZZZ** Batch ID: **R86488** TestNo: **EPA 120.1** Analysis Date: **11/14/2012** SeqNo: **1480794**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	1471.000	0.10						1467	0.272	10	

Sample ID: **N008906-007BMS** SampType: **MS** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86488**
Client ID: **ZZZZZZ** Batch ID: **R86488** TestNo: **EPA 120.1** Analysis Date: **11/14/2012** SeqNo: **1480795**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	2866.000	0.20	1414	1467	98.9	75	125				

Sample ID: **N008906-007BMSD** SampType: **MSD** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86488**
Client ID: **ZZZZZZ** Batch ID: **R86488** TestNo: **EPA 120.1** Analysis Date: **11/14/2012** SeqNo: **1480796**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	2874.000	0.20	1414	1467	99.5	75	125	2866	0.279	10	

Qualifiers:

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

Advanced Technology Laboratories, Inc.
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ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *30-Nov-12*

CLIENT: CH2M HILL
Lab Order: N008906
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008906-004

Client Sample ID: MW-31-060-188
Collection Date: 11/13/2012 3:29:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **WETCHEM_121117A**	QC Batch: **41240**			PrepDate:	**11/16/2012**		Analyst: **QBM**
Total Dissolved Solids (Residue, Filterable)	1900	20	20		mg/L	1	11/17/2012

Qualifiers:

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

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

Date: *30-Nov-12*

CLIENT: CH2M HILL
Work Order: N008906
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.1_2540C_W

Sample ID: **MB-41240** SampType: **MBLK** TestCode: **160.1_2540C** Units: **mg/L** Prep Date: **11/16/2012** RunNo: **86435**
Client ID: **PBW** Batch ID: **41240** TestNo: **SM2540C** Analysis Date: **11/17/2012** SeqNo: **1477963**

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-41240** SampType: **LCS** TestCode: **160.1_2540C** Units: **mg/L** Prep Date: **11/16/2012** RunNo: **86435**
Client ID: **LCSW** Batch ID: **41240** TestNo: **SM2540C** Analysis Date: **11/17/2012** SeqNo: **1477964**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	1013.000	10	1000	0	101	80	120				

Sample ID: **N008897-001D-DUP** SampType: **DUP** TestCode: **160.1_2540C** Units: **mg/L** Prep Date: **11/16/2012** RunNo: **86435**
Client ID: **ZZZZZZ** Batch ID: **41240** TestNo: **SM2540C** Analysis Date: **11/17/2012** SeqNo: **1477966**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	1408.000	20						1434	1.83	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

Advanced Technology Laboratories, Inc.

Print Date: *30-Nov-12*

CLIENT: CH2M HILL
Lab Order: N008906
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008906-001

Client Sample ID: MW-68BR-280-188
Collection Date: 11/12/2012 1:59:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121116C**	QC Batch: **R86478**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	24	1.2	5.0		mg/L	1	11/16/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/16/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/16/2012
Alkalinity, Total (As CaCO3)	24	1.2	5.0		mg/L	1	11/16/2012

Qualifiers:

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

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *30-Nov-12*

CLIENT: CH2M HILL
Lab Order: N008906
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008906-002

Client Sample ID: MW-21-188
Collection Date: 11/13/2012 9:27:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121116C**	QC Batch: **R86478**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	580	1.2	5.0		mg/L	1	11/16/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/16/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/16/2012
Alkalinity, Total (As CaCO3)	580	1.2	5.0		mg/L	1	11/16/2012

Qualifiers:

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

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ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *30-Nov-12*

CLIENT: CH2M HILL
Lab Order: N008906
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008906-003

Client Sample ID: MW-24BR-188
Collection Date: 11/13/2012 8:24:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121116C**	QC Batch: **R86478**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	48	1.2	5.0		mg/L	1	11/16/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/16/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/16/2012
Alkalinity, Total (As CaCO3)	48	1.2	5.0		mg/L	1	11/16/2012

Qualifiers:

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

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ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *30-Nov-12*

CLIENT: CH2M HILL
Lab Order: N008906
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008906-004

Client Sample ID: MW-31-060-188
Collection Date: 11/13/2012 3:29:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121116C**	QC Batch: **R86478**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	78	1.2	5.0		mg/L	1	11/16/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/16/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/16/2012
Alkalinity, Total (As CaCO3)	78	1.2	5.0		mg/L	1	11/16/2012

Qualifiers:

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

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ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *30-Nov-12*

CLIENT: CH2M HILL
Lab Order: N008906
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008906-005

Client Sample ID: OW-03D-188
Collection Date: 11/13/2012 12:10:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121116C**	QC Batch: **R86478**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	35	1.2	5.0		mg/L	1	11/16/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/16/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/16/2012
Alkalinity, Total (As CaCO3)	35	1.2	5.0		mg/L	1	11/16/2012

Qualifiers:

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

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *30-Nov-12*

CLIENT: CH2M HILL
Lab Order: N008906
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008906-006

Client Sample ID: OW-03M-188
Collection Date: 11/13/2012 12:55:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121116C**	QC Batch: **R86478**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	54	1.2	5.0		mg/L	1	11/16/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/16/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/16/2012
Alkalinity, Total (As CaCO3)	54	1.2	5.0		mg/L	1	11/16/2012

Qualifiers:

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

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ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *30-Nov-12*

CLIENT: CH2M HILL
Lab Order: N008906
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008906-007

Client Sample ID: OW-03S-188
Collection Date: 11/13/2012 1:31:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121116C**	QC Batch: **R86478**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	72	1.2	5.0		mg/L	1	11/16/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/16/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/16/2012
Alkalinity, Total (As CaCO3)	72	1.2	5.0		mg/L	1	11/16/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
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: N008906
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **LCS-R86478** SampType: **LCS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86478**
Client ID: **LCSW** Batch ID: **R86478** TestNo: **SM 2320 B** Analysis Date: **11/16/2012** SeqNo: **1480703**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	96.360	5.0	100.0	0	96.4	85	115				
Alkalinity, Total (As CaCO3)	100.642	5.0	100.0	0	101	85	115				

Sample ID: **LCSD-R86478** SampType: **LCSD** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86478**
Client ID: **LCSS02** Batch ID: **R86478** TestNo: **SM 2320 B** Analysis Date: **11/16/2012** SeqNo: **1480704**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	96.360	5.0	100.0	0	96.4	85	115	96.36	0	20	
Alkalinity, Total (As CaCO3)	100.642	5.0	100.0	0	101	85	115	100.6	0	20	

Sample ID: **MB-R86478** SampType: **MBLK** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86478**
Client ID: **PBW** Batch ID: **R86478** TestNo: **SM 2320 B** Analysis Date: **11/16/2012** SeqNo: **1480705**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	2.141	5.0									
Alkalinity, Carbonate (As CaCO3)	ND	5.0									
Alkalinity, Hydroxide (As CaCO3)	ND	5.0									
Alkalinity, Total (As CaCO3)	2.141	5.0									

Sample ID: **N008906-001BMS** SampType: **MS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86478**
Client ID: **ZZZZZZ** Batch ID: **R86478** TestNo: **SM 2320 B** Analysis Date: **11/16/2012** SeqNo: **1480707**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	122.056	5.0	100.0	23.55	98.5	75	125				
Alkalinity, Total (As CaCO3)	122.056	5.0	100.0	23.55	98.5	75	125				

Qualifiers:

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

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CLIENT: CH2M HILL
Work Order: N008906
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **N008906-001BMSD** SampType: **MSD** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86478**
Client ID: **ZZZZZZ** Batch ID: **R86478** TestNo: **SM 2320 B** Analysis Date: **11/16/2012** SeqNo: **1480708**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	122.056	5.0	100.0	23.55	98.5	75	125	122.1	0	20	
Alkalinity, Total (As CaCO3)	122.056	5.0	100.0	23.55	98.5	75	125	122.1	0	20	

Sample ID: **N008906-004BDUP** SampType: **DUP** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86478**
Client ID: **ZZZZZZ** Batch ID: **R86478** TestNo: **SM 2320 B** Analysis Date: **11/16/2012** SeqNo: **1480712**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	78.158	5.0						78.16	0	30	
Alkalinity, Carbonate (As CaCO3)	ND	5.0						0	0	30	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0						0	0	30	
Alkalinity, Total (As CaCO3)	78.158	5.0						78.16	0	30	

Qualifiers:

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

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ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *30-Nov-12*

CLIENT: CH2M HILL
Lab Order: N008906
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008906-001

Client Sample ID: MW-68BR-280-188
Collection Date: 11/12/2012 1:59:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121115A** QC Batch: **R86476** PrepDate: Analyst: **QBM**							
Chloride	7500	22	1000		mg/L	2000	11/15/2012 08:53 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121115A** QC Batch: **R86476** PrepDate: Analyst: **QBM**							
Sulfate	740	3.5	50		mg/L	100	11/15/2012 05:58 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

Advanced Technology Laboratories, Inc.

Print Date: *30-Nov-12*

CLIENT: CH2M HILL
Lab Order: N008906
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008906-002

Client Sample ID: MW-21-188
Collection Date: 11/13/2012 9:27:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121115A** QC Batch: **R86476** PrepDate: Analyst: **QBM**							
Chloride	2300	5.5	250		mg/L	500	11/15/2012 09:28 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121115A** QC Batch: **R86476** PrepDate: Analyst: **QBM**							
Sulfate	2400	18	250		mg/L	500	11/15/2012 09:28 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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ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *30-Nov-12*

CLIENT: CH2M HILL
Lab Order: N008906
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008906-003

Client Sample ID: MW-24BR-188
Collection Date: 11/13/2012 8:24:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121115A** QC Batch: **R86476** PrepDate: Analyst: **QBM**							
Chloride	4800	11	500		mg/L	1000	11/15/2012 10:14 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121115A** QC Batch: **R86476** PrepDate: Analyst: **QBM**							
Sulfate	470	1.8	25		mg/L	50	11/15/2012 06:56 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

Advanced Technology Laboratories, Inc.

Print Date: *30-Nov-12*

CLIENT: CH2M HILL
Lab Order: N008906
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008906-004

Client Sample ID: MW-31-060-188
Collection Date: 11/13/2012 3:29:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121115A** QC Batch: **R86476** PrepDate: Analyst: **QBM**							
Bromide	ND	0.026	0.50		mg/L	1	11/16/2012 12:11 AM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121115A** QC Batch: **R86476** PrepDate: Analyst: **QBM**							
Chloride	890	2.2	100		mg/L	200	11/15/2012 10:26 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121115A** QC Batch: **R86476** PrepDate: Analyst: **QBM**							
Sulfate	200	0.70	10		mg/L	20	11/15/2012 07:08 PM

Qualifiers:

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

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ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *30-Nov-12*

CLIENT: CH2M HILL
Lab Order: N008906
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008906-005

Client Sample ID: OW-03D-188
Collection Date: 11/13/2012 12:10:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121115A** QC Batch: **R86476** PrepDate: Analyst: **QBM**							
Chloride	2700	5.5	250		mg/L	500	11/15/2012 10:38 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121115A** QC Batch: **R86476** PrepDate: Analyst: **QBM**							
Sulfate	400	1.8	25		mg/L	50	11/15/2012 07:20 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

Advanced Technology Laboratories, Inc.

Print Date: *30-Nov-12*

CLIENT: CH2M HILL
Lab Order: N008906
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008906-006

Client Sample ID: OW-03M-188
Collection Date: 11/13/2012 12:55:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121115A** QC Batch: **R86476** PrepDate: Analyst: **QBM**							
Chloride	1600	5.5	250		mg/L	500	11/15/2012 10:49 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121115A** QC Batch: **R86476** PrepDate: Analyst: **QBM**							
Sulfate	300	1.8	25		mg/L	50	11/15/2012 07:55 PM

Qualifiers:

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

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ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *30-Nov-12*

CLIENT: CH2M HILL
Lab Order: N008906
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008906-007

Client Sample ID: OW-03S-188
Collection Date: 11/13/2012 1:31:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121115A** QC Batch: **R86476** PrepDate: Analyst: **QBM**							
Chloride	350	1.1	50		mg/L	100	11/15/2012 11:01 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121115A** QC Batch: **R86476** PrepDate: Analyst: **QBM**							
Sulfate	74	0.35	5.0		mg/L	10	11/15/2012 08:06 PM

Qualifiers:

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

Advanced Technology Laboratories, Inc.
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CLIENT: CH2M HILL
Work Order: N008906
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_BRPGE

Sample ID: **MB-R86476_BR** SampType: **MBLK** TestCode: **300_W_BRP** Units: **mg/L** Prep Date: RunNo: **86476**
Client ID: **PBW** Batch ID: **R86476** TestNo: **EPA 300.0** Analysis Date: **11/15/2012** SeqNo: **1480310**

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

Sample ID: **LCS-R86476_BR** SampType: **LCS** TestCode: **300_W_BRP** Units: **mg/L** Prep Date: RunNo: **86476**
Client ID: **LCSW** Batch ID: **R86476** TestNo: **EPA 300.0** Analysis Date: **11/15/2012** SeqNo: **1480311**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	2.448	0.50	2.500	0	97.9	90	110				

Sample ID: **N008906-004BDUP** SampType: **DUP** TestCode: **300_W_BRP** Units: **mg/L** Prep Date: RunNo: **86476**
Client ID: **ZZZZZZ** Batch ID: **R86476** TestNo: **EPA 300.0** Analysis Date: **11/16/2012** SeqNo: **1480319**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	0.155	0.50						0.1310	0	20	

Sample ID: **N008906-004BMS** SampType: **MS** TestCode: **300_W_BRP** Units: **mg/L** Prep Date: RunNo: **86476**
Client ID: **ZZZZZZ** Batch ID: **R86476** TestNo: **EPA 300.0** Analysis Date: **11/16/2012** SeqNo: **1480320**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	2.280	0.50	2.500	0.1310	86.0	80	120				

Sample ID: **N008906-004BMSD** SampType: **MSD** TestCode: **300_W_BRP** Units: **mg/L** Prep Date: RunNo: **86476**
Client ID: **ZZZZZZ** Batch ID: **R86476** TestNo: **EPA 300.0** Analysis Date: **11/16/2012** SeqNo: **1480321**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	2.294	0.50	2.500	0.1310	86.5	80	120	2.280	0.612	20	

Qualifiers:

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

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CLIENT: CH2M HILL
Work Order: N008906
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **MB-R86476_CL** SampType: **MBLK** TestCode: **300_W_CLP** Units: **mg/L** Prep Date: RunNo: **86476**
Client ID: **PBW** Batch ID: **R86476** TestNo: **EPA 300.0** Analysis Date: **11/15/2012** SeqNo: **1480326**

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

Sample ID: **LCS-R86476_CL** SampType: **LCS** TestCode: **300_W_CLP** Units: **mg/L** Prep Date: RunNo: **86476**
Client ID: **LCSW** Batch ID: **R86476** TestNo: **EPA 300.0** Analysis Date: **11/15/2012** SeqNo: **1480327**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.384	0.50	2.500	0	95.4	90	110				

Sample ID: **N008906-001BMS** SampType: **MS** TestCode: **300_W_CLP** Units: **mg/L** Prep Date: RunNo: **86476**
Client ID: **ZZZZZZ** Batch ID: **R86476** TestNo: **EPA 300.0** Analysis Date: **11/15/2012** SeqNo: **1480331**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	12504.000	1000	5000	7542	99.2	80	120				

Sample ID: **N008906-001BMSD** SampType: **MSD** TestCode: **300_W_CLP** Units: **mg/L** Prep Date: RunNo: **86476**
Client ID: **ZZZZZZ** Batch ID: **R86476** TestNo: **EPA 300.0** Analysis Date: **11/15/2012** SeqNo: **1480332**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	12502.000	1000	5000	7542	99.2	80	120	12500	0.0160	20	

Sample ID: **N008906-002BDUP** SampType: **DUP** TestCode: **300_W_CLP** Units: **mg/L** Prep Date: RunNo: **86476**
Client ID: **ZZZZZZ** Batch ID: **R86476** TestNo: **EPA 300.0** Analysis Date: **11/15/2012** SeqNo: **1480334**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2231.000	250						2255	1.07	20	

Qualifiers:

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

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CLIENT: CH2M HILL
Work Order: N008906
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **MB-R86476_SO4** SampType: **MBLK** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86476**
Client ID: **PBW** Batch ID: **R86476** TestNo: **EPA 300.0** Analysis Date: **11/15/2012** SeqNo: **1480351**

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

Sample ID: **LCS-R86476_SO4** SampType: **LCS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86476**
Client ID: **LCSW** Batch ID: **R86476** TestNo: **EPA 300.0** Analysis Date: **11/15/2012** SeqNo: **1480352**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.795	0.50	5.000	0	95.9	90	110				

Sample ID: **N008906-001BMS** SampType: **MS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86476**
Client ID: **ZZZZZZ** Batch ID: **R86476** TestNo: **EPA 300.0** Analysis Date: **11/15/2012** SeqNo: **1480354**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	1242.900	50	500.0	736.7	101	80	120				

Sample ID: **N008906-001BMSD** SampType: **MSD** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86476**
Client ID: **ZZZZZZ** Batch ID: **R86476** TestNo: **EPA 300.0** Analysis Date: **11/15/2012** SeqNo: **1480355**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	1238.800	50	500.0	736.7	100	80	120	1243	0.330	20	

Sample ID: **N008906-002BDUP** SampType: **DUP** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86476**
Client ID: **ZZZZZZ** Batch ID: **R86476** TestNo: **EPA 300.0** Analysis Date: **11/15/2012** SeqNo: **1480367**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	2445.000	250						2410	1.42	20	

Qualifiers:

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

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ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *30-Nov-12*

CLIENT: CH2M HILL
Lab Order: N008906
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008906-001

Client Sample ID: MW-68BR-280-188
Collection Date: 11/12/2012 1:59:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121128A**	QC Batch: **41222**				PrepDate: **11/15/2012**		Analyst: **CEI**
Calcium	370000	370	2500		ug/L	5	11/28/2012 11:36 AM
Iron	ND	36	100		ug/L	5	11/28/2012 11:36 AM
Magnesium	5400	65	500		ug/L	5	11/28/2012 11:36 AM
Sodium	4600000	15000	100000		ug/L	200	11/16/2012 11:55 AM

Qualifiers:

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

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ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *30-Nov-12*

CLIENT: CH2M HILL
Lab Order: N008906
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008906-002

Client Sample ID: MW-21-188
Collection Date: 11/13/2012 9:27:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121128A**	QC Batch: **41222**			PrepDate:	**11/15/2012**		Analyst: **CEI**
Calcium	200000	370	2500		ug/L	5	11/28/2012 11:16 AM
Iron	ND	36	100		ug/L	5	11/28/2012 11:16 AM
Magnesium	60000	65	500		ug/L	5	11/28/2012 11:16 AM
Sodium	2300000	7300	50000		ug/L	100	11/16/2012 11:58 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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ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *30-Nov-12*

CLIENT: CH2M HILL
Lab Order: N008906
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008906-003

Client Sample ID: MW-24BR-188
Collection Date: 11/13/2012 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_121128A**	QC Batch: **41222**			PrepDate:	**11/15/2012**		Analyst: **CEI**
Calcium	120000	370	2500		ug/L	5	11/28/2012 12:09 PM
Iron	ND	36	100		ug/L	5	11/28/2012 12:09 PM
Magnesium	3400	65	500		ug/L	5	11/28/2012 12:09 PM
Sodium	3200000	7300	50000		ug/L	100	11/16/2012 12:00 PM

Qualifiers:

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

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *30-Nov-12*

CLIENT: CH2M HILL
Lab Order: N008906
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008906-004

Client Sample ID: MW-31-060-188
Collection Date: 11/13/2012 3:29:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121128A**	QC Batch: **41222**				PrepDate: **11/15/2012**		Analyst: **CEI**
Boron	440	14	100		ug/L	1	11/28/2012 10:52 AM
Calcium	150000	75	500		ug/L	1	11/28/2012 10:52 AM
Iron	ND	7.2	20		ug/L	1	11/28/2012 10:52 AM
Magnesium	24000	13	100		ug/L	1	11/28/2012 10:52 AM
Potassium	7100	33	5000		ug/L	10	11/16/2012 12:03 PM
Sodium	470000	1800	12000		ug/L	25	11/16/2012 12:29 PM

Qualifiers:

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

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ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *30-Nov-12*

CLIENT: CH2M HILL
Lab Order: N008906
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008906-005

Client Sample ID: OW-03D-188
Collection Date: 11/13/2012 12:10:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121128A**	QC Batch: **41222**			PrepDate:	**11/15/2012**		Analyst: **CEI**
Calcium	160000	75	500		ug/L	1	11/28/2012 10:58 AM
Iron	ND	7.2	20		ug/L	1	11/28/2012 10:58 AM
Magnesium	12000	13	100		ug/L	1	11/28/2012 10:58 AM
Sodium	1800000	3700	25000		ug/L	50	11/16/2012 12:06 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

Advanced Technology Laboratories, Inc.

Print Date: *30-Nov-12*

CLIENT: CH2M HILL
Lab Order: N008906
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008906-006

Client Sample ID: OW-03M-188
Collection Date: 11/13/2012 12:55:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121128A**	QC Batch: **41222**			PrepDate:	**11/15/2012**		Analyst: **CEI**
Calcium	81000	370	2500		ug/L	5	11/28/2012 12:15 PM
Iron	ND	36	100		ug/L	5	11/28/2012 12:15 PM
Magnesium	6900	65	500		ug/L	5	11/28/2012 12:15 PM
Sodium	1000000	3700	25000		ug/L	50	11/16/2012 12:14 PM

Qualifiers:

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

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ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *30-Nov-12*

CLIENT: CH2M HILL
Lab Order: N008906
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008906-007

Client Sample ID: OW-03S-188
Collection Date: 11/13/2012 1:31:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121128A**	QC Batch: **41222**			PrepDate:	**11/15/2012**		Analyst: **CEI**
Calcium	70000	75	500		ug/L	1	11/28/2012 11:11 AM
Iron	ND	7.2	20		ug/L	1	11/28/2012 11:11 AM
Magnesium	9900	13	100		ug/L	1	11/28/2012 11:11 AM
Sodium	190000	370	2500		ug/L	5	11/16/2012 12:17 PM

Qualifiers:

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

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Advanced Technology Laboratories, Inc.

Date: *30-Nov-12*

CLIENT: CH2M HILL
Work Order: N008906
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **MB-41222** SampType: **MBLK** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: **11/15/2012** RunNo: **86416**
Client ID: **PBW** Batch ID: **41222** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/16/2012** SeqNo: **1478032**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	ND	500									
Sodium	ND	500									

Sample ID: **LCS-41222** SampType: **LCS** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: **11/15/2012** RunNo: **86416**
Client ID: **LCSW** Batch ID: **41222** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/16/2012** SeqNo: **1478033**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	2478.687	500	2500	0	99.1	85	115				
Sodium	26469.303	500	25000	0	106	85	115				

Sample ID: **N008906-001A-MS** SampType: **MS** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: **11/15/2012** RunNo: **86416**
Client ID: **ZZZZZZ** Batch ID: **41222** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/16/2012** SeqNo: **1478045**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	49021.022	100000	5000	41790	145	75	125				S
Sodium	4921586.516	100000	100000	4632000	290	75	125				S

Sample ID: **N008906-001A-MSD** SampType: **MSD** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: **11/15/2012** RunNo: **86416**
Client ID: **ZZZZZZ** Batch ID: **41222** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/16/2012** SeqNo: **1478046**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	48494.639	100000	5000	41790	134	75	125	49020	0	20	S
Sodium	4889481.638	100000	100000	4632000	258	75	125	4922000	0.654	20	S

Sample ID: **MB-41222** SampType: **MBLK** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: **11/15/2012** RunNo: **86469**
Client ID: **PBW** Batch ID: **41222** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/28/2012** SeqNo: **1480025**

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

Qualifiers:

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

Advanced Technology Laboratories, Inc.
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CLIENT: CH2M HILL
Work Order: N008906
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **MB-41222** SampType: **MBLK** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: **11/15/2012** RunNo: **86469**
Client ID: **PBW** Batch ID: **41222** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/28/2012** SeqNo: **1480025**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	14.828	100									
Calcium	ND	500									
Iron	ND	20									
Magnesium	ND	100									

Sample ID: **LCS-41222** SampType: **LCS** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: **11/15/2012** RunNo: **86469**
Client ID: **LCSW** Batch ID: **41222** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/28/2012** SeqNo: **1480026**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	910.539	100	1000	0	91.1	85	115				
Calcium	891.876	500	1000	0	89.2	85	115				
Iron	98.631	20	100.0	0	98.6	85	115				
Magnesium	947.893	100	1000	0	94.8	85	115				

Sample ID: **N008906-001A-MS** SampType: **MS** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: **11/15/2012** RunNo: **86469**
Client ID: **ZZZZZZ** Batch ID: **41222** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/28/2012** SeqNo: **1480036**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	3474.560	500	1000	2478	99.7	75	125				
Calcium	371806.210	2500	1000	365100	671	75	125				S
Iron	121.518	100	100.0	0	122	75	125				
Magnesium	6408.442	500	1000	5413	99.6	75	125				

Sample ID: **N008906-001A-MSD** SampType: **MSD** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: **11/15/2012** RunNo: **86469**
Client ID: **ZZZZZZ** Batch ID: **41222** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/28/2012** SeqNo: **1480037**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	3475.195	500	1000	2478	99.7	75	125	3475	0.0183	20	
Calcium	373748.337	2500	1000	365100	865	75	125	371800	0.521	20	S

Qualifiers:

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

Advanced Technology Laboratories, Inc.
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CLIENT: CH2M HILL
Work Order: N008906
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **N008906-001A-MSD** SampType: **MSD** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: **11/15/2012** RunNo: **86469**
Client ID: **ZZZZZZ** Batch ID: **41222** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/28/2012** SeqNo: **1480037**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	125.121	100	100.0	0	125	75	125	121.5	2.92	20	S
Magnesium	6429.152	500	1000	5413	102	75	125	6408	0.323	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

Advanced Technology Laboratories, Inc.

Print Date: *30-Nov-12*

CLIENT: CH2M HILL
Lab Order: N008906
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008906-001

Client Sample ID: MW-68BR-280-188
Collection Date: 11/12/2012 1:59:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_121118B**	QC Batch: **41212**			PrepDate:	**11/14/2012**		Analyst: **CEI**
Arsenic	2.1	0.035	0.10		µg/L	1	11/18/2012 11:55 AM
Manganese	300	0.80	2.5		µg/L	5	11/18/2012 12:10 PM
Molybdenum	90	0.074	0.50		µg/L	1	11/18/2012 11:55 AM
Selenium	ND	0.42	2.5		µg/L	5	11/18/2012 12:10 PM

Qualifiers:

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

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ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *30-Nov-12*

CLIENT: CH2M HILL
Lab Order: N008906
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008906-002

Client Sample ID: MW-21-188
Collection Date: 11/13/2012 9:27:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_121118B**	QC Batch: **41212**			PrepDate:	**11/14/2012**		Analyst: **CEI**
Manganese	120	0.16	0.50		µg/L	1	11/18/2012 12:00 PM
Molybdenum	76	0.074	0.50		µg/L	1	11/18/2012 12:00 PM
Selenium	40	0.084	0.50		µg/L	1	11/18/2012 12:00 PM

Qualifiers:

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

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ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *30-Nov-12*

CLIENT: CH2M HILL
Lab Order: N008906
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008906-003

Client Sample ID: MW-24BR-188
Collection Date: 11/13/2012 8:24:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **ICP7_121118B**	QC Batch: **41212**			PrepDate:	**11/14/2012**		Analyst: **CEI**
Manganese	330	0.80	2.5		µg/L	5	11/18/2012 12:15 PM

Qualifiers:

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

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ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *30-Nov-12*

CLIENT: CH2M HILL
Lab Order: N008906
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008906-004

Client Sample ID: MW-31-060-188
Collection Date: 11/13/2012 3:29:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121118B**	QC Batch: **41212**			PrepDate:	**11/14/2012**		Analyst: **CEI**
Arsenic	1.2	0.035	0.10		µg/L	1	11/18/2012 12:20 PM
Manganese	ND	0.16	0.50		µg/L	1	11/18/2012 12:20 PM

Qualifiers:

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

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ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *30-Nov-12*

CLIENT: CH2M HILL
Lab Order: N008906
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008906-005

Client Sample ID: OW-03D-188
Collection Date: 11/13/2012 12:10:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_121118B**	QC Batch: **41212**			PrepDate:	**11/14/2012**		Analyst: **CEI**
Arsenic	2.6	0.035	0.10		µg/L	1	11/18/2012 12:25 PM
Manganese	ND	0.16	0.50		µg/L	1	11/18/2012 12:25 PM
Molybdenum	26	0.074	0.50		µg/L	1	11/18/2012 12:25 PM
Selenium	0.54	0.084	0.50		µg/L	1	11/18/2012 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

Advanced Technology Laboratories, Inc.

Print Date: *30-Nov-12*

CLIENT: CH2M HILL
Lab Order: N008906
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008906-006

Client Sample ID: OW-03M-188
Collection Date: 11/13/2012 12:55:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **ICP7_121118B**	QC Batch: **41212**			PrepDate:	**11/14/2012**		Analyst: **CEI**
Manganese	ND	0.16	0.50		µg/L	1	11/18/2012 12:29 PM

Qualifiers:

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

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ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *30-Nov-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	OW-03S-188
Lab Order:	N008906	**Collection Date:**	11/13/2012 1:31:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008906-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **ICP7_121118B**	QC Batch: **41212**			PrepDate:	**11/14/2012**		Analyst: **CEI**
Manganese	ND	0.16	0.50		µg/L	1	11/18/2012 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		

Advanced Technology Laboratories, Inc.

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Advanced Technology Laboratories, Inc.

Date: *30-Nov-12*

CLIENT: CH2M HILL
Work Order: N008906
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **MB-41212** SampType: **MBLK** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **11/14/2012** RunNo: **86407**
Client ID: **PBW** Batch ID: **41212** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **11/18/2012** SeqNo: **1476737**

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-41212** SampType: **LCS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **11/14/2012** RunNo: **86407**
Client ID: **LCSW** Batch ID: **41212** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **11/18/2012** SeqNo: **1476738**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	9.986	0.10	10.00	0	99.9	85	115				
Manganese	99.297	0.50	100.0	0	99.3	85	115				
Molybdenum	9.877	0.50	10.00	0	98.8	85	115				
Selenium	9.578	0.50	10.00	0	95.8	85	115				

Sample ID: **N008898-001B-MS** SampType: **MS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **11/14/2012** RunNo: **86407**
Client ID: **ZZZZZZ** Batch ID: **41212** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **11/18/2012** SeqNo: **1476742**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.915	0.10	10.00	0.8184	101	75	125				
Manganese	95.360	0.50	100.0	0	95.4	75	125				
Molybdenum	14.897	0.50	10.00	4.361	105	75	125				
Selenium	9.964	0.50	10.00	0.5717	93.9	75	125				

Sample ID: **N008898-001B-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **11/14/2012** RunNo: **86407**
Client ID: **ZZZZZZ** Batch ID: **41212** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **11/18/2012** SeqNo: **1476743**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.993	0.10	10.00	0.8184	102	75	125	10.91	0.717	20	

Qualifiers:

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

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CLIENT: CH2M HILL
Work Order: N008906
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N008898-001B-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **11/14/2012** RunNo: **86407**
Client ID: **ZZZZZZ** Batch ID: **41212** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **11/18/2012** SeqNo: **1476743**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	93.986	0.50	100.0	0	94.0	75	125	95.36	1.45	20	
Molybdenum	14.976	0.50	10.00	4.361	106	75	125	14.90	0.531	20	
Selenium	10.126	0.50	10.00	0.5717	95.5	75	125	9.964	1.61	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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CH2MHILL

CHAIN OF CUSTODY RECORD

11/13/2012 4:07:34 PM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy

Project Number 423575.MP.02.GM.0
Task Order
Project 2012-GMP-188-Q4
Turnaround Time 10 Days
Shipping Date: 11/13/2012
COC Number: 6

			Container:	1x500 ml Poly	1x500 ml Poly	1x500 ml Poly	1x500 ml Poly	2x1 Liter	2x1 Liter	2x1 Liter	2x1 Liter	2x1 Liter			
			Preservatives:	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	4°C	4°C	4°C	4°C	4°C			
			Filtered:	Field	Field	Field	Field	NA	NA	NA	NA	NA			
			Holding Time:	180	180	180	180	7	7	7	7	7			
	DATE	TIME	Matrix	Arsenic (6020A) Field Filtered	Metals (SW6010B/SW6020Adis) Field Filtered Ca,Mg,K,Na,B,Fe,Mn	Metals (SW6010B/SW6020Adis) Field Filtered Ca,Mg,Na,Fe,Mn	Metals (SW6010B/SW6020Adis) Field Filtered Mo,Se	Specific Conductance (E120.1)	Anions (E300.0) Bromide,Chloride,Sulfate	Anions (E300.0) Chloride,Sulfate	TDS (SM2540C)	Alkalinity (SM2320B)	N008906-1	Number of Containers	COMMENTS
MW-68BR-280-188	11/12/2012	13:59	Water	x		x	x	x		x		x	-2	3	
MW-21-188	11/13/2012	9:27	Water			x	x	x		x		x	-3	3	
MW-24BR-188	11/13/2012	8:24	Water			x		x		x		x	-4	3	
MW-31-060-188	11/13/2012	15:29	Water	x	x			x	x		x	x	-5	3	
OW-03D-188	11/13/2012	12:10	Water	x		x	x	x		x		x	-6	3	
OW-03M-188	11/13/2012	12:55	Water			x		x		x		x	-7	3	
OW-03S-188	11/13/2012	13:31	Water			x		x		x		x	-8	3	
													TOTAL NUMBER OF CONTAINERS	21	

	Signatures	Date/Time
Approved by	[signature]	11-13-12
Sampled by		BEL
Relinquished by	[signature]	
Received by	[signature]	11/13/12 1700
Relinquished by	[signature]	11/13/12 1905
Received by	[signature]	11/13/12 1905

Shipping Details

Method of Shipment: courier
On Ice: ~~yes~~ / no 3.0°C/2.6°C
Airbill No: 1PH1
Lab Name: ADVANCED TECHNOLOGY LABORATO
Lab Phone: (702) 307-2659

ATTN:

Sample Custody and Marlon

Special Instructions:
Nov 5 - Dec 14, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

Advanced Technology Laboratories, Inc.

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

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

Cooler Received/Opened On:	11/13/2012	Workorder:	N008906
Rep sample Temp (Deg C):	3.0/2.6	IR Gun ID:	1
Temp Blank:	☐ Yes ☑ No		
Carrier name:	ATL		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	NONE
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

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

Comments:

Checklist Completed B MBC 11/14/12

Reviewed By: [illegible]

SAMPLE CALCULATION

METHOD: SM 2540C
TEST NAME: Total Filterable Residue
MATRIX: Water

FORMULA:

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

$$\text{TDS, mg/L} = \frac{(A-B)*1000000}{C}$$

Where:

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

For **N008906-004B,** TDS concentration in mg/L is calculated as follows:

$$\text{TDS, mg/L} = \frac{(60.5672 - 60.4746)*1000000}{50}$$
$$= 1852 \text{ mg/L}$$

Reporting result in two significant figures,

TDS = 1900 mg/L

TOTAL DISSOLVED SOLIDS, TDS

$$\text{TDS, mg/L} = \frac{(A-B) \times 1000000}{C}$$

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

Date Started: 11/16/2012 Date Finished: 11/17/2012	vol	initial	final	calc	prep fact	TDS, mg/L	CONDUCTIVITY	TDS/CONDUCTIVITY RATIO
MB-41240	100	60.8411	60.8412	1	1	1.00		
LCS-41240	100	60.8856	60.9869	1013	1	1013.00		
N008897-001D	50	60.3969	60.4686	717	2	1434.00	2280	0.63
N008897-001D-DUP	50	60.0057	60.0761	704	2	1408.00	2280	0.62
N008897-002D	50	62.4699	62.5358	659	2	1318.00	2410	0.55
N008897-004D	100	59.9625	60.0080	455	1	455.00	886	0.51
N008897-006D	100	61.2022	61.2169	147	1	147.00	280	0.53
N008897-008D	100	58.3278	58.3359	81	1	81.00	152.2	0.53
N008906-004B	50	60.4746	60.5672	926	2	1852.00	3280	0.56
N008920-001A	20	60.4256	60.5419	1163	5	5815.00	6990	0.83
N008920-002A	100	61.7750	61.8666	916	1	916.00	1389	0.66

Sample ID: **N008906-001B @ pH 8.14**

A. Standardization of Sulfuric Acid (titrant):

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

Where:

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

Spike Standards

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

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

Therefore,

Normality of Acid = (2.65g/L) (5mL) / (53.00) (11.675mL)

= **0.02141 N**

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

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

Where:

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

Therefore,

Total Alkalinity (as $CaCO_3$), mg/L = (1.10) (0.02141N) (1) * 1000

= 23.551 **mg/L**

Reporting results in two significant figures,

= 24 **mg/L** as CaCO3

NS for n/rah

C. SPECIATED ALKALINITY:

Phenolphthalein Alkalinity

P alkalinity, mg/L as $CaCO_3$ = $P_{vol.}$ * N H_2SO_4 * DF * 1000

= (0) (0.02141 N) (1) * 1000

= **0**

Total Alkalinity

T alkalinity, mg/L as $CaCO_3$ = $M_{vol.}$ * N H_2SO_4 * DF * 1000

= (1.10mL) (0.02141) (1) * 1000

= 23.551 **mg/L** as CaCO3

Where:

$P_{vol.}$ - volume titrant used to reach pH 8.3, ml
$M_{vol.}$ - volume titrant used to reach pH 4.5, ml
N - Normality of H_2SO_4
DF - Dilution Factor = (50 ml) / (Vol. of Sample used)

Then OH, CO_3, HCO_3 alkalinities as $CaCO_3$ will be calculated as follows:

Result of Titration	**OH Alkalinity as $CaCO_3$**	**CO_3 Alkalinity as $CaCO_3$**	**HCO_3 Alkalinity as $CaCO_3$**
P = 0	0	0	T
P < ½ T	0	2P	T – 2P
P = ½ T	0	2P	0
P > ½ T	2P – T	2(T – P)	0
P = T	T	0	0

Therefore,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = 23.551 **mg/L**

Alkalk

Reporting results in two significant figures,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = 24 **mg/L**

Sample Calculation

METHOD: EPA 300
TEST NAME: INORGANIC ANIONS BY IC
MATRIX: WATER

FORMULA:

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

Chloride, mg/L = A * DF

where:

A = mg/L, IC calculated concentration
DF = dilution factor

For **N008906-001B**, concentration in mg/L are calculated as follows:

Chloride, mg/L	=	3.771 * 2000
	=	7542 mg/L

Reporting **N008906-001B** results in two significant figures,

Chloride, mg/L	**=**	**7500**

Natalie

Sample Calculation

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

FORMULA:

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

Sodium, ug/L = A * DF * PF * CF

where:

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

For Sample **N008906-001A**, the concentration in ug/L is calculated as follows:

Sodium, ug/L = 23.1592017 * 200 * (25/25) * 1000

= 4631840.34

Reporting results in two significant figures,

Sodium, ug/L = 4600000

NS for
11/29/12

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N008906
Test Method: EPA 6010
Analysis Date: 11/16/12

Matrix: Water
Batch No.: 41222

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

Comments:

Analyzed By: Mary Claire Ignacio

~~Dilution Test is not applicable for analytes with concentration < 25X the RL. However the PS @200X passes the criteria.~~ NS for u/rank

DT for Potassium failed. However, PS @200X passed criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N008906-001A 1000X	Sodium	ug/L	4244103.93	PASSED	4631840.34	8.37%	10
N008906-001A 1000X	Potassium	ug/L	35912.39	FAILED	41788.09	14.06%	10

Note: NA - Not Applicable

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N008906
Test Method: EPA 6010
Analysis Date: 11/28/12

Matrix: Water
Batch No.: 41222

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

Comments:

Analyzed By: Mary Claire Ignacio

Dilution Test is not applicable to Boron and Iron. The calculated values were < 25X the RL. However the PS @5X passes the criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N008906-001A 25X	Boron	ug/L	2713.34	NA	2477.74	0.00%	10
N008906-001A 25X	Calcium	ug/L	359522.94	PASSED	365094.52	1.53%	10
N008906-001A 25X	Iron	ug/L	0.00	NA	0.00	0.00%	10
N008906-001A 25X	Magnesium	ug/L	5945.01	PASSED	5412.53	9.84%	10

Note: NA - Not Applicable

Advanced Technology Laboratories, Inc.

Date: *28-Nov-12*

CLIENT: CH2M HILL
Work Order: N008906
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **N008906-001A-PS** SampType: **PS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/15/2012** RunNo: **86416**
Client ID: **ZZZZZZ** Batch ID: **41222** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/16/2012** SeqNo: **1478044**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	169224.991	100000	125000	41790	102	75	125				
Sodium	7236847.882	100000	2500000	4632000	104	75	125				

Sample ID: **N008906-001A-PS** SampType: **PS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: RunNo: **86469**
Client ID: **ZZZZZZ** Batch ID: **41222** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/28/2012** SeqNo: **1480035**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	8716.386	500	6250	2478	99.8	75	125				
Calcium	366434.958	2500	12500	365100	10.7	75	125				S
Iron	11396.680	100	12500	0	91.2	75	125				
Magnesium	16179.138	500	12500	5413	86.1	75	125				

DT of Ca @ 25x is within criteria. NS for 11/29/12

Qualifiers:

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

Sample Calculation

METHOD: EPA 6020
TEST NAME: Heavy Metals by ICP-MS
MATRIX: Aqueous

FORMULA:

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

Manganese, ug/L = A * DF * PF

where:

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

For Sample **N008906-002A**, the concentration in ug/L is calculated as follows:

Manganese, ug/L = 118.427506214669* 1 * (25/25)

= 118.427506214669

Reporting result in two significant figures,

Manganese, ug/L = 120

NS for
11/22/12

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N008906
Test Method: EPA 6020
Analysis Date: 11/18/12

Matrix: Water
Batch No.: 41212

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

Comments:

Analyzed By: Mary Claire Ignacio

Dilution Test is not applicable to As, Mn, Mo & Se. The calculated value was <25X RL. PS @ 2X passed criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N008898-001B-DT 5X	Arsenic	µg/L	0.933296602	NA	0.818441488	14.03%	10
N008898-001B-DT 5X	Manganese	µg/L	0	NA	0	0.00%	10
N008898-001B-DT 5X	Molybdenum	µg/L	4.285287261	NA	4.361296801	1.74%	10
N008898-001B-DT 5X	Selenium	µg/L	0.518593441	NA	0.571737417	9.30%	10

Note: NA - Not applicable

Advanced Technology Laboratories, Inc.

Date: *21-Nov-12*

CLIENT: CH2M HILL
Work Order: N008906
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N008898-001B-PS** SampType: **PS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **86407**
Client ID: **ZZZZZZ** Batch ID: **41212** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **11/18/2012** SeqNo: **1476741**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	21.731	0.20	20.00	0.8184	105	75	125				
Manganese	195.050	1.0	200.0	0	97.5	75	125				
Molybdenum	25.709	1.0	20.00	4.361	107	75	125				
Selenium	19.556	1.0	20.00	0.5717	94.9	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

December 04, 2012

Shawn P. Duffy
CH2M HILL
155 Grand Avenue, Suite 1000
Oakland, CA 94612

TEL: (530) 229-3303
FAX: (530) 339-3303

CA-ELAP No.: 2676
NV Cert. No.: NV-009222007A

Workorder No.: N008921

RE: PG&E Topock, 423575.MP.02.GM.01

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on November 15, 2012 by Advanced Technology Laboratories, Inc. . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

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

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

Sincerely,

Jose Tenorio Jr.
Laboratory Director

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CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.01
Lab Order: N008921

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

Samples were received intact with proper chain of custody documentation.

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

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

Samples were analyzed within method holding time.

Analytical Comments for EPA 6010B_Dissolved:

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

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

Dilution was necessary on samples N008921-002, N008921-004, N008921-005 and N008921-006 since plasma was extinguished when samples were analyzed at no dilution.

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Advanced Technology Laboratories, Inc.

Date: *04-Dec-12*

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.01
Lab Order: N008921
Contract No: 2012-GMP-188-

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N008921-001A	MW-37S-188	Water	11/14/2012 3:00:00 PM	11/15/2012	12/4/2012
N008921-001B	MW-37S-188	Water	11/14/2012 3:00:00 PM	11/15/2012	12/4/2012
N008921-002A	MW-72BR-200-188	Water	11/14/2012 12:21:00 PM	11/15/2012	12/4/2012
N008921-002B	MW-72BR-200-188	Water	11/14/2012 12:21:00 PM	11/15/2012	12/4/2012
N008921-003A	MW-15-188	Water	11/15/2012 3:00:00 PM	11/15/2012	12/4/2012
N008921-003B	MW-15-188	Water	11/15/2012 3:00:00 PM	11/15/2012	12/4/2012
N008921-004A	MW-31-135-188	Water	11/15/2012 1:25:00 PM	11/15/2012	12/4/2012
N008921-004B	MW-31-135-188	Water	11/15/2012 1:25:00 PM	11/15/2012	12/4/2012
N008921-005A	TW-04-188	Water	11/15/2012 11:41:00 AM	11/15/2012	12/4/2012
N008921-005B	TW-04-188	Water	11/15/2012 11:41:00 AM	11/15/2012	12/4/2012
N008921-006A	TW-05-188	Water	11/15/2012 8:39:00 AM	11/15/2012	12/4/2012
N008921-006B	TW-05-188	Water	11/15/2012 8:39:00 AM	11/15/2012	12/4/2012

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *04-Dec-12*

CLIENT: CH2M HILL
Lab Order: N008921
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N008921-001

Client Sample ID: MW-37S-188
Collection Date: 11/14/2012 3:00:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
EPA 120.1							
RunID: **WETCHEM_121116D**	QC Batch: **R86490**			PrepDate:			Analyst: **CEI**
Specific Conductance	5400	0.10	0.10		umhos/cm	1	11/16/2012

Qualifiers:

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

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *04-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-72BR-200-188
Lab Order:	N008921	**Collection Date:**	11/14/2012 12:21:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N008921-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121116D**	QC Batch: **R86490**			PrepDate:			Analyst: **CEI**
Specific Conductance	16000	0.10	0.10		umhos/cm	1	11/16/2012

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

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *04-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-15-188
Lab Order:	N008921	**Collection Date:**	11/15/2012 3:00:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N008921-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121116D**	QC Batch: **R86490**			PrepDate:			Analyst: **CEI**
Specific Conductance	1600	0.10	0.10		umhos/cm	1	11/16/2012

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

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *04-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-31-135-188
Lab Order:	N008921	**Collection Date:**	11/15/2012 1:25:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N008921-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121116D**	QC Batch: **R86490**			PrepDate:			Analyst: **CEI**
Specific Conductance	12000	0.10	0.10		umhos/cm	1	11/16/2012

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

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ANALYTICAL RESULTS

Print Date: *04-Dec-12*

CLIENT: CH2M HILL
Lab Order: N008921
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N008921-005

Client Sample ID: TW-04-188
Collection Date: 11/15/2012 11:41:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121116D**	QC Batch: **R86490**			PrepDate:			Analyst: **CEI**
Specific Conductance	22000	0.10	0.10		umhos/cm	1	11/16/2012

Qualifiers:

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

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *04-Dec-12*

CLIENT: CH2M HILL
Lab Order: N008921
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N008921-006

Client Sample ID: TW-05-188
Collection Date: 11/15/2012 8:39:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121116D**	QC Batch: **R86490**			PrepDate:			Analyst: **CEI**
Specific Conductance	16000	0.10	0.10		umhos/cm	1	11/16/2012

Qualifiers:

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

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Advanced Technology Laboratories, Inc.

Date: *04-Dec-12*

CLIENT: CH2M HILL
Work Order: N008921
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: **LCS-R86490** SampType: **LCS** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86490**
Client ID: **LCSW** Batch ID: **R86490** TestNo: **EPA 120.1** Analysis Date: **11/16/2012** SeqNo: **1480826**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	9970.000	0.10	9992	0	99.8	85	115				

Sample ID: **N008921-006BDUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86490**
Client ID: **ZZZZZZ** Batch ID: **R86490** TestNo: **EPA 120.1** Analysis Date: **11/16/2012** SeqNo: **1480833**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	15720.000	0.10						15840	0.760	10	

Sample ID: **N008921-006BMS** SampType: **MS** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86490**
Client ID: **ZZZZZZ** Batch ID: **R86490** TestNo: **EPA 120.1** Analysis Date: **11/16/2012** SeqNo: **1480834**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	25460.000	0.20	9992	15840	96.3	75	125				

Sample ID: **N008921-006BMSD** SampType: **MSD** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86490**
Client ID: **ZZZZZZ** Batch ID: **R86490** TestNo: **EPA 120.1** Analysis Date: **11/16/2012** SeqNo: **1480835**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	25640.000	0.20	9992	15840	98.1	75	125	25460	0.705	10	

Qualifiers:

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

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *04-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-37S-188
Lab Order:	N008921	**Collection Date:**	11/14/2012 3:00:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N008921-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121116C**	QC Batch: **R86478**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	55	1.2	5.0		mg/L	1	11/16/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/16/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/16/2012
Alkalinity, Total (As CaCO3)	55	1.2	5.0		mg/L	1	11/16/2012

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *04-Dec-12*

CLIENT: CH2M HILL
Lab Order: N008921
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N008921-002

Client Sample ID: MW-72BR-200-188
Collection Date: 11/14/2012 12:21:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121116C**	QC Batch: **R86478**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	25	1.2	5.0		mg/L	1	11/16/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/16/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/16/2012
Alkalinity, Total (As CaCO3)	25	1.2	5.0		mg/L	1	11/16/2012

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *04-Dec-12*

CLIENT: CH2M HILL
Lab Order: N008921
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N008921-003

Client Sample ID: MW-15-188
Collection Date: 11/15/2012 3:00:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121116C**	QC Batch: **R86478**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	82	1.2	5.0		mg/L	1	11/16/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/16/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/16/2012
Alkalinity, Total (As CaCO3)	82	1.2	5.0		mg/L	1	11/16/2012

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *04-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-31-135-188
Lab Order:	N008921	**Collection Date:**	11/15/2012 1:25:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N008921-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121116C**	QC Batch: **R86478**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	34	1.2	5.0		mg/L	1	11/16/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/16/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/16/2012
Alkalinity, Total (As CaCO3)	34	1.2	5.0		mg/L	1	11/16/2012

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *04-Dec-12*

CLIENT: CH2M HILL
Lab Order: N008921
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N008921-005

Client Sample ID: TW-04-188
Collection Date: 11/15/2012 11:41:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121116C**	QC Batch: **R86478**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	50	1.2	5.0		mg/L	1	11/16/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/16/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/16/2012
Alkalinity, Total (As CaCO3)	50	1.2	5.0		mg/L	1	11/16/2012

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *04-Dec-12*

CLIENT: CH2M HILL
Lab Order: N008921
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N008921-006

Client Sample ID: TW-05-188
Collection Date: 11/15/2012 8:39:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121116C**	QC Batch: **R86478**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	34	1.2	5.0		mg/L	1	11/16/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/16/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/16/2012
Alkalinity, Total (As CaCO3)	34	1.2	5.0		mg/L	1	11/16/2012

Qualifiers:

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

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Advanced Technology Laboratories, Inc.

Date: *04-Dec-12*

CLIENT: CH2M HILL
Work Order: N008921
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **LCS-R86478** SampType: **LCS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86478**
Client ID: **LCSW** Batch ID: **R86478** TestNo: **SM 2320 B** Analysis Date: **11/16/2012** SeqNo: **1480703**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	96.360	5.0	100.0	0	96.4	85	115				
Alkalinity, Total (As CaCO3)	100.642	5.0	100.0	0	101	85	115				

Sample ID: **LCSD-R86478** SampType: **LCSD** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86478**
Client ID: **LCSS02** Batch ID: **R86478** TestNo: **SM 2320 B** Analysis Date: **11/16/2012** SeqNo: **1480704**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	96.360	5.0	100.0	0	96.4	85	115	96.36	0	20	
Alkalinity, Total (As CaCO3)	100.642	5.0	100.0	0	101	85	115	100.6	0	20	

Sample ID: **MB-R86478** SampType: **MBLK** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86478**
Client ID: **PBW** Batch ID: **R86478** TestNo: **SM 2320 B** Analysis Date: **11/16/2012** SeqNo: **1480705**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	2.141	5.0									
Alkalinity, Carbonate (As CaCO3)	ND	5.0									
Alkalinity, Hydroxide (As CaCO3)	ND	5.0									
Alkalinity, Total (As CaCO3)	2.141	5.0									

Sample ID: **N008906-001BMS** SampType: **MS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86478**
Client ID: **ZZZZZZ** Batch ID: **R86478** TestNo: **SM 2320 B** Analysis Date: **11/16/2012** SeqNo: **1480707**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	122.056	5.0	100.0	23.55	98.5	75	125				
Alkalinity, Total (As CaCO3)	122.056	5.0	100.0	23.55	98.5	75	125				

Qualifiers:

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

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CLIENT: CH2M HILL
Work Order: N008921
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **N008906-001BMSD** SampType: **MSD** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86478**
Client ID: **ZZZZZZ** Batch ID: **R86478** TestNo: **SM 2320 B** Analysis Date: **11/16/2012** SeqNo: **1480708**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	122.056	5.0	100.0	23.55	98.5	75	125	122.1	0	20	
Alkalinity, Total (As CaCO3)	122.056	5.0	100.0	23.55	98.5	75	125	122.1	0	20	

Sample ID: **N008906-004BDUP** SampType: **DUP** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86478**
Client ID: **ZZZZZZ** Batch ID: **R86478** TestNo: **SM 2320 B** Analysis Date: **11/16/2012** SeqNo: **1480712**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	78.158	5.0						78.16	0	30	
Alkalinity, Carbonate (As CaCO3)	ND	5.0						0	0	30	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0						0	0	30	
Alkalinity, Total (As CaCO3)	78.158	5.0						78.16	0	30	

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *04-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-37S-188
Lab Order:	N008921	**Collection Date:**	11/14/2012 3:00:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N008921-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121116A** QC Batch: **R86495** PrepDate: Analyst: **QBM**							
Chloride	1500	5.5	250		mg/L	500	11/16/2012 02:22 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121116A** QC Batch: **R86495** PrepDate: Analyst: **QBM**							
Sulfate	260	1.8	25		mg/L	50	11/16/2012 12:11 PM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *04-Dec-12*

CLIENT: CH2M HILL
Lab Order: N008921
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N008921-002

Client Sample ID: MW-72BR-200-188
Collection Date: 11/14/2012 12:21:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121116A** QC Batch: **R86495** PrepDate: Analyst: **QBM**							
Chloride	5300	11	500		mg/L	1000	11/16/2012 02:33 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121116A** QC Batch: **R86495** PrepDate: Analyst: **QBM**							
Sulfate	680	3.5	50		mg/L	100	11/16/2012 12:22 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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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *04-Dec-12*

CLIENT: CH2M HILL
Lab Order: N008921
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N008921-003

Client Sample ID: MW-15-188
Collection Date: 11/15/2012 3:00:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121116A** QC Batch: **R86495** PrepDate: Analyst: **QBM**							
Chloride	360	1.1	50		mg/L	100	11/16/2012 02:45 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121116A** QC Batch: **R86495** PrepDate: Analyst: **QBM**							
Sulfate	120	0.35	5.0		mg/L	10	11/16/2012 12:34 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: *04-Dec-12*

CLIENT: CH2M HILL
Lab Order: N008921
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N008921-004

Client Sample ID: MW-31-135-188
Collection Date: 11/15/2012 1:25:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121116A** QC Batch: **R86495** PrepDate: Analyst: **QBM**							
Chloride	3800	11	500		mg/L	1000	11/16/2012 02:57 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121116A** QC Batch: **R86495** PrepDate: Analyst: **QBM**							
Sulfate	490	1.8	25		mg/L	50	11/16/2012 12:46 PM

Qualifiers:

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

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *04-Dec-12*

CLIENT: CH2M HILL
Lab Order: N008921
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N008921-005

Client Sample ID: TW-04-188
Collection Date: 11/15/2012 11:41:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121116A** QC Batch: **R86495** PrepDate: Analyst: **QBM**							
Chloride	7300	22	1000		mg/L	2000	11/16/2012 03:08 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121116A** QC Batch: **R86495** PrepDate: Analyst: **QBM**							
Sulfate	1100	3.5	50		mg/L	100	11/16/2012 12:57 PM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *04-Dec-12*

CLIENT: CH2M HILL
Lab Order: N008921
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N008921-006

Client Sample ID: TW-05-188
Collection Date: 11/15/2012 8:39:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121116A** QC Batch: **R86495** PrepDate: Analyst: **QBM**							
Chloride	5100	11	500		mg/L	1000	11/16/2012 03:20 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121116A** QC Batch: **R86495** PrepDate: Analyst: **QBM**							
Sulfate	550	1.8	25		mg/L	50	11/16/2012 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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Advanced Technology Laboratories, Inc.

Date: *04-Dec-12*

CLIENT: CH2M HILL
Work Order: N008921
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **MB-R86495_CL** SampType: **MBLK** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86495**
Client ID: **PBW** Batch ID: **R86495** TestNo: **EPA 300.0** Analysis Date: **11/16/2012** SeqNo: **1480891**

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

Sample ID: **LCS-R86495_CL** SampType: **LCS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86495**
Client ID: **LCSW** Batch ID: **R86495** TestNo: **EPA 300.0** Analysis Date: **11/16/2012** SeqNo: **1480892**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.434	0.50	2.500	0	97.4	90	110				

Sample ID: **N008921-001BMS** SampType: **MS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86495**
Client ID: **ZZZZZZ** Batch ID: **R86495** TestNo: **EPA 300.0** Analysis Date: **11/16/2012** SeqNo: **1480901**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2764.000	250	1250	1508	101	80	120				

Sample ID: **N008921-001BMSD** SampType: **MSD** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86495**
Client ID: **ZZZZZZ** Batch ID: **R86495** TestNo: **EPA 300.0** Analysis Date: **11/16/2012** SeqNo: **1480902**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2755.000	250	1250	1508	99.8	80	120	2764	0.326	20	

Sample ID: **N008921-002BDUP** SampType: **DUP** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86495**
Client ID: **ZZZZZZ** Batch ID: **R86495** TestNo: **EPA 300.0** Analysis Date: **11/16/2012** SeqNo: **1480903**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	5205.000	500						5289	1.60	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: N008921
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **MB-R86495_SO4** SampType: **MBLK** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86495**
Client ID: **PBW** Batch ID: **R86495** TestNo: **EPA 300.0** Analysis Date: **11/16/2012** SeqNo: **1480912**

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

Sample ID: **LCS-R86495_SO4** SampType: **LCS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86495**
Client ID: **LCSW** Batch ID: **R86495** TestNo: **EPA 300.0** Analysis Date: **11/16/2012** SeqNo: **1480913**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.922	0.50	5.000	0	98.4	90	110				

Sample ID: **N008921-001BMS** SampType: **MS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86495**
Client ID: **ZZZZZZ** Batch ID: **R86495** TestNo: **EPA 300.0** Analysis Date: **11/16/2012** SeqNo: **1480920**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	512.750	25	250.0	260.4	101	80	120				

Sample ID: **N008921-001BMSD** SampType: **MSD** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86495**
Client ID: **ZZZZZZ** Batch ID: **R86495** TestNo: **EPA 300.0** Analysis Date: **11/16/2012** SeqNo: **1480921**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	523.600	25	250.0	260.4	105	80	120	512.8	2.09	20	

Sample ID: **N008921-002BDUP** SampType: **DUP** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86495**
Client ID: **ZZZZZZ** Batch ID: **R86495** TestNo: **EPA 300.0** Analysis Date: **11/16/2012** SeqNo: **1480924**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	675.300	50						680.3	0.738	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: *04-Dec-12*

CLIENT: CH2M HILL
Lab Order: N008921
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N008921-001

Client Sample ID: MW-37S-188
Collection Date: 11/14/2012 3:00:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121130A**	QC Batch: **41243**				PrepDate: **11/16/2012**		Analyst: **CEI**
Calcium	140000	75	500		ug/L	1	11/30/2012 11:02 AM
Iron	ND	7.2	20		ug/L	1	11/30/2012 11:02 AM
Magnesium	19000	13	100		ug/L	1	11/30/2012 11:02 AM
Sodium	900000	3700	25000		ug/L	50	11/29/2012 04:20 PM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *04-Dec-12*

CLIENT: CH2M HILL
Lab Order: N008921
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N008921-002

Client Sample ID: MW-72BR-200-188
Collection Date: 11/14/2012 12:21:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121130A**	QC Batch: **41243**				PrepDate: **11/16/2012**		Analyst: **CEI**
Calcium	280000	150	1000		ug/L	2	11/30/2012 12:24 PM
Iron	ND	14	40		ug/L	2	11/30/2012 12:24 PM
Magnesium	3100	26	200		ug/L	2	11/30/2012 12:24 PM
Sodium	3100000	15000	100000		ug/L	200	11/29/2012 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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ANALYTICAL RESULTS

Print Date: *04-Dec-12*

CLIENT: CH2M HILL
Lab Order: N008921
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N008921-003

Client Sample ID: MW-15-188
Collection Date: 11/15/2012 3:00:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121130A**	QC Batch: **41243**				PrepDate: **11/16/2012**		Analyst: **CEI**
Calcium	79000	75	500		ug/L	1	11/30/2012 11:11 AM
Iron	ND	7.2	20		ug/L	1	11/30/2012 11:11 AM
Magnesium	19000	13	100		ug/L	1	11/30/2012 11:11 AM
Sodium	190000	370	2500		ug/L	5	11/29/2012 03:40 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: *04-Dec-12*

CLIENT: CH2M HILL
Lab Order: N008921
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N008921-004

Client Sample ID: MW-31-135-188
Collection Date: 11/15/2012 1:25:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121130A**	QC Batch: **41243**				PrepDate: **11/16/2012**		Analyst: **CEI**
Calcium	310000	150	1000		ug/L	2	11/30/2012 12:43 PM
Iron	ND	14	40		ug/L	2	11/30/2012 12:43 PM
Magnesium	21000	26	200		ug/L	2	11/30/2012 12:43 PM
Sodium	2200000	7300	50000		ug/L	100	11/29/2012 04:45 PM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *04-Dec-12*

CLIENT: CH2M HILL
Lab Order: N008921
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N008921-005

Client Sample ID: TW-04-188
Collection Date: 11/15/2012 11:41:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121130A**	QC Batch: **41243**				PrepDate: **11/16/2012**		Analyst: **CEI**
Calcium	340000	370	2500		ug/L	5	11/30/2012 01:51 PM
Iron	ND	36	100		ug/L	5	11/30/2012 01:51 PM
Magnesium	39000	65	500		ug/L	5	11/30/2012 01:51 PM
Sodium	4400000	15000	100000		ug/L	200	11/29/2012 04:48 PM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *04-Dec-12*

CLIENT: CH2M HILL
Lab Order: N008921
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N008921-006

Client Sample ID: TW-05-188
Collection Date: 11/15/2012 8:39:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121130A**	QC Batch: **41243**				PrepDate: **11/16/2012**		Analyst: **CEI**
Calcium	380000	150	1000		ug/L	2	11/30/2012 01:37 PM
Iron	ND	14	40		ug/L	2	11/30/2012 01:37 PM
Magnesium	26000	26	200		ug/L	2	11/30/2012 01:37 PM
Sodium	2900000	7300	50000		ug/L	100	11/29/2012 04:51 PM

Qualifiers:

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

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Date: *04-Dec-12*

CLIENT: CH2M HILL
Work Order: N008921
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **MB-41243** SampType: **MBLK** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/16/2012** RunNo: **86504**
Client ID: **PBW** Batch ID: **41243** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/29/2012** SeqNo: **1481296**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	ND	500									

Sample ID: **LCS-41243** SampType: **LCS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/16/2012** RunNo: **86504**
Client ID: **LCSW** Batch ID: **41243** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/29/2012** SeqNo: **1481297**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	26842.190	500	25000	0	107	85	115				

Sample ID: **N008921-001A-MS** SampType: **MS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/16/2012** RunNo: **86504**
Client ID: **ZZZZZZ** Batch ID: **41243** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/29/2012** SeqNo: **1481310**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	919007.677	25000	100000	901400	17.6	75	125				S

Sample ID: **N008921-001A-MSD** SampType: **MSD** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/16/2012** RunNo: **86504**
Client ID: **ZZZZZZ** Batch ID: **41243** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/29/2012** SeqNo: **1481311**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	935972.690	25000	100000	901400	34.6	75	125	919000	1.83	20	S

Sample ID: **MB-41243** SampType: **MBLK** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/16/2012** RunNo: **86507**
Client ID: **PBW** Batch ID: **41243** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/30/2012** SeqNo: **1481469**

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	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD 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: N008921
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **LCS-41243** SampType: **LCS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/16/2012** RunNo: **86507**
Client ID: **LCSW** Batch ID: **41243** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/30/2012** SeqNo: **1481470**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	886.982	500	1000	0	88.7	85	115				
Iron	98.998	20	100.0	0	99.0	85	115				
Magnesium	919.989	100	1000	0	92.0	85	115				

Sample ID: **N008921-001A-MS** SampType: **MS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/16/2012** RunNo: **86507**
Client ID: **ZZZZZZ** Batch ID: **41243** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/30/2012** SeqNo: **1481575**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	144888.163	500	1000	144200	66.0	75	125				S
Iron	98.562	20	100.0	0	98.6	75	125				
Magnesium	19686.290	100	1000	18670	102	75	125				

Sample ID: **N008921-001A-MSD** SampType: **MSD** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/16/2012** RunNo: **86507**
Client ID: **ZZZZZZ** Batch ID: **41243** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/30/2012** SeqNo: **1481576**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	146202.067	500	1000	144200	197	75	125	144900	0.903	20	S
Iron	110.369	20	100.0	0	110	75	125	98.56	11.3	20	
Magnesium	19859.258	100	1000	18670	119	75	125	19690	0.875	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: *04-Dec-12*

CLIENT: CH2M HILL
Lab Order: N008921
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N008921-001

Client Sample ID: MW-37S-188
Collection Date: 11/14/2012 3:00:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121121B**	QC Batch: **41244**				PrepDate: **11/16/2012**		Analyst: **CEI**
Arsenic	1.9	0.035	0.10		µg/L	1	11/21/2012 05:41 PM
Manganese	ND	0.16	0.50		µg/L	1	11/21/2012 05:41 PM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *04-Dec-12*

CLIENT: CH2M HILL
Lab Order: N008921
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N008921-002

Client Sample ID: MW-72BR-200-188
Collection Date: 11/14/2012 12:21:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121121B**	QC Batch: **41244**				PrepDate:	**11/16/2012**	Analyst: **CEI**
Arsenic	15	0.035	0.10		µg/L	1	11/21/2012 05:46 PM
Manganese	15	0.16	0.50		µg/L	1	11/21/2012 05:46 PM
Molybdenum	77	0.074	0.50		µg/L	1	11/21/2012 05:46 PM
Selenium	ND	0.084	0.50		µg/L	1	11/21/2012 05:46 PM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *04-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-15-188
Lab Order:	N008921	**Collection Date:**	11/15/2012 3:00:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N008921-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **ICP7_121121B**	QC Batch: **41244**			PrepDate:	**11/16/2012**		Analyst: **CEI**
Manganese	ND	0.16	0.50		µg/L	1	11/21/2012 05:51 PM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *04-Dec-12*

CLIENT: CH2M HILL
Lab Order: N008921
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N008921-004

Client Sample ID: MW-31-135-188
Collection Date: 11/15/2012 1:25:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121121B**	QC Batch: **41244**				PrepDate:	**11/16/2012**	Analyst: **CEI**
Arsenic	3.7	0.035	0.10		µg/L	1	11/21/2012 08:07 PM
Manganese	ND	0.16	0.50		µg/L	1	11/21/2012 08:07 PM
Molybdenum	26	0.074	0.50		µg/L	1	11/21/2012 08:07 PM
Selenium	ND	0.084	0.50		µg/L	1	11/21/2012 08:07 PM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *04-Dec-12*

CLIENT: CH2M HILL
Lab Order: N008921
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N008921-005

Client Sample ID: TW-04-188
Collection Date: 11/15/2012 11:41:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **ICP7_121121B**	QC Batch: **41244**			PrepDate:	**11/16/2012**		Analyst: **CEI**
Manganese	58	0.16	0.50		µg/L	1	11/21/2012 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: *04-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	TW-05-188
Lab Order:	N008921	**Collection Date:**	11/15/2012 8:39:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N008921-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **ICP7_121121B**	QC Batch: **41244**			PrepDate:	**11/16/2012**		Analyst: **CEI**
Manganese	ND	0.16	0.50		µg/L	1	11/21/2012 05:11 PM

Qualifiers:

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

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Advanced Technology Laboratories, Inc.

Date: *04-Dec-12*

CLIENT: CH2M HILL
Work Order: N008921
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **MB-41244** SampType: **MBLK** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **11/16/2012** RunNo: **86439**
Client ID: **PBW** Batch ID: **41244** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **11/21/2012** SeqNo: **1478489**

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-41244** SampType: **LCS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **11/16/2012** RunNo: **86439**
Client ID: **LCSW** Batch ID: **41244** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **11/21/2012** SeqNo: **1478490**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	9.655	0.10	10.00	0	96.6	85	115				
Manganese	98.005	0.50	100.0	0	98.0	85	115				
Molybdenum	9.723	0.50	10.00	0	97.2	85	115				
Selenium	9.469	0.50	10.00	0	94.7	85	115				

Sample ID: **N008921-006A-MS** SampType: **MS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **11/16/2012** RunNo: **86439**
Client ID: **ZZZZZZ** Batch ID: **41244** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **11/21/2012** SeqNo: **1478494**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	13.530	0.10	10.00	3.430	101	75	125				
Manganese	85.704	0.50	100.0	0	85.7	75	125				
Molybdenum	39.647	0.50	10.00	28.01	116	75	125				
Selenium	9.106	0.50	10.00	0.8251	82.8	75	125				

Sample ID: **N008921-006A-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **11/16/2012** RunNo: **86439**
Client ID: **ZZZZZZ** Batch ID: **41244** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **11/21/2012** SeqNo: **1478495**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	13.416	0.10	10.00	3.430	99.9	75	125	13.53	0.848	20	

Qualifiers:

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

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N008921
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N008921-006A-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **11/16/2012** RunNo: **86439**
Client ID: **ZZZZZZ** Batch ID: **41244** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **11/21/2012** SeqNo: **1478495**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	86.184	0.50	100.0	0	86.2	75	125	85.70	0.558	20	
Molybdenum	39.720	0.50	10.00	28.01	117	75	125	39.65	0.184	20	
Selenium	9.191	0.50	10.00	0.8251	83.7	75	125	9.106	0.936	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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CH2MHILL

CHAIN OF CUSTODY RECORD

11/15/2012 4:19:35 PM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.01
Task Order
Project 2012-GMP-188-Q4
Turnaround Time 10 Days
Shipping Date: 11/15/2012
COC Number: 7

			Container:	1x500 ml Poly	1x500 ml Poly	1x500 ml Poly	2x1 Liter	2x1 Liter	2x1 Liter			
			Preservatives:	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	4°C	4°C	4°C			
			Filtered:	Field	Field	Field	NA	NA	NA			
			Holding Time:	180	180	180	7	7	7			
	DATE	TIME	Matrix	Arsenic (6020A) Field Filtered	Metals (SW6010B/SW6020Adis) Field Filtered Ca,Mg,Na,Fe,Mn	Metals (SW6010B/SW6020Adis) Field Filtered Mo,Se	Specific Conductance (E120.1)	Anions (E300.0) Chloride,Sulfate	Alkalinity (SM2320B)	H008921	Number of Containers	COMMENTS
MW-37S-188	11/14/2012	15:00	Water	X	X		X	X	X	-1	3	
MW-72BR-200-188	11/14/2012	12:21	Water	X	X	X	X	X	X	-2	3	
MW-15-188	11/15/2012	15:00	Water		X		X	X	X	-3	3	
MW-31-135-188	11/15/2012	13:25	Water	X	X	X	X	X	X	-4	3	
TW-04-188	11/15/2012	11:41	Water		X		X	X	X	-5	3	
TW-05-188	11/15/2012	8:39	Water		X		X	X	X	-6	3	
										TOTAL NUMBER OF CONTAINERS	18	

	Signatures	Date/Time
Approved by		11-15-12
Sampled by		1625
Relinquished by		11/15/12 1625
Received by		11/15/12 1821
Relinquished by		11/15/12 1821
Received by		

Shipping Details

Method of Shipment: courier
On Ice: ~~yes~~ no 3.6°C
Airbill No: 1 of 1
Lab Name: ADVANCED TECHNOLOGY LABORATO
Lab Phone: (702) 307-2659

ATTN:
Sample Custody
and
Marion

Special Instructions:
Nov 5 - Dec 14, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

Advanced Technology Laboratories, Inc.

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

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

Cooler Received/Opened On:	11/15/2012	Workorder:	N008921
Rep sample Temp (Deg C):	3.6	IR Gun ID:	1
Temp Blank:	☐ Yes ☑ No		
Carrier name:	ATL		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

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

Comments: Please see correspondence.

Checklist Completed B MBC 11/16/12

Reviewed By:

CLIENT CORRESPONDENCE LOG

DATE: 11/16/2012 12:02:47 PM

Client Name: -CH2HI01

ATL Workorder No.: N00892

DATE	CONTACT	CALL IN/OUT	ISSUE / PROBLEM	COMMENTS/CORRECTIVE ACTION	INITIAL
11/16/2012 12:00:0	B. Collom	OUT	No sample MW-37S-188. Received extra sample MW-37D-188. Sampling date and time of both sample ID's are consistent.	Per Barry, use sample ID on the COC.	marlonc

Sample ID: **N008921-001B @ pH 7.78**

A. Standardization of Sulfuric Acid (titrant):

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

Where:

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

Spike Standards

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

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

Therefore,

Normality of Acid = (2.65g/L) (5mL) / (53.00) (11.675mL)

= **0.02141 N**

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

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

Where:

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

Therefore,

Total Alkalinity (as $CaCO_3$), mg/L = (2.55) (0.02141N) (1) * 1000

= 54.5955 **mg/L**

Reporting results in two significant figures,

= 55 **mg/L** as CaCO3

C. SPECIATED ALKALINITY:

Phenolphthalein Alkalinity

P alkalinity, mg/L as $CaCO_3$ = $P_{vol.}$ * N H_2SO_4 * DF * 1000

= (0) (0.02141 N) (1) * 1000

= **0**

Total Alkalinity

T alkalinity, mg/L as $CaCO_3$ = $M_{vol.}$ * N H_2SO_4 * DF * 1000

= (2.55mL) (0.02141) (1) * 1000

= 54.5955 **mg/L** as CaCO3

Where:

$P_{vol.}$ - volume titrant used to reach pH 8.3, ml
$M_{vol.}$ - volume titrant used to reach pH 4.5, ml
N - Normality of H_2SO_4
DF - Dilution Factor = (50 ml) / (Vol. of Sample used)

Then OH, CO_3, HCO_3 alkalinities as $CaCO_3$ will be calculated as follows:

Result of Titration	**OH Alkalinity as $CaCO_3$**	**CO_3 Alkalinity as $CaCO_3$**	**HCO_3 Alkalinity as $CaCO_3$**
P = 0	0	0	T
P < ½ T	0	2P	T – 2P
P = ½ T	0	2P	0
P > ½ T	2P – T	2(T – P)	0
P = T	T	0	0

Therefore,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = 54.5955 **mg/L**

Reporting results in two significant figures,

OH Alkalinity as $CaCO_3$ = **0**

Nutral

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = 55 **mg/L**

Sample Calculation

METHOD: EPA 300
TEST NAME: INORGANIC ANIONS BY IC
MATRIX: WATER

FORMULA:

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

Chloride, mg/L = A * DF

where:

A = mg/L, IC calculated concentration
DF = dilution factor

For **N008921-001B**, concentration in mg/L are calculated as follows:

Chloride, mg/L = 3.015 * 500

= 1507.5 mg/L

Reporting **N008921-001B** results in two significant figures,

Chloride, mg/L = 1500

Sample Calculation

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

FORMULA:

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

Calcium, µg/L = A * DF * PF * CF

where:

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

For Sample **N008921-001A**, the concentration in µg/L is calculated as follows:

Calcium, µg/L = 144.2278323 * 1* (25/25) * 1000

= 144227.8323 µg/L

Reporting results in two significant figures,

Calcium, µg/L = 140000

NS for
12/3L

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N008921
Test Method: EPA 6010
Analysis Date: 11/29/12

Matrix: Water
Batch No.: 41243

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

Comments:

Analyzed By: Mary Claire Ignacio

~~Dilution Test is not applicable to analytes with calculated value < 25X the RL. However, PS @ 50X passed criteria.~~ NS for 12/3/12

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N008921-001A DT 250X	Sodium	ug/L	830523.4223	PASSED	901412.4905	7.86%	10

Note: NA - Not Applicable

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N008921
Test Method: EPA 6010
Analysis Date: 11/30/12

Matrix: Water
Batch No.: 41243

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

Comments:

Analyzed By: Mary Claire Ignacio

Dilution Test is not applicable to Iron. The computed value is < 25X the RL. However the PS @2X passes the criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N008921-001A DT 5X	Calcium	ug/L	153394.4401	PASSED	144227.8323	-6.36%	10
N008921-001A DT 5X	Iron	ug/L	0	NA	0	0.00%	10
N008921-001A DT 5X	Magnesium	ug/L	19884.02542	PASSED	18667.86535	-6.51%	10

Note: NA - Not Applicable

Advanced Technology Laboratories, Inc.

Date: *03-Dec-12*

CLIENT: CH2M HILL
Work Order: N008921
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **N008921-001A-PS** SampType: **PS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: RunNo: **86504**
Client ID: **ZZZZZZ** Batch ID: **41243** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/29/2012** SeqNo: **1481308**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	1472452.317	25000	625000	901400	91.4	75	125				

Sample ID: **N008921-001A-PS** SampType: **PS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: RunNo: **86507**
Client ID: **ZZZZZZ** Batch ID: **41243** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **11/30/2012** SeqNo: **1481574**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	149695.429	1000	5000	144200	109	75	125				
Iron	4640.561	40	5000	0	92.8	75	125				
Magnesium	23797.865	200	5000	18670	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

Sample Calculation

METHOD: EPA 6020
TEST NAME: Heavy Metals by ICP-MS
MATRIX: Aqueous

FORMULA:

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

Arsenic, ug/L = A * DF * PF

where:

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

For Sample **N008921-001A**, the concentration in ug/L is calculated as follows:

Arsenic, ug/L = 1.85361194773286 * 1 * (25/25)

= 1.85361194773286

Reporting result in two significant figures,

Arsenic, ug/L = 1.9

MJ
12/3h

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N008921
Test Method: EPA 6020
Analysis Date: 11/21/12

Matrix: Water
Batch No.: 41244

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

Comments:

Analyzed By: Mary Claire Ignacio

Dilution Test is not applicable to Mn & Se. The calculated values were < 25X the RL. Dilution Test in As failed. PS @ 2X passed the criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SampRefval	%DIFF	%DIFFlimit
N008921-006A-DT 5X	Arsenic	µg/L	2.909000389	FAILED	3.429877651	15.19%	10
N008921-006A-DT 5X	Manganese	µg/L	0	NA	0	0.00%	10
N008921-006A-DT 5X	Molybdenum	µg/L	28.45795026	PASSED	28.01268863	1.59%	10
N008921-006A-DT 5X	Selenium	µg/L	0.671054098	NA	0.825057735	18.67%	10

Note: NA - Not applicable

Advanced Technology Laboratories, Inc.

Date: *27-Nov-12*

CLIENT: CH2M HILL
Work Order: N008921
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N008921-006A-PS** SampType: **PS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **86439**
Client ID: **ZZZZZZ** Batch ID: **41244** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **11/21/2012** SeqNo: **1478493**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	23.874	0.20	20.00	3.430	102	75	125				
Manganese	182.014	1.0	200.0	0	91.0	75	125				
Molybdenum	51.178	1.0	20.00	28.01	116	75	125				
Selenium	18.320	1.0	20.00	0.8251	87.5	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

December 13, 2012

Shawn P. Duffy
CH2M HILL
155 Grand Avenue, Suite 1000
Oakland, CA 94612

TEL: (530) 229-3303
FAX: (530) 339-3303

CA-ELAP No.: 2676
NV Cert. No.: NV-009222007A

Workorder No.: N008997

RE: PG&E Topock, 423575.MP.02.GM.01

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on November 27, 2012 by Advanced Technology Laboratories, Inc. . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

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

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

Sincerely,

for Gregorio

Jose Tenorio Jr.
Laboratory Director

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

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

Samples were received intact with proper chain of custody documentation.

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

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

Samples were analyzed within method holding time.

Analytical Comments for EPA 300.0:

Dilution was necessary due to sample matrix.Sample required dilution due to high concentration of target analyte.

Analytical Comments for EPA 6010B_Dissolved:

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

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

Dilution was necessary since plasma was extinguished when samples were analyzed at no dilution.

Analytical Comments for EPA 6020_Dissolved:

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

Dilution was necessary for Selenium due to failing internal standard when samples were analyzed at no dilution.

Advanced Technology Laboratories, Inc.
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Advanced Technology Laboratories, Inc.

Date: *13-Dec-12*

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.01
Lab Order: N008997
Contract No: 2012-GMP-188-

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N008997-001A	MW-34-100-188	Water	11/26/2012 1:03:00 PM	11/27/2012	12/13/2012
N008997-001B	MW-34-100-188	Water	11/26/2012 1:03:00 PM	11/27/2012	12/13/2012
N008997-002A	MW-93-188	Water	11/26/2012 7:05:00 AM	11/27/2012	12/13/2012
N008997-002B	MW-93-188	Water	11/26/2012 7:05:00 AM	11/27/2012	12/13/2012

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *13-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-34-100-188
Lab Order:	N008997	**Collection Date:**	11/26/2012 1:03:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N008997-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121128E**	QC Batch: **R86493**			PrepDate:			Analyst: **CEI**
Specific Conductance	17000	0.10	0.10		umhos/cm	1	11/28/2012

Qualifiers:

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

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *13-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-93-188
Lab Order:	N008997	**Collection Date:**	11/26/2012 7:05:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N008997-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121128E**	QC Batch: **R86493**			PrepDate:			Analyst: **CEI**
Specific Conductance	17000	0.10	0.10		umhos/cm	1	11/28/2012

Qualifiers:

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

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Advanced Technology Laboratories, Inc.

Date: *13-Dec-12*

CLIENT: CH2M HILL
Work Order: N008997
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: **LCS-R86493** SampType: **LCS** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86493**
Client ID: **LCSW** Batch ID: **R86493** TestNo: **EPA 120.1** Analysis Date: **11/28/2012** SeqNo: **1480863**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	9720.000	0.10	9992	0	97.3	85	115				

Sample ID: **N008997-002BDUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86493**
Client ID: **ZZZZZZ** Batch ID: **R86493** TestNo: **EPA 120.1** Analysis Date: **11/28/2012** SeqNo: **1480868**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	17170.000	0.10						17180	0.0582	10	

Sample ID: **N008997-002BMS** SampType: **MS** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86493**
Client ID: **ZZZZZZ** Batch ID: **R86493** TestNo: **EPA 120.1** Analysis Date: **11/28/2012** SeqNo: **1480869**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	26820.000	0.20	9992	17180	96.5	75	125				

Sample ID: **N008997-002BMSD** SampType: **MSD** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86493**
Client ID: **ZZZZZZ** Batch ID: **R86493** TestNo: **EPA 120.1** Analysis Date: **11/28/2012** SeqNo: **1480870**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	26780.000	0.20	9992	17180	96.1	75	125	26820	0.149	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: *13-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-34-100-188
Lab Order:	N008997	**Collection Date:**	11/26/2012 1:03:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N008997-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **WETCHEM_121129B**	QC Batch: **41341**			PrepDate:	**11/29/2012**		Analyst: **QBM**
Total Dissolved Solids (Residue, Filterable)	11000	120	120		mg/L	1	11/29/2012

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *13-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-93-188
Lab Order:	N008997	**Collection Date:**	11/26/2012 7:05:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N008997-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **WETCHEM_121129B**	QC Batch: **41341**			PrepDate:	**11/29/2012**		Analyst: **QBM**
Total Dissolved Solids (Residue, Filterable)	11000	120	120		mg/L	1	11/29/2012

Qualifiers:

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

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Advanced Technology Laboratories, Inc.

Date: *13-Dec-12*

CLIENT: CH2M HILL
Work Order: N008997
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.1_2540C_W

Sample ID: **MB-41341** SampType: **MBLK** TestCode: **160.1_2540C_** Units: **mg/L** Prep Date: **11/29/2012** RunNo: **86535**
Client ID: **PBW** Batch ID: **41341** TestNo: **SM2540C** Analysis Date: **11/29/2012** SeqNo: **1482992**

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-41341** SampType: **LCS** TestCode: **160.1_2540C_** Units: **mg/L** Prep Date: **11/29/2012** RunNo: **86535**
Client ID: **LCSW** Batch ID: **41341** TestNo: **SM2540C** Analysis Date: **11/29/2012** SeqNo: **1482993**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	991.000	10	1000	0	99.1	80	120				

Sample ID: **N008988-001C-DUP** SampType: **DUP** TestCode: **160.1_2540C_** Units: **mg/L** Prep Date: **11/29/2012** RunNo: **86535**
Client ID: **ZZZZZZ** Batch ID: **41341** TestNo: **SM2540C** Analysis Date: **11/29/2012** SeqNo: **1482995**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	1578.333	17						1575	0.211	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: *13-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-34-100-188
Lab Order:	N008997	**Collection Date:**	11/26/2012 1:03:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N008997-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121130B**	QC Batch: **R86513**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	120	1.2	5.0		mg/L	1	11/30/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/30/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/30/2012
Alkalinity, Total (As CaCO3)	120	1.2	5.0		mg/L	1	11/30/2012

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *13-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-93-188
Lab Order:	N008997	**Collection Date:**	11/26/2012 7:05:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N008997-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121130B**	QC Batch: **R86513**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	130	1.2	5.0		mg/L	1	11/30/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/30/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/30/2012
Alkalinity, Total (As CaCO3)	130	1.2	5.0		mg/L	1	11/30/2012

Qualifiers:

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

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Advanced Technology Laboratories, Inc.

Date: *13-Dec-12*

CLIENT: CH2M HILL
Work Order: N008997
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **LCS-R86513** SampType: **LCS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86513**
Client ID: **LCSW** Batch ID: **R86513** TestNo: **SM 2320 B** Analysis Date: **11/30/2012** SeqNo: **1481641**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	96.360	5.0	100.0	0	96.4	85	115				
Alkalinity, Total (As CaCO3)	100.642	5.0	100.0	0	101	85	115				

Sample ID: **MB-R86513** SampType: **MBLK** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86513**
Client ID: **PBW** Batch ID: **R86513** TestNo: **SM 2320 B** Analysis Date: **11/30/2012** SeqNo: **1481642**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	2.141	5.0									
Alkalinity, Carbonate (As CaCO3)	ND	5.0									
Alkalinity, Hydroxide (As CaCO3)	ND	5.0									
Alkalinity, Total (As CaCO3)	2.141	5.0									

Sample ID: **N008992-001ADUP** SampType: **DUP** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86513**
Client ID: **ZZZZZZ** Batch ID: **R86513** TestNo: **SM 2320 B** Analysis Date: **11/30/2012** SeqNo: **1481644**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	98.501	5.0						97.43	1.09	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)	98.501	5.0						97.43	1.09	30	

Sample ID: **N008992-002AMS** SampType: **MS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86513**
Client ID: **ZZZZZZ** Batch ID: **R86513** TestNo: **SM 2320 B** Analysis Date: **11/30/2012** SeqNo: **1481646**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	195.931	5.0	100.0	97.43	98.5	75	125				
Alkalinity, Total (As CaCO3)	195.931	5.0	100.0	97.43	98.5	75	125				

Qualifiers:

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

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CLIENT: CH2M HILL
Work Order: N008997
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **N008992-002AMSD** SampType: **MSD** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86513**
Client ID: **ZZZZZZ** Batch ID: **R86513** TestNo: **SM 2320 B** Analysis Date: **11/30/2012** SeqNo: **1481647**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	197.002	5.0	100.0	97.43	99.6	75	125	195.9	0.545	20	
Alkalinity, Total (As CaCO3)	197.002	5.0	100.0	97.43	99.6	75	125	195.9	0.545	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: *13-Dec-12*

CLIENT: CH2M HILL
Lab Order: N008997
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N008997-001

Client Sample ID: MW-34-100-188
Collection Date: 11/26/2012 1:03:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121128A** QC Batch: **R86646** PrepDate: Analyst: **QBM**							
Bromide	ND	0.13	2.5		mg/L	5	11/28/2012 10:38 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121128A** QC Batch: **R86646** PrepDate: Analyst: **QBM**							
Chloride	5900	11	500		mg/L	1000	11/28/2012 09:28 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121128A** QC Batch: **R86646** PrepDate: Analyst: **QBM**							
Sulfate	1200	3.5	50		mg/L	100	11/28/2012 09:40 PM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *13-Dec-12*

CLIENT: CH2M HILL
Lab Order: N008997
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N008997-002

Client Sample ID: MW-93-188
Collection Date: 11/26/2012 7:05:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_121128A**	QC Batch: **R86646**			PrepDate:			Analyst: **QBM**
Bromide	ND	0.13	2.5		mg/L	5	11/28/2012 11:01 PM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_121128A**	QC Batch: **R86646**			PrepDate:			Analyst: **QBM**
Chloride	5900	11	500		mg/L	1000	11/28/2012 09:51 PM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_121128A**	QC Batch: **R86646**			PrepDate:			Analyst: **QBM**
Sulfate	1200	3.5	50		mg/L	100	11/28/2012 10:03 PM

Qualifiers:

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

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Advanced Technology Laboratories, Inc.

Date: *13-Dec-12*

CLIENT: CH2M HILL
Work Order: N008997
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_BRPGE

Sample ID: **MB-R86646_BR** SampType: **MBLK** TestCode: **300_W_BRP** Units: **mg/L** Prep Date: RunNo: **86646**
Client ID: **PBW** Batch ID: **R86646** TestNo: **EPA 300.0** Analysis Date: **11/28/2012** SeqNo: **1487202**

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

Sample ID: **LCS-R86646_BR** SampType: **LCS** TestCode: **300_W_BRP** Units: **mg/L** Prep Date: RunNo: **86646**
Client ID: **LCSW** Batch ID: **R86646** TestNo: **EPA 300.0** Analysis Date: **11/28/2012** SeqNo: **1487203**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	2.522	0.50	2.500	0	101	90	110				

Sample ID: **N008997-001BDUP** SampType: **DUP** TestCode: **300_W_BRP** Units: **mg/L** Prep Date: RunNo: **86646**
Client ID: **ZZZZZZ** Batch ID: **R86646** TestNo: **EPA 300.0** Analysis Date: **11/28/2012** SeqNo: **1487215**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	ND	2.5						0	0	20	

Sample ID: **N008997-002BMS** SampType: **MS** TestCode: **300_W_BRP** Units: **mg/L** Prep Date: RunNo: **86646**
Client ID: **ZZZZZZ** Batch ID: **R86646** TestNo: **EPA 300.0** Analysis Date: **11/28/2012** SeqNo: **1487217**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	10.725	2.5	12.50	0	85.8	80	120				

Sample ID: **N008997-002BMSD** SampType: **MSD** TestCode: **300_W_BRP** Units: **mg/L** Prep Date: RunNo: **86646**
Client ID: **ZZZZZZ** Batch ID: **R86646** TestNo: **EPA 300.0** Analysis Date: **11/28/2012** SeqNo: **1487218**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	11.280	2.5	12.50	0	90.2	80	120	10.72	5.04	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: N008997
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **MB-R86646_CL** SampType: **MBLK** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86646**
Client ID: **PBW** Batch ID: **R86646** TestNo: **EPA 300.0** Analysis Date: **11/28/2012** SeqNo: **1487225**

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

Sample ID: **LCS-R86646_CL** SampType: **LCS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86646**
Client ID: **LCSW** Batch ID: **R86646** TestNo: **EPA 300.0** Analysis Date: **11/28/2012** SeqNo: **1487226**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.386	0.50	2.500	0	95.4	90	110				

Sample ID: **N008992-001AMS** SampType: **MS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86646**
Client ID: **ZZZZZZ** Batch ID: **R86646** TestNo: **EPA 300.0** Analysis Date: **11/28/2012** SeqNo: **1487230**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	766.800	50	250.0	498.2	107	80	120				

Sample ID: **N008992-001AMSD** SampType: **MSD** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86646**
Client ID: **ZZZZZZ** Batch ID: **R86646** TestNo: **EPA 300.0** Analysis Date: **11/28/2012** SeqNo: **1487231**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	766.500	50	250.0	498.2	107	80	120	766.8	0.0391	20	

Sample ID: **N008992-002ADUP** SampType: **DUP** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86646**
Client ID: **ZZZZZZ** Batch ID: **R86646** TestNo: **EPA 300.0** Analysis Date: **11/28/2012** SeqNo: **1487233**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	503.100	50						504.2	0.218	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: N008997
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **N008996-006AMS** SampType: **MS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86646**
Client ID: **ZZZZZZ** Batch ID: **R86646** TestNo: **EPA 300.0** Analysis Date: **11/28/2012** SeqNo: **1487247**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2889.500	250	1250	1626	101	80	120				

Qualifiers:

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

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N008997
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **MB-R86646_SO4** SampType: **MBLK** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86646**
Client ID: **PBW** Batch ID: **R86646** TestNo: **EPA 300.0** Analysis Date: **11/28/2012** SeqNo: **1487265**

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

Sample ID: **LCS-R86646_SO4** SampType: **LCS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86646**
Client ID: **LCSW** Batch ID: **R86646** TestNo: **EPA 300.0** Analysis Date: **11/28/2012** SeqNo: **1487266**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.864	0.50	5.000	0	97.3	90	110				

Sample ID: **N008992-001AMS** SampType: **MS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86646**
Client ID: **ZZZZZZ** Batch ID: **R86646** TestNo: **EPA 300.0** Analysis Date: **11/28/2012** SeqNo: **1487273**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	264.320	10	100.0	160.9	103	80	120				

Sample ID: **N008992-001AMSD** SampType: **MSD** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86646**
Client ID: **ZZZZZZ** Batch ID: **R86646** TestNo: **EPA 300.0** Analysis Date: **11/28/2012** SeqNo: **1487274**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	262.760	10	100.0	160.9	102	80	120	264.3	0.592	20	

Sample ID: **N008992-002ADUP** SampType: **DUP** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86646**
Client ID: **ZZZZZZ** Batch ID: **R86646** TestNo: **EPA 300.0** Analysis Date: **11/28/2012** SeqNo: **1487277**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	159.960	10						161.8	1.17	20	

Qualifiers:

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

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CLIENT: CH2M HILL
Work Order: N008997
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **N008996-006AMS** SampType: **MS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86646**
Client ID: **ZZZZZZ** Batch ID: **R86646** TestNo: **EPA 300.0** Analysis Date: **11/28/2012** SeqNo: **1487287**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	704.200	25	250.0	461.8	96.9	80	120				

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *13-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-34-100-188
Lab Order:	N008997	**Collection Date:**	11/26/2012 1:03:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N008997-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121203C**	QC Batch: **41327**				PrepDate: **11/28/2012**		Analyst: **CEI**
Boron	2600	70	500		ug/L	5	12/3/2012 01:41 PM
Calcium	150000	370	2500		ug/L	5	12/3/2012 01:41 PM
Iron	ND	36	100		ug/L	5	12/3/2012 01:41 PM
Magnesium	8600	65	500		ug/L	5	12/3/2012 01:41 PM
Potassium	47000	65	10000		ug/L	20	12/5/2012 12:50 PM
Sodium	3100000	37000	250000		ug/L	500	12/5/2012 12:59 PM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *13-Dec-12*

CLIENT: CH2M HILL
Lab Order: N008997
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N008997-002

Client Sample ID: MW-93-188
Collection Date: 11/26/2012 7:05:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121203C**	QC Batch: **41327**				PrepDate: **11/28/2012**		Analyst: **CEI**
Boron	2600	70	500		ug/L	5	12/3/2012 01:56 PM
Calcium	150000	370	2500		ug/L	5	12/3/2012 01:56 PM
Iron	ND	36	100		ug/L	5	12/3/2012 01:56 PM
Magnesium	8200	65	500		ug/L	5	12/3/2012 01:56 PM
Potassium	47000	65	10000		ug/L	20	12/5/2012 12:56 PM
Sodium	3200000	37000	250000		ug/L	500	12/5/2012 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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Advanced Technology Laboratories, Inc.

Date: *13-Dec-12*

CLIENT: CH2M HILL
Work Order: N008997
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **MB-41327** SampType: **MBLK** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/28/2012** RunNo: **86560**
Client ID: **PBW** Batch ID: **41327** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/3/2012** SeqNo: **1484298**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	21.919	100									
Calcium	ND	500									
Iron	ND	20									
Magnesium	ND	100									

Sample ID: **LCS-41327** SampType: **LCS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/28/2012** RunNo: **86560**
Client ID: **LCSW** Batch ID: **41327** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/3/2012** SeqNo: **1484299**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	892.168	100	1000	0	89.2	85	115				
Calcium	882.618	500	1000	0	88.3	85	115				
Iron	97.062	20	100.0	0	97.1	85	115				
Magnesium	919.755	100	1000	0	92.0	85	115				

Sample ID: **N008997-001A-MS** SampType: **MS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/28/2012** RunNo: **86560**
Client ID: **ZZZZZZ** Batch ID: **41327** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/3/2012** SeqNo: **1484303**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	3461.255	500	1000	2641	82.0	75	125				
Calcium	147541.942	2500	1000	151200	-367	75	125				S
Iron	95.170	100	100.0	0	95.2	75	125				
Magnesium	9012.097	500	1000	8603	40.9	75	125				S

Sample ID: **N008997-001A-MSD** SampType: **MSD** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/28/2012** RunNo: **86560**
Client ID: **ZZZZZZ** Batch ID: **41327** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/3/2012** SeqNo: **1484306**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	3476.253	500	1000	2641	83.5	75	125	3461	0.432	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: N008997
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **N008997-001A-MSD** SampType: **MSD** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/28/2012** RunNo: **86560**
Client ID: **ZZZZZZ** Batch ID: **41327** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/3/2012** SeqNo: **1484306**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	144150.918	2500	1000	151200	-706	75	125	147500	2.33	20	S
Iron	94.525	100	100.0	0	94.5	75	125	95.17	0	20	
Magnesium	8780.697	500	1000	8603	17.8	75	125	9012	2.60	20	S

Sample ID: **MB-41327** SampType: **MBLK** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/28/2012** RunNo: **86557**
Client ID: **PBW** Batch ID: **41327** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/5/2012** SeqNo: **1486064**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	6.254	500									
Sodium	79.455	500									

Sample ID: **LCS-41327** SampType: **LCS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/28/2012** RunNo: **86557**
Client ID: **LCSW** Batch ID: **41327** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/5/2012** SeqNo: **1486065**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	1143.056	500	1250	0	91.4	85	115				
Sodium	23201.045	500	25000	0	92.8	85	115				

Sample ID: **N008997-001A-MS** SampType: **MS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/28/2012** RunNo: **86581**
Client ID: **ZZZZZZ** Batch ID: **41327** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/6/2012** SeqNo: **1486155**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	3503520.138	250000	100000	3137000	366	75	125				S

Sample ID: **N008997-001A-MS** SampType: **MS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/28/2012** RunNo: **86581**
Client ID: **ZZZZZZ** Batch ID: **41327** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/6/2012** SeqNo: **1486156**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	49381.725	10000	5000	46630	55.1	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: N008997
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **N008997-001A-MSD** SampType: **MSD** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/28/2012** RunNo: **86581**
Client ID: **ZZZZZZ** Batch ID: **41327** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/6/2012** SeqNo: **1486157**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	3517379.627	250000	100000	3137000	380	75	125	3504000	0.395	20	S

Sample ID: **N008997-001A-MSD** SampType: **MSD** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/28/2012** RunNo: **86581**
Client ID: **ZZZZZZ** Batch ID: **41327** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/6/2012** SeqNo: **1486158**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	48990.493	10000	5000	46630	47.2	75	125	49380	0.795	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: *13-Dec-12*

CLIENT: CH2M HILL
Lab Order: N008997
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N008997-001

Client Sample ID: MW-34-100-188
Collection Date: 11/26/2012 1:03:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121211A**	QC Batch: **41328**				PrepDate: **11/28/2012**		Analyst: **CEI**
Arsenic	1.8	0.035	0.10		µg/L	1	12/11/2012 11:44 AM
Manganese	17	0.16	0.50		µg/L	1	12/11/2012 11:44 AM
Molybdenum	52	0.074	0.50		µg/L	1	12/11/2012 11:44 AM
Selenium	ND	0.42	2.5		µg/L	5	12/12/2012 02:35 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: *13-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-93-188
Lab Order:	N008997	**Collection Date:**	11/26/2012 7:05:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N008997-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121211A**	QC Batch: **41328**				PrepDate: **11/28/2012**		Analyst: **CEI**
Arsenic	1.9	0.035	0.10		µg/L	1	12/11/2012 11:07 AM
Manganese	16	0.16	0.50		µg/L	1	12/11/2012 11:07 AM
Molybdenum	55	0.074	0.50		µg/L	1	12/11/2012 11:07 AM
Selenium	ND	0.42	2.5		µg/L	5	12/11/2012 11:12 AM

Qualifiers:

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

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Advanced Technology Laboratories, Inc.

Date: *13-Dec-12*

CLIENT: CH2M HILL
Work Order: N008997
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **MB-41328** SampType: **MBLK** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **11/28/2012** RunNo: **86655**
Client ID: **PBW** Batch ID: **41328** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/11/2012** SeqNo: **1487576**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.056	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID: **LCS-41328** SampType: **LCS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **11/28/2012** RunNo: **86655**
Client ID: **LCSW** Batch ID: **41328** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/11/2012** SeqNo: **1487577**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.357	0.10	10.00	0	104	85	115				
Manganese	103.451	0.50	100.0	0	103	85	115				
Molybdenum	11.430	0.50	10.00	0	114	85	115				
Selenium	10.042	0.50	10.00	0	100	85	115				

Sample ID: **N008997-002A-MS** SampType: **MS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **11/28/2012** RunNo: **86655**
Client ID: **ZZZZZZ** Batch ID: **41328** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/11/2012** SeqNo: **1487581**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	12.595	0.10	10.00	1.927	107	75	125				
Manganese	100.456	0.50	100.0	15.52	84.9	75	125				
Molybdenum	60.664	0.50	10.00	54.66	60.1	75	125				S

Sample ID: **N008997-002A-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **11/28/2012** RunNo: **86655**
Client ID: **ZZZZZZ** Batch ID: **41328** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/11/2012** SeqNo: **1487582**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	12.206	0.10	10.00	1.927	103	75	125	12.60	3.14	20	
Manganese	101.240	0.50	100.0	15.52	85.7	75	125	100.5	0.778	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: N008997
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N008997-002A-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **11/28/2012** RunNo: **86655**
Client ID: **ZZZZZZ** Batch ID: **41328** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/11/2012** SeqNo: **1487582**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	59.734	0.50	10.00	54.66	50.8	75	125	60.66	1.54	20	S

Sample ID: **N008997-002A-MS** SampType: **MS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **11/28/2012** RunNo: **86655**
Client ID: **ZZZZZZ** Batch ID: **41328** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/11/2012** SeqNo: **1487588**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	12.043	2.5	10.00	1.570	105	75	125				

Sample ID: **N008997-002A-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **11/28/2012** RunNo: **86655**
Client ID: **ZZZZZZ** Batch ID: **41328** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/11/2012** SeqNo: **1487589**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	10.854	2.5	10.00	1.570	92.8	75	125	12.04	10.4	20	

Qualifiers:

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

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CH2MHILL

CHAIN OF CUSTODY RECORD

11/26/2012 3:07:02 PM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.01
Task Order
Project 2012-GMP-188-Q4
Turnaround Time 10 Days
Shipping Date: 11/27/2012
COC Number: 11

				Arsenic (6020A) Field Filtered	Metals (SW6010B/SW6020Adis) Field Filtered Ca,Mg,K,Na,B,Fe,Mn	Metals (SW6010B/SW6020Adis) Field Filtered Mo,Se	Specific Conductance (E120.1)	Anions (E300.0) Bromide,Chloride,Sulfate	TDS (SM2540C)	Alkalinity (SM2320B)		Number of Containers	COMMENTS
Container:				1x500 ml Poly	1x500 ml Poly	1x500 ml Poly	2x1 Liter	2x1 Liter	2x1 Liter	2x1 Liter			
Preservatives:				HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	4°C	4°C	4°C	4°C			
Filtered:				Field	Field	Field	NA	NA	NA	NA			
Holding Time:				180	180	180	7	7	7	7			
	DATE	TIME	Matrix										
MW-34-100-188	11/26/2012	13:03	Water	X	X	X	X	X	X	X	N008997 -1	3	
MW-93-188	11/26/2012	7:05	Water	X	X	X	X	X	X	X	↓ -2	3	
											TOTAL NUMBER OF CONTAINERS	6	

	Signatures	Date/Time
Approved by		11-27-12 1545
Sampled by		
Relinquished by		
Received by		11/27/12 1545
Relinquished by		11/27/12 1600
Received by		11/27/12 1600

Shipping Details

Method of Shipment: courier
On Ice: ~~yes~~ / no 2.2°C/3.8°C/3.4°C
Airbill No: 1871
Lab Name: ADVANCED TECHNOLOGY LABORATO
Lab Phone: (702) 307-2659

ATTN:
Sample Custody
and
Marlon

Special Instructions:
Nov 5 - Dec 14, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

Advanced Technology Laboratories, Inc.

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

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

Cooler Received/Opened On:	11/27/2012	Workorder:	N008997
Rep sample Temp (Deg C):	2.2/3.8/3.4	IR Gun ID:	1
Temp Blank:	☐ Yes ☑ No		
Carrier name:	ATL		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

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

Comments:

Checklist Completed B MBC 11/28/12

Reviewed By: [illegible]

SAMPLE CALCULATION

METHOD: SM 2540C
TEST NAME: Total Filterable Residue
MATRIX: Water

FORMULA:

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

$$\text{TDS, mg/L} = \frac{(A-B)*1000000}{C}$$

Where:

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

For **N008997-001B,** TDS concentration in mg/L is calculated as follows:

$$\text{TDS, mg/L} = \frac{(61.2892 - 61.2015)*1000000}{8}$$
$$= 10962.5 \text{ mg/L}$$

Reporting result in two significant figures,

TDS = 11000 mg/L Analyte

TOTAL DISSOLVED SOLIDS, TDS

$$\text{TDS, mg/L} = \frac{(A-B) \times 1000000}{C}$$

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

Date Started: 11/29/2012 Date Finished: 11/30/2012	vol	initial	final	calc	prep fact	TDS, mg/L	CONDUCTIVITY	TDS/CONDUCTIVITY RATIO
MB-41341	100	53.8201	53.8203	2	1	2.00		
LCS-41341	100	53.6664	53.7655	991	1	991.00		
N008988-001C	60	60.0023	60.0968	945	1.66667	1575.00	2310	0.68
N008988-001C-DUP	60	62.4658	62.5605	947	1.66667	1578.33	2310	0.68
N008988-002C	60	58.3265	58.4132	867	1.66667	1445.00	2520	0.57
N008988-003C	100	55.3944	55.4537	593	1	593.00	1123	0.53
N008988-004C	100	53.9437	53.9569	132	1	132.00	262	0.50
N008988-005C	100	62.2060	62.2170	110	1	110.00	208	0.53
N008995-003A	60	59.9581	60.0428	847	1.66667	1411.67	2320	0.61
N008997-001B	8	61.2015	61.2892	877	12.5	10962.50	17450	0.63
N008997-002B	8	60.3944	60.4828	884	12.5	11050.00	17360	0.64

Sample ID: **N008997-001B @ pH 7.91**

A. Standardization of Sulfuric Acid (titrant):

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

Where:

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

Spike Standards

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

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

Therefore,

Normality of Acid = (2.65g/L) (5mL) / (53.00) (11.675mL)

= **0.02141 N**

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

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

Where:

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

Therefore,

Total Alkalinity (as $CaCO_3$), mg/L = (5.75) (0.02141N) (1) * 1000

= 123.1075 **mg/L**

Reporting results in two significant figures,

= 120 **mg/L** as CaCO3

NS fa
12/5/~

C. SPECIATED ALKALINITY:

Phenolphthalein Alkalinity

P alkalinity, mg/L as $CaCO_3$ = $P_{vol.}$ * N H_2SO_4 * DF * 1000

= (0) (0.02141 N) (1) * 1000

= **0**

Total Alkalinity

T alkalinity, mg/L as $CaCO_3$ = $M_{vol.}$ * ~~N~~ H_2SO_4 * DF * 1000

= (5.75mL) (0.02141) (1) * 1000

= 123.1075 **mg/L** as CaCO3

Where:

$P_{vol.}$ - volume titrant used to reach pH 8.3, ml
$M_{vol.}$ - volume titrant used to reach pH 4.5, ml
N - Normality of H_2SO_4
DF - Dilution Factor = (50 ml) / (Vol. of Sample used)

Then OH, CO_3, HCO_3 alkalinities as $CaCO_3$ will be calculated as follows:

Result of Titration	**OH Alkalinity as $CaCO_3$**	**CO_3 Alkalinity as $CaCO_3$**	**HCO_3 Alkalinity as $CaCO_3$**
P = 0	0	0	T
P < ½ T	0	2P	T – 2P
P = ½ T	0	2P	0
P > ½ T	2P – T	2(T – P)	0
P = T	T	0	0

Therefore,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = 123.1075 **mg/L**

Reporting results in two significant figures,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = 120 **mg/L**

Sample Calculation

METHOD: EPA 300
TEST NAME: INORGANIC ANIONS BY IC
MATRIX: WATER

FORMULA:

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

Chloride, mg/L = A * DF

where:

A = mg/L, IC calculated concentration
DF = dilution factor

For **N008997-001B**, concentration in mg/L are calculated as follows:

Chloride, mg/L = 5.942* 1000

= 5942 mg/L

Reporting **N008997-001B** results in two significant figures,

Chloride, mg/L = 5900 Anln/L

Sample Calculation

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

FORMULA:

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

Calcium, µg/L = A * DF * PF * CF

where:

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

For Sample **N008997-001A**, the concentration in µg/L is calculated as follows:

Calcium, µg/L = 30.24257903 * 5 * (25/25) * 1000

= 151212.89515 µg/L

Reporting results in two significant figures,

Calcium, µg/L = 150000

NSfn
12/13/12

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N008997
Test Method: EPA 6010
Analysis Date: 12/03/12

Matrix: Water
Batch No.: 41327

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

Comments:

Analyzed By: Mary Claire Ignacio

Dilution Test is not applicable to Fe. The computed value is < 25X the RL. However the PS @5X passes the criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N008997-001A DT 25X	Boron	ug/L	2782.23676	PASSED	2641.083182	-5.34%	10
N008997-001A DT 25X	Calcium	ug/L	148597.3572	PASSED	151212.8952	1.73%	10
N008997-001A DT 25X	Iron	ug/L	0	NA	0	0.00%	10
N008997-001A DT 25X	Magnesium	ug/L	9239.525223	PASSED	8603.1697	-7.40%	10

Note: NA - Not Applicable

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N008997
Test Method: EPA 6010
Analysis Date: 12/05/12

Matrix: Water
Batch No.: 41327

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

Comments:

Analyzed By: Mary Claire Ignacio

Dilution Test is not applicable for analytes with concentration < 25X the RL. However the PS @2X passes the criteria.
Dilution test for K failed. However, PS @20X passes criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N008997-001A 100X	Potassium	ug/L	34038.29	FAILED	46628.82	27.00%	10
N008997-001A 2500X	Sodium	ug/L	2825719.47	PASSED	3137053.83	9.92%	10

Note: NA - Not Applicable

Advanced Technology Laboratories, Inc.

Date: *10-Dec-12*

CLIENT: CH2M HILL
Work Order: N008997
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **N008997-001A-PS** SampType: **PS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **11/28/2012** RunNo: **86560**
Client ID: **ZZZZZZ** Batch ID: **41327** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/3/2012** SeqNo: **1484307**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	8790.592	500	6250	2641	98.4	75	125				
Calcium	160709.837	2500	12500	151200	76.0	75	125				
Iron	11680.727	100	12500	0	93.4	75	125				
Magnesium	19391.028	500	12500	8603	86.3	75	125				

Sample ID: **N008997-001A-PS** SampType: **PS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: RunNo: **86581**
Client ID: **ZZZZZZ** Batch ID: **41327** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/6/2012** SeqNo: **1486161**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	16303287.300	250000	12500000	3137000	105	75	125				

Sample ID: **N008997-001A-PS** SampType: **PS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: RunNo: **86581**
Client ID: **ZZZZZZ** Batch ID: **41327** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/6/2012** SeqNo: **1486162**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	77704.744	10000	25000	46630	124	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

Sample Calculation

METHOD: EPA 6020
TEST NAME: Heavy Metals by ICP-MS
MATRIX: Aqueous

FORMULA:

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

Arsenic, ug/L = A * DF * PF

where:

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

For Sample **N008997-002A**, the concentration in ug/L is calculated as follows:

Arsenic, ug/L = 1.92719269282729 * 1 * (25/25)

= 1.92719269282729

Reporting result in two significant figures,

Arsenic, ug/L = 1.9

NSfn
12/13/12

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N008997
Test Method: EPA 6020
Analysis Date: 12/11/12

Matrix: Water
Batch No.: 41328

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

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to As and Se. The calculated values were <25X RL. PS passed criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SampRefval	%DIFF	%DIFFlimit
N008997-002A-DT 5X	Arsenic	µg/L	2.293083342	NA	1.927192693	18.99%	10
N008997-002A-DT 5X	Manganese	µg/L	13.24469312	PASSED	15.52404114	0.00%	10
N008997-002A-DT 5X	Molybdenum	µg/L	56.14202376	PASSED	54.65670294	2.72%	10
N008997-002A-DT 25X	Selenium	µg/L	0	NA	1.569987085	100.00%	10

Note: NA - Not applicable

Advanced Technology Laboratories, Inc.

Date: *12-Dec-12*

CLIENT: CH2M HILL
Work Order: N008997
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N008997-002A-PS** SampType: **PS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **86655**
Client ID: **ZZZZZZ** Batch ID: **41328** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/11/2012** SeqNo: **1487580**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	22.308	0.20	20.00	1.927	102	75	125				
Manganese	184.900	1.0	200.0	15.52	84.7	75	125				
Molybdenum	77.214	1.0	20.00	54.66	113	75	125				

Sample ID: **N008997-002A-PS** SampType: **PS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **86655**
Client ID: **ZZZZZZ** Batch ID: **41328** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/11/2012** SeqNo: **1487587**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	47.869	2.5	50.00	1.570	92.6	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

December 20, 2012

Shawn P. Duffy
CH2M HILL
155 Grand Avenue, Suite 1000
Oakland, CA 94612

TEL: (530) 229-3303
FAX: (530) 339-3303

CA-ELAP No.: 2676
NV Cert. No.: NV-009222007A

Workorder No.: N009045

RE: PG&E Topock, 423575.MP.02.GM.01

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on December 04, 2012 by Advanced Technology Laboratories, Inc. . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

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

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

Sincerely,

Jose Tenorio Jr.
Laboratory Director

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

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

Samples were received intact with proper chain of custody documentation.

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

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

Samples were analyzed within method holding time.

Analytical Comments for SM 2320B:

Method Blank on QC sample MB-R86711 has hit above the reporting limit but less than 1/10 of the amount measured in sample N009045-005.

Analytical Comments for EPA 6010B_Dissolved:

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

Dilution was necessary on sample N009045-011 since plasma was extinguished when sample was analyzed at no dilution.

Analytical Comments for EPA 6020_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Manganese on QC samples N009078-003A-MS and N009078-003A-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 Duplicate (MSD) is outside recovery criteria for Thallium possibly due to matrix

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interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

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Advanced Technology Laboratories, Inc.

Date: *20-Dec-12*

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.01
Lab Order: N009045
Contract No: 2012-GMP-188-

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N009045-001A	MW-17-188	Water	12/3/2012 3:18:00 PM	12/4/2012	12/20/2012
N009045-001B	MW-17-188	Water	12/3/2012 3:18:00 PM	12/4/2012	12/20/2012
N009045-002A	MW-27-020-188	Water	12/3/2012 10:05:00 AM	12/4/2012	12/20/2012
N009045-002B	MW-27-020-188	Water	12/3/2012 10:05:00 AM	12/4/2012	12/20/2012
N009045-003A	MW-27-060-188	Water	12/3/2012 11:46:00 AM	12/4/2012	12/20/2012
N009045-003B	MW-27-060-188	Water	12/3/2012 11:46:00 AM	12/4/2012	12/20/2012
N009045-004A	MW-27-085-188	Water	12/3/2012 12:45:00 PM	12/4/2012	12/20/2012
N009045-004B	MW-27-085-188	Water	12/3/2012 12:45:00 PM	12/4/2012	12/20/2012
N009045-005A	MW-30-030-188	Water	12/3/2012 3:36:00 PM	12/4/2012	12/20/2012
N009045-005B	MW-30-030-188	Water	12/3/2012 3:36:00 PM	12/4/2012	12/20/2012
N009045-006A	MW-30-050-188	Water	12/3/2012 2:11:00 PM	12/4/2012	12/20/2012
N009045-006B	MW-30-050-188	Water	12/3/2012 2:11:00 PM	12/4/2012	12/20/2012
N009045-007A	MW-39-050-188	Water	12/3/2012 10:46:00 AM	12/4/2012	12/20/2012
N009045-007B	MW-39-050-188	Water	12/3/2012 10:46:00 AM	12/4/2012	12/20/2012
N009045-008A	MW-39-060-188	Water	12/3/2012 3:56:00 PM	12/4/2012	12/20/2012
N009045-008B	MW-39-060-188	Water	12/3/2012 3:56:00 PM	12/4/2012	12/20/2012
N009045-009A	MW-39-070-188	Water	12/3/2012 2:52:00 PM	12/4/2012	12/20/2012
N009045-009B	MW-39-070-188	Water	12/3/2012 2:52:00 PM	12/4/2012	12/20/2012
N009045-010A	MW-39-080-188	Water	12/3/2012 1:14:00 PM	12/4/2012	12/20/2012
N009045-010B	MW-39-080-188	Water	12/3/2012 1:14:00 PM	12/4/2012	12/20/2012
N009045-011A	MW-40D-188	Water	12/3/2012 1:24:00 PM	12/4/2012	12/20/2012
N009045-011B	MW-40D-188	Water	12/3/2012 1:24:00 PM	12/4/2012	12/20/2012
N009045-012A	MW-40S-188	Water	12/3/2012 12:15:00 PM	12/4/2012	12/20/2012
N009045-012B	MW-40S-188	Water	12/3/2012 12:15:00 PM	12/4/2012	12/20/2012
N009045-013A	MW-41S-188	Water	12/3/2012 10:43:00 AM	12/4/2012	12/20/2012
N009045-013B	MW-41S-188	Water	12/3/2012 10:43:00 AM	12/4/2012	12/20/2012
N009045-014A	MW-35-060-188	Water	12/4/2012 8:50:00 AM	12/4/2012	12/20/2012
N009045-014B	MW-35-060-188	Water	12/4/2012 8:50:00 AM	12/4/2012	12/20/2012
N009045-015A	MW-35-135-188	Water	12/4/2012 10:04:00 AM	12/4/2012	12/20/2012

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CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.01
Lab Order: N009045
Contract No: 2012-GMP-188-

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N009045-015B	MW-35-135-188	Water	12/4/2012 10:04:00 AM	12/4/2012	12/20/2012
N009045-016A	MW-36-020-188	Water	12/4/2012 2:04:00 PM	12/4/2012	12/20/2012
N009045-016B	MW-36-020-188	Water	12/4/2012 2:04:00 PM	12/4/2012	12/20/2012
N009045-017A	MW-36-040-188	Water	12/4/2012 9:03:00 AM	12/4/2012	12/20/2012
N009045-017B	MW-36-040-188	Water	12/4/2012 9:03:00 AM	12/4/2012	12/20/2012
N009045-018A	MW-36-050-188	Water	12/4/2012 12:04:00 PM	12/4/2012	12/20/2012
N009045-018B	MW-36-050-188	Water	12/4/2012 12:04:00 PM	12/4/2012	12/20/2012
N009045-019A	MW-36-070-188	Water	12/4/2012 3:17:00 PM	12/4/2012	12/20/2012
N009045-019B	MW-36-070-188	Water	12/4/2012 3:17:00 PM	12/4/2012	12/20/2012
N009045-020A	MW-36-090-188	Water	12/4/2012 11:06:00 AM	12/4/2012	12/20/2012
N009045-020B	MW-36-090-188	Water	12/4/2012 11:06:00 AM	12/4/2012	12/20/2012
N009045-021A	MW-94-188	Water	12/4/2012 7:10:00 AM	12/4/2012	12/20/2012
N009045-021B	MW-94-188	Water	12/4/2012 7:10:00 AM	12/4/2012	12/20/2012

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-17-188
Lab Order:	N009045	**Collection Date:**	12/3/2012 3:18:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009045-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121205G**	QC Batch: **R86780**			PrepDate:			Analyst: **CEI**
Specific Conductance	1400	0.10	0.10		umhos/cm	1	12/5/2012

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

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT: CH2M HILL
Lab Order: N009045
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009045-002

Client Sample ID: MW-27-020-188
Collection Date: 12/3/2012 10:05:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
EPA 120.1							
RunID: **WETCHEM_121205G**	QC Batch: **R86780**			PrepDate:			Analyst: **CEI**
Specific Conductance	950	0.10	0.10		umhos/cm	1	12/5/2012

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-27-060-188
Lab Order:	N009045	**Collection Date:**	12/3/2012 11:46:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009045-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
EPA 120.1							
RunID: **WETCHEM_121205G**	QC Batch: **R86780**			PrepDate:			Analyst: **CEI**
Specific Conductance	1000	0.10	0.10		umhos/cm	1	12/5/2012

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

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-27-085-188
Lab Order:	N009045	**Collection Date:**	12/3/2012 12:45:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009045-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121205G**	QC Batch: **R86780**			PrepDate:			Analyst: **CEI**
Specific Conductance	11000	0.10	0.10		umhos/cm	1	12/5/2012

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-30-030-188
Lab Order:	N009045	**Collection Date:**	12/3/2012 3:36:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009045-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121205G**	QC Batch: **R86780**			PrepDate:			Analyst: **CEI**
Specific Conductance	28000	0.10	0.10		umhos/cm	1	12/5/2012

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

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-30-050-188
Lab Order:	N009045	**Collection Date:**	12/3/2012 2:11:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009045-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121205G**	QC Batch: **R86780**			PrepDate:			Analyst: **CEI**
Specific Conductance	1100	0.10	0.10		umhos/cm	1	12/5/2012

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

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-39-050-188
Lab Order:	N009045	**Collection Date:**	12/3/2012 10:46:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009045-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121205G**	QC Batch: **R86780**			PrepDate:			Analyst: **CEI**
Specific Conductance	1300	0.10	0.10		umhos/cm	1	12/5/2012

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

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-39-060-188
Lab Order:	N009045	**Collection Date:**	12/3/2012 3:56:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009045-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121205G**	QC Batch: **R86780**			PrepDate:			Analyst: **CEI**
Specific Conductance	1500	0.10	0.10		umhos/cm	1	12/5/2012

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

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-39-070-188
Lab Order:	N009045	**Collection Date:**	12/3/2012 2:52:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009045-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121205G**	QC Batch: **R86780**			PrepDate:			Analyst: **CEI**
Specific Conductance	2500	0.10	0.10		umhos/cm	1	12/5/2012

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

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-39-080-188
Lab Order:	N009045	**Collection Date:**	12/3/2012 1:14:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009045-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121205G**	QC Batch: **R86780**			PrepDate:			Analyst: **CEI**
Specific Conductance	6700	0.10	0.10		umhos/cm	1	12/5/2012

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

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-40D-188
Lab Order:	N009045	**Collection Date:**	12/3/2012 1:24:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009045-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
EPA 120.1							
RunID: **WETCHEM_121205H**	QC Batch: **R86781**			PrepDate:			Analyst: **CEI**
Specific Conductance	15000	0.10	0.10		umhos/cm	1	12/5/2012

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

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-40S-188
Lab Order:	N009045	**Collection Date:**	12/3/2012 12:15:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009045-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121205H**	QC Batch: **R86781**			PrepDate:			Analyst: **CEI**
Specific Conductance	2200	0.10	0.10		umhos/cm	1	12/5/2012

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

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT: CH2M HILL
Lab Order: N009045
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009045-013

Client Sample ID: MW-41S-188
Collection Date: 12/3/2012 10:43:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
EPA 120.1							
RunID: **WETCHEM_121205H**	QC Batch: **R86781**			PrepDate:			Analyst: **CEI**
Specific Conductance	5000	0.10	0.10		umhos/cm	1	12/5/2012

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-35-060-188
Lab Order:	N009045	**Collection Date:**	12/4/2012 8:50:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009045-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
EPA 120.1							
RunID: **WETCHEM_121205H**	QC Batch: **R86781**			PrepDate:			Analyst: **CEI**
Specific Conductance	7100	0.10	0.10		umhos/cm	1	12/5/2012

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

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT: CH2M HILL
Lab Order: N009045
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009045-015

Client Sample ID: MW-35-135-188
Collection Date: 12/4/2012 10:04:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
EPA 120.1							
RunID: **WETCHEM_121205H**	QC Batch: **R86781**			PrepDate:			Analyst: **CEI**
Specific Conductance	10000	0.10	0.10		umhos/cm	1	12/5/2012

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-36-020-188
Lab Order:	N009045	**Collection Date:**	12/4/2012 2:04:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009045-016		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
EPA 120.1							
RunID: **WETCHEM_121205H**	QC Batch: **R86781**			PrepDate:			Analyst: **CEI**
Specific Conductance	6000	0.10	0.10		umhos/cm	1	12/5/2012

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

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT: CH2M HILL
Lab Order: N009045
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009045-017

Client Sample ID: MW-36-040-188
Collection Date: 12/4/2012 9:03:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
EPA 120.1							
RunID: **WETCHEM_121205H**	QC Batch: **R86781**			PrepDate:			Analyst: **CEI**
Specific Conductance	1500	0.10	0.10		umhos/cm	1	12/5/2012

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT: CH2M HILL
Lab Order: N009045
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009045-018

Client Sample ID: MW-36-050-188
Collection Date: 12/4/2012 12:04:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
EPA 120.1							
RunID: **WETCHEM_121205H**	QC Batch: **R86781**			PrepDate:			Analyst: **CEI**
Specific Conductance	1100	0.10	0.10		umhos/cm	1	12/5/2012

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-36-070-188
Lab Order:	N009045	**Collection Date:**	12/4/2012 3:17:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009045-019		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121205H**	QC Batch: **R86781**			PrepDate:			Analyst: **CEI**
Specific Conductance	1100	0.10	0.10		umhos/cm	1	12/5/2012

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

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-36-090-188
Lab Order:	N009045	**Collection Date:**	12/4/2012 11:06:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009045-020		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
EPA 120.1							
RunID: **WETCHEM_121205H**	QC Batch: **R86781**			PrepDate:			Analyst: **CEI**
Specific Conductance	1200	0.10	0.10		umhos/cm	1	12/5/2012

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

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-94-188
Lab Order:	N009045	**Collection Date:**	12/4/2012 7:10:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009045-021		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121205I**	QC Batch: **R86782**			PrepDate:			Analyst: **CEI**
Specific Conductance	6200	0.10	0.10		umhos/cm	1	12/5/2012

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

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Date: *20-Dec-12*

CLIENT: CH2M HILL
Work Order: N009045
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: **LCS-R86780** SampType: **LCS** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86780**
Client ID: **LCSW** Batch ID: **R86780** TestNo: **EPA 120.1** Analysis Date: **12/5/2012** SeqNo: **1492819**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	1427.000	0.10	1414	0	101	85	115				

Sample ID: **N009045-001BDUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86780**
Client ID: **ZZZZZZ** Batch ID: **R86780** TestNo: **EPA 120.1** Analysis Date: **12/5/2012** SeqNo: **1492821**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	1423.000	0.10						1420	0.211	10	

Sample ID: **N009045-001BMS** SampType: **MS** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86780**
Client ID: **ZZZZZZ** Batch ID: **R86780** TestNo: **EPA 120.1** Analysis Date: **12/5/2012** SeqNo: **1492822**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	2874.000	0.20	1414	1420	103	75	125				

Sample ID: **N009045-001BMSD** SampType: **MSD** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86780**
Client ID: **ZZZZZZ** Batch ID: **R86780** TestNo: **EPA 120.1** Analysis Date: **12/5/2012** SeqNo: **1492823**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	2862.000	0.20	1414	1420	102	75	125	2874	0.418	10	

Qualifiers:

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

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CLIENT: CH2M HILL
Work Order: N009045
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: **LCS-R86781** SampType: **LCS** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86781**
Client ID: **LCSW** Batch ID: **R86781** TestNo: **EPA 120.1** Analysis Date: **12/5/2012** SeqNo: **1492833**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	1438.000	0.10	1414	0	102	85	115				

Sample ID: **N009045-018BDUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86781**
Client ID: **ZZZZZZ** Batch ID: **R86781** TestNo: **EPA 120.1** Analysis Date: **12/5/2012** SeqNo: **1492842**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	1136.000	0.10						1137	0.0880	10	

Sample ID: **N009045-018BMS** SampType: **MS** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86781**
Client ID: **ZZZZZZ** Batch ID: **R86781** TestNo: **EPA 120.1** Analysis Date: **12/5/2012** SeqNo: **1492843**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	2580.000	0.20	1414	1137	102	75	125				

Sample ID: **N009045-018BMSD** SampType: **MSD** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86781**
Client ID: **ZZZZZZ** Batch ID: **R86781** TestNo: **EPA 120.1** Analysis Date: **12/5/2012** SeqNo: **1492844**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	2554.000	0.20	1414	1137	100	75	125	2580	1.01	10	

Qualifiers:

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

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CLIENT: CH2M HILL
Work Order: N009045
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: **LCS-R86782** SampType: **LCS** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86782**
Client ID: **LCSW** Batch ID: **R86782** TestNo: **EPA 120.1** Analysis Date: **12/5/2012** SeqNo: **1492854**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	1434.000	0.10	1414	0	101	85	115				

Sample ID: **N009050-002BDUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86782**
Client ID: **ZZZZZZ** Batch ID: **R86782** TestNo: **EPA 120.1** Analysis Date: **12/5/2012** SeqNo: **1492858**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	15530.000	0.10						15530	0	10	

Sample ID: **N009050-002BMS** SampType: **MS** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86782**
Client ID: **ZZZZZZ** Batch ID: **R86782** TestNo: **EPA 120.1** Analysis Date: **12/5/2012** SeqNo: **1492859**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	25800.000	0.20	9992	15530	103	75	125				

Sample ID: **N009050-002BMSD** SampType: **MSD** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86782**
Client ID: **ZZZZZZ** Batch ID: **R86782** TestNo: **EPA 120.1** Analysis Date: **12/5/2012** SeqNo: **1492860**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	25940.000	0.20	9992	15530	104	75	125	25800	0.541	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: *20-Dec-12*

CLIENT: CH2M HILL
Lab Order: N009045
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009045-001

Client Sample ID: MW-17-188
Collection Date: 12/3/2012 3:18:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121206E**	QC Batch: **R86600**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	56	1.2	5.0		mg/L	1	12/6/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/6/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/6/2012
Alkalinity, Total (As CaCO3)	56	1.2	5.0		mg/L	1	12/6/2012

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-27-020-188
Lab Order:	N009045	**Collection Date:**	12/3/2012 10:05:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009045-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121206E**	QC Batch: **R86600**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	150	1.2	5.0		mg/L	1	12/6/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/6/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/6/2012
Alkalinity, Total (As CaCO3)	150	1.2	5.0		mg/L	1	12/6/2012

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT: CH2M HILL
Lab Order: N009045
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009045-003

Client Sample ID: MW-27-060-188
Collection Date: 12/3/2012 11:46:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121206E**	QC Batch: **R86600**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	210	1.2	5.0		mg/L	1	12/6/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/6/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/6/2012
Alkalinity, Total (As CaCO3)	210	1.2	5.0		mg/L	1	12/6/2012

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-27-085-188
Lab Order:	N009045	**Collection Date:**	12/3/2012 12:45:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009045-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121206E**	QC Batch: **R86600**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	210	1.2	5.0		mg/L	1	12/6/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/6/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/6/2012
Alkalinity, Total (As CaCO3)	210	1.2	5.0		mg/L	1	12/6/2012

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-30-030-188
Lab Order:	N009045	**Collection Date:**	12/3/2012 3:36:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009045-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121207F**	QC Batch: **R86711**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	1500	1.2	5.0	B	mg/L	1	12/7/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/7/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/7/2012
Alkalinity, Total (As CaCO3)	1500	1.2	5.0	B	mg/L	1	12/7/2012

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT: CH2M HILL
Lab Order: N009045
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009045-006

Client Sample ID: MW-30-050-188
Collection Date: 12/3/2012 2:11:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121206E**	QC Batch: **R86600**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	190	1.2	5.0		mg/L	1	12/6/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/6/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/6/2012
Alkalinity, Total (As CaCO3)	190	1.2	5.0		mg/L	1	12/6/2012

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-39-050-188
Lab Order:	N009045	**Collection Date:**	12/3/2012 10:46:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009045-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121206E**	QC Batch: **R86600**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	200	1.2	5.0		mg/L	1	12/6/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/6/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/6/2012
Alkalinity, Total (As CaCO3)	200	1.2	5.0		mg/L	1	12/6/2012

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-39-060-188
Lab Order:	N009045	**Collection Date:**	12/3/2012 3:56:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009045-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121206E**	QC Batch: **R86600**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	220	1.2	5.0		mg/L	1	12/6/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/6/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/6/2012
Alkalinity, Total (As CaCO3)	220	1.2	5.0		mg/L	1	12/6/2012

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-39-070-188
Lab Order:	N009045	**Collection Date:**	12/3/2012 2:52:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009045-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121206E**	QC Batch: **R86600**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	270	1.2	5.0		mg/L	1	12/6/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/6/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/6/2012
Alkalinity, Total (As CaCO3)	270	1.2	5.0		mg/L	1	12/6/2012

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT: CH2M HILL
Lab Order: N009045
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009045-010

Client Sample ID: MW-39-080-188
Collection Date: 12/3/2012 1:14:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121206E**	QC Batch: **R86600**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	340	1.2	5.0		mg/L	1	12/6/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/6/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/6/2012
Alkalinity, Total (As CaCO3)	340	1.2	5.0		mg/L	1	12/6/2012

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-40D-188
Lab Order:	N009045	**Collection Date:**	12/3/2012 1:24:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009045-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121206E**	QC Batch: **R86600**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	47	1.2	5.0		mg/L	1	12/6/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/6/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/6/2012
Alkalinity, Total (As CaCO3)	47	1.2	5.0		mg/L	1	12/6/2012

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-41S-188
Lab Order:	N009045	**Collection Date:**	12/3/2012 10:43:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009045-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121206E**	QC Batch: **R86600**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	57	1.2	5.0		mg/L	1	12/6/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/6/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/6/2012
Alkalinity, Total (As CaCO3)	57	1.2	5.0		mg/L	1	12/6/2012

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT: CH2M HILL
Lab Order: N009045
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009045-014

Client Sample ID: MW-35-060-188
Collection Date: 12/4/2012 8:50:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121206E**	QC Batch: **R86600**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	73	1.2	5.0		mg/L	1	12/6/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/6/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/6/2012
Alkalinity, Total (As CaCO3)	73	1.2	5.0		mg/L	1	12/6/2012

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT: CH2M HILL
Lab Order: N009045
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009045-015

Client Sample ID: MW-35-135-188
Collection Date: 12/4/2012 10:04:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121206E**	QC Batch: **R86600**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	47	1.2	5.0		mg/L	1	12/6/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/6/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/6/2012
Alkalinity, Total (As CaCO3)	47	1.2	5.0		mg/L	1	12/6/2012

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT: CH2M HILL
Lab Order: N009045
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009045-016

Client Sample ID: MW-36-020-188
Collection Date: 12/4/2012 2:04:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121206E**	QC Batch: **R86600**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	700	1.2	5.0		mg/L	1	12/6/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/6/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/6/2012
Alkalinity, Total (As CaCO3)	700	1.2	5.0		mg/L	1	12/6/2012

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-36-040-188
Lab Order:	N009045	**Collection Date:**	12/4/2012 9:03:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009045-017		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121206E**	QC Batch: **R86600**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	270	1.2	5.0		mg/L	1	12/6/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/6/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/6/2012
Alkalinity, Total (As CaCO3)	270	1.2	5.0		mg/L	1	12/6/2012

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT: CH2M HILL
Lab Order: N009045
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009045-018

Client Sample ID: MW-36-050-188
Collection Date: 12/4/2012 12:04:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121206E**	QC Batch: **R86600**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	200	1.2	5.0		mg/L	1	12/6/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/6/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/6/2012
Alkalinity, Total (As CaCO3)	200	1.2	5.0		mg/L	1	12/6/2012

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-36-070-188
Lab Order:	N009045	**Collection Date:**	12/4/2012 3:17:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009045-019		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121206E**	QC Batch: **R86600**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	180	1.2	5.0		mg/L	1	12/6/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/6/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/6/2012
Alkalinity, Total (As CaCO3)	180	1.2	5.0		mg/L	1	12/6/2012

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT: CH2M HILL
Lab Order: N009045
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009045-020

Client Sample ID: MW-36-090-188
Collection Date: 12/4/2012 11:06:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121206E**	QC Batch: **R86600**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	190	1.2	5.0		mg/L	1	12/6/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/6/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/6/2012
Alkalinity, Total (As CaCO3)	190	1.2	5.0		mg/L	1	12/6/2012

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-94-188
Lab Order:	N009045	**Collection Date:**	12/4/2012 7:10:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009045-021		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121206E**	QC Batch: **R86600**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	700	1.2	5.0		mg/L	1	12/6/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/6/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/6/2012
Alkalinity, Total (As CaCO3)	700	1.2	5.0		mg/L	1	12/6/2012

Qualifiers:

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

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Advanced Technology Laboratories, Inc.

Date: *20-Dec-12*

CLIENT: CH2M HILL
Work Order: N009045
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **LCS-R86600** SampType: **LCS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86600**
Client ID: **LCSW** Batch ID: **R86600** TestNo: **SM 2320 B** Analysis Date: **12/6/2012** SeqNo: **1485451**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	96.360	5.0	100.0	0	96.4	85	115				
Alkalinity, Total (As CaCO3)	100.642	5.0	100.0	0	101	85	115				

Sample ID: **MB-R86600** SampType: **MBLK** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86600**
Client ID: **PBW** Batch ID: **R86600** TestNo: **SM 2320 B** Analysis Date: **12/6/2012** SeqNo: **1485452**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	2.141	5.0									
Alkalinity, Carbonate (As CaCO3)	ND	5.0									
Alkalinity, Hydroxide (As CaCO3)	ND	5.0									
Alkalinity, Total (As CaCO3)	2.141	5.0									

Sample ID: **N009045-001BMS** SampType: **MS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86600**
Client ID: **ZZZZZZ** Batch ID: **R86600** TestNo: **SM 2320 B** Analysis Date: **12/6/2012** SeqNo: **1485454**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	156.317	5.0	100.0	55.67	101	75	125				
Alkalinity, Total (As CaCO3)	156.317	5.0	100.0	55.67	101	75	125				

Sample ID: **N009045-001BMSD** SampType: **MSD** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86600**
Client ID: **ZZZZZZ** Batch ID: **R86600** TestNo: **SM 2320 B** Analysis Date: **12/6/2012** SeqNo: **1485455**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	157.388	5.0	100.0	55.67	102	75	125	156.3	0.683	20	
Alkalinity, Total (As CaCO3)	157.388	5.0	100.0	55.67	102	75	125	156.3	0.683	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: N009045
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **N009045-003BDUP** SampType: **DUP** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86600**
Client ID: **ZZZZZZ** Batch ID: **R86600** TestNo: **SM 2320 B** Analysis Date: **12/6/2012** SeqNo: **1485458**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	211.991	5.0						209.9	1.02	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)	211.991	5.0						209.9	1.02	30	

Qualifiers:

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

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CLIENT: CH2M HILL
Work Order: N009045
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **LCS-R86711** SampType: **LCS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86711**
Client ID: **LCSW** Batch ID: **R86711** TestNo: **SM 2320 B** Analysis Date: **12/7/2012** SeqNo: **1489181**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	489.362	5.0	500.0	0	97.9	85	115				B
Alkalinity, Total (As CaCO3)	500.000	5.0	500.0	0	100	85	115				B

Sample ID: **MB-R86711** SampType: **MBLK** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86711**
Client ID: **PBW** Batch ID: **R86711** TestNo: **SM 2320 B** Analysis Date: **12/7/2012** SeqNo: **1489182**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	5.319	5.0									
Alkalinity, Carbonate (As CaCO3)	ND	5.0									
Alkalinity, Hydroxide (As CaCO3)	ND	5.0									
Alkalinity, Total (As CaCO3)	5.319	5.0									

Sample ID: **N009045-005BDUP** SampType: **DUP** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86711**
Client ID: **ZZZZZZ** Batch ID: **R86711** TestNo: **SM 2320 B** Analysis Date: **12/7/2012** SeqNo: **1489184**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	1494.681	5.0						1489	0.357	30	B
Alkalinity, Carbonate (As CaCO3)	ND	5.0						0	0	30	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0						0	0	30	
Alkalinity, Total (As CaCO3)	1494.681	5.0						1489	0.357	30	B

Sample ID: **N009045-005BMS** SampType: **MS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86711**
Client ID: **ZZZZZZ** Batch ID: **R86711** TestNo: **SM 2320 B** Analysis Date: **12/7/2012** SeqNo: **1489185**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	1994.681	5.0	500.0	1489	101	75	125				B
Alkalinity, Total (As CaCO3)	1994.681	5.0	500.0	1489	101	75	125				B

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD 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: N009045
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **N009045-005BMSD** SampType: **MSD** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86711**
Client ID: **ZZZZZZ** Batch ID: **R86711** TestNo: **SM 2320 B** Analysis Date: **12/7/2012** SeqNo: **1489186**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	1978.723	5.0	500.0	1489	97.9	75	125	1995	0.803	20	B
Alkalinity, Total (As CaCO3)	1978.723	5.0	500.0	1489	97.9	75	125	1995	0.803	20	B

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT: CH2M HILL
Lab Order: N009045
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009045-001

Client Sample ID: MW-17-188
Collection Date: 12/3/2012 3:18:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121205A** QC Batch: **R86764** PrepDate: Analyst: **QBM**							
Chloride	130	0.22	10		mg/L	20	12/5/2012 01:23 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121205A** QC Batch: **R86764** PrepDate: Analyst: **QBM**							
Sulfate	400	1.8	25		mg/L	50	12/5/2012 03:13 PM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT: CH2M HILL
Lab Order: N009045
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009045-002

Client Sample ID: MW-27-020-188
Collection Date: 12/3/2012 10:05:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_121206B** QC Batch: **R86770**				PrepDate:			Analyst: **QBM**
Chloride	76	0.22	10		mg/L	20	12/6/2012 04:55 PM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_121206B** QC Batch: **R86770**				PrepDate:			Analyst: **QBM**
Sulfate	210	0.70	10		mg/L	20	12/6/2012 04:55 PM

Qualifiers:

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

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT: CH2M HILL
Lab Order: N009045
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009045-003

Client Sample ID: MW-27-060-188
Collection Date: 12/3/2012 11:46:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121206B** QC Batch: **R86770** PrepDate: Analyst: **QBM**							
Chloride	87	0.22	10		mg/L	20	12/6/2012 05:06 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121206B** QC Batch: **R86770** PrepDate: Analyst: **QBM**							
Fluoride	0.71	0.012	0.50		mg/L	1	12/6/2012 06:40 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121206B** QC Batch: **R86770** PrepDate: Analyst: **QBM**							
Sulfate	170	0.70	10		mg/L	20	12/6/2012 05:06 PM

Qualifiers:

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

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT: CH2M HILL
Lab Order: N009045
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009045-004

Client Sample ID: MW-27-085-188
Collection Date: 12/3/2012 12:45:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121206B** QC Batch: **R86770** PrepDate: Analyst: **QBM**							
Chloride	3200	11	500		mg/L	1000	12/6/2012 06:28 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121206B** QC Batch: **R86770** PrepDate: Analyst: **QBM**							
Fluoride	ND	0.12	5.0		mg/L	10	12/6/2012 06:51 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121206B** QC Batch: **R86770** PrepDate: Analyst: **QBM**							
Sulfate	1100	3.5	50		mg/L	100	12/6/2012 05:18 PM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-30-030-188
Lab Order:	N009045	**Collection Date:**	12/3/2012 3:36:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009045-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121205A** QC Batch: **R86764** PrepDate: Analyst: **QBM**							
Chloride	8700	22	1000		mg/L	2000	12/5/2012 03:25 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121205A** QC Batch: **R86764** PrepDate: Analyst: **QBM**							
Sulfate	3400	18	250		mg/L	500	12/5/2012 01:34 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: *20-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-30-050-188
Lab Order:	N009045	**Collection Date:**	12/3/2012 2:11:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009045-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_121205A**	QC Batch: **R86764**			PrepDate:			Analyst: **QBM**
Chloride	110	0.22	10		mg/L	20	12/5/2012 01:46 PM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_121205A**	QC Batch: **R86764**			PrepDate:			Analyst: **QBM**
Sulfate	200	0.70	10		mg/L	20	12/5/2012 01:46 PM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-39-050-188
Lab Order:	N009045	**Collection Date:**	12/3/2012 10:46:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009045-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121205A** QC Batch: **R86764** PrepDate: Analyst: **QBM**							
Chloride	140	0.55	25		mg/L	50	12/5/2012 01:58 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121205A** QC Batch: **R86764** PrepDate: Analyst: **QBM**							
Sulfate	210	1.8	25		mg/L	50	12/5/2012 01:58 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: *20-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-39-060-188
Lab Order:	N009045	**Collection Date:**	12/3/2012 3:56:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009045-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121205A** QC Batch: **R86764** PrepDate: Analyst: **QBM**							
Chloride	190	0.55	25		mg/L	50	12/5/2012 02:09 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121205A** QC Batch: **R86764** PrepDate: Analyst: **QBM**							
Sulfate	220	1.8	25		mg/L	50	12/5/2012 02:09 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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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-39-070-188
Lab Order:	N009045	**Collection Date:**	12/3/2012 2:52:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009045-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121205A** QC Batch: **R86764** PrepDate: Analyst: **QBM**							
Chloride	440	1.1	50		mg/L	100	12/5/2012 05:34 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121205A** QC Batch: **R86764** PrepDate: Analyst: **QBM**							
Sulfate	290	1.8	25		mg/L	50	12/5/2012 03:52 PM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-39-080-188
Lab Order:	N009045	**Collection Date:**	12/3/2012 1:14:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009045-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121205A** QC Batch: **R86764** PrepDate: Analyst: **QBM**							
Chloride	1700	5.5	250		mg/L	500	12/5/2012 05:46 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121205A** QC Batch: **R86764** PrepDate: Analyst: **QBM**							
Sulfate	610	3.5	50		mg/L	100	12/5/2012 04:03 PM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT: CH2M HILL
Lab Order: N009045
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009045-011

Client Sample ID: MW-40D-188
Collection Date: 12/3/2012 1:24:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121205A** QC Batch: **R86764** PrepDate: Analyst: **QBM**							
Chloride	5300	11	500		mg/L	1000	12/5/2012 05:58 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121205A** QC Batch: **R86764** PrepDate: Analyst: **QBM**							
Sulfate	700	3.5	50		mg/L	100	12/5/2012 04:15 PM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-41S-188
Lab Order:	N009045	**Collection Date:**	12/3/2012 10:43:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009045-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121205A** QC Batch: **R86764** PrepDate: Analyst: **QBM**							
Chloride	1400	5.5	250		mg/L	500	12/5/2012 06:09 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121205A** QC Batch: **R86764** PrepDate: Analyst: **QBM**							
Sulfate	270	0.70	10		mg/L	20	12/5/2012 04:27 PM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT: CH2M HILL
Lab Order: N009045
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009045-014

Client Sample ID: MW-35-060-188
Collection Date: 12/4/2012 8:50:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121205A** QC Batch: **R86764** PrepDate: Analyst: **QBM**							
Chloride	2100	5.5	250		mg/L	500	12/5/2012 06:21 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121205A** QC Batch: **R86764** PrepDate: Analyst: **QBM**							
Sulfate	330	1.8	25		mg/L	50	12/5/2012 04:38 PM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-35-135-188
Lab Order:	N009045	**Collection Date:**	12/4/2012 10:04:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009045-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121205A** QC Batch: **R86764** PrepDate: Analyst: **QBM**							
Chloride	3100	11	500		mg/L	1000	12/5/2012 06:33 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121205A** QC Batch: **R86764** PrepDate: Analyst: **QBM**							
Sulfate	640	3.5	50		mg/L	100	12/5/2012 04:50 PM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT: CH2M HILL
Lab Order: N009045
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009045-016

Client Sample ID: MW-36-020-188
Collection Date: 12/4/2012 2:04:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121205A** QC Batch: **R86764** PrepDate: Analyst: **QBM**							
Chloride	890	2.2	100		mg/L	200	12/5/2012 06:47 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121205A** QC Batch: **R86764** PrepDate: Analyst: **QBM**							
Sulfate	1200	7.0	100		mg/L	200	12/5/2012 06:47 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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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT: CH2M HILL
Lab Order: N009045
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009045-017

Client Sample ID: MW-36-040-188
Collection Date: 12/4/2012 9:03:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_121205A** QC Batch: **R86764**				PrepDate:			Analyst: **QBM**
Chloride	170	0.55	25		mg/L	50	12/5/2012 08:21 PM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_121205A** QC Batch: **R86764**				PrepDate:			Analyst: **QBM**
Sulfate	190	0.70	10		mg/L	20	12/5/2012 06:59 PM

Qualifiers:

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

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT: CH2M HILL
Lab Order: N009045
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009045-018

Client Sample ID: MW-36-050-188
Collection Date: 12/4/2012 12:04:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_121205A** QC Batch: **R86764**				PrepDate:			Analyst: **QBM**
Chloride	130	0.22	10		mg/L	20	12/5/2012 07:11 PM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_121205A** QC Batch: **R86764**				PrepDate:			Analyst: **QBM**
Sulfate	190	0.70	10		mg/L	20	12/5/2012 07:11 PM

Qualifiers:

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

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT: CH2M HILL
Lab Order: N009045
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009045-019

Client Sample ID: MW-36-070-188
Collection Date: 12/4/2012 3:17:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121206B** QC Batch: **R86770** PrepDate: Analyst: **QBM**							
Chloride	95	0.22	10		mg/L	20	12/6/2012 08:59 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121206B** QC Batch: **R86770** PrepDate: Analyst: **QBM**							
Sulfate	200	0.70	10		mg/L	20	12/6/2012 08:59 PM

Qualifiers:

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

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT: CH2M HILL
Lab Order: N009045
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009045-020

Client Sample ID: MW-36-090-188
Collection Date: 12/4/2012 11:06:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_121205A**	QC Batch: **R86764**			PrepDate:			Analyst: **QBM**
Chloride	100	0.22	10		mg/L	20	12/5/2012 07:57 PM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_121205A**	QC Batch: **R86764**			PrepDate:			Analyst: **QBM**
Sulfate	210	0.70	10		mg/L	20	12/5/2012 07:57 PM

Qualifiers:

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

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-94-188
Lab Order:	N009045	**Collection Date:**	12/4/2012 7:10:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009045-021		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121205A** QC Batch: **R86764** PrepDate: Analyst: **QBM**							
Chloride	900	2.2	100		mg/L	200	12/5/2012 08:56 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121205A** QC Batch: **R86764** PrepDate: Analyst: **QBM**							
Sulfate	1200	7.0	100		mg/L	200	12/5/2012 08:56 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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Advanced Technology Laboratories, Inc.

Date: *20-Dec-12*

CLIENT: CH2M HILL
Work Order: N009045
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **MB-R86764_CL** SampType: **MBLK** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86764**
Client ID: **PBW** Batch ID: **R86764** TestNo: **EPA 300.0** Analysis Date: **12/5/2012** SeqNo: **1492207**

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

Sample ID: **LCS-R86764_CL** SampType: **LCS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86764**
Client ID: **LCSW** Batch ID: **R86764** TestNo: **EPA 300.0** Analysis Date: **12/5/2012** SeqNo: **1492208**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.434	0.50	2.500	0	97.4	90	110				

Sample ID: **N009049-002DDUP** SampType: **DUP** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86764**
Client ID: **ZZZZZZ** Batch ID: **R86764** TestNo: **EPA 300.0** Analysis Date: **12/5/2012** SeqNo: **1492210**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	46.980	5.0						48.08	2.31	20	

Sample ID: **N009049-001DMS** SampType: **MS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86764**
Client ID: **ZZZZZZ** Batch ID: **R86764** TestNo: **EPA 300.0** Analysis Date: **12/5/2012** SeqNo: **1492214**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	72.580	5.0	25.00	47.19	102	80	120				

Sample ID: **N009049-001DMSD** SampType: **MSD** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86764**
Client ID: **ZZZZZZ** Batch ID: **R86764** TestNo: **EPA 300.0** Analysis Date: **12/5/2012** SeqNo: **1492215**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	72.720	5.0	25.00	47.19	102	80	120	72.58	0.193	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: N009045
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **N009045-006BMS** SampType: **MS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86764**
Client ID: **ZZZZZZ** Batch ID: **R86764** TestNo: **EPA 300.0** Analysis Date: **12/5/2012** SeqNo: **1492224**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	158.540	10	50.00	106.1	105	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: N009045
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **LCS-R86770_CL** SampType: **LCS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86770**
Client ID: **LCSW** Batch ID: **R86770** TestNo: **EPA 300.0** Analysis Date: **12/6/2012** SeqNo: **1492495**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.459	0.50	2.500	0	98.4	90	110				

Sample ID: **MB-R86770_CL** SampType: **MBLK** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86770**
Client ID: **PBW** Batch ID: **R86770** TestNo: **EPA 300.0** Analysis Date: **12/6/2012** SeqNo: **1492496**

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

Sample ID: **N009045-002BMS** SampType: **MS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86770**
Client ID: **ZZZZZZ** Batch ID: **R86770** TestNo: **EPA 300.0** Analysis Date: **12/6/2012** SeqNo: **1492501**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	128.140	10	50.00	76.34	104	80	120				

Sample ID: **N009045-002BMSD** SampType: **MSD** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86770**
Client ID: **ZZZZZZ** Batch ID: **R86770** TestNo: **EPA 300.0** Analysis Date: **12/6/2012** SeqNo: **1492502**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	129.820	10	50.00	76.34	107	80	120	128.1	1.30	20	

Sample ID: **N009045-003BDUP** SampType: **DUP** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86770**
Client ID: **ZZZZZZ** Batch ID: **R86770** TestNo: **EPA 300.0** Analysis Date: **12/6/2012** SeqNo: **1492503**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	87.260	10						86.78	0.552	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: N009045
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_FPGE

Sample ID: **LCS-R86770_F** SampType: **LCS** TestCode: **300_W_FPGE** Units: **mg/L** Prep Date: RunNo: **86770**
Client ID: **LCSW** Batch ID: **R86770** TestNo: **EPA 300.0** Analysis Date: **12/6/2012** SeqNo: **1492478**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	2.426	0.50	2.500	0	97.0	90	110				

Sample ID: **MB-R86770_F** SampType: **MBLK** TestCode: **300_W_FPGE** Units: **mg/L** Prep Date: RunNo: **86770**
Client ID: **PBW** Batch ID: **R86770** TestNo: **EPA 300.0** Analysis Date: **12/6/2012** SeqNo: **1492479**

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

Sample ID: **N009045-003BDUP** SampType: **DUP** TestCode: **300_W_FPGE** Units: **mg/L** Prep Date: RunNo: **86770**
Client ID: **ZZZZZZ** Batch ID: **R86770** TestNo: **EPA 300.0** Analysis Date: **12/6/2012** SeqNo: **1492484**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	0.719	0.50						0.7100	1.26	20	

Sample ID: **N009045-003BMS** SampType: **MS** TestCode: **300_W_FPGE** Units: **mg/L** Prep Date: RunNo: **86770**
Client ID: **ZZZZZZ** Batch ID: **R86770** TestNo: **EPA 300.0** Analysis Date: **12/6/2012** SeqNo: **1492485**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	3.218	0.50	2.500	0.7100	100	80	120				

Sample ID: **N009045-003BMSD** SampType: **MSD** TestCode: **300_W_FPGE** Units: **mg/L** Prep Date: RunNo: **86770**
Client ID: **ZZZZZZ** Batch ID: **R86770** TestNo: **EPA 300.0** Analysis Date: **12/6/2012** SeqNo: **1492486**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	3.167	0.50	2.500	0.7100	98.3	80	120	3.218	1.60	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: N009045
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **MB-R86764_SO4** SampType: **MBLK** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86764**
Client ID: **PBW** Batch ID: **R86764** TestNo: **EPA 300.0** Analysis Date: **12/5/2012** SeqNo: **1492246**

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

Sample ID: **LCS-R86764_SO4** SampType: **LCS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86764**
Client ID: **LCSW** Batch ID: **R86764** TestNo: **EPA 300.0** Analysis Date: **12/5/2012** SeqNo: **1492247**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.843	0.50	5.000	0	96.9	90	110				

Sample ID: **N009049-002DDUP** SampType: **DUP** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86764**
Client ID: **ZZZZZZ** Batch ID: **R86764** TestNo: **EPA 300.0** Analysis Date: **12/5/2012** SeqNo: **1492249**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	57.610	5.0						57.75	0.243	20	

Sample ID: **N009049-001DMS** SampType: **MS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86764**
Client ID: **ZZZZZZ** Batch ID: **R86764** TestNo: **EPA 300.0** Analysis Date: **12/5/2012** SeqNo: **1492253**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	104.410	5.0	50.00	57.09	94.6	80	120				

Sample ID: **N009049-001DMSD** SampType: **MSD** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86764**
Client ID: **ZZZZZZ** Batch ID: **R86764** TestNo: **EPA 300.0** Analysis Date: **12/5/2012** SeqNo: **1492254**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	103.960	5.0	50.00	57.09	93.7	80	120	104.4	0.432	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: N009045
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **N009045-006BMS** SampType: **MS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86764**
Client ID: **ZZZZZZ** Batch ID: **R86764** TestNo: **EPA 300.0** Analysis Date: **12/5/2012** SeqNo: **1492263**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	298.720	10	100.0	199.6	99.2	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: N009045
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **LCS-R86770_SO4** SampType: **LCS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86770**
Client ID: **LCSW** Batch ID: **R86770** TestNo: **EPA 300.0** Analysis Date: **12/6/2012** SeqNo: **1492518**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.834	0.50	5.000	0	96.7	90	110				

Sample ID: **MB-R86770_SO4** SampType: **MBLK** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86770**
Client ID: **PBW** Batch ID: **R86770** TestNo: **EPA 300.0** Analysis Date: **12/6/2012** SeqNo: **1492519**

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

Sample ID: **N009045-002BMS** SampType: **MS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86770**
Client ID: **ZZZZZZ** Batch ID: **R86770** TestNo: **EPA 300.0** Analysis Date: **12/6/2012** SeqNo: **1492525**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	318.320	10	100.0	212.7	106	80	120				

Sample ID: **N009045-002BMSD** SampType: **MSD** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86770**
Client ID: **ZZZZZZ** Batch ID: **R86770** TestNo: **EPA 300.0** Analysis Date: **12/6/2012** SeqNo: **1492526**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	319.340	10	100.0	212.7	107	80	120	318.3	0.320	20	

Sample ID: **N009045-003BDUP** SampType: **DUP** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86770**
Client ID: **ZZZZZZ** Batch ID: **R86770** TestNo: **EPA 300.0** Analysis Date: **12/6/2012** SeqNo: **1492527**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	170.360	10						166.8	2.10	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT: CH2M HILL
Lab Order: N009045
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009045-001

Client Sample ID: MW-17-188
Collection Date: 12/3/2012 3:18:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121211C**	QC Batch: **41381**				PrepDate: **12/5/2012**		Analyst: **CEI**
Aluminum	ND	7.0	50		ug/L	1	12/11/2012 01:38 PM
Barium	23	0.36	3.0		ug/L	1	12/11/2012 01:38 PM
Beryllium	ND	0.12	1.0		ug/L	1	12/11/2012 01:38 PM
Cadmium	ND	0.37	3.0		ug/L	1	12/11/2012 01:38 PM
Calcium	68000	75	500		ug/L	1	12/11/2012 01:38 PM
Cobalt	ND	0.37	3.0		ug/L	1	12/11/2012 01:38 PM
Copper	ND	2.2	5.0		ug/L	1	12/17/2012 10:18 AM
Iron	ND	7.2	20		ug/L	1	12/17/2012 10:18 AM
Lead	ND	1.6	10		ug/L	1	12/11/2012 01:38 PM
Magnesium	9200	13	100		ug/L	1	12/11/2012 01:38 PM
Nickel	ND	0.70	5.0		ug/L	1	12/11/2012 01:38 PM
Potassium	7200	33	5000		ug/L	10	12/13/2012 12:03 PM
Silver	ND	0.39	3.0		ug/L	1	12/11/2012 01:38 PM
Sodium	220000	730	5000		ug/L	10	12/13/2012 12:03 PM
Vanadium	5.9	0.31	3.0		ug/L	1	12/11/2012 01:38 PM
Zinc	11	1.4	10		ug/L	1	12/11/2012 01:38 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT: CH2M HILL
Lab Order: N009045
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009045-002

Client Sample ID: MW-27-020-188
Collection Date: 12/3/2012 10:05:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121211C**	QC Batch: **41381**				PrepDate:	**12/5/2012**	Analyst: **CEI**
Calcium	76000	75	500		ug/L	1	12/11/2012 02:07 PM
Iron	290	7.2	20		ug/L	1	12/17/2012 10:39 AM
Magnesium	24000	13	100		ug/L	1	12/11/2012 02:07 PM
Sodium	76000	730	5000		ug/L	10	12/13/2012 12:06 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: *20-Dec-12*

CLIENT: CH2M HILL
Lab Order: N009045
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009045-003

Client Sample ID: MW-27-060-188
Collection Date: 12/3/2012 11:46:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121211C**	QC Batch: **41381**				PrepDate:	**12/5/2012**	Analyst: **CEI**
Calcium	51000	75	500		ug/L	1	12/11/2012 02:14 PM
Iron	160	7.2	20		ug/L	1	12/17/2012 10:50 AM
Magnesium	12000	13	100		ug/L	1	12/11/2012 02:14 PM
Sodium	150000	730	5000		ug/L	10	12/13/2012 12:08 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT: CH2M HILL
Lab Order: N009045
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009045-004

Client Sample ID: MW-27-085-188
Collection Date: 12/3/2012 12:45:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121211C**	QC Batch: **41381**				PrepDate:	**12/5/2012**	Analyst: **CEI**
Calcium	250000	75	500		ug/L	1	12/11/2012 02:21 PM
Iron	370	36	100		ug/L	5	12/17/2012 01:59 PM
Magnesium	49000	13	100		ug/L	1	12/11/2012 02:21 PM
Sodium	2300000	7300	50000		ug/L	100	12/13/2012 12:11 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT: CH2M HILL
Lab Order: N009045
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009045-005

Client Sample ID: MW-30-030-188
Collection Date: 12/3/2012 3:36:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121211C**	QC Batch: **41381**				PrepDate: **12/5/2012**		Analyst: **CEI**
Calcium	300000	150	1000		ug/L	2	12/11/2012 04:29 PM
Iron	5300	72	200		ug/L	10	12/17/2012 02:51 PM
Magnesium	260000	26	200		ug/L	2	12/11/2012 04:29 PM
Sodium	7000000	15000	100000		ug/L	200	12/13/2012 12:13 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT: CH2M HILL
Lab Order: N009045
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009045-006

Client Sample ID: MW-30-050-188
Collection Date: 12/3/2012 2:11:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121211C**	QC Batch: **41381**				PrepDate:	**12/5/2012**	Analyst: **CEI**
Calcium	46000	75	500		ug/L	1	12/11/2012 02:44 PM
Iron	46	7.2	20		ug/L	1	12/17/2012 11:44 AM
Magnesium	13000	13	100		ug/L	1	12/11/2012 02:44 PM
Sodium	170000	730	5000		ug/L	10	12/13/2012 12:16 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT: CH2M HILL
Lab Order: N009045
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009045-007

Client Sample ID: MW-39-050-188
Collection Date: 12/3/2012 10:46:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121211C**	QC Batch: **41381**				PrepDate:	**12/5/2012**	Analyst: **CEI**
Calcium	21000	75	500		ug/L	1	12/11/2012 02:50 PM
Iron	ND	7.2	20		ug/L	1	12/17/2012 11:47 AM
Magnesium	7100	13	100		ug/L	1	12/11/2012 02:50 PM
Sodium	250000	730	5000		ug/L	10	12/13/2012 12:18 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT: CH2M HILL
Lab Order: N009045
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009045-008

Client Sample ID: MW-39-060-188
Collection Date: 12/3/2012 3:56:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121211C**	QC Batch: **41381**				PrepDate:	**12/5/2012**	Analyst: **CEI**
Calcium	19000	75	500		ug/L	1	12/11/2012 02:57 PM
Iron	ND	7.2	20		ug/L	1	12/17/2012 11:51 AM
Magnesium	5400	13	100		ug/L	1	12/11/2012 02:57 PM
Sodium	310000	730	5000		ug/L	10	12/13/2012 12:21 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT: CH2M HILL
Lab Order: N009045
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009045-009

Client Sample ID: MW-39-070-188
Collection Date: 12/3/2012 2:52:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121211C**	QC Batch: **41381**				PrepDate:	**12/5/2012**	Analyst: **CEI**
Calcium	33000	75	500		ug/L	1	12/11/2012 03:04 PM
Iron	ND	7.2	20		ug/L	1	12/17/2012 11:55 AM
Magnesium	6900	13	100		ug/L	1	12/11/2012 03:04 PM
Sodium	490000	1800	12000		ug/L	25	12/13/2012 01:19 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT: CH2M HILL
Lab Order: N009045
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009045-010

Client Sample ID: MW-39-080-188
Collection Date: 12/3/2012 1:14:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121211C**	QC Batch: **41381**				PrepDate:	**12/5/2012**	Analyst: **CEI**
Calcium	160000	75	500		ug/L	1	12/11/2012 03:10 PM
Iron	ND	7.2	20		ug/L	1	12/17/2012 11:59 AM
Magnesium	35000	13	100		ug/L	1	12/11/2012 03:10 PM
Sodium	1300000	3700	25000		ug/L	50	12/13/2012 01:25 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT: CH2M HILL
Lab Order: N009045
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009045-011

Client Sample ID: MW-40D-188
Collection Date: 12/3/2012 1:24:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121211C**	QC Batch: **41381**				PrepDate: **12/5/2012**		Analyst: **CEI**
Calcium	380000	75	500		ug/L	1	12/11/2012 03:16 PM
Iron	ND	36	100		ug/L	5	12/17/2012 02:40 PM
Magnesium	37000	13	100		ug/L	1	12/11/2012 03:16 PM
Sodium	3100000	7300	50000		ug/L	100	12/13/2012 12:35 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT: CH2M HILL
Lab Order: N009045
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009045-013

Client Sample ID: MW-41S-188
Collection Date: 12/3/2012 10:43:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121211C**	QC Batch: **41381**				PrepDate:	**12/5/2012**	Analyst: **CEI**
Calcium	100000	75	500		ug/L	1	12/11/2012 03:21 PM
Iron	ND	7.2	20		ug/L	1	12/17/2012 12:52 PM
Magnesium	13000	13	100		ug/L	1	12/11/2012 03:21 PM
Sodium	840000	7300	50000		ug/L	100	12/13/2012 01:31 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: *20-Dec-12*

CLIENT: CH2M HILL
Lab Order: N009045
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009045-014

Client Sample ID: MW-35-060-188
Collection Date: 12/4/2012 8:50:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121211C**	QC Batch: **41381**				PrepDate: **12/5/2012**		Analyst: **CEI**
Calcium	270000	75	500		ug/L	1	12/11/2012 03:27 PM
Iron	41	7.2	20		ug/L	1	12/17/2012 01:03 PM
Magnesium	31000	13	100		ug/L	1	12/11/2012 03:27 PM
Sodium	1200000	3700	25000		ug/L	50	12/13/2012 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: *20-Dec-12*

CLIENT: CH2M HILL
Lab Order: N009045
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009045-015

Client Sample ID: MW-35-135-188
Collection Date: 12/4/2012 10:04:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121211C**	QC Batch: **41381**				PrepDate:	**12/5/2012**	Analyst: **CEI**
Calcium	240000	75	500		ug/L	1	12/11/2012 03:32 PM
Iron	55	7.2	20		ug/L	1	12/17/2012 01:07 PM
Magnesium	26000	13	100		ug/L	1	12/11/2012 03:32 PM
Sodium	2000000	7300	50000		ug/L	100	12/13/2012 12:45 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT: CH2M HILL
Lab Order: N009045
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009045-016

Client Sample ID: MW-36-020-188
Collection Date: 12/4/2012 2:04:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121211C**	QC Batch: **41381**				PrepDate:	**12/5/2012**	Analyst: **CEI**
Calcium	57000	75	500		ug/L	1	12/11/2012 03:48 PM
Iron	1000	7.2	20		ug/L	1	12/17/2012 01:32 PM
Magnesium	45000	13	100		ug/L	1	12/11/2012 03:48 PM
Sodium	1300000	3700	25000		ug/L	50	12/13/2012 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: *20-Dec-12*

CLIENT: CH2M HILL
Lab Order: N009045
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009045-017

Client Sample ID: MW-36-040-188
Collection Date: 12/4/2012 9:03:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121211C**	QC Batch: **41381**				PrepDate: **12/5/2012**		Analyst: **CEI**
Calcium	71000	75	500		ug/L	1	12/11/2012 04:38 PM
Iron	610	7.2	20		ug/L	1	12/17/2012 01:37 PM
Magnesium	15000	13	100		ug/L	1	12/11/2012 04:38 PM
Sodium	210000	730	5000		ug/L	10	12/13/2012 12:51 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT: CH2M HILL
Lab Order: N009045
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009045-018

Client Sample ID: MW-36-050-188
Collection Date: 12/4/2012 12:04:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121211C**	QC Batch: **41381**				PrepDate:	**12/5/2012**	Analyst: **CEI**
Calcium	79000	75	500		ug/L	1	12/11/2012 04:00 PM
Iron	150	7.2	20		ug/L	1	12/17/2012 01:41 PM
Magnesium	16000	13	100		ug/L	1	12/11/2012 04:00 PM
Sodium	130000	730	5000		ug/L	10	12/13/2012 12:53 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT: CH2M HILL
Lab Order: N009045
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009045-019

Client Sample ID: MW-36-070-188
Collection Date: 12/4/2012 3:17:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121211C**	QC Batch: **41381**				PrepDate:	**12/5/2012**	Analyst: **CEI**
Calcium	46000	75	500		ug/L	1	12/11/2012 04:05 PM
Iron	ND	7.2	20		ug/L	1	12/17/2012 01:45 PM
Magnesium	9200	13	100		ug/L	1	12/11/2012 04:05 PM
Sodium	170000	730	5000		ug/L	10	12/13/2012 12:56 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: *20-Dec-12*

CLIENT: CH2M HILL
Lab Order: N009045
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009045-020

Client Sample ID: MW-36-090-188
Collection Date: 12/4/2012 11:06:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121211C**	QC Batch: **41381**				PrepDate:	**12/5/2012**	Analyst: **CEI**
Calcium	6900	75	500		ug/L	1	12/11/2012 04:12 PM
Iron	ND	7.2	20		ug/L	1	12/17/2012 01:49 PM
Magnesium	690	13	100		ug/L	1	12/11/2012 04:12 PM
Sodium	240000	730	5000		ug/L	10	12/13/2012 01:03 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT: CH2M HILL
Lab Order: N009045
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009045-021

Client Sample ID: MW-94-188
Collection Date: 12/4/2012 7:10:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121211C**	QC Batch: **41381**				PrepDate: **12/5/2012**		Analyst: **CEI**
Calcium	58000	75	500		ug/L	1	12/11/2012 04:18 PM
Iron	1000	7.2	20		ug/L	1	12/17/2012 01:53 PM
Magnesium	46000	13	100		ug/L	1	12/11/2012 04:18 PM
Sodium	1200000	3700	25000		ug/L	50	12/13/2012 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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Advanced Technology Laboratories, Inc.

Date: *20-Dec-12*

CLIENT: CH2M HILL
Work Order: N009045
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **MB-41381** SampType: **MBLK** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/5/2012** RunNo: **86677**
Client ID: **PBW** Batch ID: **41381** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/11/2012** SeqNo: **1488164**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	ND	50									
Barium	ND	3.0									
Beryllium	ND	1.0									
Cadmium	ND	3.0									
Calcium	ND	500									
Cobalt	ND	3.0									
Lead	ND	10									
Magnesium	ND	100									
Nickel	ND	5.0									
Silver	ND	3.0									
Vanadium	ND	3.0									
Zinc	ND	10									

Sample ID: **LCS-41381** SampType: **LCS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/5/2012** RunNo: **86677**
Client ID: **LCSW** Batch ID: **41381** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/11/2012** SeqNo: **1488165**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	981.392	50	1000	0	98.1	85	115				
Barium	54.512	3.0	50.00	0	109	85	115				
Beryllium	10.300	1.0	10.00	0	103	85	115				
Cadmium	10.436	3.0	10.00	0	104	85	115				
Calcium	950.284	500	1000	0	95.0	85	115				
Cobalt	10.840	3.0	10.00	0	108	85	115				
Lead	52.270	10	50.00	0	105	85	115				
Magnesium	1013.901	100	1000	0	101	85	115				
Nickel	55.096	5.0	50.00	0	110	85	115				
Silver	10.158	3.0	10.00	0	102	85	115				
Vanadium	10.275	3.0	10.00	0	103	85	115				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

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CLIENT: CH2M HILL
Work Order: N009045
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **LCS-41381** SampType: **LCS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/5/2012** RunNo: **86677**
Client ID: **LCSW** Batch ID: **41381** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/11/2012** SeqNo: **1488165**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Zinc	57.409	10	50.00	0	115	85	115				

Sample ID: **N009045-001A-MS** SampType: **MS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/5/2012** RunNo: **86677**
Client ID: **ZZZZZZ** Batch ID: **41381** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/11/2012** SeqNo: **1488169**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	1112.936	50	1000	0	111	75	125				
Barium	80.353	3.0	50.00	23.30	114	75	125				
Beryllium	10.699	1.0	10.00	0	107	75	125				
Cadmium	9.950	3.0	10.00	0	99.5	75	125				
Calcium	71722.985	500	1000	67740	399	75	125				S
Cobalt	10.421	3.0	10.00	0	104	75	125				
Lead	48.836	10	50.00	0	97.7	75	125				
Magnesium	11156.457	100	1000	9175	198	75	125				S
Nickel	53.996	5.0	50.00	0	108	75	125				
Silver	10.770	3.0	10.00	0.9895	97.8	75	125				
Vanadium	18.143	3.0	10.00	5.889	123	75	125				
Zinc	65.149	10	50.00	11.39	108	75	125				

Sample ID: **N009045-001A-MSD** SampType: **MSD** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/5/2012** RunNo: **86677**
Client ID: **ZZZZZZ** Batch ID: **41381** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/11/2012** SeqNo: **1488170**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	1022.804	50	1000	0	102	75	125	1113	8.44	20	
Barium	74.373	3.0	50.00	23.30	102	75	125	80.35	7.73	20	
Beryllium	9.855	1.0	10.00	0	98.5	75	125	10.70	8.21	20	
Cadmium	8.990	3.0	10.00	0	89.9	75	125	9.950	10.1	20	
Calcium	66202.720	500	1000	67740	-153	75	125	71720	8.00	20	S
Cobalt	9.689	3.0	10.00	0	96.9	75	125	10.42	7.28	20	
Lead	44.628	10	50.00	0	89.3	75	125	48.84	9.00	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: N009045
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **N009045-001A-MSD** SampType: **MSD** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/5/2012** RunNo: **86677**
Client ID: **ZZZZZZ** Batch ID: **41381** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/11/2012** SeqNo: **1488170**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Magnesium	10287.611	100	1000	9175	111	75	125	11160	8.10	20	
Nickel	49.710	5.0	50.00	0	99.4	75	125	54.00	8.27	20	
Silver	10.582	3.0	10.00	0.9895	95.9	75	125	10.77	1.76	20	
Vanadium	16.828	3.0	10.00	5.889	109	75	125	18.14	7.52	20	
Zinc	61.301	10	50.00	11.39	99.8	75	125	65.15	6.09	20	

Sample ID: **MB-41381** SampType: **MBLK** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/5/2012** RunNo: **86731**
Client ID: **PBW** Batch ID: **41381** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/13/2012** SeqNo: **1490244**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	ND	500									
Sodium	ND	500									

Sample ID: **LCS-41381** SampType: **LCS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/5/2012** RunNo: **86731**
Client ID: **LCSW** Batch ID: **41381** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/13/2012** SeqNo: **1490245**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	2663.790	500	2500	0	107	85	115				
Sodium	27371.813	500	25000	0	109	85	115				

Sample ID: **N009045-001A-MS** SampType: **MS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/5/2012** RunNo: **86731**
Client ID: **ZZZZZZ** Batch ID: **41381** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/13/2012** SeqNo: **1490272**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	12522.781	5000	5000	7170	107	75	125				
Sodium	314221.536	5000	100000	215400	98.9	75	125				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

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CLIENT: CH2M HILL
Work Order: N009045
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **N009045-001A-MSD** SampType: **MSD** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/5/2012** RunNo: **86731**
Client ID: **ZZZZZZ** Batch ID: **41381** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/13/2012** SeqNo: **1490273**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	12856.406	5000	5000	7170	114	75	125	12520	2.63	20	
Sodium	311303.711	5000	100000	215400	95.9	75	125	314200	0.933	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: N009045
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **MB-41468** SampType: **MBLK** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/12/2012** RunNo: **86748**
Client ID: **PBW** Batch ID: **41468** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/17/2012** SeqNo: **1491282**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	ND	5.0									
Iron	ND	20									

Sample ID: **LCS-41468** SampType: **LCS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/12/2012** RunNo: **86748**
Client ID: **LCSW** Batch ID: **41468** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/17/2012** SeqNo: **1491283**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	10.844	5.0	10.00	0	108	85	115				
Iron	104.352	20	100.0	0	104	85	115				

Sample ID: **N009045-001A-MS** SampType: **MS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/12/2012** RunNo: **86748**
Client ID: **ZZZZZZ** Batch ID: **41468** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/17/2012** SeqNo: **1491287**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	12.887	5.0	10.00	2.696	102	75	125				
Iron	102.942	20	100.0	8.038	94.9	75	125				

Sample ID: **N009045-001A-MSD** SampType: **MSD** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/12/2012** RunNo: **86748**
Client ID: **ZZZZZZ** Batch ID: **41468** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/17/2012** SeqNo: **1491288**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	14.388	5.0	10.00	2.696	117	75	125	12.89	11.0	20	
Iron	109.468	20	100.0	8.038	101	75	125	102.9	6.15	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-17-188
Lab Order:	N009045	**Collection Date:**	12/3/2012 3:18:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009045-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121217A**	QC Batch: **41385**				PrepDate:	**12/5/2012**	Analyst: **CEI**
Antimony	ND	0.084	0.50		µg/L	1	12/17/2012 12:57 PM
Arsenic	1.4	0.035	0.10		µg/L	1	12/17/2012 12:57 PM
Chromium	14	0.17	1.0		µg/L	1	12/17/2012 12:57 PM
Manganese	ND	0.16	0.50		µg/L	1	12/17/2012 12:57 PM
Molybdenum	23	0.074	0.50		µg/L	1	12/17/2012 12:57 PM
Selenium	9.7	0.084	0.50		µg/L	1	12/17/2012 12:57 PM
Thallium	ND	0.075	0.50		µg/L	1	12/17/2012 12:57 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT: CH2M HILL
Lab Order: N009045
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009045-002

Client Sample ID: MW-27-020-188
Collection Date: 12/3/2012 10:05:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121217A**	QC Batch: **41385**				PrepDate:	**12/5/2012**	Analyst: **CEI**
Arsenic	2.4	0.035	0.10		µg/L	1	12/17/2012 01:22 PM
Manganese	120	0.16	0.50		µg/L	1	12/17/2012 01:22 PM
Molybdenum	7.6	0.074	0.50		µg/L	1	12/17/2012 01:22 PM
Selenium	ND	0.084	0.50		µg/L	1	12/17/2012 01:22 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT: CH2M HILL
Lab Order: N009045
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009045-003

Client Sample ID: MW-27-060-188
Collection Date: 12/3/2012 11:46:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121217A**	QC Batch: **41385**				PrepDate:	**12/5/2012**	Analyst: **CEI**
Arsenic	7.6	0.035	0.10		µg/L	1	12/17/2012 01:27 PM
Manganese	140	0.16	0.50		µg/L	1	12/17/2012 01:27 PM
Molybdenum	4.0	0.074	0.50		µg/L	1	12/17/2012 01:27 PM
Selenium	ND	0.084	0.50		µg/L	1	12/17/2012 01:27 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT: CH2M HILL
Lab Order: N009045
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009045-004

Client Sample ID: MW-27-085-188
Collection Date: 12/3/2012 12:45:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121217A**	QC Batch: **41385**				PrepDate:	**12/5/2012**	Analyst: **CEI**
Arsenic	1.8	0.035	0.10		µg/L	1	12/17/2012 01:32 PM
Manganese	92	0.16	0.50		µg/L	1	12/17/2012 01:32 PM
Molybdenum	24	0.074	0.50		µg/L	1	12/17/2012 01:32 PM
Selenium	ND	0.084	0.50		µg/L	1	12/17/2012 01:32 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT: CH2M HILL
Lab Order: N009045
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009045-005

Client Sample ID: MW-30-030-188
Collection Date: 12/3/2012 3:36:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121217A**	QC Batch: **41385**				PrepDate:	**12/5/2012**	Analyst: **CEI**
Arsenic	2.0	0.035	0.10		µg/L	1	12/17/2012 02:03 PM
Manganese	350	0.80	2.5		µg/L	5	12/17/2012 04:01 PM
Molybdenum	87	0.37	2.5		µg/L	5	12/17/2012 04:01 PM
Selenium	ND	0.42	2.5		µg/L	5	12/17/2012 04:01 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-30-050-188
Lab Order:	N009045	**Collection Date:**	12/3/2012 2:11:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009045-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121217A**	QC Batch: **41385**				PrepDate:	**12/5/2012**	Analyst: **CEI**
Arsenic	3.8	0.035	0.10		µg/L	1	12/17/2012 02:08 PM
Manganese	110	0.16	0.50		µg/L	1	12/17/2012 04:06 PM
Molybdenum	5.4	0.074	0.50		µg/L	1	12/17/2012 02:08 PM
Selenium	ND	0.084	0.50		µg/L	1	12/17/2012 02:08 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT: CH2M HILL
Lab Order: N009045
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009045-007

Client Sample ID: MW-39-050-188
Collection Date: 12/3/2012 10:46:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121217A**	QC Batch: **41385**				PrepDate:	**12/5/2012**	Analyst: **CEI**
Arsenic	7.0	0.035	0.10		µg/L	1	12/17/2012 02:13 PM
Manganese	44	0.16	0.50		µg/L	1	12/17/2012 02:13 PM
Molybdenum	7.1	0.074	0.50		µg/L	1	12/17/2012 02:13 PM
Selenium	ND	0.084	0.50		µg/L	1	12/17/2012 02:13 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-39-060-188
Lab Order:	N009045	**Collection Date:**	12/3/2012 3:56:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009045-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121217A**	QC Batch: **41385**				PrepDate:	**12/5/2012**	Analyst: **CEI**
Arsenic	7.6	0.035	0.10		µg/L	1	12/17/2012 02:23 PM
Manganese	25	0.16	0.50		µg/L	1	12/17/2012 02:23 PM
Molybdenum	14	0.074	0.50		µg/L	1	12/17/2012 02:23 PM
Selenium	ND	0.084	0.50		µg/L	1	12/17/2012 02:23 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-39-070-188
Lab Order:	N009045	**Collection Date:**	12/3/2012 2:52:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009045-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121217A**	QC Batch: **41385**			PrepDate:	**12/5/2012**		Analyst: **CEI**
Manganese	0.58	0.16	0.50		µg/L	1	12/17/2012 02:28 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-39-080-188
Lab Order:	N009045	**Collection Date:**	12/3/2012 1:14:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009045-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **ICP7_121217A**	QC Batch: **41385**			PrepDate:	**12/5/2012**		Analyst: **CEI**
Manganese	4.9	0.16	0.50		µg/L	1	12/17/2012 02:33 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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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT: CH2M HILL
Lab Order: N009045
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009045-011

Client Sample ID: MW-40D-188
Collection Date: 12/3/2012 1:24:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121217A**	QC Batch: **41385**				PrepDate:	**12/5/2012**	Analyst: **CEI**
Arsenic	4.7	0.035	0.10		µg/L	1	12/17/2012 02:38 PM
Manganese	5.4	0.16	0.50		µg/L	1	12/17/2012 02:38 PM
Molybdenum	53	0.074	0.50		µg/L	1	12/17/2012 02:38 PM
Selenium	2.1	0.084	0.50		µg/L	1	12/17/2012 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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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-40S-188
Lab Order:	N009045	**Collection Date:**	12/3/2012 12:15:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009045-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121217A**	QC Batch: **41385**				PrepDate:	**12/5/2012**	Analyst: **CEI**
Arsenic	1.4	0.035	0.10		µg/L	1	12/17/2012 02:43 PM
Manganese	ND	0.16	0.50		µg/L	1	12/17/2012 02:43 PM
Molybdenum	8.8	0.074	0.50		µg/L	1	12/17/2012 02:43 PM
Selenium	2.9	0.084	0.50		µg/L	1	12/17/2012 02:43 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-41S-188
Lab Order:	N009045	**Collection Date:**	12/3/2012 10:43:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009045-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121217A**	QC Batch: **41385**				PrepDate:	**12/5/2012**	Analyst: **CEI**
Arsenic	2.1	0.035	0.10		µg/L	1	12/17/2012 02:48 PM
Manganese	ND	0.16	0.50		µg/L	1	12/17/2012 02:48 PM
Molybdenum	17	0.074	0.50		µg/L	1	12/17/2012 02:48 PM
Selenium	0.83	0.084	0.50		µg/L	1	12/17/2012 02:48 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-35-060-188
Lab Order:	N009045	**Collection Date:**	12/4/2012 8:50:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009045-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121217A**	QC Batch: **41385**				PrepDate:	**12/5/2012**	Analyst: **CEI**
Arsenic	1.1	0.035	0.10		µg/L	1	12/17/2012 02:53 PM
Manganese	ND	0.16	0.50		µg/L	1	12/17/2012 02:53 PM
Molybdenum	9.3	0.074	0.50		µg/L	1	12/17/2012 02:53 PM
Selenium	1.0	0.084	0.50		µg/L	1	12/17/2012 02:53 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT: CH2M HILL
Lab Order: N009045
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009045-015

Client Sample ID: MW-35-135-188
Collection Date: 12/4/2012 10:04:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121217A**	QC Batch: **41385**				PrepDate:	**12/5/2012**	Analyst: **CEI**
Arsenic	1.0	0.035	0.10		µg/L	1	12/17/2012 03:18 PM
Manganese	ND	0.16	0.50		µg/L	1	12/17/2012 03:18 PM
Molybdenum	28	0.074	0.50		µg/L	1	12/17/2012 03:18 PM
Selenium	1.3	0.084	0.50		µg/L	1	12/17/2012 03:18 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-36-020-188
Lab Order:	N009045	**Collection Date:**	12/4/2012 2:04:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009045-016		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121217A**	QC Batch: **41385**			PrepDate:	**12/5/2012**		Analyst: **CEI**
Arsenic	1.9	0.035	0.10		µg/L	1	12/17/2012 03:23 PM
Manganese	170	0.16	0.50		µg/L	1	12/17/2012 03:23 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-36-040-188
Lab Order:	N009045	**Collection Date:**	12/4/2012 9:03:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009045-017		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121217A**	QC Batch: **41385**				PrepDate:	**12/5/2012**	Analyst: **CEI**
Arsenic	4.8	0.035	0.10		µg/L	1	12/17/2012 03:28 PM
Manganese	170	0.16	0.50		µg/L	1	12/17/2012 03:28 PM
Molybdenum	9.4	0.074	0.50		µg/L	1	12/17/2012 03:28 PM
Selenium	ND	0.084	0.50		µg/L	1	12/17/2012 03:28 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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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-36-050-188
Lab Order:	N009045	**Collection Date:**	12/4/2012 12:04:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009045-018		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121217A**	QC Batch: **41385**				PrepDate:	**12/5/2012**	Analyst: **CEI**
Arsenic	4.2	0.035	0.10		µg/L	1	12/17/2012 03:33 PM
Manganese	220	0.80	2.5		µg/L	5	12/17/2012 04:26 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-36-070-188
Lab Order:	N009045	**Collection Date:**	12/4/2012 3:17:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009045-019		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121217A**	QC Batch: **41385**				PrepDate:	**12/5/2012**	Analyst: **CEI**
Arsenic	5.1	0.035	0.10		µg/L	1	12/17/2012 03:38 PM
Manganese	110	0.16	0.50		µg/L	1	12/17/2012 03:38 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-36-090-188
Lab Order:	N009045	**Collection Date:**	12/4/2012 11:06:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009045-020		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121217A**	QC Batch: **41385**				PrepDate:	**12/5/2012**	Analyst: **CEI**
Arsenic	22	0.035	0.10		µg/L	1	12/17/2012 03:43 PM
Manganese	7.5	0.16	0.50		µg/L	1	12/17/2012 03:43 PM

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-94-188
Lab Order:	N009045	**Collection Date:**	12/4/2012 7:10:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009045-021		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121217B**	QC Batch: **41386**				PrepDate:	**12/6/2012**	Analyst: **CEI**
Arsenic	1.8	0.035	0.10		µg/L	1	12/17/2012 04:41 PM
Manganese	170	0.16	0.50		µg/L	1	12/17/2012 04:41 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

Date: *20-Dec-12*

CLIENT: CH2M HILL
Work Order: N009045
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **MB-41385** SampType: **MBLK** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **12/5/2012** RunNo: **86752**
Client ID: **PBW** Batch ID: **41385** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/17/2012** SeqNo: **1491463**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	ND	0.50									
Arsenic	ND	0.10									
Chromium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									
Thallium	ND	0.50									

Sample ID: **LCS-41385** SampType: **LCS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **12/5/2012** RunNo: **86752**
Client ID: **LCSW** Batch ID: **41385** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/17/2012** SeqNo: **1491464**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	10.762	0.50	10.00	0	108	85	115				
Arsenic	11.119	0.10	10.00	0	111	85	115				
Chromium	10.850	1.0	10.00	0	109	85	115				
Manganese	102.608	0.50	100.0	0	103	85	115				
Molybdenum	11.261	0.50	10.00	0	113	85	115				
Selenium	10.800	0.50	10.00	0	108	85	115				
Thallium	10.948	0.50	10.00	0	109	85	115				

Sample ID: **N009045-001A-MS** SampType: **MS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **12/5/2012** RunNo: **86752**
Client ID: **ZZZZZZ** Batch ID: **41385** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/17/2012** SeqNo: **1491468**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	10.752	0.50	10.00	0.1634	106	75	125				
Arsenic	12.257	0.10	10.00	1.448	108	75	125				
Chromium	23.281	1.0	10.00	14.18	91.0	75	125				
Manganese	95.997	0.50	100.0	0	96.0	75	125				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

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CLIENT: CH2M HILL
Work Order: N009045
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N009045-001A-MS** SampType: **MS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **12/5/2012** RunNo: **86752**
Client ID: **ZZZZZZ** Batch ID: **41385** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/17/2012** SeqNo: **1491468**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	33.586	0.50	10.00	22.54	110	75	125				
Selenium	19.844	0.50	10.00	9.738	101	75	125				
Thallium	11.036	0.50	10.00	0	110	75	125				

Sample ID: **N009045-001A-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **12/5/2012** RunNo: **86752**
Client ID: **ZZZZZZ** Batch ID: **41385** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/17/2012** SeqNo: **1491469**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	9.957	0.50	10.00	0.1634	97.9	75	125	10.75	7.68	20	
Arsenic	12.017	0.10	10.00	1.448	106	75	125	12.26	1.98	20	
Chromium	23.023	1.0	10.00	14.18	88.4	75	125	23.28	1.12	20	
Manganese	92.703	0.50	100.0	0	92.7	75	125	96.00	3.49	20	
Molybdenum	33.599	0.50	10.00	22.54	111	75	125	33.59	0.0381	20	
Selenium	19.610	0.50	10.00	9.738	98.7	75	125	19.84	1.19	20	

Sample ID: **N009045-001A-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **12/5/2012** RunNo: **86752**
Client ID: **ZZZZZZ** Batch ID: **41385** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/17/2012** SeqNo: **1491493**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Thallium	12.571	0.50	10.00	0	126	75	125	11.04	13.0	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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CLIENT: CH2M HILL
Work Order: N009045
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **MB-41386** SampType: **MBLK** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **12/6/2012** RunNo: **86769**
Client ID: **PBW** Batch ID: **41386** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/17/2012** SeqNo: **1492379**

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-41386** SampType: **LCS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **12/6/2012** RunNo: **86769**
Client ID: **LCSW** Batch ID: **41386** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/17/2012** SeqNo: **1492380**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	9.859	0.10	10.00	0	98.6	85	115				
Manganese	92.094	0.50	100.0	0	92.1	85	115				
Molybdenum	9.817	0.50	10.00	0	98.2	85	115				
Selenium	10.278	0.50	10.00	0	103	85	115				

Sample ID: **N009078-003A-MS** SampType: **MS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **12/6/2012** RunNo: **86769**
Client ID: **ZZZZZZ** Batch ID: **41386** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/17/2012** SeqNo: **1492385**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.970	0.10	10.00	0.4649	105	75	125				
Molybdenum	15.796	0.50	10.00	4.242	116	75	125				
Selenium	10.031	0.50	10.00	0	100	75	125				

Sample ID: **N009078-003A-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **12/6/2012** RunNo: **86769**
Client ID: **ZZZZZZ** Batch ID: **41386** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/17/2012** SeqNo: **1492386**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	11.160	0.10	10.00	0.4649	107	75	125	10.97	1.72	20	
Molybdenum	15.527	0.50	10.00	4.242	113	75	125	15.80	1.72	20	
Selenium	10.383	0.50	10.00	0	104	75	125	10.03	3.45	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

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CLIENT: CH2M HILL
Work Order: N009045
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N009078-003A-MS** SampType: **MS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **12/6/2012** RunNo: **86769**
Client ID: **ZZZZZZ** Batch ID: **41386** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/17/2012** SeqNo: **1492398**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	2749.609	12	100.0	2822	-72.6	75	125				S

Sample ID: **N009078-003A-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **12/6/2012** RunNo: **86769**
Client ID: **ZZZZZZ** Batch ID: **41386** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/17/2012** SeqNo: **1492399**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	2731.608	12	100.0	2822	-90.6	75	125	2750	0.657	20	S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-17-188
Lab Order:	N009045	**Collection Date:**	12/3/2012 3:18:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009045-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED MERCURY BY COLD VAPOR TECHNIQUE							
EPA 7470A							
RunID: **AA1_121219A**	QC Batch: **41569**			PrepDate: **12/18/2012**			Analyst: **CEI**
Mercury	ND	0.028	0.20		µg/L	1	12/19/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

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Advanced Technology Laboratories, Inc.

Date: *20-Dec-12*

CLIENT: CH2M HILL
Work Order: N009045
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 7470_W_DISSPGE

Sample ID: **LCS-41569** SampType: **LCS** TestCode: **7470_W_DIS** Units: **µg/L** Prep Date: **12/18/2012** RunNo: **86798**
Client ID: **LCSW** Batch ID: **41569** TestNo: **EPA 7470A** Analysis Date: **12/19/2012** SeqNo: **1493289**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	4.736	0.20	5.000	0	94.7	85	115				

Sample ID: **MB-41569** SampType: **MBLK** TestCode: **7470_W_DIS** Units: **µg/L** Prep Date: **12/18/2012** RunNo: **86798**
Client ID: **PBW** Batch ID: **41569** TestNo: **EPA 7470A** Analysis Date: **12/19/2012** SeqNo: **1493290**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.20									

Sample ID: **N009045-001A-MS** SampType: **MS** TestCode: **7470_W_DIS** Units: **µg/L** Prep Date: **12/18/2012** RunNo: **86798**
Client ID: **ZZZZZZ** Batch ID: **41569** TestNo: **EPA 7470A** Analysis Date: **12/19/2012** SeqNo: **1493292**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	4.794	0.20	5.000	0	95.9	75	125				

Sample ID: **N009045-001A-MSD** SampType: **MSD** TestCode: **7470_W_DIS** Units: **µg/L** Prep Date: **12/18/2012** RunNo: **86798**
Client ID: **ZZZZZZ** Batch ID: **41569** TestNo: **EPA 7470A** Analysis Date: **12/19/2012** SeqNo: **1493293**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	4.846	0.20	5.000	0	96.9	75	125	4.794	1.08	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
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CH2MHILL

CHAIN OF CUSTODY RECORD

12/4/2012 4:34:11 PM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.01
Task Order
Project 2012-GMP-188-Q4
Turnaround Time 10 Days
Shipping Date: 12/4/2012
COC Number: 18

			Container:	1x500 ml Poly	1x500 ml Poly	1x500 ml Poly	1x500 ml Poly	1x500 ml Poly	2x1 Liter	2x1 Liter	2x1 Liter	2x1 Liter			
			Preservatives:	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	4°C	4°C	4°C	4°C			
			Filtered:	Field	Field	Field	Field	Field	NA	NA	NA	NA			
			Holding Time:	180	180	180	180	180	7	7	7	7			
	DATE	TIME	Matrix	Arsenic (6020A) Field Filtered	Metals (SW6010B/SW6020Adis) Field Filtered BKG metals. See list	Metals (SW6010B/SW6020Adis) Field Filtered Ca,Mg,Na,Fe,Mn	Metals (SW6010B/SW6020Adis) Field Filtered Mo,Se	Metals (6020AFF) Field Filtered Mn	Specific Conductance (E120.1)	Anions (E300.0) Chloride,Sulfate	Anions (E300.0) Chloride,Sulfate,Fluoride	Alkalinity (SM2320B)		Number of Containers	COMMENTS
MW-17-188	12/3/2012	15:18	Water		x				x	x		x	N009045-1	3	
MW-27-020-188	12/3/2012	10:05	Water	x		x	x		x	x		x	-2	3	
MW-27-060-188	12/3/2012	11:46	Water	x		x	x		x		x	x	-3	3	
MW-27-085-188	12/3/2012	12:45	Water	x		x	x		x		x	x	-4	3	
MW-30-030-188	12/3/2012	15:36	Water	x		x	x		x	x		x	-5	3	
MW-30-050-188	12/3/2012	14:11	Water	x		x	x		x	x		x	-6	3	
MW-39-050-188	12/3/2012	10:46	Water	x		x	x		x	x		x	-7	3	
MW-39-060-188	12/3/2012	15:56	Water	x		x	x		x	x		x	-8	3	
MW-39-070-188	12/3/2012	14:52	Water			x			x	x		x	-9	3	
MW-39-080-188	12/3/2012	13:14	Water			x			x	x		x	-10	3	
MW-40D-188	12/3/2012	13:24	Water	x		x	x		x	x		x	-11	3	
MW-40S-188	12/3/2012	12:15	Water	x			x	x	x				-12	2	
MW-41S-188	12/3/2012	10:43	Water	x		x	x		x	x		x	-13	3	
MW-35-060-188	12/4/2012	8:50	Water	x		x	x		x	x		x	-14	3	

	Signatures	Date/Time
Approved by		12-4-12
Sampled by		1625
Relinquished by		
Received by		12-4-12 1625
Relinquished by		
Received by		12-4-12 1830

Shipping Details

Method of Shipment: courier
On Ice: yes / no
Airbill No: 3.4. ICE IR1
Lab Name: ADVANCED TECHNOLOGY LABORATO
Lab Phone: (702) 307-2659

ATTN:

Sample Custody and Marlon

Special Instructions:
Nov 5 - Dec 14, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

136

CH2MHILL

CHAIN OF CUSTODY RECORD

12/4/2012 4:34:12 PM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.01
Task Order
Project 2012-GMP-188-Q4
Turnaround Time 10 Days
Shipping Date: 12/4/2012
COC Number: 18

			Container:	1x500 ml Poly	1x500 ml Poly	1x500 ml Poly	1x500 ml Poly	1x500 ml Poly	2x1 Liter	2x1 Liter	2x1 Liter	2x1 Liter			
			Preservatives:	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	4°C	4°C	4°C	4°C			
			Filtered:	Field	Field	Field	Field	Field	NA	NA	NA	NA			
			Holding Time:	180	180	180	180	180	7	7	7	7			
	DATE	TIME	Matrix	Arsenic (6020A) Field Filtered	Metals (SW6010B/SW6020Adis) Field Filtered BKG metals. See list	Metals (SW6010B/SW6020Adis) Field Filtered Ca,Mg,Na,Fe,Mn	Metals (SW6010B/SW6020Adis) Field Filtered Mo,Se	Metals (6020AFF) Field Filtered Mn	Specific Conductance (E120.1)	Anions (E300.0) Chloride,Sulfate	Anions (E300.0) Chloride,Sulfate,Fluoride	Alkalinity (SM2320B)		Number of Containers	COMMENTS
MW-35-135-188	12/4/2012	10:04	Water	X		X	X		X	X		X	N009045-15	3	
MW-36-020-188	12/4/2012	14:04	Water	X		X			X	X		X	-16	3	
MW-36-040-188	12/4/2012	9:03	Water	X		X	X		X	X		X	-17	3	
MW-36-050-188	12/4/2012	12:04	Water	X		X			X	X		X	-18	3	
MW-36-070-188	12/4/2012	15:17	Water	X		X			X	X		X	-19	3	
MW-36-090-188	12/4/2012	11:06	Water	X		X			X	X		X	-20	3	
MW-94-188	12/4/2012	7:10	Water	X		X			X	X		X	-21	3	
													TOTAL NUMBER OF CONTAINERS	62	

	Signatures	Date/Time
Approved by		12-4-12 1625
Sampled by		
Relinquished by		
Received by		12-4-12 1625
Relinquished by		
Received by		12-4-12 1850

Shipping Details

Method of Shipment: courier
On Ice: yes / no 3.4 ICE IR1
Airbill No:
Lab Name: ADVANCED TECHNOLOGY LABORATO
Lab Phone: (702) 307-2659

ATTN:

Sample Custody and Marlon

Special Instructions:

Nov 5 - Dec 14, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

Advanced Technology Laboratories, Inc.

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	12/4/2012	Workorder:	N009045
Rep sample Temp (Deg C):	3.4	IR Gun ID:	1
Temp Blank:	☐ Yes ☑ No		
Carrier name:	ATL		
Last 4 digits of Tracking No.:	na	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments:

Checklist Completed B MBC 12/5/12

Reviewed By:

Sample ID: **N009045-001B @ pH 8.00**

A. Standardization of Sulfuric Acid (titrant):

Normality of acid = (A)(B)/(53.00)(C)

Where:

A, grams weighed for Na_2CO_3 solution (Na_2CO_3 Standardization Solution)
B, mL Na2CO3 solution taken for titration, and
C, ml of sulfuric acid used to inflection point

Spike Standards

Na_2CO_3 Standardization Solution, ACS Grade (1.00 ml = 2500ug as $CaCO_3$):
Dissolve 2.650 grams of Na_2CO_3 in distilled water and dilute to 1 liter.

LCS/MS/MSD Stock $NaHCO_3$, ACS Grade (1.00 ml = 5000 ug as $CaCO_3$):
Dissolve 0.8398 grams of $NaHCO_3$ in distilled water and dilute to 1 liter.

Therefore,

Normality of Acid = (2.65g/L) (5mL) / (53.00) (11.675mL)

= **0.02141 N**

B. CALCULATION OF ALKALINITY (for a 50 ml sample)

Total Alkalinity (as $CaCO_3$), mg/L = $M_{vol.}$ * N H_2SO_4 * DF * 1000

Where:

$M_{vol.}$, volume titrant used to reach pH 4.5, ml
N, Normality of H_2SO_4
DF, Dilution Factor = (50 ml) / (Vol. of Sample used)

Therefore,

Total Alkalinity (as $CaCO_3$), mg/L = (2.60) (0.02141N) (1) * 1000

= 55.666 **mg/L**

Reporting results in two significant figures,

= 56 **mg/L** as CaCO3

C. SPECIATED ALKALINITY:

Phenolphthalein Alkalinity

P alkalinity, mg/L as $CaCO_3$ = $P_{vol.}$ * N H_2SO_4 * DF * 1000

= (0) (0.02141 N) (1) * 1000

= **0**

Total Alkalinity

T alkalinity, mg/L as $CaCO_3$ = $M_{vol.}$ * N H_2SO_4 * DF * 1000

= (2.60mL) (0.02141) (1) * 1000

= 55.666 **mg/L** as CaCO3

Where:

$P_{vol.}$ - volume titrant used to reach pH 8.3, ml
$M_{vol.}$ - volume titrant used to reach pH 4.5, ml
N - Normality of H_2SO_4
DF - Dilution Factor = (50 ml) / (Vol. of Sample used)

Then OH, CO_3, HCO_3 alkalinities as $CaCO_3$ will be calculated as follows:

Result of Titration	**OH Alkalinity as $CaCO_3$**	**CO_3 Alkalinity as $CaCO_3$**	**HCO_3 Alkalinity as $CaCO_3$**
P = 0	0	0	T
P < ½ T	0	2P	T – 2P
P = ½ T	0	2P	0
P > ½ T	2P – T	2(T – P)	0
P = T	T	0	0

Therefore,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = 55.666 **mg/L**

Reporting results in two significant figures,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = 56 **mg/L**

Sample Calculation

METHOD: EPA 300
TEST NAME: INORGANIC ANIONS BY IC
MATRIX: WATER

FORMULA:

Calculate the Chloride concentration, in mg/L, in the original sample as follows:

Chloride, mg/L = A * DF

where:

A = mg/L, IC calculated concentration
DF = dilution factor

For **N009045-001B**, concentration in mg/L are calculated as follows:

Chloride, mg/L = 6.467 * 20

= 129.34 mg/L

Reporting **N009045-001B** results in two significant figures,

Chloride, mg/L = 130 Anl 1a/L

Sample Calculation

METHOD: EPA 6010
TEST NAME: Heavy Metals by ICP
MATRIX: Water

FORMULA:

Calculate the Magnesium concentration, in µg/L, in the original sample as follows:

Magnesium, µg/L = A * DF * PF * CF

where:

A = mg/L, calculated concentration
DF = Dilution factor
PF = Final Vol. of Digestate in mL / Amt. of Sample grams
CF = Conversion Factor

For Sample **N009045-001A**, the concentration in µg/L is calculated as follows:

Magnesium, µg/L = 9.175143065 * 1 * (25 / 25) * 1000

= 9175.143065 µg/L

Reporting results in two significant figures,

Magnesium, µg/L = 9200

NS fn
12/20h

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N009045
Test Method: EPA 6010
Analysis Date: 12/11/12

Matrix: Water
Batch No.: 41381

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Mary Claire Ignacio

Dilution Test is not applicable to Al, Ag, Ba, Be, Cd, Co, Ni, Pb, V, & Zn. The computed value is < 25X the RL.
However the PS @2X passes the criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N009045-001A-DT 5X	Aluminum	ug/L	0	NA	0	0.00%	10
N009045-001A-DT 5X	Barium	ug/L	24.8629	NA	23.3012	-6.70%	10
N009045-001A-DT 5X	Beryllium	ug/L	0	NA	0	0.00%	10
N009045-001A-DT 5X	Cadmium	ug/L	0	NA	0	0.00%	10
N009045-001A-DT 5X	Calcium	ug/L	67201.8789	PASSED	67736.8224	0.79%	10
N009045-001A-DT 5X	Cobalt	ug/L	0	NA	0	0.00%	10
N009045-001A-DT 5X	Lead	ug/L	0	NA	0	0.00%	10
N009045-001A-DT 5X	Magnesium	ug/L	9645.3717	PASSED	9175.1431	-5.13%	10
N009045-001A-DT 5X	Nickel	ug/L	0	NA	0	0.00%	10
N009045-001A-DT 5X	Silver	ug/L	0	NA	0.9895	100.00%	10
N009045-001A-DT 5X	Vanadium	ug/L	5.5951	NA	5.8888	4.99%	10
N009045-001A-DT 5X	Zinc	ug/L	11.4156	NA	11.3885	-0.24%	10

Note: NA - Not Applicable

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N009045
Test Method: EPA 6010
Analysis Date: 12/13/12

Matrix: Water
Batch No.: 41381

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Mary Claire Ignacio

Dilution Test is not applicable to K. The computed value is < 25X the RL.
DT for Na failed. However the PS @10X passes the criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N009045-001A-DT 50X	Potassium	ug/L	6006.2283	NA	7170.4452	16.24%	10
N009045-001A-DT 50X	Sodium	ug/L	188677.0781	FAILED	215367.2108	12.39%	10

Note: NA - Not Applicable

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N009045
Test Method: EPA 6010
Analysis Date: 12/17/12

Matrix: Water
Batch No.: 41468

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Mary Claire Ignacio

Dilution Test is not applicable to Cu & Fe. The computed value is < 25X the RL. However the PS @2X passes the criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N009045-001A-DT 5X	Copper	ug/L	0	NA	2.6957	0.00%	10
N009045-001A-DT 5X	Iron	ug/L	0	NA	8.0379	100.00%	10

Note: NA - Not Applicable

Advanced Technology Laboratories, Inc.

Date: *17-Dec-12*

CLIENT: CH2M HILL
Work Order: N009045
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **N009045-001A-PS** SampType: **PS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: RunNo: **86677**
Client ID: **ZZZZZZ** Batch ID: **41381** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/11/2012** SeqNo: **1488168**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	4980.874	100	5000	0	99.6	75	125				
Barium	280.163	6.0	250.0	23.30	103	75	125				
Beryllium	250.382	2.0	250.0	0	100	75	125				
Cadmium	263.537	6.0	250.0	0	105	75	125				
Calcium	71389.112	1000	5000	67740	73.0	75	125				S
Cobalt	257.988	6.0	250.0	0	103	75	125				
Lead	237.108	20	250.0	0	94.8	75	125				
Magnesium	14132.772	200	5000	9175	99.2	75	125				
Nickel	256.507	10	250.0	0	103	75	125				
Silver	246.266	6.0	250.0	0.9895	98.1	75	125				
Vanadium	257.644	6.0	250.0	5.889	101	75	125				
Zinc	276.915	20	250.0	11.39	106	75	125				

Sample ID: **N009045-001A-PS** SampType: **PS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: RunNo: **86731**
Client ID: **ZZZZZZ** Batch ID: **41381** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/13/2012** SeqNo: **1490271**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	21268.794	5000	12500	7170	113	75	125				
Sodium	486947.290	5000	250000	215400	109	75	125				

DT of Ca @ 5x is within recovery criteria. ns rrtrot

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: CH2M HILL
Work Order: N009045
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **N009045-001A-PS** SampType: **PS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: RunNo: **86748**
Client ID: **ZZZZZZ** Batch ID: **41468** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/17/2012** SeqNo: **1491286**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	252.541	10	250.0	2.696	99.9	75	125				
Iron	4856.043	40	5000	8.038	97.0	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

Sample Calculation

METHOD: EPA 6020
TEST NAME: Heavy Metals by ICP-MS
MATRIX: Aqueous

FORMULA:

Calculate the Arsenic concentration, in ug/L, in the original sample as follows:

Arsenic, ug/L = A * DF * PF

where:

A = ug/L, calculated concentration
DF = dilution factor
PF = Final Vol. of Digestate in mL / Vol. of Sample used in mL

For Sample **N009045-002A**, the concentration in ug/L is calculated as follows:

Arsenic, ug/L = 2.38995008929117 * 1 * (25/25)

= 2.38995008929117

Reporting result in two significant figures,

Arsenic, ug/L = 2.4

NJ for
12/19/12

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N009045
Test Method: EPA 6020
Analysis Date: 12/17/12

Matrix: Water
Batch No.: 41385

Instrument ID: ICP-MS #2
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution is not applicable to Sb, As, Cr, Mn, Tl and Se. The calculated values were <25X RL. PS passed criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	Calc Val	%DIFF	%DIFFlimit
N009045-001A-DT 5X	Antimony	µg/L	0	NA	0.16343579	100.00%	10
N009045-001A-DT 5X	Arsenic	µg/L	1.17819035	NA	1.447719952	18.62%	10
N009045-001A-DT 5X	Chromium	µg/L	15.19367841	NA	14.18228107	7.13%	10
N009045-001A-DT 5X	Manganese	µg/L	0	NA	0	0.00%	10
N009045-001A-DT 5X	Molybdenum	µg/L	22.43007329	PASSED	22.53871793	0.48%	10
N009045-001A-DT 5X	Thallium	µg/L	0	NA	0	0.00%	10
N009045-001A-DT 5X	Selenium	µg/L	11.08570079	NA	9.738095846	13.84%	10

Note: NA - Not applicable

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N009045
Test Method: EPA 6020
Analysis Date: 12/17/12

Matrix: Water
Batch No.: 41386

Instrument ID: ICP-MS #2
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to As. The calculated values were <25X RL. Dilution test in Mn failed. PS passed criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N009078-003A-DT 5X	Arsenic	µg/L	0.265243059	NA	0.464926346	42.95%	10
N009078-003A-DT 125X	Manganese	µg/L	3108.241398	Fail, ~~NR~~	2822.243722	10.13%	10

MJ for
12/19/12

Note: NA - Not applicable

Advanced Technology Laboratories, Inc.

Date: *18-Dec-12*

CLIENT: CH2M HILL
Work Order: N009045
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N009045-001A-PS** SampType: **PS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **86752**
Client ID: **ZZZZZZ** Batch ID: **41385** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/17/2012** SeqNo: **1491467**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	20.001	1.0	20.00	0.1634	99.2	75	125				
Arsenic	22.166	0.20	20.00	1.448	104	75	125				
Chromium	32.886	2.0	20.00	14.18	93.5	75	125				
Manganese	184.352	1.0	200.0	0	92.2	75	125				
Molybdenum	43.972	1.0	20.00	22.54	107	75	125				
Selenium	29.298	1.0	20.00	9.738	97.8	75	125				
Thallium	19.746	1.0	20.00	0	98.7	75	125				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N009045
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: N009078-003A-PS	SampType: PS	TestCode: 6020_DIS	Units: µg/L	Prep Date:	RunNo: 86769
Client ID: ZZZZZZ	Batch ID: 41386	TestNo: EPA 6020	EPA 3010A	Analysis Date: 12/17/2012	SeqNo: 1492384

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	21.915	0.20	20.00	0.4649	107	75	125				
Molybdenum	28.757	1.0	20.00	4.242	123	75	125				
Selenium	20.035	1.0	20.00	0	100	75	125				

Sample ID: N009078-003A-PS	SampType: PS	TestCode: 6020_DIS	Units: µg/L	Prep Date:	RunNo: 86769
Client ID: ZZZZZZ	Batch ID: 41386	TestNo: EPA 6020	EPA 3010A	Analysis Date: 12/17/2012	SeqNo: 1492397

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	5286.216	12	2500	2822	98.6	75	125				

reported Arsenic and Manganese only for this run # 86769 (Batch 41386)

LS 12/19/12

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Sample Calculation

METHOD: EPA 7470
TEST NAME: Mercury in Water by Cold-Vapor Technique
MATRIX: Aqueous

FORMULA:

Calculate the Mercury concentration, in ug/L, in the original sample as follows:

Mercury, ug/L = A * DF * PF * 0.5

where:

A = ug/L, calculated concentration
DF = dilution factor
PF = Final Vol. of Digestate in mL / Wt. of Sample used in mL
0.5, is the coversion factor.

For Sample **N009045-001A** the concentration in ug/L is calculated as follows:

Mercury, ug/L = -0.09 * 1 * (50/25) * 0.5

= 0.0 ug/L

Reporting results in two significant figures,

Mercury, ug/L = 0.0

Mercury, ug/L = ND

NS for
12/20/4

December 20, 2012

Shawn P. Duffy
CH2M HILL
155 Grand Avenue, Suite 1000
Oakland, CA 94612

TEL: (530) 229-3303
FAX: (530) 339-3303

CA-ELAP No.: 2676
NV Cert. No.: NV-009222007A

Workorder No.: N009050

RE: PG&E Topock, 423575.MP.02.GM.01

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on December 04, 2012 by Advanced Technology Laboratories, Inc. . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Jose Tenorio Jr.
Laboratory Director

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CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

Samples were received intact with proper chain of custody documentation.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Samples were analyzed within method holding time.

Analytical Comments for EPA 6010B_Dissolved:

Matrix Spike Duplicate (MSD) is outside recovery criteria for Magnesium possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Calcium since the analyte concentration in the sample is disproportionate to the spike level. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Dilution was necessary for sample N009050-002 since plasma was extinguished when sample was analyzed at no dilution.

Analytical Comments for EPA 6020_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Manganese since the analyte concentration in the sample is disproportionate to the spike level. The associated Laboratory Control Sample (LCS) recovery was acceptable.

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Advanced Technology Laboratories, Inc.

Date: *20-Dec-12*

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.01
Lab Order: N009050
Contract No: 2012-GMP-188-

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N009050-001A	MW-18-188	Water	12/4/2012 8:56:00 AM	12/4/2012	12/20/2012
N009050-001B	MW-18-188	Water	12/4/2012 8:56:00 AM	12/4/2012	12/20/2012
N009050-002A	MW-37D-188	Water	12/4/2012 1:32:00 PM	12/4/2012	12/20/2012
N009050-002B	MW-37D-188	Water	12/4/2012 1:32:00 PM	12/4/2012	12/20/2012
N009050-003A	MW-65-160-188	Water	12/4/2012 3:15:00 PM	12/4/2012	12/20/2012
N009050-003B	MW-65-160-188	Water	12/4/2012 3:15:00 PM	12/4/2012	12/20/2012
N009050-004A	MW-70-105-188	Water	12/4/2012 2:42:00 PM	12/4/2012	12/20/2012
N009050-004B	MW-70-105-188	Water	12/4/2012 2:42:00 PM	12/4/2012	12/20/2012

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-18-188
Lab Order:	N009050	**Collection Date:**	12/4/2012 8:56:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009050-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
EPA 120.1							
RunID: **WETCHEM_121205I**	QC Batch: **R86782**			PrepDate:			Analyst: **CEI**
Specific Conductance	1400	0.10	0.10		umhos/cm	1	12/5/2012

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-37D-188
Lab Order:	N009050	**Collection Date:**	12/4/2012 1:32:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009050-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
EPA 120.1							
RunID: **WETCHEM_121205I**	QC Batch: **R86782**			PrepDate:			Analyst: **CEI**
Specific Conductance	16000	0.10	0.10		umhos/cm	1	12/5/2012

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-65-160-188
Lab Order:	N009050	**Collection Date:**	12/4/2012 3:15:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009050-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
EPA 120.1							
RunID: **WETCHEM_121205I**	QC Batch: **R86782**			PrepDate:			Analyst: **CEI**
Specific Conductance	4100	0.10	0.10		umhos/cm	1	12/5/2012

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-70-105-188
Lab Order:	N009050	**Collection Date:**	12/4/2012 2:42:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009050-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121205I**	QC Batch: **R86782**			PrepDate:			Analyst: **CEI**
Specific Conductance	3500	0.10	0.10		umhos/cm	1	12/5/2012

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

Date: *20-Dec-12*

CLIENT: CH2M HILL
Work Order: N009050
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: **LCS-R86782** SampType: **LCS** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86782**
Client ID: **LCSW** Batch ID: **R86782** TestNo: **EPA 120.1** Analysis Date: **12/5/2012** SeqNo: **1492854**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	1434.000	0.10	1414	0	101	85	115				

Sample ID: **N009050-002BDUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86782**
Client ID: **ZZZZZZ** Batch ID: **R86782** TestNo: **EPA 120.1** Analysis Date: **12/5/2012** SeqNo: **1492858**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	15530.000	0.10						15530	0	10	

Sample ID: **N009050-002BMS** SampType: **MS** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86782**
Client ID: **ZZZZZZ** Batch ID: **R86782** TestNo: **EPA 120.1** Analysis Date: **12/5/2012** SeqNo: **1492859**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	25800.000	0.20	9992	15530	103	75	125				

Sample ID: **N009050-002BMSD** SampType: **MSD** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86782**
Client ID: **ZZZZZZ** Batch ID: **R86782** TestNo: **EPA 120.1** Analysis Date: **12/5/2012** SeqNo: **1492860**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	25940.000	0.20	9992	15530	104	75	125	25800	0.541	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: *20-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-18-188
Lab Order:	N009050	**Collection Date:**	12/4/2012 8:56:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009050-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121211B**	QC Batch: **R86796**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	84	1.2	5.0		mg/L	1	12/11/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/11/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/11/2012
Alkalinity, Total (As CaCO3)	84	1.2	5.0		mg/L	1	12/11/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-37D-188
Lab Order:	N009050	**Collection Date:**	12/4/2012 1:32:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009050-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121211B**	QC Batch: **R86796**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	31	1.2	5.0		mg/L	1	12/11/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/11/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/11/2012
Alkalinity, Total (As CaCO3)	31	1.2	5.0		mg/L	1	12/11/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT: CH2M HILL
Lab Order: N009050
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009050-003

Client Sample ID: MW-65-160-188
Collection Date: 12/4/2012 3:15:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121211B**	QC Batch: **R86796**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	110	1.2	5.0		mg/L	1	12/11/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/11/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/11/2012
Alkalinity, Total (As CaCO3)	110	1.2	5.0		mg/L	1	12/11/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT: CH2M HILL
Lab Order: N009050
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009050-004

Client Sample ID: MW-70-105-188
Collection Date: 12/4/2012 2:42:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121211B**	QC Batch: **R86796**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	87	1.2	5.0		mg/L	1	12/11/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/11/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/11/2012
Alkalinity, Total (As CaCO3)	87	1.2	5.0		mg/L	1	12/11/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

Date: *20-Dec-12*

CLIENT: CH2M HILL
Work Order: N009050
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **LCS-R86796** SampType: **LCS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86796**
Client ID: **LCSW** Batch ID: **R86796** TestNo: **SM 2320 B** Analysis Date: **12/11/2012** SeqNo: **1493256**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	101.075	5.0	100.0	0	101	85	115				
Alkalinity, Total (As CaCO3)	101.075	5.0	100.0	0	101	85	115				

Sample ID: **MB-R86796** SampType: **MBLK** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86796**
Client ID: **PBW** Batch ID: **R86796** TestNo: **SM 2320 B** Analysis Date: **12/11/2012** SeqNo: **1493257**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	2.151	5.0									
Alkalinity, Carbonate (As CaCO3)	ND	5.0									
Alkalinity, Hydroxide (As CaCO3)	ND	5.0									
Alkalinity, Total (As CaCO3)	2.151	5.0									

Sample ID: **N009050-001BDUP** SampType: **DUP** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86796**
Client ID: **ZZZZZZ** Batch ID: **R86796** TestNo: **SM 2320 B** Analysis Date: **12/11/2012** SeqNo: **1493262**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	83.871	5.0						83.87	0	30	
Alkalinity, Carbonate (As CaCO3)	ND	5.0						0	0	30	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0						0	0	30	
Alkalinity, Total (As CaCO3)	83.871	5.0						83.87	0	30	

Sample ID: **N009050-002BMS** SampType: **MS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86796**
Client ID: **ZZZZZZ** Batch ID: **R86796** TestNo: **SM 2320 B** Analysis Date: **12/11/2012** SeqNo: **1493264**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	132.258	5.0	100.0	31.18	101	75	125				
Alkalinity, Total (As CaCO3)	132.258	5.0	100.0	31.18	101	75	125				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

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CLIENT: CH2M HILL
Work Order: N009050
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **N009050-002BMSD** SampType: **MSD** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86796**
Client ID: **ZZZZZZ** Batch ID: **R86796** TestNo: **SM 2320 B** Analysis Date: **12/11/2012** SeqNo: **1493265**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	131.183	5.0	100.0	31.18	100	75	125	132.3	0.816	20	
Alkalinity, Total (As CaCO3)	131.183	5.0	100.0	31.18	100	75	125	132.3	0.816	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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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT: CH2M HILL
Lab Order: N009050
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009050-001

Client Sample ID: MW-18-188
Collection Date: 12/4/2012 8:56:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_121206B** QC Batch: **R86770**				PrepDate:			Analyst: **QBM**
Chloride	300	1.1	50		mg/L	100	12/6/2012 09:23 PM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_121206B** QC Batch: **R86770**				PrepDate:			Analyst: **QBM**
Sulfate	85	0.35	5.0		mg/L	10	12/6/2012 08:13 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT: CH2M HILL
Lab Order: N009050
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009050-002

Client Sample ID: MW-37D-188
Collection Date: 12/4/2012 1:32:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121206B** QC Batch: **R86770** PrepDate: Analyst: **QBM**							
Chloride	5300	11	500		mg/L	1000	12/6/2012 09:34 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121206B** QC Batch: **R86770** PrepDate: Analyst: **QBM**							
Sulfate	630	3.5	50		mg/L	100	12/6/2012 08:24 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-65-160-188
Lab Order:	N009050	**Collection Date:**	12/4/2012 3:15:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009050-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121206B** QC Batch: **R86770** PrepDate: Analyst: **QBM**							
Chloride	1000	2.2	100		mg/L	200	12/6/2012 09:58 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121206B** QC Batch: **R86770** PrepDate: Analyst: **QBM**							
Sulfate	440	1.8	25		mg/L	50	12/6/2012 09:11 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-70-105-188
Lab Order:	N009050	**Collection Date:**	12/4/2012 2:42:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009050-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121206B** QC Batch: **R86770** PrepDate: Analyst: **QBM**							
Chloride	930	2.2	100		mg/L	200	12/6/2012 09:46 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121206B** QC Batch: **R86770** PrepDate: Analyst: **QBM**							
Sulfate	240	0.70	10		mg/L	20	12/6/2012 08:48 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

Date: *20-Dec-12*

CLIENT: CH2M HILL
Work Order: N009050
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **LCS-R86770_CL** SampType: **LCS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86770**
Client ID: **LCSW** Batch ID: **R86770** TestNo: **EPA 300.0** Analysis Date: **12/6/2012** SeqNo: **1492495**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.459	0.50	2.500	0	98.4	90	110				

Sample ID: **MB-R86770_CL** SampType: **MBLK** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86770**
Client ID: **PBW** Batch ID: **R86770** TestNo: **EPA 300.0** Analysis Date: **12/6/2012** SeqNo: **1492496**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.50									

Sample ID: **N009045-002BMS** SampType: **MS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86770**
Client ID: **ZZZZZZ** Batch ID: **R86770** TestNo: **EPA 300.0** Analysis Date: **12/6/2012** SeqNo: **1492501**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	128.140	10	50.00	76.34	104	80	120				

Sample ID: **N009045-002BMSD** SampType: **MSD** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86770**
Client ID: **ZZZZZZ** Batch ID: **R86770** TestNo: **EPA 300.0** Analysis Date: **12/6/2012** SeqNo: **1492502**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	129.820	10	50.00	76.34	107	80	120	128.1	1.30	20	

Sample ID: **N009045-003BDUP** SampType: **DUP** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86770**
Client ID: **ZZZZZZ** Batch ID: **R86770** TestNo: **EPA 300.0** Analysis Date: **12/6/2012** SeqNo: **1492503**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	87.260	10						86.78	0.552	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: N009050
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **LCS-R86770_SO4** SampType: **LCS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86770**
Client ID: **LCSW** Batch ID: **R86770** TestNo: **EPA 300.0** Analysis Date: **12/6/2012** SeqNo: **1492518**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.834	0.50	5.000	0	96.7	90	110				

Sample ID: **MB-R86770_SO4** SampType: **MBLK** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86770**
Client ID: **PBW** Batch ID: **R86770** TestNo: **EPA 300.0** Analysis Date: **12/6/2012** SeqNo: **1492519**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID: **N009045-002BMS** SampType: **MS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86770**
Client ID: **ZZZZZZ** Batch ID: **R86770** TestNo: **EPA 300.0** Analysis Date: **12/6/2012** SeqNo: **1492525**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	318.320	10	100.0	212.7	106	80	120				

Sample ID: **N009045-002BMSD** SampType: **MSD** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86770**
Client ID: **ZZZZZZ** Batch ID: **R86770** TestNo: **EPA 300.0** Analysis Date: **12/6/2012** SeqNo: **1492526**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	319.340	10	100.0	212.7	107	80	120	318.3	0.320	20	

Sample ID: **N009045-003BDUP** SampType: **DUP** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86770**
Client ID: **ZZZZZZ** Batch ID: **R86770** TestNo: **EPA 300.0** Analysis Date: **12/6/2012** SeqNo: **1492527**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	170.360	10						166.8	2.10	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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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT: CH2M HILL
Lab Order: N009050
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009050-001

Client Sample ID: MW-18-188
Collection Date: 12/4/2012 8:56:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121214F**	QC Batch: **41382**				PrepDate: **12/5/2012**		Analyst: **CEI**
Calcium	72000	75	500		ug/L	1	12/14/2012 01:10 PM
Iron	ND	7.2	20		ug/L	1	12/14/2012 01:10 PM
Magnesium	11000	13	100		ug/L	1	12/14/2012 01:10 PM
Sodium	160000	730	5000		ug/L	10	12/13/2012 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: *20-Dec-12*

CLIENT: CH2M HILL
Lab Order: N009050
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009050-002

Client Sample ID: MW-37D-188
Collection Date: 12/4/2012 1:32:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121214F**	QC Batch: **41382**				PrepDate: **12/5/2012**		Analyst: **CEI**
Calcium	390000	150	1000		ug/L	2	12/14/2012 02:43 PM
Iron	ND	14	40		ug/L	2	12/14/2012 02:43 PM
Magnesium	22000	26	200		ug/L	2	12/14/2012 02:43 PM
Sodium	3300000	7300	50000		ug/L	100	12/13/2012 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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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT: CH2M HILL
Lab Order: N009050
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009050-003

Client Sample ID: MW-65-160-188
Collection Date: 12/4/2012 3:15:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121214F**	QC Batch: **41382**				PrepDate: **12/5/2012**		Analyst: **CEI**
Calcium	250000	75	500		ug/L	1	12/14/2012 02:09 PM
Iron	ND	7.2	20		ug/L	1	12/14/2012 02:09 PM
Magnesium	33000	13	100		ug/L	1	12/14/2012 02:09 PM
Sodium	550000	3700	25000		ug/L	50	12/13/2012 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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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT: CH2M HILL
Lab Order: N009050
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009050-004

Client Sample ID: MW-70-105-188
Collection Date: 12/4/2012 2:42:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121214F**	QC Batch: **41382**				PrepDate: **12/5/2012**		Analyst: **CEI**
Calcium	81000	75	500		ug/L	1	12/14/2012 02:14 PM
Iron	32	7.2	20		ug/L	1	12/14/2012 02:14 PM
Magnesium	8600	13	100		ug/L	1	12/14/2012 02:14 PM
Sodium	580000	3700	25000		ug/L	50	12/13/2012 02:04 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

Date: *20-Dec-12*

CLIENT: CH2M HILL
Work Order: N009050
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **MB-41382** SampType: **MBLK** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/5/2012** RunNo: **86731**
Client ID: **PBW** Batch ID: **41382** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/13/2012** SeqNo: **1490282**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	ND	500									

Sample ID: **LCS-41382** SampType: **LCS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/5/2012** RunNo: **86731**
Client ID: **LCSW** Batch ID: **41382** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/13/2012** SeqNo: **1490283**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	27274.381	500	25000	0	109	85	115				

Sample ID: **N009050-001A-MS** SampType: **MS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/5/2012** RunNo: **86731**
Client ID: **ZZZZZZ** Batch ID: **41382** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/13/2012** SeqNo: **1490292**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	268873.425	5000	100000	162600	106	75	125				

Sample ID: **N009050-001A-MSD** SampType: **MSD** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/5/2012** RunNo: **86731**
Client ID: **ZZZZZZ** Batch ID: **41382** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/13/2012** SeqNo: **1490293**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	271845.568	5000	100000	162600	109	75	125	268900	1.10	20	

Sample ID: **MB-41382** SampType: **MBLK** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/5/2012** RunNo: **86756**
Client ID: **PBW** Batch ID: **41382** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/14/2012** SeqNo: **1491741**

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	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD 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: N009050
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **LCS-41382** SampType: **LCS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/5/2012** RunNo: **86756**
Client ID: **LCSW** Batch ID: **41382** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/14/2012** SeqNo: **1491742**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	924.714	500	1000	0	92.5	85	115				
Iron	106.184	20	100.0	0	106	85	115				
Magnesium	961.670	100	1000	0	96.2	85	115				

Sample ID: **N009050-001A-MS** SampType: **MS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/5/2012** RunNo: **86756**
Client ID: **ZZZZZZ** Batch ID: **41382** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/14/2012** SeqNo: **1491750**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	72046.733	500	1000	71880	16.5	75	125				S
Iron	106.081	20	100.0	19.32	86.8	75	125				
Magnesium	12101.405	100	1000	11310	79.3	75	125				

Sample ID: **N009050-001A-MSD** SampType: **MSD** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/5/2012** RunNo: **86756**
Client ID: **ZZZZZZ** Batch ID: **41382** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/14/2012** SeqNo: **1491751**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	71892.820	500	1000	71880	1.13	75	125	72050	0.214	20	S
Iron	100.382	20	100.0	19.32	81.1	75	125	106.1	5.52	20	
Magnesium	11575.848	100	1000	11310	26.7	75	125	12100	4.44	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: *20-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-18-188
Lab Order:	N009050	**Collection Date:**	12/4/2012 8:56:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009050-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **ICP7_121217B**	QC Batch: **41386**			PrepDate:	**12/6/2012**		Analyst: **CEI**
Manganese	ND	0.16	0.50		µg/L	1	12/17/2012 05:31 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT: CH2M HILL
Lab Order: N009050
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009050-002

Client Sample ID: MW-37D-188
Collection Date: 12/4/2012 1:32:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121217B**	QC Batch: **41386**				PrepDate:	**12/6/2012**	Analyst: **CEI**
Manganese	ND	0.16	0.50		µg/L	1	12/17/2012 05:36 PM
Molybdenum	45	0.074	0.50		µg/L	1	12/17/2012 05:36 PM
Selenium	ND	0.084	0.50		µg/L	1	12/17/2012 05:36 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: *20-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-65-160-188
Lab Order:	N009050	**Collection Date:**	12/4/2012 3:15:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009050-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121217B**	QC Batch: **41386**				PrepDate:	**12/6/2012**	Analyst: **CEI**
Arsenic	0.88	0.035	0.10		µg/L	1	12/17/2012 05:41 PM
Manganese	33	0.16	0.50		µg/L	1	12/17/2012 05:41 PM
Molybdenum	29	0.074	0.50		µg/L	1	12/17/2012 05:41 PM
Selenium	8.5	0.084	0.50		µg/L	1	12/17/2012 05:41 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *20-Dec-12*

CLIENT: CH2M HILL
Lab Order: N009050
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009050-004

Client Sample ID: MW-70-105-188
Collection Date: 12/4/2012 2:42:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121217B**	QC Batch: **41386**				PrepDate:	**12/6/2012**	Analyst: **CEI**
Arsenic	5.2	0.035	0.10		µg/L	1	12/17/2012 05:46 PM
Manganese	210	0.16	0.50		µg/L	1	12/17/2012 05:46 PM
Molybdenum	110	0.074	0.50		µg/L	1	12/17/2012 05:46 PM
Selenium	2.2	0.084	0.50		µg/L	1	12/17/2012 05:46 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

Date: *20-Dec-12*

CLIENT: CH2M HILL
Work Order: N009050
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **MB-41386** SampType: **MBLK** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **12/6/2012** RunNo: **86769**
Client ID: **PBW** Batch ID: **41386** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/17/2012** SeqNo: **1492379**

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-41386** SampType: **LCS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **12/6/2012** RunNo: **86769**
Client ID: **LCSW** Batch ID: **41386** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/17/2012** SeqNo: **1492380**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	9.859	0.10	10.00	0	98.6	85	115				
Manganese	92.094	0.50	100.0	0	92.1	85	115				
Molybdenum	9.817	0.50	10.00	0	98.2	85	115				
Selenium	10.278	0.50	10.00	0	103	85	115				

Sample ID: **N009078-003A-MS** SampType: **MS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **12/6/2012** RunNo: **86769**
Client ID: **ZZZZZZ** Batch ID: **41386** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/17/2012** SeqNo: **1492385**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.970	0.10	10.00	0.4649	105	75	125				
Molybdenum	15.796	0.50	10.00	4.242	116	75	125				
Selenium	10.031	0.50	10.00	0	100	75	125				

Sample ID: **N009078-003A-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **12/6/2012** RunNo: **86769**
Client ID: **ZZZZZZ** Batch ID: **41386** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/17/2012** SeqNo: **1492386**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	11.160	0.10	10.00	0.4649	107	75	125	10.97	1.72	20	
Molybdenum	15.527	0.50	10.00	4.242	113	75	125	15.80	1.72	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
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CLIENT: CH2M HILL
Work Order: N009050
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N009078-003A-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **12/6/2012** RunNo: **86769**
Client ID: **ZZZZZZ** Batch ID: **41386** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/17/2012** SeqNo: **1492386**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	10.383	0.50	10.00	0	104	75	125	10.03	3.45	20	

Sample ID: **N009078-003A-MS** SampType: **MS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **12/6/2012** RunNo: **86769**
Client ID: **ZZZZZZ** Batch ID: **41386** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/17/2012** SeqNo: **1492398**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	2749.609	12	100.0	2822	-72.6	75	125				S

Sample ID: **N009078-003A-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **12/6/2012** RunNo: **86769**
Client ID: **ZZZZZZ** Batch ID: **41386** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/17/2012** SeqNo: **1492399**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	2731.608	12	100.0	2822	-90.6	75	125	2750	0.657	20	S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
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CH2MHILL

CHAIN OF CUSTODY RECORD

12/5/2012 10:00:06 AM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.01
Task Order
Project 2012-GMP-188-Q4
Turnaround Time 10 Days
Shipping Date: 12/4/2012
COC Number: 16

			Container:	1x500 ml Poly	1x500 ml Poly	1x500 ml Poly	2x1 Liter	2x1 Liter	2x1 Liter			
			Preservatives:	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	4°C	4°C	4°C			
			Filtered:	Field	Field	Field	NA	NA	NA			
			Holding Time:	180	180	180	7	7	7			
	DATE	TIME	Matrix	Arsenic (6020A) Field Filtered	Metals (SW6010B/SW6020Adis) Field Filtered Ca,Mg,Na,Fe,Mn	Metals (SW6010B/SW6020Adis) Field Filtered Mo,Se	Specific Conductance (E120.1)	Anions (E300.0) Chloride,Sulfate	Alkalinity (SM2320B)		Number of Containers	COMMENTS
MW-18-188	12/4/2012	8:56	Water		X		X	X	X	N0090050-1	3	
MW-37D-188	12/4/2012	13:32	Water		X	X	X	X	X	-2	3	
MW-65-160-188	12/4/2012	15:15	Water	X	X	X	X	X	X	-3	3	
MW-70-105-188	12/4/2012	14:42	Water	X	X	X	X	X	X	-4	3	
										TOTAL NUMBER OF CONTAINERS	12	

	Signatures	Date/Time
Approved by		12-4-12
Sampled by		1625
Relinquished by		
Received by		12-4-12 1625
Relinquished by		
Received by		12-4-12 1830

Shipping Details

Method of Shipment: courier
On Ice: (yes) / no
Airbill No: 3.4 ICE RTH
Lab Name: ADVANCED TECHNOLOGY LABORATO
Lab Phone: (702) 307-2659

ATTN:
Sample Custody
and
Marlon

Special Instructions:
Nov 5 - Dec 14, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

Advanced Technology Laboratories, Inc.

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	12/4/2012	Workorder:	N009050
Rep sample Temp (Deg C):	3.4	IR Gun ID:	1
Temp Blank:	☐ Yes ☑ No		
Carrier name:	ATL		
Last 4 digits of Tracking No.:	na	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments:

Checklist Completed B MBC 12/5/12

Reviewed By:

Sample ID: **N009050-001B @ pH 7.65**

A. Standardization of Sulfuric Acid (titrant):

Normality of acid = (A)(B)/(53.00)(C)

Where:

A, grams weighed for Na_2CO_3 solution (Na_2CO_3 Standardization Solution)
B, mL Na2CO3 solution taken for titration, and
C, ml of sulfuric acid used to inflection point

Spike Standards

Na_2CO_3 Standardization Solution, ACS Grade (1.00 ml = 2500ug as $CaCO_3$): Dissolve 2.650 grams of Na_2CO_3 in distilled water and dilute to 1 liter.

LCS/MS/MSD Stock $NaHCO_3$, ACS Grade (1.00 ml = 5000 ug as $CaCO_3$): Dissolve 0.8398 grams of $NaHCO_3$ in distilled water and dilute to 1 liter.

Therefore,

Normality of Acid = (2.65g/L) (5mL) / (53.00) (11.625mL)

= **0.02151 N**

B. CALCULATION OF ALKALINITY (for a 50 ml sample)

Total Alkalinity (as $CaCO_3$), mg/L = $M_{vol.}$ * N H_2SO_4 * DF * 1000

Where:

$M_{vol.}$, volume titrant used to reach pH 4.5, ml
N, Normality of H_2SO_4
DF, Dilution Factor = (50 ml) / (Vol. of Sample used)

Therefore,

Total Alkalinity (as $CaCO_3$), mg/L = (3.90) (0.02151N) (1) * 1000

= 83.889 **mg/L**

Reporting results in two significant figures,

= 84 **mg/L** as CaCO3

NS for
[illegible]

C. SPECIATED ALKALINITY:

Phenolphthalein Alkalinity

P alkalinity, mg/L as $CaCO_3$ = $P_{vol.}$ * N H_2SO_4 * DF * 1000

= (0) (0.02151 N) (1) * 1000

= **0**

Total Alkalinity

T alkalinity, mg/L as $CaCO_3$ = $M_{vol.}$ * N H_2SO_4 * DF * 1000

= (3.90mL) (0.02151) (1) * 1000

= 83.889 **mg/L** as CaCO3

Where:

$P_{vol.}$ - volume titrant used to reach pH 8.3, ml
$M_{vol.}$ - volume titrant used to reach pH 4.5, ml
N - Normality of H_2SO_4
DF - Dilution Factor = (50 ml) / (Vol. of Sample used)

Then OH, CO_3, HCO_3 alkalinities as $CaCO_3$ will be calculated as follows:

Result of Titration	**OH Alkalinity as $CaCO_3$**	**CO_3 Alkalinity as $CaCO_3$**	**HCO_3 Alkalinity as $CaCO_3$**
P = 0	0	0	T
P < ½ T	0	2P	T – 2P
P = ½ T	0	2P	0
P > ½ T	2P – T	2(T – P)	0
P = T	T	0	0

Therefore,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = 83.889 **mg/L**

Alkalinity

Reporting results in two significant figures,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = 84 **mg/L**

Sample Calculation

METHOD: EPA 300
TEST NAME: INORGANIC ANIONS BY IC
MATRIX: WATER

FORMULA:

Calculate the Chloride concentration, in mg/L, in the original sample as follows:

Chloride, mg/L = A * DF

where:

A = mg/L, IC calculated concentration
DF = dilution factor

For **N009050-001B**, concentration in mg/L are calculated as follows:

Chloride, mg/L = 3.033 * ~~10~~ 100 initial

= ~~30.33~~ 303.30 mg/L

Reporting **N009050-001B** results in two significant figures,

Chloride, mg/L = ~~30~~ 300 initial

Sample Calculation

METHOD: EPA 6010
TEST NAME: Heavy Metals by ICP
MATRIX: Water

FORMULA:

Calculate the Sodium concentration, in µg/L, in the original sample as follows:

Sodium, µg/L = A * DF * PF * CF

where:

A = mg/L, calculated concentration
DF = Dilution factor
PF = Final Vol. of Digestate in mL / Amt. of Sample grams
CF = Conversion Factor

For Sample **N009050-001A**, the concentration in µg/L is calculated as follows:

Sodium, µg/L	=	16.25855923 * 10 * (25 / 25) * 1000
	=	162585.5923 µg/L

Reporting results in two significant figures,

Sodium, µg/L	**=**	**160000**

NS for
12/19/12

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N009050
Test Method: EPA 6010
Analysis Date: 12/13/12

Matrix: Water
Batch No.: 41382

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Mary Claire Ignacio

~~Dilution Test is not applicable to analytes with calculated values < 25X the RL.~~ NJ for 12/19/12

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N009050-001A-DT 50X	Sodium	ug/L	147696.1761	PASSED	162585.5923	9.16%	10

Note: NA - Not Applicable

Advanced Technology Laboratories, Inc.

ICP-Metals in Water **Dilution Test Summary**

Work Order No.: N009050
Test Method: EPA 6010
Analysis Date: 12/14/12

Matrix: Water
Batch No.: 41382

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments: Analyzed By: Mary Claire Ignacio

Dilution Test is not applicable to Fe. The computed value is < 25X the RL. However the PS @2X passes the criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N009050-001A-DT 5X	Calcium	ug/L	78226.8776	PASSED	71881.5068	-8.83%	10
N009050-001A-DT 5X	Magnesium	ug/L	12433.7740	PASSED	11308.7989	-9.95%	10
N009050-001A-DT 5X	Iron	ug/L	0	NA	19.3244	100.00%	10

Note: NA - Not Applicable

Advanced Technology Laboratories, Inc.

Date: *18-Dec-12*

CLIENT: CH2M HILL
Work Order: N009050
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **N009050-001A-PS** SampType: **PS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: RunNo: **86731**
Client ID: **ZZZZZZ** Batch ID: **41382** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/13/2012** SeqNo: **1490289**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	430949.738	5000	250000	162600	107	75	125				

Sample ID: **N009050-001A-PS** SampType: **PS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: RunNo: **86756**
Client ID: **ZZZZZZ** Batch ID: **41382** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/14/2012** SeqNo: **1491749**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	81476.223	1000	5000	71880	192	75	125				S
Iron	4980.986	40	5000	19.32	99.2	75	125				
Magnesium	16406.516	200	5000	11310	102	75	125				

DT of Ca @ 5x is within recovery criteria. NS for 12/19/12

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

Sample Calculation

METHOD: EPA 6020
TEST NAME: Heavy Metals by ICP-MS
MATRIX: Aqueous

FORMULA:

Calculate the Arsenic concentration, in ug/L, in the original sample as follows:

Arsenic, ug/L = A * DF * PF

where:

A = ug/L, calculated concentration
DF = dilution factor
PF = Final Vol. of Digestate in mL / Vol. of Sample used in mL

For Sample **N009050-003A**, the concentration in ug/L is calculated as follows:

Arsenic, ug/L = 0.884594915270937 * 1 * (25/25)

= 0.884594915270937

Reporting result in two significant figures,

Arsenic, ug/L = 0.88

NS for
12/19/12

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N009050
Test Method: EPA 6020
Analysis Date: 12/17/12

Matrix: Water
Batch No.: 41386

Instrument ID: ICP-MS #2
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to As, Mo and Se. The calculated values were <25X RL. Dilution test in Mn failed. PS passed criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N009078-003A-DT 5X	Arsenic	µg/L	0.265243059	NA	0.464926346	42.95%	10
N009078-003A-DT 5X	Molybdenum	µg/L	4.302397479	NA	4.242390478	1.41%	10
N009078-003A-DT 5X	Selenium	µg/L	0	NA	0	0.00%	10
N009078-003A-DT 125X	Manganese	µg/L	3108.241398	FAILED	2822.243722	10.13%	10

Note: NA - Not applicable

Advanced Technology Laboratories, Inc.

Date: *19-Dec-12*

CLIENT: CH2M HILL
Work Order: N009050
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N009078-003A-PS** SampType: **PS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **86769**
Client ID: **ZZZZZZ** Batch ID: **41386** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/17/2012** SeqNo: **1492384**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	21.915	0.20	20.00	0.4649	107	75	125				
Molybdenum	28.757	1.0	20.00	4.242	123	75	125				
Selenium	20.035	1.0	20.00	0	100	75	125				

Sample ID: **N009078-003A-PS** SampType: **PS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **86769**
Client ID: **ZZZZZZ** Batch ID: **41386** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/17/2012** SeqNo: **1492397**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	5286.216	12	2500	2822	98.6	75	125				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

January 04, 2013

Shawn P. Duffy
CH2M HILL
155 Grand Avenue, Suite 1000
Oakland, CA 94612

TEL: (530) 229-3303
FAX: (530) 339-3303

CA-ELAP No.: 2676
NV Cert. No.: NV-009222007A

Workorder No.: N009085

RE: PG&E Topock, 423575.MP.02.GM.01

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on December 06, 2012 by Advanced Technology Laboratories, Inc. . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

for Gregesmundo

Jose Tenorio Jr.
Laboratory Director

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CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.01
Lab Order: N009085

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

Samples were received intact with proper chain of custody documentation.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Samples were analyzed within method holding time.

Analytical Comments for SM2320B:

Method Blank (MB-R86866) has hit above the reporting limit but less than 1/10 of the amount measured in samples N009085-005 and N009085-010.

Analytical Comments for EPA 6010B_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Calcium and Magnesium since the analyte concentration in the sample is disproportionate to the spike level. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Sodium on QC samples N009085-018A-MS and N009085-018A-MSD possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Dilution was necessary on samples N009085-015, N009085-016, N009085-019, N009085-020, N009085-023, N009085-029 and N009085-030 since plasma was extinguished when samples were analyzed at no dilution.

Analytical Comments for EPA 6020_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Manganese since the analyte concentration in the sample is disproportionate to the spike level. The associated Laboratory Control Sample (LCS) recovery was acceptable.

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CASE NARRATIVE

Matrix Spike (MS) is outside recovery criteria for Molybdenum possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Advanced Technology Laboratories, Inc.
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Advanced Technology Laboratories, Inc.

Date: *04-Jan-13*

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.01
Lab Order: N009085
Contract No: 2012-GMP-188-

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N009085-001A	MW-09-188	Water	12/5/2012 1:45:00 PM	12/6/2012	1/4/2013
N009085-001B	MW-09-188	Water	12/5/2012 1:45:00 PM	12/6/2012	1/4/2013
N009085-002A	MW-28-025-188	Water	12/5/2012 9:06:00 AM	12/6/2012	1/4/2013
N009085-002B	MW-28-025-188	Water	12/5/2012 9:06:00 AM	12/6/2012	1/4/2013
N009085-003A	MW-28-090-188	Water	12/5/2012 9:53:00 AM	12/6/2012	1/4/2013
N009085-003B	MW-28-090-188	Water	12/5/2012 9:53:00 AM	12/6/2012	1/4/2013
N009085-004A	MW-29-188	Water	12/5/2012 10:54:00 AM	12/6/2012	1/4/2013
N009085-004B	MW-29-188	Water	12/5/2012 10:54:00 AM	12/6/2012	1/4/2013
N009085-005A	MW-32-020-188	Water	12/5/2012 12:07:00 PM	12/6/2012	1/4/2013
N009085-005B	MW-32-020-188	Water	12/5/2012 12:07:00 PM	12/6/2012	1/4/2013
N009085-006A	MW-32-035-188	Water	12/5/2012 1:09:00 PM	12/6/2012	1/4/2013
N009085-006B	MW-32-035-188	Water	12/5/2012 1:09:00 PM	12/6/2012	1/4/2013
N009085-007A	MW-33-040-188	Water	12/5/2012 3:31:00 PM	12/6/2012	1/4/2013
N009085-007B	MW-33-040-188	Water	12/5/2012 3:31:00 PM	12/6/2012	1/4/2013
N009085-008A	MW-52D-188	Water	12/5/2012 9:47:00 AM	12/6/2012	1/4/2013
N009085-008B	MW-52D-188	Water	12/5/2012 9:47:00 AM	12/6/2012	1/4/2013
N009085-009A	MW-52M-188	Water	12/5/2012 11:25:00 AM	12/6/2012	1/4/2013
N009085-009B	MW-52M-188	Water	12/5/2012 11:25:00 AM	12/6/2012	1/4/2013
N009085-010A	MW-52S-188	Water	12/5/2012 12:24:00 PM	12/6/2012	1/4/2013
N009085-010B	MW-52S-188	Water	12/5/2012 12:24:00 PM	12/6/2012	1/4/2013
N009085-011A	MW-53M-188	Water	12/5/2012 2:56:00 PM	12/6/2012	1/4/2013
N009085-011B	MW-53M-188	Water	12/5/2012 2:56:00 PM	12/6/2012	1/4/2013
N009085-012A	MW-60BR-245-188	Water	12/5/2012 8:01:00 AM	12/6/2012	1/4/2013
N009085-012B	MW-60BR-245-188	Water	12/5/2012 8:01:00 AM	12/6/2012	1/4/2013
N009085-013A	MW-65-225-188	Water	12/5/2012 12:35:00 PM	12/6/2012	1/4/2013
N009085-013B	MW-65-225-188	Water	12/5/2012 12:35:00 PM	12/6/2012	1/4/2013
N009085-014A	MW-69-195-188	Water	12/5/2012 3:45:00 PM	12/6/2012	1/4/2013
N009085-014B	MW-69-195-188	Water	12/5/2012 3:45:00 PM	12/6/2012	1/4/2013
N009085-015A	MW-72-080-188	Water	12/5/2012 10:59:00 AM	12/6/2012	1/4/2013

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CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.01
Lab Order: N009085
Contract No: 2012-GMP-188-

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N009085-015B	MW-72-080-188	Water	12/5/2012 10:59:00 AM	12/6/2012	1/4/2013
N009085-016A	MW-73-080-188	Water	12/5/2012 7:50:00 AM	12/6/2012	1/4/2013
N009085-016B	MW-73-080-188	Water	12/5/2012 7:50:00 AM	12/6/2012	1/4/2013
N009085-017A	MW-91-188	Water	12/5/2012 4:58:00 PM	12/6/2012	1/4/2013
N009085-017B	MW-91-188	Water	12/5/2012 4:58:00 PM	12/6/2012	1/4/2013
N009085-018A	MW-92-188	Water	12/5/2012 3:34:00 PM	12/6/2012	1/4/2013
N009085-018B	MW-92-188	Water	12/5/2012 3:34:00 PM	12/6/2012	1/4/2013
N009085-019A	MW-33-150-188	Water	12/6/2012 9:30:00 AM	12/6/2012	1/4/2013
N009085-019B	MW-33-150-188	Water	12/6/2012 9:30:00 AM	12/6/2012	1/4/2013
N009085-020A	MW-33-210-188	Water	12/6/2012 10:23:00 AM	12/6/2012	1/4/2013
N009085-020B	MW-33-210-188	Water	12/6/2012 10:23:00 AM	12/6/2012	1/4/2013
N009085-021A	MW-42-030-188	Water	12/6/2012 11:51:00 AM	12/6/2012	1/4/2013
N009085-021B	MW-42-030-188	Water	12/6/2012 11:51:00 AM	12/6/2012	1/4/2013
N009085-022A	MW-42-055-188	Water	12/6/2012 1:18:00 PM	12/6/2012	1/4/2013
N009085-022B	MW-42-055-188	Water	12/6/2012 1:18:00 PM	12/6/2012	1/4/2013
N009085-023A	MW-42-065-188	Water	12/6/2012 2:03:00 PM	12/6/2012	1/4/2013
N009085-023B	MW-42-065-188	Water	12/6/2012 2:03:00 PM	12/6/2012	1/4/2013
N009085-024A	MW-44-070-188	Water	12/6/2012 3:46:00 PM	12/6/2012	1/4/2013
N009085-024B	MW-44-070-188	Water	12/6/2012 3:46:00 PM	12/6/2012	1/4/2013
N009085-025A	MW-53D-188	Water	12/6/2012 9:09:00 AM	12/6/2012	1/4/2013
N009085-025B	MW-53D-188	Water	12/6/2012 9:09:00 AM	12/6/2012	1/4/2013
N009085-026A	MW-60-125-188	Water	12/6/2012 10:36:00 AM	12/6/2012	1/4/2013
N009085-026B	MW-60-125-188	Water	12/6/2012 10:36:00 AM	12/6/2012	1/4/2013
N009085-027A	MW-66-165-188	Water	12/6/2012 8:26:00 AM	12/6/2012	1/4/2013
N009085-027B	MW-66-165-188	Water	12/6/2012 8:26:00 AM	12/6/2012	1/4/2013
N009085-028A	MW-67-185-188	Water	12/6/2012 3:01:00 PM	12/6/2012	1/4/2013
N009085-028B	MW-67-185-188	Water	12/6/2012 3:01:00 PM	12/6/2012	1/4/2013
N009085-029A	MW-67-260-188	Water	12/6/2012 1:57:00 PM	12/6/2012	1/4/2013
N009085-029B	MW-67-260-188	Water	12/6/2012 1:57:00 PM	12/6/2012	1/4/2013
N009085-030A	MW-68-240-188	Water	12/6/2012 11:58:00 AM	12/6/2012	1/4/2013

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CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.01
Lab Order: N009085
Contract No: 2012-GMP-188-

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N009085-030B	MW-68-240-188	Water	12/6/2012 11:58:00 AM	12/6/2012	1/4/2013
N009085-031A	MW-95-188	Water	12/6/2012 7:05:00 AM	12/6/2012	1/4/2013
N009085-031B	MW-95-188	Water	12/6/2012 7:05:00 AM	12/6/2012	1/4/2013

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-001

Client Sample ID: MW-09-188
Collection Date: 12/5/2012 1:45:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
EPA 120.1							
RunID: **WETCHEM_121207G**	QC Batch: **R86877**			PrepDate:			Analyst: **CEI**
Specific Conductance	2800	0.10	0.10		umhos/cm	1	12/7/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-28-025-188
Lab Order:	N009085	**Collection Date:**	12/5/2012 9:06:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009085-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121207G**	QC Batch: **R86877**			PrepDate:			Analyst: **CEI**
Specific Conductance	1000	0.10	0.10		umhos/cm	1	12/7/2012

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-28-090-188
Lab Order:	N009085	**Collection Date:**	12/5/2012 9:53:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009085-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121207G**	QC Batch: **R86877**			PrepDate:			Analyst: **CEI**
Specific Conductance	7200	0.10	0.10		umhos/cm	1	12/7/2012

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-004

Client Sample ID: MW-29-188
Collection Date: 12/5/2012 10:54:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
EPA 120.1							
RunID: **WETCHEM_121207G**	QC Batch: **R86877**			PrepDate:			Analyst: **CEI**
Specific Conductance	2800	0.10	0.10		umhos/cm	1	12/7/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-005

Client Sample ID: MW-32-020-188
Collection Date: 12/5/2012 12:07:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
EPA 120.1							
RunID: **WETCHEM_121207G**	QC Batch: **R86877**			PrepDate:			Analyst: **CEI**
Specific Conductance	45000	0.10	0.10		umhos/cm	1	12/7/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-32-035-188
Lab Order:	N009085	**Collection Date:**	12/5/2012 1:09:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009085-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121207H**	QC Batch: **R86878**			PrepDate:			Analyst: **CEI**
Specific Conductance	15000	0.10	0.10		umhos/cm	1	12/7/2012

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-33-040-188
Lab Order:	N009085	**Collection Date:**	12/5/2012 3:31:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009085-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121207H**	QC Batch: **R86878**			PrepDate:			Analyst: **CEI**
Specific Conductance	8300	0.10	0.10		umhos/cm	1	12/7/2012

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-52D-188
Lab Order:	N009085	**Collection Date:**	12/5/2012 9:47:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009085-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121207H**	QC Batch: **R86878**			PrepDate:			Analyst: **CEI**
Specific Conductance	22000	0.10	0.10		umhos/cm	1	12/7/2012

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-009

Client Sample ID: MW-52M-188
Collection Date: 12/5/2012 11:25:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121207H**	QC Batch: **R86878**			PrepDate:			Analyst: **CEI**
Specific Conductance	16000	0.10	0.10		umhos/cm	1	12/7/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-010

Client Sample ID: MW-52S-188
Collection Date: 12/5/2012 12:24:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
EPA 120.1							
RunID: **WETCHEM_121207H**	QC Batch: **R86878**			PrepDate:			Analyst: **CEI**
Specific Conductance	9200	0.10	0.10		umhos/cm	1	12/7/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-53M-188
Lab Order:	N009085	**Collection Date:**	12/5/2012 2:56:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009085-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
EPA 120.1							
RunID: **WETCHEM_121207H**	QC Batch: **R86878**			PrepDate:			Analyst: **CEI**
Specific Conductance	19000	0.10	0.10		umhos/cm	1	12/7/2012

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-60BR-245-188
Lab Order:	N009085	**Collection Date:**	12/5/2012 8:01:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009085-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121207H**	QC Batch: **R86878**			PrepDate:			Analyst: **CEI**
Specific Conductance	17000	0.10	0.10		umhos/cm	1	12/7/2012

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-65-225-188
Lab Order:	N009085	**Collection Date:**	12/5/2012 12:35:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009085-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121207H**	QC Batch: **R86878**			PrepDate:			Analyst: **CEI**
Specific Conductance	9400	0.10	0.10		umhos/cm	1	12/7/2012

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-69-195-188
Lab Order:	N009085	**Collection Date:**	12/5/2012 3:45:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009085-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121207H**	QC Batch: **R86878**			PrepDate:			Analyst: **CEI**
Specific Conductance	3800	0.10	0.10		umhos/cm	1	12/7/2012

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-015

Client Sample ID: MW-72-080-188
Collection Date: 12/5/2012 10:59:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
EPA 120.1							
RunID: **WETCHEM_121207H**	QC Batch: **R86878**			PrepDate:			Analyst: **CEI**
Specific Conductance	16000	0.10	0.10		umhos/cm	1	12/7/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-016

Client Sample ID: MW-73-080-188
Collection Date: 12/5/2012 7:50:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
EPA 120.1							
RunID: **WETCHEM_121207I**	QC Batch: **R86879**			PrepDate:			Analyst: **CEI**
Specific Conductance	11000	0.10	0.10		umhos/cm	1	12/7/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-91-188
Lab Order:	N009085	**Collection Date:**	12/5/2012 4:58:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009085-017		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
EPA 120.1							
RunID: **WETCHEM_121207I**	QC Batch: **R86879**			PrepDate:			Analyst: **CEI**
Specific Conductance	2400	0.10	0.10		umhos/cm	1	12/7/2012

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-92-188
Lab Order:	N009085	**Collection Date:**	12/5/2012 3:34:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009085-018		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121207I**	QC Batch: **R86879**			PrepDate:			Analyst: **CEI**
Specific Conductance	8100	0.10	0.10		umhos/cm	1	12/7/2012

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-33-150-188
Lab Order:	N009085	**Collection Date:**	12/6/2012 9:30:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009085-019		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121207I**	QC Batch: **R86879**			PrepDate:			Analyst: **CEI**
Specific Conductance	17000	0.10	0.10		umhos/cm	1	12/7/2012

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-020

Client Sample ID: MW-33-210-188
Collection Date: 12/6/2012 10:23:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
EPA 120.1							
RunID: **WETCHEM_121207I**	QC Batch: **R86879**			PrepDate:			Analyst: **CEI**
Specific Conductance	19000	0.10	0.10		umhos/cm	1	12/7/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-42-030-188
Lab Order:	N009085	**Collection Date:**	12/6/2012 11:51:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009085-021		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
EPA 120.1							
RunID: **WETCHEM_121207I**	QC Batch: **R86879**			PrepDate:			Analyst: **CEI**
Specific Conductance	4400	0.10	0.10		umhos/cm	1	12/7/2012

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-42-055-188
Lab Order:	N009085	**Collection Date:**	12/6/2012 1:18:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009085-022		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121207I**	QC Batch: **R86879**			PrepDate:			Analyst: **CEI**
Specific Conductance	2300	0.10	0.10		umhos/cm	1	12/7/2012

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-42-065-188
Lab Order:	N009085	**Collection Date:**	12/6/2012 2:03:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009085-023		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
EPA 120.1							
RunID: **WETCHEM_121207I**	QC Batch: **R86879**			PrepDate:			Analyst: **CEI**
Specific Conductance	8400	0.10	0.10		umhos/cm	1	12/7/2012

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-024

Client Sample ID: MW-44-070-188
Collection Date: 12/6/2012 3:46:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
EPA 120.1							
RunID: **WETCHEM_121207I**	QC Batch: **R86879**			PrepDate:			Analyst: **CEI**
Specific Conductance	2100	0.10	0.10		umhos/cm	1	12/7/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-53D-188
Lab Order:	N009085	**Collection Date:**	12/6/2012 9:09:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009085-025		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
EPA 120.1							
RunID: **WETCHEM_121207I**	QC Batch: **R86879**			PrepDate:			Analyst: **CEI**
Specific Conductance	25000	0.10	0.10		umhos/cm	1	12/7/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-026

Client Sample ID: MW-60-125-188
Collection Date: 12/6/2012 10:36:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
EPA 120.1							
RunID: **WETCHEM_121207J**	QC Batch: **R86880**			PrepDate:			Analyst: **CEI**
Specific Conductance	8700	0.10	0.10		umhos/cm	1	12/7/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-66-165-188
Lab Order:	N009085	**Collection Date:**	12/6/2012 8:26:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009085-027		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
EPA 120.1							
RunID: **WETCHEM_121207J**	QC Batch: **R86880**			PrepDate:			Analyst: **CEI**
Specific Conductance	4300	0.10	0.10		umhos/cm	1	12/7/2012

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-67-185-188
Lab Order:	N009085	**Collection Date:**	12/6/2012 3:01:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009085-028		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121207J**	QC Batch: **R86880**			PrepDate:			Analyst: **CEI**
Specific Conductance	4400	0.10	0.10		umhos/cm	1	12/7/2012

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-029

Client Sample ID: MW-67-260-188
Collection Date: 12/6/2012 1:57:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
EPA 120.1							
RunID: **WETCHEM_121207J**	QC Batch: **R86880**			PrepDate:			Analyst: **CEI**
Specific Conductance	18000	0.10	0.10		umhos/cm	1	12/7/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-68-240-188
Lab Order:	N009085	**Collection Date:**	12/6/2012 11:58:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009085-030		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
EPA 120.1							
RunID: **WETCHEM_121207J**	QC Batch: **R86880**			PrepDate:			Analyst: **CEI**
Specific Conductance	16000	0.10	0.10		umhos/cm	1	12/7/2012

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-95-188
Lab Order:	N009085	**Collection Date:**	12/6/2012 7:05:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009085-031		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121207J**	QC Batch: **R86880**			PrepDate:			Analyst: **CEI**
Specific Conductance	20000	0.10	0.10		umhos/cm	1	12/7/2012

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

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Date: *04-Jan-13*

CLIENT: CH2M HILL
Work Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: **LCS-R86877** SampType: **LCS** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86877**
Client ID: **LCSW** Batch ID: **R86877** TestNo: **EPA 120.1** Analysis Date: **12/7/2012** SeqNo: **1496648**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	1441.000	0.10	1412	0	102	85	115				

Sample ID: **N009085-002BDUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86877**
Client ID: **ZZZZZZ** Batch ID: **R86877** TestNo: **EPA 120.1** Analysis Date: **12/7/2012** SeqNo: **1496651**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	1053.000	0.10						1049	0.381	10	

Sample ID: **N009085-002BMS** SampType: **MS** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86877**
Client ID: **ZZZZZZ** Batch ID: **R86877** TestNo: **EPA 120.1** Analysis Date: **12/7/2012** SeqNo: **1496652**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	2560.000	0.20	1412	1049	107	75	125				

Sample ID: **N009085-002BMSD** SampType: **MSD** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86877**
Client ID: **ZZZZZZ** Batch ID: **R86877** TestNo: **EPA 120.1** Analysis Date: **12/7/2012** SeqNo: **1496653**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	2558.000	0.20	1412	1049	107	75	125	2560	0.0782	10	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

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CLIENT: CH2M HILL
Work Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: **LCS-R86878** SampType: **LCS** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86878**
Client ID: **LCSW** Batch ID: **R86878** TestNo: **EPA 120.1** Analysis Date: **12/7/2012** SeqNo: **1496663**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	10390.000	0.10	9992	0	104	85	115				

Sample ID: **N009085-009BDUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86878**
Client ID: **ZZZZZZ** Batch ID: **R86878** TestNo: **EPA 120.1** Analysis Date: **12/7/2012** SeqNo: **1496668**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	16080.000	0.10						15850	1.44	10	

Sample ID: **N009085-009BMS** SampType: **MS** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86878**
Client ID: **ZZZZZZ** Batch ID: **R86878** TestNo: **EPA 120.1** Analysis Date: **12/7/2012** SeqNo: **1496669**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	26720.000	0.20	9992	15850	109	75	125				

Sample ID: **N009085-009BMSD** SampType: **MSD** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86878**
Client ID: **ZZZZZZ** Batch ID: **R86878** TestNo: **EPA 120.1** Analysis Date: **12/7/2012** SeqNo: **1496670**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	26620.000	0.20	9992	15850	108	75	125	26720	0.375	10	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

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CLIENT: CH2M HILL
Work Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: **LCS-R86879** SampType: **LCS** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86879**
Client ID: **LCSW** Batch ID: **R86879** TestNo: **EPA 120.1** Analysis Date: **12/7/2012** SeqNo: **1496677**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	1443.000	0.10	1412	0	102	85	115				

Sample ID: **N009085-017BDUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86879**
Client ID: **ZZZZZZ** Batch ID: **R86879** TestNo: **EPA 120.1** Analysis Date: **12/7/2012** SeqNo: **1496680**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	2430.000	0.10						2440	0.411	10	

Sample ID: **N009085-017BMS** SampType: **MS** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86879**
Client ID: **ZZZZZZ** Batch ID: **R86879** TestNo: **EPA 120.1** Analysis Date: **12/7/2012** SeqNo: **1496681**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	3940.000	0.20	1412	2440	106	75	125				

Sample ID: **N009085-017BMSD** SampType: **MSD** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86879**
Client ID: **ZZZZZZ** Batch ID: **R86879** TestNo: **EPA 120.1** Analysis Date: **12/7/2012** SeqNo: **1496682**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	3916.000	0.20	1412	2440	105	75	125	3940	0.611	10	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

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CLIENT: CH2M HILL
Work Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: **LCS-R86880** SampType: **LCS** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86880**
Client ID: **LCSW** Batch ID: **R86880** TestNo: **EPA 120.1** Analysis Date: **12/7/2012** SeqNo: **1496691**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	10520.000	0.10	9992	0	105	85	115				

Sample ID: **N009085-026BDUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86880**
Client ID: **ZZZZZZ** Batch ID: **R86880** TestNo: **EPA 120.1** Analysis Date: **12/7/2012** SeqNo: **1496693**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	8660.000	0.10						8690	0.346	10	

Sample ID: **N009085-026BMS** SampType: **MS** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86880**
Client ID: **ZZZZZZ** Batch ID: **R86880** TestNo: **EPA 120.1** Analysis Date: **12/7/2012** SeqNo: **1496694**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	18000.000	0.20	9992	8690	93.2	75	125				

Sample ID: **N009085-026BMSD** SampType: **MSD** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86880**
Client ID: **ZZZZZZ** Batch ID: **R86880** TestNo: **EPA 120.1** Analysis Date: **12/7/2012** SeqNo: **1496695**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	18020.000	0.20	9992	8690	93.4	75	125	18000	0.111	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: *04-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-32-035-188
Lab Order:	N009085	**Collection Date:**	12/5/2012 1:09:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009085-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **WETCHEM_121210C**	QC Batch: **41432**			PrepDate:	**12/10/2012**		Analyst: **QBM**
Total Dissolved Solids (Residue, Filterable)	10000	100	100		mg/L	1	12/10/2012

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

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Date: *04-Jan-13*

CLIENT: CH2M HILL
Work Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.1_2540C_W

Sample ID: **MB-41432** SampType: **MBLK** TestCode: **160.1_2540C_** Units: **mg/L** Prep Date: **12/10/2012** RunNo: **86697**
Client ID: **PBW** Batch ID: **41432** TestNo: **SM2540C** Analysis Date: **12/10/2012** SeqNo: **1488935**

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-41432** SampType: **LCS** TestCode: **160.1_2540C_** Units: **mg/L** Prep Date: **12/10/2012** RunNo: **86697**
Client ID: **LCSW** Batch ID: **41432** TestNo: **SM2540C** Analysis Date: **12/10/2012** SeqNo: **1488936**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	983.000	10	1000	0	98.3	80	120				

Sample ID: **N009093-002A-DUP** SampType: **DUP** TestCode: **160.1_2540C_** Units: **mg/L** Prep Date: **12/10/2012** RunNo: **86697**
Client ID: **ZZZZZZ** Batch ID: **41432** TestNo: **SM2540C** Analysis Date: **12/10/2012** SeqNo: **1488942**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	445.000	10						443.0	0.450	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: *04-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-09-188
Lab Order:	N009085	**Collection Date:**	12/5/2012 1:45:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009085-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121211B**	QC Batch: **R86796**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	130	1.2	5.0		mg/L	1	12/11/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/11/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/11/2012
Alkalinity, Total (As CaCO3)	130	1.2	5.0		mg/L	1	12/11/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-002

Client Sample ID: MW-28-025-188
Collection Date: 12/5/2012 9:06:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121211B**	QC Batch: **R86796**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	200	1.2	5.0		mg/L	1	12/11/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/11/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/11/2012
Alkalinity, Total (As CaCO3)	200	1.2	5.0		mg/L	1	12/11/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-003

Client Sample ID: MW-28-090-188
Collection Date: 12/5/2012 9:53:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121211B**	QC Batch: **R86796**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	230	1.2	5.0		mg/L	1	12/11/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/11/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/11/2012
Alkalinity, Total (As CaCO3)	230	1.2	5.0		mg/L	1	12/11/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-004

Client Sample ID: MW-29-188
Collection Date: 12/5/2012 10:54:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121211B**	QC Batch: **R86796**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	570	1.2	5.0		mg/L	1	12/11/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/11/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/11/2012
Alkalinity, Total (As CaCO3)	570	1.2	5.0		mg/L	1	12/11/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-32-020-188
Lab Order:	N009085	**Collection Date:**	12/5/2012 12:07:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009085-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121212C**	QC Batch: **R86866**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	1400	1.2	5.0	B	mg/L	1	12/12/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/12/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/12/2012
Alkalinity, Total (As CaCO3)	1400	1.2	5.0	B	mg/L	1	12/12/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-006

Client Sample ID: MW-32-035-188
Collection Date: 12/5/2012 1:09:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121211B**	QC Batch: **R86796**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	630	1.2	5.0		mg/L	1	12/11/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/11/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/11/2012
Alkalinity, Total (As CaCO3)	630	1.2	5.0		mg/L	1	12/11/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-33-040-188
Lab Order:	N009085	**Collection Date:**	12/5/2012 3:31:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009085-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121211B**	QC Batch: **R86796**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	300	1.2	5.0		mg/L	1	12/11/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/11/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/11/2012
Alkalinity, Total (As CaCO3)	300	1.2	5.0		mg/L	1	12/11/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-52D-188
Lab Order:	N009085	**Collection Date:**	12/5/2012 9:47:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009085-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121211B**	QC Batch: **R86796**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	45	1.2	5.0		mg/L	1	12/11/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/11/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/11/2012
Alkalinity, Total (As CaCO3)	45	1.2	5.0		mg/L	1	12/11/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-52M-188
Lab Order:	N009085	**Collection Date:**	12/5/2012 11:25:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009085-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121211B**	QC Batch: **R86796**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	83	1.2	5.0		mg/L	1	12/11/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/11/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/11/2012
Alkalinity, Total (As CaCO3)	83	1.2	5.0		mg/L	1	12/11/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-52S-188
Lab Order:	N009085	**Collection Date:**	12/5/2012 12:24:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009085-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121212C**	QC Batch: **R86866**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	1000	1.2	5.0	B	mg/L	1	12/12/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/12/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/12/2012
Alkalinity, Total (As CaCO3)	1000	1.2	5.0	B	mg/L	1	12/12/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-011

Client Sample ID: MW-53M-188
Collection Date: 12/5/2012 2:56:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121211B**	QC Batch: **R86796**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	41	1.2	5.0		mg/L	1	12/11/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/11/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/11/2012
Alkalinity, Total (As CaCO3)	41	1.2	5.0		mg/L	1	12/11/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-60BR-245-188
Lab Order:	N009085	**Collection Date:**	12/5/2012 8:01:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009085-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121212D**	QC Batch: **R86867**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	22	1.2	5.0		mg/L	1	12/12/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/12/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/12/2012
Alkalinity, Total (As CaCO3)	22	1.2	5.0		mg/L	1	12/12/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-65-225-188
Lab Order:	N009085	**Collection Date:**	12/5/2012 12:35:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009085-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121212D**	QC Batch: **R86867**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	97	1.2	5.0		mg/L	1	12/12/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/12/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/12/2012
Alkalinity, Total (As CaCO3)	97	1.2	5.0		mg/L	1	12/12/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-014

Client Sample ID: MW-69-195-188
Collection Date: 12/5/2012 3:45:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121212D**	QC Batch: **R86867**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	200	1.2	5.0		mg/L	1	12/12/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/12/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/12/2012
Alkalinity, Total (As CaCO3)	200	1.2	5.0		mg/L	1	12/12/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-015

Client Sample ID: MW-72-080-188
Collection Date: 12/5/2012 10:59:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121212D**	QC Batch: **R86867**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	42	1.2	5.0		mg/L	1	12/12/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/12/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/12/2012
Alkalinity, Total (As CaCO3)	42	1.2	5.0		mg/L	1	12/12/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-73-080-188
Lab Order:	N009085	**Collection Date:**	12/5/2012 7:50:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009085-016		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121212D**	QC Batch: **R86867**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	86	1.2	5.0		mg/L	1	12/12/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/12/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/12/2012
Alkalinity, Total (As CaCO3)	86	1.2	5.0		mg/L	1	12/12/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-017

Client Sample ID: MW-91-188
Collection Date: 12/5/2012 4:58:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121212D**	QC Batch: **R86867**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	500	1.2	5.0		mg/L	1	12/12/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/12/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/12/2012
Alkalinity, Total (As CaCO3)	500	1.2	5.0		mg/L	1	12/12/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-92-188
Lab Order:	N009085	**Collection Date:**	12/5/2012 3:34:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009085-018		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121212D**	QC Batch: **R86867**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	290	1.2	5.0		mg/L	1	12/12/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/12/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/12/2012
Alkalinity, Total (As CaCO3)	290	1.2	5.0		mg/L	1	12/12/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-019

Client Sample ID: MW-33-150-188
Collection Date: 12/6/2012 9:30:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121212D**	QC Batch: **R86867**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	48	1.2	5.0		mg/L	1	12/12/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/12/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/12/2012
Alkalinity, Total (As CaCO3)	48	1.2	5.0		mg/L	1	12/12/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-33-210-188
Lab Order:	N009085	**Collection Date:**	12/6/2012 10:23:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009085-020		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121212D**	QC Batch: **R86867**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	54	1.2	5.0		mg/L	1	12/12/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/12/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/12/2012
Alkalinity, Total (As CaCO3)	54	1.2	5.0		mg/L	1	12/12/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-42-055-188
Lab Order:	N009085	**Collection Date:**	12/6/2012 1:18:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009085-022		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121212D**	QC Batch: **R86867**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	380	1.2	5.0		mg/L	1	12/12/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/12/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/12/2012
Alkalinity, Total (As CaCO3)	380	1.2	5.0		mg/L	1	12/12/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-023

Client Sample ID: MW-42-065-188
Collection Date: 12/6/2012 2:03:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121212D**	QC Batch: **R86867**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	350	1.2	5.0		mg/L	1	12/12/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/12/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/12/2012
Alkalinity, Total (As CaCO3)	350	1.2	5.0		mg/L	1	12/12/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-44-070-188
Lab Order:	N009085	**Collection Date:**	12/6/2012 3:46:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009085-024		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121212D**	QC Batch: **R86867**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	300	1.2	5.0		mg/L	1	12/12/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/12/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/12/2012
Alkalinity, Total (As CaCO3)	300	1.2	5.0		mg/L	1	12/12/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-53D-188
Lab Order:	N009085	**Collection Date:**	12/6/2012 9:09:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009085-025		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121212D**	QC Batch: **R86867**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	37	1.2	5.0		mg/L	1	12/12/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/12/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/12/2012
Alkalinity, Total (As CaCO3)	37	1.2	5.0		mg/L	1	12/12/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-60-125-188
Lab Order:	N009085	**Collection Date:**	12/6/2012 10:36:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009085-026		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121212D**	QC Batch: **R86867**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	46	1.2	5.0		mg/L	1	12/12/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/12/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/12/2012
Alkalinity, Total (As CaCO3)	46	1.2	5.0		mg/L	1	12/12/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-027

Client Sample ID: MW-66-165-188
Collection Date: 12/6/2012 8:26:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121212D**	QC Batch: **R86867**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	87	1.2	5.0		mg/L	1	12/12/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/12/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/12/2012
Alkalinity, Total (As CaCO3)	87	1.2	5.0		mg/L	1	12/12/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-028

Client Sample ID: MW-67-185-188
Collection Date: 12/6/2012 3:01:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121212D**	QC Batch: **R86867**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	120	1.2	5.0		mg/L	1	12/12/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/12/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/12/2012
Alkalinity, Total (As CaCO3)	120	1.2	5.0		mg/L	1	12/12/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-029

Client Sample ID: MW-67-260-188
Collection Date: 12/6/2012 1:57:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121212D**	QC Batch: **R86867**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	29	1.2	5.0		mg/L	1	12/12/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/12/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/12/2012
Alkalinity, Total (As CaCO3)	29	1.2	5.0		mg/L	1	12/12/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-030

Client Sample ID: MW-68-240-188
Collection Date: 12/6/2012 11:58:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121212D**	QC Batch: **R86867**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	62	1.2	5.0		mg/L	1	12/12/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/12/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/12/2012
Alkalinity, Total (As CaCO3)	62	1.2	5.0		mg/L	1	12/12/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-031

Client Sample ID: MW-95-188
Collection Date: 12/6/2012 7:05:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121212D**	QC Batch: **R86867**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	41	1.2	5.0		mg/L	1	12/12/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/12/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/12/2012
Alkalinity, Total (As CaCO3)	41	1.2	5.0		mg/L	1	12/12/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

Date: *04-Jan-13*

CLIENT: CH2M HILL
Work Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **LCS-R86796** SampType: **LCS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86796**
Client ID: **LCSW** Batch ID: **R86796** TestNo: **SM 2320 B** Analysis Date: **12/11/2012** SeqNo: **1493256**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	101.075	5.0	100.0	0	101	85	115				
Alkalinity, Total (As CaCO3)	101.075	5.0	100.0	0	101	85	115				

Sample ID: **MB-R86796** SampType: **MBLK** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86796**
Client ID: **PBW** Batch ID: **R86796** TestNo: **SM 2320 B** Analysis Date: **12/11/2012** SeqNo: **1493257**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	2.151	5.0									
Alkalinity, Carbonate (As CaCO3)	ND	5.0									
Alkalinity, Hydroxide (As CaCO3)	ND	5.0									
Alkalinity, Total (As CaCO3)	2.151	5.0									

Sample ID: **N009050-001BDUP** SampType: **DUP** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86796**
Client ID: **ZZZZZZ** Batch ID: **R86796** TestNo: **SM 2320 B** Analysis Date: **12/11/2012** SeqNo: **1493262**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	83.871	5.0						83.87	0	30	
Alkalinity, Carbonate (As CaCO3)	ND	5.0						0	0	30	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0						0	0	30	
Alkalinity, Total (As CaCO3)	83.871	5.0						83.87	0	30	

Sample ID: **N009050-002BMS** SampType: **MS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86796**
Client ID: **ZZZZZZ** Batch ID: **R86796** TestNo: **SM 2320 B** Analysis Date: **12/11/2012** SeqNo: **1493264**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	132.258	5.0	100.0	31.18	101	75	125				
Alkalinity, Total (As CaCO3)	132.258	5.0	100.0	31.18	101	75	125				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

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CLIENT: CH2M HILL
Work Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **N009050-002BMSD** SampType: **MSD** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86796**
Client ID: **ZZZZZZ** Batch ID: **R86796** TestNo: **SM 2320 B** Analysis Date: **12/11/2012** SeqNo: **1493265**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	131.183	5.0	100.0	31.18	100	75	125	132.3	0.816	20	
Alkalinity, Total (As CaCO3)	131.183	5.0	100.0	31.18	100	75	125	132.3	0.816	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: N009085
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **LCS-R86866** SampType: **LCS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86866**
Client ID: **LCSW** Batch ID: **R86866** TestNo: **SM 2320 B** Analysis Date: **12/12/2012** SeqNo: **1496044**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	483.696	5.0	500.0	0	96.7	85	115				B
Alkalinity, Total (As CaCO3)	505.435	5.0	500.0	0	101	85	115				B

Sample ID: **MB-R86866** SampType: **MBLK** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86866**
Client ID: **PBW** Batch ID: **R86866** TestNo: **SM 2320 B** Analysis Date: **12/12/2012** SeqNo: **1496045**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	5.435	5.0									
Alkalinity, Carbonate (As CaCO3)	ND	5.0									
Alkalinity, Hydroxide (As CaCO3)	ND	5.0									
Alkalinity, Total (As CaCO3)	5.435	5.0									

Sample ID: **N009085-005BDUP** SampType: **DUP** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86866**
Client ID: **ZZZZZZ** Batch ID: **R86866** TestNo: **SM 2320 B** Analysis Date: **12/12/2012** SeqNo: **1496047**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	1396.739	5.0						1402	0.388	30	B
Alkalinity, Carbonate (As CaCO3)	ND	5.0						0	0	30	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0						0	0	30	
Alkalinity, Total (As CaCO3)	1396.739	5.0						1402	0.388	30	B

Sample ID: **N009085-005BMS** SampType: **MS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86866**
Client ID: **ZZZZZZ** Batch ID: **R86866** TestNo: **SM 2320 B** Analysis Date: **12/12/2012** SeqNo: **1496048**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	1902.174	5.0	500.0	1402	100	75	125				B
Alkalinity, Total (As CaCO3)	1902.174	5.0	500.0	1402	100	75	125				B

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD 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: N009085
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **N009085-005BMSD** SampType: **MSD** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86866**
Client ID: **ZZZZZZ** Batch ID: **R86866** TestNo: **SM 2320 B** Analysis Date: **12/12/2012** SeqNo: **1496049**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	1913.043	5.0	500.0	1402	102	75	125	1902	0.570	20	B
Alkalinity, Total (As CaCO3)	1913.043	5.0	500.0	1402	102	75	125	1902	0.570	20	B

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD 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: N009085
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **LCS-R86867** SampType: **LCS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86867**
Client ID: **LCSW** Batch ID: **R86867** TestNo: **SM 2320 B** Analysis Date: **12/12/2012** SeqNo: **1496058**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	96.360	5.0	100.0	0	96.4	85	115				
Alkalinity, Total (As CaCO3)	100.642	5.0	100.0	0	101	85	115				

Sample ID: **MB-R86867** SampType: **MBLK** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86867**
Client ID: **PBW** Batch ID: **R86867** TestNo: **SM 2320 B** Analysis Date: **12/12/2012** SeqNo: **1496059**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	2.141	5.0									
Alkalinity, Carbonate (As CaCO3)	ND	5.0									
Alkalinity, Hydroxide (As CaCO3)	ND	5.0									
Alkalinity, Total (As CaCO3)	2.141	5.0									

Sample ID: **N009085-013BMS** SampType: **MS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86867**
Client ID: **ZZZZZZ** Batch ID: **R86867** TestNo: **SM 2320 B** Analysis Date: **12/12/2012** SeqNo: **1496062**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	200.214	5.0	100.0	97.43	103	75	125				
Alkalinity, Total (As CaCO3)	200.214	5.0	100.0	97.43	103	75	125				

Sample ID: **N009085-013BMSD** SampType: **MSD** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86867**
Client ID: **ZZZZZZ** Batch ID: **R86867** TestNo: **SM 2320 B** Analysis Date: **12/12/2012** SeqNo: **1496063**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	199.143	5.0	100.0	97.43	102	75	125	200.2	0.536	20	
Alkalinity, Total (As CaCO3)	199.143	5.0	100.0	97.43	102	75	125	200.2	0.536	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: N009085
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **N009085-015BDUP** SampType: **DUP** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86867**
Client ID: **ZZZZZZ** Batch ID: **R86867** TestNo: **SM 2320 B** Analysis Date: **12/12/2012** SeqNo: **1496066**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	40.685	5.0						41.76	2.60	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)	40.685	5.0						41.76	2.60	30	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-001

Client Sample ID: MW-09-188
Collection Date: 12/5/2012 1:45:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121211A** QC Batch: **R86861** PrepDate: Analyst: **QBM**							
Chloride	690	2.2	100		mg/L	200	12/11/2012 11:17 AM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121211A** QC Batch: **R86861** PrepDate: Analyst: **QBM**							
Sulfate	250	0.70	10		mg/L	20	12/11/2012 10:20 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-002

Client Sample ID: MW-28-025-188
Collection Date: 12/5/2012 9:06:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121211A** QC Batch: **R86861** PrepDate: Analyst: **QBM**							
Chloride	87	0.22	10		mg/L	20	12/11/2012 10:32 AM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121211A** QC Batch: **R86861** PrepDate: Analyst: **QBM**							
Sulfate	240	0.70	10		mg/L	20	12/11/2012 10:32 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-003

Client Sample ID: MW-28-090-188
Collection Date: 12/5/2012 9:53:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121213A** QC Batch: **R86750** PrepDate: Analyst: **QBM**							
Chloride	2100	5.5	250		mg/L	500	12/13/2012 01:47 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121212A** QC Batch: **R86864** PrepDate: Analyst: **QBM**							
Fluoride	ND	0.060	2.5		mg/L	5	12/12/2012 03:42 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121213A** QC Batch: **R86750** PrepDate: Analyst: **QBM**							
Sulfate	620	3.5	50		mg/L	100	12/13/2012 12:37 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-004

Client Sample ID: MW-29-188
Collection Date: 12/5/2012 10:54:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_121211A** QC Batch: **R86861**				PrepDate:			Analyst: **QBM**
Chloride	470	1.1	50		mg/L	100	12/11/2012 12:27 PM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_121211A** QC Batch: **R86861**				PrepDate:			Analyst: **QBM**
Sulfate	310	1.8	25		mg/L	50	12/11/2012 10:44 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: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-005

Client Sample ID: MW-32-020-188
Collection Date: 12/5/2012 12:07:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121211A** QC Batch: **R86861** PrepDate: Analyst: **QBM**							
Chloride	15000	55	2500		mg/L	5000	12/11/2012 12:38 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121211A** QC Batch: **R86861** PrepDate: Analyst: **QBM**							
Sulfate	6000	18	250		mg/L	500	12/11/2012 10:55 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-006

Client Sample ID: MW-32-035-188
Collection Date: 12/5/2012 1:09:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121213A** QC Batch: **R86750** PrepDate: Analyst: **QBM**							
Bromide	ND	0.26	5.0		mg/L	10	12/13/2012 11:51 AM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121213A** QC Batch: **R86750** PrepDate: Analyst: **QBM**							
Chloride	4300	11	500		mg/L	1000	12/13/2012 02:46 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121213A** QC Batch: **R86750** PrepDate: Analyst: **QBM**							
Sulfate	1700	7.0	100		mg/L	200	12/13/2012 02:34 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-007

Client Sample ID: MW-33-040-188
Collection Date: 12/5/2012 3:31:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121213A** QC Batch: **R86750** PrepDate: Analyst: **QBM**							
Chloride	2200	5.5	250		mg/L	500	12/13/2012 03:09 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121212A** QC Batch: **R86864** PrepDate: Analyst: **QBM**							
Fluoride	13	0.12	5.0		mg/L	10	12/12/2012 05:02 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121213A** QC Batch: **R86750** PrepDate: Analyst: **QBM**							
Sulfate	710	3.5	50		mg/L	100	12/13/2012 02:57 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-52D-188
Lab Order:	N009085	**Collection Date:**	12/5/2012 9:47:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009085-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121211A** QC Batch: **R86861** PrepDate: Analyst: **QBM**							
Chloride	7600	22	1000		mg/L	2000	12/11/2012 02:55 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121211A** QC Batch: **R86861** PrepDate: Analyst: **QBM**							
Sulfate	870	3.5	50		mg/L	100	12/11/2012 12:50 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-52M-188
Lab Order:	N009085	**Collection Date:**	12/5/2012 11:25:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009085-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121211A** QC Batch: **R86861** PrepDate: Analyst: **QBM**							
Chloride	5500	11	500		mg/L	1000	12/11/2012 03:07 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121211A** QC Batch: **R86861** PrepDate: Analyst: **QBM**							
Sulfate	690	3.5	50		mg/L	100	12/11/2012 01:02 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-010

Client Sample ID: MW-52S-188
Collection Date: 12/5/2012 12:24:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121211A** QC Batch: **R86861** PrepDate: Analyst: **QBM**							
Chloride	2500	5.5	250		mg/L	500	12/11/2012 03:30 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121211A** QC Batch: **R86861** PrepDate: Analyst: **QBM**							
Sulfate	360	1.8	25		mg/L	50	12/11/2012 01:13 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-53M-188
Lab Order:	N009085	**Collection Date:**	12/5/2012 2:56:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009085-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121211A** QC Batch: **R86861** PrepDate: Analyst: **QBM**							
Chloride	7300	22	1000		mg/L	2000	12/11/2012 03:54 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121211A** QC Batch: **R86861** PrepDate: Analyst: **QBM**							
Sulfate	800	3.5	50		mg/L	100	12/11/2012 01:25 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-60BR-245-188
Lab Order:	N009085	**Collection Date:**	12/5/2012 8:01:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009085-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121211A** QC Batch: **R86861** PrepDate: Analyst: **QBM**							
Chloride	6100	11	500		mg/L	1000	12/11/2012 04:05 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121211A** QC Batch: **R86861** PrepDate: Analyst: **QBM**							
Sulfate	770	3.5	50		mg/L	100	12/11/2012 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: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-013

Client Sample ID: MW-65-225-188
Collection Date: 12/5/2012 12:35:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121211A** QC Batch: **R86861** PrepDate: Analyst: **QBM**							
Chloride	2800	11	500		mg/L	1000	12/11/2012 04:17 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121211A** QC Batch: **R86861** PrepDate: Analyst: **QBM**							
Sulfate	710	3.5	50		mg/L	100	12/11/2012 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: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-014

Client Sample ID: MW-69-195-188
Collection Date: 12/5/2012 3:45:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121211A** QC Batch: **R86861** PrepDate: Analyst: **QBM**							
Chloride	680	2.2	100		mg/L	200	12/11/2012 04:29 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121211A** QC Batch: **R86861** PrepDate: Analyst: **QBM**							
Sulfate	690	1.8	25		mg/L	50	12/11/2012 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: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-015

Client Sample ID: MW-72-080-188
Collection Date: 12/5/2012 10:59:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121211A** QC Batch: **R86861** PrepDate: Analyst: **QBM**							
Chloride	5400	11	500		mg/L	1000	12/11/2012 04:40 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121211A** QC Batch: **R86861** PrepDate: Analyst: **QBM**							
Sulfate	700	3.5	50		mg/L	100	12/11/2012 02:12 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-016

Client Sample ID: MW-73-080-188
Collection Date: 12/5/2012 7:50:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121211A** QC Batch: **R86861** PrepDate: Analyst: **QBM**							
Chloride	3500	11	500		mg/L	1000	12/11/2012 07:22 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121211A** QC Batch: **R86861** PrepDate: Analyst: **QBM**							
Sulfate	420	1.8	25		mg/L	50	12/11/2012 05:20 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-91-188
Lab Order:	N009085	**Collection Date:**	12/5/2012 4:58:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009085-017		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_121211A**	QC Batch: **R86861**			PrepDate:			Analyst: **QBM**
Chloride	380	0.55	25		mg/L	50	12/11/2012 05:32 PM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_121211A**	QC Batch: **R86861**			PrepDate:			Analyst: **QBM**
Sulfate	240	1.8	25		mg/L	50	12/11/2012 05:32 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-018

Client Sample ID: MW-92-188
Collection Date: 12/5/2012 3:34:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121213A** QC Batch: **R86750** PrepDate: Analyst: **QBM**							
Chloride	2200	5.5	250		mg/L	500	12/13/2012 03:32 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121212A** QC Batch: **R86864** PrepDate: Analyst: **QBM**							
Fluoride	13	0.060	2.5		mg/L	5	12/12/2012 04:17 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121213A** QC Batch: **R86750** PrepDate: Analyst: **QBM**							
Sulfate	690	3.5	50		mg/L	100	12/13/2012 03:20 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-019

Client Sample ID: MW-33-150-188
Collection Date: 12/6/2012 9:30:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121213A** QC Batch: **R86750** PrepDate: Analyst: **QBM**							
Chloride	6400	22	1000		mg/L	2000	12/13/2012 04:19 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121212A** QC Batch: **R86864** PrepDate: Analyst: **QBM**							
Fluoride	ND	0.12	5.0		mg/L	10	12/12/2012 04:29 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121213A** QC Batch: **R86750** PrepDate: Analyst: **QBM**							
Sulfate	890	3.5	50		mg/L	100	12/13/2012 04:54 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-020

Client Sample ID: MW-33-210-188
Collection Date: 12/6/2012 10:23:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121213A** QC Batch: **R86750** PrepDate: Analyst: **QBM**							
Chloride	6900	22	1000		mg/L	2000	12/13/2012 04:42 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121212A** QC Batch: **R86864** PrepDate: Analyst: **QBM**							
Fluoride	ND	0.12	5.0		mg/L	10	12/12/2012 04:41 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121213A** QC Batch: **R86750** PrepDate: Analyst: **QBM**							
Sulfate	1200	3.5	50		mg/L	100	12/13/2012 04:31 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: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-022

Client Sample ID: MW-42-055-188
Collection Date: 12/6/2012 1:18:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121211A** QC Batch: **R86861** PrepDate: Analyst: **QBM**							
Chloride	370	1.1	50		mg/L	100	12/11/2012 05:43 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121211A** QC Batch: **R86861** PrepDate: Analyst: **QBM**							
Sulfate	250	1.8	25		mg/L	50	12/11/2012 07:34 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: *04-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-42-065-188
Lab Order:	N009085	**Collection Date:**	12/6/2012 2:03:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009085-023		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121211A** QC Batch: **R86861** PrepDate: Analyst: **QBM**							
Chloride	2400	5.5	250		mg/L	500	12/11/2012 09:33 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121211A** QC Batch: **R86861** PrepDate: Analyst: **QBM**							
Sulfate	760	3.5	50		mg/L	100	12/11/2012 05:55 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-44-070-188
Lab Order:	N009085	**Collection Date:**	12/6/2012 3:46:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009085-024		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_121211A**	QC Batch: **R86861**			PrepDate:			Analyst: **QBM**
Chloride	360	1.1	50		mg/L	100	12/11/2012 09:45 PM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_121211A**	QC Batch: **R86861**			PrepDate:			Analyst: **QBM**
Sulfate	230	0.70	10		mg/L	20	12/11/2012 06:07 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-025

Client Sample ID: MW-53D-188
Collection Date: 12/6/2012 9:09:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121211A** QC Batch: **R86861** PrepDate: Analyst: **QBM**							
Chloride	9300	22	1000		mg/L	2000	12/11/2012 09:57 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121211A** QC Batch: **R86861** PrepDate: Analyst: **QBM**							
Sulfate	1200	3.5	50		mg/L	100	12/11/2012 06:18 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-60-125-188
Lab Order:	N009085	**Collection Date:**	12/6/2012 10:36:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009085-026		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121211A** QC Batch: **R86861** PrepDate: Analyst: **QBM**							
Chloride	2800	5.5	250		mg/L	500	12/11/2012 10:08 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121211A** QC Batch: **R86861** PrepDate: Analyst: **QBM**							
Sulfate	460	1.8	25		mg/L	50	12/11/2012 06:59 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-66-165-188
Lab Order:	N009085	**Collection Date:**	12/6/2012 8:26:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009085-027		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121211A** QC Batch: **R86861** PrepDate: Analyst: **QBM**							
Chloride	1100	2.2	100		mg/L	200	12/11/2012 10:20 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121211A** QC Batch: **R86861** PrepDate: Analyst: **QBM**							
Sulfate	490	1.8	25		mg/L	50	12/11/2012 07:10 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-028

Client Sample ID: MW-67-185-188
Collection Date: 12/6/2012 3:01:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121213A** QC Batch: **R86750** PrepDate: Analyst: **QBM**							
Chloride	1100	2.2	100		mg/L	200	12/13/2012 05:17 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121213A** QC Batch: **R86750** PrepDate: Analyst: **QBM**							
Sulfate	630	1.8	25		mg/L	50	12/13/2012 05:06 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: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-029

Client Sample ID: MW-67-260-188
Collection Date: 12/6/2012 1:57:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121213A** QC Batch: **R86750** PrepDate: Analyst: **QBM**							
Chloride	6100	11	500		mg/L	1000	12/13/2012 05:41 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121213A** QC Batch: **R86750** PrepDate: Analyst: **QBM**							
Sulfate	830	3.5	50		mg/L	100	12/13/2012 05:29 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-68-240-188
Lab Order:	N009085	**Collection Date:**	12/6/2012 11:58:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009085-030		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121213A** QC Batch: **R86750** PrepDate: Analyst: **QBM**							
Chloride	5600	11	500		mg/L	1000	12/13/2012 06:04 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121213A** QC Batch: **R86750** PrepDate: Analyst: **QBM**							
Sulfate	860	3.5	50		mg/L	100	12/13/2012 05:52 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-95-188
Lab Order:	N009085	**Collection Date:**	12/6/2012 7:05:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009085-031		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121213A** QC Batch: **R86750** PrepDate: Analyst: **QBM**							
Chloride	7100	11	500		mg/L	1000	12/13/2012 06:50 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121213A** QC Batch: **R86750** PrepDate: Analyst: **QBM**							
Sulfate	820	3.5	50		mg/L	100	12/13/2012 06:39 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

Date: *04-Jan-13*

CLIENT: CH2M HILL
Work Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_BRPGE

Sample ID: **MB-R86750_BR** SampType: **MBLK** TestCode: **300_W_BRP** Units: **mg/L** Prep Date: RunNo: **86750**
Client ID: **PBW** Batch ID: **R86750** TestNo: **EPA 300.0** Analysis Date: **12/13/2012** SeqNo: **1491377**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	ND	0.50									

Sample ID: **LCS-R86750_BR** SampType: **LCS** TestCode: **300_W_BRP** Units: **mg/L** Prep Date: RunNo: **86750**
Client ID: **LCSW** Batch ID: **R86750** TestNo: **EPA 300.0** Analysis Date: **12/13/2012** SeqNo: **1491378**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	2.509	0.50	2.500	0	100	90	110				

Sample ID: **N009085-006BDUP** SampType: **DUP** TestCode: **300_W_BRP** Units: **mg/L** Prep Date: RunNo: **86750**
Client ID: **ZZZZZZ** Batch ID: **R86750** TestNo: **EPA 300.0** Analysis Date: **12/13/2012** SeqNo: **1491380**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	0.950	5.0						0.9500	0	20	

Sample ID: **N009085-006BMS** SampType: **MS** TestCode: **300_W_BRP** Units: **mg/L** Prep Date: RunNo: **86750**
Client ID: **ZZZZZZ** Batch ID: **R86750** TestNo: **EPA 300.0** Analysis Date: **12/13/2012** SeqNo: **1491381**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	23.060	5.0	25.00	0.9500	88.4	80	120				

Sample ID: **N009085-006BMSD** SampType: **MSD** TestCode: **300_W_BRP** Units: **mg/L** Prep Date: RunNo: **86750**
Client ID: **ZZZZZZ** Batch ID: **R86750** TestNo: **EPA 300.0** Analysis Date: **12/13/2012** SeqNo: **1491382**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	23.260	5.0	25.00	0.9500	89.2	80	120	23.06	0.864	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: N009085
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **MB-R86750_CL** SampType: **MBLK** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86750**
Client ID: **PBW** Batch ID: **R86750** TestNo: **EPA 300.0** Analysis Date: **12/13/2012** SeqNo: **1491395**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.50									

Sample ID: **LCS-R86750_CL** SampType: **LCS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86750**
Client ID: **LCSW** Batch ID: **R86750** TestNo: **EPA 300.0** Analysis Date: **12/13/2012** SeqNo: **1491396**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.460	0.50	2.500	0	98.4	90	110				

Sample ID: **N009085-003BDUP** SampType: **DUP** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86750**
Client ID: **ZZZZZZ** Batch ID: **R86750** TestNo: **EPA 300.0** Analysis Date: **12/13/2012** SeqNo: **1491400**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2143.000	250						2131	0.562	20	

Sample ID: **N009085-003BMS** SampType: **MS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86750**
Client ID: **ZZZZZZ** Batch ID: **R86750** TestNo: **EPA 300.0** Analysis Date: **12/13/2012** SeqNo: **1491401**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	3477.500	250	1250	2131	108	80	120				

Sample ID: **N009085-003BMSD** SampType: **MSD** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86750**
Client ID: **ZZZZZZ** Batch ID: **R86750** TestNo: **EPA 300.0** Analysis Date: **12/13/2012** SeqNo: **1491402**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	3484.000	250	1250	2131	108	80	120	3478	0.187	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: N009085
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **MB-R86861_CL** SampType: **MBLK** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86861**
Client ID: **PBW** Batch ID: **R86861** TestNo: **EPA 300.0** Analysis Date: **12/11/2012** SeqNo: **1495840**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.50									

Sample ID: **LCS-R86861_CL** SampType: **LCS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86861**
Client ID: **LCSW** Batch ID: **R86861** TestNo: **EPA 300.0** Analysis Date: **12/11/2012** SeqNo: **1495841**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.533	0.50	2.500	0	101	90	110				

Sample ID: **N009085-002BDUP** SampType: **DUP** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86861**
Client ID: **ZZZZZZ** Batch ID: **R86861** TestNo: **EPA 300.0** Analysis Date: **12/11/2012** SeqNo: **1495844**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	87.480	10						87.48	0	20	

Sample ID: **N009085-002BMS** SampType: **MS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86861**
Client ID: **ZZZZZZ** Batch ID: **R86861** TestNo: **EPA 300.0** Analysis Date: **12/11/2012** SeqNo: **1495845**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	142.160	10	50.00	87.48	109	80	120				

Sample ID: **N009085-002BMSD** SampType: **MSD** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86861**
Client ID: **ZZZZZZ** Batch ID: **R86861** TestNo: **EPA 300.0** Analysis Date: **12/11/2012** SeqNo: **1495846**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	139.700	10	50.00	87.48	104	80	120	142.2	1.75	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: N009085
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **N009085-010BMS** SampType: **MS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86861**
Client ID: **ZZZZZZ** Batch ID: **R86861** TestNo: **EPA 300.0** Analysis Date: **12/11/2012** SeqNo: **1495856**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	3910.000	250	1250	2534	110	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: N009085
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **MB-R86864_CL** SampType: **MBLK** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86864**
Client ID: **PBW** Batch ID: **R86864** TestNo: **EPA 300.0** Analysis Date: **12/12/2012** SeqNo: **1495952**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.50									

Sample ID: **LCS-R86864_CL** SampType: **LCS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86864**
Client ID: **LCSW** Batch ID: **R86864** TestNo: **EPA 300.0** Analysis Date: **12/12/2012** SeqNo: **1495953**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.540	0.50	2.500	0	102	90	110				

Sample ID: **N009141-002DMS** SampType: **MS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86864**
Client ID: **ZZZZZZ** Batch ID: **R86864** TestNo: **EPA 300.0** Analysis Date: **12/12/2012** SeqNo: **1495958**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1173.200	100	500.0	665.2	102	80	120				

Sample ID: **N009141-002DMSD** SampType: **MSD** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86864**
Client ID: **ZZZZZZ** Batch ID: **R86864** TestNo: **EPA 300.0** Analysis Date: **12/12/2012** SeqNo: **1495959**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1170.200	100	500.0	665.2	101	80	120	1173	0.256	20	

Sample ID: **N009141-004DDUP** SampType: **DUP** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86864**
Client ID: **ZZZZZZ** Batch ID: **R86864** TestNo: **EPA 300.0** Analysis Date: **12/12/2012** SeqNo: **1495961**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	196.950	25						197.0	0.0254	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: N009085
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_FPGE

Sample ID: **MB-R86864_F** SampType: **MBLK** TestCode: **300_W_FPGE** Units: **mg/L** Prep Date: RunNo: **86864**
Client ID: **PBW** Batch ID: **R86864** TestNo: **EPA 300.0** Analysis Date: **12/12/2012** SeqNo: **1496012**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	ND	0.50									

Sample ID: **LCS-R86864_F** SampType: **LCS** TestCode: **300_W_FPGE** Units: **mg/L** Prep Date: RunNo: **86864**
Client ID: **LCSW** Batch ID: **R86864** TestNo: **EPA 300.0** Analysis Date: **12/12/2012** SeqNo: **1496013**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	2.467	0.50	2.500	0	98.7	90	110				

Sample ID: **N009085-007BDUP** SampType: **DUP** TestCode: **300_W_FPGE** Units: **mg/L** Prep Date: RunNo: **86864**
Client ID: **ZZZZZZ** Batch ID: **R86864** TestNo: **EPA 300.0** Analysis Date: **12/12/2012** SeqNo: **1496023**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	12.820	5.0						12.62	1.57	20	

Sample ID: **N009085-007BMS** SampType: **MS** TestCode: **300_W_FPGE** Units: **mg/L** Prep Date: RunNo: **86864**
Client ID: **ZZZZZZ** Batch ID: **R86864** TestNo: **EPA 300.0** Analysis Date: **12/12/2012** SeqNo: **1496024**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	36.980	5.0	25.00	12.62	97.4	80	120				

Sample ID: **N009085-007BMSD** SampType: **MSD** TestCode: **300_W_FPGE** Units: **mg/L** Prep Date: RunNo: **86864**
Client ID: **ZZZZZZ** Batch ID: **R86864** TestNo: **EPA 300.0** Analysis Date: **12/12/2012** SeqNo: **1496025**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	36.810	5.0	25.00	12.62	96.8	80	120	36.98	0.461	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

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CLIENT: CH2M HILL
Work Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **MB-R86750_SO4** SampType: **MBLK** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86750**
Client ID: **PBW** Batch ID: **R86750** TestNo: **EPA 300.0** Analysis Date: **12/13/2012** SeqNo: **1491421**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID: **LCS-R86750_SO4** SampType: **LCS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86750**
Client ID: **LCSW** Batch ID: **R86750** TestNo: **EPA 300.0** Analysis Date: **12/13/2012** SeqNo: **1491422**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.973	0.50	5.000	0	99.5	90	110				

Sample ID: **N009085-003BDUP** SampType: **DUP** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86750**
Client ID: **ZZZZZZ** Batch ID: **R86750** TestNo: **EPA 300.0** Analysis Date: **12/13/2012** SeqNo: **1491424**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	625.700	50						622.8	0.465	20	

Sample ID: **N009085-003BMS** SampType: **MS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86750**
Client ID: **ZZZZZZ** Batch ID: **R86750** TestNo: **EPA 300.0** Analysis Date: **12/13/2012** SeqNo: **1491425**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	1124.100	50	500.0	622.8	100	80	120				

Sample ID: **N009085-003BMSD** SampType: **MSD** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86750**
Client ID: **ZZZZZZ** Batch ID: **R86750** TestNo: **EPA 300.0** Analysis Date: **12/13/2012** SeqNo: **1491426**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	1108.500	50	500.0	622.8	97.1	80	120	1124	1.40	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: N009085
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **MB-R86861_SO4** SampType: **MBLK** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86861**
Client ID: **PBW** Batch ID: **R86861** TestNo: **EPA 300.0** Analysis Date: **12/11/2012** SeqNo: **1495882**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID: **LCS-R86861_SO4** SampType: **LCS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86861**
Client ID: **LCSW** Batch ID: **R86861** TestNo: **EPA 300.0** Analysis Date: **12/11/2012** SeqNo: **1495883**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.866	0.50	5.000	0	97.3	90	110				

Sample ID: **N009085-002BDUP** SampType: **DUP** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86861**
Client ID: **ZZZZZZ** Batch ID: **R86861** TestNo: **EPA 300.0** Analysis Date: **12/11/2012** SeqNo: **1495888**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	245.700	10						243.0	1.10	20	

Sample ID: **N009085-002BMS** SampType: **MS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86861**
Client ID: **ZZZZZZ** Batch ID: **R86861** TestNo: **EPA 300.0** Analysis Date: **12/11/2012** SeqNo: **1495889**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	351.580	10	100.0	243.0	109	80	120				

Sample ID: **N009085-002BMSD** SampType: **MSD** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86861**
Client ID: **ZZZZZZ** Batch ID: **R86861** TestNo: **EPA 300.0** Analysis Date: **12/11/2012** SeqNo: **1495890**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	347.980	10	100.0	243.0	105	80	120	351.6	1.03	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

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CLIENT: CH2M HILL
Work Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **N009085-010BMS** SampType: **MS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86861**
Client ID: **ZZZZZZ** Batch ID: **R86861** TestNo: **EPA 300.0** Analysis Date: **12/11/2012** SeqNo: **1495903**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	606.250	25	250.0	356.7	99.8	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

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CLIENT: CH2M HILL
Work Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **MB-R86864_SO4** SampType: **MBLK** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86864**
Client ID: **PBW** Batch ID: **R86864** TestNo: **EPA 300.0** Analysis Date: **12/12/2012** SeqNo: **1495972**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID: **LCS-R86864_SO4** SampType: **LCS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86864**
Client ID: **LCSW** Batch ID: **R86864** TestNo: **EPA 300.0** Analysis Date: **12/12/2012** SeqNo: **1495973**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	5.033	0.50	5.000	0	101	90	110				

Sample ID: **N009141-002DMS** SampType: **MS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86864**
Client ID: **ZZZZZZ** Batch ID: **R86864** TestNo: **EPA 300.0** Analysis Date: **12/12/2012** SeqNo: **1495978**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	9.296	0.50	5.000	4.498	96.0	80	120				

Sample ID: **N009141-002DMSD** SampType: **MSD** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86864**
Client ID: **ZZZZZZ** Batch ID: **R86864** TestNo: **EPA 300.0** Analysis Date: **12/12/2012** SeqNo: **1495979**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	9.268	0.50	5.000	4.498	95.4	80	120	9.296	0.302	20	

Sample ID: **N009141-006DDUP** SampType: **DUP** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86864**
Client ID: **ZZZZZZ** Batch ID: **R86864** TestNo: **EPA 300.0** Analysis Date: **12/12/2012** SeqNo: **1495982**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	0.264	0.50						0.2580	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: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-001

Client Sample ID: MW-09-188
Collection Date: 12/5/2012 1:45:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121218C**	QC Batch: **41493**				PrepDate: **12/13/2012**		Analyst: **CEI**
Calcium	120000	75	500		ug/L	1	12/18/2012 01:41 PM
Iron	ND	7.2	20		ug/L	1	12/18/2012 01:41 PM
Magnesium	29000	13	100		ug/L	1	12/18/2012 01:41 PM
Sodium	380000	730	5000		ug/L	10	12/26/2012 10:38 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-002

Client Sample ID: MW-28-025-188
Collection Date: 12/5/2012 9:06:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121218C**	QC Batch: **41493**				PrepDate: **12/13/2012**		Analyst: **CEI**
Calcium	93000	75	500		ug/L	1	12/18/2012 01:46 PM
Iron	32	7.2	20		ug/L	1	12/18/2012 01:46 PM
Magnesium	29000	13	100		ug/L	1	12/18/2012 01:46 PM
Sodium	86000	370	2500		ug/L	5	12/26/2012 10:40 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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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-003

Client Sample ID: MW-28-090-188
Collection Date: 12/5/2012 9:53:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121218C**	QC Batch: **41493**				PrepDate: **12/13/2012**		Analyst: **CEI**
Calcium	220000	75	500		ug/L	1	12/18/2012 01:53 PM
Iron	700	7.2	20		ug/L	1	12/18/2012 01:53 PM
Magnesium	41000	13	100		ug/L	1	12/18/2012 01:53 PM
Sodium	1400000	3700	25000		ug/L	50	12/26/2012 10:43 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-004

Client Sample ID: MW-29-188
Collection Date: 12/5/2012 10:54:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121218C**	QC Batch: **41493**				PrepDate: **12/13/2012**		Analyst: **CEI**
Calcium	86000	75	500		ug/L	1	12/18/2012 01:59 PM
Iron	600	7.2	20		ug/L	1	12/18/2012 01:59 PM
Magnesium	41000	13	100		ug/L	1	12/18/2012 01:59 PM
Sodium	460000	730	5000		ug/L	10	12/26/2012 10:46 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-005

Client Sample ID: MW-32-020-188
Collection Date: 12/5/2012 12:07:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121219C**	QC Batch: **41493**			PrepDate:	**12/13/2012**		Analyst: **CEI**
Calcium	900000	750	5000		ug/L	10	12/19/2012 05:00 PM
Iron	12000	72	200		ug/L	10	12/19/2012 05:00 PM
Magnesium	500000	130	1000		ug/L	10	12/19/2012 05:00 PM
Sodium	9800000	37000	250000		ug/L	500	12/26/2012 10:48 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-006

Client Sample ID: MW-32-035-188
Collection Date: 12/5/2012 1:09:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121219C**	QC Batch: **41493**				PrepDate: **12/13/2012**		Analyst: **CEI**
Boron	1300	70	500		ug/L	5	12/19/2012 05:16 PM
Calcium	460000	370	2500		ug/L	5	12/19/2012 05:16 PM
Iron	10000	36	100		ug/L	5	12/19/2012 05:16 PM
Magnesium	240000	65	500		ug/L	5	12/19/2012 05:16 PM
Potassium	31000	82	12000		ug/L	25	12/27/2012 03:27 PM
Sodium	2700000	7300	50000		ug/L	100	12/26/2012 10:51 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-007

Client Sample ID: MW-33-040-188
Collection Date: 12/5/2012 3:31:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121219C**	QC Batch: **41493**				PrepDate: **12/13/2012**		Analyst: **CEI**
Calcium	22000	370	2500		ug/L	5	12/19/2012 05:22 PM
Iron	120	36	100		ug/L	5	12/19/2012 05:22 PM
Magnesium	29000	65	500		ug/L	5	12/19/2012 05:22 PM
Sodium	1800000	3700	25000		ug/L	50	12/26/2012 10:53 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-008

Client Sample ID: MW-52D-188
Collection Date: 12/5/2012 9:47:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121219C**	QC Batch: **41493**			PrepDate:	**12/13/2012**		Analyst: **CEI**
Calcium	290000	370	2500		ug/L	5	12/19/2012 05:28 PM
Iron	510	36	100		ug/L	5	12/19/2012 05:28 PM
Magnesium	19000	65	500		ug/L	5	12/19/2012 05:28 PM
Sodium	4900000	7300	50000		ug/L	100	12/26/2012 11:01 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-009

Client Sample ID: MW-52M-188
Collection Date: 12/5/2012 11:25:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121219C**	QC Batch: **41493**				PrepDate: **12/13/2012**		Analyst: **CEI**
Calcium	350000	370	2500		ug/L	5	12/19/2012 05:33 PM
Iron	1100	36	100		ug/L	5	12/19/2012 05:33 PM
Magnesium	45000	65	500		ug/L	5	12/19/2012 05:33 PM
Sodium	3200000	7300	50000		ug/L	100	12/26/2012 11:03 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-52S-188
Lab Order:	N009085	**Collection Date:**	12/5/2012 12:24:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009085-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121219C**	QC Batch: **41493**				PrepDate: **12/13/2012**		Analyst: **CEI**
Calcium	330000	370	2500		ug/L	5	12/19/2012 05:38 PM
Iron	5600	36	100		ug/L	5	12/19/2012 05:38 PM
Magnesium	130000	65	500		ug/L	5	12/19/2012 05:38 PM
Sodium	1600000	3700	25000		ug/L	50	12/26/2012 11:06 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: *04-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-53M-188
Lab Order:	N009085	**Collection Date:**	12/5/2012 2:56:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009085-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121219C**	QC Batch: **41493**				PrepDate: **12/13/2012**		Analyst: **CEI**
Calcium	380000	370	2500		ug/L	5	12/19/2012 05:44 PM
Iron	340	36	100		ug/L	5	12/19/2012 05:44 PM
Magnesium	29000	65	500		ug/L	5	12/19/2012 05:44 PM
Sodium	4500000	7300	50000		ug/L	100	12/26/2012 11:08 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-012

Client Sample ID: MW-60BR-245-188
Collection Date: 12/5/2012 8:01:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121219C**	QC Batch: **41493**				PrepDate: **12/13/2012**		Analyst: **CEI**
Calcium	390000	370	2500		ug/L	5	12/19/2012 05:49 PM
Iron	ND	36	100		ug/L	5	12/19/2012 05:49 PM
Magnesium	6100	65	500		ug/L	5	12/19/2012 05:49 PM
Sodium	3800000	7300	50000		ug/L	100	12/26/2012 11:11 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-013

Client Sample ID: MW-65-225-188
Collection Date: 12/5/2012 12:35:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121219C**	QC Batch: **41493**				PrepDate: **12/13/2012**		Analyst: **CEI**
Calcium	310000	370	2500		ug/L	5	12/19/2012 05:55 PM
Iron	ND	36	100		ug/L	5	12/19/2012 05:55 PM
Magnesium	20000	65	500		ug/L	5	12/19/2012 05:55 PM
Sodium	1800000	3700	25000		ug/L	50	12/26/2012 11:13 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-014

Client Sample ID: MW-69-195-188
Collection Date: 12/5/2012 3:45:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121218C**	QC Batch: **41493**				PrepDate: **12/13/2012**		Analyst: **CEI**
Calcium	140000	75	500		ug/L	1	12/18/2012 03:34 PM
Iron	ND	7.2	20		ug/L	1	12/18/2012 03:34 PM
Magnesium	14000	13	100		ug/L	1	12/18/2012 03:34 PM
Sodium	650000	1800	12000		ug/L	25	12/26/2012 11:16 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-015

Client Sample ID: MW-72-080-188
Collection Date: 12/5/2012 10:59:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121219C**	QC Batch: **41493**				PrepDate: **12/13/2012**		Analyst: **CEI**
Calcium	350000	370	2500		ug/L	5	12/19/2012 06:01 PM
Iron	ND	36	100		ug/L	5	12/19/2012 06:01 PM
Magnesium	9600	65	500		ug/L	5	12/19/2012 06:01 PM
Sodium	3200000	7300	50000		ug/L	100	12/26/2012 11:18 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-016

Client Sample ID: MW-73-080-188
Collection Date: 12/5/2012 7:50:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121219C**	QC Batch: **41493**				PrepDate: **12/13/2012**		Analyst: **CEI**
Calcium	440000	370	2500		ug/L	5	12/19/2012 06:07 PM
Iron	ND	36	100		ug/L	5	12/19/2012 06:07 PM
Magnesium	34000	65	500		ug/L	5	12/19/2012 06:07 PM
Sodium	2000000	3700	25000		ug/L	50	12/26/2012 11:21 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-017

Client Sample ID: MW-91-188
Collection Date: 12/5/2012 4:58:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121218C**	QC Batch: **41493**				PrepDate: **12/13/2012**		Analyst: **CEI**
Calcium	95000	75	500		ug/L	1	12/18/2012 03:58 PM
Iron	510	7.2	20		ug/L	1	12/18/2012 03:58 PM
Magnesium	44000	13	100		ug/L	1	12/18/2012 03:58 PM
Sodium	420000	730	5000		ug/L	10	12/26/2012 11:23 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-018

Client Sample ID: MW-92-188
Collection Date: 12/5/2012 3:34:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121219C**	QC Batch: **41494**				PrepDate: **12/13/2012**		Analyst: **CEI**
Calcium	23000	370	2500		ug/L	5	12/19/2012 04:30 PM
Iron	110	36	100		ug/L	5	12/19/2012 04:30 PM
Magnesium	31000	65	500		ug/L	5	12/19/2012 04:30 PM
Sodium	1700000	3700	25000		ug/L	50	12/26/2012 11:48 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-019

Client Sample ID: MW-33-150-188
Collection Date: 12/6/2012 9:30:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121219C**	QC Batch: **41494**				PrepDate: **12/13/2012**		Analyst: **CEI**
Calcium	470000	370	2500		ug/L	5	12/19/2012 06:24 PM
Iron	ND	36	100		ug/L	5	12/19/2012 06:24 PM
Magnesium	55000	65	500		ug/L	5	12/19/2012 06:24 PM
Sodium	3400000	7300	50000		ug/L	100	12/26/2012 11:51 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-020

Client Sample ID: MW-33-210-188
Collection Date: 12/6/2012 10:23:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121219C**	QC Batch: **41494**			PrepDate:	**12/13/2012**		Analyst: **CEI**
Calcium	510000	370	2500		ug/L	5	12/19/2012 06:29 PM
Iron	ND	36	100		ug/L	5	12/19/2012 06:29 PM
Magnesium	64000	65	500		ug/L	5	12/19/2012 06:29 PM
Sodium	3900000	7300	50000		ug/L	100	12/26/2012 11:53 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-022

Client Sample ID: MW-42-055-188
Collection Date: 12/6/2012 1:18:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121218C**	QC Batch: **41494**			PrepDate:	**12/13/2012**		Analyst: **CEI**
Calcium	20000	75	500		ug/L	1	12/18/2012 04:27 PM
Iron	110	7.2	20		ug/L	1	12/18/2012 04:27 PM
Magnesium	6300	13	100		ug/L	1	12/18/2012 04:27 PM
Sodium	510000	1800	12000		ug/L	25	12/26/2012 11:56 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-023

Client Sample ID: MW-42-065-188
Collection Date: 12/6/2012 2:03:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121219C**	QC Batch: **41494**				PrepDate: **12/13/2012**		Analyst: **CEI**
Calcium	190000	370	2500		ug/L	5	12/19/2012 06:35 PM
Iron	ND	36	100		ug/L	5	12/19/2012 06:35 PM
Magnesium	49000	65	500		ug/L	5	12/19/2012 06:35 PM
Sodium	1800000	3700	25000		ug/L	50	12/26/2012 12:03 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-024

Client Sample ID: MW-44-070-188
Collection Date: 12/6/2012 3:46:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121218C**	QC Batch: **41494**			PrepDate:	**12/13/2012**		Analyst: **CEI**
Calcium	37000	75	500		ug/L	1	12/18/2012 04:37 PM
Iron	160	7.2	20		ug/L	1	12/18/2012 04:37 PM
Magnesium	6500	13	100		ug/L	1	12/18/2012 04:37 PM
Sodium	440000	730	5000		ug/L	10	12/26/2012 12:06 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: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-025

Client Sample ID: MW-53D-188
Collection Date: 12/6/2012 9:09:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121219C**	QC Batch: **41494**			PrepDate:	**12/13/2012**		Analyst: **CEI**
Calcium	320000	750	5000		ug/L	10	12/19/2012 09:02 PM
Iron	300	72	200		ug/L	10	12/19/2012 09:02 PM
Magnesium	15000	130	1000		ug/L	10	12/19/2012 09:02 PM
Sodium	6000000	15000	100000		ug/L	200	12/26/2012 12:09 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-026

Client Sample ID: MW-60-125-188
Collection Date: 12/6/2012 10:36:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121219C**	QC Batch: **41494**			PrepDate:	**12/13/2012**		Analyst: **CEI**
Calcium	410000	370	2500		ug/L	5	12/19/2012 08:28 PM
Iron	ND	7.2	20		ug/L	1	12/18/2012 06:00 PM
Magnesium	25000	13	100		ug/L	1	12/18/2012 06:00 PM
Sodium	1400000	3700	25000		ug/L	50	12/26/2012 12:11 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-027

Client Sample ID: MW-66-165-188
Collection Date: 12/6/2012 8:26:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121218C**	QC Batch: **41494**			PrepDate:	**12/13/2012**		Analyst: **CEI**
Calcium	270000	75	500		ug/L	1	12/18/2012 05:07 PM
Iron	ND	7.2	20		ug/L	1	12/18/2012 05:07 PM
Magnesium	52000	13	100		ug/L	1	12/18/2012 05:07 PM
Sodium	550000	1800	12000		ug/L	25	12/26/2012 12:14 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-028

Client Sample ID: MW-67-185-188
Collection Date: 12/6/2012 3:01:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121218C**	QC Batch: **41494**			PrepDate:	**12/13/2012**		Analyst: **CEI**
Calcium	200000	75	500		ug/L	1	12/18/2012 05:30 PM
Iron	ND	7.2	20		ug/L	1	12/18/2012 05:30 PM
Magnesium	40000	13	100		ug/L	1	12/18/2012 05:30 PM
Sodium	710000	1800	12000		ug/L	25	12/26/2012 12:16 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-029

Client Sample ID: MW-67-260-188
Collection Date: 12/6/2012 1:57:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121219C**	QC Batch: **41494**			PrepDate:	**12/13/2012**		Analyst: **CEI**
Calcium	300000	370	2500		ug/L	5	12/19/2012 08:33 PM
Iron	ND	36	100		ug/L	5	12/19/2012 08:33 PM
Magnesium	3700	65	500		ug/L	5	12/19/2012 08:33 PM
Sodium	1900000	15000	100000		ug/L	200	12/26/2012 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: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-030

Client Sample ID: MW-68-240-188
Collection Date: 12/6/2012 11:58:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121219C**	QC Batch: **41494**			PrepDate:	**12/13/2012**		Analyst: **CEI**
Calcium	510000	370	2500		ug/L	5	12/19/2012 08:40 PM
Iron	ND	36	100		ug/L	5	12/19/2012 08:40 PM
Magnesium	22000	65	500		ug/L	5	12/19/2012 08:40 PM
Sodium	3300000	7300	50000		ug/L	100	12/26/2012 12:21 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-031

Client Sample ID: MW-95-188
Collection Date: 12/6/2012 7:05:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121219C**	QC Batch: **41494**			PrepDate:	**12/13/2012**		Analyst: **CEI**
Calcium	360000	370	2500		ug/L	5	12/19/2012 08:45 PM
Iron	340	36	100		ug/L	5	12/19/2012 08:45 PM
Magnesium	28000	65	500		ug/L	5	12/19/2012 08:45 PM
Sodium	2200000	15000	100000		ug/L	200	12/26/2012 12:24 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

Date: *04-Jan-13*

CLIENT: CH2M HILL
Work Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **MB-41493** SampType: **MBLK** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/13/2012** RunNo: **86833**
Client ID: **PBW** Batch ID: **41493** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/18/2012** SeqNo: **1494649**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	ND	100									
Calcium	ND	500									
Iron	ND	20									
Magnesium	ND	100									

Sample ID: **LCS-41493** SampType: **LCS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/13/2012** RunNo: **86833**
Client ID: **LCSW** Batch ID: **41493** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/18/2012** SeqNo: **1494650**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	886.429	100	1000	0	88.6	85	115				
Calcium	888.735	500	1000	0	88.9	85	115				
Iron	99.769	20	100.0	0	99.8	85	115				
Magnesium	913.643	100	1000	0	91.4	85	115				

Sample ID: **N009078-003A-MS** SampType: **MS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/13/2012** RunNo: **86834**
Client ID: **ZZZZZZ** Batch ID: **41493** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/19/2012** SeqNo: **1494705**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	1430.257	100	1000	401.7	103	75	125				
Calcium	154129.168	500	1000	135700	1840	75	125				S
Iron	119.780	20	100.0	16.36	103	75	125				
Magnesium	27307.520	100	1000	23080	423	75	125				S

Sample ID: **N009078-003A-MSD** SampType: **MSD** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/13/2012** RunNo: **86834**
Client ID: **ZZZZZZ** Batch ID: **41493** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/19/2012** SeqNo: **1494706**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	1375.795	100	1000	401.7	97.4	75	125	1430	3.88	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: N009085
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **N009078-003A-MSD** SampType: **MSD** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/13/2012** RunNo: **86834**
Client ID: **ZZZZZZ** Batch ID: **41493** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/19/2012** SeqNo: **1494706**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	147827.930	500	1000	135700	1210	75	125	154100	4.17	20	S
Iron	119.650	20	100.0	16.36	103	75	125	119.8	0.108	20	
Magnesium	26717.236	100	1000	23080	363	75	125	27310	2.19	20	S

Sample ID: **MB-41493** SampType: **MBLK** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/13/2012** RunNo: **86872**
Client ID: **PBW** Batch ID: **41493** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/26/2012** SeqNo: **1496375**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	103.568	500									

Sample ID: **N009078-003A-MS2** SampType: **MS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/13/2012** RunNo: **86872**
Client ID: **ZZZZZZ** Batch ID: **41493** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/26/2012** SeqNo: **1496400**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	251691.564	2500	100000	138700	113	75	125				

Sample ID: **N009078-003A-MSD** SampType: **MSD** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/13/2012** RunNo: **86872**
Client ID: **ZZZZZZ** Batch ID: **41493** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/26/2012** SeqNo: **1496401**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	251888.363	2500	100000	138700	113	75	125	251700	0.0782	20	

Sample ID: **LCS2-41493** SampType: **LCS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/13/2012** RunNo: **86872**
Client ID: **LCSW** Batch ID: **41493** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/26/2012** SeqNo: **1496439**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	28345.435	500	25000	0	113	85	115				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

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CLIENT: CH2M HILL
Work Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **MB-41493** SampType: **MBLK** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/13/2012** RunNo: **86890**
Client ID: **PBW** Batch ID: **41493** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/27/2012** SeqNo: **1497016**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	ND	500									

Sample ID: **LCS2-41493** SampType: **LCS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/13/2012** RunNo: **86890**
Client ID: **LCSW** Batch ID: **41493** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/27/2012** SeqNo: **1497017**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	2411.409	500	2500	0	96.5	85	115				

Sample ID: **N009078-003A-MS** SampType: **MS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/13/2012** RunNo: **86890**
Client ID: **ZZZZZZ** Batch ID: **41493** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/27/2012** SeqNo: **1497021**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	9280.726	2500	5000	3120	123	75	125				

Sample ID: **N009078-003A-MSD** SampType: **MSD** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/13/2012** RunNo: **86890**
Client ID: **ZZZZZZ** Batch ID: **41493** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/27/2012** SeqNo: **1497022**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	9318.348	2500	5000	3120	124	75	125	9281	0.405	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: N009085
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **N009085-018A-MS** SampType: **MS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/13/2012** RunNo: **86834**
Client ID: **ZZZZZZ** Batch ID: **41494** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/19/2012** SeqNo: **1494710**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	25845.116	2500	1000	23070	277	75	125				S
Iron	204.673	100	100.0	111.6	93.1	75	125				
Magnesium	33988.221	500	1000	30510	348	75	125				S

Sample ID: **N009085-018A-MSD** SampType: **MSD** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/13/2012** RunNo: **86834**
Client ID: **ZZZZZZ** Batch ID: **41494** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/19/2012** SeqNo: **1494711**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	25673.262	2500	1000	23070	260	75	125	25850	0.667	20	S
Iron	201.374	100	100.0	111.6	89.8	75	125	204.7	1.63	20	
Magnesium	33735.367	500	1000	30510	323	75	125	33990	0.747	20	S

Sample ID: **LCS-41494** SampType: **LCS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/13/2012** RunNo: **86833**
Client ID: **LCSW** Batch ID: **41494** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/18/2012** SeqNo: **1494796**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	911.288	500	1000	0	91.1	85	115				
Iron	107.653	20	100.0	0	108	85	115				
Magnesium	988.475	100	1000	0	98.8	85	115				

Sample ID: **MB-41494** SampType: **MBLK** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/13/2012** RunNo: **86833**
Client ID: **PBW** Batch ID: **41494** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/18/2012** SeqNo: **1494805**

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	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD 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: N009085
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **MB-41494** SampType: **MBLK** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/13/2012** RunNo: **86872**
Client ID: **PBW** Batch ID: **41494** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/26/2012** SeqNo: **1496403**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	ND	500									

Sample ID: **N009085-018A-MS2** SampType: **MS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/13/2012** RunNo: **86872**
Client ID: **ZZZZZZ** Batch ID: **41494** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/26/2012** SeqNo: **1496424**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	1868290.788	25000	100000	1714000	155	75	125				S

Sample ID: **N009085-018A-MSD** SampType: **MSD** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/13/2012** RunNo: **86872**
Client ID: **ZZZZZZ** Batch ID: **41494** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/26/2012** SeqNo: **1496425**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	1885586.688	25000	100000	1714000	172	75	125	1868000	0.921	20	S

Sample ID: **LCS2-41494** SampType: **LCS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/13/2012** RunNo: **86872**
Client ID: **LCSW** Batch ID: **41494** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/26/2012** SeqNo: **1496434**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	27717.317	500	25000	0	111	85	115				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-001

Client Sample ID: MW-09-188
Collection Date: 12/5/2012 1:45:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121219B**	QC Batch: **41495**				PrepDate: **12/13/2012**		Analyst: **CEI**
Manganese	ND	0.16	0.50		µg/L	1	12/19/2012 02:43 PM
Molybdenum	1.7	0.074	0.50		µg/L	1	12/19/2012 02:43 PM
Selenium	5.2	0.084	0.50		µg/L	1	12/19/2012 02:43 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-002

Client Sample ID: MW-28-025-188
Collection Date: 12/5/2012 9:06:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121219B**	QC Batch: **41495**				PrepDate: **12/13/2012**		Analyst: **CEI**
Arsenic	1.5	0.035	0.10		µg/L	1	12/19/2012 03:13 PM
Manganese	21	0.16	0.50		µg/L	1	12/19/2012 03:13 PM
Molybdenum	5.4	0.074	0.50		µg/L	1	12/19/2012 03:13 PM
Selenium	0.53	0.084	0.50		µg/L	1	12/19/2012 03:13 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-003

Client Sample ID: MW-28-090-188
Collection Date: 12/5/2012 9:53:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121219B**	QC Batch: **41495**				PrepDate: **12/13/2012**		Analyst: **CEI**
Arsenic	2.0	0.035	0.10		µg/L	1	12/19/2012 03:18 PM
Manganese	150	0.16	0.50		µg/L	1	12/19/2012 03:18 PM
Molybdenum	21	0.074	0.50		µg/L	1	12/19/2012 03:18 PM
Selenium	ND	0.084	0.50		µg/L	1	12/19/2012 03:18 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-29-188
Lab Order:	N009085	**Collection Date:**	12/5/2012 10:54:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009085-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121219B**	QC Batch: **41495**				PrepDate: **12/13/2012**		Analyst: **CEI**
Arsenic	19	0.035	0.10		µg/L	1	12/19/2012 03:23 PM
Manganese	260	0.80	2.5		µg/L	5	12/19/2012 07:32 PM
Molybdenum	30	0.074	0.50		µg/L	1	12/19/2012 03:23 PM
Selenium	3.2	0.084	0.50		µg/L	1	12/19/2012 03:23 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-32-020-188
Lab Order:	N009085	**Collection Date:**	12/5/2012 12:07:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009085-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121219B**	QC Batch: **41495**			PrepDate:	**12/13/2012**		Analyst: **CEI**
Arsenic	3.4	0.035	0.10		µg/L	1	12/19/2012 05:08 PM
Manganese	660	0.80	2.5		µg/L	5	12/19/2012 05:13 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-32-035-188
Lab Order:	N009085	**Collection Date:**	12/5/2012 1:09:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009085-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121219B**	QC Batch: **41495**			PrepDate:	**12/13/2012**		Analyst: **CEI**
Arsenic	28	0.035	0.10		µg/L	1	12/19/2012 04:11 PM
Manganese	1600	4.0	12		µg/L	25	12/19/2012 07:37 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: *04-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-33-040-188
Lab Order:	N009085	**Collection Date:**	12/5/2012 3:31:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009085-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121219B**	QC Batch: **41495**				PrepDate: **12/13/2012**		Analyst: **CEI**
Arsenic	14	0.035	0.10		µg/L	1	12/19/2012 04:16 PM
Manganese	8.3	0.16	0.50		µg/L	1	12/19/2012 04:16 PM
Molybdenum	200	0.074	0.50		µg/L	1	12/19/2012 04:16 PM
Selenium	ND	0.084	0.50		µg/L	1	12/19/2012 04:16 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-52D-188
Lab Order:	N009085	**Collection Date:**	12/5/2012 9:47:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009085-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121219B**	QC Batch: **41495**			PrepDate:	**12/13/2012**		Analyst: **CEI**
Arsenic	3.7	0.035	0.10		µg/L	1	12/19/2012 04:21 PM
Manganese	260	0.80	2.5		µg/L	5	12/19/2012 07:42 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-52M-188
Lab Order:	N009085	**Collection Date:**	12/5/2012 11:25:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009085-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121219B**	QC Batch: **41495**				PrepDate:	**12/13/2012**	Analyst: **CEI**
Arsenic	1.7	0.035	0.10		µg/L	1	12/19/2012 04:26 PM
Manganese	150	0.16	0.50		µg/L	1	12/19/2012 04:26 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-010

Client Sample ID: MW-52S-188
Collection Date: 12/5/2012 12:24:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121219B**	QC Batch: **41495**				PrepDate: **12/13/2012**		Analyst: **CEI**
Arsenic	0.25	0.035	0.10		µg/L	1	12/19/2012 04:31 PM
Manganese	790	0.80	2.5		µg/L	5	12/19/2012 07:47 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-53M-188
Lab Order:	N009085	**Collection Date:**	12/5/2012 2:56:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009085-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121219B**	QC Batch: **41495**				PrepDate: **12/13/2012**		Analyst: **CEI**
Arsenic	1.0	0.035	0.10		µg/L	1	12/19/2012 04:36 PM
Manganese	420	0.80	2.5		µg/L	5	12/19/2012 07:52 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-60BR-245-188
Lab Order:	N009085	**Collection Date:**	12/5/2012 8:01:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009085-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121219B**	QC Batch: **41495**				PrepDate:	**12/13/2012**	Analyst: **CEI**
Arsenic	8.1	0.035	0.10		µg/L	1	12/19/2012 04:41 PM
Manganese	9.6	0.16	0.50		µg/L	1	12/19/2012 04:41 PM
Molybdenum	62	0.074	0.50		µg/L	1	12/19/2012 04:41 PM
Selenium	2.1	0.084	0.50		µg/L	1	12/19/2012 04:41 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-013

Client Sample ID: MW-65-225-188
Collection Date: 12/5/2012 12:35:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121219B**	QC Batch: **41495**				PrepDate: **12/13/2012**		Analyst: **CEI**
Arsenic	2.3	0.035	0.10		µg/L	1	12/19/2012 04:46 PM
Manganese	49	0.16	0.50		µg/L	1	12/19/2012 04:46 PM
Molybdenum	38	0.074	0.50		µg/L	1	12/19/2012 04:46 PM
Selenium	8.1	0.084	0.50		µg/L	1	12/19/2012 04:46 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-014

Client Sample ID: MW-69-195-188
Collection Date: 12/5/2012 3:45:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121219B**	QC Batch: **41495**				PrepDate: **12/13/2012**		Analyst: **CEI**
Arsenic	2.1	0.035	0.10		µg/L	1	12/19/2012 04:53 PM
Manganese	1.8	0.16	0.50		µg/L	1	12/19/2012 04:53 PM
Molybdenum	57	0.074	0.50		µg/L	1	12/19/2012 04:53 PM
Selenium	15	0.084	0.50		µg/L	1	12/19/2012 04:53 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-72-080-188
Lab Order:	N009085	**Collection Date:**	12/5/2012 10:59:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009085-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121219B**	QC Batch: **41495**				PrepDate:	**12/13/2012**	Analyst: **CEI**
Arsenic	11	0.035	0.10		µg/L	1	12/19/2012 05:17 PM
Manganese	100	0.16	0.50		µg/L	1	12/19/2012 05:17 PM
Molybdenum	77	0.074	0.50		µg/L	1	12/19/2012 05:17 PM
Selenium	1.8	0.084	0.50		µg/L	1	12/19/2012 05:17 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: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-016

Client Sample ID: MW-73-080-188
Collection Date: 12/5/2012 7:50:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121219B**	QC Batch: **41495**				PrepDate: **12/13/2012**		Analyst: **CEI**
Arsenic	1.5	0.035	0.10		µg/L	1	12/19/2012 05:22 PM
Manganese	21	0.16	0.50		µg/L	1	12/19/2012 05:22 PM
Molybdenum	24	0.074	0.50		µg/L	1	12/19/2012 05:22 PM
Selenium	4.8	0.084	0.50		µg/L	1	12/19/2012 05:22 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-91-188
Lab Order:	N009085	**Collection Date:**	12/5/2012 4:58:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009085-017		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121219B**	QC Batch: **41495**				PrepDate:	**12/13/2012**	Analyst: **CEI**
Arsenic	14	0.035	0.10		µg/L	1	12/19/2012 05:27 PM
Manganese	260	0.80	2.5		µg/L	5	12/21/2012 04:53 PM
Molybdenum	23	0.074	0.50		µg/L	1	12/19/2012 05:27 PM
Selenium	4.3	0.42	2.5		µg/L	5	12/21/2012 04:53 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-92-188
Lab Order:	N009085	**Collection Date:**	12/5/2012 3:34:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009085-018		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121219B**	QC Batch: **41495**				PrepDate:	**12/13/2012**	Analyst: **CEI**
Arsenic	14	0.035	0.10		µg/L	1	12/19/2012 05:33 PM
Manganese	6.6	0.16	0.50		µg/L	1	12/19/2012 05:33 PM
Molybdenum	220	0.074	0.50		µg/L	1	12/19/2012 05:33 PM
Selenium	ND	0.084	0.50		µg/L	1	12/19/2012 05:33 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: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-019

Client Sample ID: MW-33-150-188
Collection Date: 12/6/2012 9:30:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121219B**	QC Batch: **41495**			PrepDate:	**12/13/2012**		Analyst: **CEI**
Arsenic	2.0	0.035	0.10		µg/L	1	12/19/2012 05:38 PM
Manganese	6.0	0.16	0.50		µg/L	1	12/19/2012 05:38 PM
Molybdenum	41	0.074	0.50		µg/L	1	12/19/2012 05:38 PM
Selenium	0.76	0.084	0.50		µg/L	1	12/19/2012 05:38 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-020

Client Sample ID: MW-33-210-188
Collection Date: 12/6/2012 10:23:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121219B**	QC Batch: **41495**				PrepDate: **12/13/2012**		Analyst: **CEI**
Arsenic	1.4	0.035	0.10		µg/L	1	12/19/2012 05:42 PM
Manganese	3.9	0.16	0.50		µg/L	1	12/19/2012 05:42 PM
Molybdenum	18	0.074	0.50		µg/L	1	12/19/2012 05:42 PM
Selenium	0.70	0.084	0.50		µg/L	1	12/19/2012 05:42 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-42-030-188
Lab Order:	N009085	**Collection Date:**	12/6/2012 11:51:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009085-021		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121221A**	QC Batch: **41496**			PrepDate:	**12/13/2012**		Analyst: **CEI**
Molybdenum	70	0.074	0.50		µg/L	1	12/21/2012 02:26 PM
Selenium	0.96	0.084	0.50		µg/L	1	12/21/2012 02:26 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-42-055-188
Lab Order:	N009085	**Collection Date:**	12/6/2012 1:18:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009085-022		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121219B**	QC Batch: **41496**				PrepDate: **12/13/2012**		Analyst: **CEI**
Arsenic	13	0.035	0.10		µg/L	1	12/19/2012 06:37 PM
Manganese	75	0.16	0.50		µg/L	1	12/19/2012 06:37 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: *04-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-42-065-188
Lab Order:	N009085	**Collection Date:**	12/6/2012 2:03:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009085-023		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121219B**	QC Batch: **41496**			PrepDate:	**12/13/2012**		Analyst: **CEI**
Arsenic	2.6	0.035	0.10		µg/L	1	12/19/2012 06:07 PM
Manganese	1300	4.0	12		µg/L	25	12/21/2012 04:58 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-44-070-188
Lab Order:	N009085	**Collection Date:**	12/6/2012 3:46:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009085-024		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121219B**	QC Batch: **41496**				PrepDate: **12/13/2012**		Analyst: **CEI**
Arsenic	4.5	0.035	0.10		µg/L	1	12/19/2012 06:42 PM
Manganese	110	0.16	0.50		µg/L	1	12/19/2012 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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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-53D-188
Lab Order:	N009085	**Collection Date:**	12/6/2012 9:09:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009085-025		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121219B**	QC Batch: **41496**			PrepDate:	**12/13/2012**		Analyst: **CEI**
Arsenic	3.0	0.035	0.10		µg/L	1	12/19/2012 06:47 PM
Manganese	1500	4.0	12		µg/L	25	12/21/2012 05:46 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-60-125-188
Lab Order:	N009085	**Collection Date:**	12/6/2012 10:36:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009085-026		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121219B**	QC Batch: **41496**				PrepDate:	**12/13/2012**	Analyst: **CEI**
Arsenic	1.8	0.035	0.10		µg/L	1	12/19/2012 06:52 PM
Manganese	14	0.16	0.50		µg/L	1	12/19/2012 06:52 PM
Molybdenum	21	0.074	0.50		µg/L	1	12/21/2012 03:04 PM
Selenium	6.2	0.084	0.50		µg/L	1	12/21/2012 03:04 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-027

Client Sample ID: MW-66-165-188
Collection Date: 12/6/2012 8:26:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121219B**	QC Batch: **41496**				PrepDate: **12/13/2012**		Analyst: **CEI**
Arsenic	1.3	0.035	0.10		µg/L	1	12/19/2012 07:07 PM
Manganese	ND	0.16	0.50		µg/L	1	12/19/2012 07:07 PM
Molybdenum	7.1	0.074	0.50		µg/L	1	12/21/2012 03:09 PM
Selenium	37	0.084	0.50		µg/L	1	12/21/2012 03:09 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-67-185-188
Lab Order:	N009085	**Collection Date:**	12/6/2012 3:01:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009085-028		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121219B**	QC Batch: **41496**				PrepDate:	**12/13/2012**	Analyst: **CEI**
Arsenic	1.8	0.035	0.10		µg/L	1	12/19/2012 07:12 PM
Manganese	ND	0.16	0.50		µg/L	1	12/19/2012 07:12 PM
Molybdenum	12	0.074	0.50		µg/L	1	12/21/2012 03:13 PM
Selenium	110	0.084	0.50		µg/L	1	12/21/2012 03:13 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-029

Client Sample ID: MW-67-260-188
Collection Date: 12/6/2012 1:57:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121219B**	QC Batch: **41496**			PrepDate:	**12/13/2012**		Analyst: **CEI**
Arsenic	12	0.035	0.10		µg/L	1	12/19/2012 07:17 PM
Manganese	170	0.16	0.50		µg/L	1	12/19/2012 07:17 PM
Molybdenum	85	0.074	0.50		µg/L	1	12/21/2012 03:19 PM
Selenium	2.1	0.084	0.50		µg/L	1	12/21/2012 03:19 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-030

Client Sample ID: MW-68-240-188
Collection Date: 12/6/2012 11:58:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121219B**	QC Batch: **41496**				PrepDate: **12/13/2012**		Analyst: **CEI**
Arsenic	2.0	0.035	0.10		µg/L	1	12/19/2012 07:22 PM
Manganese	94	0.16	0.50		µg/L	1	12/19/2012 07:22 PM
Molybdenum	23	0.074	0.50		µg/L	1	12/21/2012 03:24 PM
Selenium	5.1	0.084	0.50		µg/L	1	12/21/2012 03:24 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *04-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009085-031

Client Sample ID: MW-95-188
Collection Date: 12/6/2012 7:05:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121219B**	QC Batch: **41496**				PrepDate: **12/13/2012**		Analyst: **CEI**
Arsenic	1.1	0.035	0.10		µg/L	1	12/19/2012 07:27 PM
Manganese	380	0.80	2.5		µg/L	5	12/21/2012 06:01 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

Date: *04-Jan-13*

CLIENT: CH2M HILL
Work Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **MB-41495** SampType: **MBLK** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **12/13/2012** RunNo: **86849**
Client ID: **PBW** Batch ID: **41495** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/19/2012** SeqNo: **1495283**

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-41495** SampType: **LCS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **12/13/2012** RunNo: **86849**
Client ID: **LCSW** Batch ID: **41495** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/19/2012** SeqNo: **1495284**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.329	0.10	10.00	0	103	85	115				
Manganese	97.448	0.50	100.0	0	97.4	85	115				
Molybdenum	11.176	0.50	10.00	0	112	85	115				
Selenium	9.892	0.50	10.00	0	98.9	85	115				

Sample ID: **N009085-001A-MS** SampType: **MS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **12/13/2012** RunNo: **86849**
Client ID: **ZZZZZZ** Batch ID: **41495** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/19/2012** SeqNo: **1495288**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	12.288	0.10	10.00	1.730	106	75	125				
Manganese	88.434	0.50	100.0	0	88.4	75	125				
Molybdenum	14.055	0.50	10.00	1.662	124	75	125				
Selenium	14.646	0.50	10.00	5.216	94.3	75	125				

Sample ID: **N009085-001A-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **12/13/2012** RunNo: **86849**
Client ID: **ZZZZZZ** Batch ID: **41495** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/19/2012** SeqNo: **1495289**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	11.276	0.10	10.00	1.730	95.5	75	125	12.29	8.58	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: N009085
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N009085-001A-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **12/13/2012** RunNo: **86849**
Client ID: **ZZZZZZ** Batch ID: **41495** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/19/2012** SeqNo: **1495289**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	82.149	0.50	100.0	0	82.1	75	125	88.43	7.37	20	
Molybdenum	12.734	0.50	10.00	1.662	111	75	125	14.06	9.87	20	
Selenium	13.645	0.50	10.00	5.216	84.3	75	125	14.65	7.08	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: N009085
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **MB-41496** SampType: **MBLK** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **12/13/2012** RunNo: **86849**
Client ID: **PBW** Batch ID: **41496** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/19/2012** SeqNo: **1495315**

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									

Sample ID: **LCS-41496** SampType: **LCS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **12/13/2012** RunNo: **86849**
Client ID: **LCSW** Batch ID: **41496** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/19/2012** SeqNo: **1495316**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.328	0.10	10.00	0	103	85	115				
Manganese	100.449	0.50	100.0	0	100	85	115				

Sample ID: **N009085-023A-MS** SampType: **MS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **86849**
Client ID: **ZZZZZZ** Batch ID: **41496** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/19/2012** SeqNo: **1495322**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	13.337	0.10	10.00	2.553	108	75	125				

Sample ID: **N009085-023A-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **86849**
Client ID: **ZZZZZZ** Batch ID: **41496** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/19/2012** SeqNo: **1495323**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	12.978	0.10	10.00	2.553	104	75	125	13.34	2.73	20	

Sample ID: **MB-41496** SampType: **MBLK** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **12/13/2012** RunNo: **86850**
Client ID: **PBW** Batch ID: **41496** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/21/2012** SeqNo: **1495434**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

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CLIENT: CH2M HILL
Work Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **LCS-41496** SampType: **LCS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **12/13/2012** RunNo: **86850**
Client ID: **LCSW** Batch ID: **41496** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/21/2012** SeqNo: **1495435**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	11.062	0.50	10.00	0	111	85	115				
Selenium	10.370	0.50	10.00	0	104	85	115				

Sample ID: **N009085-023A-MS** SampType: **MS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **86850**
Client ID: **ZZZZZZ** Batch ID: **41496** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/21/2012** SeqNo: **1495439**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	38.872	0.50	10.00	26.32	126	75	125				S
Selenium	10.440	0.50	10.00	0.1545	103	75	125				

Sample ID: **N009085-023A-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **86850**
Client ID: **ZZZZZZ** Batch ID: **41496** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/21/2012** SeqNo: **1495440**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	38.734	0.50	10.00	26.32	124	75	125	38.73	0	20	
Selenium	10.036	0.50	10.00	0.1545	98.8	75	125	10.04	0	20	

Sample ID: **N009085-023A-MS** SampType: **MS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **86850**
Client ID: **ZZZZZZ** Batch ID: **41496** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/21/2012** SeqNo: **1495465**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	1238.809	12	100.0	1260	-21.1	75	125				S

Sample ID: **N009085-023A-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **86850**
Client ID: **ZZZZZZ** Batch ID: **41496** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/21/2012** SeqNo: **1495466**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	1248.825	12	100.0	1260	-11.0	75	125	1249	0	20	S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CH2MHILL

CHAIN OF CUSTODY RECORD

12/6/2012 4:30:02 PM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.0
Task Order
Project 2012-GMP-188-Q4
Turnaround Time 10 Days
Shipping Date: 12/5/2012
COC Number: 20

			Container:	1x500 ml Poly	1x500 ml Poly	1x500 ml Poly	1x500 ml Poly	2x1 Liter	2x1 Liter	2x1 Liter	2x1 Liter	2x1 Liter	2x1 Liter			
			Preservatives:	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	4°C	4°C	4°C	4°C	4°C	4°C			
			Filtered:	Field	Field	Field	Field	NA	NA	NA	NA	NA	NA			
			Holding Time:	180	180	180	180	7	7	7	7	7	7			
	DATE	TIME	Matrix	Arsenic (6020A) Field Filtered	Metals (SW6010B/SW6020Adis) Field Filtered Ca,Mg,K,Na,B,Fe,Mn	Metals (SW6010B/SW6020Adis) Field Filtered Ca,Mg,Na,Fe,Mn	Metals (SW6010B/SW6020Adis) Field Filtered Mo,Se	Specific Conductance (E120.1)	Anions (E300.0) Bromide,Chloride,Sulfate	Anions (E300.0) Chloride,Sulfate	Anions (E300.0) Chloride,Sulfate,Fluoride	TDS (SM2540C)	Alkalinity (SM2320B)		Number of Containers	COMMENTS
MW-09-188	12/5/2012	13:45	Water			X	X	X		X			X	N0090855-1	3	
MW-28-025-188	12/5/2012	9:06	Water	X		X	X	X		X			X	-2	3	
MW-28-090-188	12/5/2012	9:53	Water	X		X	X	X			X		X	-3	3	
MW-29-188	12/5/2012	10:54	Water	X		X	X	X		X			X	-4	3	
MW-32-020-188	12/5/2012	12:07	Water	X		X		X		X			X	-5	3	
MW-32-035-188	12/5/2012	13:09	Water	X	X			X	X			X	X	-6	3	
MW-33-040-188	12/5/2012	15:31	Water	X		X	X	X			X		X	-7	3	
MW-52D-188	12/5/2012	9:47	Water	X		X		X		X			X	-8	3	
MW-52M-188	12/5/2012	11:25	Water	X		X		X		X			X	-9	3	
MW-52S-188	12/5/2012	12:24	Water	X		X		X		X			X	-10	3	
MW-53M-188	12/5/2012	14:56	Water	X		X		X		X			X	-11	3	
MW-60BR-245-188	12/5/2012	8:01	Water	X		X	X	X		X			X	-12	3	
MW-65-225-188	12/5/2012	12:35	Water	X		X	X	X		X			X	-13	3	
MW-69-195-188	12/5/2012	15:45	Water	X		X	X	X		X			X	-14	3	

	Signatures	Date/Time
Approved by		12-6-12 1640
Sampled by		
Relinquished by		12-6-12 1640
Received by		
Relinquished by		12-6-12 1648
Received by		

Shipping Details

Method of Shipment: courier
On Ice: (yes) / no 3/4 ICE IRA
Airbill No:
Lab Name: ADVANCED TECHNOLOGY LABORATO
Lab Phone: (702) 307-2659

ATTN:

Sample Custody
and
Marlon

Special Instructions:

Nov 5 - Dec 14, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

CH2MHILL

CHAIN OF CUSTODY RECORD

12/6/2012 4:30:03 PM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.01
Task Order
Project 2012-GMP-188-Q4
Turnaround Time 10 Days
Shipping Date: 12/5/2012
COC Number: 20

			Container:	1x500 ml Poly	1x500 ml Poly	1x500 ml Poly	1x500 ml Poly	2x1 Liter	2x1 Liter	2x1 Liter	2x1 Liter	2x1 Liter	2x1 Liter		
			Preservatives:	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	4°C	4°C	4°C	4°C	4°C	4°C		
			Filtered:	Field	Field	Field	Field	NA	NA	NA	NA	NA	NA		
			Holding Time:	180	180	180	180	7	7	7	7	7	7		
	DATE	TIME	Matrix	Arsenic (6020A) Field Filtered	Metals (SW6010B/SW6020Adis) Field Filtered Ca,Mg,K,Na,B,Fe,Mn	Metals (SW6010B/SW6020Adis) Field Filtered Ca,Mg,Na,Fe,Mn	Metals (SW6010B/SW6020Adis) Field Filtered Mo,Se	Specific Conductance (E120.1)	Anions (E300.0) Bromide,Chloride,Sulfate	Anions (E300.0) Chloride,Sulfate	Anions (E300.0) Chloride,Sulfate,Fluoride	TDS (SM2540C)	Alkalinity (SM2320B)		Number of Containers	COMMENTS
MW-72-080-188	12/5/2012	10:59	Water	X		X	X	X		X			X	N0090085-15	3	
MW-73-080-188	12/5/2012	7:50	Water	X		X	X	X		X			X	-16	3	
MW-91-188	12/5/2012	16:58	Water	X		X	X	X		X			X	-17	3	
MW-92-188	12/5/2012	15:34	Water	X		X	X	X			X		X	-18	3	
MW-33-150-188	12/6/2012	9:30	Water	X		X	X	X			X		X	-19	3	
MW-33-210-188	12/6/2012	10:23	Water	X		X	X	X			X		X	-20	3	
MW-42-030-188	12/6/2012	11:51	Water				X	X						-21	2	
MW-42-055-188	12/6/2012	13:18	Water	X		X		X		X			X	-22	3	
MW-42-065-188	12/6/2012	14:03	Water	X		X		X		X			X	-23	3	
MW-44-070-188	12/6/2012	15:46	Water	X		X		X		X			X	-24	3	
MW-53D-188	12/6/2012	9:09	Water	X		X		X		X			X	-25	3	
MW-60-125-188	12/6/2012	10:36	Water	X		X	X	X		X			X	-26	3	
MW-66-165-188	12/6/2012	8:26	Water	X		X	X	X		X			X	-27	3	
MW-67-185-188	12/6/2012	15:01	Water	X		X	X	X		X			X	-28	3	

	Signatures	Date/Time
Approved by		
Sampled by		12-6-12 1640
Relinquished by		
Received by		12-6-12 1640
Relinquished by		
Received by		12-6-12 1848

Shipping Details

Method of Shipment: courier
On Ice: (Yes) / no 3.4 ICE IR1
Airbill No:
Lab Name: ADVANCED TECHNOLOGY LABORATO
Lab Phone: (702) 307-2659

ATTN:

Sample Custody and Marlon

Special Instructions:

Nov 5 - Dec 14, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

CH2MHILL

CHAIN OF CUSTODY RECORD

12/6/2012 4:30:03 PM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.01
Task Order
Project 2012-GMP-188-Q4
Turnaround Time 10 Days
Shipping Date: 12/5/2012
COC Number: 20

			Container:	1x500 ml Poly	1x500 ml Poly	1x500 ml Poly	1x500 ml Poly	2x1 Liter	2x1 Liter	2x1 Liter	2x1 Liter	2x1 Liter	2x1 Liter		
			Preservatives:	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	4°C	4°C	4°C	4°C	4°C	4°C		
			Filtered:	Field	Field	Field	Field	NA	NA	NA	NA	NA	NA		
			Holding Time:	180	180	180	180	7	7	7	7	7	7		
	DATE	TIME	Matrix	Arsenic (6020A) Field Filtered	Metals (SW6010B/SW6020Adis) Field Filtered Ca,Mg,K,Na,B,Fe,Mn	Metals (SW6010B/SW6020Adis) Field Filtered Ca,Mg,Na,Fe,Mn	Metals (SW6010B/SW6020Adis) Field Filtered Mo,Se	Specific Conductance (E120.1)	Anions (E300.0) Bromide,Chloride,Sulfate	Anions (E300.0) Chloride,Sulfate	Anions (E300.0) Chloride,Sulfate,Fluoride	TDS (SM2540C)	Alkalinity (SM2320B)		Number of Containers	COMMENTS
MW-67-260-188	12/6/2012	13:57	Water	X		X	X	X		X			X	M009085 - 29	3	
MW-68-240-188	12/6/2012	11:58	Water	X		X	X	X		X			X	- 30	3	
MW-95-188	12/6/2012	7:05	Water	X		X		X		X			X	- 31	3	
														TOTAL NUMBER OF CONTAINERS	92	

	Signatures	Date/Time
Approved by		12-6-12 1640
Sampled by		
Relinquished by		
Received by		12-6-12 1640
Relinquished by		
Received by		12-6-12 1648

Shipping Details

Method of Shipment: courier
On Ice: yes / no 3.4 ICE IRS
Airbill No:
Lab Name: ADVANCED TECHNOLOGY LABORATO
Lab Phone: (702) 307-2659

ATTN:

Sample Custody and Marlon

Special Instructions:
Nov 5 - Dec 14, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

Advanced Technology Laboratories, Inc.

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	12/6/2012	Workorder:	N009085
Rep sample Temp (Deg C):	3.4	IR Gun ID:	1
Temp Blank:	☐ Yes ☑ No		
Carrier name:	ATL		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments:

Checklist Completed B MBC 12/7/12

Reviewed By: [signature]

SAMPLE CALCULATION

METHOD: SM 2540C
TEST NAME: Total Filterable Residue
MATRIX: Water

FORMULA:

Calculate TDS concentration in mg/L, in the original sample as follows:

$$\text{TDS, mg/L} = \frac{(A-B)*1000000}{C}$$

Where:

A = weight in g of dish + residue after drying
B = weight of dish in g
C = volume of sample used in mL

For **N009085-006B,** TDS concentration in mg/L is calculated as follows:

$$\text{TDS, mg/L} = \frac{(56.2427-56.1406)*1000000}{\cancel{100}\ 10\ \text{mL}}$$

$$= 10210 \text{ mg/L}$$

Reporting result in two significant figures,

TDS = ~~102~~ 10000 1 mg/L
mg/L

TOTAL DISSOLVED SOLIDS, TDS

TDS, mg/L = (A-B) X 1000000 / C

WHERE:
A = weight in grams of dish + residue after drying
B = weight of dish in grams
C = volume of sample used in mL

Date Started: 12/10/2012								TDS/CONDUCTIVITY
Date Finished: 12/14/2012	vol	initial	final	calc	prep fact	TDS, mg/L	CONDUCTIVITY	RATIO
MB-41432	100	55.3913	55.3919	6	1	6.00		
LCS-41432	100	53.9464	54.0447	983	1	983.00		
N009054-001E	100	53.8182	53.8812	630	1	630.00	960	0.66
N009056-001F	60	61.246	61.3218	758	1.6666667	1263.33	2430	0.52
N009085-006B	10	56.1406	56.2427	1021	10	10210.00	15130	0.67
N009093-001A	100	56.0601	56.1148	547	1	547.00	918	0.60
N009093-002A	100	53.6653	53.7096	443	1	443.00	707	0.63
N009093-002ADUP	100	61.2524	61.2969	445	1	445.00	707	0.63

Sample ID: **N009085-001B @ pH 7.72**

A. Standardization of Sulfuric Acid (titrant):

Normality of acid = (A)(B)/(53.00)(C)

Where:

A, grams weighed for Na_2CO_3 solution (Na_2CO_3 Standardization Solution)
B, mL Na2CO3 solution taken for titration, and
C, ml of sulfuric acid used to inflection point

Spike Standards

Na_2CO_3 Standardization Solution, ACS Grade (1.00 ml = 2500ug as $CaCO_3$):
Dissolve 2.650 grams of Na_2CO_3 in distilled water and dilute to 1 liter.

LCS/MS/MSD Stock $NaHCO_3$, ACS Grade (1.00 ml = 5000 ug as $CaCO_3$):
Dissolve 0.8398 grams of $NaHCO_3$ in distilled water and dilute to 1 liter.

Therefore,

Normality of Acid = (2.65g/L) (5mL) / (53.00) (11.625mL)

= **0.02151 N**

B. CALCULATION OF ALKALINITY (for a 50 ml sample)

Total Alkalinity (as $CaCO_3$), mg/L = $M_{vol.}$ * N H_2SO_4 * DF * 1000

Where:

$M_{vol.}$, volume titrant used to reach pH 4.5, ml
N, Normality of H_2SO_4
DF, Dilution Factor = (50 ml) / (Vol. of Sample used)

Therefore,

Total Alkalinity (as $CaCO_3$), mg/L = (5.85) (0.02151N) (1) * 1000

= 125.8335 **mg/L**

Reporting results in two significant figures,

= 130 **mg/L** as CaCO3

C. SPECIATED ALKALINITY:

Phenolphthalein Alkalinity

P alkalinity, mg/L as $CaCO_3$ = $P_{vol.}$ * N H_2SO_4 * DF * 1000

= (0) (0.02151 N) (1) * 1000

= **0**

Total Alkalinity

T alkalinity, mg/L as $CaCO_3$ = $M_{vol.}$ * N H_2SO_4 * DF * 1000

= (5.85mL) (0.02151) (1) * 1000

= 125.8335 **mg/L** as CaCO3

Where:

$P_{vol.}$ - volume titrant used to reach pH 8.3, ml
$M_{vol.}$ - volume titrant used to reach pH 4.5, ml
N - Normality of H_2SO_4
DF - Dilution Factor = (50 ml) / (Vol. of Sample used)

Then OH, CO_3, HCO_3 alkalinities as $CaCO_3$ will be calculated as follows:

Result of Titration	**OH Alkalinity as $CaCO_3$**	**CO_3 Alkalinity as $CaCO_3$**	**HCO_3 Alkalinity as $CaCO_3$**
P = 0	0	0	T
P < ½ T	0	2P	T – 2P
P = ½ T	0	2P	0
P > ½ T	2P – T	2(T – P)	0
P = T	T	0	0

Therefore,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = 125.8335 **mg/L**

Alkal/L

Reporting results in two significant figures,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = 130 **mg/L**

Sample Calculation

METHOD: EPA 300
TEST NAME: INORGANIC ANIONS BY IC
MATRIX: WATER

FORMULA:

Calculate the Chloride concentration, in mg/L, in the original sample as follows:

Chloride, mg/L = A * DF

where:

A = mg/L, IC calculated concentration
DF = dilution factor

For **N009085-001B**, concentration in mg/L are calculated as follows:

Chloride, mg/L	=	3.443 * 200
	=	688.6 mg/L

Reporting **N009085-001B** results in two significant figures,

Chloride, mg/L	**=**	**690**

Sample Calculation

METHOD: EPA 6010
TEST NAME: Heavy Metals by ICP
MATRIX: Water

FORMULA:

Calculate the Calcium concentration, in µg/L, in the original sample as follows:

Calcium, µg/L = A * DF * PF * CF

where:

A = mg/L, calculated concentration
DF = Dilution factor
PF = Final Vol. of Digestate in mL / Amt. of Sample grams
CF = Conversion Factor

For Sample **N009085-001A**, the concentration in µg/L is calculated as follows:

Calcium, µg/L = 115.2492432 * 1 * (25 / 25) * 1000

= 115249.2432 µg/L

Reporting results in two significant figures,

Calcium, µg/L = 120000

NS for
1/2/13

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N009085
Test Method: EPA 6010
Analysis Date: 12/19/12

Matrix: Water
Batch No.: 41493

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Mary Claire Ignacio

Dilution Test is not applicable to B & Fe. The computed value is < 25X the RL.
Dilution Test of Mg failed.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N009078-003A-DT 5X	Boron	ug/L	408.4062	NA	401.6966	-1.67%	10
N009078-003A-DT 5X	Calcium	ug/L	146164.3580	PASSED	135715.6794	-7.70%	10
N009078-003A-DT 5X	Iron	ug/L	0	NA	16.3631	100.00%	10
N009078-003A-DT 5X	Magnesium	ug/L	25667.0213	FAILED	23082.2436	-11.20%	10

Note: NA - Not Applicable

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N009085
Test Method: EPA 6010
Analysis Date: 12/26/12

Matrix: Water
Batch No.: 41493

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test of Na failed. However, PS @ 5X passed criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N009078-003A-DT 25X	Sodium	ug/L	123884.8519	FAILED	138657.5298	10.65%	10

Note: NA - Not Applicable

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N009085
Test Method: EPA 6010
Analysis Date: 12/27/12

Matrix: Water
Batch No.: 41493

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to K. The computed value is < 25X the RL. However, PS @ 5X passed criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N009078-003A-DT 25X	Potassium	ug/L	2365.6059	NA	3120.4884	24.19%	10

Note: NA - Not Applicable

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N009085
Test Method: EPA 6010
Analysis Date: 12/19/12

Matrix: Water
Batch No.: 41494

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Mary Claire Ignacio

Dilution Test is not applicable to Fe. The computed value is < 25X the RL. However PS @ 5X passed criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N009085-018A-DT 25X	Calcium	ug/L	23104.0511	PASSED	23074.1509	-0.13%	10
N009085-018A-DT 25X	Iron	ug/L	0	NA	111.6029	100.00%	10
N009085-018A-DT 25X	Magnesium	ug/L	31120.1444	PASSED	30505.7430	-2.01%	10

Note: NA - Not Applicable

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N009085
Test Method: EPA 6010
Analysis Date: 12/26/12

Matrix: Water
Batch No.: 41494

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Mary Claire Ignacio

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N009085-018A-DT 250X	Sodium	ug/L	1593632.7878	PASSED	1713509.2310	7.00%	10

Note: NA - Not Applicable

Advanced Technology Laboratories, Inc.

Date: *27-Dec-12*

CLIENT: CH2M HILL
Work Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **N009078-003A-PS** SampType: **PS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: RunNo: **86834**
Client ID: **ZZZZZZ** Batch ID: **41493** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/19/2012** SeqNo: **1494704**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	2848.590	200	2500	401.7	97.9	75	125				
Calcium	144712.335	1000	5000	135700	180	75	125				S
Iron	4821.729	40	5000	16.36	96.1	75	125				
Magnesium	29950.711	200	5000	23080	137	75	125				S

Sample ID: **N009078-003A-PS** SampType: **PS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: RunNo: **86872**
Client ID: **ZZZZZZ** Batch ID: **41493** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/26/2012** SeqNo: **1496402**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	200717.463	2500	62500	138700	99.3	75	125				

Sample ID: **N009078-003A-PS** SampType: **PS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: RunNo: **86890**
Client ID: **ZZZZZZ** Batch ID: **41493** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/27/2012** SeqNo: **1497023**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	6601.020	2500	3125	3120	111	75	125				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **N009085-018A-PS** SampType: **PS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: RunNo: **86834**
Client ID: **ZZZZZZ** Batch ID: **41494** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/19/2012** SeqNo: **1494709**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	35851.032	2500	12500	23070	102	75	125				
Iron	12087.447	100	12500	111.6	95.8	75	125				
Magnesium	42773.159	500	12500	30510	98.1	75	125				

Sample ID: **N009085-018A-PS** SampType: **PS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: RunNo: **86872**
Client ID: **ZZZZZZ** Batch ID: **41494** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/26/2012** SeqNo: **1496426**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	4397440.011	25000	2500000	1714000	107	75	125				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Sample Calculation

METHOD: EPA 6020
TEST NAME: Heavy Metals by ICP-MS
MATRIX: Aqueous

FORMULA:

Calculate the Arsenic concentration, in ug/L, in the original sample as follows:

Arsenic, ug/L = A * DF * PF

where:

A = ug/L, calculated concentration
DF = dilution factor
PF = Final Vol. of Digestate in mL / Vol. of Sample used in mL

For Sample **N009085-002A**, the concentration in ug/L is calculated as follows:

Arsenic, ug/L = 1.5295815305 * 1 * (25/25)

= 1.5295815305

Reporting result in two significant figures,

Arsenic, ug/L = 1.5

NS for
1/2/13

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N009085
Test Method: EPA 6020
Analysis Date: 12/19/12

Matrix: Water
Batch No.: 41495/41496

Note: NA - Not applicable

Instrument ID: ICP-MS #2
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

For Batch 41495, dilution test is not applicable to As, Mo, Se and Mn. The calculated values were <25X RL. PS @2X passed criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N009085-001A-DT 5X	Arsenic	µg/L	1.682243164	NA	1.730221743	2.77%	10
N009085-001A-DT 5X	Molybdenum	µg/L	1.471765116	NA	1.662225	11.46%	10
N009085-001A-DT 5X	Selenium	µg/L	5.251102883	NA	5.216207658	0.67%	10
N009085-001A-DT 5X	Manganese	µg/L	0	NA	0	0.00%	10
N009085-023A-DT 5X	Arsenic	µg/L	2.581919109	PASSED	2.553272704	1.12%	10
~~N009085-023A-DT 5X~~	~~Manganese~~	~~µg/L~~	~~1234.787055~~	~~PASSED~~	~~1144.204806~~	~~7.92%~~	~~10~~

Not Reported
MS for
1/2/13

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N009085
Test Method: EPA 6020
Analysis Date: 12/21/12

Matrix: Water
Batch No.: 41496

Note: NA - Not applicable

Instrument ID: ICP-MS #2
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Se. The calculated value was <25X RL. PS @2X passed criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N009085-023A-DT 5X	Molybdenum	µg/L	28.51940521	PASSED	26.31970002	8.36%	10
N009085-023A-DT 5X	Selenium	µg/L	0	NA	0.15454701	100.00%	10
N009085-023A-DT 125X	Manganese	µg/L	1201.790579	PASSED	1259.873639	4.61%	10

Advanced Technology Laboratories, Inc.

Date: *02-Jan-13*

CLIENT: CH2M HILL
Work Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N009085-001A-PS** SampType: **PS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **86849**
Client ID: **ZZZZZZ** Batch ID: **41495** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/19/2012** SeqNo: **1495287**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	23.204	0.20	20.00	1.730	107	75	125				
Manganese	185.544	1.0	200.0	0	92.8	75	125				
Molybdenum	26.370	1.0	20.00	1.662	124	75	125				
Selenium	24.366	1.0	20.00	5.216	95.7	75	125				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: CH2M HILL
Work Order: N009085
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N009085-023A-PS** SampType: **PS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **86849**
Client ID: **ZZZZZZ** Batch ID: **41496** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/19/2012** SeqNo: **1495321**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	23.783	0.20	20.00	2.553	106	75	125				

Sample ID: **N009085-023A-PS** SampType: **PS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **86850**
Client ID: **ZZZZZZ** Batch ID: **41496** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/21/2012** SeqNo: **1495438**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	48.974	1.0	20.00	26.32	113	75	125				
Selenium	19.982	1.0	20.00	0.1545	99.1	75	125				

Sample ID: **N009085-023A-PS** SampType: **PS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **86850**
Client ID: **ZZZZZZ** Batch ID: **41496** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/21/2012** SeqNo: **1495464**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	3177.175	12	2500	1260	76.7	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

January 10, 2013

Shawn P. Duffy
CH2M HILL
155 Grand Avenue, Suite 1000
Oakland, CA 94612

TEL: (530) 229-3303
FAX: (530) 339-3303

CA-ELAP No.: 2676
NV Cert. No.: NV-009222007A

Workorder No.: N009140

RE: PG&E Topock, 423575.MP.02.GM.01

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on December 11, 2012 by Advanced Technology Laboratories, Inc. . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

for Gregorio

Jose Tenorio Jr.
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and Advanced Technology Laboratories - Las Vegas.

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

Samples were received intact with proper chain of custody documentation.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Samples were analyzed within method holding time.

Analytical Comments for EPA 6010B_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Calcium 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 some analytes 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 Zinc ; however, the analytical batch was validated by the Laboratory Control Sample (LCS).

Dilution was necessary on samples N009140-002, N009140-013, N009140-014, N009140-016 since plasma was extinguished when samples were analyzed at no dilution.

Analytical Comments for EPA 6020_Dissolved:

Dilution was necessary on sample N009140-002 due to failing internal standard when sample was analyzed at lower dilution.

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Advanced Technology Laboratories, Inc.

Date: *10-Jan-13*

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.01
Lab Order: N009140
Contract No: 2012-GMP-188-

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N009140-001A	MW-10-188	Water	12/10/2012 11:48:00 AM	12/11/2012	1/10/2013
N009140-001B	MW-10-188	Water	12/10/2012 11:48:00 AM	12/11/2012	1/10/2013
N009140-002A	MW-22-188	Water	12/10/2012 1:32:00 PM	12/11/2012	1/10/2013
N009140-002B	MW-22-188	Water	12/10/2012 1:32:00 PM	12/11/2012	1/10/2013
N009140-003A	MW-43-025-188	Water	12/10/2012 10:00:00 AM	12/11/2012	1/10/2013
N009140-003B	MW-43-025-188	Water	12/10/2012 10:00:00 AM	12/11/2012	1/10/2013
N009140-004A	MW-43-075-188	Water	12/10/2012 10:10:00 AM	12/11/2012	1/10/2013
N009140-004B	MW-43-075-188	Water	12/10/2012 10:10:00 AM	12/11/2012	1/10/2013
N009140-005A	MW-43-090-188	Water	12/10/2012 12:04:00 PM	12/11/2012	1/10/2013
N009140-005B	MW-43-090-188	Water	12/10/2012 12:04:00 PM	12/11/2012	1/10/2013
N009140-006A	MW-62-065-188	Water	12/10/2012 3:01:00 PM	12/11/2012	1/10/2013
N009140-006B	MW-62-065-188	Water	12/10/2012 3:01:00 PM	12/11/2012	1/10/2013
N009140-007A	MW-66-230-188	Water	12/10/2012 1:16:00 PM	12/11/2012	1/10/2013
N009140-007B	MW-66-230-188	Water	12/10/2012 1:16:00 PM	12/11/2012	1/10/2013
N009140-008A	MW-67-225-188	Water	12/10/2012 3:07:00 PM	12/11/2012	1/10/2013
N009140-008B	MW-67-225-188	Water	12/10/2012 3:07:00 PM	12/11/2012	1/10/2013
N009140-009A	MW-100-188	Water	12/11/2012 9:23:00 AM	12/11/2012	1/10/2013
N009140-009B	MW-100-188	Water	12/11/2012 9:23:00 AM	12/11/2012	1/10/2013
N009140-010A	MW-13-188	Water	12/11/2012 12:38:00 PM	12/11/2012	1/10/2013
N009140-010B	MW-13-188	Water	12/11/2012 12:38:00 PM	12/11/2012	1/10/2013
N009140-011A	MW-25-188	Water	12/11/2012 11:21:00 AM	12/11/2012	1/10/2013
N009140-011B	MW-25-188	Water	12/11/2012 11:21:00 AM	12/11/2012	1/10/2013
N009140-012A	MW-49-135-188	Water	12/11/2012 9:33:00 AM	12/11/2012	1/10/2013
N009140-012B	MW-49-135-188	Water	12/11/2012 9:33:00 AM	12/11/2012	1/10/2013
N009140-013A	MW-49-275-188	Water	12/11/2012 11:08:00 AM	12/11/2012	1/10/2013
N009140-013B	MW-49-275-188	Water	12/11/2012 11:08:00 AM	12/11/2012	1/10/2013
N009140-014A	MW-49-365-188	Water	12/11/2012 4:18:00 PM	12/11/2012	1/10/2013
N009140-014B	MW-49-365-188	Water	12/11/2012 4:18:00 PM	12/11/2012	1/10/2013
N009140-015A	MW-62-110-188	Water	12/11/2012 3:22:00 PM	12/11/2012	1/10/2013

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CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.01
Lab Order: N009140
Contract No: 2012-GMP-188-

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N009140-015B	MW-62-110-188	Water	12/11/2012 3:22:00 PM	12/11/2012	1/10/2013
N009140-016A	MW-62-190-188	Water	12/11/2012 3:30:00 PM	12/11/2012	1/10/2013
N009140-016B	MW-62-190-188	Water	12/11/2012 3:30:00 PM	12/11/2012	1/10/2013
N009140-017A	MW-68-180-188	Water	12/11/2012 9:38:00 AM	12/11/2012	1/10/2013
N009140-017B	MW-68-180-188	Water	12/11/2012 9:38:00 AM	12/11/2012	1/10/2013
N009140-018A	MW-99-188	Water	12/11/2012 1:02:00 PM	12/11/2012	1/10/2013
N009140-018B	MW-99-188	Water	12/11/2012 1:02:00 PM	12/11/2012	1/10/2013
N009140-019A	PGE-07BR-188	Water	12/11/2012 4:13:00 PM	12/11/2012	1/10/2013
N009140-019B	PGE-07BR-188	Water	12/11/2012 4:13:00 PM	12/11/2012	1/10/2013
N009140-020A	TW-01-188	Water	12/11/2012 2:50:00 PM	12/11/2012	1/10/2013
N009140-020B	TW-01-188	Water	12/11/2012 2:50:00 PM	12/11/2012	1/10/2013

Advanced Technology Laboratories, Inc.
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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *10-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-10-188
Lab Order:	N009140	**Collection Date:**	12/10/2012 11:48:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009140-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121212F**	QC Batch: **R86921**			PrepDate:			Analyst: **CEI**
Specific Conductance	2700	0.10	0.10		umhos/cm	1	12/12/2012

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *10-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-22-188
Lab Order:	N009140	**Collection Date:**	12/10/2012 1:32:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009140-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121212F**	QC Batch: **R86921**			PrepDate:			Analyst: **CEI**
Specific Conductance	32000	0.10	0.10		umhos/cm	1	12/12/2012

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *10-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-43-025-188
Lab Order:	N009140	**Collection Date:**	12/10/2012 10:00:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009140-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
EPA 120.1							
RunID: **WETCHEM_121212F**	QC Batch: **R86921**			PrepDate:			Analyst: **CEI**
Specific Conductance	1200	0.10	0.10		umhos/cm	1	12/12/2012

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *10-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-43-075-188
Lab Order:	N009140	**Collection Date:**	12/10/2012 10:10:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009140-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121212F**	QC Batch: **R86921**			PrepDate:			Analyst: **CEI**
Specific Conductance	12000	0.10	0.10		umhos/cm	1	12/12/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *10-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-43-090-188
Lab Order:	N009140	**Collection Date:**	12/10/2012 12:04:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009140-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121212F**	QC Batch: **R86921**			PrepDate:			Analyst: **CEI**
Specific Conductance	17000	0.10	0.10		umhos/cm	1	12/12/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *10-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-62-065-188
Lab Order:	N009140	**Collection Date:**	12/10/2012 3:01:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009140-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121212F**	QC Batch: **R86921**			PrepDate:			Analyst: **CEI**
Specific Conductance	6200	0.10	0.10		umhos/cm	1	12/12/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *10-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-66-230-188
Lab Order:	N009140	**Collection Date:**	12/10/2012 1:16:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009140-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121212F**	QC Batch: **R86921**			PrepDate:			Analyst: **CEI**
Specific Conductance	19000	0.10	0.10		umhos/cm	1	12/12/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *10-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-67-225-188
Lab Order:	N009140	**Collection Date:**	12/10/2012 3:07:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009140-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121212F**	QC Batch: **R86921**			PrepDate:			Analyst: **CEI**
Specific Conductance	7500	0.10	0.10		umhos/cm	1	12/12/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *10-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-100-188
Lab Order:	N009140	**Collection Date:**	12/11/2012 9:23:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009140-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121212F**	QC Batch: **R86921**			PrepDate:			Analyst: **CEI**
Specific Conductance	7600	0.10	0.10		umhos/cm	1	12/12/2012

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *10-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-13-188
Lab Order:	N009140	**Collection Date:**	12/11/2012 12:38:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009140-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121212F**	QC Batch: **R86921**			PrepDate:			Analyst: **CEI**
Specific Conductance	2000	0.10	0.10		umhos/cm	1	12/12/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *10-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-25-188
Lab Order:	N009140	**Collection Date:**	12/11/2012 11:21:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009140-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121212E**	QC Batch: **R86919**			PrepDate:			Analyst: **CEI**
Specific Conductance	1700	0.10	0.10		umhos/cm	1	12/12/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *10-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-49-135-188
Lab Order:	N009140	**Collection Date:**	12/11/2012 9:33:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009140-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121212E**	QC Batch: **R86919**			PrepDate:			Analyst: **CEI**
Specific Conductance	14000	0.10	0.10		umhos/cm	1	12/12/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *10-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-49-275-188
Lab Order:	N009140	**Collection Date:**	12/11/2012 11:08:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009140-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121212E**	QC Batch: **R86919**			PrepDate:			Analyst: **CEI**
Specific Conductance	26000	0.10	0.10		umhos/cm	1	12/12/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *10-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-49-365-188
Lab Order:	N009140	**Collection Date:**	12/11/2012 4:18:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009140-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121212E**	QC Batch: **R86919**			PrepDate:			Analyst: **CEI**
Specific Conductance	39000	0.10	0.10		umhos/cm	1	12/12/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *10-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-62-110-188
Lab Order:	N009140	**Collection Date:**	12/11/2012 3:22:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009140-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121212E**	QC Batch: **R86919**			PrepDate:			Analyst: **CEI**
Specific Conductance	9000	0.10	0.10		umhos/cm	1	12/12/2012

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *10-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-62-190-188
Lab Order:	N009140	**Collection Date:**	12/11/2012 3:30:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009140-016		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121212E**	QC Batch: **R86919**			PrepDate:			Analyst: **CEI**
Specific Conductance	18000	0.10	0.10		umhos/cm	1	12/12/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *10-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-68-180-188
Lab Order:	N009140	**Collection Date:**	12/11/2012 9:38:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009140-017		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121212E**	QC Batch: **R86919**			PrepDate:			Analyst: **CEI**
Specific Conductance	4400	0.10	0.10		umhos/cm	1	12/12/2012

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *10-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-99-188
Lab Order:	N009140	**Collection Date:**	12/11/2012 1:02:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009140-018		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121212E**	QC Batch: **R86919**			PrepDate:			Analyst: **CEI**
Specific Conductance	4400	0.10	0.10		umhos/cm	1	12/12/2012

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *10-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009140
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009140-019

Client Sample ID: PGE-07BR-188
Collection Date: 12/11/2012 4:13:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
EPA 120.1							
RunID: **WETCHEM_121212E**	QC Batch: **R86919**			PrepDate:			Analyst: **CEI**
Specific Conductance	18000	0.10	0.10		umhos/cm	1	12/12/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *10-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009140
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009140-020

Client Sample ID: TW-01-188
Collection Date: 12/11/2012 2:50:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
EPA 120.1							
RunID: **WETCHEM_121212E**	QC Batch: **R86919**			PrepDate:			Analyst: **CEI**
Specific Conductance	7300	0.10	0.10		umhos/cm	1	12/12/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

Date: *10-Jan-13*

CLIENT: CH2M HILL
Work Order: N009140
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: **N009140-011BDUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86919**
Client ID: **ZZZZZZ** Batch ID: **R86919** TestNo: **EPA 120.1** Analysis Date: **12/12/2012** SeqNo: **1497810**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	1619.000	0.10						1664	2.74	10	

Sample ID: **N009140-011BMS** SampType: **MS** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86919**
Client ID: **ZZZZZZ** Batch ID: **R86919** TestNo: **EPA 120.1** Analysis Date: **12/12/2012** SeqNo: **1497811**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	3068.000	0.20	1412	1664	99.4	75	125				

Sample ID: **N009140-011BMSD** SampType: **MSD** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86919**
Client ID: **ZZZZZZ** Batch ID: **R86919** TestNo: **EPA 120.1** Analysis Date: **12/12/2012** SeqNo: **1497812**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	3052.000	0.20	1412	1664	98.3	75	125	3068	0.523	10	

Sample ID: **LCS-R86919** SampType: **LCS** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86919**
Client ID: **LCSW** Batch ID: **R86919** TestNo: **EPA 120.1** Analysis Date: **12/12/2012** SeqNo: **1497835**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	1449.000	0.10	1412	0	103	85	115				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

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CLIENT: CH2M HILL
Work Order: N009140
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: **LCS-R86921** SampType: **LCS** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86921**
Client ID: **LCSW** Batch ID: **R86921** TestNo: **EPA 120.1** Analysis Date: **12/12/2012** SeqNo: **1497836**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	10250.000	0.10	9992	0	103	85	115				

Sample ID: **N009140-004BDUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86921**
Client ID: **ZZZZZZ** Batch ID: **R86921** TestNo: **EPA 120.1** Analysis Date: **12/12/2012** SeqNo: **1497841**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	11720.000	0.10						11740	0.171	10	

Sample ID: **N009140-004BMS** SampType: **MS** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86921**
Client ID: **ZZZZZZ** Batch ID: **R86921** TestNo: **EPA 120.1** Analysis Date: **12/12/2012** SeqNo: **1497842**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	22460.000	0.20	9992	11740	107	75	125				

Sample ID: **N009140-004BMSD** SampType: **MSD** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86921**
Client ID: **ZZZZZZ** Batch ID: **R86921** TestNo: **EPA 120.1** Analysis Date: **12/12/2012** SeqNo: **1497843**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	22440.000	0.20	9992	11740	107	75	125	22460	0.0891	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: *10-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-25-188
Lab Order:	N009140	**Collection Date:**	12/11/2012 11:21:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009140-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **WETCHEM_121213C**	QC Batch: **41498**			PrepDate:	**12/13/2012**		Analyst: **QBM**
Total Dissolved Solids (Residue, Filterable)	970	10	10		mg/L	1	12/13/2012

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

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Date: *10-Jan-13*

CLIENT: CH2M HILL
Work Order: N009140
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.1_2540C_W

Sample ID: **MB-41498** SampType: **MBLK** TestCode: **160.1_2540C_** Units: **mg/L** Prep Date: **12/13/2012** RunNo: **86707**
Client ID: **PBW** Batch ID: **41498** TestNo: **SM2540C** Analysis Date: **12/13/2012** SeqNo: **1489110**

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-41498** SampType: **LCS** TestCode: **160.1_2540C_** Units: **mg/L** Prep Date: **12/13/2012** RunNo: **86707**
Client ID: **LCSW** Batch ID: **41498** TestNo: **SM2540C** Analysis Date: **12/13/2012** SeqNo: **1489111**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	989.000	10	1000	0	98.9	80	120				

Sample ID: **N009141-008DDUP** SampType: **DUP** TestCode: **160.1_2540C_** Units: **mg/L** Prep Date: **12/13/2012** RunNo: **86707**
Client ID: **ZZZZZZ** Batch ID: **41498** TestNo: **SM2540C** Analysis Date: **12/13/2012** SeqNo: **1489118**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	118.000	10						109.0	7.93	5	R

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

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ANALYTICAL RESULTS

Print Date: *10-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-10-188
Lab Order:	N009140	**Collection Date:**	12/10/2012 11:48:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009140-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121215A**	QC Batch: **R86871**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	150	1.2	5.0		mg/L	1	12/15/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/15/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/15/2012
Alkalinity, Total (As CaCO3)	150	1.2	5.0		mg/L	1	12/15/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *10-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-22-188
Lab Order:	N009140	**Collection Date:**	12/10/2012 1:32:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009140-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121215A**	QC Batch: **R86871**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	640	1.2	5.0		mg/L	1	12/15/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/15/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/15/2012
Alkalinity, Total (As CaCO3)	640	1.2	5.0		mg/L	1	12/15/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *10-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-43-025-188
Lab Order:	N009140	**Collection Date:**	12/10/2012 10:00:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009140-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121215A**	QC Batch: **R86871**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	220	1.2	5.0		mg/L	1	12/15/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/15/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/15/2012
Alkalinity, Total (As CaCO3)	220	1.2	5.0		mg/L	1	12/15/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *10-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009140
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009140-004

Client Sample ID: MW-43-075-188
Collection Date: 12/10/2012 10:10:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121215A**	QC Batch: **R86871**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	490	1.2	5.0		mg/L	1	12/15/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/15/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/15/2012
Alkalinity, Total (As CaCO3)	490	1.2	5.0		mg/L	1	12/15/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *10-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-43-090-188
Lab Order:	N009140	**Collection Date:**	12/10/2012 12:04:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009140-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121215A**	QC Batch: **R86871**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	370	1.2	5.0		mg/L	1	12/15/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/15/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/15/2012
Alkalinity, Total (As CaCO3)	370	1.2	5.0		mg/L	1	12/15/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *10-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-62-065-188
Lab Order:	N009140	**Collection Date:**	12/10/2012 3:01:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009140-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121215A**	QC Batch: **R86871**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	110	1.2	5.0		mg/L	1	12/15/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/15/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/15/2012
Alkalinity, Total (As CaCO3)	110	1.2	5.0		mg/L	1	12/15/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *10-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-66-230-188
Lab Order:	N009140	**Collection Date:**	12/10/2012 1:16:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009140-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121215A**	QC Batch: **R86871**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	32	1.2	5.0		mg/L	1	12/15/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/15/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/15/2012
Alkalinity, Total (As CaCO3)	32	1.2	5.0		mg/L	1	12/15/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *10-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-67-225-188
Lab Order:	N009140	**Collection Date:**	12/10/2012 3:07:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009140-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121215A**	QC Batch: **R86871**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	140	1.2	5.0		mg/L	1	12/15/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/15/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/15/2012
Alkalinity, Total (As CaCO3)	140	1.2	5.0		mg/L	1	12/15/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *10-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-100-188
Lab Order:	N009140	**Collection Date:**	12/11/2012 9:23:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009140-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121215A**	QC Batch: **R86871**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	110	1.2	5.0		mg/L	1	12/15/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/15/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/15/2012
Alkalinity, Total (As CaCO3)	110	1.2	5.0		mg/L	1	12/15/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *10-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-13-188
Lab Order:	N009140	**Collection Date:**	12/11/2012 12:38:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009140-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121215A**	QC Batch: **R86871**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	73	1.2	5.0		mg/L	1	12/15/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/15/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/15/2012
Alkalinity, Total (As CaCO3)	73	1.2	5.0		mg/L	1	12/15/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *10-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009140
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009140-011

Client Sample ID: MW-25-188
Collection Date: 12/11/2012 11:21:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121215A**	QC Batch: **R86871**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	160	1.2	5.0		mg/L	1	12/15/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/15/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/15/2012
Alkalinity, Total (As CaCO3)	160	1.2	5.0		mg/L	1	12/15/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *10-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-49-135-188
Lab Order:	N009140	**Collection Date:**	12/11/2012 9:33:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009140-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121215A**	QC Batch: **R86871**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	69	1.2	5.0		mg/L	1	12/15/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/15/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/15/2012
Alkalinity, Total (As CaCO3)	69	1.2	5.0		mg/L	1	12/15/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *10-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-49-275-188
Lab Order:	N009140	**Collection Date:**	12/11/2012 11:08:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009140-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121215A**	QC Batch: **R86871**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	35	1.2	5.0		mg/L	1	12/15/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/15/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/15/2012
Alkalinity, Total (As CaCO3)	35	1.2	5.0		mg/L	1	12/15/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *10-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-49-365-188
Lab Order:	N009140	**Collection Date:**	12/11/2012 4:18:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009140-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121215A**	QC Batch: **R86871**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	32	1.2	5.0		mg/L	1	12/15/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/15/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/15/2012
Alkalinity, Total (As CaCO3)	32	1.2	5.0		mg/L	1	12/15/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *10-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-62-110-188
Lab Order:	N009140	**Collection Date:**	12/11/2012 3:22:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009140-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121215A**	QC Batch: **R86871**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	82	1.2	5.0		mg/L	1	12/15/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/15/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/15/2012
Alkalinity, Total (As CaCO3)	82	1.2	5.0		mg/L	1	12/15/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *10-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-62-190-188
Lab Order:	N009140	**Collection Date:**	12/11/2012 3:30:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009140-016		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121215A**	QC Batch: **R86871**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	44	1.2	5.0		mg/L	1	12/15/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/15/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/15/2012
Alkalinity, Total (As CaCO3)	44	1.2	5.0		mg/L	1	12/15/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *10-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-68-180-188
Lab Order:	N009140	**Collection Date:**	12/11/2012 9:38:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009140-017		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121215A**	QC Batch: **R86871**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	75	1.2	5.0		mg/L	1	12/15/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/15/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/15/2012
Alkalinity, Total (As CaCO3)	75	1.2	5.0		mg/L	1	12/15/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *10-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009140
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009140-018

Client Sample ID: MW-99-188
Collection Date: 12/11/2012 1:02:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121215A**	QC Batch: **R86871**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	75	1.2	5.0		mg/L	1	12/15/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/15/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/15/2012
Alkalinity, Total (As CaCO3)	75	1.2	5.0		mg/L	1	12/15/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *10-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	PGE-07BR-188
Lab Order:	N009140	**Collection Date:**	12/11/2012 4:13:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009140-019		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121215A**	QC Batch: **R86871**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/15/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/15/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/15/2012
Alkalinity, Total (As CaCO3)	ND	1.2	5.0		mg/L	1	12/15/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *10-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	TW-01-188
Lab Order:	N009140	**Collection Date:**	12/11/2012 2:50:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009140-020		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121215A**	QC Batch: **R86871**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	110	1.2	5.0		mg/L	1	12/15/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/15/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/15/2012
Alkalinity, Total (As CaCO3)	110	1.2	5.0		mg/L	1	12/15/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

Date: *10-Jan-13*

CLIENT: CH2M HILL
Work Order: N009140
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **LCS-R86871** SampType: **LCS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86871**
Client ID: **LCSW** Batch ID: **R86871** TestNo: **SM 2320 B** Analysis Date: **12/15/2012** SeqNo: **1496337**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	94.624	5.0	100.0	0	94.6	85	115				
Alkalinity, Total (As CaCO3)	101.075	5.0	100.0	0	101	85	115				

Sample ID: **MB-R86871** SampType: **MBLK** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86871**
Client ID: **PBW** Batch ID: **R86871** TestNo: **SM 2320 B** Analysis Date: **12/15/2012** SeqNo: **1496338**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	2.151	5.0									
Alkalinity, Carbonate (As CaCO3)	ND	5.0									
Alkalinity, Hydroxide (As CaCO3)	ND	5.0									
Alkalinity, Total (As CaCO3)	2.151	5.0									

Sample ID: **N009140-003BDUP** SampType: **DUP** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86871**
Client ID: **ZZZZZZ** Batch ID: **R86871** TestNo: **SM 2320 B** Analysis Date: **12/15/2012** SeqNo: **1496342**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	216.129	5.0						217.2	0.496	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)	216.129	5.0						217.2	0.496	30	

Sample ID: **N009140-008BMS** SampType: **MS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86871**
Client ID: **ZZZZZZ** Batch ID: **R86871** TestNo: **SM 2320 B** Analysis Date: **12/15/2012** SeqNo: **1496348**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	239.785	5.0	100.0	139.8	100	75	125				
Alkalinity, Total (As CaCO3)	239.785	5.0	100.0	139.8	100	75	125				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

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CLIENT: CH2M HILL
Work Order: N009140
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **N009140-008BMSD** SampType: **MSD** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86871**
Client ID: **ZZZZZZ** Batch ID: **R86871** TestNo: **SM 2320 B** Analysis Date: **12/15/2012** SeqNo: **1496349**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	243.011	5.0	100.0	139.8	103	75	125	239.8	1.34	20	
Alkalinity, Total (As CaCO3)	243.011	5.0	100.0	139.8	103	75	125	239.8	1.34	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: *10-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009140
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009140-001

Client Sample ID: MW-10-188
Collection Date: 12/10/2012 11:48:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_121214A** QC Batch: **R86942**				PrepDate:			Analyst: **QBM**
Chloride	600	1.1	50		mg/L	100	12/14/2012 11:33 AM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_121214A** QC Batch: **R86942**				PrepDate:			Analyst: **QBM**
Fluoride	6.9	0.060	2.5		mg/L	5	12/14/2012 05:23 PM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_121214A** QC Batch: **R86942**				PrepDate:			Analyst: **QBM**
Sulfate	290	1.8	25		mg/L	50	12/14/2012 10:46 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *10-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-22-188
Lab Order:	N009140	**Collection Date:**	12/10/2012 1:32:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009140-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121214A** QC Batch: **R86942** PrepDate: Analyst: **QBM**							
Chloride	13000	22	1000		mg/L	2000	12/14/2012 11:45 AM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121214A** QC Batch: **R86942** PrepDate: Analyst: **QBM**							
Sulfate	2800	7.0	100		mg/L	200	12/14/2012 10:58 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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ANALYTICAL RESULTS

Print Date: *10-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009140
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009140-003

Client Sample ID: MW-43-025-188
Collection Date: 12/10/2012 10:00:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121214A** QC Batch: **R86942** PrepDate: Analyst: **QBM**							
Chloride	110	0.22	10		mg/L	20	12/14/2012 11:56 AM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121214A** QC Batch: **R86942** PrepDate: Analyst: **QBM**							
Sulfate	280	0.70	10		mg/L	20	12/14/2012 11:56 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *10-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-43-075-188
Lab Order:	N009140	**Collection Date:**	12/10/2012 10:10:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009140-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121214A** QC Batch: **R86942** PrepDate: Analyst: **QBM**							
Chloride	3400	11	500		mg/L	1000	12/14/2012 12:08 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121214A** QC Batch: **R86942** PrepDate: Analyst: **QBM**							
Sulfate	1300	7.0	100		mg/L	200	12/14/2012 11:21 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *10-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-43-090-188
Lab Order:	N009140	**Collection Date:**	12/10/2012 12:04:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009140-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121214A** QC Batch: **R86942** PrepDate: Analyst: **QBM**							
Chloride	5600	11	500		mg/L	1000	12/14/2012 12:54 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121214A** QC Batch: **R86942** PrepDate: Analyst: **QBM**							
Sulfate	1800	7.0	100		mg/L	200	12/14/2012 12:43 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *10-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009140
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009140-006

Client Sample ID: MW-62-065-188
Collection Date: 12/10/2012 3:01:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121214A** QC Batch: **R86942** PrepDate: Analyst: **QBM**							
Chloride	1900	5.5	250		mg/L	500	12/14/2012 01:18 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121214A** QC Batch: **R86942** PrepDate: Analyst: **QBM**							
Sulfate	410	1.8	25		mg/L	50	12/14/2012 01:06 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: *10-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-66-230-188
Lab Order:	N009140	**Collection Date:**	12/10/2012 1:16:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009140-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121214A** QC Batch: **R86942** PrepDate: Analyst: **QBM**							
Chloride	6600	11	500		mg/L	1000	12/14/2012 01:41 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121214A** QC Batch: **R86942** PrepDate: Analyst: **QBM**							
Sulfate	1100	3.5	50		mg/L	100	12/14/2012 01:29 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *10-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-67-225-188
Lab Order:	N009140	**Collection Date:**	12/10/2012 3:07:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009140-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_121214A**	QC Batch: **R86942**			PrepDate:			Analyst: **QBM**
Chloride	1800	5.5	250		mg/L	500	12/14/2012 02:16 PM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_121214A**	QC Batch: **R86942**			PrepDate:			Analyst: **QBM**
Sulfate	1100	3.5	50		mg/L	100	12/14/2012 01:53 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *10-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009140
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009140-009

Client Sample ID: MW-100-188
Collection Date: 12/11/2012 9:23:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_121214A**	QC Batch: **R86942**			PrepDate:			Analyst: **QBM**
Chloride	2000	5.5	250		mg/L	500	12/14/2012 04:02 PM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_121214A**	QC Batch: **R86942**			PrepDate:			Analyst: **QBM**
Sulfate	870	3.5	50		mg/L	100	12/14/2012 02:28 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *10-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009140
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009140-010

Client Sample ID: MW-13-188
Collection Date: 12/11/2012 12:38:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121214A** QC Batch: **R86942** PrepDate: Analyst: **QBM**							
Chloride	510	1.1	50		mg/L	100	12/14/2012 06:53 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121214A** QC Batch: **R86942** PrepDate: Analyst: **QBM**							
Sulfate	150	0.70	10		mg/L	20	12/14/2012 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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ANALYTICAL RESULTS

Print Date: *10-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009140
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009140-011

Client Sample ID: MW-25-188
Collection Date: 12/11/2012 11:21:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121214A** QC Batch: **R86942** PrepDate: Analyst: **QBM**							
Bromide	ND	0.026	0.50		mg/L	1	12/14/2012 06:30 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121214A** QC Batch: **R86942** PrepDate: Analyst: **QBM**							
Chloride	340	0.55	25		mg/L	50	12/14/2012 07:17 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121214A** QC Batch: **R86942** PrepDate: Analyst: **QBM**							
Sulfate	140	0.35	5.0		mg/L	10	12/14/2012 07:05 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: *10-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009140
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009140-012

Client Sample ID: MW-49-135-188
Collection Date: 12/11/2012 9:33:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121214A** QC Batch: **R86942** PrepDate: Analyst: **QBM**							
Chloride	4600	11	500		mg/L	1000	12/14/2012 08:50 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121214A** QC Batch: **R86942** PrepDate: Analyst: **QBM**							
Sulfate	730	3.5	50		mg/L	100	12/14/2012 08:27 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *10-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-49-275-188
Lab Order:	N009140	**Collection Date:**	12/11/2012 11:08:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009140-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121214A** QC Batch: **R86942** PrepDate: Analyst: **QBM**							
Chloride	9200	22	1000		mg/L	2000	12/14/2012 09:25 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121214A** QC Batch: **R86942** PrepDate: Analyst: **QBM**							
Sulfate	1400	7.0	100		mg/L	200	12/14/2012 09:13 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *10-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009140
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009140-014

Client Sample ID: MW-49-365-188
Collection Date: 12/11/2012 4:18:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121214A** QC Batch: **R86942** PrepDate: Analyst: **QBM**							
Chloride	14000	55	2500		mg/L	5000	12/14/2012 10:11 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121214A** QC Batch: **R86942** PrepDate: Analyst: **QBM**							
Sulfate	1200	3.5	50		mg/L	100	12/14/2012 10:00 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: *10-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009140
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009140-015

Client Sample ID: MW-62-110-188
Collection Date: 12/11/2012 3:22:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121214A** QC Batch: **R86942** PrepDate: Analyst: **QBM**							
Chloride	2700	5.5	250		mg/L	500	12/14/2012 10:35 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121214A** QC Batch: **R86942** PrepDate: Analyst: **QBM**							
Sulfate	540	1.8	25		mg/L	50	12/14/2012 10:23 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *10-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-62-190-188
Lab Order:	N009140	**Collection Date:**	12/11/2012 3:30:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009140-016		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121214A** QC Batch: **R86942** PrepDate: Analyst: **QBM**							
Chloride	6300	11	500		mg/L	1000	12/14/2012 10:58 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121214A** QC Batch: **R86942** PrepDate: Analyst: **QBM**							
Sulfate	730	3.5	50		mg/L	100	12/14/2012 10:46 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *10-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009140
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009140-017

Client Sample ID: MW-68-180-188
Collection Date: 12/11/2012 9:38:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121214A** QC Batch: **R86942** PrepDate: Analyst: **QBM**							
Chloride	830	2.2	100		mg/L	200	12/14/2012 11:21 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121214A** QC Batch: **R86942** PrepDate: Analyst: **QBM**							
Sulfate	990	7.0	100		mg/L	200	12/14/2012 11:21 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *10-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-99-188
Lab Order:	N009140	**Collection Date:**	12/11/2012 1:02:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009140-018		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_121214A**	QC Batch: **R86942**			PrepDate:			Analyst: **QBM**
Chloride	840	1.1	50		mg/L	100	12/14/2012 11:33 PM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_121214A**	QC Batch: **R86942**			PrepDate:			Analyst: **QBM**
Sulfate	1000	3.5	50		mg/L	100	12/14/2012 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: *10-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009140
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009140-019

Client Sample ID: PGE-07BR-188
Collection Date: 12/11/2012 4:13:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121214A** QC Batch: **R86942** PrepDate: Analyst: **QBM**							
Chloride	6700	22	1000		mg/L	2000	12/15/2012 12:31 AM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121214A** QC Batch: **R86942** PrepDate: Analyst: **QBM**							
Sulfate	690	3.5	50		mg/L	100	12/15/2012 12:20 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *10-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	TW-01-188
Lab Order:	N009140	**Collection Date:**	12/11/2012 2:50:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009140-020		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121214A** QC Batch: **R86942** PrepDate: Analyst: **QBM**							
Chloride	1900	5.5	250		mg/L	500	12/15/2012 12:54 AM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121214A** QC Batch: **R86942** PrepDate: Analyst: **QBM**							
Sulfate	860	3.5	50		mg/L	100	12/15/2012 12:43 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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Advanced Technology Laboratories, Inc.

Date: *10-Jan-13*

CLIENT: CH2M HILL
Work Order: N009140
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_BRPGE

Sample ID: **MB-R86942_BR** SampType: **MBLK** TestCode: **300_W_BRP** Units: **mg/L** Prep Date: RunNo: **86942**
Client ID: **PBW** Batch ID: **R86942** TestNo: **EPA 300.0** Analysis Date: **12/14/2012** SeqNo: **1499471**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	ND	0.50									

Sample ID: **LCS-R86942_BR** SampType: **LCS** TestCode: **300_W_BRP** Units: **mg/L** Prep Date: RunNo: **86942**
Client ID: **LCSW** Batch ID: **R86942** TestNo: **EPA 300.0** Analysis Date: **12/14/2012** SeqNo: **1499472**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	2.631	0.50	2.500	0	105	90	110				

Sample ID: **N009140-011BDUP** SampType: **DUP** TestCode: **300_W_BRP** Units: **mg/L** Prep Date: RunNo: **86942**
Client ID: **ZZZZZZ** Batch ID: **R86942** TestNo: **EPA 300.0** Analysis Date: **12/14/2012** SeqNo: **1499482**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	0.288	0.50						0.2850	0	20	

Sample ID: **N009140-011BMS** SampType: **MS** TestCode: **300_W_BRP** Units: **mg/L** Prep Date: RunNo: **86942**
Client ID: **ZZZZZZ** Batch ID: **R86942** TestNo: **EPA 300.0** Analysis Date: **12/14/2012** SeqNo: **1499483**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	2.602	0.50	2.500	0.2850	92.7	80	120				

Sample ID: **N009140-011BMSD** SampType: **MSD** TestCode: **300_W_BRP** Units: **mg/L** Prep Date: RunNo: **86942**
Client ID: **ZZZZZZ** Batch ID: **R86942** TestNo: **EPA 300.0** Analysis Date: **12/14/2012** SeqNo: **1499484**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	2.549	0.50	2.500	0.2850	90.6	80	120	2.602	2.06	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

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CLIENT: CH2M HILL
Work Order: N009140
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **MB-R86942_CL** SampType: **MBLK** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86942**
Client ID: **PBW** Batch ID: **R86942** TestNo: **EPA 300.0** Analysis Date: **12/14/2012** SeqNo: **1499519**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.50									

Sample ID: **LCS-R86942_CL** SampType: **LCS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86942**
Client ID: **LCSW** Batch ID: **R86942** TestNo: **EPA 300.0** Analysis Date: **12/14/2012** SeqNo: **1499520**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.593	0.50	2.500	0	104	90	110				

Sample ID: **N009140-005BDUP** SampType: **DUP** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86942**
Client ID: **ZZZZZZ** Batch ID: **R86942** TestNo: **EPA 300.0** Analysis Date: **12/14/2012** SeqNo: **1499533**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	5416.000	500						5625	3.79	20	

Sample ID: **N009140-006BMS** SampType: **MS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86942**
Client ID: **ZZZZZZ** Batch ID: **R86942** TestNo: **EPA 300.0** Analysis Date: **12/14/2012** SeqNo: **1499535**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	3186.500	250	1250	1857	106	80	120				

Sample ID: **N009140-006BMSD** SampType: **MSD** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86942**
Client ID: **ZZZZZZ** Batch ID: **R86942** TestNo: **EPA 300.0** Analysis Date: **12/14/2012** SeqNo: **1499536**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	3193.500	250	1250	1857	107	80	120	3186	0.219	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: N009140
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **N009140-012BMS** SampType: **MS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86942**
Client ID: **ZZZZZZ** Batch ID: **R86942** TestNo: **EPA 300.0** Analysis Date: **12/14/2012** SeqNo: **1499544**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	7463.000	500	2500	4633	113	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: N009140
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_FPGE

Sample ID: **MB-R86942_F** SampType: **MBLK** TestCode: **300_W_FPGE** Units: **mg/L** Prep Date: RunNo: **86942**
Client ID: **PBW** Batch ID: **R86942** TestNo: **EPA 300.0** Analysis Date: **12/14/2012** SeqNo: **1499495**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	ND	0.50									

Sample ID: **LCS-R86942_F** SampType: **LCS** TestCode: **300_W_FPGE** Units: **mg/L** Prep Date: RunNo: **86942**
Client ID: **LCSW** Batch ID: **R86942** TestNo: **EPA 300.0** Analysis Date: **12/14/2012** SeqNo: **1499496**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	2.581	0.50	2.500	0	103	90	110				

Sample ID: **N009140-001BDUP** SampType: **DUP** TestCode: **300_W_FPGE** Units: **mg/L** Prep Date: RunNo: **86942**
Client ID: **ZZZZZZ** Batch ID: **R86942** TestNo: **EPA 300.0** Analysis Date: **12/14/2012** SeqNo: **1499504**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	7.005	2.5						6.930	1.08	20	

Sample ID: **N009140-001BMS** SampType: **MS** TestCode: **300_W_FPGE** Units: **mg/L** Prep Date: RunNo: **86942**
Client ID: **ZZZZZZ** Batch ID: **R86942** TestNo: **EPA 300.0** Analysis Date: **12/14/2012** SeqNo: **1499505**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	20.230	2.5	12.50	6.930	106	80	120				

Sample ID: **N009140-001BMSD** SampType: **MSD** TestCode: **300_W_FPGE** Units: **mg/L** Prep Date: RunNo: **86942**
Client ID: **ZZZZZZ** Batch ID: **R86942** TestNo: **EPA 300.0** Analysis Date: **12/14/2012** SeqNo: **1499506**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	20.095	2.5	12.50	6.930	105	80	120	20.23	0.670	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: N009140
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **MB-R86942_SO4** SampType: **MBLK** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86942**
Client ID: **PBW** Batch ID: **R86942** TestNo: **EPA 300.0** Analysis Date: **12/14/2012** SeqNo: **1499563**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID: **LCS-R86942_SO4** SampType: **LCS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86942**
Client ID: **LCSW** Batch ID: **R86942** TestNo: **EPA 300.0** Analysis Date: **12/14/2012** SeqNo: **1499564**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	5.178	0.50	5.000	0	104	90	110				

Sample ID: **N009140-005BDUP** SampType: **DUP** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86942**
Client ID: **ZZZZZZ** Batch ID: **R86942** TestNo: **EPA 300.0** Analysis Date: **12/14/2012** SeqNo: **1499577**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	1766.400	100						1835	3.79	20	

Sample ID: **N009140-006BMS** SampType: **MS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86942**
Client ID: **ZZZZZZ** Batch ID: **R86942** TestNo: **EPA 300.0** Analysis Date: **12/14/2012** SeqNo: **1499578**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	676.250	25	250.0	414.2	105	80	120				

Sample ID: **N009140-006BMSD** SampType: **MSD** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86942**
Client ID: **ZZZZZZ** Batch ID: **R86942** TestNo: **EPA 300.0** Analysis Date: **12/14/2012** SeqNo: **1499579**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	682.550	25	250.0	414.2	107	80	120	676.2	0.927	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: N009140
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **N009140-012BMS** SampType: **MS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86942**
Client ID: **ZZZZZZ** Batch ID: **R86942** TestNo: **EPA 300.0** Analysis Date: **12/14/2012** SeqNo: **1499587**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	1230.500	50	500.0	728.4	100	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *10-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009140
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009140-001

Client Sample ID: MW-10-188
Collection Date: 12/10/2012 11:48:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121228B**	QC Batch: **41561**				PrepDate: **12/18/2012**		Analyst: **CEI**
Barium	46	0.36	3.0		ug/L	1	12/28/2012 07:21 PM
Beryllium	ND	0.12	1.0		ug/L	1	12/28/2012 07:21 PM
Cadmium	ND	0.37	3.0		ug/L	1	12/28/2012 07:21 PM
Calcium	81000	75	500		ug/L	1	12/28/2012 07:21 PM
Cobalt	ND	0.37	3.0		ug/L	1	12/28/2012 07:21 PM
Copper	ND	2.2	5.0		ug/L	1	12/28/2012 07:21 PM
Iron	ND	7.2	20		ug/L	1	12/28/2012 07:21 PM
Lead	ND	1.6	10		ug/L	1	1/3/2013 03:09 PM
Magnesium	12000	13	100		ug/L	1	12/28/2012 07:21 PM
Nickel	ND	0.70	5.0		ug/L	1	12/28/2012 07:21 PM
Silver	ND	0.39	3.0		ug/L	1	12/28/2012 07:21 PM
Sodium	450000	3700	25000		ug/L	50	12/28/2012 10:52 AM
Vanadium	26	0.31	3.0		ug/L	1	12/28/2012 07:21 PM
Zinc	100	1.4	10		ug/L	1	12/28/2012 07:21 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *10-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009140
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009140-002

Client Sample ID: MW-22-188
Collection Date: 12/10/2012 1:32:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121228B**	QC Batch: **41561**				PrepDate: **12/18/2012**		Analyst: **CEI**
Barium	99	0.72	6.0		ug/L	2	12/28/2012 10:25 PM
Beryllium	ND	0.24	2.0		ug/L	2	12/28/2012 10:25 PM
Cadmium	ND	0.74	6.0		ug/L	2	12/28/2012 10:25 PM
Calcium	1100000	370	2500		ug/L	5	12/28/2012 11:22 PM
Cobalt	ND	0.74	6.0		ug/L	2	12/28/2012 10:25 PM
Copper	10	4.3	10		ug/L	2	12/28/2012 10:25 PM
Iron	15000	14	40		ug/L	2	12/28/2012 10:25 PM
Lead	ND	8.0	50		ug/L	5	1/3/2013 04:10 PM
Magnesium	280000	65	500		ug/L	5	12/28/2012 11:22 PM
Nickel	ND	1.4	10		ug/L	2	12/28/2012 10:25 PM
Silver	18	0.78	6.0		ug/L	2	12/28/2012 10:25 PM
Sodium	7100000	15000	100000		ug/L	200	12/28/2012 09:42 AM
Vanadium	ND	0.62	6.0		ug/L	2	12/28/2012 10:25 PM
Zinc	ND	2.7	20		ug/L	2	12/28/2012 10:25 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: *10-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009140
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009140-003

Client Sample ID: MW-43-025-188
Collection Date: 12/10/2012 10:00:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121228B**	QC Batch: **41561**				PrepDate: **12/18/2012**		Analyst: **CEI**
Calcium	85000	75	500		ug/L	1	12/28/2012 07:31 PM
Iron	2900	7.2	20		ug/L	1	12/28/2012 07:31 PM
Magnesium	40000	13	100		ug/L	1	12/28/2012 07:31 PM
Sodium	110000	370	2500		ug/L	5	12/28/2012 09:45 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: *10-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-43-075-188
Lab Order:	N009140	**Collection Date:**	12/10/2012 10:10:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009140-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121228B**	QC Batch: **41561**				PrepDate: **12/18/2012**		Analyst: **CEI**
Calcium	410000	75	500		ug/L	1	12/28/2012 07:38 PM
Iron	3300	7.2	20		ug/L	1	12/28/2012 07:38 PM
Magnesium	58000	13	100		ug/L	1	12/28/2012 07:38 PM
Sodium	2400000	7300	50000		ug/L	100	12/28/2012 09:47 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: *10-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009140
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009140-005

Client Sample ID: MW-43-090-188
Collection Date: 12/10/2012 12:04:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_130109A**	QC Batch: **41561**				PrepDate: **12/18/2012**		Analyst: **CEI**
Calcium	520000	150	1000		ug/L	2	1/9/2013 11:08 AM
Iron	2500	7.2	20		ug/L	1	12/28/2012 07:43 PM
Magnesium	190000	13	100		ug/L	1	12/28/2012 07:43 PM
Sodium	3100000	7300	50000		ug/L	100	12/28/2012 09:50 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *10-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009140
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009140-006

Client Sample ID: MW-62-065-188
Collection Date: 12/10/2012 3:01:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121228B**	QC Batch: **41561**			PrepDate:	**12/18/2012**		Analyst: **CEI**
Calcium	210000	75	500		ug/L	1	12/28/2012 07:49 PM
Iron	ND	7.2	20		ug/L	1	12/28/2012 07:49 PM
Magnesium	24000	13	100		ug/L	1	12/28/2012 07:49 PM
Sodium	1100000	3700	25000		ug/L	50	12/28/2012 10:45 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: *10-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009140
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009140-007

Client Sample ID: MW-66-230-188
Collection Date: 12/10/2012 1:16:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121228B**	QC Batch: **41561**				PrepDate: **12/18/2012**		Analyst: **CEI**
Calcium	430000	75	500		ug/L	1	12/28/2012 07:55 PM
Iron	ND	7.2	20		ug/L	1	12/28/2012 07:55 PM
Magnesium	5900	13	100		ug/L	1	12/28/2012 07:55 PM
Sodium	4100000	15000	100000		ug/L	200	12/28/2012 10:47 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: *10-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009140
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009140-008

Client Sample ID: MW-67-225-188
Collection Date: 12/10/2012 3:07:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121228B**	QC Batch: **41561**				PrepDate: **12/18/2012**		Analyst: **CEI**
Calcium	160000	75	500		ug/L	1	12/28/2012 08:02 PM
Iron	ND	7.2	20		ug/L	1	12/28/2012 08:02 PM
Magnesium	8700	13	100		ug/L	1	12/28/2012 08:02 PM
Sodium	1500000	3700	25000		ug/L	50	12/28/2012 10:50 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *10-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009140
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009140-009

Client Sample ID: MW-100-188
Collection Date: 12/11/2012 9:23:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121228B**	QC Batch: **41561**			PrepDate:	**12/18/2012**		Analyst: **CEI**
Calcium	300000	75	500		ug/L	1	12/28/2012 08:19 PM
Iron	ND	7.2	20		ug/L	1	12/28/2012 08:19 PM
Magnesium	21000	13	100		ug/L	1	12/28/2012 08:19 PM
Sodium	1300000	3700	25000		ug/L	50	12/28/2012 10:06 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: *10-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009140
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009140-010

Client Sample ID: MW-13-188
Collection Date: 12/11/2012 12:38:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121228B**	QC Batch: **41561**				PrepDate: **12/18/2012**		Analyst: **CEI**
Calcium	90000	75	500		ug/L	1	12/28/2012 08:24 PM
Iron	ND	7.2	20		ug/L	1	12/28/2012 08:24 PM
Magnesium	12000	13	100		ug/L	1	12/28/2012 08:24 PM
Sodium	280000	730	5000		ug/L	10	12/28/2012 10:09 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *10-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009140
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009140-011

Client Sample ID: MW-25-188
Collection Date: 12/11/2012 11:21:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_130103B**	QC Batch: **41561**				PrepDate: **12/18/2012**		Analyst: **CEI**
Boron	380	14	100		ug/L	1	1/3/2013 04:06 PM
Calcium	90000	75	500		ug/L	1	12/28/2012 08:30 PM
Iron	37	7.2	20		ug/L	1	12/28/2012 08:30 PM
Magnesium	19000	13	100		ug/L	1	12/28/2012 08:30 PM
Potassium	7900	16	2500		ug/L	5	12/28/2012 10:11 AM
Sodium	200000	370	2500		ug/L	5	12/28/2012 10:11 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *10-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009140
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009140-012

Client Sample ID: MW-49-135-188
Collection Date: 12/11/2012 9:33:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121228B**	QC Batch: **41561**				PrepDate: **12/18/2012**		Analyst: **CEI**
Calcium	290000	75	500		ug/L	1	12/28/2012 08:35 PM
Iron	8100	7.2	20		ug/L	1	12/28/2012 08:35 PM
Magnesium	29000	13	100		ug/L	1	12/28/2012 08:35 PM
Sodium	2200000	7300	50000		ug/L	100	12/28/2012 11:14 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: *10-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-49-275-188
Lab Order:	N009140	**Collection Date:**	12/11/2012 11:08:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009140-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121228B**	QC Batch: **41561**				PrepDate: **12/18/2012**		Analyst: **CEI**
Calcium	210000	150	1000		ug/L	2	12/28/2012 11:06 PM
Iron	55	14	40		ug/L	2	12/28/2012 11:06 PM
Magnesium	5700	26	200		ug/L	2	12/28/2012 11:06 PM
Sodium	5600000	15000	100000		ug/L	200	12/28/2012 10:18 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *10-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009140
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009140-014

Client Sample ID: MW-49-365-188
Collection Date: 12/11/2012 4:18:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121228B**	QC Batch: **41561**			PrepDate:	**12/18/2012**		Analyst: **CEI**
Calcium	340000	370	2500		ug/L	5	12/28/2012 11:28 PM
Iron	150	36	100		ug/L	5	12/28/2012 11:28 PM
Magnesium	8900	65	500		ug/L	5	12/28/2012 11:28 PM
Sodium	8900000	37000	250000		ug/L	500	12/28/2012 10:21 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *10-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009140
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009140-015

Client Sample ID: MW-62-110-188
Collection Date: 12/11/2012 3:22:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121228B**	QC Batch: **41561**				PrepDate: **12/18/2012**		Analyst: **CEI**
Calcium	170000	75	500		ug/L	1	12/28/2012 08:52 PM
Iron	ND	7.2	20		ug/L	1	12/28/2012 08:52 PM
Magnesium	8200	13	100		ug/L	1	12/28/2012 08:52 PM
Sodium	1600000	3700	25000		ug/L	50	12/28/2012 10:24 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *10-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009140
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009140-016

Client Sample ID: MW-62-190-188
Collection Date: 12/11/2012 3:30:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121228B**	QC Batch: **41561**				PrepDate: **12/18/2012**		Analyst: **CEI**
Calcium	320000	150	1000		ug/L	2	12/28/2012 11:17 PM
Iron	46	14	40		ug/L	2	12/28/2012 11:17 PM
Magnesium	12000	26	200		ug/L	2	12/28/2012 11:17 PM
Sodium	4200000	15000	100000		ug/L	200	12/28/2012 10:26 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *10-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009140
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009140-017

Client Sample ID: MW-68-180-188
Collection Date: 12/11/2012 9:38:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121228B**	QC Batch: **41561**			PrepDate:	**12/18/2012**		Analyst: **CEI**
Calcium	370000	75	500		ug/L	1	12/28/2012 09:04 PM
Iron	ND	7.2	20		ug/L	1	12/28/2012 09:04 PM
Magnesium	39000	13	100		ug/L	1	12/28/2012 09:04 PM
Sodium	560000	3700	25000		ug/L	50	12/28/2012 10:29 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *10-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009140
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009140-018

Client Sample ID: MW-99-188
Collection Date: 12/11/2012 1:02:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121228B**	QC Batch: **41561**			PrepDate:	**12/18/2012**		Analyst: **CEI**
Calcium	370000	75	500		ug/L	1	12/28/2012 09:10 PM
Iron	ND	7.2	20		ug/L	1	12/28/2012 09:10 PM
Magnesium	38000	13	100		ug/L	1	12/28/2012 09:10 PM
Sodium	550000	3700	25000		ug/L	50	12/28/2012 10:31 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *10-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	PGE-07BR-188
Lab Order:	N009140	**Collection Date:**	12/11/2012 4:13:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009140-019		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121228B**	QC Batch: **41561**				PrepDate: **12/18/2012**		Analyst: **CEI**
Calcium	330000	75	500		ug/L	1	12/28/2012 09:27 PM
Iron	1700	7.2	20		ug/L	1	12/28/2012 09:27 PM
Magnesium	13000	13	100		ug/L	1	12/28/2012 09:27 PM
Sodium	4200000	15000	100000		ug/L	200	12/28/2012 10:40 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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ANALYTICAL RESULTS

Print Date: *10-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009140
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009140-020

Client Sample ID: TW-01-188
Collection Date: 12/11/2012 2:50:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121228B**	QC Batch: **41561**			PrepDate:	**12/18/2012**		Analyst: **CEI**
Calcium	300000	75	500		ug/L	1	12/28/2012 09:33 PM
Iron	ND	7.2	20		ug/L	1	12/28/2012 09:33 PM
Magnesium	21000	13	100		ug/L	1	12/28/2012 09:33 PM
Sodium	1300000	3700	25000		ug/L	50	12/28/2012 10:42 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

Date: *10-Jan-13*

CLIENT: CH2M HILL
Work Order: N009140
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **MB-41561** SampType: **MBLK** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/18/2012** RunNo: **86904**
Client ID: **PBW** Batch ID: **41561** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/28/2012** SeqNo: **1497336**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	ND	500									
Sodium	ND	500									

Sample ID: **LCS-41561** SampType: **LCS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/18/2012** RunNo: **86904**
Client ID: **LCSW** Batch ID: **41561** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/28/2012** SeqNo: **1497337**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	2597.176	500	2500	0	104	85	115				
Sodium	27850.404	500	25000	0	111	85	115				

Sample ID: **N009140-001A-MS** SampType: **MS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/18/2012** RunNo: **86904**
Client ID: **ZZZZZZ** Batch ID: **41561** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/28/2012** SeqNo: **1497366**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	14434.045	5000	5000	9169	105	75	125				

Sample ID: **N009140-001A-MSD** SampType: **MSD** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/18/2012** RunNo: **86904**
Client ID: **ZZZZZZ** Batch ID: **41561** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/28/2012** SeqNo: **1497367**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	14629.415	5000	5000	9169	109	75	125	14430	1.34	20	

Sample ID: **N009140-001A-MS** SampType: **MS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/18/2012** RunNo: **86904**
Client ID: **ZZZZZZ** Batch ID: **41561** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/28/2012** SeqNo: **1497404**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	535462.745	25000	100000	454500	81.0	75	125				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

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CLIENT: CH2M HILL
Work Order: N009140
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **N009140-001A-MSD** SampType: **MSD** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/18/2012** RunNo: **86904**
Client ID: **ZZZZZZ** Batch ID: **41561** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/28/2012** SeqNo: **1497405**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	545162.586	25000	100000	454500	90.7	75	125	535500	1.80	20	

Sample ID: **MB-41561** SampType: **MBLK** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/18/2012** RunNo: **86905**
Client ID: **PBW** Batch ID: **41561** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/28/2012** SeqNo: **1497481**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	ND	3.0									
Beryllium	ND	1.0									
Cadmium	ND	3.0									
Calcium	ND	500									
Cobalt	ND	3.0									
Copper	ND	5.0									
Iron	ND	20									
Magnesium	ND	100									
Nickel	ND	5.0									
Silver	ND	3.0									
Vanadium	ND	3.0									
Zinc	ND	10									

Sample ID: **LCS-41561** SampType: **LCS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/18/2012** RunNo: **86905**
Client ID: **LCSW** Batch ID: **41561** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/28/2012** SeqNo: **1497482**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	51.350	3.0	50.00	0	103	85	115				
Beryllium	9.543	1.0	10.00	0	95.4	85	115				
Cadmium	9.545	3.0	10.00	0	95.5	85	115				
Calcium	930.205	500	1000	0	93.0	85	115				
Cobalt	10.100	3.0	10.00	0	101	85	115				
Copper	9.540	5.0	10.00	0	95.4	85	115				
Iron	104.900	20	100.0	0	105	85	115				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

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CLIENT: CH2M HILL
Work Order: N009140
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **LCS-41561** SampType: **LCS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/18/2012** RunNo: **86905**
Client ID: **LCSW** Batch ID: **41561** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/28/2012** SeqNo: **1497482**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Magnesium	952.104	100	1000	0	95.2	85	115				
Nickel	51.598	5.0	50.00	0	103	85	115				
Silver	9.739	3.0	10.00	0	97.4	85	115				
Vanadium	10.325	3.0	10.00	0	103	85	115				
Zinc	51.592	10	50.00	0	103	85	115				

Sample ID: **N009140-001A-MS** SampType: **MS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/18/2012** RunNo: **86905**
Client ID: **ZZZZZZ** Batch ID: **41561** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/28/2012** SeqNo: **1497504**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	93.050	3.0	50.00	45.58	94.9	75	125				
Beryllium	8.750	1.0	10.00	0	87.5	75	125				
Cadmium	7.727	3.0	10.00	0	77.3	75	125				
Calcium	79769.867	500	1000	81300	-153	75	125				S
Cobalt	8.915	3.0	10.00	0	89.1	75	125				
Copper	12.307	5.0	10.00	2.357	99.5	75	125				
Iron	106.688	20	100.0	8.870	97.8	75	125				
Magnesium	12705.192	100	1000	12190	51.2	75	125				S
Nickel	47.085	5.0	50.00	0	94.2	75	125				
Silver	10.340	3.0	10.00	1.770	85.7	75	125				
Vanadium	36.131	3.0	10.00	26.47	96.7	75	125				
Zinc	80.868	10	50.00	102.5	-43.2	75	125				S

Sample ID: **N009140-001A-MSD** SampType: **MSD** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/18/2012** RunNo: **86905**
Client ID: **ZZZZZZ** Batch ID: **41561** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/28/2012** SeqNo: **1497505**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	92.268	3.0	50.00	45.58	93.4	75	125	93.05	0.843	20	
Beryllium	8.732	1.0	10.00	0	87.3	75	125	8.750	0.216	20	
Cadmium	7.866	3.0	10.00	0	78.7	75	125	7.727	1.78	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: N009140
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **N009140-001A-MSD** SampType: **MSD** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/18/2012** RunNo: **86905**
Client ID: **ZZZZZZ** Batch ID: **41561** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/28/2012** SeqNo: **1497505**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	77882.565	500	1000	81300	-342	75	125	79770	2.39	20	S
Cobalt	9.000	3.0	10.00	0	90.0	75	125	8.915	0.956	20	
Copper	12.355	5.0	10.00	2.357	100	75	125	12.31	0.389	20	
Iron	105.503	20	100.0	8.870	96.6	75	125	106.7	1.12	20	
Magnesium	12424.749	100	1000	12190	23.2	75	125	12710	2.23	20	S
Nickel	47.480	5.0	50.00	0	95.0	75	125	47.08	0.836	20	
Silver	10.941	3.0	10.00	1.770	91.7	75	125	10.34	5.65	20	
Vanadium	35.552	3.0	10.00	26.47	90.9	75	125	36.13	1.61	20	
Zinc	52.296	10	50.00	102.5	-100	75	125	80.87	42.9	20	SR

Sample ID: **MB-41561** SampType: **MBLK** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/18/2012** RunNo: **86957**
Client ID: **PBW** Batch ID: **41561** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **1/3/2013** SeqNo: **1500095**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	ND	100									
Lead	ND	10									

Sample ID: **LCS-41561** SampType: **LCS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/18/2012** RunNo: **86957**
Client ID: **LCSW** Batch ID: **41561** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **1/3/2013** SeqNo: **1500096**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	861.000	100	1000	0	86.1	85	115				
Lead	47.902	10	50.00	0	95.8	85	115				

Sample ID: **N009140-001A-MS** SampType: **MS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/18/2012** RunNo: **86957**
Client ID: **ZZZZZZ** Batch ID: **41561** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **1/3/2013** SeqNo: **1500100**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	1519.833	100	1000	890.0	63.0	75	125				S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

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CLIENT: CH2M HILL
Work Order: N009140
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **N009140-001A-MS** SampType: **MS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/18/2012** RunNo: **86957**
Client ID: **ZZZZZZ** Batch ID: **41561** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **1/3/2013** SeqNo: **1500100**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	58.669	10	50.00	0	117	75	125				

Sample ID: **N009140-001A-MSD** SampType: **MSD** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/18/2012** RunNo: **86957**
Client ID: **ZZZZZZ** Batch ID: **41561** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **1/3/2013** SeqNo: **1500101**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	1510.908	100	1000	890.0	62.1	75	125	1520	0.589	20	S
Lead	58.240	10	50.00	0	116	75	125	58.67	0.734	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: *10-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-10-188
Lab Order:	N009140	**Collection Date:**	12/10/2012 11:48:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009140-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121228B**	QC Batch: **41565**				PrepDate:	**12/18/2012**	Analyst: **CEI**
Antimony	ND	0.084	0.50		µg/L	1	12/28/2012 04:27 PM
Arsenic	5.4	0.035	0.10		µg/L	1	12/28/2012 04:27 PM
Manganese	ND	0.16	0.50		µg/L	1	12/28/2012 04:27 PM
Molybdenum	57	0.074	0.50		µg/L	1	12/28/2012 04:27 PM
Selenium	5.2	0.084	0.50		µg/L	1	1/8/2013 06:46 PM
Thallium	ND	0.075	0.50		µg/L	1	12/28/2012 04:27 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *10-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-22-188
Lab Order:	N009140	**Collection Date:**	12/10/2012 1:32:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009140-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121228B**	QC Batch: **41565**				PrepDate: **12/18/2012**		Analyst: **CEI**
Antimony	ND	0.084	0.50		µg/L	1	12/28/2012 04:42 PM
Arsenic	16	0.035	0.10		µg/L	1	12/28/2012 04:42 PM
Manganese	7200	8.0	25		µg/L	50	12/29/2012 12:13 AM
Molybdenum	30	0.074	0.50		µg/L	1	12/28/2012 04:42 PM
Selenium	8.3	0.084	0.50		µg/L	1	1/9/2013 04:28 PM
Thallium	ND	0.38	2.5		µg/L	5	12/28/2012 11:01 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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ANALYTICAL RESULTS

Print Date: *10-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-43-025-188
Lab Order:	N009140	**Collection Date:**	12/10/2012 10:00:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009140-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121228B**	QC Batch: **41565**			PrepDate:	**12/18/2012**		Analyst: **CEI**
Arsenic	23	0.035	0.10		µg/L	1	12/28/2012 04:47 PM
Manganese	240	0.80	2.5		µg/L	5	12/28/2012 11:12 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *10-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-43-075-188
Lab Order:	N009140	**Collection Date:**	12/10/2012 10:10:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009140-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121228B**	QC Batch: **41565**				PrepDate: **12/18/2012**		Analyst: **CEI**
Arsenic	13	0.035	0.10		µg/L	1	12/28/2012 04:52 PM
Manganese	490	0.80	2.5		µg/L	5	12/28/2012 11:27 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *10-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-43-090-188
Lab Order:	N009140	**Collection Date:**	12/10/2012 12:04:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009140-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **ICP7_121228B**	QC Batch: **41565**			PrepDate:	**12/18/2012**		Analyst: **CEI**
Arsenic	3.4	0.035	0.10		µg/L	1	12/28/2012 04:57 PM
Manganese	930	1.6	5.0		µg/L	10	12/28/2012 11:32 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *10-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-62-065-188
Lab Order:	N009140	**Collection Date:**	12/10/2012 3:01:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009140-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121228B**	QC Batch: **41565**				PrepDate: **12/18/2012**		Analyst: **CEI**
Arsenic	1.4	0.035	0.10		µg/L	1	12/28/2012 05:02 PM
Manganese	1.1	0.16	0.50		µg/L	1	12/28/2012 05:02 PM
Molybdenum	15	0.074	0.50		µg/L	1	12/28/2012 05:02 PM
Selenium	3.5	0.084	0.50		µg/L	1	1/8/2013 07:32 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *10-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-66-230-188
Lab Order:	N009140	**Collection Date:**	12/10/2012 1:16:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009140-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121228B**	QC Batch: **41565**				PrepDate:	**12/18/2012**	Analyst: **CEI**
Arsenic	6.3	0.035	0.10		µg/L	1	12/28/2012 05:07 PM
Manganese	18	0.16	0.50		µg/L	1	12/28/2012 05:07 PM
Molybdenum	84	0.074	0.50		µg/L	1	12/28/2012 05:07 PM
Selenium	12	0.084	0.50		µg/L	1	1/8/2013 07:36 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *10-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-67-225-188
Lab Order:	N009140	**Collection Date:**	12/10/2012 3:07:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009140-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121228B**	QC Batch: **41565**				PrepDate:	**12/18/2012**	Analyst: **CEI**
Arsenic	3.2	0.035	0.10		µg/L	1	12/28/2012 05:12 PM
Manganese	32	0.16	0.50		µg/L	1	12/28/2012 05:12 PM
Molybdenum	33	0.074	0.50		µg/L	1	12/28/2012 05:12 PM
Selenium	80	0.084	0.50		µg/L	1	1/8/2013 07:41 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *10-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009140
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009140-009

Client Sample ID: MW-100-188
Collection Date: 12/11/2012 9:23:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121228B**	QC Batch: **41565**				PrepDate: **12/18/2012**		Analyst: **CEI**
Manganese	1.5	0.16	0.50		µg/L	1	12/28/2012 05:26 PM
Molybdenum	15	0.074	0.50		µg/L	1	12/28/2012 05:26 PM
Selenium	24	0.084	0.50		µg/L	1	1/8/2013 07:45 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: *10-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-13-188
Lab Order:	N009140	**Collection Date:**	12/11/2012 12:38:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009140-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121228B**	QC Batch: **41565**				PrepDate: **12/18/2012**		Analyst: **CEI**
Arsenic	2.0	0.035	0.10		µg/L	1	12/28/2012 05:31 PM
Manganese	ND	0.16	0.50		µg/L	1	12/28/2012 05:31 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *10-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-25-188
Lab Order:	N009140	**Collection Date:**	12/11/2012 11:21:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009140-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121228B**	QC Batch: **41565**			PrepDate:	**12/18/2012**		Analyst: **CEI**
Arsenic	1.3	0.035	0.10		µg/L	1	12/28/2012 05:36 PM
Manganese	0.63	0.16	0.50		µg/L	1	12/28/2012 05:36 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: *10-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-49-135-188
Lab Order:	N009140	**Collection Date:**	12/11/2012 9:33:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009140-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121228B**	QC Batch: **41565**			PrepDate:	**12/18/2012**		Analyst: **CEI**
Arsenic	4.6	0.035	0.10		µg/L	1	12/28/2012 06:02 PM
Manganese	670	0.80	2.5		µg/L	5	12/28/2012 11:37 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: *10-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-49-275-188
Lab Order:	N009140	**Collection Date:**	12/11/2012 11:08:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009140-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121228B**	QC Batch: **41565**			PrepDate:	**12/18/2012**		Analyst: **CEI**
Manganese	390	0.80	2.5		µg/L	5	12/28/2012 11:42 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *10-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-49-365-188
Lab Order:	N009140	**Collection Date:**	12/11/2012 4:18:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009140-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121228B**	QC Batch: **41565**			PrepDate:	**12/18/2012**		Analyst: **CEI**
Manganese	150	0.16	0.50		µg/L	1	12/28/2012 06:12 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *10-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-62-110-188
Lab Order:	N009140	**Collection Date:**	12/11/2012 3:22:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009140-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121228B**	QC Batch: **41565**				PrepDate: **12/18/2012**		Analyst: **CEI**
Arsenic	12	0.035	0.10		µg/L	1	12/28/2012 06:17 PM
Manganese	130	0.16	0.50		µg/L	1	12/28/2012 06:17 PM
Molybdenum	46	0.074	0.50		µg/L	1	12/28/2012 06:17 PM
Selenium	3.4	0.084	0.50		µg/L	1	1/8/2013 11:23 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: *10-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009140
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009140-016

Client Sample ID: MW-62-190-188
Collection Date: 12/11/2012 3:30:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121228B**	QC Batch: **41565**			PrepDate:	**12/18/2012**		Analyst: **CEI**
Arsenic	5.8	0.035	0.10		µg/L	1	12/28/2012 06:22 PM
Manganese	710	4.0	12		µg/L	25	1/8/2013 08:47 PM
Molybdenum	82	0.074	0.50		µg/L	1	12/28/2012 06:22 PM
Selenium	3.3	0.084	0.50		µg/L	1	1/9/2013 04:37 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *10-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-68-180-188
Lab Order:	N009140	**Collection Date:**	12/11/2012 9:38:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009140-017		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121228B**	QC Batch: **41565**				PrepDate:	**12/18/2012**	Analyst: **CEI**
Arsenic	2.7	0.035	0.10		µg/L	1	12/28/2012 06:27 PM
Manganese	ND	0.16	0.50		µg/L	1	12/28/2012 06:27 PM
Molybdenum	47	0.074	0.50		µg/L	1	12/28/2012 06:27 PM
Selenium	18	0.084	0.50		µg/L	1	1/8/2013 11:31 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: *10-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-99-188
Lab Order:	N009140	**Collection Date:**	12/11/2012 1:02:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009140-018		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121228B**	QC Batch: **41565**				PrepDate:	**12/18/2012**	Analyst: **CEI**
Arsenic	2.8	0.035	0.10		µg/L	1	12/28/2012 06:32 PM
Manganese	41	0.16	0.50		µg/L	1	12/28/2012 06:32 PM
Molybdenum	47	0.074	0.50		µg/L	1	12/28/2012 06:32 PM
Selenium	25	0.084	0.50		µg/L	1	1/8/2013 11:35 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *10-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	PGE-07BR-188
Lab Order:	N009140	**Collection Date:**	12/11/2012 4:13:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009140-019		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121228B**	QC Batch: **41565**			PrepDate:	**12/18/2012**		Analyst: **CEI**
Manganese	400	0.80	2.5		µg/L	5	12/28/2012 11:52 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *10-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	TW-01-188
Lab Order:	N009140	**Collection Date:**	12/11/2012 2:50:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009140-020		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121228B**	QC Batch: **41565**				PrepDate:	**12/18/2012**	Analyst: **CEI**
Manganese	ND	0.16	0.50		µg/L	1	12/28/2012 06:42 PM
Molybdenum	15	0.074	0.50		µg/L	1	12/28/2012 06:42 PM
Selenium	23	0.084	0.50		µg/L	1	1/8/2013 11:48 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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Date: *10-Jan-13*

CLIENT: CH2M HILL
Work Order: N009140
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **MB-41565** SampType: **MBLK** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **12/18/2012** RunNo: **86934**
Client ID: **PBW** Batch ID: **41565** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/28/2012** SeqNo: **1498630**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	ND	0.50									
Arsenic	0.059	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Thallium	ND	0.50									

Sample ID: **LCS-41565** SampType: **LCS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **12/18/2012** RunNo: **86934**
Client ID: **LCSW** Batch ID: **41565** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/28/2012** SeqNo: **1498631**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	10.308	0.50	10.00	0	103	85	115				
Arsenic	10.998	0.10	10.00	0	110	85	115				
Manganese	101.164	0.50	100.0	0	101	85	115				
Molybdenum	11.375	0.50	10.00	0	114	85	115				
Thallium	10.996	0.50	10.00	0	110	85	115				

Sample ID: **N009140-001A-MS** SampType: **MS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **86934**
Client ID: **ZZZZZZ** Batch ID: **41565** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/28/2012** SeqNo: **1498660**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	10.916	0.50	10.00	0.1850	107	75	125				
Arsenic	16.510	0.10	10.00	5.434	111	75	125				
Manganese	92.566	0.50	100.0	0	92.6	75	125				
Molybdenum	66.075	0.50	10.00	56.93	91.4	75	125				
Thallium	11.050	0.50	10.00	0	110	75	125				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

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CLIENT: CH2M HILL
Work Order: N009140
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N009140-001A-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **86934**
Client ID: **ZZZZZZ** Batch ID: **41565** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/28/2012** SeqNo: **1498661**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	10.843	0.50	10.00	0.1850	107	75	125	10.92	0.670	20	
Arsenic	16.826	0.10	10.00	5.434	114	75	125	16.51	1.89	20	
Manganese	93.001	0.50	100.0	0	93.0	75	125	92.57	0.469	20	
Molybdenum	67.190	0.50	10.00	56.93	103	75	125	66.07	1.67	20	
Thallium	10.994	0.50	10.00	0	110	75	125	11.05	0.503	20	

Sample ID: **MB-41565** SampType: **MBLK** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **12/18/2012** RunNo: **87015**
Client ID: **PBW** Batch ID: **41565** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **1/8/2013** SeqNo: **1502131**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	ND	0.50									

Sample ID: **LCS-41565** SampType: **LCS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **12/18/2012** RunNo: **87015**
Client ID: **LCSW** Batch ID: **41565** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **1/8/2013** SeqNo: **1502132**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	9.269	0.50	10.00	0	92.7	85	115				

Sample ID: **N009140-001A-MS** SampType: **MS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **12/18/2012** RunNo: **87015**
Client ID: **ZZZZZZ** Batch ID: **41565** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **1/8/2013** SeqNo: **1502136**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	14.337	0.50	10.00	5.169	91.7	75	125				

Sample ID: **N009140-001A-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **12/18/2012** RunNo: **87015**
Client ID: **ZZZZZZ** Batch ID: **41565** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **1/8/2013** SeqNo: **1502137**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	13.916	0.50	10.00	5.169	87.5	75	125	14.34	2.98	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *10-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-10-188
Lab Order:	N009140	**Collection Date:**	12/10/2012 11:48:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009140-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED MERCURY BY COLD VAPOR TECHNIQUE							
EPA 7470A							
RunID: **AA1_121219A**	QC Batch: **41569**			PrepDate:	**12/18/2012**		Analyst: **CEI**
Mercury	ND	0.028	0.20		µg/L	1	12/19/2012

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *10-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-22-188
Lab Order:	N009140	**Collection Date:**	12/10/2012 1:32:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009140-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED MERCURY BY COLD VAPOR TECHNIQUE							
EPA 7470A							
RunID: **AA1_121219A**	QC Batch: **41569**			PrepDate: **12/18/2012**			Analyst: **CEI**
Mercury	ND	0.028	0.20		µg/L	1	12/19/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

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Advanced Technology Laboratories, Inc.

Date: *10-Jan-13*

CLIENT: CH2M HILL
Work Order: N009140
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 7470_W_DISSPGE

Sample ID: **LCS-41569** SampType: **LCS** TestCode: **7470_W_DIS** Units: **µg/L** Prep Date: **12/18/2012** RunNo: **86798**
Client ID: **LCSW** Batch ID: **41569** TestNo: **EPA 7470A** Analysis Date: **12/19/2012** SeqNo: **1493289**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	4.736	0.20	5.000	0	94.7	85	115				

Sample ID: **MB-41569** SampType: **MBLK** TestCode: **7470_W_DIS** Units: **µg/L** Prep Date: **12/18/2012** RunNo: **86798**
Client ID: **PBW** Batch ID: **41569** TestNo: **EPA 7470A** Analysis Date: **12/19/2012** SeqNo: **1493290**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.20									

Sample ID: **N009045-001A-MS** SampType: **MS** TestCode: **7470_W_DIS** Units: **µg/L** Prep Date: **12/18/2012** RunNo: **86798**
Client ID: **ZZZZZZ** Batch ID: **41569** TestNo: **EPA 7470A** Analysis Date: **12/19/2012** SeqNo: **1493292**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	4.794	0.20	5.000	0	95.9	75	125				

Sample ID: **N009045-001A-MSD** SampType: **MSD** TestCode: **7470_W_DIS** Units: **µg/L** Prep Date: **12/18/2012** RunNo: **86798**
Client ID: **ZZZZZZ** Batch ID: **41569** TestNo: **EPA 7470A** Analysis Date: **12/19/2012** SeqNo: **1493293**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	4.846	0.20	5.000	0	96.9	75	125	4.794	1.08	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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CH2MHILL

CHAIN OF CUSTODY RECORD

12/11/2012 4:52:44 PM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.01
Task Order
Project 2012-GMP-188-Q4
Turnaround Time 10 Days
Shipping Date: 12/11/2012
COC Number: 24

N009140

	DATE	TIME	Matrix	Arsenic (6020A) Field Filtered	Metals (SW6010B/SW6020Adis) Field Filtered Ca,Mg,K,Na,B,Fe,Mn	Metals (SW6010B/SW6020Adis) Field Filtered Ca,Mg,Na,Fe,Mn	Metals (SW6010B/SW6020Adis) Field Filtered Mo,Se	Metals (SW6010B/SW6020Adis) Field Filtered T22:SbAsBaBeCdCoCuPbHgMo	Specific Conductance (E120.1)	Anions (E300.0) Bromide,Chloride,Sulfate	Anions (E300.0) Chloride,Sulfate	Anions (E300.0) Chloride,Sulfate,Fluoride	TDS (SM2540C)	Alkalinity (SM2320B)	Number of Containers	COMMENTS
Container:				1x500 ml Poly	1x500 ml Poly	1x500 ml Poly	1x500 ml Poly	1x500 ml Poly	2x1 Liter	2x1 Liter	2x1 Liter	2x1 Liter	2x1 Liter	2x1 Liter		
Preservatives:				HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	4°C	4°C	4°C	4°C	4°C	4°C		
Filtered:				Field	Field	Field	Field	Field	NA	NA	NA	NA	NA	NA		
Holding Time:				180	180	180	180	180	7	7	7	7	7	7		
MW-10-188	12/10/2012	11:48	Water			X		X	X			X		X	3	
MW-22-188	12/10/2012	13:32	Water	X		X		X	X		X			X	3	
MW-43-025-188	12/10/2012	10:00	Water	X		X			X		X			X	3	
MW-43-075-188	12/10/2012	10:10	Water	X		X			X		X			X	3	
MW-43-090-188	12/10/2012	12:04	Water	X		X			X		X			X	3	
MW-62-065-188	12/10/2012	15:01	Water	X		X	X		X		X			X	3	
MW-66-230-188	12/10/2012	13:16	Water	X		X	X		X		X			X	3	
MW-67-225-188	12/10/2012	15:07	Water	X		X	X		X		X			X	3	
MW-100-188	12/11/2012	9:23	Water			X	X		X		X			X	3	
MW-13-188	12/11/2012	12:38	Water	X		X			X		X			X	3	
MW-25-188	12/11/2012	11:21	Water	X	X				X	X			X	X	3	
MW-49-135-188	12/11/2012	9:33	Water	X		X			X		X			X	3	
MW-49-275-188	12/11/2012	11:08	Water			X			X		X			X	3	
MW-49-365-188	12/11/2012	16:18	Water			X			X		X			X	3	

	Signatures	Date/Time
Approved by		12-11-12 1655
Sampled by		
Relinquished by		
Received by		
Relinquished by		12/11/12 1655
Received by		12/11/12 1900

Shipping Details
Method of Shipment: courier
On Ice: ~~yes~~ / no 1.8°C/2.6°C/1.2°C/3.6°C
IR #1
Airbill No:
Lab Name: ADVANCED TECHNOLOGY LABORATO
Lab Phone: (702) 307-2659

ATTN:
Sample Custody
and
Marion

Special Instructions:
Nov 5 - Dec 14, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

13

CH2MHILL

CHAIN OF CUSTODY RECORD

12/11/2012 4:52:44 PM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy

Project Number 423575.MP.02.GM.01
Task Order
Project 2012-GMP-188-Q4
Turnaround Time 10 Days
Shipping Date: 12/11/2012
COC Number: 24

			Container:	1x500 ml Poly	1x500 ml Poly	1x500 ml Poly	1x500 ml Poly	1x500 ml Poly	2x1 Liter	2x1 Liter	2x1 Liter	2x1 Liter	2x1 Liter	2x1 Liter			
			Preservatives:	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	4°C	4°C	4°C	4°C	4°C	4°C			
			Filtered:	Field	Field	Field	Field	Field	NA	NA	NA	NA	NA	NA			
			Holding Time:	180	180	180	180	180	7	7	7	7	7	7			
	DATE	TIME	Matrix	Arsenic (6020A) Field Filtered	Metals (SW6010B/SW6020Adis) Field Filtered Ca,Mg,K,Na,B,Fe,Mn	Metals (SW6010B/SW6020Adis) Field Filtered Ca,Mg,Na,Fe,Mn	Metals (SW6010B/SW6020Adis) Field Filtered Mo,Se	Metals (SW6010B/SW6020Adis) Field Filtered T22:SbAsBaBeCdCoCuPbHgMo	Specific Conductance (E120.1)	Anions (E300.0) Bromide,Chloride,Sulfate	Anions (E300.0) Chloride,Sulfate	Anions (E300.0) Chloride,Sulfate,Fluoride	TDS (SM2540C)	Alkalinity (SM2320B)		Number of Containers	COMMENTS
MW-62-110-188	12/11/2012	15:22	Water	X		X	X		X		X			X		3	
MW-62-190-188	12/11/2012	15:30	Water	X		X	X		X		X			X		3	
MW-68-180-188	12/11/2012	9:38	Water	X		X	X		X		X			X		3	
MW-99-188	12/11/2012	13:02	Water	X		X	X		X		X			X		3	
PGE-07BR-188	12/11/2012	16:13	Water			X			X		X			X		3	
TW-01-188	12/11/2012	14:50	Water			X	X		X		X			X		3	
															TOTAL NUMBER OF CONTAINERS	60	

	Signatures	Date/Time
Approved by		12-11-12 1655
Sampled by		
Relinquished by		
Received by		12/11/12 1655
Relinquished by		12/11/12 1900
Received by		

Shipping Details

Method of Shipment: courier
On Ice: ~~yes~~ / no 1.8°C/2.6°C/1.2°C/3.6°C
Airbill No: 1041
Lab Name: ADVANCED TECHNOLOGY LABORATO
Lab Phone: (702) 307-2659

ATTN:
Sample Custody
and
Marion

Special Instructions:
Nov 5 - Dec 14, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

Advanced Technology Laboratories, Inc.

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	12/11/2012	Workorder:	N009140
Rep sample Temp (Deg C):	1.8/2.6/1.2/3.6	IR Gun ID:	1
Temp Blank:	☐ Yes ☑ No		
Carrier name:	ATL		
Last 4 digits of Tracking No.:	na	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments:

Checklist Completed B MBC 12/12/12

Reviewed By:

SAMPLE CALCULATION

METHOD: SM 2540C
TEST NAME: Total Filterable Residue
MATRIX: Water

FORMULA:

Calculate TDS concentration in mg/L, in the original sample as follows:

$$\text{TDS, mg/L} = \frac{(A-B)*1000000}{C}$$

Where:

A = weight in g of dish + residue after drying
B = weight of dish in g
C = volume of sample used in mL

N009140 - 011B Analyst

For ~~**N009049-001E**~~**,** TDS concentration in mg/L is calculated as follows:

$$\text{TDS, mg/L} = \frac{(55.4898-55.3932)*1000000}{100}$$
$$= 966 \text{ mg/L}$$

Reporting result in two significant figures,

970 Analyst

TDS = ~~966~~ mg/L

TOTAL DISSOLVED SOLIDS, TDS

TDS, mg/L = (A-B) X 1000000 / C

WHERE:
A = weight in grams of dish + residue after drying
B = weight of dish in grams
C = volume of sample used in mL

Date Started: 12/10/2012								TDS/CONDUCTIVITY
Date Finished: 12/14/2012	vol	initial	final	calc	prep fact	TDS, mg/L	CONDUCTIVITY	RATIO
MB-41498	100	61.2471	61.2468	-3	1	-3.00		
LCS-41498	100	53.9436	54.0425	989	1	989.00		
N009140-011B	100	55.3932	55.4898	966	1	966.00	1542	0.63
N009141-001D	60	53.8214	53.9136	922	1.6666667	1536.67	2430	0.63
N009141-002D	60	56.1436	56.2344	908	1.6666667	1513.33	2570	0.59
N009141-004D	100	56.0713	56.1105	392	1	392.00	779	0.50
N009141-006D	100	53.6751	53.6896	145	1	145.00	307	0.47
N009141-008D	100	60.027	60.0379	109	1	109.00	224	0.49
N009141-008D DUP	100	61.2614	61.2732	118	1	118.00	226	0.52
N009144-001D	100	64.2877	64.3511	634	1	634.00	918	0.69

Sample ID: **N009140-001B @ pH 7.80**

A. Standardization of Sulfuric Acid (titrant):

Normality of acid = (A)(B)/(53.00)(C)

Where:

A, grams weighed for Na_2CO_3 solution (Na_2CO_3 Standardization Solution)
B, mL Na2CO3 solution taken for titration, and
C, ml of sulfuric acid used to inflection point

Spike Standards

Na_2CO_3 Standardization Solution, ACS Grade (1.00 ml = 2500ug as $CaCO_3$):
Dissolve 2.650 grams of Na_2CO_3 in distilled water and dilute to 1 liter.

LCS/MS/MSD Stock $NaHCO_3$, ACS Grade (1.00 ml = 5000 ug as $CaCO_3$):
Dissolve 0.8398 grams of $NaHCO_3$ in distilled water and dilute to 1 liter.

Therefore,

Normality of Acid = (2.65g/L) (5mL) / (53.00) (11.625mL)

= **0.02151 N**

B. CALCULATION OF ALKALINITY (for a 50 ml sample)

Total Alkalinity (as $CaCO_3$), mg/L = $M_{vol.}$ * N H_2SO_4 * DF * 1000

Where:

$M_{vol.}$, volume titrant used to reach pH 4.5, ml
N, Normality of H_2SO_4
DF, Dilution Factor = (50 ml) / (Vol. of Sample used)

Therefore,

Total Alkalinity (as $CaCO_3$), mg/L = (7.00) (0.02151N) (1) * 1000

= 150.57 **mg/L**

Reporting results in two significant figures,

= 150 **mg/L** as CaCO3

NS for
1/4/13

C. SPECIATED ALKALINITY:

Phenolphthalein Alkalinity

P alkalinity, mg/L as $CaCO_3$ = $P_{vol.}$ * N H_2SO_4 * DF * 1000

= (0) (0.02151 N) (1) * 1000

= **0**

Total Alkalinity

T alkalinity, mg/L as $CaCO_3$ = $M_{vol.}$ * N H_2SO_4 * DF * 1000

= (7.00 mL) (0.02151) (1) * 1000

= 150.57 **mg/L** as CaCO3

Where:

$P_{vol.}$ - volume titrant used to reach pH 8.3, ml
$M_{vol.}$ - volume titrant used to reach pH 4.5, ml
N - Normality of H_2SO_4
DF - Dilution Factor = (50 ml) / (Vol. of Sample used)

Then OH, CO_3, HCO_3 alkalinities as $CaCO_3$ will be calculated as follows:

Result of Titration	**OH Alkalinity as $CaCO_3$**	**CO_3 Alkalinity as $CaCO_3$**	**HCO_3 Alkalinity as $CaCO_3$**
P = 0	0	0	T
P < ½ T	0	2P	T – 2P
P = ½ T	0	2P	0
P > ½ T	2P – T	2(T – P)	0
P = T	T	0	0

Therefore,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = 150.57 **mg/L**

Reporting results in two significant figures,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = 150 **mg/L**

Sample Calculation

METHOD: EPA 300
TEST NAME: INORGANIC ANIONS BY IC
MATRIX: WATER

FORMULA:

Calculate the Chloride concentration, in mg/L, in the original sample as follows:

Chloride, mg/L = A * DF

where:

A = mg/L, IC calculated concentration
DF = dilution factor

For **N009140-001B**, concentration in mg/L are calculated as follows:

Chloride, mg/L = 5.985 * 100

= 598.5 mg/L

Reporting **N009140-001B** results in two significant figures,

Chloride, mg/L = 600

Sample Calculation

METHOD: EPA 6010
TEST NAME: Heavy Metals by ICP
MATRIX: Water

FORMULA:

Calculate the Sodium concentration, in ug/L, in the original sample as follows:

Sodium, ug/L = A * DF * PF * CF

where:

A = mg/L, calculated concentration
DF = dilution factor
PF = Final Vol. of Digestate in mL / Vol. of Sample used in mL
CF = Conversion Factor

For Sample **N009140-001A**, the concentration in ug/L is calculated as follows:

Sodium, ug/L = 9.089322602 * 50 * (25/25) * 1000

= 454466.1301 ug/L

Reporting results in two significant figures,

Sodium, ug/L = 450000

NS for 1/8/13

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N009140
Test Method: EPA 6010
Analysis Date: 12/28/12

Matrix: Water
Batch No.: 41561

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to K. The computed value is < 25X the RL. However, PS @ 10X passed criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N009140-001A DT 50X	Potassium	ug/L	6960.722935	NA	9169.329269	24.09%	10
N009140-001A DT 250X	Sodium	ug/L	444804.0755	PASSED	454466.1301	2.13%	10

Note: NA - Not Applicable

Advanced Technology Laboratories, Inc.

ICP-Metals in Water **Dilution Test Summary**

Work Order No.: N009140
Test Method: EPA 6010
Analysis Date: 12/28/12

Matrix: Water
Batch No.: 41561

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments: Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Ba, Be, Cd, Co, Cu, Fe, Ni, Ag, V & Zn. The computed value is < 25X the RL. However, PS @ 2X passed criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N009140-001A DT 5X	Barium	ug/L	49.16845267	NA	45.57501731	-7.88%	10
N009140-001A DT 5X	Beryllium	ug/L	0	NA	0	0.00%	10
N009140-001A DT 5X	Cadmium	ug/L	0	NA	0	0.00%	10
N009140-001A DT 5X	Calcium	ug/L	87139.2489	PASSED	81304.19108	-7.18%	10
N009140-001A DT 5X	Cobalt	ug/L	0	NA	0	0.00%	10
N009140-001A DT 5X	Copper	ug/L	0	NA	2.357331197	100.00%	10
N009140-001A DT 5X	Iron	ug/L	0	NA	8.870473401	100.00%	10
N009140-001A DT 5X	Magnesium	ug/L	13122.34261	PASSED	12193.2061	-7.62%	10
N009140-001A DT 5X	Nickel	ug/L	0	NA	0	0.00%	10
N009140-001A DT 5X	Silver	ug/L	2.600541354	NA	1.770218428	-46.91%	10
N009140-001A DT 5X	Vanadium	ug/L	25.81623884	NA	26.4655248	2.45%	10
N009140-001A DT 5X	Zinc	ug/L	108.523155	NA	102.4796996	-5.90%	10

Note: NA - Not Applicable

Advanced Technology Laboratories, Inc.

ICP-Metals in Water **Dilution Test Summary**

Work Order No.: N009140
Test Method: EPA 6010
Analysis Date: 01/03/13

Matrix: Water
Batch No.: 41561

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments: Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to B & Pb. The computed value is < 25X the RL. However, PS @ 2X passed criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N009140-001A DT 5X	Boron	ug/L	874.2297385	NA	889.9945612	1.77%	10
N009140-001A DT 5X	Lead	ug/L	0	NA	0	0.00%	10

Note: NA - Not Applicable

Advanced Technology Laboratories, Inc.

Date: *04-Jan-13*

CLIENT: CH2M HILL
Work Order: N009140
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **N009140-001A-PS** SampType: **PS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: RunNo: **86904**
Client ID: **ZZZZZZ** Batch ID: **41561** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/28/2012** SeqNo: **1497368**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	16222.159	5000	6250	9169	113	75	125				

Sample ID: **N009140-001A-PS** SampType: **PS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: RunNo: **86904**
Client ID: **ZZZZZZ** Batch ID: **41561** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/28/2012** SeqNo: **1497408**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	1724691.289	25000	1250000	454500	102	75	125				

Sample ID: **N009140-001A-PS** SampType: **PS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: RunNo: **86905**
Client ID: **ZZZZZZ** Batch ID: **41561** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/28/2012** SeqNo: **1497506**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	305.705	6.0	250.0	45.58	104	75	125				
Beryllium	247.782	2.0	250.0	0	99.1	75	125				
Cadmium	262.854	6.0	250.0	0	105	75	125				
Calcium	90084.612	1000	5000	81300	176	75	125				S
Cobalt	257.275	6.0	250.0	0	103	75	125				
Copper	254.206	10	250.0	2.357	101	75	125				
Iron	4886.728	40	5000	8.870	97.6	75	125				
Magnesium	17187.705	200	5000	12190	99.9	75	125				
Nickel	256.738	10	250.0	0	103	75	125				
Silver	253.332	6.0	250.0	1.770	101	75	125				
Vanadium	278.450	6.0	250.0	26.47	101	75	125				
Zinc	371.953	20	250.0	102.5	108	75	125				

Dt of Ca @ 5x is within recovery criteria. as for 1/8/13

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N009140
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **N009140-001A-PS** SampType: **PS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: RunNo: **86957**
Client ID: **ZZZZZZ** Batch ID: **41561** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **1/3/2013** SeqNo: **1500099**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	3301.179	200	2500	890.0	96.4	75	125				
Lead	232.120	20	250.0	0	92.8	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		

Sample Calculation

METHOD: EPA 6020
TEST NAME: Heavy Metals by ICP-MS
MATRIX: Aqueous

FORMULA:

Calculate the Arsenic concentration, in ug/L, in the original sample as follows:

Arsenic, ug/L = A * DF * PF

where:

A = ug/L, calculated concentration
DF = dilution factor
PF = Final Vol. of Digestate in mL / Vol. of Sample used in mL

For Sample **N009140-001A**, the concentration in ug/L is calculated as follows:

Arsenic, ug/L = 5.433862678 * 1 * (25/25)

= 5.433862678

Reporting result in two significant figures,

Arsenic, ug/L = 5.4

NS fr
1/10/13

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N009140
Test Method: EPA 6020
Analysis Date: 12/28/12

Matrix: Water
Batch No.: 41565

Instrument ID: ICP-MS #2
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Sb, Mn and Tl. The calculated values were <25X RL. PS @2X passed criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SampRefVal	%DIFF	%DIFFlimit
N009140-001A-DT 5X	Antimony	µg/L	0	NA	0.184992112	100.00%	10
N009140-001A-DT 5X	Arsenic	µg/L	5.078716201	PASSED	5.433862678	6.54%	10
N009140-001A-DT 5X	Manganese	µg/L	0	NA	0	0.00%	10
N009140-001A-DT 5X	Molybdenum	µg/L	53.17631601	PASSED	56.93290167	6.60%	10
N009140-001A-DT 5X	Thallium	µg/L	0	NA	0	0.00%	10

Note: NA - Not applicable

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N009140
Test Method: EPA 6020
Analysis Date: 01/08/13

Matrix: Water
Batch No.: 41565

Instrument ID: ICP-MS #2
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Se. The calculated value was <25X RL. PS @2X passed criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SampRefVal	%DIFF	%DIFFlimit
N009140-001A-DT 5X	Selenium	µg/L	5.620012865	NA	5.169458174	8.72%	10

Note: NA - Not applicable

Advanced Technology Laboratories, Inc.

Date: *10-Jan-13*

CLIENT: CH2M HILL
Work Order: N009140
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N009140-001A-PS** SampType: **PS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **86934**
Client ID: **ZZZZZZ** Batch ID: **41565** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/28/2012** SeqNo: **1498659**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	22.095	1.0	20.00	0.1850	110	75	125				
Arsenic	27.838	0.20	20.00	5.434	112	75	125				
Manganese	192.406	1.0	200.0	0	96.2	75	125				
Molybdenum	72.392	1.0	20.00	56.93	77.3	75	125				
Thallium	22.347	1.0	20.00	0	112	75	125				

Sample ID: **N009140-001A-PS** SampType: **PS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **87015**
Client ID: **ZZZZZZ** Batch ID: **41565** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **1/8/2013** SeqNo: **1502135**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	23.805	1.0	20.00	5.169	93.2	75	125				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Sample Calculation

METHOD: EPA 7470
TEST NAME: Mercury in Water by Cold-Vapor Technique
MATRIX: Aqueous

FORMULA:

Calculate the Mercury concentration, in ug/L, in the original sample as follows:

Mercury, ug/L = A * DF * PF * 0.5

where:

A = ug/L, calculated concentration
DF = dilution factor
PF = Final Vol. of Digestate in mL / Wt. of Sample used in mL
0.5, is the coversion factor.

For Sample **N009140-001A** the concentration in ug/L is calculated as follows:

Mercury, ug/L = -0.08 * 1 * (50/25) * 0.5

= 0.0 ug/L

Reporting results in two significant figures,

Mercury, ug/L = 0.0

Mercury, ug/L = ND

NS for
1/10/13

January 11, 2013

Shawn P. Duffy
CH2M HILL
155 Grand Avenue, Suite 1000
Oakland, CA 94612

TEL: (530) 229-3303
FAX: (530) 339-3303

CA-ELAP No.: 2676
NV Cert. No.: NV-009222007A

Workorder No.: N009167

RE: PG&E Topock, 423575.MP.02.GM.01

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on December 13, 2012 by Advanced Technology Laboratories, Inc. . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

for Jose Tenorio Jr.

Jose Tenorio Jr.
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and Advanced Technology Laboratories - Las Vegas.

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.01
Lab Order: N009167

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

Samples were received intact with proper chain of custody documentation.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Samples were analyzed within method holding time.

Analytical Comments for EPA 6010B_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for some analytes possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Dilution was necessary on sample N009167-003 since plasma was extinguished when sample was analyzed at no dilution.

Advanced Technology Laboratories, Inc. *3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691*

Advanced Technology Laboratories, Inc.

Date: *11-Jan-13*

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.01
Lab Order: N009167
Contract No: 2012-GMP-188-

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N009167-001A	MW-34-055-188	Water	12/12/2012 8:54:00 AM	12/13/2012	1/11/2013
N009167-001B	MW-34-055-188	Water	12/12/2012 8:54:00 AM	12/13/2012	1/11/2013
N009167-002A	MW-34-080-188	Water	12/12/2012 10:55:00 AM	12/13/2012	1/11/2013
N009167-002B	MW-34-080-188	Water	12/12/2012 10:55:00 AM	12/13/2012	1/11/2013
N009167-003A	MW-46-205-188	Water	12/12/2012 2:58:00 PM	12/13/2012	1/11/2013
N009167-003B	MW-46-205-188	Water	12/12/2012 2:58:00 PM	12/13/2012	1/11/2013
N009167-004A	MW-97-188	Water	12/12/2012 10:57:00 AM	12/13/2012	1/11/2013
N009167-004B	MW-97-188	Water	12/12/2012 10:57:00 AM	12/13/2012	1/11/2013
N009167-005A	MW-14-188	Water	12/13/2012 11:54:00 AM	12/13/2012	1/11/2013
N009167-005B	MW-14-188	Water	12/13/2012 11:54:00 AM	12/13/2012	1/11/2013
N009167-006A	MW-39-100-188	Water	12/13/2012 9:56:00 AM	12/13/2012	1/11/2013
N009167-006B	MW-39-100-188	Water	12/13/2012 9:56:00 AM	12/13/2012	1/11/2013
N009167-007A	MW-45-095a-188	Water	12/13/2012 8:50:00 AM	12/13/2012	1/11/2013
N009167-007B	MW-45-095a-188	Water	12/13/2012 8:50:00 AM	12/13/2012	1/11/2013
N009167-008A	MW-57-070-188	Water	12/13/2012 12:29:00 PM	12/13/2012	1/11/2013
N009167-008B	MW-57-070-188	Water	12/13/2012 12:29:00 PM	12/13/2012	1/11/2013
N009167-009A	MW-70BR-225-188	Water	12/13/2012 10:13:00 AM	12/13/2012	1/11/2013
N009167-009B	MW-70BR-225-188	Water	12/13/2012 10:13:00 AM	12/13/2012	1/11/2013
N009167-010A	MW-96-188	Water	12/13/2012 12:34:00 PM	12/13/2012	1/11/2013
N009167-010B	MW-96-188	Water	12/13/2012 12:34:00 PM	12/13/2012	1/11/2013
N009167-011A	TW-02D-188	Water	12/13/2012 12:42:00 PM	12/13/2012	1/11/2013
N009167-011B	TW-02D-188	Water	12/13/2012 12:42:00 PM	12/13/2012	1/11/2013
N009167-012A	TW-02S-188	Water	12/13/2012 12:58:00 PM	12/13/2012	1/11/2013
N009167-012B	TW-02S-188	Water	12/13/2012 12:58:00 PM	12/13/2012	1/11/2013

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *11-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-34-055-188
Lab Order:	N009167	**Collection Date:**	12/12/2012 8:54:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009167-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
EPA 120.1							
RunID: **WETCHEM_121214G**	QC Batch: **R86807**			PrepDate:			Analyst: **CEI**
Specific Conductance	980	0.10	0.10		umhos/cm	1	12/14/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *11-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-34-080-188
Lab Order:	N009167	**Collection Date:**	12/12/2012 10:55:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009167-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121214G**	QC Batch: **R86807**			PrepDate:			Analyst: **CEI**
Specific Conductance	7200	0.10	0.10		umhos/cm	1	12/14/2012

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *11-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-46-205-188
Lab Order:	N009167	**Collection Date:**	12/12/2012 2:58:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009167-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
EPA 120.1							
RunID: **WETCHEM_121214G**	QC Batch: **R86807**			PrepDate:			Analyst: **CEI**
Specific Conductance	22000	0.10	0.10		umhos/cm	1	12/14/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *11-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-97-188
Lab Order:	N009167	**Collection Date:**	12/12/2012 10:57:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009167-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121214G**	QC Batch: **R86807**			PrepDate:			Analyst: **CEI**
Specific Conductance	7200	0.10	0.10		umhos/cm	1	12/14/2012

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *11-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-14-188
Lab Order:	N009167	**Collection Date:**	12/13/2012 11:54:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009167-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121214G**	QC Batch: **R86807**			PrepDate:			Analyst: **CEI**
Specific Conductance	1700	0.10	0.10		umhos/cm	1	12/14/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *11-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-39-100-188
Lab Order:	N009167	**Collection Date:**	12/13/2012 9:56:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009167-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
EPA 120.1							
RunID: **WETCHEM_121214G**	QC Batch: **R86807**			PrepDate:			Analyst: **CEI**
Specific Conductance	17000	0.10	0.10		umhos/cm	1	12/14/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *11-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-45-095a-188
Lab Order:	N009167	**Collection Date:**	12/13/2012 8:50:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009167-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121214G**	QC Batch: **R86807**			PrepDate:			Analyst: **CEI**
Specific Conductance	9000	0.10	0.10		umhos/cm	1	12/14/2012

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *11-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-57-070-188
Lab Order:	N009167	**Collection Date:**	12/13/2012 12:29:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009167-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
EPA 120.1							
RunID: **WETCHEM_121214G**	QC Batch: **R86807**			PrepDate:			Analyst: **CEI**
Specific Conductance	2100	0.10	0.10		umhos/cm	1	12/14/2012

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *11-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-70BR-225-188
Lab Order:	N009167	**Collection Date:**	12/13/2012 10:13:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009167-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121214G**	QC Batch: **R86807**			PrepDate:			Analyst: **CEI**
Specific Conductance	14000	0.10	0.10		umhos/cm	1	12/14/2012

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *11-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-96-188
Lab Order:	N009167	**Collection Date:**	12/13/2012 12:34:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009167-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121214G**	QC Batch: **R86807**			PrepDate:			Analyst: **CEI**
Specific Conductance	2100	0.10	0.10		umhos/cm	1	12/14/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *11-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009167
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009167-011

Client Sample ID: TW-02D-188
Collection Date: 12/13/2012 12:42:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
EPA 120.1							
RunID: **WETCHEM_121214B**	QC Batch: **R86925**			PrepDate:			Analyst: **CEI**
Specific Conductance	9000	0.10	0.10		umhos/cm	1	12/14/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *11-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	TW-02S-188
Lab Order:	N009167	**Collection Date:**	12/13/2012 12:58:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009167-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121214B**	QC Batch: **R86925**			PrepDate:			Analyst: **CEI**
Specific Conductance	2400	0.10	0.10		umhos/cm	1	12/14/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

Date: *11-Jan-13*

CLIENT: CH2M HILL
Work Order: N009167
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: **LCS-R86807** SampType: **LCS** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86807**
Client ID: **LCSW** Batch ID: **R86807** TestNo: **EPA 120.1** Analysis Date: **12/14/2012** SeqNo: **1497978**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	1434.000	0.10	1412	0	102	85	115				

Sample ID: **N009167-005BDUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86807**
Client ID: **ZZZZZZ** Batch ID: **R86807** TestNo: **EPA 120.1** Analysis Date: **12/14/2012** SeqNo: **1497984**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	1676.000	0.10						1662	0.839	10	

Sample ID: **N009167-005BMS** SampType: **MS** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86807**
Client ID: **ZZZZZZ** Batch ID: **R86807** TestNo: **EPA 120.1** Analysis Date: **12/14/2012** SeqNo: **1497985**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	3124.000	0.20	1412	1662	104	75	125				

Sample ID: **N009167-005BMSD** SampType: **MSD** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86807**
Client ID: **ZZZZZZ** Batch ID: **R86807** TestNo: **EPA 120.1** Analysis Date: **12/14/2012** SeqNo: **1497986**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	3114.000	0.20	1412	1662	103	75	125	3124	0.321	10	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

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CLIENT: CH2M HILL
Work Order: N009167
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: **LCS-R86925** SampType: **LCS** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86925**
Client ID: **LCSW** Batch ID: **R86925** TestNo: **EPA 120.1** Analysis Date: **12/14/2012** SeqNo: **1497992**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	1457.000	0.10	1412	0	103	85	115				

Sample ID: **N009168-001ADUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86925**
Client ID: **ZZZZZZ** Batch ID: **R86925** TestNo: **EPA 120.1** Analysis Date: **12/14/2012** SeqNo: **1497996**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	11010.000	0.10						10950	0.546	10	

Sample ID: **N009168-001AMS** SampType: **MS** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86925**
Client ID: **ZZZZZZ** Batch ID: **R86925** TestNo: **EPA 120.1** Analysis Date: **12/14/2012** SeqNo: **1497997**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	12600.000	0.20	1412	10950	117	75	125				

Sample ID: **N009168-001AMSD** SampType: **MSD** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86925**
Client ID: **ZZZZZZ** Batch ID: **R86925** TestNo: **EPA 120.1** Analysis Date: **12/14/2012** SeqNo: **1497998**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	12560.000	0.20	1412	10950	114	75	125	12600	0.318	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: *11-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-34-055-188
Lab Order:	N009167	**Collection Date:**	12/12/2012 8:54:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009167-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **WETCHEM_121217A**	QC Batch: **41553**			PrepDate:	**12/17/2012**		Analyst: **QBM**
Total Dissolved Solids (Residue, Filterable)	630	10	10		mg/L	1	12/17/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *11-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-34-080-188
Lab Order:	N009167	**Collection Date:**	12/12/2012 10:55:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009167-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **WETCHEM_121217A**	QC Batch: **41553**			PrepDate:	**12/17/2012**		Analyst: **QBM**
Total Dissolved Solids (Residue, Filterable)	4300	50	50		mg/L	1	12/17/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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Date: *11-Jan-13*

CLIENT: CH2M HILL
Work Order: N009167
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.1_2540C_W

Sample ID: **MB-41553** SampType: **MBLK** TestCode: **160.1_2540C_** Units: **mg/L** Prep Date: **12/17/2012** RunNo: **86809**
Client ID: **PBW** Batch ID: **41553** TestNo: **SM2540C** Analysis Date: **12/17/2012** SeqNo: **1493557**

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-41553** SampType: **LCS** TestCode: **160.1_2540C_** Units: **mg/L** Prep Date: **12/17/2012** RunNo: **86809**
Client ID: **LCSW** Batch ID: **41553** TestNo: **SM2540C** Analysis Date: **12/17/2012** SeqNo: **1493559**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	997.000	10	1000	0	99.7	80	120				

Sample ID: **N009167-002B-DUP** SampType: **DUP** TestCode: **160.1_2540C_** Units: **mg/L** Prep Date: **12/17/2012** RunNo: **86809**
Client ID: **ZZZZZZ** Batch ID: **41553** TestNo: **SM2540C** Analysis Date: **12/17/2012** SeqNo: **1493562**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	4370.000	50						4300	1.61	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: *11-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-34-055-188
Lab Order:	N009167	**Collection Date:**	12/12/2012 8:54:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009167-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121218B**	QC Batch: **R86873**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	140	1.2	5.0		mg/L	1	12/18/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/18/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/18/2012
Alkalinity, Total (As CaCO3)	140	1.2	5.0		mg/L	1	12/18/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *11-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-34-080-188
Lab Order:	N009167	**Collection Date:**	12/12/2012 10:55:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009167-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121218B**	QC Batch: **R86873**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	250	1.2	5.0		mg/L	1	12/18/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/18/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/18/2012
Alkalinity, Total (As CaCO3)	250	1.2	5.0		mg/L	1	12/18/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *11-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009167
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009167-003

Client Sample ID: MW-46-205-188
Collection Date: 12/12/2012 2:58:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121218B**	QC Batch: **R86873**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	45	1.2	5.0		mg/L	1	12/18/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/18/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/18/2012
Alkalinity, Total (As CaCO3)	45	1.2	5.0		mg/L	1	12/18/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *11-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009167
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009167-004

Client Sample ID: MW-97-188
Collection Date: 12/12/2012 10:57:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121218B**	QC Batch: **R86873**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	250	1.2	5.0		mg/L	1	12/18/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/18/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/18/2012
Alkalinity, Total (As CaCO3)	250	1.2	5.0		mg/L	1	12/18/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *11-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-14-188
Lab Order:	N009167	**Collection Date:**	12/13/2012 11:54:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009167-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121218B**	QC Batch: **R86873**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	83	1.2	5.0		mg/L	1	12/18/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/18/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/18/2012
Alkalinity, Total (As CaCO3)	83	1.2	5.0		mg/L	1	12/18/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *11-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-39-100-188
Lab Order:	N009167	**Collection Date:**	12/13/2012 9:56:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009167-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121218B**	QC Batch: **R86873**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	300	1.2	5.0		mg/L	1	12/18/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/18/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/18/2012
Alkalinity, Total (As CaCO3)	300	1.2	5.0		mg/L	1	12/18/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *11-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009167
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009167-007

Client Sample ID: MW-45-095a-188
Collection Date: 12/13/2012 8:50:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121218B**	QC Batch: **R86873**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	150	1.2	5.0		mg/L	1	12/18/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/18/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/18/2012
Alkalinity, Total (As CaCO3)	150	1.2	5.0		mg/L	1	12/18/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *11-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-57-070-188
Lab Order:	N009167	**Collection Date:**	12/13/2012 12:29:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009167-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121218B**	QC Batch: **R86873**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	120	1.2	5.0		mg/L	1	12/18/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/18/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/18/2012
Alkalinity, Total (As CaCO3)	120	1.2	5.0		mg/L	1	12/18/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *11-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-70BR-225-188
Lab Order:	N009167	**Collection Date:**	12/13/2012 10:13:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009167-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121218B**	QC Batch: **R86873**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	43	1.2	5.0		mg/L	1	12/18/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/18/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/18/2012
Alkalinity, Total (As CaCO3)	43	1.2	5.0		mg/L	1	12/18/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *11-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009167
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009167-010

Client Sample ID: MW-96-188
Collection Date: 12/13/2012 12:34:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121218B**	QC Batch: **R86873**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	100	1.2	5.0		mg/L	1	12/18/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/18/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/18/2012
Alkalinity, Total (As CaCO3)	100	1.2	5.0		mg/L	1	12/18/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *11-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	TW-02D-188
Lab Order:	N009167	**Collection Date:**	12/13/2012 12:42:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009167-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121218B**	QC Batch: **R86873**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	160	1.2	5.0		mg/L	1	12/18/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/18/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/18/2012
Alkalinity, Total (As CaCO3)	160	1.2	5.0		mg/L	1	12/18/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *11-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009167
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009167-012

Client Sample ID: TW-02S-188
Collection Date: 12/13/2012 12:58:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121218B**	QC Batch: **R86873**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	82	1.2	5.0		mg/L	1	12/18/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/18/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/18/2012
Alkalinity, Total (As CaCO3)	82	1.2	5.0		mg/L	1	12/18/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

Date: *11-Jan-13*

CLIENT: CH2M HILL
Work Order: N009167
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **LCS-R86873** SampType: **LCS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86873**
Client ID: **LCSW** Batch ID: **R86873** TestNo: **SM 2320 B** Analysis Date: **12/18/2012** SeqNo: **1496465**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	93.548	5.0	100.0	0	93.5	85	115				
Alkalinity, Total (As CaCO3)	100.000	5.0	100.0	0	100	85	115				

Sample ID: **MB-R86873** SampType: **MBLK** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86873**
Client ID: **PBW** Batch ID: **R86873** TestNo: **SM 2320 B** Analysis Date: **12/18/2012** SeqNo: **1496466**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	2.151	5.0									
Alkalinity, Carbonate (As CaCO3)	ND	5.0									
Alkalinity, Hydroxide (As CaCO3)	ND	5.0									
Alkalinity, Total (As CaCO3)	2.151	5.0									

Sample ID: **N009167-004BDUP** SampType: **DUP** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86873**
Client ID: **ZZZZZZ** Batch ID: **R86873** TestNo: **SM 2320 B** Analysis Date: **12/18/2012** SeqNo: **1496471**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	245.161	5.0						246.2	0.438	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)	245.161	5.0						246.2	0.438	30	

Sample ID: **N009167-007BMS** SampType: **MS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86873**
Client ID: **ZZZZZZ** Batch ID: **R86873** TestNo: **SM 2320 B** Analysis Date: **12/18/2012** SeqNo: **1496475**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	247.312	5.0	100.0	151.6	95.7	75	125				
Alkalinity, Total (As CaCO3)	247.312	5.0	100.0	151.6	95.7	75	125				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

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CLIENT: CH2M HILL
Work Order: N009167
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **N009167-007BMSD** SampType: **MSD** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86873**
Client ID: **ZZZZZZ** Batch ID: **R86873** TestNo: **SM 2320 B** Analysis Date: **12/18/2012** SeqNo: **1496476**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	250.538	5.0	100.0	151.6	98.9	75	125	247.3	1.30	20	
Alkalinity, Total (As CaCO3)	250.538	5.0	100.0	151.6	98.9	75	125	247.3	1.30	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: *11-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009167
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009167-001

Client Sample ID: MW-34-055-188
Collection Date: 12/12/2012 8:54:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121218A** QC Batch: **R86944** PrepDate: Analyst: **QBM**							
Bromide	ND	0.026	0.50		mg/L	1	12/18/2012 11:48 AM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121218A** QC Batch: **R86944** PrepDate: Analyst: **QBM**							
Chloride	78	0.22	10		mg/L	20	12/18/2012 12:46 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121218A** QC Batch: **R86944** PrepDate: Analyst: **QBM**							
Sulfate	210	0.70	10		mg/L	20	12/18/2012 12:46 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *11-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009167
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009167-002

Client Sample ID: MW-34-080-188
Collection Date: 12/12/2012 10:55:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121218A** QC Batch: **R86944** PrepDate: Analyst: **QBM**							
Bromide	ND	0.052	1.0		mg/L	2	12/18/2012 11:59 AM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121218A** QC Batch: **R86944** PrepDate: Analyst: **QBM**							
Chloride	1800	5.5	250		mg/L	500	12/18/2012 01:09 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121218A** QC Batch: **R86944** PrepDate: Analyst: **QBM**							
Sulfate	630	3.5	50		mg/L	100	12/18/2012 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: *11-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009167
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009167-003

Client Sample ID: MW-46-205-188
Collection Date: 12/12/2012 2:58:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121218A** QC Batch: **R86944** PrepDate: Analyst: **QBM**							
Chloride	7400	22	1000		mg/L	2000	12/18/2012 03:00 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121218A** QC Batch: **R86944** PrepDate: Analyst: **QBM**							
Sulfate	870	3.5	50		mg/L	100	12/18/2012 02:49 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: *11-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-97-188
Lab Order:	N009167	**Collection Date:**	12/12/2012 10:57:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009167-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_121218A**	QC Batch: **R86944**			PrepDate:			Analyst: **QBM**
Chloride	1800	5.5	250		mg/L	500	12/18/2012 03:24 PM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_121218A**	QC Batch: **R86944**			PrepDate:			Analyst: **QBM**
Sulfate	630	1.8	25		mg/L	50	12/18/2012 03:12 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *11-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-14-188
Lab Order:	N009167	**Collection Date:**	12/13/2012 11:54:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009167-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_121218A**	QC Batch: **R86944**			PrepDate:			Analyst: **QBM**
Chloride	360	1.1	50		mg/L	100	12/18/2012 03:47 PM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_121218A**	QC Batch: **R86944**			PrepDate:			Analyst: **QBM**
Sulfate	100	0.35	5.0		mg/L	10	12/18/2012 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: *11-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-39-100-188
Lab Order:	N009167	**Collection Date:**	12/13/2012 9:56:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009167-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121218A** QC Batch: **R86944** PrepDate: Analyst: **QBM**							
Chloride	5100	11	500		mg/L	1000	12/18/2012 04:57 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121218A** QC Batch: **R86944** PrepDate: Analyst: **QBM**							
Sulfate	1500	7.0	100		mg/L	200	12/18/2012 04:45 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *11-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-45-095a-188
Lab Order:	N009167	**Collection Date:**	12/13/2012 8:50:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009167-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_121218A**	QC Batch: **R86944**			PrepDate:			Analyst: **QBM**
Chloride	2500	5.5	250		mg/L	500	12/18/2012 05:20 PM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_121218A**	QC Batch: **R86944**			PrepDate:			Analyst: **QBM**
Sulfate	690	3.5	50		mg/L	100	12/18/2012 05:09 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *11-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-57-070-188
Lab Order:	N009167	**Collection Date:**	12/13/2012 12:29:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009167-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_121218A** QC Batch: **R86944**				PrepDate:			Analyst: **QBM**
Chloride	510	1.1	50		mg/L	100	12/18/2012 05:43 PM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_121218A** QC Batch: **R86944**				PrepDate:			Analyst: **QBM**
Sulfate	98	0.35	5.0		mg/L	10	12/18/2012 05:32 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *11-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-70BR-225-188
Lab Order:	N009167	**Collection Date:**	12/13/2012 10:13:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009167-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121218A** QC Batch: **R86944** PrepDate: Analyst: **QBM**							
Chloride	4200	11	500		mg/L	1000	12/18/2012 06:07 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121218A** QC Batch: **R86944** PrepDate: Analyst: **QBM**							
Sulfate	770	3.5	50		mg/L	100	12/18/2012 05:55 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *11-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-96-188
Lab Order:	N009167	**Collection Date:**	12/13/2012 12:34:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009167-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_121218A**	QC Batch: **R86944**			PrepDate:			Analyst: **QBM**
Chloride	500	1.1	50		mg/L	100	12/18/2012 06:42 PM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_121218A**	QC Batch: **R86944**			PrepDate:			Analyst: **QBM**
Sulfate	120	0.70	10		mg/L	20	12/18/2012 08:15 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *11-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	TW-02D-188
Lab Order:	N009167	**Collection Date:**	12/13/2012 12:42:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009167-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121218A** QC Batch: **R86944** PrepDate: Analyst: **QBM**							
Chloride	2600	5.5	250		mg/L	500	12/18/2012 07:17 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121218A** QC Batch: **R86944** PrepDate: Analyst: **QBM**							
Sulfate	520	1.8	25		mg/L	50	12/18/2012 07:05 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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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *11-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009167
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009167-012

Client Sample ID: TW-02S-188
Collection Date: 12/13/2012 12:58:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121218A** QC Batch: **R86944** PrepDate: Analyst: **QBM**							
Chloride	540	1.1	50		mg/L	100	12/18/2012 07:40 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121218A** QC Batch: **R86944** PrepDate: Analyst: **QBM**							
Sulfate	170	0.70	10		mg/L	20	12/18/2012 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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Advanced Technology Laboratories, Inc.

Date: *11-Jan-13*

CLIENT: CH2M HILL
Work Order: N009167
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_BRPGE

Sample ID: **MB-R86944_BR** SampType: **MBLK** TestCode: **300_W_BRP** Units: **mg/L** Prep Date: RunNo: **86944**
Client ID: **PBW** Batch ID: **R86944** TestNo: **EPA 300.0** Analysis Date: **12/18/2012** SeqNo: **1499626**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	ND	0.50									

Sample ID: **LCS-R86944_BR** SampType: **LCS** TestCode: **300_W_BRP** Units: **mg/L** Prep Date: RunNo: **86944**
Client ID: **LCSW** Batch ID: **R86944** TestNo: **EPA 300.0** Analysis Date: **12/18/2012** SeqNo: **1499627**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	2.441	0.50	2.500	0	97.6	90	110				

Sample ID: **N009167-001BDUP** SampType: **DUP** TestCode: **300_W_BRP** Units: **mg/L** Prep Date: RunNo: **86944**
Client ID: **ZZZZZZ** Batch ID: **R86944** TestNo: **EPA 300.0** Analysis Date: **12/18/2012** SeqNo: **1499630**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	0.094	0.50						0.1010	0	20	

Sample ID: **N009167-001BMS** SampType: **MS** TestCode: **300_W_BRP** Units: **mg/L** Prep Date: RunNo: **86944**
Client ID: **ZZZZZZ** Batch ID: **R86944** TestNo: **EPA 300.0** Analysis Date: **12/18/2012** SeqNo: **1499631**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	2.289	0.50	2.500	0.1010	87.5	80	120				

Sample ID: **N009167-001BMSD** SampType: **MSD** TestCode: **300_W_BRP** Units: **mg/L** Prep Date: RunNo: **86944**
Client ID: **ZZZZZZ** Batch ID: **R86944** TestNo: **EPA 300.0** Analysis Date: **12/18/2012** SeqNo: **1499632**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	2.286	0.50	2.500	0.1010	87.4	80	120	2.289	0.131	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: N009167
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **MB-R86944_CL** SampType: **MBLK** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86944**
Client ID: **PBW** Batch ID: **R86944** TestNo: **EPA 300.0** Analysis Date: **12/18/2012** SeqNo: **1499645**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.50									

Sample ID: **LCS-R86944_CL** SampType: **LCS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86944**
Client ID: **LCSW** Batch ID: **R86944** TestNo: **EPA 300.0** Analysis Date: **12/18/2012** SeqNo: **1499646**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.346	0.50	2.500	0	93.8	90	110				

Sample ID: **N009167-001BDUP** SampType: **DUP** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86944**
Client ID: **ZZZZZZ** Batch ID: **R86944** TestNo: **EPA 300.0** Analysis Date: **12/18/2012** SeqNo: **1499651**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	79.500	10						78.32	1.50	20	

Sample ID: **N009167-001BMS** SampType: **MS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86944**
Client ID: **ZZZZZZ** Batch ID: **R86944** TestNo: **EPA 300.0** Analysis Date: **12/18/2012** SeqNo: **1499652**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	126.740	10	50.00	78.32	96.8	80	120				

Sample ID: **N009167-001BMSD** SampType: **MSD** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86944**
Client ID: **ZZZZZZ** Batch ID: **R86944** TestNo: **EPA 300.0** Analysis Date: **12/18/2012** SeqNo: **1499653**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	128.140	10	50.00	78.32	99.6	80	120	126.7	1.10	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: N009167
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **N009167-005BMS** SampType: **MS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86944**
Client ID: **ZZZZZZ** Batch ID: **R86944** TestNo: **EPA 300.0** Analysis Date: **12/18/2012** SeqNo: **1499659**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	606.400	50	250.0	359.2	98.9	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

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CLIENT: CH2M HILL
Work Order: N009167
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **MB-R86944_SO4** SampType: **MBLK** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86944**
Client ID: **PBW** Batch ID: **R86944** TestNo: **EPA 300.0** Analysis Date: **12/18/2012** SeqNo: **1499679**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID: **LCS-R86944_SO4** SampType: **LCS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86944**
Client ID: **LCSW** Batch ID: **R86944** TestNo: **EPA 300.0** Analysis Date: **12/18/2012** SeqNo: **1499680**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.909	0.50	5.000	0	98.2	90	110				

Sample ID: **N009167-001BDUP** SampType: **DUP** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86944**
Client ID: **ZZZZZZ** Batch ID: **R86944** TestNo: **EPA 300.0** Analysis Date: **12/18/2012** SeqNo: **1499685**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	216.520	10						210.7	2.74	20	

Sample ID: **N009167-001BMS** SampType: **MS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86944**
Client ID: **ZZZZZZ** Batch ID: **R86944** TestNo: **EPA 300.0** Analysis Date: **12/18/2012** SeqNo: **1499686**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	315.340	10	100.0	210.7	105	80	120				

Sample ID: **N009167-001BMSD** SampType: **MSD** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86944**
Client ID: **ZZZZZZ** Batch ID: **R86944** TestNo: **EPA 300.0** Analysis Date: **12/18/2012** SeqNo: **1499687**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	318.700	10	100.0	210.7	108	80	120	315.3	1.06	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

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CLIENT: CH2M HILL
Work Order: N009167
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **N009167-005BMS** SampType: **MS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86944**
Client ID: **ZZZZZZ** Batch ID: **R86944** TestNo: **EPA 300.0** Analysis Date: **12/18/2012** SeqNo: **1499693**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	151.030	5.0	50.00	99.64	103	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

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ANALYTICAL RESULTS

Print Date: *11-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009167
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009167-001

Client Sample ID: MW-34-055-188
Collection Date: 12/12/2012 8:54:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121231A**	QC Batch: **41562**				PrepDate: **12/21/2012**		Analyst: **CEI**
Boron	150	14	100		ug/L	1	12/31/2012 03:40 PM
Calcium	75000	75	500		ug/L	1	12/31/2012 03:40 PM
Iron	71	7.2	20		ug/L	1	12/31/2012 03:40 PM
Magnesium	20000	13	100		ug/L	1	12/31/2012 03:40 PM
Potassium	3700	16	2500		ug/L	5	12/28/2012 11:23 AM
Sodium	100000	370	2500		ug/L	5	12/28/2012 11:23 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *11-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009167
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009167-002

Client Sample ID: MW-34-080-188
Collection Date: 12/12/2012 10:55:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121231A**	QC Batch: **41562**				PrepDate: **12/21/2012**		Analyst: **CEI**
Boron	1000	14	100		ug/L	1	12/31/2012 03:45 PM
Calcium	220000	75	500		ug/L	1	12/31/2012 03:45 PM
Iron	54	7.2	20		ug/L	1	12/31/2012 03:45 PM
Magnesium	51000	13	100		ug/L	1	12/31/2012 03:45 PM
Potassium	17000	33	5000		ug/L	10	12/28/2012 01:32 PM
Sodium	1300000	3700	25000		ug/L	50	12/28/2012 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: *11-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-46-205-188
Lab Order:	N009167	**Collection Date:**	12/12/2012 2:58:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009167-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121231A**	QC Batch: **41562**				PrepDate: **12/21/2012**		Analyst: **CEI**
Calcium	110000	150	1000		ug/L	2	12/31/2012 05:59 PM
Iron	ND	14	40		ug/L	2	12/31/2012 05:59 PM
Magnesium	2900	26	200		ug/L	2	12/31/2012 05:59 PM
Sodium	4800000	15000	100000		ug/L	200	12/28/2012 11:28 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *11-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009167
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009167-004

Client Sample ID: MW-97-188
Collection Date: 12/12/2012 10:57:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121231A**	QC Batch: **41562**				PrepDate: **12/21/2012**		Analyst: **CEI**
Calcium	210000	75	500		ug/L	1	12/31/2012 04:00 PM
Iron	43	7.2	20		ug/L	1	12/31/2012 04:00 PM
Magnesium	48000	13	100		ug/L	1	12/31/2012 04:00 PM
Sodium	1300000	3700	25000		ug/L	50	12/28/2012 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: *11-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009167
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009167-005

Client Sample ID: MW-14-188
Collection Date: 12/13/2012 11:54:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121231A**	QC Batch: **41562**				PrepDate: **12/21/2012**		Analyst: **CEI**
Calcium	72000	75	500		ug/L	1	12/31/2012 04:05 PM
Iron	27	7.2	20		ug/L	1	12/31/2012 04:05 PM
Magnesium	11000	13	100		ug/L	1	12/31/2012 04:05 PM
Sodium	220000	730	5000		ug/L	10	12/28/2012 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: *11-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009167
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009167-006

Client Sample ID: MW-39-100-188
Collection Date: 12/13/2012 9:56:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121231A**	QC Batch: **41562**				PrepDate: **12/21/2012**		Analyst: **CEI**
Calcium	580000	150	1000		ug/L	2	12/31/2012 06:06 PM
Iron	ND	7.2	20		ug/L	1	12/31/2012 04:11 PM
Magnesium	86000	13	100		ug/L	1	12/31/2012 04:11 PM
Sodium	3300000	7300	50000		ug/L	100	12/28/2012 01:36 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *11-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-45-095a-188
Lab Order:	N009167	**Collection Date:**	12/13/2012 8:50:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009167-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121231A**	QC Batch: **41562**				PrepDate: **12/21/2012**		Analyst: **CEI**
Calcium	160000	75	500		ug/L	1	12/31/2012 04:20 PM
Iron	ND	7.2	20		ug/L	1	12/31/2012 04:20 PM
Magnesium	22000	13	100		ug/L	1	12/31/2012 04:20 PM
Sodium	1800000	7300	50000		ug/L	100	12/28/2012 01:38 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *11-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009167
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009167-008

Client Sample ID: MW-57-070-188
Collection Date: 12/13/2012 12:29:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121231A**	QC Batch: **41562**				PrepDate: **12/21/2012**		Analyst: **CEI**
Calcium	280000	75	500		ug/L	1	12/31/2012 04:26 PM
Iron	49	7.2	20		ug/L	1	12/31/2012 04:26 PM
Magnesium	19000	13	100		ug/L	1	12/31/2012 04:26 PM
Sodium	86000	730	5000		ug/L	10	12/28/2012 01:41 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: *11-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009167
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009167-009

Client Sample ID: MW-70BR-225-188
Collection Date: 12/13/2012 10:13:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121231A**	QC Batch: **41562**				PrepDate: **12/21/2012**		Analyst: **CEI**
Calcium	660000	150	1000		ug/L	2	12/31/2012 06:11 PM
Iron	ND	7.2	20		ug/L	1	12/31/2012 04:42 PM
Magnesium	31000	13	100		ug/L	1	12/31/2012 04:42 PM
Sodium	2400000	3700	25000		ug/L	50	12/28/2012 11:54 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *11-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009167
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009167-010

Client Sample ID: MW-96-188
Collection Date: 12/13/2012 12:34:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121231A**	QC Batch: **41562**				PrepDate: **12/21/2012**		Analyst: **CEI**
Calcium	270000	75	500		ug/L	1	12/31/2012 04:48 PM
Iron	42	7.2	20		ug/L	1	12/31/2012 04:48 PM
Magnesium	19000	13	100		ug/L	1	12/31/2012 04:48 PM
Sodium	86000	730	5000		ug/L	10	12/28/2012 11:57 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *11-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009167
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009167-011

Client Sample ID: TW-02D-188
Collection Date: 12/13/2012 12:42:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121231A**	QC Batch: **41562**				PrepDate: **12/21/2012**		Analyst: **CEI**
Calcium	250000	75	500		ug/L	1	12/31/2012 04:54 PM
Iron	79	7.2	20		ug/L	1	12/31/2012 04:54 PM
Magnesium	37000	13	100		ug/L	1	12/31/2012 04:54 PM
Sodium	1700000	3700	25000		ug/L	50	12/28/2012 11:59 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *11-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009167
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009167-012

Client Sample ID: TW-02S-188
Collection Date: 12/13/2012 12:58:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121231A**	QC Batch: **41562**				PrepDate: **12/21/2012**		Analyst: **CEI**
Calcium	85000	75	500		ug/L	1	12/31/2012 04:59 PM
Iron	ND	7.2	20		ug/L	1	12/31/2012 04:59 PM
Magnesium	20000	13	100		ug/L	1	12/31/2012 04:59 PM
Sodium	340000	730	5000		ug/L	10	12/28/2012 12:02 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

Date: *11-Jan-13*

CLIENT: CH2M HILL
Work Order: N009167
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **MB-41562** SampType: **MBLK** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/21/2012** RunNo: **86931**
Client ID: **PBW** Batch ID: **41562** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/28/2012** SeqNo: **1498128**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	ND	500									
Sodium	ND	500									

Sample ID: **LCS-41562** SampType: **LCS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/21/2012** RunNo: **86931**
Client ID: **LCSW** Batch ID: **41562** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/28/2012** SeqNo: **1498129**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	2569.493	500	2500	0	103	85	115				
Sodium	28025.734	500	25000	0	112	85	115				

Sample ID: **N009167-001A-MS** SampType: **MS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/21/2012** RunNo: **86931**
Client ID: **ZZZZZZ** Batch ID: **41562** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/28/2012** SeqNo: **1498148**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	9141.897	2500	5000	3729	108	75	125				
Sodium	191347.433	2500	100000	99800	91.5	75	125				

Sample ID: **N009167-001A-MSD** SampType: **MSD** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/21/2012** RunNo: **86931**
Client ID: **ZZZZZZ** Batch ID: **41562** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/28/2012** SeqNo: **1498151**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	9200.373	2500	5000	3729	109	75	125	9142	0.638	20	
Sodium	192573.262	2500	100000	99800	92.8	75	125	191300	0.639	20	

Sample ID: **MB-41562** SampType: **MBLK** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/21/2012** RunNo: **86958**
Client ID: **PBW** Batch ID: **41562** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/31/2012** SeqNo: **1500116**

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: N009167
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **MB-41562** SampType: **MBLK** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/21/2012** RunNo: **86958**
Client ID: **PBW** Batch ID: **41562** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/31/2012** SeqNo: **1500116**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	ND	100									
Calcium	ND	500									
Iron	ND	20									
Magnesium	ND	100									

Sample ID: **LCS-41562** SampType: **LCS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/21/2012** RunNo: **86958**
Client ID: **LCSW** Batch ID: **41562** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/31/2012** SeqNo: **1500117**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	918.379	100	1000	0	91.8	85	115				
Calcium	933.904	500	1000	0	93.4	85	115				
Iron	110.069	20	100.0	0	110	85	115				
Magnesium	979.131	100	1000	0	97.9	85	115				

Sample ID: **N009167-001A-MS** SampType: **MS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/21/2012** RunNo: **86958**
Client ID: **ZZZZZZ** Batch ID: **41562** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/31/2012** SeqNo: **1500135**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	1119.893	100	1000	145.5	97.4	75	125				
Calcium	75399.499	500	1000	74910	48.8	75	125				S
Iron	167.241	20	100.0	70.95	96.3	75	125				
Magnesium	20642.139	100	1000	19630	101	75	125				

Sample ID: **N009167-001A-MSD** SampType: **MSD** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/21/2012** RunNo: **86958**
Client ID: **ZZZZZZ** Batch ID: **41562** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/31/2012** SeqNo: **1500138**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	1118.097	100	1000	145.5	97.3	75	125	1120	0.160	20	
Calcium	72594.938	500	1000	74910	-232	75	125	75400	3.79	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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CLIENT: CH2M HILL
Work Order: N009167
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **N009167-001A-MSD** SampType: **MSD** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/21/2012** RunNo: **86958**
Client ID: **ZZZZZZ** Batch ID: **41562** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/31/2012** SeqNo: **1500138**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	165.291	20	100.0	70.95	94.3	75	125	167.2	1.17	20	
Magnesium	19873.660	100	1000	19630	24.5	75	125	20640	3.79	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: *11-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009167
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009167-001

Client Sample ID: MW-34-055-188
Collection Date: 12/12/2012 8:54:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121228C**	QC Batch: **41566**				PrepDate:	**12/21/2012**	Analyst: **CEI**
Arsenic	3.0	0.035	0.10		µg/L	1	12/28/2012 07:50 PM
Manganese	77	0.16	0.50		µg/L	1	12/28/2012 07:50 PM
Molybdenum	5.5	0.074	0.50		µg/L	1	12/28/2012 07:50 PM
Selenium	ND	0.084	0.50		µg/L	1	1/8/2013 09:29 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *11-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-34-080-188
Lab Order:	N009167	**Collection Date:**	12/12/2012 10:55:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009167-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121228C**	QC Batch: **41566**			PrepDate:	**12/21/2012**		Analyst: **CEI**
Arsenic	1.4	0.035	0.10		µg/L	1	12/28/2012 07:55 PM
Manganese	33	0.16	0.50		µg/L	1	12/28/2012 07:55 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *11-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-46-205-188
Lab Order:	N009167	**Collection Date:**	12/12/2012 2:58:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009167-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121228C**	QC Batch: **41566**			PrepDate:	**12/21/2012**		Analyst: **CEI**
Manganese	29	0.16	0.50		µg/L	1	12/28/2012 09:24 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *11-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-97-188
Lab Order:	N009167	**Collection Date:**	12/12/2012 10:57:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009167-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121228C**	QC Batch: **41566**				PrepDate: **12/21/2012**		Analyst: **CEI**
Arsenic	1.5	0.035	0.10		µg/L	1	12/28/2012 09:29 PM
Manganese	32	0.16	0.50		µg/L	1	12/28/2012 09:29 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *11-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-14-188
Lab Order:	N009167	**Collection Date:**	12/13/2012 11:54:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009167-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121228C**	QC Batch: **41566**			PrepDate:	**12/21/2012**		Analyst: **CEI**
Manganese	ND	0.16	0.50		µg/L	1	12/28/2012 09:34 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: *11-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-39-100-188
Lab Order:	N009167	**Collection Date:**	12/13/2012 9:56:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009167-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121228C**	QC Batch: **41566**				PrepDate:	**12/21/2012**	Analyst: **CEI**
Arsenic	2.2	0.035	0.10		µg/L	1	12/28/2012 09:39 PM
Manganese	17	0.16	0.50		µg/L	1	12/28/2012 09:39 PM
Molybdenum	7.8	0.074	0.50		µg/L	1	12/28/2012 09:39 PM
Selenium	1.7	0.084	0.50		µg/L	1	1/9/2013 04:41 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *11-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-45-095a-188
Lab Order:	N009167	**Collection Date:**	12/13/2012 8:50:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009167-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121228C**	QC Batch: **41566**			PrepDate:	**12/21/2012**		Analyst: **CEI**
Arsenic	3.7	0.035	0.10		µg/L	1	12/28/2012 09:44 PM
Manganese	1.5	0.16	0.50		µg/L	1	12/28/2012 09:44 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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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *11-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-57-070-188
Lab Order:	N009167	**Collection Date:**	12/13/2012 12:29:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009167-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121228C**	QC Batch: **41566**				PrepDate:	**12/21/2012**	Analyst: **CEI**
Arsenic	1.4	0.035	0.10		µg/L	1	12/28/2012 09:50 PM
Manganese	5.4	0.16	0.50		µg/L	1	12/28/2012 09:50 PM
Molybdenum	2.2	0.074	0.50		µg/L	1	12/28/2012 09:50 PM
Selenium	3.5	0.084	0.50		µg/L	1	1/8/2013 10:02 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *11-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-70BR-225-188
Lab Order:	N009167	**Collection Date:**	12/13/2012 10:13:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009167-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121228C**	QC Batch: **41566**				PrepDate:	**12/21/2012**	Analyst: **CEI**
Arsenic	1.9	0.035	0.10		µg/L	1	12/28/2012 09:55 PM
Manganese	ND	0.16	0.50		µg/L	1	12/28/2012 09:55 PM
Molybdenum	19	0.074	0.50		µg/L	1	12/28/2012 09:55 PM
Selenium	3.1	0.084	0.50		µg/L	1	1/8/2013 10:07 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *11-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009167
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009167-010

Client Sample ID: MW-96-188
Collection Date: 12/13/2012 12:34:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121228C**	QC Batch: **41566**				PrepDate: **12/21/2012**		Analyst: **CEI**
Arsenic	1.4	0.035	0.10		µg/L	1	12/28/2012 11:57 PM
Manganese	5.8	0.16	0.50		µg/L	1	12/28/2012 10:00 PM
Molybdenum	2.3	0.074	0.50		µg/L	1	12/28/2012 10:00 PM
Selenium	3.4	0.084	0.50		µg/L	1	1/8/2013 10:11 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *11-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	TW-02D-188
Lab Order:	N009167	**Collection Date:**	12/13/2012 12:42:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009167-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121228C**	QC Batch: **41566**			PrepDate:	**12/21/2012**		Analyst: **CEI**
Manganese	7.9	0.16	0.50		µg/L	1	12/28/2012 10:05 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *11-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	TW-02S-188
Lab Order:	N009167	**Collection Date:**	12/13/2012 12:58:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009167-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **ICP7_121228C**	QC Batch: **41566**			PrepDate:	**12/21/2012**		Analyst: **CEI**
Manganese	ND	0.16	0.50		µg/L	1	12/28/2012 10:11 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

Date: *11-Jan-13*

CLIENT: CH2M HILL
Work Order: N009167
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **MB-41566** SampType: **MBLK** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **12/21/2012** RunNo: **86949**
Client ID: **PBW** Batch ID: **41566** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/28/2012** SeqNo: **1499873**

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									

Sample ID: **LCS-41566** SampType: **LCS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **12/21/2012** RunNo: **86949**
Client ID: **LCSW** Batch ID: **41566** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/28/2012** SeqNo: **1499874**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	9.435	0.10	10.00	0	94.4	85	115				
Manganese	90.975	0.50	100.0	0	91.0	85	115				
Molybdenum	9.995	0.50	10.00	0	100	85	115				

Sample ID: **N009167-004A-MS** SampType: **MS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **12/21/2012** RunNo: **86949**
Client ID: **ZZZZZZ** Batch ID: **41566** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/28/2012** SeqNo: **1499900**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	11.644	0.10	10.00	1.470	102	75	125				
Manganese	114.235	0.50	100.0	32.32	81.9	75	125				
Molybdenum	26.602	0.50	10.00	15.69	109	75	125				

Sample ID: **N009167-004A-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **12/21/2012** RunNo: **86949**
Client ID: **ZZZZZZ** Batch ID: **41566** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/28/2012** SeqNo: **1499901**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	11.818	0.10	10.00	1.470	103	75	125	11.64	1.49	20	
Manganese	113.436	0.50	100.0	32.32	81.1	75	125	114.2	0.702	20	
Molybdenum	26.952	0.50	10.00	15.69	113	75	125	26.60	1.31	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

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CLIENT: CH2M HILL
Work Order: N009167
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **MB-41566**	SampType: **MBLK**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **12/21/2012**	RunNo: **87015**
Client ID: **PBW**	Batch ID: **41566**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **1/8/2013**	SeqNo: **1502163**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	ND	0.50									

Sample ID: **LCS-41566**	SampType: **LCS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **12/21/2012**	RunNo: **87015**
Client ID: **LCSW**	Batch ID: **41566**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **1/8/2013**	SeqNo: **1502164**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	10.386	0.50	10.00	0	104	85	115				

Sample ID: **N009167-004A-MS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **12/21/2012**	RunNo: **87015**
Client ID: **ZZZZZZ**	Batch ID: **41566**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **1/8/2013**	SeqNo: **1502170**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	10.187	0.50	10.00	0.2151	99.7	75	125				

Sample ID: **N009167-004A-MSD**	SampType: **MSD**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **12/21/2012**	RunNo: **87015**
Client ID: **ZZZZZZ**	Batch ID: **41566**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **1/8/2013**	SeqNo: **1502171**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	9.916	0.50	10.00	0.2151	97.0	75	125	10.19	2.70	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

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CH2MHILL

CHAIN OF CUSTODY RECORD

12/13/2012 3:15:59 PM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.01
Task Order
Project 2012-GMP-188-Q4
Turnaround Time 10 Days
Shipping Date: 12/13/2012
COC Number: 26

			Container:	1x500 ml Poly	1x500 ml Poly	1x500 ml Poly	1x500 ml Poly	2x1 Liter	2x1 Liter	2x1 Liter	2x1 Liter	2x1 Liter				
			Preservatives:	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	4°C	4°C	4°C	4°C	4°C				
			Filtered:	Field	Field	Field	Field	NA	NA	NA	NA	NA				
			Holding Time:	180	180	180	180	7	7	7	7	7				
	DATE	TIME	Matrix	Arsenic (6020A) Field Filtered	Metals (SW6010B/SW6020Adis) Field Filtered Ca,Mg,K,Na,B,Fe,Mn	Metals (SW6010B/SW6020Adis) Field Filtered Ca,Mg,Na,Fe,Mn	Metals (SW6010B/SW6020Adis) Field Filtered Mo,Se	Specific Conductance (E120.1)	Anions (E300.0) Bromide,Chloride,Sulfate	Anions (E300.0) Chloride,Sulfate	TDS (SM2540C)	Alkalinity (SM2320B)		Number of Containers	COMMENTS
MW-34-055-188	12/12/2012	8:54	Water	X	X		X	X	X		X	X	K1009167-1	3	
MW-34-080-188	12/12/2012	10:55	Water	X	X			X	X		X	X	-2	3	
MW-46-205-188	12/12/2012	14:58	Water			X		X		X		X	-3	3	
MW-97-188	12/12/2012	10:57	Water	X		X		X		X		X	-4	3	
MW-14-188	12/13/2012	11:54	Water			X		X		X		X	-5	3	
MW-39-100-188	12/13/2012	9:56	Water	X		X	X	X		X		X	-6	3	
MW-45-095a-188	12/13/2012	8:50	Water	X		X		X		X		X	-7	3	
MW-57-070-188	12/13/2012	12:29	Water	X		X	X	X		X		X	-8	3	
MW-70BR-225-188	12/13/2012	10:13	Water	X		X	X	X		X		X	-9	3	
MW-96-188	12/13/2012	12:34	Water	X		X	X	X		X		X	-10	3	
TW-02D-188	12/13/2012	12:42	Water			X		X		X		X	-11	3	
TW-02S-188	12/13/2012	12:58	Water			X		X		X		X	-12	3	
													TOTAL NUMBER OF CONTAINERS	36	

	Signatures	Date/Time
Approved by		12-13-12 1610
Sampled by		
Relinquished by		
Received by	MBCARTIN	12/13/12 @1010
Relinquished by		
Received by		

Shipping Details

Method of Shipment: courier
On Ice: yes / no 4.1°C ICE 112#1
Airbill No:
Lab Name: ADVANCED TECHNOLOGY LABORATO
Lab Phone: (702) 307-2659

ATTN:

Sample Custody and Marlon

Special Instructions:

Nov 5 - Dec 14, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

Advanced Technology Laboratories, Inc.

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	12/13/2012	Workorder:	N009167
Rep sample Temp (Deg C):	4.1	IR Gun ID:	1
Temp Blank:	☐ Yes ☑ No		
Carrier name:	ATL		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments:

Checklist Completed B MBC 12/14/12

Reviewed By:

SAMPLE CALCULATION

METHOD: SM 2540C
TEST NAME: Total Filterable Residue
MATRIX: Water

FORMULA:

Calculate TDS concentration in mg/L, in the original sample as follows:

$$\text{TDS, mg/L} = \frac{(A-B)*1000000}{C}$$

Where:

A = weight in g of dish + residue after drying
B = weight of dish in g
C = volume of sample used in mL

For **N009167-001B,** TDS concentration in mg/L is calculated as follows:

$$\text{TDS, mg/L} = \frac{(61.3109-61.2476)*1000000}{100}$$
$$= 633 \text{ mg/L}$$

Reporting result in two significant figures,

TDS = 630 mg/L

ng for
12/28/

TOTAL DISSOLVED SOLIDS, TDS

TDS, mg/L = (A-B) X 1000000 / C

WHERE:
A = weight in grams of dish + residue after drying
B = weight of dish in grams
C = volume of sample used in mL

Date Started: 12/17/2012								TDS/CONDUCTIVITY
Date Finished: 12/18/2012	vol	initial	final	calc	prep fact	TDS, mg/L	CONDUCTIVITY	RATIO
MB-41553	100	56.0674	56.0676	2	1	2.00		
LCS-41553	100	53.944	54.0437	997	1	997.00		
N009167-001B	100	61.2476	61.3109	633	1	633.00	977	0.65
N009167-002B	20	53.8249	53.9109	860	5	4300.00	7230	0.59
N009167-002B DUP	20	55.397	55.4844	874	5	4370.00	7230	0.60

Sample ID: **N009167-001B @ pH 7.99**

A. Standardization of Sulfuric Acid (titrant):

Normality of acid = (A)(B)/(53.00)(C)

Where:

A, grams weighed for Na_2CO_3 solution (Na_2CO_3 Standardization Solution)
B, mL Na2CO3 solution taken for titration, and
C, ml of sulfuric acid used to inflection point

Spike Standards

Na_2CO_3 Standardization Solution, ACS Grade (1.00 ml = 2500ug as $CaCO_3$):
Dissolve 2.650 grams of Na_2CO_3 in distilled water and dilute to 1 liter.

LCS/MS/MSD Stock $NaHCO_3$, ACS Grade (1.00 ml = 5000 ug as $CaCO_3$):
Dissolve 0.8398 grams of $NaHCO_3$ in distilled water and dilute to 1 liter.

Therefore,

Normality of Acid = (2.65g/L) (5mL) / (53.00) (11.625mL)

= **0.02151 N**

B. CALCULATION OF ALKALINITY (for a 50 ml sample)

Total Alkalinity (as $CaCO_3$), mg/L = $M_{vol.}$ * N H_2SO_4 * DF * 1000

Where:

$M_{vol.}$, volume titrant used to reach pH 4.5, ml
N, Normality of H_2SO_4
DF, Dilution Factor = (50 ml) / (Vol. of Sample used)

Therefore,

Total Alkalinity (as $CaCO_3$), mg/L = (6.70) (0.02151N) (1) * 1000

= 144.117 **mg/L**

Reporting results in two significant figures,

= 140 **mg/L** as CaCO3

C. SPECIATED ALKALINITY:

Phenolphthalein Alkalinity

P alkalinity, mg/L as $CaCO_3$ = $P_{vol.}$ * N H_2SO_4 * DF * 1000

= (0) (0.02151 N) (1) * 1000

= **0**

Total Alkalinity

T alkalinity, mg/L as $CaCO_3$ = $M_{vol.}$ * N H_2SO_4 * DF * 1000

= (6.70 mL) (0.02151) (1) * 1000

= 144.117 **mg/L** as CaCO3

Where:

$P_{vol.}$ - volume titrant used to reach pH 8.3, ml
$M_{vol.}$ - volume titrant used to reach pH 4.5, ml
N - Normality of H_2SO_4
DF - Dilution Factor = (50 ml) / (Vol. of Sample used)

Then OH, CO_3, HCO_3 alkalinities as $CaCO_3$ will be calculated as follows:

Result of Titration	**OH Alkalinity as $CaCO_3$**	**CO_3 Alkalinity as $CaCO_3$**	**HCO_3 Alkalinity as $CaCO_3$**
P = 0	0	0	T
P < ½ T	0	2P	T – 2P
P = ½ T	0	2P	0
P > ½ T	2P – T	2(T – P)	0
P = T	T	0	0

Therefore,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = 144.117 **mg/L**

Reporting results in two significant figures,

Antrolin

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = 140 **mg/L**

Sample Calculation

METHOD: EPA 300
TEST NAME: INORGANIC ANIONS BY IC
MATRIX: WATER

FORMULA:

Calculate the Chloride concentration, in mg/L, in the original sample as follows:

Chloride, mg/L = A * DF

where:

A = mg/L, IC calculated concentration
DF = dilution factor

For **N009167-001B**, concentration in mg/L are calculated as follows:

Chloride, mg/L = 3.916 * 20

= 78.32 mg/L

Reporting **N009167-001B** results in two significant figures,

Chloride, mg/L = 78 8/13/13

Sample Calculation

METHOD: EPA 6010
TEST NAME: Heavy Metals by ICP
MATRIX: Water

FORMULA:

Calculate the Potassium concentration, in ug/L, in the original sample as follows:

Potassium, ug/L = A * DF * PF * CF

where:

A = mg/L, calculated concentration
DF = dilution factor
PF = Final Vol. of Digestate in mL / Vol. of Sample used in mL
CF = Conversion Factor

For Sample **N009167-001A**, the concentration in ug/L is calculated as follows:

Potassium, ug/L = 0.7458961097 * 5 * (25/25) * 1000

= 3729.4805485 ug/L

Reporting results in two significant figures,

Potassium, ug/L = 3700

NS fn
1/8/13

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N009167
Test Method: EPA 6010
Analysis Date: 12/28/12

Matrix: Water
Batch No.: 41562

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to K. The computed value is < 25X the RL. However, PS @ 5X passed criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N009167-001A DT 25X	Potassium	ug/L	2961.9107	NA	3729.480549	20.58%	10
N009167-001A DT 25X	Sodium	ug/L	89884.84123	PASSED	99804.7519	9.94%	10

Note: NA - Not Applicable

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N009167
Test Method: EPA 6010
Analysis Date: 12/31/12

Matrix: Water
Batch No.: 41562

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to B & Fe. The computed value is < 25X the RL. However, PS @ 2X passed criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N009167-001A DT 5X	Boron	ug/L	226.3695755	NA	145.5220662	-55.56%	10
N009167-001A DT 5X	Calcium	ug/L	78875.67765	PASSED	74911.53136	-5.29%	10
N009167-001A DT 5X	Iron	ug/L	62.39937065	NA	70.94824251	12.05%	10
N009167-001A DT 5X	Magnesium	ug/L	21153.4103	PASSED	19628.78616	-7.77%	10

Note: NA - Not Applicable

Advanced Technology Laboratories, Inc.

Date: *06-Jan-13*

CLIENT: CH2M HILL
Work Order: N009167
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **N009167-001A-PS** SampType: **PS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: RunNo: **86931**
Client ID: **ZZZZZZ** Batch ID: **41562** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/28/2012** SeqNo: **1498152**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	8820.286	2500	6250	3729	81.5	75	125				
Sodium	200830.941	2500	125000	99800	80.8	75	125				

Sample ID: **N009167-001A-PS** SampType: **PS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: RunNo: **86958**
Client ID: **ZZZZZZ** Batch ID: **41562** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/31/2012** SeqNo: **1500134**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	2724.307	200	2500	145.5	103	75	125				
Calcium	82123.828	1000	5000	74910	144	75	125				S
Iron	5175.185	40	5000	70.95	102	75	125				
Magnesium	24806.318	200	5000	19630	104	75	125				

DT of Ca @ 5x is within criteria. NS for 1/9/13

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Sample Calculation

METHOD: EPA 6020
TEST NAME: Heavy Metals by ICP-MS
MATRIX: Aqueous

FORMULA:

Calculate the Arsenic concentration, in ug/L, in the original sample as follows:

Arsenic, ug/L = A * DF * PF

where:

A = ug/L, calculated concentration
DF = dilution factor
PF = Final Vol. of Digestate in mL / Vol. of Sample used in mL

For Sample **N009167-001A**, the concentration in ug/L is calculated as follows:

Arsenic, ug/L = 2.9956789074 * 1 * (25/25)

= 2.9956789074

Reporting result in two significant figures,

Arsenic, ug/L = 3.0

NS fm
1/10/13

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N009167
Test Method: EPA 6020
Analysis Date: 12/28/12

Matrix: Water
Batch No.: 41566

Note: NA - Not applicable

Instrument ID: ICP-MS #2
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to As. The calculated value was <25X RL. PS @2X passed criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SampRefVal	%DIFF	%DIFFlimit
N009167-004A-DT 5X	Arsenic	µg/L	1.344571474	NA	1.470039472	8.54%	10
N009167-004A-DT 5X	Manganese	µg/L	32.30242011	PASSED	32.3181951	0.05%	10
N009167-004A-DT 5X	Molybdenum	µg/L	16.61463617	PASSED	15.69004703	5.89%	10

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N009167
Test Method: EPA 6020
Analysis Date: 01/08/13

Matrix: Water
Batch No.: 41566

Note: NA - Not applicable

Instrument ID: ICP-MS #2
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Se. The calculated value was <25X RL. PS @2X passed criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SampRefVal	%DIFF	%DIFFlimit
N009167-004A-DT 5X	Selenium	µg/L	0	NA	0.215086017	0.00%	10

Advanced Technology Laboratories, Inc.

Date: *09-Jan-13*

CLIENT: CH2M HILL
Work Order: N009167
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N009167-004A-PS** SampType: **PS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **86949**
Client ID: **ZZZZZZ** Batch ID: **41566** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/28/2012** SeqNo: **1499899**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	24.145	0.20	20.00	1.470	113	75	125				
Manganese	216.704	1.0	200.0	32.32	92.2	75	125				
Molybdenum	38.380	1.0	20.00	15.69	113	75	125				

Sample ID: **N009167-004A-PS** SampType: **PS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **87015**
Client ID: **ZZZZZZ** Batch ID: **41566** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **1/8/2013** SeqNo: **1502169**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	21.637	1.0	20.00	0.2151	107	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		

January 11, 2013

Shawn P. Duffy
CH2M HILL
155 Grand Avenue, Suite 1000
Oakland, CA 94612

TEL: (530) 229-3303
FAX: (530) 339-3303

CA-ELAP No.: 2676
NV Cert. No.: NV-009222007A

Workorder No.: N009208

RE: PG&E Topock, 423575.MP.02.GM.01

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on December 20, 2012 by Advanced Technology Laboratories, Inc. . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

for

Jose Tenorio Jr.
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and Advanced Technology Laboratories - Las Vegas.

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.01
Lab Order: N009208

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

Samples were received intact with proper chain of custody documentation.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Samples were analyzed within method holding time.

Analytical Comments for EPA 6010B_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for some analytes possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Dilution was necessary on sample N009208-001 since plasma was extinguished when sample was analyzed at no dilution.

Advanced Technology Laboratories, Inc.
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Advanced Technology Laboratories, Inc.

Date: *11-Jan-13*

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.01
Lab Order: N009208
Contract No: 2012-GMP-188-

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N009208-001A	MW-66BR-270-188	Water	12/20/2012 9:50:00 AM	12/20/2012	1/11/2013
N009208-001B	MW-66BR-270-188	Water	12/20/2012 9:50:00 AM	12/20/2012	1/11/2013
N009208-002A	MW-74-240-188	Water	12/20/2012 9:08:00 AM	12/20/2012	1/11/2013
N009208-002B	MW-74-240-188	Water	12/20/2012 9:08:00 AM	12/20/2012	1/11/2013
N009208-003A	MW-98-188	Water	12/20/2012 10:00:00 AM	12/20/2012	1/11/2013
N009208-003B	MW-98-188	Water	12/20/2012 10:00:00 AM	12/20/2012	1/11/2013

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *11-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009208
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009208-001

Client Sample ID: MW-66BR-270-188
Collection Date: 12/20/2012 9:50:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
EPA 120.1							
RunID: **WETCHEM_121220D**	QC Batch: **R86924**			PrepDate:			Analyst: **CEI**
Specific Conductance	19000	0.10	0.10		umhos/cm	1	12/20/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *11-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-74-240-188
Lab Order:	N009208	**Collection Date:**	12/20/2012 9:08:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009208-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121220D**	QC Batch: **R86924**			PrepDate:			Analyst: **CEI**
Specific Conductance	1100	0.10	0.10		umhos/cm	1	12/20/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *11-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-98-188
Lab Order:	N009208	**Collection Date:**	12/20/2012 10:00:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009208-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121220D**	QC Batch: **R86924**			PrepDate:			Analyst: **CEI**
Specific Conductance	1100	0.10	0.10		umhos/cm	1	12/20/2012

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

Date: *11-Jan-13*

CLIENT: CH2M HILL
Work Order: N009208
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: **LCS-R86924** SampType: **LCS** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86924**
Client ID: **LCSW** Batch ID: **R86924** TestNo: **EPA 120.1** Analysis Date: **12/20/2012** SeqNo: **1498002**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	10570.000	0.10	9992	0	106	85	115				

Sample ID: **N009208-003BDUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86924**
Client ID: **ZZZZZZ** Batch ID: **R86924** TestNo: **EPA 120.1** Analysis Date: **12/20/2012** SeqNo: **1498006**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	1103.000	0.10						1100	0.272	10	

Sample ID: **N009208-003BMS** SampType: **MS** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86924**
Client ID: **ZZZZZZ** Batch ID: **R86924** TestNo: **EPA 120.1** Analysis Date: **12/20/2012** SeqNo: **1498007**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	11920.000	0.20	9992	1100	108	75	125				

Sample ID: **N009208-003BMSD** SampType: **MSD** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86924**
Client ID: **ZZZZZZ** Batch ID: **R86924** TestNo: **EPA 120.1** Analysis Date: **12/20/2012** SeqNo: **1498008**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	11940.000	0.20	9992	1100	108	75	125	11920	0.168	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: *11-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-66BR-270-188
Lab Order:	N009208	**Collection Date:**	12/20/2012 9:50:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009208-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121220B**	QC Batch: **R86828**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/20/2012
Alkalinity, Carbonate (As CaCO3)	26	1.2	5.0		mg/L	1	12/20/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/20/2012
Alkalinity, Total (As CaCO3)	26	1.2	5.0		mg/L	1	12/20/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *11-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009208
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009208-002

Client Sample ID: MW-74-240-188
Collection Date: 12/20/2012 9:08:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121220B**	QC Batch: **R86828**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	110	1.2	5.0		mg/L	1	12/20/2012
Alkalinity, Carbonate (As CaCO3)	37	1.2	5.0		mg/L	1	12/20/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/20/2012
Alkalinity, Total (As CaCO3)	150	1.2	5.0		mg/L	1	12/20/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *11-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-98-188
Lab Order:	N009208	**Collection Date:**	12/20/2012 10:00:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009208-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121220B**	QC Batch: **R86828**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	110	1.2	5.0		mg/L	1	12/20/2012
Alkalinity, Carbonate (As CaCO3)	37	1.2	5.0		mg/L	1	12/20/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/20/2012
Alkalinity, Total (As CaCO3)	150	1.2	5.0		mg/L	1	12/20/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

Date: *11-Jan-13*

CLIENT: CH2M HILL
Work Order: N009208
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **LCS-R86828** SampType: **LCS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86828**
Client ID: **LCSW** Batch ID: **R86828** TestNo: **SM 2320 B** Analysis Date: **12/20/2012** SeqNo: **1494301**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	99.352	5.0	100.0	0	99.4	85	115				
Alkalinity, Total (As CaCO3)	101.512	5.0	100.0	0	102	85	115				

Sample ID: **MB-R86828** SampType: **MBLK** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86828**
Client ID: **PBW** Batch ID: **R86828** TestNo: **SM 2320 B** Analysis Date: **12/20/2012** SeqNo: **1494302**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	2.160	5.0									
Alkalinity, Carbonate (As CaCO3)	ND	5.0									
Alkalinity, Hydroxide (As CaCO3)	ND	5.0									
Alkalinity, Total (As CaCO3)	2.160	5.0									

Sample ID: **N009208-001BDUP** SampType: **DUP** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86828**
Client ID: **ZZZZZZ** Batch ID: **R86828** TestNo: **SM 2320 B** Analysis Date: **12/20/2012** SeqNo: **1494310**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	ND	5.0						0	0	30	
Alkalinity, Carbonate (As CaCO3)	25.918	5.0						25.92	0	30	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0						0	0	30	
Alkalinity, Total (As CaCO3)	25.918	5.0						25.92	0	30	

Sample ID: **N009208-002BMS** SampType: **MS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86828**
Client ID: **ZZZZZZ** Batch ID: **R86828** TestNo: **SM 2320 B** Analysis Date: **12/20/2012** SeqNo: **1494312**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	208.423	5.0	100.0	109.1	99.4	75	125				
Alkalinity, Total (As CaCO3)	247.300	5.0	100.0	145.8	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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CLIENT: CH2M HILL
Work Order: N009208
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **N009208-002BMSD** SampType: **MSD** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86828**
Client ID: **ZZZZZZ** Batch ID: **R86828** TestNo: **SM 2320 B** Analysis Date: **12/20/2012** SeqNo: **1494313**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	207.343	5.0	100.0	109.1	98.3	75	125	208.4	0.519	20	
Alkalinity, Total (As CaCO3)	246.220	5.0	100.0	145.8	100	75	125	247.3	0.438	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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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *11-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-66BR-270-188
Lab Order:	N009208	**Collection Date:**	12/20/2012 9:50:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009208-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121226A** QC Batch: **R86909** PrepDate: Analyst: **QBM**							
Chloride	6100	11	500		mg/L	1000	12/26/2012 02:36 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121226A** QC Batch: **R86909** PrepDate: Analyst: **QBM**							
Sulfate	210	0.70	10		mg/L	20	12/26/2012 01:49 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *11-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009208
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009208-002

Client Sample ID: MW-74-240-188
Collection Date: 12/20/2012 9:08:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121226A** QC Batch: **R86909** PrepDate: Analyst: **QBM**							
Chloride	160	0.55	25		mg/L	50	12/26/2012 02:47 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121226A** QC Batch: **R86909** PrepDate: Analyst: **QBM**							
Sulfate	96	0.35	5.0		mg/L	10	12/26/2012 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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ANALYTICAL RESULTS

Print Date: *11-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-98-188
Lab Order:	N009208	**Collection Date:**	12/20/2012 10:00:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009208-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121226A** QC Batch: **R86909** PrepDate: Analyst: **QBM**							
Chloride	160	0.55	25		mg/L	50	12/26/2012 02:59 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121226A** QC Batch: **R86909** PrepDate: Analyst: **QBM**							
Sulfate	94	0.35	5.0		mg/L	10	12/26/2012 04:30 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

Date: *11-Jan-13*

CLIENT: CH2M HILL
Work Order: N009208
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **MB-R86909_CL** SampType: **MBLK** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86909**
Client ID: **PBW** Batch ID: **R86909** TestNo: **EPA 300.0** Analysis Date: **12/26/2012** SeqNo: **1497557**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.50									

Sample ID: **LCS-R86909_CL** SampType: **LCS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86909**
Client ID: **LCSW** Batch ID: **R86909** TestNo: **EPA 300.0** Analysis Date: **12/26/2012** SeqNo: **1497558**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.414	0.50	2.500	0	96.6	90	110				

Sample ID: **N009208-002BDUP** SampType: **DUP** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86909**
Client ID: **ZZZZZZ** Batch ID: **R86909** TestNo: **EPA 300.0** Analysis Date: **12/26/2012** SeqNo: **1497564**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	163.700	25						162.8	0.521	20	

Sample ID: **N009208-003BMS** SampType: **MS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86909**
Client ID: **ZZZZZZ** Batch ID: **R86909** TestNo: **EPA 300.0** Analysis Date: **12/26/2012** SeqNo: **1497565**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	284.400	25	125.0	161.6	98.2	80	120				

Sample ID: **N009208-003BMSD** SampType: **MSD** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86909**
Client ID: **ZZZZZZ** Batch ID: **R86909** TestNo: **EPA 300.0** Analysis Date: **12/26/2012** SeqNo: **1497566**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	284.300	25	125.0	161.6	98.1	80	120	284.4	0.0352	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: N009208
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **MB-R86909_SO4** SampType: **MBLK** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86909**
Client ID: **PBW** Batch ID: **R86909** TestNo: **EPA 300.0** Analysis Date: **12/26/2012** SeqNo: **1497571**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	0.214	0.50									

Sample ID: **LCS-R86909_SO4** SampType: **LCS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86909**
Client ID: **LCSW** Batch ID: **R86909** TestNo: **EPA 300.0** Analysis Date: **12/26/2012** SeqNo: **1497572**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.951	0.50	5.000	0	99.0	90	110				

Sample ID: **N009208-002BDUP** SampType: **DUP** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86909**
Client ID: **ZZZZZZ** Batch ID: **R86909** TestNo: **EPA 300.0** Analysis Date: **12/26/2012** SeqNo: **1497578**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	97.330	5.0						96.12	1.25	20	

Sample ID: **N009208-003BMS** SampType: **MS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86909**
Client ID: **ZZZZZZ** Batch ID: **R86909** TestNo: **EPA 300.0** Analysis Date: **12/26/2012** SeqNo: **1497579**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	142.760	5.0	50.00	93.73	98.1	80	120				

Sample ID: **N009208-003BMSD** SampType: **MSD** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86909**
Client ID: **ZZZZZZ** Batch ID: **R86909** TestNo: **EPA 300.0** Analysis Date: **12/26/2012** SeqNo: **1497580**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	147.250	5.0	50.00	93.73	107	80	120	142.8	3.10	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: *11-Jan-13*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-66BR-270-188
Lab Order:	N009208	**Collection Date:**	12/20/2012 9:50:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N009208-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121231A**	QC Batch: **41562**				PrepDate: **12/21/2012**		Analyst: **CEI**
Calcium	87000	150	1000		ug/L	2	12/31/2012 06:17 PM
Iron	ND	14	40		ug/L	2	12/31/2012 06:17 PM
Magnesium	21000	26	200		ug/L	2	12/31/2012 06:17 PM
Sodium	3600000	7300	50000		ug/L	100	12/28/2012 12:04 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *11-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009208
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009208-002

Client Sample ID: MW-74-240-188
Collection Date: 12/20/2012 9:08:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121231A**	QC Batch: **41562**				PrepDate: **12/21/2012**		Analyst: **CEI**
Calcium	11000	75	500		ug/L	1	12/31/2012 05:11 PM
Iron	160	7.2	20		ug/L	1	12/31/2012 05:11 PM
Magnesium	1200	13	100		ug/L	1	12/31/2012 05:11 PM
Sodium	190000	370	2500		ug/L	5	12/28/2012 12:07 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *11-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009208
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009208-003

Client Sample ID: MW-98-188
Collection Date: 12/20/2012 10:00:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A		**EPA 6010B**				
RunID: **ICP2_121231A**	QC Batch: **41562**				PrepDate: **12/21/2012**		Analyst: **CEI**
Calcium	8800	75	500		ug/L	1	12/31/2012 05:18 PM
Iron	170	7.2	20		ug/L	1	12/31/2012 05:18 PM
Magnesium	950	13	100		ug/L	1	12/31/2012 05:18 PM
Sodium	200000	370	2500		ug/L	5	12/28/2012 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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Advanced Technology Laboratories, Inc.

Date: *11-Jan-13*

CLIENT: CH2M HILL
Work Order: N009208
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **MB-41562** SampType: **MBLK** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/21/2012** RunNo: **86931**
Client ID: **PBW** Batch ID: **41562** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/28/2012** SeqNo: **1498128**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	ND	500									

Sample ID: **LCS-41562** SampType: **LCS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/21/2012** RunNo: **86931**
Client ID: **LCSW** Batch ID: **41562** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/28/2012** SeqNo: **1498129**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	28025.734	500	25000	0	112	85	115				

Sample ID: **N009167-001A-MS** SampType: **MS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/21/2012** RunNo: **86931**
Client ID: **ZZZZZZ** Batch ID: **41562** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/28/2012** SeqNo: **1498148**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	191347.433	2500	100000	99800	91.5	75	125				

Sample ID: **N009167-001A-MSD** SampType: **MSD** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/21/2012** RunNo: **86931**
Client ID: **ZZZZZZ** Batch ID: **41562** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/28/2012** SeqNo: **1498151**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	192573.262	2500	100000	99800	92.8	75	125	191300	0.639	20	

Sample ID: **MB-41562** SampType: **MBLK** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/21/2012** RunNo: **86958**
Client ID: **PBW** Batch ID: **41562** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/31/2012** SeqNo: **1500116**

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	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD 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: N009208
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **LCS-41562** SampType: **LCS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/21/2012** RunNo: **86958**
Client ID: **LCSW** Batch ID: **41562** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/31/2012** SeqNo: **1500117**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	933.904	500	1000	0	93.4	85	115				
Iron	110.069	20	100.0	0	110	85	115				
Magnesium	979.131	100	1000	0	97.9	85	115				

Sample ID: **N009167-001A-MS** SampType: **MS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/21/2012** RunNo: **86958**
Client ID: **ZZZZZZ** Batch ID: **41562** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/31/2012** SeqNo: **1500135**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	75399.499	500	1000	74910	48.8	75	125				S
Iron	167.241	20	100.0	70.95	96.3	75	125				
Magnesium	20642.139	100	1000	19630	101	75	125				

Sample ID: **N009167-001A-MSD** SampType: **MSD** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: **12/21/2012** RunNo: **86958**
Client ID: **ZZZZZZ** Batch ID: **41562** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/31/2012** SeqNo: **1500138**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	72594.938	500	1000	74910	-232	75	125	75400	3.79	20	S
Iron	165.291	20	100.0	70.95	94.3	75	125	167.2	1.17	20	
Magnesium	19873.660	100	1000	19630	24.5	75	125	20640	3.79	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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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *11-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009208
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009208-001

Client Sample ID: MW-66BR-270-188
Collection Date: 12/20/2012 9:50:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121228C**	QC Batch: **41566**				PrepDate:	**12/21/2012**	Analyst: **CEI**
Arsenic	0.24	0.035	0.10		µg/L	1	12/28/2012 10:26 PM
Manganese	41	0.16	0.50		µg/L	1	12/28/2012 10:26 PM
Molybdenum	36	0.074	0.50		µg/L	1	12/28/2012 10:26 PM
Selenium	0.85	0.084	0.50		µg/L	1	1/8/2013 10:24 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *11-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009208
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009208-002

Client Sample ID: MW-74-240-188
Collection Date: 12/20/2012 9:08:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121228C**	QC Batch: **41566**				PrepDate:	**12/21/2012**	Analyst: **CEI**
Arsenic	15	0.035	0.10		µg/L	1	12/29/2012 12:02 AM
Manganese	3.3	0.16	0.50		µg/L	1	12/29/2012 12:02 AM
Molybdenum	110	0.074	0.50		µg/L	1	12/29/2012 12:02 AM
Selenium	1.4	0.084	0.50		µg/L	1	1/8/2013 10:28 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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ANALYTICAL RESULTS

Print Date: *11-Jan-13*

CLIENT: CH2M HILL
Lab Order: N009208
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N009208-003

Client Sample ID: MW-98-188
Collection Date: 12/20/2012 10:00:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121228C**	QC Batch: **41566**				PrepDate: **12/21/2012**		Analyst: **CEI**
Arsenic	16	0.035	0.10		µg/L	1	12/29/2012 12:07 AM
Manganese	3.3	0.16	0.50		µg/L	1	12/29/2012 12:07 AM
Molybdenum	110	0.074	0.50		µg/L	1	12/29/2012 12:07 AM
Selenium	1.1	0.084	0.50		µg/L	1	1/8/2013 10:33 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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Advanced Technology Laboratories, Inc.

Date: *11-Jan-13*

CLIENT: CH2M HILL
Work Order: N009208
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **MB-41566** SampType: **MBLK** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **12/21/2012** RunNo: **86949**
Client ID: **PBW** Batch ID: **41566** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/28/2012** SeqNo: **1499873**

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									

Sample ID: **LCS-41566** SampType: **LCS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **12/21/2012** RunNo: **86949**
Client ID: **LCSW** Batch ID: **41566** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/28/2012** SeqNo: **1499874**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	9.435	0.10	10.00	0	94.4	85	115				
Manganese	90.975	0.50	100.0	0	91.0	85	115				
Molybdenum	9.995	0.50	10.00	0	100	85	115				

Sample ID: **N009167-004A-MS** SampType: **MS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **12/21/2012** RunNo: **86949**
Client ID: **ZZZZZZ** Batch ID: **41566** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/28/2012** SeqNo: **1499900**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	11.644	0.10	10.00	1.470	102	75	125				
Manganese	114.235	0.50	100.0	32.32	81.9	75	125				
Molybdenum	26.602	0.50	10.00	15.69	109	75	125				

Sample ID: **N009167-004A-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **12/21/2012** RunNo: **86949**
Client ID: **ZZZZZZ** Batch ID: **41566** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/28/2012** SeqNo: **1499901**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	11.818	0.10	10.00	1.470	103	75	125	11.64	1.49	20	
Manganese	113.436	0.50	100.0	32.32	81.1	75	125	114.2	0.702	20	
Molybdenum	26.952	0.50	10.00	15.69	113	75	125	26.60	1.31	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N009208
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **MB-41566** SampType: **MBLK** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **12/21/2012** RunNo: **87015**
Client ID: **PBW** Batch ID: **41566** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **1/8/2013** SeqNo: **1502163**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	ND	0.50									

Sample ID: **LCS-41566** SampType: **LCS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **12/21/2012** RunNo: **87015**
Client ID: **LCSW** Batch ID: **41566** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **1/8/2013** SeqNo: **1502164**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	10.386	0.50	10.00	0	104	85	115				

Sample ID: **N009167-004A-MS** SampType: **MS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **12/21/2012** RunNo: **87015**
Client ID: **ZZZZZZ** Batch ID: **41566** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **1/8/2013** SeqNo: **1502170**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	10.187	0.50	10.00	0.2151	99.7	75	125				

Sample ID: **N009167-004A-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **12/21/2012** RunNo: **87015**
Client ID: **ZZZZZZ** Batch ID: **41566** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **1/8/2013** SeqNo: **1502171**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	9.916	0.50	10.00	0.2151	97.0	75	125	10.19	2.70	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CH2MHILL

CHAIN OF CUSTODY RECORD

12/20/2012 11:20:35 AM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.01
Task Order
Project 2012-GMP-188-Q4
Turnaround Time 10 Days
Shipping Date: 12/20/2012
COC Number: 30

			Container:	1x500 ml Poly	1x500 ml Poly	1x500 ml Poly	2x1 Liter	2x1 Liter	2x1 Liter			
			Preservatives:	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	4°C	4°C	4°C			
			Filtered:	Field	Field	Field	NA	NA	NA			
			Holding Time:	180	180	180	7	7	7			
	DATE	TIME	Matrix	Arsenic (6020A) Field Filtered	Metals (SW6010B/SW6020Adis) Field Filtered Ca,Mg,Na,Fe,Mn	Metals (SW6010B/SW6020Adis) Field Filtered Mo,Se	Specific Conductance (E120.1)	Anions (E300.0) Chloride,Sulfate	Alkalinity (SM2320B)		Number of Containers	COMMENTS
MW-66BR-270-188	12/20/2012	9:50	Water	X	X	X	X	X	X	N009208 -1	3	
MW-74-240-188	12/20/2012	9:08	Water	X	X	X	X	X	X	-2	3	
MW-98-188	12/20/2012	10:00	Water	X	X	X	X	X	X	-3	3	
										TOTAL NUMBER OF CONTAINERS	9	

	Signatures	Date/Time
Approved by		12-20-12
Sampled by		1145
Relinquished by		
Received by		12/20/12 1145
Relinquished by		12/20/12 1421
Received by		12/20/12 1420

Shipping Details
Method of Shipment: courier
On Ice: ~~yes~~ / no 2.2°C 1 Rth
Airbill No:
Lab Name: ADVANCED TECHNOLOGY LABORATO
Lab Phone: (702) 307-2659

ATTN:
Sample Custody
and
Marlon

Special Instructions:
Nov 5 - Dec 14, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

Advanced Technology Laboratories, Inc.

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	12/20/2012	Workorder:	N009208
Rep sample Temp (Deg C):	2.2	IR Gun ID:	1
Temp Blank:	☐ Yes ☑ No		
Carrier name:	ATL		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments:

Checklist Completed B MBC 12/21/12

Reviewed By:

Sample ID: **N009208-002B @ pH 9.37**

A. Standardization of Sulfuric Acid (titrant):

Normality of acid = (A)(B)/(53.00)(C)

Where:

A, grams weighed for Na_2CO_3 solution (Na_2CO_3 Standardization Solution)
B, mL Na2CO3 solution taken for titration, and
C, ml of sulfuric acid used to inflection point

Spike Standards

Na_2CO_3 Standardization Solution, ACS Grade (1.00 ml = 2500ug as $CaCO_3$):
Dissolve 2.650 grams of Na_2CO_3 in distilled water and dilute to 1 liter.

LCS/MS/MSD Stock $NaHCO_3$, ACS Grade (1.00 ml = 5000 ug as $CaCO_3$):
Dissolve 0.8398 grams of $NaHCO_3$ in distilled water and dilute to 1 liter.

Therefore,

Normality of Acid = (2.65g/L) (5mL) / (53.00) (11.575mL)

= **0.02160 N**

B. CALCULATION OF ALKALINITY (for a 50 ml sample)

Total Alkalinity (as $CaCO_3$), mg/L = $M_{vol.}$ * N H_2SO_4 * DF * 1000

Where:

$M_{vol.}$, volume titrant used to reach pH 4.5, ml
N, Normality of H_2SO_4
DF, Dilution Factor = (50 ml) / (Vol. of Sample used)

Therefore,

Total Alkalinity (as $CaCO_3$), mg/L = (6.75) (0.02160N) (1) * 1000

= 145.8 **mg/L**

Reporting results in two significant figures,

= 150 **mg/L** as CaCO3

C. SPECIATED ALKALINITY:

Phenolphthalein Alkalinity

P alkalinity, mg/L as $CaCO_3$ = $P_{vol.}$ * N H_2SO_4 * DF * 1000

= (0.85) (0.02160 N) (1) * 1000

= 18.36

Total Alkalinity

T alkalinity, mg/L as $CaCO_3$ = $M_{vol.}$ * N H_2SO_4 * DF * 1000

= (6.75 mL) (0.02160) (1) * 1000

= 145.8 **mg/L** as CaCO3

Where:

$P_{vol.}$ - volume titrant used to reach pH 8.3, ml
$M_{vol.}$ - volume titrant used to reach pH 4.5, ml
N - Normality of H_2SO_4
DF - Dilution Factor = (50 ml) / (Vol. of Sample used)

Then OH, CO_3, HCO_3 alkalinities as $CaCO_3$ will be calculated as follows:

Result of Titration	OH Alkalinity as $CaCO_3$	CO_3 Alkalinity as $CaCO_3$	HCO_3 Alkalinity as $CaCO_3$
P = 0	0	0	T
P < ½ T	0	2P	T – 2P
P = ½ T	0	2P	0
P > ½ T	2P – T	2(T – P)	0
P = T	T	0	0

Therefore,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = 36.72

HCO_3 Alkalinity as $CaCO_3$ = 109.08 **mg/L**

Alkalin

Reporting results in two significant figures,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = 37

HCO_3 Alkalinity as $CaCO_3$ = 110 **mg/L**

Sample Calculation

METHOD: EPA 300
TEST NAME: INORGANIC ANIONS BY IC
MATRIX: WATER

FORMULA:

Calculate the Chloride concentration, in mg/L, in the original sample as follows:

Chloride, mg/L = A * DF

where:

A = mg/L, IC calculated concentration
DF = dilution factor

For **N009208-001B**, concentration in mg/L are calculated as follows:

Chloride, mg/L = 6.107 * 1000

= 6107 mg/L

Reporting **N009208-001B** results in two significant figures,

Chloride, mg/L = 6100 ✓ 01/3/13

Sample Calculation

METHOD: EPA 6010
TEST NAME: Heavy Metals by ICP
MATRIX: Water

FORMULA:

Calculate the Sodium concentration, in ug/L, in the original sample as follows:

Sodium, ug/L = A * DF * PF * CF

where:

A = mg/L, calculated concentration
DF = dilution factor
PF = Final Vol. of Digestate in mL / Vol. of Sample used in mL
CF = Conversion Factor

For Sample **N009208-001A**, the concentration in ug/L is calculated as follows:

Sodium, ug/L = 36.03185879 * 100 * (25/25) * 1000

= 3603185.879 ug/L

Reporting results in two significant figures,

Sodium, ug/L = 3600000

NS for
1/9/13

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N009208
Test Method: EPA 6010
Analysis Date: 12/28/12

Matrix: Water
Batch No.: 41562

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Mary Claire Ignacio

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N009167-001A DT 25X	Sodium	ug/L	89884.84123	PASSED	99804.7519	9.94%	10

Note: NA - Not Applicable

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N009208
Test Method: EPA 6010
Analysis Date: 12/31/12

Matrix: Water
Batch No.: 41562

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Fe. The computed value is < 25X the RL. However, PS @ 2X passed criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N009167-001A DT 5X	Calcium	ug/L	78875.67765	PASSED	74911.53136	-5.29%	10
N009167-001A DT 5X	Iron	ug/L	62.39937065	NA	70.94824251	12.05%	10
N009167-001A DT 5X	Magnesium	ug/L	21153.4103	PASSED	19628.78616	-7.77%	10

Note: NA - Not Applicable

Advanced Technology Laboratories, Inc.

Date: *06-Jan-13*

CLIENT: CH2M HILL
Work Order: N009208
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **N009167-001A-PS** SampType: **PS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: RunNo: **86931**
Client ID: **ZZZZZZ** Batch ID: **41562** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/28/2012** SeqNo: **1498152**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	200830.941	2500	125000	99800	80.8	75	125				

Sample ID: **N009167-001A-PS** SampType: **PS** TestCode: **6010_WDPGE** Units: **ug/L** Prep Date: RunNo: **86958**
Client ID: **ZZZZZZ** Batch ID: **41562** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **12/31/2012** SeqNo: **1500134**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	82123.828	1000	5000	74910	144	75	125				S
Iron	5175.185	40	5000	70.95	102	75	125				
Magnesium	24806.318	200	5000	19630	104	75	125				

DT of Ca @ 5x is within criteria. NS for 1/9/13

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Sample Calculation

METHOD: EPA 6020
TEST NAME: Heavy Metals by ICP-MS
MATRIX: Aqueous

FORMULA:

Calculate the Arsenic concentration, in ug/L, in the original sample as follows:

Arsenic, ug/L = A * DF * PF

where:

A = ug/L, calculated concentration
DF = dilution factor
PF = Final Vol. of Digestate in mL / Vol. of Sample used in mL

For Sample **N009208-001A**, the concentration in ug/L is calculated as follows:

Arsenic, ug/L = 0.24431895504 * 1 * (25/25)

= 0.24431895504

Reporting result in two significant figures,

Arsenic, ug/L = 0.24

NSf
1/10/13

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N009208
Test Method: EPA 6020
Analysis Date: 12/28/12

Matrix: Water
Batch No.: 41566

Note: NA - Not applicable

Instrument ID: ICP-MS #2
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to As. The calculated value was <25X RL. PS @2X passed criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SampRefVal	%DIFF	%DIFFlimit
N009167-004A-DT 5X	Arsenic	µg/L	1.344571474	NA	1.470039472	8.54%	10
N009167-004A-DT 5X	Manganese	µg/L	32.30242011	PASSED	32.3181951	0.05%	10
N009167-004A-DT 5X	Molybdenum	µg/L	16.61463617	PASSED	15.69004703	5.89%	10

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N009208
Test Method: EPA 6020
Analysis Date: 01/08/13

Matrix: Water
Batch No.: 41566

Note: NA - Not applicable

Instrument ID: ICP-MS #2
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Se. The calculated value was <25X RL. PS @2X passed criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SampRefVal	%DIFF	%DIFFlimit
N009167-004A-DT 5X	Selenium	µg/L	0	NA	0.215086017	0.00%	10

Advanced Technology Laboratories, Inc.

Date: *09-Jan-13*

CLIENT: CH2M HILL
Work Order: N009208
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N009167-004A-PS** SampType: **PS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **86949**
Client ID: **ZZZZZZ** Batch ID: **41566** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **12/28/2012** SeqNo: **1499899**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	24.145	0.20	20.00	1.470	113	75	125				
Manganese	216.704	1.0	200.0	32.32	92.2	75	125				
Molybdenum	38.380	1.0	20.00	15.69	113	75	125				

Sample ID: **N009167-004A-PS** SampType: **PS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **87015**
Client ID: **ZZZZZZ** Batch ID: **41566** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **1/8/2013** SeqNo: **1502169**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	21.637	1.0	20.00	0.2151	107	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		

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

14201 FRANKLIN AVENUE
TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462
www.truesdail.com

December 6, 2012

E2 Consulting Engineers, Inc.
Mr. Shawn Duffy
155 Grand Ave., Suite 1000
Oakland, California 94612

Dear Mr. Duffy:

SUBJECT: REVISED CASE NARRATIVE PG&E TOPOCK 2012-RMP-188, SURFACEWATER MONITORING PROJECT, TLI NO.: 804636

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2012-RMP-188 surfacewater-monitoring project. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, quality control data, and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data are under Section 5.

The samples were received and delivered with the chain of custody on November 1, 2012, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

Due to instrument problems, samples for Total Dissolved Chromium, Arsenic, Manganese, Selenium, and Molybdenum analysis were sub-contracted to Advanced Technology Laboratories – Las Vegas with Mr. Shawn Duffy's approval. The results will be forwarded when they become available.

Samples 804636-1 through 804636-14 for pH analysis by SM 4500-H B were analyzed past the method specified holding time.

No other violations or non-conformance actions occurred for this data package.

If you have any questions or require additional information, please contact me at (714) 730-6239 ext. 200.

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.
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Event 2012-RMP-188 Cr by SW 6020, Surfacewater Samples

Samples field filtered unless otherwise noted

Sample ID	Initial pH	pH adjustment needed?	Amount of additional acid needed	Final pH	Comments
C-BNS-D-188	2.00	No			
C-I-3-D-188	2.00	No			
C-I-3-S-188	2.00	No			
C-MAR-D-188	2.00	No			
C-MAR-S-188	2.00	No			
C-R22A-D-188	2.00	No			
C-R22A-S-188	2.00	No			
C-R27-D-188	2.00	No			
C-R27-S-188	2.00	No			
C-TAZ-D-188	2.00	No			
C-TAZ-S-188	2.00	No			
R-19-188	2.00	No			
R-28-188	2.00	No			
R63-188	2.00	No			
RRB-188	2.00	No			

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Event 2012-RMP-188 Cr (VI) by EPA 218.6, Surfacewater Samples

Samples field filtered unless otherwise noted

Sample ID	Initial pH	pH adjustment needed?	Amount of additional buffer needed	Final pH	Comments
C-BNS-D-188	9.50	No			
C-I-3-D-188	9.50	No			
C-I-3-S-188	9.50	No			
C-MAR-D-188	9.50	No			
C-MAR-S-188	9.50	No			
C-R22A-D-188	9.50	No			
C-R22A-S-188	9.50	No			
C-R27-D-188	9.50	No			
C-R27-S-188	9.50	No			
C-TAZ-D-188	9.50	No			
C-TAZ-S-188	9.50	No			
R-19-188	9.50	No			
R-28-188	9.50	No			
R63-188	9.50	No			
RRB-188	9.50	No			

TRUESDAIL LABORATORIES, INC.
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Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy

Laboratory No.: 804636
Date Received: November 1, 2012
Revision 1; December 6, 2012

Project Name: PG&E Topock Project
Project No.: 423575.MP.02.RM
P.O. No.: 423575.MP.02.RM

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
804636-001	C-BNS-D-188	E120.1	NONE	11/1/2012	11:04	EC	893	umhos/cm	2.00
804636-001	C-BNS-D-188	E218.6	FLDFLT	11/1/2012	11:04	Chromium, Hexavalent	ND	ug/L	0.20
804636-001	C-BNS-D-188	E300	NONE	11/1/2012	11:04	Nitrate as N	ND	mg/L	0.500
804636-001	C-BNS-D-188	SM2320B	NONE	11/1/2012	11:04	Alkalinity	126	mg/L	5.00
804636-001	C-BNS-D-188	SM2320B	NONE	11/1/2012	11:04	Alkalinity, Bicarbonate (As CaCO3)	126	mg/L	5.00
804636-001	C-BNS-D-188	SM2320B	NONE	11/1/2012	11:04	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
804636-001	C-BNS-D-188	SM2540D	NONE	11/1/2012	11:04	Suspended Solids (Residue, Non-Filter	ND	mg/L	10.0
804636-001	C-BNS-D-188	SM4500HB	NONE	11/1/2012	11:04	PH	8.17 J	pH	4.00
804636-001	C-BNS-D-188	SW6010B	FLDFLT	11/1/2012	11:04	Iron	ND	ug/L	20.0
804636-001	C-BNS-D-188	SW6010B	NONE	11/1/2012	11:04	Iron	39.3	ug/L	20.0
804636-002	C-I-3-D-188	E120.1	NONE	11/1/2012	9:32	EC	893	umhos/cm	2.00
804636-002	C-I-3-D-188	E218.6	FLDFLT	11/1/2012	9:32	Chromium, Hexavalent	ND	ug/L	0.20
804636-002	C-I-3-D-188	E300	NONE	11/1/2012	9:32	Nitrate as N	ND	mg/L	0.500
804636-002	C-I-3-D-188	SM2320B	NONE	11/1/2012	9:32	Alkalinity	128	mg/L	5.00
804636-002	C-I-3-D-188	SM2320B	NONE	11/1/2012	9:32	Alkalinity, Bicarbonate (As CaCO3)	128	mg/L	5.00
804636-002	C-I-3-D-188	SM2320B	NONE	11/1/2012	9:32	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
804636-002	C-I-3-D-188	SM2540D	NONE	11/1/2012	9:32	Suspended Solids (Residue, Non-Filter	ND	mg/L	10.0
804636-002	C-I-3-D-188	SM4500HB	NONE	11/1/2012	9:32	PH	8.18 J	pH	4.00
804636-002	C-I-3-D-188	SW6010B	FLDFLT	11/1/2012	9:32	Iron	ND	ug/L	20.0
804636-002	C-I-3-D-188	SW6010B	NONE	11/1/2012	9:32	Iron	32.6	ug/L	20.0

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Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
804636-003	C-I-3-S-188	E120.1	NONE	11/1/2012	9:46	EC	895	umhos/cm	2.00
804636-003	C-I-3-S-188	E218.6	FLDFLT	11/1/2012	9:46	Chromium, Hexavalent	ND	ug/L	0.20
804636-003	C-I-3-S-188	E300	NONE	11/1/2012	9:46	Nitrate as N	0.647	mg/L	0.500
804636-003	C-I-3-S-188	SM2320B	NONE	11/1/2012	9:46	Alkalinity	124	mg/L	5.00
804636-003	C-I-3-S-188	SM2320B	NONE	11/1/2012	9:46	Alkalinity, Bicarbonate (As CaCO3)	124	mg/L	5.00
804636-003	C-I-3-S-188	SM2320B	NONE	11/1/2012	9:46	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
804636-003	C-I-3-S-188	SM2540D	NONE	11/1/2012	9:46	Suspended Solids (Residue, Non-Filter	ND	mg/L	10.0
804636-003	C-I-3-S-188	SM4500HB	NONE	11/1/2012	9:46	PH	8.17 J	pH	4.00
804636-003	C-I-3-S-188	SW6010B	FLDFLT	11/1/2012	9:46	Iron	ND	ug/L	20.0
804636-003	C-I-3-S-188	SW6010B	NONE	11/1/2012	9:46	Iron	25.5	ug/L	20.0
804636-004	C-MAR-D-188	E120.1	NONE	11/1/2012	12:14	EC	967	umhos/cm	2.00
804636-004	C-MAR-D-188	E218.6	FLDFLT	11/1/2012	12:14	Chromium, Hexavalent	ND	ug/L	0.20
804636-004	C-MAR-D-188	E300	NONE	11/1/2012	12:14	Nitrate as N	ND	mg/L	0.500
804636-004	C-MAR-D-188	SM2320B	NONE	11/1/2012	12:14	Alkalinity	130	mg/L	5.00
804636-004	C-MAR-D-188	SM2320B	NONE	11/1/2012	12:14	Alkalinity, Bicarbonate (As CaCO3)	130	mg/L	5.00
804636-004	C-MAR-D-188	SM2320B	NONE	11/1/2012	12:14	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
804636-004	C-MAR-D-188	SM2540D	NONE	11/1/2012	12:14	Suspended Solids (Residue, Non-Filter	43.2	mg/L	10.0
804636-004	C-MAR-D-188	SM4500HB	NONE	11/1/2012	12:14	PH	7.73 J	pH	4.00
804636-004	C-MAR-D-188	SW6010B	FLDFLT	11/1/2012	12:14	Iron	ND	ug/L	20.0
804636-004	C-MAR-D-188	SW6010B	NONE	11/1/2012	12:14	Iron	717	ug/L	20.0
804636-005	C-MAR-S-188	E120.1	NONE	11/1/2012	12:29	EC	972	umhos/cm	2.00
804636-005	C-MAR-S-188	E218.6	FLDFLT	11/1/2012	12:29	Chromium, Hexavalent	ND	ug/L	0.20
804636-005	C-MAR-S-188	E300	NONE	11/1/2012	12:29	Nitrate as N	ND	mg/L	0.500
804636-005	C-MAR-S-188	SM2320B	NONE	11/1/2012	12:29	Alkalinity	132	mg/L	5.00
804636-005	C-MAR-S-188	SM2320B	NONE	11/1/2012	12:29	Alkalinity, Bicarbonate (As CaCO3)	132	mg/L	5.00
804636-005	C-MAR-S-188	SM2320B	NONE	11/1/2012	12:29	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
804636-005	C-MAR-S-188	SM2540D	NONE	11/1/2012	12:29	Suspended Solids (Residue, Non-Filter	35.2	mg/L	10.0
804636-005	C-MAR-S-188	SM4500HB	NONE	11/1/2012	12:29	PH	7.74 J	pH	4.00
804636-005	C-MAR-S-188	SW6010B	FLDFLT	11/1/2012	12:29	Iron	132	ug/L	20.0
804636-005	C-MAR-S-188	SW6010B	NONE	11/1/2012	12:29	Iron	899	ug/L	20.0
804636-006	C-R22A-D-188	E120.1	NONE	11/1/2012	10:28	EC	893	umhos/cm	2.00
804636-006	C-R22A-D-188	E218.6	FLDFLT	11/1/2012	10:28	Chromium, Hexavalent	ND	ug/L	0.20
804636-006	C-R22A-D-188	E300	NONE	11/1/2012	10:28	Nitrate as N	ND	mg/L	0.500
804636-006	C-R22A-D-188	SM2320B	NONE	11/1/2012	10:28	Alkalinity	121	mg/L	5.00
804636-006	C-R22A-D-188	SM2320B	NONE	11/1/2012	10:28	Alkalinity, Bicarbonate (As CaCO3)	121	mg/L	5.00
804636-006	C-R22A-D-188	SM2320B	NONE	11/1/2012	10:28	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
804636-006	C-R22A-D-188	SM2540D	NONE	11/1/2012	10:28	Suspended Solids (Residue, Non-Filter	ND	mg/L	10.0
804636-006	C-R22A-D-188	SM4500HB	NONE	11/1/2012	10:28	PH	8.18 J	pH	4.00
804636-006	C-R22A-D-188	SW6010B	FLDFLT	11/1/2012	10:28	Iron	ND	ug/L	20.0
804636-006	C-R22A-D-188	SW6010B	NONE	11/1/2012	10:28	Iron	32.6	ug/L	20.0

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Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
804636-007	C-R22A-S-188	E120.1	NONE	11/1/2012	10:43	EC	892	umhos/cm	2.00
804636-007	C-R22A-S-188	E218.6	FLDFLT	11/1/2012	10:43	Chromium, Hexavalent	ND	ug/L	0.20
804636-007	C-R22A-S-188	E300	NONE	11/1/2012	10:43	Nitrate as N	ND	mg/L	0.500
804636-007	C-R22A-S-188	SM2320B	NONE	11/1/2012	10:43	Alkalinity	125	mg/L	5.00
804636-007	C-R22A-S-188	SM2320B	NONE	11/1/2012	10:43	Alkalinity, Bicarbonate (As CaCO3)	125	mg/L	5.00
804636-007	C-R22A-S-188	SM2320B	NONE	11/1/2012	10:43	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
804636-007	C-R22A-S-188	SM2540D	NONE	11/1/2012	10:43	Suspended Solids (Residue, Non-Filter	ND	mg/L	10.0
804636-007	C-R22A-S-188	SM4500HB	NONE	11/1/2012	10:43	PH	8.18 J	pH	4.00
804636-007	C-R22A-S-188	SW6010B	FLDFLT	11/1/2012	10:43	Iron	ND	ug/L	20.0
804636-007	C-R22A-S-188	SW6010B	NONE	11/1/2012	10:43	Iron	33.7	ug/L	20.0
804636-008	C-R27-D-188	E120.1	NONE	11/1/2012	11:38	EC	892	umhos/cm	2.00
804636-008	C-R27-D-188	E218.6	FLDFLT	11/1/2012	11:38	Chromium, Hexavalent	ND	ug/L	0.20
804636-008	C-R27-D-188	E300	NONE	11/1/2012	11:38	Nitrate as N	ND	mg/L	0.500
804636-008	C-R27-D-188	SM2320B	NONE	11/1/2012	11:38	Alkalinity	125	mg/L	5.00
804636-008	C-R27-D-188	SM2320B	NONE	11/1/2012	11:38	Alkalinity, Bicarbonate (As CaCO3)	125	mg/L	5.00
804636-008	C-R27-D-188	SM2320B	NONE	11/1/2012	11:38	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
804636-008	C-R27-D-188	SM2540D	NONE	11/1/2012	11:38	Suspended Solids (Residue, Non-Filter	ND	mg/L	10.0
804636-008	C-R27-D-188	SM4500HB	NONE	11/1/2012	11:38	PH	8.17 J	pH	4.00
804636-008	C-R27-D-188	SW6010B	FLDFLT	11/1/2012	11:38	Iron	ND	ug/L	20.0
804636-008	C-R27-D-188	SW6010B	NONE	11/1/2012	11:38	Iron	34.1	ug/L	20.0
804636-009	C-R27-S-188	E120.1	NONE	11/1/2012	11:52	EC	891	umhos/cm	2.00
804636-009	C-R27-S-188	E218.6	FLDFLT	11/1/2012	11:52	Chromium, Hexavalent	ND	ug/L	0.20
804636-009	C-R27-S-188	E300	NONE	11/1/2012	11:52	Nitrate as N	ND	mg/L	0.500
804636-009	C-R27-S-188	SM2320B	NONE	11/1/2012	11:52	Alkalinity	123	mg/L	5.00
804636-009	C-R27-S-188	SM2320B	NONE	11/1/2012	11:52	Alkalinity, Bicarbonate (As CaCO3)	123	mg/L	5.00
804636-009	C-R27-S-188	SM2320B	NONE	11/1/2012	11:52	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
804636-009	C-R27-S-188	SM2540D	NONE	11/1/2012	11:52	Suspended Solids (Residue, Non-Filter	ND	mg/L	10.0
804636-009	C-R27-S-188	SM4500HB	NONE	11/1/2012	11:52	PH	8.16 J	pH	4.00
804636-009	C-R27-S-188	SW6010B	FLDFLT	11/1/2012	11:52	Iron	ND	ug/L	20.0
804636-009	C-R27-S-188	SW6010B	NONE	11/1/2012	11:52	Iron	21.8	ug/L	20.0
804636-010	C-TAZ-D-188	E120.1	NONE	11/1/2012	8:47	EC	890	umhos/cm	2.00
804636-010	C-TAZ-D-188	E218.6	FLDFLT	11/1/2012	8:47	Chromium, Hexavalent	ND	ug/L	0.20
804636-010	C-TAZ-D-188	E300	NONE	11/1/2012	8:47	Nitrate as N	ND	mg/L	0.500
804636-010	C-TAZ-D-188	SM2320B	NONE	11/1/2012	8:47	Alkalinity	122	mg/L	5.00
804636-010	C-TAZ-D-188	SM2320B	NONE	11/1/2012	8:47	Alkalinity, Bicarbonate (As CaCO3)	122	mg/L	5.00
804636-010	C-TAZ-D-188	SM2320B	NONE	11/1/2012	8:47	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
804636-010	C-TAZ-D-188	SM2540D	NONE	11/1/2012	8:47	Suspended Solids (Residue, Non-Filter	ND	mg/L	10.0
804636-010	C-TAZ-D-188	SM4500HB	NONE	11/1/2012	8:47	PH	8.20 J	pH	4.00
804636-010	C-TAZ-D-188	SW6010B	FLDFLT	11/1/2012	8:47	Iron	ND	ug/L	20.0
804636-010	C-TAZ-D-188	SW6010B	NONE	11/1/2012	8:47	Iron	35.6	ug/L	20.0

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Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
804636-011	C-TAZ-S-188	E120.1	NONE	11/1/2012	9:05	EC	889	umhos/cm	2.00
804636-011	C-TAZ-S-188	E218.6	FLDFLT	11/1/2012	9:05	Chromium, Hexavalent	ND	ug/L	0.20
804636-011	C-TAZ-S-188	E300	NONE	11/1/2012	9:05	Nitrate as N	ND	mg/L	0.500
804636-011	C-TAZ-S-188	SM2320B	NONE	11/1/2012	9:05	Alkalinity	129	mg/L	5.00
804636-011	C-TAZ-S-188	SM2320B	NONE	11/1/2012	9:05	Alkalinity, Bicarbonate (As CaCO3)	129	mg/L	5.00
804636-011	C-TAZ-S-188	SM2320B	NONE	11/1/2012	9:05	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
804636-011	C-TAZ-S-188	SM2540D	NONE	11/1/2012	9:05	Suspended Solids (Residue, Non-Filter	ND	mg/L	10.0
804636-011	C-TAZ-S-188	SM4500HB	NONE	11/1/2012	9:05	PH	8.21 J	pH	4.00
804636-011	C-TAZ-S-188	SW6010B	FLDFLT	11/1/2012	9:05	Iron	ND	ug/L	20.0
804636-011	C-TAZ-S-188	SW6010B	NONE	11/1/2012	9:05	Iron	31.8	ug/L	20.0
804636-012	R-19-188	E120.1	NONE	11/1/2012	13:06	EC	896	umhos/cm	2.00
804636-012	R-19-188	E218.6	FLDFLT	11/1/2012	13:06	Chromium, Hexavalent	ND	ug/L	0.20
804636-012	R-19-188	E300	NONE	11/1/2012	13:06	Nitrate as N	ND	mg/L	0.500
804636-012	R-19-188	SM2320B	NONE	11/1/2012	13:06	Alkalinity	123	mg/L	5.00
804636-012	R-19-188	SM2320B	NONE	11/1/2012	13:06	Alkalinity, Bicarbonate (As CaCO3)	123	mg/L	5.00
804636-012	R-19-188	SM2320B	NONE	11/1/2012	13:06	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
804636-012	R-19-188	SM2540D	NONE	11/1/2012	13:06	Suspended Solids (Residue, Non-Filter	ND	mg/L	10.0
804636-012	R-19-188	SM4500HB	NONE	11/1/2012	13:06	PH	8.15 J	pH	4.00
804636-012	R-19-188	SW6010B	FLDFLT	11/1/2012	13:06	Iron	ND	ug/L	20.0
804636-012	R-19-188	SW6010B	NONE	11/1/2012	13:06	Iron	43.3	ug/L	20.0
804636-013	R-28-188	E120.1	NONE	11/1/2012	12:49	EC	899	umhos/cm	2.00
804636-013	R-28-188	E218.6	FLDFLT	11/1/2012	12:49	Chromium, Hexavalent	ND	ug/L	0.20
804636-013	R-28-188	E300	NONE	11/1/2012	12:49	Bromide	ND	mg/L	0.500
804636-013	R-28-188	E300	NONE	11/1/2012	12:49	Chloride	75.4	mg/L	5.00
804636-013	R-28-188	E300	NONE	11/1/2012	12:49	Nitrate as N	ND	mg/L	0.500
804636-013	R-28-188	E300	NONE	11/1/2012	12:49	Sulfate	212	mg/L	12.5
804636-013	R-28-188	SM2320B	NONE	11/1/2012	12:49	Alkalinity	132	mg/L	5.00
804636-013	R-28-188	SM2320B	NONE	11/1/2012	12:49	Alkalinity, Bicarbonate (As CaCO3)	132	mg/L	5.00
804636-013	R-28-188	SM2320B	NONE	11/1/2012	12:49	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
804636-013	R-28-188	SM2540C	NONE	11/1/2012	12:49	Total Dissolved Solids	499	mg/L	25.0
804636-013	R-28-188	SM2540D	NONE	11/1/2012	12:49	Suspended Solids (Residue, Non-Filter	ND	mg/L	10.0
804636-013	R-28-188	SM4500HB	NONE	11/1/2012	12:49	PH	8.20 J	pH	4.00
804636-013	R-28-188	SW6010B	FLDFLT	11/1/2012	12:49	BORON	ND	ug/L	200
804636-013	R-28-188	SW6010B	FLDFLT	11/1/2012	12:49	Calcium	71.3	mg/L	25.0
804636-013	R-28-188	SW6010B	FLDFLT	11/1/2012	12:49	Iron	ND	ug/L	20.0
804636-013	R-28-188	SW6010B	NONE	11/1/2012	12:49	Iron	32.0	ug/L	20.0
804636-013	R-28-188	SW6010B	FLDFLT	11/1/2012	12:49	Magnesium	27.5	mg/L	5.00
804636-013	R-28-188	SW6010B	FLDFLT	11/1/2012	12:49	Potassium	4.12	mg/L	0.500
804636-013	R-28-188	SW6010B	FLDFLT	11/1/2012	12:49	Sodium	79.3	mg/L	25.0

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804636-014	R63-188	E120.1	NONE	11/1/2012	10:01	EC	892	umhos/cm	2.00
804636-014	R63-188	E218.6	FLDFLT	11/1/2012	10:01	Chromium, Hexavalent	ND	ug/L	0.20
804636-014	R63-188	E300	NONE	11/1/2012	10:01	Nitrate as N	ND	mg/L	0.500
804636-014	R63-188	SM2320B	NONE	11/1/2012	10:01	Alkalinity	124	mg/L	5.00
804636-014	R63-188	SM2320B	NONE	11/1/2012	10:01	Alkalinity, Bicarbonate (As CaCO3)	124	mg/L	5.00
804636-014	R63-188	SM2320B	NONE	11/1/2012	10:01	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
804636-014	R63-188	SM2540D	NONE	11/1/2012	10:01	Suspended Solids (Residue, Non-Filter	ND	mg/L	10.0
804636-014	R63-188	SM4500HB	NONE	11/1/2012	10:01	PH	8.19 J	pH	4.00
804636-014	R63-188	SW6010B	FLDFLT	11/1/2012	10:01	Iron	ND	ug/L	20.0
804636-014	R63-188	SW6010B	NONE	11/1/2012	10:01	Iron	69.4	ug/L	20.0
804636-015	RRB-188	E120.1	NONE	11/1/2012	13:23	EC	899	umhos/cm	2.00
804636-015	RRB-188	E218.6	FLDFLT	11/1/2012	13:23	Chromium, Hexavalent	ND	ug/L	0.20
804636-015	RRB-188	E300	NONE	11/1/2012	13:23	Nitrate as N	ND	mg/L	0.500
804636-015	RRB-188	SM2320B	NONE	11/1/2012	13:23	Alkalinity	127	mg/L	5.00
804636-015	RRB-188	SM2320B	NONE	11/1/2012	13:23	Alkalinity, Bicarbonate (As CaCO3)	127	mg/L	5.00
804636-015	RRB-188	SM2320B	NONE	11/1/2012	13:23	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
804636-015	RRB-188	SM2540D	NONE	11/1/2012	13:23	Suspended Solids (Residue, Non-Filter	ND	mg/L	10.00
804636-015	RRB-188	SM4500HB	NONE	11/1/2012	13:23	PH	8.15	pH	4.00
804636-015	RRB-188	SW6010B	FLDFLT	11/1/2012	13:23	Iron	ND	ug/L	20.0
804636-015	RRB-188	SW6010B	NONE	11/1/2012	13:23	Iron	127	ug/L	20.0

ND: Non Detected (below reporting limit)

mg/L: Milligrams per liter.

Note: The following "Significant Figures" rule has been applied to all results:

Results below 0.01ppm will have two (2) significant figures.

Result above or equal to 0.01ppm will have three (3) significant figures.

Quality Control data will always have three (3) significant figures.

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TRUESDAIL LABORATORIES, INC.
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TUSTIN, CALIFORNIA 92780-7008
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REPORT

Client: **E2 Consulting Engineers, Inc.**
155 Grand Avenue, Suite 800
Oakland, CA 94612
Attention: Shawn Duffy
Project Name: PG&E Topock Project
Project Number: 423575.MP.02.RM
P.O. Number: 423575.MP.02.RM
Release Number:

Laboratory No. 804636

Printed 12/6/2012
Revised

Samples Received on 11/1/2012 9:30:00 PM

Field ID	Lab ID	Collected	Matrix
C-BNS-D-188	804636-001	11/01/2012 11:04	Water
C-I-3-D-188	804636-002	11/01/2012 09:32	Water
C-I-3-S-188	804636-003	11/01/2012 09:46	Water
C-MAR-D-188	804636-004	11/01/2012 12:14	Water
C-MAR-S-188	804636-005	11/01/2012 12:29	Water
C-R22A-D-188	804636-006	11/01/2012 10:28	Water
C-R22A-S-188	804636-007	11/01/2012 10:43	Water
C-R27-D-188	804636-008	11/01/2012 11:38	Water
C-R27-S-188	804636-009	11/01/2012 11:52	Water
C-TAZ-D-188	804636-010	11/01/2012 08:47	Water
C-TAZ-S-188	804636-011	11/01/2012 09:05	Water
R-19-188	804636-012	11/01/2012 13:06	Water
R-28-188	804636-013	11/01/2012 12:49	Water
R63-188	804636-014	11/01/2012 10:01	Water
RRB-188	804636-015	11/01/2012 13:23	Water

Anions By I.C. - EPA 300.0

Batch 11AN12AF

Parameter	Unit	Analyzed	DF	MDL	RL	Result
804636-001 Nitrate as Nitrogen	mg/L	11/02/2012 09:24	1.00	0.0830	0.500	ND
804636-002 Nitrate as Nitrogen	mg/L	11/02/2012 09:36	1.00	0.0830	0.500	ND
804636-003 Nitrate as Nitrogen	mg/L	11/02/2012 09:47	1.00	0.0830	0.500	0.647
804636-004 Nitrate as Nitrogen	mg/L	11/02/2012 09:59	1.00	0.0830	0.500	ND
804636-005 Nitrate as Nitrogen	mg/L	11/02/2012 10:10	1.00	0.0830	0.500	ND
804636-006 Nitrate as Nitrogen	mg/L	11/02/2012 10:21	1.00	0.0830	0.500	ND
804636-007 Nitrate as Nitrogen	mg/L	11/02/2012 10:33	1.00	0.0830	0.500	ND
804636-008 Nitrate as Nitrogen	mg/L	11/02/2012 10:44	1.00	0.0830	0.500	ND
804636-009 Nitrate as Nitrogen	mg/L	11/02/2012 11:41	1.00	0.0830	0.500	ND
804636-010 Nitrate as Nitrogen	mg/L	11/02/2012 11:53	1.00	0.0830	0.500	ND

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804636-011	Nitrate as Nitrogen	mg/L	11/02/2012 12:04	1.00	0.0830	0.500	ND
804636-012	Nitrate as Nitrogen	mg/L	11/02/2012 12:16	1.00	0.0830	0.500	ND
804636-013	Nitrate as Nitrogen	mg/L	11/02/2012 12:27	1.00	0.0830	0.500	ND
804636-014	Nitrate as Nitrogen	mg/L	11/02/2012 12:38	1.00	0.0830	0.500	ND
804636-015	Nitrate as Nitrogen	mg/L	11/02/2012 12:50	1.00	0.0830	0.500	ND

Method Blank

Parameter	Unit	DF	Result
Nitrate as Nitrogen	mg/L	1.00	ND

Duplicate — Lab ID = 804636-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Nitrate as Nitrogen	mg/L	1.00	0.255	0.254	0.393	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrate as Nitrogen	mg/L	1.00	4.00	4.00	99.9	90 - 110

Matrix Spike — Lab ID = 804636-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Nitrate as Nitrogen	mg/L	1.00	2.34	2.25(2.00)	104	85 - 115

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrate as Nitrogen	mg/L	1.00	4.00	4.00	100	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrate as Nitrogen	mg/L	1.00	2.98	3.00	99.3	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrate as Nitrogen	mg/L	1.00	3.00	3.00	99.8	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrate as Nitrogen	mg/L	1.00	2.95	3.00	98.4	90 - 110

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Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project
Project Number: 423575.MP.02.RM

Printed 12/6/2012
Revised

Anions By I.C. - EPA 300.0

Batch 11AN12A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
804636-013 Bromide	mg/L	11/05/2012 11:50	1.00	0.0250	0.500	ND
Chloride	mg/L	11/05/2012 12:36	25.0	0.872	5.00	75.4
Sulfate	mg/L	11/05/2012 12:36	25.0	0.768	12.5	212

Method Blank

Parameter	Unit	DF	Result
Bromide	mg/L	1.00	ND
Chloride	mg/L	1.00	ND
Sulfate	mg/L	1.00	ND

Duplicate

Lab ID = 804636-013

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Bromide	mg/L	1.00	ND	0	0	0 - 20
Chloride	mg/L	25.0	75.3	75.4	0.122	0 - 20
Sulfate	mg/L	25.0	212	212	0.199	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Bromide	mg/L	1.00	4.03	4.00	101	90 - 110
Chloride	mg/L	1.00	4.01	4.00	100	90 - 110
Sulfate	mg/L	1.00	20.0	20.0	99.9	90 - 110

Matrix Spike

Lab ID = 804636-013

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Bromide	mg/L	1.00	2.06	2.00(2.00)	103	85 - 115
Chloride	mg/L	25.0	176	175(100)	100	85 - 115
Sulfate	mg/L	25.0	473	462(250)	104	85 - 115

Matrix Spike Duplicate

Lab ID = 804636-013

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Bromide	mg/L	1.00	2.06	2.00(2.00)	103	85 - 115

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Bromide	mg/L	1.00	4.04	4.00	101	90 - 110
Chloride	mg/L	1.00	3.98	4.00	99.5	90 - 110
Sulfate	mg/L	1.00	20.0	20.0	99.8	90 - 110

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Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project
Project Number: 423575.MP.02.RM

Printed 12/6/2012
Revised

Alkalinity by SM 2320B

Batch 11ALK12B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
804636-001 Alkalinity as CaCO3	mg/L	11/05/2012	1.00	0.555	5.00	126
Bicarbonate (Calculated)	mg/L	11/05/2012	1.00	0.555	5.00	126
Carbonate (Calculated)	mg/L	11/05/2012	1.00	0.555	5.00	ND
804636-002 Alkalinity as CaCO3	mg/L	11/05/2012	1.00	0.555	5.00	128
Bicarbonate (Calculated)	mg/L	11/05/2012	1.00	0.555	5.00	128
Carbonate (Calculated)	mg/L	11/05/2012	1.00	0.555	5.00	ND
804636-003 Alkalinity as CaCO3	mg/L	11/05/2012	1.00	0.555	5.00	124
Bicarbonate (Calculated)	mg/L	11/05/2012	1.00	0.555	5.00	124
Carbonate (Calculated)	mg/L	11/05/2012	1.00	0.555	5.00	ND
804636-004 Alkalinity as CaCO3	mg/L	11/05/2012	1.00	0.555	5.00	130
Bicarbonate (Calculated)	mg/L	11/05/2012	1.00	0.555	5.00	130
Carbonate (Calculated)	mg/L	11/05/2012	1.00	0.555	5.00	ND
804636-005 Alkalinity as CaCO3	mg/L	11/05/2012	1.00	0.555	5.00	132
Bicarbonate (Calculated)	mg/L	11/05/2012	1.00	0.555	5.00	132
Carbonate (Calculated)	mg/L	11/05/2012	1.00	0.555	5.00	ND
804636-006 Alkalinity as CaCO3	mg/L	11/05/2012	1.00	0.555	5.00	121
Bicarbonate (Calculated)	mg/L	11/05/2012	1.00	0.555	5.00	121
Carbonate (Calculated)	mg/L	11/05/2012	1.00	0.555	5.00	ND
804636-007 Alkalinity as CaCO3	mg/L	11/05/2012	1.00	0.555	5.00	125
Bicarbonate (Calculated)	mg/L	11/05/2012	1.00	0.555	5.00	125
Carbonate (Calculated)	mg/L	11/05/2012	1.00	0.555	5.00	ND
804636-008 Alkalinity as CaCO3	mg/L	11/05/2012	1.00	0.555	5.00	125
Bicarbonate (Calculated)	mg/L	11/05/2012	1.00	0.555	5.00	125
Carbonate (Calculated)	mg/L	11/05/2012	1.00	0.555	5.00	ND
804636-009 Alkalinity as CaCO3	mg/L	11/05/2012	1.00	0.555	5.00	123
Bicarbonate (Calculated)	mg/L	11/05/2012	1.00	0.555	5.00	123
Carbonate (Calculated)	mg/L	11/05/2012	1.00	0.555	5.00	ND
804636-010 Alkalinity as CaCO3	mg/L	11/05/2012	1.00	0.555	5.00	122
Bicarbonate (Calculated)	mg/L	11/05/2012	1.00	0.555	5.00	122
Carbonate (Calculated)	mg/L	11/05/2012	1.00	0.555	5.00	ND
804636-011 Alkalinity as CaCO3	mg/L	11/05/2012	1.00	0.555	5.00	129
Bicarbonate (Calculated)	mg/L	11/05/2012	1.00	0.555	5.00	129
Carbonate (Calculated)	mg/L	11/05/2012	1.00	0.555	5.00	ND
804636-012 Alkalinity as CaCO3	mg/L	11/05/2012	1.00	0.555	5.00	123

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804636-012	Bicarbonate (Calculated)	mg/L	11/05/2012	1.00	0.555	5.00	123
	Carbonate (Calculated)	mg/L	11/05/2012	1.00	0.555	5.00	ND
804636-013	Alkalinity as CaCO3	mg/L	11/05/2012	1.00	0.555	5.00	132
	Bicarbonate (Calculated)	mg/L	11/05/2012	1.00	0.555	5.00	132
	Carbonate (Calculated)	mg/L	11/05/2012	1.00	0.555	5.00	ND
804636-014	Alkalinity as CaCO3	mg/L	11/05/2012	1.00	0.555	5.00	124
	Bicarbonate (Calculated)	mg/L	11/05/2012	1.00	0.555	5.00	124
	Carbonate (Calculated)	mg/L	11/05/2012	1.00	0.555	5.00	ND
804636-015	Alkalinity as CaCO3	mg/L	11/05/2012	1.00	0.555	5.00	127
	Bicarbonate (Calculated)	mg/L	11/05/2012	1.00	0.555	5.00	127
	Carbonate (Calculated)	mg/L	11/05/2012	1.00	0.555	5.00	ND

Method Blank

Parameter	Unit	DF	Result
Alkalinity as CaCO3	mg/L	1.00	ND

Duplicate — Lab ID = 804636-015

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Alkalinity as CaCO3	mg/L	1.00	126	127	0.790	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Alkalinity as CaCO3	mg/L	1.00	102	100	102	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Alkalinity as CaCO3	mg/L	1.00	101	100	101	90 - 110

Matrix Spike — Lab ID = 804636-015

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Alkalinity as CaCO3	mg/L	1.00	227	227(100)	100	75 - 125

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Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project
Project Number: 423575.MP.02.RM

Printed 12/6/2012
Revised

Specific Conductivity - EPA 120.1

Batch 11EC12A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
804636-001 Specific Conductivity	umhos/cm	11/02/2012	1.00	0.116	2.00	893
804636-002 Specific Conductivity	umhos/cm	11/02/2012	1.00	0.116	2.00	893
804636-003 Specific Conductivity	umhos/cm	11/02/2012	1.00	0.116	2.00	895
804636-004 Specific Conductivity	umhos/cm	11/02/2012	1.00	0.116	2.00	967
804636-005 Specific Conductivity	umhos/cm	11/02/2012	1.00	0.116	2.00	972
804636-006 Specific Conductivity	umhos/cm	11/02/2012	1.00	0.116	2.00	893
804636-007 Specific Conductivity	umhos/cm	11/02/2012	1.00	0.116	2.00	892
804636-008 Specific Conductivity	umhos/cm	11/02/2012	1.00	0.116	2.00	892
804636-009 Specific Conductivity	umhos/cm	11/02/2012	1.00	0.116	2.00	891
804636-010 Specific Conductivity	umhos/cm	11/02/2012	1.00	0.116	2.00	890
804636-011 Specific Conductivity	umhos/cm	11/02/2012	1.00	0.116	2.00	889
804636-012 Specific Conductivity	umhos/cm	11/02/2012	1.00	0.116	2.00	896
804636-013 Specific Conductivity	umhos/cm	11/02/2012	1.00	0.116	2.00	899
804636-014 Specific Conductivity	umhos/cm	11/02/2012	1.00	0.116	2.00	892
804636-015 Specific Conductivity	umhos/cm	11/02/2012	1.00	0.116	2.00	899

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate

Lab ID = 804636-010

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	890	890	0	0 - 10

Duplicate

Lab ID = 804636-015

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	898	899	0.111	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	710	706	100	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	712	706	101	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	704	706	99.7	90 - 110

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Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project
Project Number: 423575.MP.02.RM

Printed 12/6/2012
Revised

Metals by EPA 6010B, Total

Batch 111512A-Th2

Parameter	Unit	Analyzed	DF	MDL	RL	Result
804636-001 Iron	ug/L	11/15/2012 16:59	1.00	9.50	20.0	39.3
804636-002 Iron	ug/L	11/15/2012 17:51	1.00	9.50	20.0	32.6
804636-003 Iron	ug/L	11/15/2012 17:57	1.00	9.50	20.0	25.5
804636-004 Iron	ug/L	11/15/2012 18:02	1.00	9.50	20.0	717
804636-005 Iron	ug/L	11/15/2012 18:08	1.00	9.50	20.0	899
804636-006 Iron	ug/L	11/15/2012 18:17	1.00	9.50	20.0	32.6
804636-007 Iron	ug/L	11/15/2012 18:23	1.00	9.50	20.0	33.7
804636-008 Iron	ug/L	11/15/2012 18:28	1.00	9.50	20.0	34.1
804636-009 Iron	ug/L	11/15/2012 18:34	1.00	9.50	20.0	21.8
804636-010 Iron	ug/L	11/15/2012 18:40	1.00	9.50	20.0	35.6
804636-012 Iron	ug/L	11/15/2012 19:21	1.00	9.50	20.0	43.3
804636-013 Iron	ug/L	11/15/2012 19:26	1.00	9.50	20.0	32.0
804636-014 Iron	ug/L	11/15/2012 19:32	1.00	9.50	20.0	69.4
804636-015 Iron	ug/L	11/15/2012 19:38	1.00	9.50	20.0	127

Method Blank

Parameter	Unit	DF	Result
Iron	ug/L	1.00	ND

Duplicate

Lab ID = 804636-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Iron	ug/L	1.00	33.5	39.3	15.9	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	55.5	50.0	111	85 - 115

Matrix Spike

Lab ID = 804636-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	88.3	89.3(50.0)	98.0	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5100	5000	102	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5050	5000	101	90 - 110

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Metals by EPA 6010B, Total

Batch 111912A-Th2

Parameter	Unit	Analyzed	DF	MDL	RL	Result
804636-011 Iron	ug/L	11/19/2012 13:30	1.00	9.50	20.0	31.8

Method Blank

Parameter	Unit	DF	Result
Iron	ug/L	1.00	ND

Duplicate — Lab ID = 804636-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Iron	ug/L	1.00	34.8	38.6	10.4	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	56.7	50.0	113	85 - 115

Matrix Spike — Lab ID = 804636-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	88.6	88.6(50.0)	100	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5200	5000	104	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5000	5000	100	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5000	5000	100	90 - 110

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2110	2000	105	80 - 120

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2080	2000	104	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2100	2000	105	80 - 120

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Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project
Project Number: 423575.MP.02.RM

Printed 12/6/2012
Revised

Chrome VI by EPA 218.6

Batch 11CrH12B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
804636-001 Chromium, Hexavalent	ug/L	11/02/2012 10:22	1.00	0.00920	0.20	ND
804636-002 Chromium, Hexavalent	ug/L	11/02/2012 10:32	1.00	0.00920	0.20	ND
804636-003 Chromium, Hexavalent	ug/L	11/02/2012 10:43	1.00	0.00920	0.20	ND
804636-004 Chromium, Hexavalent	ug/L	11/02/2012 10:53	1.00	0.00920	0.20	ND
804636-005 Chromium, Hexavalent	ug/L	11/02/2012 11:04	1.00	0.00920	0.20	ND
804636-006 Chromium, Hexavalent	ug/L	11/02/2012 11:14	1.00	0.00920	0.20	ND
804636-007 Chromium, Hexavalent	ug/L	11/02/2012 12:16	1.00	0.00920	0.20	ND
804636-008 Chromium, Hexavalent	ug/L	11/02/2012 14:11	1.00	0.00920	0.20	ND
804636-009 Chromium, Hexavalent	ug/L	11/02/2012 14:21	1.00	0.00920	0.20	ND
804636-010 Chromium, Hexavalent	ug/L	11/02/2012 14:32	1.00	0.00920	0.20	ND
804636-011 Chromium, Hexavalent	ug/L	11/02/2012 14:42	1.00	0.00920	0.20	ND
804636-012 Chromium, Hexavalent	ug/L	11/02/2012 14:52	1.00	0.00920	0.20	ND
804636-013 Chromium, Hexavalent	ug/L	11/02/2012 15:03	1.00	0.00920	0.20	ND
804636-014 Chromium, Hexavalent	ug/L	11/02/2012 15:13	1.00	0.00920	0.20	ND
804636-015 Chromium, Hexavalent	ug/L	11/02/2012 15:24	1.00	0.00920	0.20	ND

Method Blank

Parameter	Unit	DF	Result
Chromium, Hexavalent	ug/L	1.00	ND

Duplicate — Lab ID = 804636-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	ND	0	0	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.196	0.200	97.8	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.04	5.00	101	90 - 110

Matrix Spike — Lab ID = 804435-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.92	1.96(1.00)	95.4	90 - 110

Matrix Spike — Lab ID = 804602-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.24	5.00(5.00)	105	90 - 110

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Matrix Spike — Lab ID = 804602-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.15	1.14(1.00)	101	90 - 110

Matrix Spike — Lab ID = 804636-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.02	1.00(1.00)	102	90 - 110

Matrix Spike — Lab ID = 804636-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.998	1.00(1.00)	99.8	90 - 110

Matrix Spike — Lab ID = 804636-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.998	1.00(1.00)	99.8	90 - 110

Matrix Spike — Lab ID = 804636-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.970	1.00(1.00)	97.0	90 - 110

Matrix Spike — Lab ID = 804636-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.964	1.00(1.00)	96.4	90 - 110

Matrix Spike — Lab ID = 804636-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.991	1.00(1.00)	99.1	90 - 110

Matrix Spike — Lab ID = 804636-007

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.970	1.00(1.00)	97.0	90 - 110

Matrix Spike — Lab ID = 804636-008

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.962	1.00(1.00)	96.2	90 - 110

Matrix Spike — Lab ID = 804636-009

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.950	1.00(1.00)	95.0	90 - 110

Matrix Spike — Lab ID = 804636-010

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.972	1.00(1.00)	97.2	90 - 110

Matrix Spike — Lab ID = 804636-011

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.983	1.00(1.00)	98.3	90 - 110

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Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project
Project Number: 423575.MP.02.RM

Printed 12/6/2012
Revised

Matrix Spike — Lab ID = 804636-012

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.971	1.00(1.00)	97.1	90 - 110

Matrix Spike — Lab ID = 804636-013

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.986	1.00(1.00)	98.6	90 - 110

Matrix Spike — Lab ID = 804636-014

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.983	1.00(1.00)	98.3	90 - 110

Matrix Spike — Lab ID = 804636-015

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.983	1.00(1.00)	98.3	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.91	5.00	98.2	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	10.4	10.0	104	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	10.3	10.0	103	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	10.2	10.0	102	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	10.1	10.0	101	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	10.2	10.0	102	95 - 105

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project
Project Number: 423575.MP.02.RM

Printed 12/6/2012
Revised

Metals by EPA 6010B, Dissolved

Batch 110812A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
804636-013 Boron	ug/L	11/08/2012 14:29	2.00	3.40	200	ND
Calcium	mg/L	11/08/2012 11:55	50.0	0.836	25.0	71.3
Magnesium	mg/L	11/08/2012 12:36	10.0	0.516	5.00	27.5
Potassium	mg/L	11/08/2012 15:20	1.00	0.180	0.500	4.12
Sodium	mg/L	11/08/2012 11:55	50.0	5.65	25.0	79.3

Method Blank

Parameter	Unit	DF	Result
Calcium	mg/L	1.00	ND
Potassium	mg/L	1.00	ND
Sodium	mg/L	1.00	ND
Magnesium	mg/L	1.00	ND
Boron	ug/L	1.00	ND

Duplicate

Lab ID = 804636-013

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Calcium	mg/L	50.0	69.3	71.3	2.82	0 - 20
Potassium	mg/L	1.00	4.03	4.12	2.23	0 - 20
Sodium	mg/L	50.0	77.2	79.3	2.62	0 - 20
Magnesium	mg/L	10.0	27.7	27.5	0.652	0 - 20
Boron	ug/L	2.00	72.5	72.5	0	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	mg/L	1.00	2.13	2.00	106	85 - 115
Potassium	mg/L	1.00	2.04	2.00	102	85 - 115
Sodium	mg/L	1.00	2.00	2.00	100	85 - 115
Magnesium	mg/L	1.00	2.13	2.00	106	85 - 115
Boron	ug/L	1.00	2000	2000	99.8	85 - 115

Matrix Spike

Lab ID = 804636-013

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Calcium	mg/L	50.0	174	171(100)	103	75 - 125
Potassium	mg/L	1.00	6.02	6.12(2.00)	94.8	75 - 125
Sodium	mg/L	50.0	178	179(100)	99.1	75 - 125
Magnesium	mg/L	10.0	49.4	47.5(20.0)	109	75 - 125
Boron	ug/L	2.00	1990	2070(2000)	95.7	75 - 125

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Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project
Project Number: 423575.MP.02.RM

Printed 12/6/2012
Revised

Matrix Spike Duplicate — Lab ID = 804636-013

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Potassium	mg/L	1.00	6.03	6.12(2.00)	95.4	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	mg/L	1.00	4.99	5.00	99.8	90 - 110
Potassium	mg/L	1.00	4.92	5.00	98.3	90 - 110
Sodium	mg/L	1.00	4.91	5.00	98.2	90 - 110
Magnesium	mg/L	1.00	5.13	5.00	103	90 - 110
Boron	ug/L	1.00	5250	5000	105	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	mg/L	1.00	5.07	5.00	101	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	mg/L	1.00	5.00	5.00	100	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	mg/L	1.00	4.90	5.00	97.9	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	mg/L	1.00	5.05	5.00	101	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Potassium	mg/L	1.00	4.64	5.00	92.7	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Potassium	mg/L	1.00	4.89	5.00	97.8	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Potassium	mg/L	1.00	4.63	5.00	92.6	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Potassium	mg/L	1.00	4.93	5.00	98.6	90 - 110

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project
Project Number: 423575.MP.02.RM

Printed 12/6/2012
Revised

Metals by EPA 6010B, Dissolved

Batch 111312B-Th2

Parameter	Unit	Analyzed	DF	MDL	RL	Result
804636-001 Iron	ug/L	11/13/2012 16:59	1.00	9.50	20.0	ND
804636-002 Iron	ug/L	11/13/2012 17:44	1.00	9.50	20.0	ND
804636-003 Iron	ug/L	11/13/2012 17:49	1.00	9.50	20.0	ND
804636-004 Iron	ug/L	11/13/2012 17:55	1.00	9.50	20.0	ND
804636-005 Iron	ug/L	11/13/2012 18:01	1.00	9.50	20.0	132
804636-006 Iron	ug/L	11/13/2012 18:07	1.00	9.50	20.0	ND
804636-007 Iron	ug/L	11/13/2012 18:12	1.00	9.50	20.0	ND
804636-008 Iron	ug/L	11/13/2012 18:18	1.00	9.50	20.0	ND
804636-009 Iron	ug/L	11/13/2012 18:24	1.00	9.50	20.0	ND
804636-010 Iron	ug/L	11/13/2012 18:30	1.00	9.50	20.0	ND
804636-011 Iron	ug/L	11/13/2012 18:35	1.00	9.50	20.0	ND
804636-012 Iron	ug/L	11/13/2012 19:03	1.00	9.50	20.0	ND
804636-013 Iron	ug/L	11/13/2012 19:09	1.00	9.50	20.0	ND
804636-014 Iron	ug/L	11/13/2012 19:15	1.00	9.50	20.0	ND
804636-015 Iron	ug/L	11/13/2012 19:20	1.00	9.50	20.0	ND

Method Blank

Parameter	Unit	DF	Result
Iron	ug/L	1.00	ND

Duplicate

Lab ID = 804636-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Iron	ug/L	1.00	ND	0	0	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	51.5	50.0	103	85 - 115

Matrix Spike

Lab ID = 804636-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	50.0	50.0(50.0)	100	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	4840	5000	96.7	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	4880	5000	97.6	90 - 110

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project
Project Number: 423575.MP.02.RM

Printed 12/6/2012
Revised

pH by SM 4500-H B

Batch 11PH12B

Parameter	Unit	Analyzed	DF	MDL	RL	Result	
804636-001 pH	pH	11/02/2012 12:40	1.00	0.0784	4.00	8.17	J
804636-002 pH	pH	11/02/2012 12:43	1.00	0.0784	4.00	8.18	J
804636-003 pH	pH	11/02/2012 12:45	1.00	0.0784	4.00	8.17	J
804636-004 pH	pH	11/02/2012 12:48	1.00	0.0784	4.00	7.73	J
804636-005 pH	pH	11/02/2012 12:50	1.00	0.0784	4.00	7.74	J
804636-006 pH	pH	11/02/2012 12:53	1.00	0.0784	4.00	8.18	J
804636-007 pH	pH	11/02/2012 12:55	1.00	0.0784	4.00	8.18	J
804636-008 pH	pH	11/02/2012 12:58	1.00	0.0784	4.00	8.17	J
804636-009 pH	pH	11/02/2012 13:00	1.00	0.0784	4.00	8.16	J
804636-010 pH	pH	11/02/2012 13:07	1.00	0.0784	4.00	8.20	J
804636-011 pH	pH	11/02/2012 13:10	1.00	0.0784	4.00	8.21	J
804636-012 pH	pH	11/02/2012 13:12	1.00	0.0784	4.00	8.15	J
804636-013 pH	pH	11/02/2012 13:15	1.00	0.0784	4.00	8.20	J
804636-014 pH	pH	11/02/2012 13:17	1.00	0.0784	4.00	8.19	J
804636-015 pH	pH	11/02/2012 13:20	1.00	0.0784	4.00	8.15	

Duplicate — Lab ID = 804636-009

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
pH	pH	1.00	8.17	8.16	0.122	0 - 20

Duplicate — Lab ID = 804636-015

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
pH	pH	1.00	8.15	8.15	0	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
pH	pH	1.00	7.03	7.00	100	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
pH	pH	1.00	7.01	7.00	100	90 - 110

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project
Project Number: 423575.MP.02.RM

Printed 12/6/2012
Revised

Total Dissolved Solids by SM 2540 C

Batch 10TDS12K

Parameter	Unit	Analyzed	DF	MDL	RL	Result
804636-013 Total Dissolved Solids	mg/L	11/05/2012	1.00	0.757	25.0	499

Method Blank

Parameter	Unit	DF	Result
Total Dissolved Solids	mg/L	1.00	ND

Duplicate

Lab ID = 804570-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	90.0	93.0	3.28	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Dissolved Solids	mg/L	1.00	494	500	98.8	90 - 110

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Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project
Project Number: 423575.MP.02.RM

Printed 12/6/2012
Revised

Total Suspended Solids by SM 2540 D

Batch 11TSS12B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
804636-001 Total Suspended Solids	mg/L	11/05/2012	1.00	0.349	10.0	ND
804636-002 Total Suspended Solids	mg/L	11/05/2012	1.00	0.349	10.0	ND
804636-003 Total Suspended Solids	mg/L	11/05/2012	1.00	0.349	10.0	ND
804636-004 Total Suspended Solids	mg/L	11/05/2012	1.00	0.349	10.0	43.2
804636-005 Total Suspended Solids	mg/L	11/05/2012	1.00	0.349	10.0	35.2
804636-006 Total Suspended Solids	mg/L	11/05/2012	1.00	0.349	10.0	ND
804636-007 Total Suspended Solids	mg/L	11/05/2012	1.00	0.349	10.0	ND
804636-008 Total Suspended Solids	mg/L	11/05/2012	1.00	0.349	10.0	ND
804636-009 Total Suspended Solids	mg/L	11/05/2012	1.00	0.349	10.0	ND
804636-010 Total Suspended Solids	mg/L	11/05/2012	1.00	0.349	10.0	ND
804636-011 Total Suspended Solids	mg/L	11/05/2012	1.00	0.349	10.0	ND
804636-012 Total Suspended Solids	mg/L	11/05/2012	1.00	0.349	10.0	ND
804636-013 Total Suspended Solids	mg/L	11/05/2012	1.00	0.349	10.0	ND
804636-014 Total Suspended Solids	mg/L	11/05/2012	1.00	0.349	10.0	ND
804636-015 Total Suspended Solids	mg/L	11/05/2012	1.00	0.349	10.0	ND

Method Blank

Parameter	Unit	DF	Result
Total Suspended Solids	mg/L	1.00	ND

Duplicate

Lab ID = 804636-010

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Suspended Solids	mg/L	1.00	ND	0	0	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Suspended Solids	mg/L	1.00	98.0	100	98.0	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Suspended Solids	mg/L	1.00	102	100	102	90 - 110

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Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from Truesdail Laboratories.

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Truesdail Laboratories, Inc.

Total Dissolved Solids by SM 2540 C

Calculations

Batch: 10TDS12K
Date Analyzed: 10/30/12

Laboratory Number	Sample volume, ml	Initial weight,g	1st Final weight,g	2nd Final weight,g	Weight Difference, g	Exceeds 0.5mg? Yes/No	Residue weight,g	Filterable residue, ppm	RL , ppm	Reported Value, ppm	DF
Blank	100	68.8420	68.8422	68.8422	0.0000	No	0.0002	2.0	25.0	ND	1
804570-2	200	110.9445	110.9631	110.9631	0.0000	No	0.0186	93.0	12.5	93.0	1
804570-4	100	108.7338	108.7715	108.7714	0.0001	No	0.0376	376.0	25.0	376.0	1
804602	10	71.3219	71.3689	71.3689	0.0000	No	0.0470	4700.0	250.0	4700.0	1
804607	50	73.1803	73.2247	73.2243	0.0004	No	0.0440	880.0	50.0	880.0	1
804620	20	49.7761	49.8770	49.8770	0.0000	No	0.1009	5045.0	125.0	5045.0	1
804621	20	50.8522	50.9489	50.9489	0.0000	No	0.0967	4835.0	125.0	4835.0	1
804622	5	51.3397	51.4327	51.4327	0.0000	No	0.0930	18600.0	500.0	18600.0	1
804623	10	51.2454	51.2957	51.2956	0.0001	No	0.0502	5020.0	250.0	5020.0	1
804624	10	49.4000	49.4608	49.4607	0.0001	No	0.0607	6070.0	250.0	6070.0	1
804625	10	50.3187	50.3744	50.3742	0.0002	No	0.0555	5550.0	250.0	5550.0	1
804570-2D	200	112.9685	112.9865	112.9865	0.0000	No	0.0180	90.0	12.5	90.0	1
LCS	100	73.4901	73.5395	73.5395	0.0000	No	0.0494	494.0	25.0	494.0	1
804626	10	51.9310	51.9878	51.9874	0.0004	No	0.0564	5640.0	250.0	5640.0	1
804627	20	51.9377	52.0316	52.0316	0.0000	No	0.0939	4695.0	125.0	4695.0	1
804615	470	105.3551	105.364	105.364	0.0000	No	0.0089	18.9	5.3	18.9	1
804636-13	100	111.3382	111.3881	111.3881	0.0000	No	0.0499	499.0	25.0	499.0	1
804651-1	480	109.0637	109.0647	109.0645	0.0002	No	0.0008	1.7	5.2	ND	1
804651-2	490	109.9026	109.9026	109.9026	0.0000	No	0.0000	0.0	5.1	ND	1
804658-2	200	112.8428	112.8619	112.8619	0.0000	No	0.0191	95.5	12.5	95.5	1
804658-4	100	111.6516	111.6883	111.6883	0.0000	No	0.0367	367.0	25.0	367.0	1
804622D	5	49.3541	49.4471	49.4468	0.0003	No	0.0927	18540.0	500.0	18540.0	1

Calculation as follows:

Filterable residue (TDS), mg/L = $\left(\frac{A-B}{C}\right) x\ 10^6$

Where:

A = weight of dish + residue in grams.
B = weight of dish in grams.
C = mL of sample filtered.

RL= reporting limit.
ND = not detected (below the reporting limit)

Laboratory Control Sample (LCS) Summary

QC Std I.D.	Measurd Value, ppm	Theoretical Value, ppm	Percent Rec	Acceptance Limit	QC Within Control?
LCS1	494	500	98.8%	90-110%	Yes
LCSD					

LCS Recovery

$P = \left(\frac{LC}{LT}\right) x\ 100$

P = Percent recovery.
LC = Measured LCS value (ppm).
LT = Theoretical LCS value (ppm).

Duplicate Determinations Difference Summary

Lab Number	Sample Weight, g	Sample Dup Weight, g	% RPD	Acceptance Limit	QC Within Control?
804570-2	0.0186	0.018	1.6%	≤5%	Yes
804622	0.093	0.0927	0.2%	5%	Yes

Duplicate Determination Difference

$\% \ Difference = \frac{|A \text{ or } B - C|}{C} x\ 100$

where $C = \frac{A+B}{2}$

A = Weght of the first sample in (g).
B = Weght of the second sample in (g).
C = Average weight in (g).

Jenny T.
Analyst Printed Name

Analyst Signature

Maksim
~~Hope T.~~
Reviewer Printed Name

Reviewer Signature

012C

Total Dissolved Solids by SM 2540 C

TDS/EC CHECK

Batch: 10TDS12K
Date Analyzed: 10/30/12

Laboratory Number	EC	TDS/EC Ratio: 0.55-.9	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
804570-2	165	0.56	107.25	0.87
804570-4	667	0.56	433.55	0.87
804602	7380	0.64	4797	0.98
804607	1418	0.62	921.7	0.95
804620	6560	0.77	4264	1.18
804621	6560	0.74	4264	1.13
804622	28100	0.66	18265	1.02
804623	7970	0.63	5180.5	0.97
804624	7960	0.76	5174	1.17
804625	7860	0.71	5109	1.09
804570-2D	165	0.55	107.25	0.84
LCS				
804626	7920	0.71	5148	1.10
804627	6510	0.72	4231.5	1.11
804615	34.4	0.55	22.36	0.85
804636	900	0.55	585	0.85
804651-1	19.4	ND	12.61	ND
804651-2	1.23	ND	0.7995	ND
804658-2	173	0.55	112.45	0.85
804658-4	670	0.55	435.5	0.84
804622D	28100	0.66	18265	1.02

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TRUESDAIL LABORATORIES INC.

Total Suspended Solids by SM 2540 D

Calculations

Batch: 11TSS12B

Date Analyzed: 11/05/12

Dish Number	Laboratory Number	Sample volume, ml	Initial weight,g	1st Final weight,g	2nd Final weight,g	Weight Difference, g	Exceeds 0.5mg? Yes/No	Residue weight,g	Filterable residue, ppm	RL, ppm	Reported Value, ppm
N13	BLK	1000	1.4337	1.4337	1.4337	0.0000	No	0.0000	0.0	2.5	ND
N16	804636-1	250	1.4316	1.4319	1.4319	0.0000	No	0.0003	1.2	10.0	ND
N17	804636-2	250	1.4350	1.4356	1.4356	0.0000	No	0.0006	2.4	10.0	ND
N18	804636-3	250	1.4293	1.4296	1.4296	0.0000	No	0.0003	1.2	10.0	ND
N19	804636-4	250	1.4263	1.4371	1.4371	0.0000	No	0.0108	43.2	10.0	43.2
N20	804636-5	250	1.4293	1.4381	1.4381	0.0000	No	0.0088	35.2	10.0	35.2
N21	804636-6	250	1.4269	1.4274	1.4274	0.0000	No	0.0005	2.0	10.0	ND
N22	804636-7	250	1.4335	1.4339	1.4339	0.0000	No	0.0004	1.6	10.0	ND
N23	804636-8	250	1.4342	1.4347	1.4347	0.0000	No	0.0005	2.0	10.0	ND
N24	804636-9	250	1.4276	1.4281	1.4281	0.0000	No	0.0005	2.0	10.0	ND
N25	804636-10	250	1.4311	1.4318	1.4318	0.0000	No	0.0007	2.8	10.0	ND
N26	804636-10D	250	1.4336	1.4343	1.4343	0.0000	No	0.0007	2.8	10.0	ND
N27	804636-11	250	1.4323	1.4331	1.4331	0.0000	No	0.0008	3.2	10.0	ND
N28	804636-12	250	1.4231	1.4232	1.4232	0.0000	No	0.0001	0.4	10.0	ND
N29	804636-13	250	1.4187	1.4197	1.4197	0.0000	No	0.0010	4.0	10.0	ND
N30	804636-14	250	1.4258	1.4279	1.4279	0.0000	No	0.0021	8.4	10.0	ND
N31	804636-15	250	1.4346	1.4362	1.4362	0.0000	No	0.0016	6.4	10.0	ND
N32	804607-1	900	1.4358	1.4358	1.4358	0.0000	No	0.0000	0.0	2.8	ND
N33	804607-2	25	1.4316	1.4875	1.4875	0.0000	No	0.0559	2236.0	100.0	2236.0
N34	804631	300	1.4249	1.4653	1.4653	0.0000	No	0.0404	134.7	8.3	134.7
N35	804631D	300	1.4374	1.4779	1.4779	0.0000	No	0.0405	135.0	8.3	135.0
N14	LCS-1	100	1.4379	1.4477	1.4477	0.0000	No	0.0098	98.0	25.0	98.0
N15	LCS-2	100	1.4277	1.4379	1.4379	0.0000	No	0.0102	102.0	25.0	102.0

Calculation as follows:

Non- Filterable residue (TSS), mg/L = $\left(\frac{A-B}{C}\right) x\ 10^6$

Where: A = weight of dish + residue in grams.
B = weight of dish in grams.
C = mL of sample filtered.

RL= reporting limit.
ND = not detected (below the reporting limit)

Laboratory Control Sample (LCS) Summary

QC Std I.D.	Measurd Value, ppm	Theoretical Value, ppm	Percent Rec	Acceptance Limit	QC Within Control?
LCS1	98	100	98.0%	90-110%	Yes
LCSD	102	100	102.0%	90-110%	Yes

Duplicate Determinations Difference Summary

Lab Number	Sample Weight, g	Sample Dup Weight, g	% RPD	Acceptance Limit	QC Within Control?
804636-10	0.0007	0.0007	0.0%	≤5%	Yes
804631	0.0404	0.0405	0.1%	5%	Yes

LCS Recovery

$$P = \left(\frac{LC}{LT}\right) x\ 100$$

$$\%\ Difference = \frac{|A\ or\ B - C|}{C}\ x\ 100$$

$$where \quad C = \frac{A+B}{2}$$

A = Weght of the first sample in (g).
B = Weght of the second sample in (g).
C = Average weight in (g).

Gautam S.
Analyst Printed Name

Analyst Signature

Maksim G.
Reviewer Printed Name

Reviewer Signature

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Tss_2011

TRUESDAIL LABORATORIES, INC.

Alkalinity by SM 2320B
Calculations

Analytical Batch: 11ALK12B
Matrix: Water
Date of Analysis: 11/5/12

Lab ID	Sample pH	Sample Volume (ml)	N of HCL	Titrant Volume to reach pH 8.3	P Alkalinity as CaCO3	Titrant Volume to reach pH 4.5	Total mL titrant to reach pH 0.3 unit lower	Total Alkalinity as CaCO3	RL, ppm	Total Alkalinity Reported Value	HCO3 Conc. as $CaCO_3$ (ppm)	CO3 Alkalinity as $CaCO_3$ (ppm)	OH Alkalinity as $CaCO_3$ (ppm)	Low Alkalinity as $CaCO_3$ (<20ppm)
BLANK	6.96	50	0.02		0.0	0.00		0.0	5	ND	ND	ND	ND	
804636-1	8.11	50	0.02		0.0	6.30		126.0	5	126.0	126.0	ND	ND	
804636-2	8.17	50	0.02		0.0	6.40		128.0	5	128.0	128.0	ND	ND	
804636-3	8.17	50	0.02		0.0	6.20		124.0	5	124.0	124.0	ND	ND	
804636-4	7.78	50	0.02		0.0	6.50		130.0	5	130.0	130.0	ND	ND	
804636-5	7.72	50	0.02		0.0	6.60		132.0	5	132.0	132.0	ND	ND	
804636-6	8.18	50	0.02		0.0	6.05		121.0	5	121.0	121.0	ND	ND	
804636-7	8.17	50	0.02		0.0	6.25		125.0	5	125.0	125.0	ND	ND	
804636-8	8.17	50	0.02		0.0	6.25		125.0	5	125.0	125.0	ND	ND	
804636-9	8.14	50	0.02		0.0	6.15		123.0	5	123.0	123.0	ND	ND	
804636-10	8.21	50	0.02		0.0	6.10		122.0	5	122.0	122.0	ND	ND	
804636-11	8.21	50	0.02		0.0	6.45		129.0	5	129.0	129.0	ND	ND	
804636-12	8.18	50	0.02		0.0	6.15		123.0	5	123.0	123.0	ND	ND	
804636-13	8.16	50	0.02		0.0	6.60		132.0	5	132.0	132.0	ND	ND	
804636-14	8.14	50	0.02		0.0	6.20		124.0	5	124.0	124.0	ND	ND	
804636-15	8.13	50	0.02		0.0	6.35		127.0	5	127.0	127.0	ND	ND	
804636-15 DUP	8.14	50	0.02		0.0	6.30		126.0	5	126.0	126.0	ND	ND	
804636-15 MS	9.50	50	0.02	2.3	46.0	11.35		227.0	5	227.0	135.0	92	ND	
LCS	10.50	50	0.02	2.4	47.0	5.10		102.0	5	102.0	8.0	94	ND	
LCSD	10.59	50	0.02	2.3	46.0	5.05		101.0	5	101.0	9.0	92	ND	

Calculations as follows:

T or P = $\left(\frac{A \times N \times 50000}{mL\ sample}\right)$

Where:
T = Total Alkalinity, mg CaCO3/L
P = Phenolphthalein Alkalinity, mg CaCO3/L
A = mL standard acid used
N = normality of standard acid

Low Alkalinity: as mg/L CaCO3 = $\frac{(2 \times B - C) \times N \times 50000}{mL\ sample}$

Where:
B = mL titrant to first recorded pH
C = Total mL titrant to reach pH 0.3 unit lower
N = Normality of standard acid

LCS = Laboratory Control Standard/Duplicate
MS/MSD = Matrix Spike/Duplicate
ND = Not Detected (below the reporting limit)

Blank Summary

Reporting Limit, RL	Measured Value, ppm	Accept Limit	QC Within Control?
5 ppm	0	<5	Yes

Laboratory Control Sample (LCS/LCSD) Summary

QC Std I.D.	Measured Value, ppm	Theoretical Value, ppm	%Recovery	Accetance Limit	QC Within Control?
LCS	102	100	102.0%	90-110	Yes
LCSD	101	100	101.0%	90-110	Yes

Duplicate Determination Difference Summary

Lab Number I.D.	Measured Value, ppm	Dup Value, ppm	RPD	Accetance Limit	QC Within Control?
804636-15	127	126	0.8%	≤20%	Yes

Sample Matrix Spike (MS/MSD) Summary

Lab Number	Conc of Unspk spl	Dil Factor	Added Spk Conc	MS/MSD Amt	Measrd Conc of Spk Spl	Theor Conc of Spk Spl	MS/MSD %Rec	MS Accept Limit	QC Within Control?	RPD	RPD Accept Limit	QC Within Control?
804636-15	127	1	100	100	227	227.00	100%	75-125	Yes			
		1	100	100								

Melissa S.
Analyst Printed Name
Analyst Signature

Maksim G.
Reviewer Printed Name
Reviewer Signature

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ALERT !!
Level III QC

804636

Rec'd 11/01/12
S9a 804636
11/1/2012 2:50:27 PM

CH2MHILL

CHAIN OF CUSTODY RECORD

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.RM
Task Order
Project 2012-RMP-188
Turnaround Time 10 Days
Shipping Date: 11/1/2012
COC Number: 1

				Container:	3X250 ml Poly	250 Poly	500 ml Poly	3x500 ml Poly	3x500 ml Poly	3x500 ml Poly	2x1 Liter	2x1 Liter	2x1 Liter	2x1 Liter	2x1 Liter	2x1 Liter	2x1 Liter		
				Preservatives:	(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	4°C	4°C	4°C	4°C	4°C	4°C	4°C		
				Filtered:	Field	NA	NA	Field	Field	Field	NA	NA	NA	NA	NA	NA	NA		
				Holding Time:	28	28	180	180	180	180	2	2	2	2	2	2	2		
		DATE	TIME	Matrix	Cr6 (E218.6 – river) Field Filtered	Field QC Cr6 (E218.6–river)	Metals (6010B) Total Fe	Metals (6010BFF) Field Filtered Dissolved Ca,Mg,K,Na,B	Metals (SW6010B/SW6020Adis) Field Filtered As,Mn,Fe,Se,Mo	Metals (6020AFF) Field Filtered Chromium	Specific Conductance (E120.1)	Anions (E300.0) Br,Cl,SO4,NO3N	Anions (E300.0) Nitrate	TDS (SM2540C)	Alkalinity (SM2320B)	PH (SM4500HB)	TSS (SM2540)		Number of Containers	COMMENTS
1	C-BNS-D-188	11/1/2012	11:04	Water	x		x		x	x	x		x		x	x	x		8	
2	C-I-3-D-188	11/1/2012	9:32	Water	x		x		x	x	x		x		x	x	x		8	
3	C-I-3-S-188	11/1/2012	9:46	Water	x		x		x	x	x		x		x	x	x		8	pH2
4	C-MAR-D-188	11/1/2012	12:14	Water	x		x		x	x	x		x		x	x	x		8	
5	C-MAR-S-188	11/1/2012	12:29	Water	x		x		x	x	x		x		x	x	x		8	
	C-MW-80-188	11/1/2012	10:19	Water		x													1	Hold
	C-MW-81-188	11/1/2012	12:59	Water		x													1	Hold
6	C-R22A-D-188	11/1/2012	10:28	Water	x		x		x	x	x		x		x	x	x		8	
7	C-R22A-S-188	11/1/2012	10:43	Water	x		x		x	x	x		x		x	x	x		8	
8	C-R27-D-188	11/1/2012	11:38	Water	x		x		x	x	x		x		x	x	x		8	
9	C-R27-S-188	11/1/2012	11:52	Water	x		x		x	x	x		x		x	x	x		8	pH2
10	C-TAZ-D-188	11/1/2012	8:47	Water	x		x		x	x	x		x		x	x	x		8	
11	C-TAZ-S-188	11/1/2012	9:05	Water	x		x		x	x	x		x		x	x	x		8	
12	R-19-188	11/1/2012	13:06	Water	x		x		x	x	x		x		x	x	x		8	

* Where provided w/multiple bottles for Cr6 + diss. metals, please analyze 1 + hold 2

pH for 6020A 6010B

For Sample Conditions See Form Attached

	Signatures	Date/Time
Approved by		11-1-12
Sampled by		1530
Relinquished by		
Received by	Rafael Davila	11-1-12 15:30
Relinquished by	Rafael Davila	11-1-12 21:30
Received by		11-1-12 21:30

Shipping Details
Method of Shipment: courier
On Ice: yes / no
Airbill No:
Lab Name: Truesdail Laboratories, Inc.
Lab Phone: (714) 730-6239

ATTN:
Sample Custody

Special Instructions:
November 1-2, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

804636

CH2MHILL

CHAIN OF CUSTODY RECORD

11/1/2012 2:50:28 PM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.RM
Task Order
Project 2012-RMP-188
Turnaround Time 10 Days
Shipping Date: 11/1/2012
COC Number: 1

			Container:	3X250 ml Poly	250 Poly	500 ml Poly	3x500 ml Poly	3x500 ml Poly	3x500 ml Poly	2x1 Liter	2x1 Liter	2x1 Liter	2x1 Liter	2x1 Liter	2x1 Liter	2x1 Liter			
			Preservatives:	(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	4°C	4°C	4°C	4°C	4°C	4°C	4°C			
			Filtered:	Field	NA	NA	Field	Field	Field	NA	NA	NA	NA	NA	NA	NA			
			Holding Time:	28	28	180	180	180	180	2	2	2	2	2	2	2			
		DATE	TIME	Matrix	Cr6 (E218.6 – river) Field Filtered	Field QC Cr6 (E218.6–river)	Metals (6010B) Total Fe	Metals (6010BFF) Field Filtered Dissolved Ca,Mg,K,Na,B	Metals (SW6010B/SW6020Adis) Field Filtered As,Mn,Fe,Se,Mo	Metals (6020AFF) Field Filtered Chromium	Specific Conductance (E120.1)	Anions (E300.0) Br,Cl,SO4,NO3N	Anions (E300.0) Nitrate	TDS (SM2540C)	Alkalinity (SM2320B)	PH (SM4500HB)	TSS (SM2540)		Number of Containers	COMMENTS
13	R-28-188	11/1/2012	12:49	Water	X		X	X	X	X	X	X		X	X	X	X		9	pH for 6020Al 6010B
14	R63-188	11/1/2012	10:01	Water	X		X		X	X	X		X		X	X	X		8	pH2
	RMP-AB1-188	11/1/2012	13:30	Water		X													1	Hold
15	RRB-188	11/1/2012	13:23	Water	X		X		X	X	X		X		X	X	X		8	pH2
																		TOTAL NUMBER OF CONTAINERS	124	

* where provided w/multiple bottles for Cr6 + diss. metals please analyze 1 + hold 2.

ALERT !!
Level III QC

For Sample Conditions See Form Attached

	Signatures	Date/Time
Approved by		11-1-12 1530
Sampled by		
Relinquished by		
Received by	Rafael Davila	11-1-12 15:30
Relinquished by	Rafael Davila	11-1-12 21:30
Received by		11-1-12 21:30

Shipping Details

Method of Shipment: courier
On Ice: yes / no
Airbill No:
Lab Name: Truesdail Laboratories, Inc.
Lab Phone: (714) 730-6239

ATTN:

Sample Custody

Special Instructions:

November 1-2, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

Hexavalent Chromium

Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
10/31/12	804602	7	2mL / 100mL	9.5	11 Am	[illegible]
11/2/12						
11/2/12	804636-1	9.5	N/A	N/A	N/A	[illegible]
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
	-13					
	-14					
	-15					
11/5/12	804652-1	9.5	N/A	N/A	N/A	[illegible]
	-2					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-12					
	-13					
11/7/12	804722-1	7	2mL / 100mL (total)	9.5	11:00 Am	[illegible]
	-2				11:10 Am	
	804723-1	7			11:15 Am	
	-2				11:20 Am	

HAV
11/08/12

C:\My Documents\Templates\Hexavalent Chromium\Cr6+ pH Log

[illegible] 11/9/12

TRUESDAIL LABORATORIES, INC.

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
804625	>1	<2	11-8-12	BE	3010A			
804626	↓	↓	↓	↓	↓			
804627	↓	↓	↓	↓	↓			
804600	<1	>2			NO	7:00 AM	11-4	PH<2
804617(10-12)	↓	↓	↓	↓	↓	↓	↓	↓
804635(1-3)	↓	↓	↓	↓	↓	↓	↓	↓
804636(1-15)	<1	<2	11/05/12	M-M	3010A			
804652(1-25)	↓	↓	↓	↓	↓			
804647	>1	<2	11/05/12	MM	3010A			
804648	↓	↓	↓	↓	↓			
804649	↓	↓	↓	↓	↓			
804658(1,2,4)	<1	>2	11/5/12	MM	NO	4 pm	11.6	PH<2
804683(1,2,3)	<1	>1	11-6-12	BE	NO	5 pm	11-7	↓
804726(1,5)	<1	<2	11-7-12	M.M	3010A			
804725(1,2)	↓	↓	↓	↓	↓			
804722(1,2)	↓	<2,272	↓	↓	↓			
804723(1,2)	↓	>2	↓	↓	↓			
804724(1,2)	↓	↓	↓	↓	↓			
804690	—	— MM	11/07/12	M.M	TTLC	13:00	11/07/12	pH <2
804678-1	>1	~~>2~~ <2	11/07/12	MM	3010A			
804679	↓	<2	↓	↓	↓			
804680	↓	<2	↓	↓	↓			
804691	↓	↓	↓	↓	↓			
804692	↓	↓	↓	↓	↓			
804693	↓	↓	↓	↓	↓			
804694	↓	↓	↓	↓	↓			
804695	↓	↓	↓	↓	↓			
804706	↓	↓	↓	↓	↓			
804707	↓	↓	↓	↓	↓			
804708	↓	↓	↓	↓	↓			
804709	↓	↓	↓	↓	↓			
804721	↓	↓	↓	↓	↓			
804731	↓	~~>2~~	↓	↓	↓	13:00	11/07/12	pH <2
804678-2	>1	>2	11/07/12	M.M	3010A	13:00	11/07/12	pH<1
-3	↓	↓		↓	↓	↓	↓	↓
~~804300-02, 804300~~								
804300	<1	<2	10/16/12	M.M	3010A			
804301-302	↓	↓	↓	↓	↓			
804304-305	↓	↓	↓	↓	↓			
804733(1-3)	<1	>2	11-8-12	B.E	NO	5:30pM		
804720	↓	↓	↓	↓	↓	↓		
804743(10-12)	↓	↓	↓	↓	↓			
804777(1-11)	<1	>2	11/09/12	M.M	3010A			
804778(1-4)	<1	<2	↓	↓	↓			

Notes:
1. Samples should be analyzed after 24 hrs of pH adjustment to pH2 for Dissolved Analytes.
2. All Total Recoverable Analytes must be pH adjusted and digested.
3. Do not use disposable pipette to measure pH; pour a little amount of sample from the bottle.

TRUESDAIL LABORATORIES, INC.

ALERT !!
Level III QC

Sample Integrity & Analysis Discrepancy Form

Client: E2 **Lab #** 804636

Date Delivered: 11 / 1 / 12 **Time:** 21:30 **By:** ☐Mail ☒Field Service ☐Client

1. Was a Chain of Custody received and signed? ☒Yes ☐No ☐N/A
2. Does Customer require an acknowledgement of the COC? ☐Yes ☐No ☒N/A
3. Are there any special requirements or notes on the COC? ☐Yes ☐No ☒N/A
4. If a letter was sent with the COC, does it match the COC? ☐Yes ☐No ☒N/A
5. Were all requested analyses understood and acceptable? ☒Yes ☐No ☐N/A
6. Were samples received in a chilled condition? ☒Yes ☐No ☐N/A
   Temperature (if yes)? 5°C
7. Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)? ☒Yes ☐No ☐N/A
8. Were sample custody seals intact? ☐Yes ☐No ☒N/A
9. Does the number of samples received agree with COC? ☒Yes ☐No ☐N/A
10. Did sample labels correspond with the client ID's? ☒Yes ☐No ☐N/A
11. Did sample labels indicate proper preservation? ☒Yes ☐No ☐N/A
    Preserved (if yes) by: ☒Truesdail ☐Client
12. Were samples pH checked? pH = SeeCoC ☒Yes ☐No ☐N/A
13. Were all analyses within holding time at time of receipt? ☒Yes ☐No ☐N/A
    If not, notify Project Manager.
14. Have Project due dates been checked and accepted? ☒Yes ☐No ☐N/A
    Turn Around Time (TAT): ☐ RUSH ☒ Std
15. **Sample Matrix:** ☐Liquid ☐Drinking Water ☐Ground Water ☐Waste Water ☐Sludge ☐Soil ☐Wipe ☐Paint ☐Solid ☒Other Water
16. Comments: _____
17. Sample Check-In completed by **Truesdail** Log-In/Receiving: Alex

C:\Users\Tes\Desktop\Forms A - D\Discrp.FormBlank.doc

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

14201 FRANKLIN AVENUE
TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462
www.truesdail.com

December 10, 2012

E2 Consulting Engineers, Inc.
Mr. Shawn Duffy
155 Grand Ave., Suite 1000
Oakland, California 94612

Dear Mr. Duffy:

SUBJECT: REVISED CASE NARRATIVE PG&E TOPOCK 2012-RMP-188, SURFACEWATER MONITORING PROJECT, TLI NO.: 804652

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2012-RMP-188 surfacewater-monitoring project. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, quality control data, and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data are under Section 5.

The samples were received and delivered with the chain of custody on November 2, 2012, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

Samples for pH analysis by SM 4500-H B were analyzed past the method specified holding time.

No other violations or non-conformance actions occurred for this data package.

If you have any questions or require additional information, please contact me at (714) 730-6239 ext. 200.

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

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Event 2012-RMP-188 Cr by SW 6020, Surfacewater Samples

Samples field filtered unless otherwise noted

Sample ID	Initial pH	pH adjustment needed?	Amount of additional acid needed	Final pH	Comments
C-CON-D-188	2.00	No			
C-CON-S-188	2.00	No			
C-NR1-D-188	2.00	No			
C-NR1-S-188	2.00	No			
C-NR3-D-188	2.00	No			
C-NR3-S-188	2.00	No			
C-NR4-D-188	2.00	No			
C-NR4-S-188	2.00	No			
SW1-188	2.00	No			
SW2-188	2.00	No			

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Event 2012-RMP-188 Cr (VI) by EPA 218.6, Surfacewater Samples

Samples field filtered unless otherwise noted

Sample ID	Initial pH	pH adjustment needed?	Amount of additional buffer needed	Final pH	Comments
C-CON-D-188	9.50	No			
C-CON-S-188	9.50	No			
C-NR1-D-188	9.50	No			
C-NR1-S-188	9.50	No			
C-NR3-D-188	9.50	No			
C-NR3-S-188	9.50	No			
C-NR4-D-188	9.50	No			
C-NR4-S-188	9.50	No			
SW1-188	9.50	No			
SW2-188	9.50	No			

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Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy

Laboratory No.: 804652
Date Received: November 2, 2012
Revision 1; December 10, 2012

Project Name: PG&E Topock Project
Project No.: 423575.MP.02.RM
P.O. No.: 423575.MP.02.RM

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
804652-001	C-CON-D-188	E120.1	NONE	11/2/2012	9:51	EC	890	umhos/cm	2.00
804652-001	C-CON-D-188	E218.6	FLDFLT	11/2/2012	9:51	Chromium, Hexavalent	ND	ug/L	0.20
804652-001	C-CON-D-188	E300	NONE	11/2/2012	9:51	Nitrate as N	ND	mg/L	0.500
804652-001	C-CON-D-188	SM2320B	NONE	11/2/2012	9:51	Alkalinity	125	mg/L	5.00
804652-001	C-CON-D-188	SM2320B	NONE	11/2/2012	9:51	Alkalinity, Bicarbonate (As CaCO3)	125	mg/L	5.00
804652-001	C-CON-D-188	SM2320B	NONE	11/2/2012	9:51	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
804652-001	C-CON-D-188	SM2540D	NONE	11/2/2012	9:51	Suspended Solids (Residue, Non-Filterable)	11.6	mg/L	10.0
804652-001	C-CON-D-188	SM4500HB	NONE	11/2/2012	9:51	PH	8.26 J	pH	4.00
804652-001	C-CON-D-188	SW6010B	FLDFLT	11/2/2012	9:51	Iron	ND	ug/L	20.0
804652-001	C-CON-D-188	SW6010B	NONE	11/2/2012	9:51	Iron	32.5	ug/L	20.0
804652-001	C-CON-D-188	SW6020	FLDFLT	11/2/2012	9:51	Arsenic	2.4	ug/L	0.50
804652-001	C-CON-D-188	SW6020	FLDFLT	11/2/2012	9:51	Chromium	ND	ug/L	1.0
804652-001	C-CON-D-188	SW6020	FLDFLT	11/2/2012	9:51	Manganese	1.0	ug/L	0.50
804652-001	C-CON-D-188	SW6020	FLDFLT	11/2/2012	9:51	Molybdenum	5.1	ug/L	2.0
804652-001	C-CON-D-188	SW6020	FLDFLT	11/2/2012	9:51	Selenium	ND	ug/L	5.0
804652-002	C-CON-S-188	E120.1	NONE	11/2/2012	10:06	EC	900	umhos/cm	2.00
804652-002	C-CON-S-188	E218.6	FLDFLT	11/2/2012	10:06	Chromium, Hexavalent	ND	ug/L	0.20
804652-002	C-CON-S-188	E300	NONE	11/2/2012	10:06	Nitrate as N	ND	mg/L	0.500
804652-002	C-CON-S-188	SM2320B	NONE	11/2/2012	10:06	Alkalinity	122	mg/L	5.00
804652-002	C-CON-S-188	SM2320B	NONE	11/2/2012	10:06	Alkalinity, Bicarbonate (As CaCO3)	122	mg/L	5.00
804652-002	C-CON-S-188	SM2320B	NONE	11/2/2012	10:06	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
804652-002	C-CON-S-188	SM2540D	NONE	11/2/2012	10:06	Suspended Solids (Residue, Non-Filterable)	19.6	mg/L	10.0
804652-002	C-CON-S-188	SM4500HB	NONE	11/2/2012	10:06	PH	8.27 J	pH	4.00
804652-002	C-CON-S-188	SW6010B	FLDFLT	11/2/2012	10:06	Iron	ND	ug/L	20.0
804652-002	C-CON-S-188	SW6010B	NONE	11/2/2012	10:06	Iron	20.2	ug/L	20.0
804652-002	C-CON-S-188	SW6020	FLDFLT	11/2/2012	10:06	Arsenic	2.3	ug/L	0.50
804652-002	C-CON-S-188	SW6020	FLDFLT	11/2/2012	10:06	Chromium	ND	ug/L	1.0
804652-002	C-CON-S-188	SW6020	FLDFLT	11/2/2012	10:06	Manganese	0.98	ug/L	0.50
804652-002	C-CON-S-188	SW6020	FLDFLT	11/2/2012	10:06	Molybdenum	6.0	ug/L	2.0
804652-002	C-CON-S-188	SW6020	FLDFLT	11/2/2012	10:06	Selenium	ND	ug/L	5.0

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from Truesdail Laboratories.

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
804652-005	C-NR1-D-188	E120.1	NONE	11/2/2012	10:29	EC	895	umhos/cm	2.00
804652-005	C-NR1-D-188	E218.6	FLDFLT	11/2/2012	10:29	Chromium, Hexavalent	ND	ug/L	0.20
804652-005	C-NR1-D-188	E300	NONE	11/2/2012	10:29	Nitrate as N	ND	mg/L	0.500
804652-005	C-NR1-D-188	SM2320B	NONE	11/2/2012	10:29	Alkalinity	130	mg/L	5.00
804652-005	C-NR1-D-188	SM2320B	NONE	11/2/2012	10:29	Alkalinity, Bicarbonate (As CaCO3)	130	mg/L	5.00
804652-005	C-NR1-D-188	SM2320B	NONE	11/2/2012	10:29	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
804652-005	C-NR1-D-188	SM2540D	NONE	11/2/2012	10:29	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
804652-005	C-NR1-D-188	SM4500HB	NONE	11/2/2012	10:29	PH	8.29 J	pH	4.00
804652-005	C-NR1-D-188	SW6010B	FLDFLT	11/2/2012	10:29	Iron	ND	ug/L	20.0
804652-005	C-NR1-D-188	SW6010B	NONE	11/2/2012	10:29	Iron	24.5	ug/L	20.0
804652-005	C-NR1-D-188	SW6020	FLDFLT	11/2/2012	10:29	Arsenic	2.2	ug/L	0.50
804652-005	C-NR1-D-188	SW6020	FLDFLT	11/2/2012	10:29	Chromium	ND	ug/L	1.0
804652-005	C-NR1-D-188	SW6020	FLDFLT	11/2/2012	10:29	Manganese	0.98	ug/L	0.50
804652-005	C-NR1-D-188	SW6020	FLDFLT	11/2/2012	10:29	Molybdenum	5.0	ug/L	2.0
804652-005	C-NR1-D-188	SW6020	FLDFLT	11/2/2012	10:29	Selenium	ND	ug/L	5.0
804652-006	C-NR1-S-188	E120.1	NONE	11/2/2012	10:44	EC	899	umhos/cm	2.00
804652-006	C-NR1-S-188	E218.6	FLDFLT	11/2/2012	10:44	Chromium, Hexavalent	ND	ug/L	0.20
804652-006	C-NR1-S-188	E300	NONE	11/2/2012	10:44	Nitrate as N	ND	mg/L	0.500
804652-006	C-NR1-S-188	SM2320B	NONE	11/2/2012	10:44	Alkalinity	122	mg/L	5.00
804652-006	C-NR1-S-188	SM2320B	NONE	11/2/2012	10:44	Alkalinity, Bicarbonate (As CaCO3)	122	mg/L	5.00
804652-006	C-NR1-S-188	SM2320B	NONE	11/2/2012	10:44	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
804652-006	C-NR1-S-188	SM2540D	NONE	11/2/2012	10:44	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
804652-006	C-NR1-S-188	SM4500HB	NONE	11/2/2012	10:44	PH	8.27 J	pH	4.00
804652-006	C-NR1-S-188	SW6010B	FLDFLT	11/2/2012	10:44	Iron	ND	ug/L	20.0
804652-006	C-NR1-S-188	SW6010B	NONE	11/2/2012	10:44	Iron	24.7	ug/L	20.0
804652-006	C-NR1-S-188	SW6020	FLDFLT	11/2/2012	10:44	Arsenic	2.2	ug/L	0.50
804652-006	C-NR1-S-188	SW6020	FLDFLT	11/2/2012	10:44	Chromium	ND	ug/L	1.0
804652-006	C-NR1-S-188	SW6020	FLDFLT	11/2/2012	10:44	Manganese	1.1	ug/L	0.50
804652-006	C-NR1-S-188	SW6020	FLDFLT	11/2/2012	10:44	Molybdenum	4.8	ug/L	2.0
804652-006	C-NR1-S-188	SW6020	FLDFLT	11/2/2012	10:44	Selenium	ND	ug/L	5.0

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Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
804652-007	C-NR3-D-188	E120.1	NONE	11/2/2012	11:10	EC	893	umhos/cm	2.00
804652-007	C-NR3-D-188	E218.6	FLDFLT	11/2/2012	11:10	Chromium, Hexavalent	ND	ug/L	0.20
804652-007	C-NR3-D-188	E300	NONE	11/2/2012	11:10	Nitrate as N	ND	mg/L	0.500
804652-007	C-NR3-D-188	SM2320B	NONE	11/2/2012	11:10	Alkalinity	119	mg/L	5.00
804652-007	C-NR3-D-188	SM2320B	NONE	11/2/2012	11:10	Alkalinity, Bicarbonate (As CaCO3)	119	mg/L	5.00
804652-007	C-NR3-D-188	SM2320B	NONE	11/2/2012	11:10	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.0
804652-007	C-NR3-D-188	SM2540D	NONE	11/2/2012	11:10	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
804652-007	C-NR3-D-188	SM4500HB	NONE	11/2/2012	11:10	PH	8.26 J	pH	4.00
804652-007	C-NR3-D-188	SW6010B	FLDFLT	11/2/2012	11:10	Iron	ND	ug/L	20.0
804652-007	C-NR3-D-188	SW6010B	NONE	11/2/2012	11:10	Iron	22.7	ug/L	20.0
804652-007	C-NR3-D-188	SW6020	FLDFLT	11/2/2012	11:10	Arsenic	2.3	ug/L	0.50
804652-007	C-NR3-D-188	SW6020	FLDFLT	11/2/2012	11:10	Chromium	ND	ug/L	1.0
804652-007	C-NR3-D-188	SW6020	FLDFLT	11/2/2012	11:10	Manganese	1.0	ug/L	0.50
804652-007	C-NR3-D-188	SW6020	FLDFLT	11/2/2012	11:10	Molybdenum	4.6	ug/L	2.0
804652-007	C-NR3-D-188	SW6020	FLDFLT	11/2/2012	11:10	Selenium	ND	ug/L	5.0
804652-008	C-NR3-S-188	E120.1	NONE	11/2/2012	11:24	EC	896	umhos/cm	2.00
804652-008	C-NR3-S-188	E218.6	FLDFLT	11/2/2012	11:24	Chromium, Hexavalent	ND	ug/L	0.20
804652-008	C-NR3-S-188	E300	NONE	11/2/2012	11:24	Nitrate as N	ND	mg/L	0.500
804652-008	C-NR3-S-188	SM2320B	NONE	11/2/2012	11:24	Alkalinity	115	mg/L	5.00
804652-008	C-NR3-S-188	SM2320B	NONE	11/2/2012	11:24	Alkalinity, Bicarbonate (As CaCO3)	115	mg/L	5.00
804652-008	C-NR3-S-188	SM2320B	NONE	11/2/2012	11:24	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
804652-008	C-NR3-S-188	SM2540D	NONE	11/2/2012	11:24	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
804652-008	C-NR3-S-188	SM4500HB	NONE	11/2/2012	11:24	PH	8.10 J	pH	4.0
804652-008	C-NR3-S-188	SW6010B	FLDFLT	11/2/2012	11:24	Iron	ND	ug/L	20.0
804652-008	C-NR3-S-188	SW6010B	NONE	11/2/2012	11:24	Iron	21.1	ug/L	20.0
804652-008	C-NR3-S-188	SW6020	FLDFLT	11/2/2012	11:24	Arsenic	2.4	ug/L	0.50
804652-008	C-NR3-S-188	SW6020	FLDFLT	11/2/2012	11:24	Chromium	ND	ug/L	1.0
804652-008	C-NR3-S-188	SW6020	FLDFLT	11/2/2012	11:24	Manganese	1.1	ug/L	0.50
804652-008	C-NR3-S-188	SW6020	FLDFLT	11/2/2012	11:24	Molybdenum	4.7	ug/L	2.0
804652-008	C-NR3-S-188	SW6020	FLDFLT	11/2/2012	11:24	Selenium	ND	ug/L	5.0
804652-009	C-NR4-D-188	E120.1	NONE	11/2/2012	11:49	EC	899	umhos/cm	2.00

006B

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Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
804652-009	C-NR4-D-188	E218.6	FLDFLT	11/2/2012	11:49	Chromium, Hexavalent	ND	ug/L	0.20
804652-009	C-NR4-D-188	E300	NONE	11/2/2012	11:49	Nitrate as N	ND	mg/L	0.500
804652-009	C-NR4-D-188	SM2320B	NONE	11/2/2012	11:49	Alkalinity	127	mg/L	5.00
804652-009	C-NR4-D-188	SM2320B	NONE	11/2/2012	11:49	Alkalinity, Bicarbonate (As CaCO3)	127	mg/L	5.00
804652-009	C-NR4-D-188	SM2320B	NONE	11/2/2012	11:49	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
804652-009	C-NR4-D-188	SM2540D	NONE	11/2/2012	11:49	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
804652-009	C-NR4-D-188	SM4500HB	NONE	11/2/2012	11:49	PH	8.25 J	pH	4.00
804652-009	C-NR4-D-188	SW6010B	FLDFLT	11/2/2012	11:49	Iron	ND	ug/L	20.0
804652-009	C-NR4-D-188	SW6010B	NONE	11/2/2012	11:49	Iron	ND	ug/L	20.0
804652-009	C-NR4-D-188	SW6020	FLDFLT	11/2/2012	11:49	Arsenic	2.3	ug/L	0.50
804652-009	C-NR4-D-188	SW6020	FLDFLT	11/2/2012	11:49	Chromium	ND	ug/L	1.0
804652-009	C-NR4-D-188	SW6020	FLDFLT	11/2/2012	11:49	Manganese	1.1	ug/L	0.50
804652-009	C-NR4-D-188	SW6020	FLDFLT	11/2/2012	11:49	Molybdenum	4.6	ug/L	2.0
804652-009	C-NR4-D-188	SW6020	FLDFLT	11/2/2012	11:49	Selenium	ND	ug/L	5.0
804652-010	C-NR4-S-188	E120.1	NONE	11/2/2012	12:02	EC	883	umhos/cm	2.00
804652-010	C-NR4-S-188	E218.6	FLDFLT	11/2/2012	12:02	Chromium, Hexavalent	ND	ug/L	0.20
804652-010	C-NR4-S-188	E300	NONE	11/2/2012	12:02	Nitrate as N	ND	mg/L	0.500
804652-010	C-NR4-S-188	SM2320B	NONE	11/2/2012	12:02	Alkalinity	129	mg/L	5.00
804652-010	C-NR4-S-188	SM2320B	NONE	11/2/2012	12:02	Alkalinity, Bicarbonate (As CaCO3)	129	mg/L	5.00
804652-010	C-NR4-S-188	SM2320B	NONE	11/2/2012	12:02	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
804652-010	C-NR4-S-188	SM2540D	NONE	11/2/2012	12:02	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
804652-010	C-NR4-S-188	SM4500HB	NONE	11/2/2012	12:02	PH	8.23 J	pH	4.00
804652-010	C-NR4-S-188	SW6010B	FLDFLT	11/2/2012	12:02	Iron	ND	ug/L	20.0
804652-010	C-NR4-S-188	SW6010B	NONE	11/2/2012	12:02	Iron	ND	ug/L	20.0
804652-010	C-NR4-S-188	SW6020	FLDFLT	11/2/2012	12:02	Arsenic	2.4	ug/L	0.50
804652-010	C-NR4-S-188	SW6020	FLDFLT	11/2/2012	12:02	Chromium	ND	ug/L	1.0
804652-010	C-NR4-S-188	SW6020	FLDFLT	11/2/2012	12:02	Manganese	0.86	ug/L	0.50
804652-010	C-NR4-S-188	SW6020	FLDFLT	11/2/2012	12:02	Molybdenum	4.6	ug/L	2.0
804652-010	C-NR4-S-188	SW6020	FLDFLT	11/2/2012	12:02	Selenium	ND	ug/L	5.0

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TRUESDAIL LABORATORIES, INC.

Report Continued

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
804652-012	SW1-188	E120.1	NONE	11/2/2012	14:30	EC	960	umhos/cm	2.00
804652-012	SW1-188	E218.6	FLDFLT	11/2/2012	14:30	Chromium, Hexavalent	ND	ug/L	0.20
804652-012	SW1-188	SM4500HB	NONE	11/2/2012	14:30	PH	7.45 J	pH	4.00
804652-012	SW1-188	SW6020	FLDFLT	11/2/2012	14:30	Chromium	ND	ug/L	1.0
804652-013	SW2-188	E120.1	NONE	11/2/2012	14:45	EC	933	umhos/cm	2.00
804652-013	SW2-188	E218.6	FLDFLT	11/2/2012	14:45	Chromium, Hexavalent	ND	ug/L	0.20
804652-013	SW2-188	SM4500HB	NONE	11/2/2012	14:45	PH	7.58 J	pH	4.00
804652-013	SW2-188	SW6020	FLDFLT	11/2/2012	14:45	Chromium	ND	ug/L	1.0

ND: Non Detected (below reporting limit)

mg/L: Milligrams per liter.

Note: The following "Significant Figures" rule has been applied to all results:

Results below 0.01ppm will have two (2) significant figures.

Result above or equal to 0.01ppm will have three (3) significant figures.

Quality Control data will always have three (3) significant figures.

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TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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REPORT

Client: **E2 Consulting Engineers, Inc.**
155 Grand Avenue, Suite 800
Oakland, CA 94612
Attention: Shawn Duffy
Project Name: PG&E Topock Project
Project Number: 423575.MP.02.RM
P.O. Number: 423575.MP.02.RM
Release Number:

Laboratory No. 804652

Printed 12/10/2012
Revised

Samples Received on 11/2/2012 9:30:00 PM

Field ID	Lab ID	Collected	Matrix
C-CON-D-188	804652-001	11/02/2012 09:51	Water
C-CON-S-188	804652-002	11/02/2012 10:06	Water
C-MW-82-188	804652-003	11/02/2012 10:23	Water
C-MW-83-188	804652-004	11/02/2012 10:58	Water
C-NR1-D-188	804652-005	11/02/2012 10:29	Water
C-NR1-S-188	804652-006	11/02/2012 10:44	Water
C-NR3-D-188	804652-007	11/02/2012 11:10	Water
C-NR3-S-188	804652-008	11/02/2012 11:24	Water
C-NR4-D-188	804652-009	11/02/2012 11:49	Water
C-NR4-S-188	804652-010	11/02/2012 12:02	Water
RMP-AB2-188	804652-011	11/02/2012 12:05	Water
SW1-188	804652-012	11/02/2012 14:30	Water
SW2-188	804652-013	11/02/2012 14:45	Water

Anions By I.C. - EPA 300.0

Batch 11AN12AG

Parameter	Unit	Analyzed	DF	MDL	RL	Result
804652-001 Nitrate as Nitrogen	mg/L	11/03/2012 11:38	1.00	0.00830	0.500	ND
804652-002 Nitrate as Nitrogen	mg/L	11/03/2012 12:12	1.00	0.00830	0.500	ND
804652-005 Nitrate as Nitrogen	mg/L	11/03/2012 12:23	1.00	0.00830	0.500	ND
804652-006 Nitrate as Nitrogen	mg/L	11/03/2012 12:35	1.00	0.00830	0.500	ND
804652-007 Nitrate as Nitrogen	mg/L	11/03/2012 12:46	1.00	0.00830	0.500	ND
804652-008 Nitrate as Nitrogen	mg/L	11/03/2012 12:58	1.00	0.00830	0.500	ND
804652-009 Nitrate as Nitrogen	mg/L	11/03/2012 13:32	1.00	0.00830	0.500	ND
804652-010 Nitrate as Nitrogen	mg/L	11/03/2012 13:43	1.00	0.00830	0.500	ND

Method Blank

Parameter	Unit	DF	Result
Nitrate as Nitrogen	mg/L	1.00	ND

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project
Project Number: 423575.MP.02.RM

Printed 12/10/2012
Revised

Duplicate — Lab ID = 804652-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Nitrate as Nitrogen	mg/L	1.00	0.244	0.246	0.816	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrate as Nitrogen	mg/L	1.00	3.98	4.00	99.4	90 - 110

Matrix Spike — Lab ID = 804652-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Nitrate as Nitrogen	mg/L	1.00	2.34	2.25(2.00)	105	85 - 115

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrate as Nitrogen	mg/L	1.00	4.00	4.00	100	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrate as Nitrogen	mg/L	1.00	2.97	3.00	99.0	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrate as Nitrogen	mg/L	1.00	2.96	3.00	98.8	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrate as Nitrogen	mg/L	1.00	2.96	3.00	98.6	90 - 110

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Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project
Project Number: 423575.MP.02.RM Printed 12/10/2012
Revised

Alkalinity by SM 2320B

Batch 11ALK12C

Parameter		Unit	Analyzed	DF	MDL	RL	Result
804652-001	Alkalinity as CaCO3	mg/L	11/06/2012	1.00	0.555	5.00	125
	Bicarbonate (Calculated)	mg/L	11/06/2012	1.00	0.555	5.00	125
	Carbonate (Calculated)	mg/L	11/06/2012	1.00	0.555	5.00	ND
804652-002	Alkalinity as CaCO3	mg/L	11/06/2012	1.00	0.555	5.00	122
	Bicarbonate (Calculated)	mg/L	11/06/2012	1.00	0.555	5.00	122
	Carbonate (Calculated)	mg/L	11/06/2012	1.00	0.555	5.00	ND
804652-005	Alkalinity as CaCO3	mg/L	11/06/2012	1.00	0.555	5.00	130
	Bicarbonate (Calculated)	mg/L	11/06/2012	1.00	0.555	5.00	130
	Carbonate (Calculated)	mg/L	11/06/2012	1.00	0.555	5.00	ND
804652-006	Alkalinity as CaCO3	mg/L	11/06/2012	1.00	0.555	5.00	122
	Bicarbonate (Calculated)	mg/L	11/06/2012	1.00	0.555	5.00	122
	Carbonate (Calculated)	mg/L	11/06/2012	1.00	0.555	5.00	ND
804652-007	Alkalinity as CaCO3	mg/L	11/06/2012	1.00	0.555	5.00	119
	Bicarbonate (Calculated)	mg/L	11/06/2012	1.00	0.555	5.00	119
	Carbonate (Calculated)	mg/L	11/06/2012	1.00	0.555	5.00	ND
804652-008	Alkalinity as CaCO3	mg/L	11/06/2012	1.00	0.555	5.00	115
	Bicarbonate (Calculated)	mg/L	11/06/2012	1.00	0.555	5.00	115
	Carbonate (Calculated)	mg/L	11/06/2012	1.00	0.555	5.00	ND
804652-009	Alkalinity as CaCO3	mg/L	11/06/2012	1.00	0.555	5.00	127
	Bicarbonate (Calculated)	mg/L	11/06/2012	1.00	0.555	5.00	127
	Carbonate (Calculated)	mg/L	11/06/2012	1.00	0.555	5.00	ND
804652-010	Alkalinity as CaCO3	mg/L	11/06/2012	1.00	0.555	5.00	129
	Bicarbonate (Calculated)	mg/L	11/06/2012	1.00	0.555	5.00	129
	Carbonate (Calculated)	mg/L	11/06/2012	1.00	0.555	5.00	ND

Method Blank

Parameter	Unit	DF	Result
Alkalinity as CaCO3	mg/L	1.00	ND

Duplicate

Lab ID = 804652-010

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Alkalinity as CaCO3	mg/L	1.00	124	129	3.95	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Alkalinity as CaCO3	mg/L	1.00	102	100	102	90 - 110

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project
Project Number: 423575.MP.02.RM

Printed 12/10/2012
Revised

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Alkalinity as CaCO3	mg/L	1.00	102	100	102	90 - 110

Matrix Spike — Lab ID = 804652-010

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Alkalinity as CaCO3	mg/L	1.00	235	229(100)	106	75 - 125

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project
Project Number: 423575.MP.02.RM

Printed 12/10/2012
Revised

Specific Conductivity - EPA 120.1

Batch 11EC12B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
804652-001 Specific Conductivity	umhos/cm	11/06/2012	1.00	0.116	2.00	890
804652-002 Specific Conductivity	umhos/cm	11/06/2012	1.00	0.116	2.00	900
804652-005 Specific Conductivity	umhos/cm	11/06/2012	1.00	0.116	2.00	895
804652-006 Specific Conductivity	umhos/cm	11/06/2012	1.00	0.116	2.00	899
804652-007 Specific Conductivity	umhos/cm	11/06/2012	1.00	0.116	2.00	893
804652-008 Specific Conductivity	umhos/cm	11/06/2012	1.00	0.116	2.00	896
804652-009 Specific Conductivity	umhos/cm	11/06/2012	1.00	0.116	2.00	899
804652-010 Specific Conductivity	umhos/cm	11/06/2012	1.00	0.116	2.00	883
804652-012 Specific Conductivity	umhos/cm	11/06/2012	1.00	0.116	2.00	960
804652-013 Specific Conductivity	umhos/cm	11/06/2012	1.00	0.116	2.00	933

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate

Lab ID = 804652-013

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	932	933	0.107	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	703	706	99.6	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	705	706	99.8	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	702	706	99.4	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	985	996	98.9	90 - 110

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Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project
Project Number: 423575.MP.02.RM

Printed 12/10/2012
Revised

Metals by EPA 6010B, Total

Batch 111912A-Th2

Parameter	Unit	Analyzed	DF	MDL	RL	Result
804652-001 Iron	ug/L	11/19/2012 16:08	1.00	9.50	20.0	32.5
804652-002 Iron	ug/L	11/19/2012 16:55	1.00	9.50	20.0	20.2
804652-005 Iron	ug/L	11/19/2012 17:01	1.00	9.50	20.0	24.5
804652-006 Iron	ug/L	11/19/2012 17:07	1.00	9.50	20.0	24.7
804652-007 Iron	ug/L	11/19/2012 17:12	1.00	9.50	20.0	22.7
804652-008 Iron	ug/L	11/19/2012 17:18	1.00	9.50	20.0	21.1
804652-009 Iron	ug/L	11/19/2012 17:24	1.00	9.50	20.0	ND
804652-010 Iron	ug/L	11/19/2012 17:30	1.00	9.50	20.0	ND

Method Blank

Parameter	Unit	DF	Result
Iron	ug/L	1.00	ND

Duplicate

Lab ID = 804652-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Iron	ug/L	1.00	31.3	32.5	3.76	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	49.1	50.0	98.2	85 - 115

Matrix Spike

Lab ID = 804652-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	85.3	82.5(50.0)	106	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5200	5000	104	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5160	5000	103	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5120	5000	102	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5000	5000	100	90 - 110

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project
Project Number: 423575.MP.02.RM

Printed 12/10/2012
Revised

Chrome VI by EPA 218.6

Batch 11CrH12C

Parameter	Unit	Analyzed	DF	MDL	RL	Result
804652-001 Chromium, Hexavalent	ug/L	11/07/2012 09:48	1.00	0.00920	0.20	ND
804652-002 Chromium, Hexavalent	ug/L	11/07/2012 09:59	1.00	0.00920	0.20	ND
804652-005 Chromium, Hexavalent	ug/L	11/07/2012 10:09	1.00	0.00920	0.20	ND
804652-006 Chromium, Hexavalent	ug/L	11/07/2012 10:19	1.00	0.00920	0.20	ND
804652-007 Chromium, Hexavalent	ug/L	11/07/2012 10:30	1.00	0.00920	0.20	ND
804652-008 Chromium, Hexavalent	ug/L	11/07/2012 10:40	1.00	0.00920	0.20	ND
804652-009 Chromium, Hexavalent	ug/L	11/07/2012 10:51	1.00	0.00920	0.20	ND
804652-010 Chromium, Hexavalent	ug/L	11/07/2012 11:01	1.00	0.00920	0.20	ND
804652-012 Chromium, Hexavalent	ug/L	11/07/2012 11:32	1.00	0.00920	0.20	ND
804652-013 Chromium, Hexavalent	ug/L	11/07/2012 11:43	1.00	0.00920	0.20	ND

Method Blank

Parameter	Unit	DF	Result
Chromium, Hexavalent	ug/L	1.00	ND

Duplicate

Lab ID = 804652-007

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.0206	0.0208	0.966	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.184	0.200	92.2	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.91	5.00	98.2	90 - 110

Matrix Spike

Lab ID = 804652-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.986	1.02(1.00)	96.8	90 - 110

Matrix Spike

Lab ID = 804652-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.995	1.02(1.00)	97.1	90 - 110

Matrix Spike

Lab ID = 804652-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.967	1.02(1.00)	94.8	90 - 110

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Matrix Spike — Lab ID = 804652-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.976	1.02(1.00)	95.8	90 - 110

Matrix Spike — Lab ID = 804652-007

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.967	1.02(1.00)	94.6	90 - 110

Matrix Spike — Lab ID = 804652-008

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.948	1.02(1.00)	92.7	90 - 110

Matrix Spike — Lab ID = 804652-009

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.975	1.02(1.00)	95.6	90 - 110

Matrix Spike — Lab ID = 804652-010

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.955	1.02(1.00)	93.4	90 - 110

Matrix Spike — Lab ID = 804652-012

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.940	1.00(1.00)	94.0	90 - 110

Matrix Spike — Lab ID = 804652-013

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.943	1.00(1.00)	94.3	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.92	5.00	98.4	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.89	10.0	98.9	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.86	10.0	98.6	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.91	10.0	99.1	95 - 105

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Metals by EPA 6020A, Dissolved Batch 112812D

Parameter	Unit	Analyzed	DF	MDL	RL	Result
804652-001 Arsenic	ug/L	11/29/2012 18:53	2.50	0.250	0.50	2.4
Chromium	ug/L	11/29/2012 18:53	2.50	0.230	1.0	ND
804652-002 Arsenic	ug/L	11/29/2012 19:29	2.50	0.250	0.50	2.3
Chromium	ug/L	11/29/2012 19:29	2.50	0.230	1.0	ND
804652-005 Arsenic	ug/L	11/29/2012 19:36	2.50	0.250	0.50	2.2
Chromium	ug/L	11/29/2012 19:36	2.50	0.230	1.0	ND
804652-006 Arsenic	ug/L	11/29/2012 19:43	2.50	0.250	0.50	2.2
Chromium	ug/L	11/29/2012 19:43	2.50	0.230	1.0	ND
804652-007 Arsenic	ug/L	11/29/2012 19:50	2.50	0.250	0.50	2.3
Chromium	ug/L	11/29/2012 19:50	2.50	0.230	1.0	ND
804652-008 Arsenic	ug/L	11/29/2012 19:58	2.50	0.250	0.50	2.4
Chromium	ug/L	11/29/2012 19:58	2.50	0.230	1.0	ND
804652-009 Arsenic	ug/L	11/29/2012 20:05	2.50	0.250	0.50	2.3
Chromium	ug/L	11/29/2012 20:05	2.50	0.230	1.0	ND
804652-010 Arsenic	ug/L	11/29/2012 20:33	2.50	0.250	0.50	2.4
Chromium	ug/L	11/29/2012 20:33	2.50	0.230	1.0	ND
804652-012 Chromium	ug/L	11/29/2012 20:41	2.50	0.230	1.0	ND
804652-013 Chromium	ug/L	11/29/2012 20:55	2.50	0.230	1.0	ND

Method Blank

Parameter	Unit	DF	Result
Arsenic	ug/L	1.00	ND
Chromium	ug/L	1.00	ND
Manganese	ug/L	1.00	ND

Duplicate Lab ID = 804652-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Arsenic	ug/L	2.50	2.42	2.40	0.788	0 - 20
Chromium	ug/L	2.50	ND	0	0	0 - 20
Manganese	ug/L	2.50	1.11	1.14	2.94	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	0.236	0.200	118	70 - 130
Chromium	ug/L	1.00	0.191	0.200	95.4	70 - 130
Manganese	ug/L	1.00	0.177	0.200	88.4	70 - 130

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Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project
Project Number: 423575.MP.02.RM Printed 12/10/2012
Revised

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	2.50	43.6	50.0	87.2	85 - 115
Chromium	ug/L	2.50	44.7	50.0	89.5	85 - 115
Manganese	ug/L	2.50	44.9	50.0	89.8	85 - 115

Matrix Spike — Lab ID = 804652-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	2.50	45.6	52.4(50.0)	86.5	75 - 125
Chromium	ug/L	2.50	45.0	50.0(50.0)	89.9	75 - 125
Manganese	ug/L	2.50	46.1	51.1(50.0)	90.0	75 - 125

Matrix Spike Duplicate — Lab ID = 804652-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	2.50	48.5	52.4(50.0)	92.2	75 - 125
Chromium	ug/L	2.50	47.9	50.0(50.0)	95.9	75 - 125
Manganese	ug/L	2.50	49.3	51.1(50.0)	96.4	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	20.1	20.0	100	90 - 110
Chromium	ug/L	1.00	20.2	20.0	101	90 - 110
Manganese	ug/L	1.00	20.0	20.0	100	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	19.9	20.0	99.7	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	20.0	20.0	99.8	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	19.4	20.0	96.9	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	19.3	20.0	96.4	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	19.4	20.0	96.9	90 - 110

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project
Project Number: 423575.MP.02.RM

Printed 12/10/2012
Revised

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	ND	0		

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	19.6	20.0	98.0	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	19.3	20.0	96.5	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.6	20.0	97.8	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.4	20.0	96.8	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	19.7	20.0	98.6	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	19.6	20.0	97.8	80 - 120

Serial Dilution — Lab ID = 804652-012

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Manganese	ug/L	12.5	70.5	71.2	0.988	0 - 10

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project
Project Number: 423575.MP.02.RM

Printed 12/10/2012
Revised

Metals by EPA 6020A, Dissolved

Batch 112812B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
804652-001 Manganese	ug/L	11/28/2012 19:46	2.50	0.215	0.50	1.0
Selenium	ug/L	11/28/2012 19:46	2.50	0.200	5.0	ND
804652-002 Manganese	ug/L	11/28/2012 20:37	2.50	0.215	0.50	0.98
Selenium	ug/L	11/28/2012 20:37	2.50	0.200	5.0	ND
804652-005 Manganese	ug/L	11/28/2012 20:44	2.50	0.215	0.50	0.98
Selenium	ug/L	11/28/2012 20:44	2.50	0.200	5.0	ND
804652-006 Manganese	ug/L	11/28/2012 20:51	2.50	0.215	0.50	1.1
Selenium	ug/L	11/28/2012 20:51	2.50	0.200	5.0	ND
804652-007 Manganese	ug/L	11/28/2012 20:58	2.50	0.215	0.50	1.0
Selenium	ug/L	11/28/2012 20:58	2.50	0.200	5.0	ND
804652-008 Manganese	ug/L	11/28/2012 21:05	2.50	0.215	0.50	1.1
Selenium	ug/L	11/28/2012 21:05	2.50	0.200	5.0	ND
804652-009 Manganese	ug/L	11/28/2012 21:12	2.50	0.215	0.50	1.1
Selenium	ug/L	11/28/2012 21:12	2.50	0.200	5.0	ND
804652-010 Manganese	ug/L	11/28/2012 21:20	2.50	0.215	0.50	0.86
Selenium	ug/L	11/28/2012 21:20	2.50	0.200	5.0	ND

Method Blank

Parameter	Unit	DF	Result
Selenium	ug/L	1.00	ND
Manganese	ug/L	1.00	ND

Duplicate

Lab ID = 804652-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Selenium	ug/L	2.50	ND	0	0	0 - 20
Manganese	ug/L	2.50	0.991	1.00	0.944	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Selenium	ug/L	1.00	0.412	0.500	82.4	70 - 130
Manganese	ug/L	1.00	0.164	0.200	82.0	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Selenium	ug/L	2.50	43.2	50.0	86.5	85 - 115
Manganese	ug/L	2.50	45.2	50.0	90.5	85 - 115

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Matrix Spike — Lab ID = 804652-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Selenium	ug/L	2.50	41.8	50.0(50.0)	83.6	75 - 125
Manganese	ug/L	2.50	43.1	51.0(50.0)	84.2	75 - 125

Matrix Spike Duplicate — Lab ID = 804652-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Selenium	ug/L	2.50	45.4	50.0(50.0)	90.8	75 - 125
Manganese	ug/L	2.50	46.5	51.0(50.0)	91.0	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Selenium	ug/L	1.00	19.5	20.0	97.7	90 - 110
Manganese	ug/L	1.00	18.5	20.0	92.6	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Selenium	ug/L	1.00	19.0	20.0	95.2	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Selenium	ug/L	1.00	18.4	20.0	91.8	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Selenium	ug/L	1.00	18.9	20.0	94.4	90 - 110
Manganese	ug/L	1.00	18.3	20.0	91.4	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	18.3	20.0	91.6	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	18.3	20.0	91.6	90 - 110

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Selenium	ug/L	1.00	ND	0		

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Selenium	ug/L	1.00	ND	0		
Manganese	ug/L	1.00	ND	0		

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project
Project Number: 423575.MP.02.RM

Printed 12/10/2012
Revised

Metals by EPA 6020A, Dissolved

Batch 120612A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
804652-001 Molybdenum	ug/L	12/06/2012 17:22	2.50	0.518	2.0	5.1
804652-002 Molybdenum	ug/L	12/06/2012 18:19	2.50	0.518	2.0	6.0
804652-005 Molybdenum	ug/L	12/06/2012 18:27	2.50	0.518	2.0	5.0
804652-006 Molybdenum	ug/L	12/06/2012 18:34	2.50	0.518	2.0	4.8
804652-007 Molybdenum	ug/L	12/06/2012 18:41	2.50	0.518	2.0	4.6
804652-008 Molybdenum	ug/L	12/06/2012 18:48	2.50	0.518	2.0	4.7
804652-009 Molybdenum	ug/L	12/06/2012 18:55	2.50	0.518	2.0	4.6
804652-010 Molybdenum	ug/L	12/06/2012 19:03	2.50	0.518	2.0	4.6

Method Blank

Parameter	Unit	DF	Result
Molybdenum	ug/L	1.00	ND

Duplicate

Lab ID = 804652-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Molybdenum	ug/L	2.50	4.97	5.15	3.54	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Molybdenum	ug/L	1.00	0.610	0.500	122	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Molybdenum	ug/L	2.50	52.7	50.0	105	85 - 115

Matrix Spike

Lab ID = 804652-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Molybdenum	ug/L	2.50	57.7	55.2(50.0)	105	75 - 125

Matrix Spike Duplicate

Lab ID = 804652-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Molybdenum	ug/L	2.50	61.3	55.2(50.0)	112	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Molybdenum	ug/L	1.00	20.6	20.0	103	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Molybdenum	ug/L	1.00	19.9	20.0	99.6	90 - 110

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Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project
Project Number: 423575.MP.02.RM Printed 12/10/2012
Revised

Metals by EPA 6010B, Dissolved

Batch 111912A-Th2

Parameter	Unit	Analyzed	DF	MDL	RL	Result
804652-001 Iron	ug/L	11/19/2012 14:39	1.00	9.50	20.0	ND
804652-002 Iron	ug/L	11/19/2012 15:27	1.00	9.50	20.0	ND
804652-005 Iron	ug/L	11/19/2012 15:33	1.00	9.50	20.0	ND
804652-006 Iron	ug/L	11/19/2012 15:39	1.00	9.50	20.0	ND
804652-007 Iron	ug/L	11/19/2012 15:45	1.00	9.50	20.0	ND
804652-008 Iron	ug/L	11/19/2012 15:50	1.00	9.50	20.0	ND
804652-009 Iron	ug/L	11/19/2012 15:56	1.00	9.50	20.0	ND
804652-010 Iron	ug/L	11/19/2012 16:02	1.00	9.50	20.0	ND

Method Blank

Parameter	Unit	DF	Result
Iron	ug/L	1.00	ND

Duplicate — Lab ID = 804652-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Iron	ug/L	1.00	ND	0	0	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	49.1	50.0	98.2	85 - 115

Matrix Spike — Lab ID = 804652-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	53.2	50.0(50.0)	106	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5200	5000	104	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5160	5000	103	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5120	5000	102	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5000	5000	100	90 - 110

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project
Project Number: 423575.MP.02.RM

Printed 12/10/2012
Revised

pH by SM 4500-H B

Batch 11PH12C

Parameter	Unit	Analyzed	DF	MDL	RL	Result	
804652-001 pH	pH	11/03/2012 16:05	1.00	0.0784	4.00	8.26	J
804652-002 pH	pH	11/03/2012 16:10	1.00	0.0784	4.00	8.27	J
804652-005 pH	pH	11/03/2012 16:15	1.00	0.0784	4.00	8.29	J
804652-006 pH	pH	11/03/2012 16:20	1.00	0.0784	4.00	8.27	J
804652-007 pH	pH	11/03/2012 16:25	1.00	0.0784	4.00	8.26	J
804652-008 pH	pH	11/03/2012 16:30	1.00	0.0784	4.00	8.10	J
804652-009 pH	pH	11/03/2012 16:35	1.00	0.0784	4.00	8.25	J
804652-010 pH	pH	11/03/2012 16:45	1.00	0.0784	4.00	8.23	J
804652-012 pH	pH	11/03/2012 16:50	1.00	0.0784	4.00	7.45	J
804652-013 pH	pH	11/03/2012 16:55	1.00	0.0784	4.00	7.58	J

Method Blank

Parameter	Unit	DF	Result
pH	pH	1.00	ND

Duplicate

Lab ID = 804652-013

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
pH	pH	1.00	7.57	7.58	0.132	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
pH	pH	1.00	6.98	7.00	99.7	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
pH	pH	1.00	7.01	7.00	100	90 - 110

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Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project

Project Number: 423575.MP.02.RM Printed 12/10/2012

Revised

Total Suspended Solids by SM 2540 D Batch 11TSS12C

Parameter	Unit	Analyzed	DF	MDL	RL	Result
804652-001 Total Suspended Solids	mg/L	11/06/2012	1.00	0.349	10.0	11.6
804652-002 Total Suspended Solids	mg/L	11/06/2012	1.00	0.349	10.0	19.6
804652-005 Total Suspended Solids	mg/L	11/06/2012	1.00	0.349	10.0	ND
804652-006 Total Suspended Solids	mg/L	11/06/2012	1.00	0.349	10.0	ND
804652-007 Total Suspended Solids	mg/L	11/06/2012	1.00	0.349	10.0	ND
804652-008 Total Suspended Solids	mg/L	11/06/2012	1.00	0.349	10.0	ND
804652-009 Total Suspended Solids	mg/L	11/06/2012	1.00	0.349	10.0	ND
804652-010 Total Suspended Solids	mg/L	11/06/2012	1.00	0.349	10.0	ND

Method Blank

Parameter	Unit	DF	Result
Total Suspended Solids	mg/L	1.00	ND

Duplicate Lab ID = 804652-010

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Suspended Solids	mg/L	1.00	ND	0	0	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Suspended Solids	mg/L	1.00	98.0	100	98.0	90 - 110

Respectfully submitted,

TRUESDAIL LABORATORIES, INC.

for Mona Nassimi

Manager, Analytical Services

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from Truesdail Laboratories.

e2
SC

TRUESDAIL LABORATORIES INC.

Total Suspended Solids by SM 2540 D

Calculations

Batch: 11TSS12C
Date Analyzed: 11/06/12

Dish Number	Laboratory Number	Sample volume, ml	Initial weight,g	1st Final weight,g	2nd Final weight,g	Weight Difference, g	Exceeds 0.5mg? Yes/No	Residue weight,g	Filterable residue, ppm	RL, ppm	Reported Value, ppm
N36	BLANK	1000	1.4336	1.4336	1.4336	0.0000	No	0.0000	0.0	2.5	ND
N38	804632-1	1000	1.4314	1.4316	1.4316	0.0000	No	0.0002	0.2	2.5	ND
N39	804632-2	1000	1.4265	1.4265	1.4265	0.0000	No	0.0000	0.0	2.5	ND
N40	804652-1	250	1.4368	1.4397	1.4397	0.0000	No	0.0029	11.6	10.0	11.6
N41	804652-2	250	1.4248	1.4297	1.4297	0.0000	No	0.0049	19.6	10.0	19.6
N42	804652-5	250	1.4278	1.4284	1.4284	0.0000	No	0.0006	2.4	10.0	ND
N43	804652-6	250	1.4293	1.4304	1.4304	0.0000	No	0.0011	4.4	10.0	ND
N44	804652-7	250	1.4305	1.4309	1.4309	0.0000	No	0.0004	1.6	10.0	ND
N45	804652-8	250	1.4326	1.4330	1.433	0.0000	No	0.0004	1.6	10.0	ND
N46	804652-9	250	1.4238	1.4244	1.4244	0.0000	No	0.0006	2.4	10.0	ND
N47	804652-10	250	1.4319	1.4323	1.4323	0.0000	No	0.0004	1.6	10.0	ND
N48	804652-10D	250	1.4331	1.4335	1.4335	0.0000	No	0.0004	1.6	10.0	ND
N37	LCS-1	100	1.4325	1.4423	1.4423	0.0000	No	0.0098	98.0	25.0	98.0

Calculation as follows:

Non- Filterable residue (TSS), mg/L = $\left(\frac{A-B}{C}\right) x\ 10^6$

Where: A = weight of dish + residue in grams.
B = weight of dish in grams.
C = mL of sample filtered.

RL= reporting limit.
ND = not detected (below the reporting limit)

Laboratory Control Sample (LCS) Summary

QC Std I.D.	Measurd Value, ppm	Theoretical Value, ppm	Percent Rec	Acceptance Limit	QC Within Control?
LCS1	98	100	98.0%	90-110%	Yes
LCSD					

LCS Recovery

$$P = \left(\frac{LC}{LT}\right) x\ 100$$

$$\%\ Difference = \frac{|A\ or\ B - C|}{C}\ x\ 100$$

$$where \quad C = \frac{A+B}{2}$$

A = Weght of the first sample in (g).
B = Weght of the second sample in (g).
C = Average weight in (g).

Duplicate Determinations Difference Summary

Lab Number	Sample Weight, g	Sample Dup Weight, g	% RPD	Acceptance Limit	QC Within Control?
804652-10	0.0004	0.0004	0.0%	≤5%	Yes

Gautam S.
Analyst Printed Name

Analyst Signature

Maksim G.
Reviewer Printed Name

Reviewer Signature

015 C

TRUESDAIL LABORATORIES, INC.

Alkalinity by SM 2320B

Calculations

Analytical Batch:	11ALK12C
Matrix:	Water
Date of Analysis:	11/6/12

Lab ID	Sample pH	Sample Volume (ml)	N of HCL	Titrant Volume to reach pH 8.3	P Alkalinity as CaCO3	Titrant Volume to reach pH 4.5	Total mL titrant to reach pH 0.3 unit lower	Total Alkalinity as CaCO3	RL, ppm	Total Alkalinity Reported Value	HCO3 Conc. as $CaCO_3$ (ppm)	CO3 Alkalinity as $CaCO_3$ (ppm)	OH Alkalinity as $CaCO_3$ (ppm)	Low Alkalinity as $CaCO_3$ (<20ppm)
BLANK	6.96	50	0.02		0.0	0.00		0.0	5	ND	ND	ND	ND	
804680-17	7.57	50	0.02		0.0	4.50		90.0	5	90.0	90.0	ND	ND	
804680-21	7.58	50	0.02		0.0	4.00		80.0	5	80.0	80.0	ND	ND	
804652-1	8.23	50	0.02		0.0	6.25		125.0	5	125.0	125.0	ND	ND	
804652-2	8.23	50	0.02		0.0	6.10		122.0	5	122.0	122.0	ND	ND	
804652-5	8.24	50	0.02		0.0	6.50		130.0	5	130.0	130.0	ND	ND	
804652-6	8.22	50	0.02		0.0	6.10		122.0	5	122.0	122.0	ND	ND	
804652-7	8.22	50	0.02		0.0	5.95		119.0	5	119.0	119.0	ND	ND	
804652-8	8.13	50	0.02		0.0	5.75		115.0	5	115.0	115.0	ND	ND	
804652-9	8.16	50	0.02		0.0	6.35		127.0	5	127.0	127.0	ND	ND	
804652-10	8.18	50	0.02		0.0	6.45		129.0	5	129.0	129.0	ND	ND	
804652-10 DUP	8.17	50	0.02		0.0	6.20		124.0	5	124.0	124.0	ND	ND	
804652-10 MS	9.42	50	0.02	2.2	44.0	11.75		235.0	5	235.0	147.0	88	ND	
LCS	10.41	50	0.02	2.3	46.0	5.10		102.0	5	102.0	10.0	92	ND	
LCSD	10.47	50	0.02	2.4	47.0	5.10		102.0	5	102.0	8.0	94	ND	

Calculations as follows:

T or P = $\left(\frac{A \times N \times 50000}{mL\ sample}\right)$

Where:
T = Total Alkalinity, mg CaCO3/L
P = Phenolphthalein Alkalinity, mg CaCO3/L
A = mL standard acid used
N = normality of standard acid

Low Alkalinity: as mg/L CaCO3 = $\frac{(2 \times B - C) \times N \times 50000}{mL\ sample}$

Where:
B = mL titrant to first recorded pH
C = Total mL titrant to reach pH 0.3 unit lower
N = Normality of standard acid

LCS = Laboratory Control Standard/Duplicate
MS/MSD = Matrix Spike/Duplicate
ND = Not Detected (below the reporting limit)

Blank Summary

Reporting Limit, RL	Measured Value, ppm	Accept Limit	QC Within Control?
5 ppm	0	<5	Yes

Laboratory Control Sample (LCS/LCSD) Summary

QC Std I.D.	Measured Value, ppm	Theoretical Value, ppm	%Recovery	Accetance Limit	QC Within Control?
LCS	102	100	102.0%	90-110	Yes
LCSD	102	100	102.0%	90-110	Yes

Duplicate Determination Difference Summary

Lab Number I.D.	Measured Value, ppm	Dup Value, ppm	RPD	Accetance Limit	QC Within Control?
804652-10	129	124	4.0%	≤20%	Yes

Sample Matrix Spike (MS/MSD) Summary

Lab Number	Conc of Unspk spl	Dil Factor	Added Spk Conc	MS/MSD Amt	Measrd Conc of Spk Spl	Theor Conc of Spk Spl	MS/MSD %Rec	MS Accept Limit	QC Within Control?	RPD	RPD Accept Limit	QC Within Control?
804652-10	129	1	100	100	235	229.00	106%	75-125	Yes			
		1	100	100								

Melissa S.
Analyst Printed Name

Analyst Signature

Maksim G.
Reviewer Printed Name

Reviewer Signature

110612c

015G

SC

804652 Rec'd 11/02/12 804652

CH2MHILL

CHAIN OF CUSTODY RECORD

11/2/2012 3:03:21 PM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.RM
Task Order
Project 2012-RMP-188
Turnaround Time 10 Days
Shipping Date:
COC Number: 999

				Cr6 (E218.6 – river) Field Filtered	Field QC Cr6 (E218.6–river)	Metals (6010B) Total Fe	Metals (SW6010B/SW6020Adis) Field Filtered As,Mn,Fe,Se,Mo	Metals (6020AFF) Field Filtered Chromium	Specific Conductance (E120.1)	Anions (E300.0) Nitrate	Alkalinity (SM2320B)	PH (SM4500HB)	TSS (SM2540)	Number of Containers	COMMENTS
			Container:	3X250 ml Poly	250 Poly	500 ml Poly	3x500 ml Poly	3x500 ml Poly	2x1 Liter	2x1 Liter	2x1 Liter	2x1 Liter	2x1 Liter		
			Preservatives:	(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	4°C	4°C	4°C	4°C	4°C		
			Filtered:	Field	NA	NA	Field	Field	NA	NA	NA	NA	NA		
			Holding Time:	28	28	180	180	180	2	2	2	2	2		
	DATE	TIME	Matrix												
1	C-CON-D-188	11/2/2012	9:51	Water	X		X	X	X	X	X	X	X	X	8	pH 2
2	C-CON-S-188	11/2/2012	10:06	Water	X		X	X	X	X	X	X	X	X	8	
3	C-MW-82-188	11/2/2012	10:23	Water		X									1	
4	C-MW-83-188	11/2/2012	10:58	Water		X									1	
5	C-NR1-D-188	11/2/2012	10:29	Water	X		X	X	X	X	X	X	X	X	8	
6	C-NR1-S-188	11/2/2012	10:44	Water	X		X	X	X	X	X	X	X	X	8	
7	C-NR3-D-188	11/2/2012	11:10	Water	X		X	X	X	X	X	X	X	X	8	
8	C-NR3-S-188	11/2/2012	11:24	Water	X		X	X	X	X	X	X	X	X	8	pH 2
9	C-NR4-D-188	11/2/2012	11:49	Water	X		X	X	X	X	X	X	X	X	8	
10	C-NR4-S-188	11/2/2012	12:02	Water	X		X	X	X	X	X	X	X	X	8	
11	RMP-AB2-188	11/2/2012	12:05	Water		X									1	
12	SW1-188	11/2/2012	14:30	Water	X				X	X			X		5	pH 2
13	SW2-188	11/2/2012	14:45	Water	X				X	X			X		5	
														TOTAL NUMBER OF CONTAINERS	77	

pH for 6020A/6010B

For Sample Conditions See Form Attached

ALERT !! Level III QC

	Signatures	Date/Time
Approved by		11-2-12 1510
Sampled by		
Relinquished by		
Received by		11-2-12 15:10
Relinquished by		11-2-12 21:30
Received by	Rafael Davila	11-2-12 21:30

Shipping Details

Method of Shipment: FedEx
On Ice: yes / no
Airbill No:
Lab Name: Truesdail Laboratories, Inc.
Lab Phone: (714) 730-6239

ATTN:
Sample Custody

Special Instructions:
November 1-2, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

37

TRUESDAIL LABORATORIES, INC.

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
804625	>1	<2	11-2-12	BE	3010A			
804626	↓	↓	↓	↓	↓			
804627	↓	↓	↓	↓	↓			
804600	<1	>2	↓	↓	NO	7:00 AM	11-4	PH<2
804617(10-12)	↓	↓	↓	↓	↓	↓	↓	↓
804635(1-3)	↓	↓	↓	↓	↓	↓	↓	↓
804636(1-15)	<1	<2	11/05/12	M-M	3010A			
804652(1-2,5)	↓	↓	↓	↓	↓			
804647	>1	<2	11/05/12	MM	3010A			
804648	↓	↓	↓	↓	↓			
804649	↓	↓	↓	↓	↓			
804658(1,2,4)	<1	>2	11/5/12	MM	NO	4 pm	10.6	PH<2
804683(1,2,3)	<1	>1	11-6-12	BE	NO	5 pm	11-7	↓
804726(1,5)	<1	<2	11-7-12	M.M	3010A			
804725(1,2)	↓	↓	↓	↓				
804722(1,2)	↓	<2,2	↓	↓				
804723(1,2)	↓	>2	↓	↓				
804724(1,2)	↓	↓	↓	↓				
804690	—	— M.M	11/07/12	M.M	TTLC	13:00	11/07/12	pH<2
804678-1	>1	~~>2~~ <2	11/07/12	MM	3010A			
804679	↓	↓	↓	↓	↓			
804680	↓	↓	↓	↓	↓			
804691	↓	↓	↓	↓	↓			
804692	↓	↓	↓	↓	↓			
804693	↓	↓	↓	↓	↓			
804694	↓	↓	↓	↓	↓			
804695	↓	↓	↓	↓	↓			
804706	↓	↓	↓	↓	↓			
804707	↓	↓	↓	↓	↓			
804708	↓	↓	↓	↓	↓			
804709	↓	↓	↓	↓	↓			
804721	↓	↓	↓	↓	↓			
804731	↓	~~>2~~	↓	↓	↓	13:00	11/07/12	pH<2
804678-2	>1	>2	11/07/2	M.M	3010A	13:00	11/07/12	pH<1
-3	↓	↓		↓	↓	↓	↓	↓
~~804300-02, 804300~~								
804300	<1	<2	10/16/12	M.M	3010A			
804301-302	↓	↓	↓	↓	↓			
804304-305	↓	↓	↓	↓	↓			
804733(1-3)	<1	>2	11-8-12	B.E	NO	5:30pM		
804720	↓	↓	↓	↓	↓	↓		
804743(10-12)	↓	↓	↓	↓	↓	↓		

Notes:
1. Samples should be analyzed after 24 hrs of pH adjustment to pH2 for Dissolved Analytes.
2. All Total Recoverable Analytes must be pH adjusted and digested.
3. Do not use disposable pipette to measure pH; pour a little amount of sample from the bottle.

Hexavalent Chromium

Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
10/31/12	804602	7	2mL / 100mL	9.5	11 Am	[illegible]
11/2/12 ~~12~~						
11/2/12	804636-1	9.5	N/A	N/A	N/A	[illegible]
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
	-13					
	-14					
	-15					
11/5/12	804652-1	9.5	N/A	N/A	N/A	[illegible]
	-2					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-12					
	-13					
11/7/12	804722-1	7	2mL / 100mL (Total)	9.5	11:00 Am	[illegible]
	-2				11:10 Am	
	804723-1	7			11:15 Am	
	-2				11:20 Am	

HAV
11/12/12

C:\My Documents\Templates\Hexavalent Chromium\Cr6+ pH Log

[illegible] 11/13/12

TRUESDAIL LABORATORIES, INC.

ALERT !!
Level III QC

Sample Integrity & Analysis Discrepancy Form

Client: E2 **Lab #** 804652

Date Delivered: 11 / 2 / 12 **Time:** 21:30 **By:** ☐Mail ☑Field Service ☐Client

1. Was a Chain of Custody received and signed? ☑Yes ☐No ☐N/A
2. Does Customer require an acknowledgement of the COC? ☐Yes ☐No ☑N/A
3. Are there any special requirements or notes on the COC? ☐Yes ☐No ☑N/A
4. If a letter was sent with the COC, does it match the COC? ☐Yes ☐No ☑N/A
5. Were all requested analyses understood and acceptable? ☑Yes ☐No ☐N/A
6. Were samples received in a chilled condition? ☑Yes ☐No ☐N/A
   Temperature (if yes)? 5 °C
7. Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)? ☑Yes ☐No ☐N/A
8. Were sample custody seals intact? ☐Yes ☐No ☑N/A
9. Does the number of samples received agree with COC? ☑Yes ☐No ☐N/A
10. Did sample labels correspond with the client ID's? ☑Yes ☐No ☐N/A
11. Did sample labels indicate proper preservation? ☑Yes ☐No ☐N/A
    Preserved (if yes) by: ☑Truesdail ☐Client
12. Were samples pH checked? pH = See COC ☑Yes ☐No ☐N/A
13. Were all analyses within holding time at time of receipt? ☑Yes ☐No ☐N/A
    If not, notify Project Manager.
14. Have Project due dates been checked and accepted? ☑Yes ☐No ☐N/A
    Turn Around Time (TAT): ☐ RUSH ☑ Std
15. **Sample Matrix:** ☐Liquid ☐Drinking Water ☐Ground Water ☐Waste Water ☐Sludge ☐Soil ☐Wipe ☐Paint ☐Solid ☑Other Water
16. Comments: _____
17. Sample Check-In completed by **Truesdail** Log-In/Receiving: Alex

C:\Users\Tes\Desktop\Forms A - D\Discrp.FormBlank.doc

Sean Condon
Project Manager
Truesdail Laboratories
14201 Frankline Avenue
Tustin, CA 92780
Tel: 714.730.6239
Project: 2012-RMP-188
Project No.: 423575.MP.02.RM
Email: seanc@truesdail.com

Dr. Yi Wang
Director of ZymaX Forensics Isotope
Senior Environmental Geochemist of DPRA
600 S. Andreasen Dr., Suite B
Escondido, CA 92029
Tel: 760.781.3338 ext 43
Fax: 760.781.3339
Cell: 609.721.2843
Email: yi.wang@zymaxusa.com

ZymaX FORENSICS

REPORT OF ENVIRONMENTAL FORENSICS ISOTOPE ANALYSES

Date Received: November 20th, 2012
Date Reported: December 10th, 2012

Water samples from Truesdail Lab (Sean Condon) for $\delta^{18}O$ and δD (‰ VSMOW) stable isotope analysis

ZymaX ID	Sample ID	$\delta^{18}O$	δD
42883-1	R-28-188	-12.6	-102.2

ZymaX ID	$\delta^{18}O$	δD
QC-01	-4.7	-37.3
QC-02	-4.6	-36.8
Mean	-4.7	-37.1
Precision (STDEV)	0.1	0.4

ZYMAX FORENSICS ISOTOPE LABORATORY ANALYSES

Gas

^{13}C and D of C1 to C4; ^{13}C of CO_2; C-14 of Methane and CO_2; ^{34}S of H_2S; ^{15}N and ^{18}O of N_2O gas

Oil, Extract, Fraction and Kerogen

Compound-Specific ^{13}C and D of MTBE,Chlorinated Solvents,PAH,Gasoline,Oil; Bulk ^{13}C, D/H, ^{34}S, and ^{15}N

Water

D and ^{18}O; ^{34}S and ^{18}O of dissolved sulfate; ^{34}S of dissolved H_2S; ^{37}Cl, ^{13}C and D of chlorinated solvents
^{15}N and ^{18}O of dissolved Nitrate; ^{15}N of Ammonia; ^{13}C of dissolved CO_2 and Carbonate/Bicarbonate

Soil and Minerals:

^{13}C, ^{15}N, ^{34}S, D/H, ^{18}O; C-14 of carbonate or organics

804734

CH2MHILL

CHAIN OF CUSTODY RECORD

11/1/2012 2:49:18 PM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy

Container: 250 ml Poly
Preservatives: 4°C
Filtered: NA
Holding Time: NA

Project Number 423575.MP.02.RM
Task Order
Project 2012-RMP-188
Turnaround Time 21 Days
Shipping Date: 11/1/2012
COC Number: 2

	DATE	TIME	Matrix	Oxy_Deut (CF-IRMS)		Number of Containers	COMMENTS
R-28-188	11/1/2012	12:49	Water	x	42883-1	1	
					TOTAL NUMBER OF CONTAINERS	1	

ALERT !!
Level III QC

Received by: Ryan Hoon 11/20/12 11:00

	Signatures	Date/Time
Approved by		11-1-12
Sampled by		1530
Relinquished by		
Received by	Rafael Davila	11-1-12 15:30
Relinquished by	Rafael Davila	11-1-12 21:30
Received by	Linda, MI	11/1/12 21:30

Rel-shed by: [illegible]

Shipping Details
Method of Shipment: courier
On Ice: yes / no
Airbill No:
Lab Name: Zymax Envirotechnology
Lab Phone: (805) 544-4696

ATTN:
Sample Custody
and
Michael Ng

Special Instructions:
November 1-2, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

December 05, 2012

Sean Condon
Truesdail Laboratories
14201 Franklin Ave.
Tustin, CA 92780

TEL: (714) 730 6229
FAX: (714) 730-6462

CA-ELAP No.: 2676
NV Cert. No.: NV-009222007A

Workorder No.: N008952

RE: PGE Topock, 423575.MP.02.RM

Attention: Sean Condon

Enclosed are the results for sample(s) received on November 21, 2012 by Advanced Technology Laboratories, Inc. . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Jose Tenorio Jr.
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and Advanced Technology Laboratories - Las Vegas.

CLIENT: Truesdail Laboratories
Project: PGE Topock, 423575.MP.02.RM
Lab Order: N008952

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.

Advanced Technology Laboratories, Inc. *3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691*

Advanced Technology Laboratories, Inc.

Date: *05-Dec-12*

CLIENT: Truesdail Laboratories
Project: PGE Topock, 423575.MP.02.RM
Lab Order: N008952
Contract No: 2012-RMP-188

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N008952-001A	C-BNS-D-188	Water	11/1/2012 11:04:00 AM	11/21/2012	12/5/2012
N008952-002A	C-I-3-D-188	Water	11/1/2012 9:32:00 AM	11/21/2012	12/5/2012
N008952-003A	C-I-3-S-188	Water	11/1/2012 9:46:00 AM	11/21/2012	12/5/2012
N008952-004A	C-MAR-D-188	Water	11/1/2012 12:14:00 PM	11/21/2012	12/5/2012
N008952-005A	C-MAR-S-188	Water	11/1/2012 12:29:00 PM	11/21/2012	12/5/2012
N008952-006A	C-R22A-D-188	Water	11/1/2012 10:28:00 AM	11/21/2012	12/5/2012
N008952-007A	C-R22A-S-188	Water	11/1/2012 10:43:00 AM	11/21/2012	12/5/2012
N008952-008A	C-R27-D-188	Water	11/1/2012 11:38:00 AM	11/21/2012	12/5/2012
N008952-009A	C-R27-S-188	Water	11/1/2012 11:52:00 AM	11/21/2012	12/5/2012
N008952-010A	C-TAZ-D-188	Water	11/1/2012 8:47:00 AM	11/21/2012	12/5/2012
N008952-011A	C-TAZ-S-188	Water	11/1/2012 9:05:00 AM	11/21/2012	12/5/2012
N008952-012A	R-19-188	Water	11/1/2012 1:06:00 PM	11/21/2012	12/5/2012
N008952-013A	R-28-188	Water	11/1/2012 12:49:00 PM	11/21/2012	12/5/2012
N008952-014A	R63-188	Water	11/1/2012 10:01:00 AM	11/21/2012	12/5/2012
N008952-015A	RRB-188	Water	11/1/2012 1:23:00 PM	11/21/2012	12/5/2012

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ANALYTICAL RESULTS

Print Date: *05-Dec-12*

CLIENT:	Truesdail Laboratories	**Client Sample ID:**	C-BNS-D-188
Lab Order:	N008952	**Collection Date:**	11/1/2012 11:04:00 AM
Project:	PGE Topock, 423575.MP.02.RM	**Matrix:**	WATER
Lab ID:	N008952-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121130C**	QC Batch: **41289**				PrepDate:	**11/21/2012**	Analyst: **CEI**
Arsenic	2.5	0.035	0.10		µg/L	1	11/30/2012 05:44 PM
Chromium	ND	0.17	1.0		µg/L	1	11/30/2012 09:47 AM
Manganese	ND	0.16	0.50		µg/L	1	11/30/2012 09:47 AM
Molybdenum	4.3	0.074	0.50		µg/L	1	11/30/2012 09:47 AM
Selenium	1.7	0.084	0.50		µg/L	1	11/30/2012 05:44 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *05-Dec-12*

CLIENT: Truesdail Laboratories
Lab Order: N008952
Project: PGE Topock, 423575.MP.02.RM
Lab ID: N008952-002

Client Sample ID: C-I-3-D-188
Collection Date: 11/1/2012 9:32:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121130C**	QC Batch: **41289**			PrepDate:	**11/21/2012**		Analyst: **CEI**
Arsenic	2.6	0.035	0.10		µg/L	1	11/30/2012 05:49 PM
Chromium	ND	0.17	1.0		µg/L	1	11/30/2012 09:52 AM
Manganese	ND	0.16	0.50		µg/L	1	11/30/2012 09:52 AM
Molybdenum	4.4	0.074	0.50		µg/L	1	11/30/2012 09:52 AM
Selenium	1.6	0.084	0.50		µg/L	1	11/30/2012 05:49 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *05-Dec-12*

CLIENT: Truesdail Laboratories
Lab Order: N008952
Project: PGE Topock, 423575.MP.02.RM
Lab ID: N008952-003

Client Sample ID: C-I-3-S-188
Collection Date: 11/1/2012 9:46:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121130C**	QC Batch: **41289**				PrepDate: **11/21/2012**		Analyst: **CEI**
Arsenic	2.6	0.035	0.10		µg/L	1	11/30/2012 05:54 PM
Chromium	ND	0.17	1.0		µg/L	1	11/30/2012 09:57 AM
Manganese	ND	0.16	0.50		µg/L	1	11/30/2012 09:57 AM
Molybdenum	4.5	0.074	0.50		µg/L	1	11/30/2012 09:57 AM
Selenium	1.5	0.084	0.50		µg/L	1	11/30/2012 05:54 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *05-Dec-12*

CLIENT: Truesdail Laboratories
Lab Order: N008952
Project: PGE Topock, 423575.MP.02.RM
Lab ID: N008952-004

Client Sample ID: C-MAR-D-188
Collection Date: 11/1/2012 12:14:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121130C**	QC Batch: **41289**				PrepDate: **11/21/2012**		Analyst: **CEI**
Arsenic	2.3	0.035	0.10		µg/L	1	11/30/2012 05:59 PM
Chromium	ND	0.17	1.0		µg/L	1	11/30/2012 10:02 AM
Manganese	22	0.16	0.50		µg/L	1	11/30/2012 10:02 AM
Molybdenum	4.4	0.074	0.50		µg/L	1	11/30/2012 10:02 AM
Selenium	1.4	0.084	0.50		µg/L	1	12/4/2012 09:28 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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ANALYTICAL RESULTS

Print Date: *05-Dec-12*

CLIENT: Truesdail Laboratories
Lab Order: N008952
Project: PGE Topock, 423575.MP.02.RM
Lab ID: N008952-005

Client Sample ID: C-MAR-S-188
Collection Date: 11/1/2012 12:29:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121130C**	QC Batch: **41289**			PrepDate:	**11/21/2012**		Analyst: **CEI**
Arsenic	2.5	0.035	0.10		µg/L	1	11/30/2012 06:04 PM
Chromium	ND	0.17	1.0		µg/L	1	11/30/2012 10:07 AM
Manganese	25	0.16	0.50		µg/L	1	11/30/2012 10:07 AM
Molybdenum	4.5	0.074	0.50		µg/L	1	11/30/2012 10:07 AM
Selenium	1.4	0.084	0.50		µg/L	1	11/30/2012 06:04 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *05-Dec-12*

CLIENT: Truesdail Laboratories
Lab Order: N008952
Project: PGE Topock, 423575.MP.02.RM
Lab ID: N008952-006

Client Sample ID: C-R22A-D-188
Collection Date: 11/1/2012 10:28:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121130C**	QC Batch: **41289**				PrepDate:	**11/21/2012**	Analyst: **CEI**
Arsenic	2.5	0.035	0.10		µg/L	1	11/30/2012 06:09 PM
Chromium	ND	0.17	1.0		µg/L	1	11/30/2012 10:12 AM
Manganese	ND	0.16	0.50		µg/L	1	11/30/2012 10:12 AM
Molybdenum	4.2	0.074	0.50		µg/L	1	11/30/2012 10:12 AM
Selenium	1.4	0.084	0.50		µg/L	1	12/4/2012 09:33 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: *05-Dec-12*

CLIENT: Truesdail Laboratories
Lab Order: N008952
Project: PGE Topock, 423575.MP.02.RM
Lab ID: N008952-007

Client Sample ID: C-R22A-S-188
Collection Date: 11/1/2012 10:43:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121130C**	QC Batch: **41289**				PrepDate: **11/21/2012**		Analyst: **CEI**
Arsenic	2.5	0.035	0.10		µg/L	1	11/30/2012 06:14 PM
Chromium	ND	0.17	1.0		µg/L	1	11/30/2012 10:17 AM
Manganese	ND	0.16	0.50		µg/L	1	11/30/2012 10:17 AM
Molybdenum	4.2	0.074	0.50		µg/L	1	11/30/2012 10:17 AM
Selenium	1.7	0.084	0.50		µg/L	1	12/4/2012 09:38 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *05-Dec-12*

CLIENT: Truesdail Laboratories
Lab Order: N008952
Project: PGE Topock, 423575.MP.02.RM
Lab ID: N008952-008

Client Sample ID: C-R27-D-188
Collection Date: 11/1/2012 11:38:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121130C**	QC Batch: **41289**				PrepDate: **11/21/2012**		Analyst: **CEI**
Arsenic	2.5	0.035	0.10		µg/L	1	11/30/2012 06:19 PM
Chromium	ND	0.17	1.0		µg/L	1	11/30/2012 10:21 AM
Manganese	ND	0.16	0.50		µg/L	1	11/30/2012 10:21 AM
Molybdenum	4.4	0.074	0.50		µg/L	1	11/30/2012 10:21 AM
Selenium	1.5	0.084	0.50		µg/L	1	11/30/2012 06:19 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-Dec-12*

CLIENT: Truesdail Laboratories
Lab Order: N008952
Project: PGE Topock, 423575.MP.02.RM
Lab ID: N008952-009

Client Sample ID: C-R27-S-188
Collection Date: 11/1/2012 11:52:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121130C**	QC Batch: **41289**				PrepDate: **11/21/2012**		Analyst: **CEI**
Arsenic	2.5	0.035	0.10		µg/L	1	11/30/2012 06:24 PM
Chromium	ND	0.17	1.0		µg/L	1	11/30/2012 10:37 AM
Manganese	ND	0.16	0.50		µg/L	1	11/30/2012 10:37 AM
Molybdenum	4.3	0.074	0.50		µg/L	1	11/30/2012 10:37 AM
Selenium	1.6	0.084	0.50		µg/L	1	11/30/2012 06:24 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *05-Dec-12*

CLIENT: Truesdail Laboratories
Lab Order: N008952
Project: PGE Topock, 423575.MP.02.RM
Lab ID: N008952-010

Client Sample ID: C-TAZ-D-188
Collection Date: 11/1/2012 8:47:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121130C**	QC Batch: **41289**			PrepDate:	**11/21/2012**		Analyst: **CEI**
Arsenic	2.6	0.035	0.10		µg/L	1	11/30/2012 06:39 PM
Chromium	ND	0.17	1.0		µg/L	1	11/30/2012 10:42 AM
Manganese	ND	0.16	0.50		µg/L	1	11/30/2012 10:42 AM
Molybdenum	4.4	0.074	0.50		µg/L	1	11/30/2012 10:42 AM
Selenium	1.4	0.084	0.50		µg/L	1	11/30/2012 06:39 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *05-Dec-12*

CLIENT: Truesdail Laboratories
Lab Order: N008952
Project: PGE Topock, 423575.MP.02.RM
Lab ID: N008952-011

Client Sample ID: C-TAZ-S-188
Collection Date: 11/1/2012 9:05:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121130C**	QC Batch: **41289**				PrepDate:	**11/21/2012**	Analyst: **CEI**
Arsenic	2.5	0.035	0.10		µg/L	1	11/30/2012 06:44 PM
Chromium	ND	0.17	1.0		µg/L	1	11/30/2012 10:46 AM
Manganese	ND	0.16	0.50		µg/L	1	11/30/2012 10:46 AM
Molybdenum	4.3	0.074	0.50		µg/L	1	11/30/2012 10:46 AM
Selenium	1.6	0.084	0.50		µg/L	1	11/30/2012 06:44 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *05-Dec-12*

CLIENT: Truesdail Laboratories
Lab Order: N008952
Project: PGE Topock, 423575.MP.02.RM
Lab ID: N008952-012

Client Sample ID: R-19-188
Collection Date: 11/1/2012 1:06:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121130C**	QC Batch: **41289**				PrepDate: **11/21/2012**		Analyst: **CEI**
Arsenic	2.4	0.035	0.10		µg/L	1	11/30/2012 06:49 PM
Chromium	ND	0.17	1.0		µg/L	1	11/30/2012 10:51 AM
Manganese	ND	0.16	0.50		µg/L	1	11/30/2012 10:51 AM
Molybdenum	4.2	0.074	0.50		µg/L	1	11/30/2012 10:51 AM
Selenium	1.5	0.084	0.50		µg/L	1	11/30/2012 06:49 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *05-Dec-12*

CLIENT: Truesdail Laboratories
Lab Order: N008952
Project: PGE Topock, 423575.MP.02.RM
Lab ID: N008952-013

Client Sample ID: R-28-188
Collection Date: 11/1/2012 12:49:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121130C**	QC Batch: **41289**				PrepDate: **11/21/2012**		Analyst: **CEI**
Arsenic	2.6	0.035	0.10		µg/L	1	11/30/2012 06:54 PM
Chromium	ND	0.17	1.0		µg/L	1	11/30/2012 10:56 AM
Manganese	ND	0.16	0.50		µg/L	1	11/30/2012 10:56 AM
Molybdenum	4.5	0.074	0.50		µg/L	1	11/30/2012 10:56 AM
Selenium	1.6	0.084	0.50		µg/L	1	11/30/2012 06:54 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *05-Dec-12*

CLIENT: Truesdail Laboratories
Lab Order: N008952
Project: PGE Topock, 423575.MP.02.RM
Lab ID: N008952-014

Client Sample ID: R63-188
Collection Date: 11/1/2012 10:01:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121130C**	QC Batch: **41289**				PrepDate: **11/21/2012**		Analyst: **CEI**
Arsenic	2.5	0.035	0.10		µg/L	1	11/30/2012 06:59 PM
Chromium	ND	0.17	1.0		µg/L	1	11/30/2012 11:01 AM
Manganese	0.67	0.16	0.50		µg/L	1	11/30/2012 11:01 AM
Molybdenum	4.2	0.074	0.50		µg/L	1	11/30/2012 11:01 AM
Selenium	1.6	0.084	0.50		µg/L	1	12/4/2012 09:43 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *05-Dec-12*

CLIENT: Truesdail Laboratories
Lab Order: N008952
Project: PGE Topock, 423575.MP.02.RM
Lab ID: N008952-015

Client Sample ID: RRB-188
Collection Date: 11/1/2012 1:23:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **ICP7_121130C**	QC Batch: **41289**			PrepDate:	**11/21/2012**		Analyst: **CEI**
Arsenic	2.7	0.035	0.10		µg/L	1	11/30/2012 07:04 PM
Chromium	ND	0.17	1.0		µg/L	1	11/30/2012 11:06 AM
Manganese	12	0.16	0.50		µg/L	1	11/30/2012 11:06 AM
Molybdenum	4.5	0.074	0.50		µg/L	1	11/30/2012 11:06 AM
Selenium	1.6	0.084	0.50		µg/L	1	11/30/2012 07:04 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

Date: *05-Dec-12*

CLIENT: Truesdail Laboratories
Work Order: N008952
Project: PGE Topock, 423575.MP.02.RM

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **MB-41289** SampType: **MBLK** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **11/21/2012** RunNo: **86505**
Client ID: **PBW** Batch ID: **41289** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **11/30/2012** SeqNo: **1481438**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									

Sample ID: **LCS-41289** SampType: **LCS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **11/21/2012** RunNo: **86505**
Client ID: **LCSW** Batch ID: **41289** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **11/30/2012** SeqNo: **1481439**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.065	1.0	10.00	0	101	85	115				
Manganese	99.052	0.50	100.0	0	99.1	85	115				
Molybdenum	9.794	0.50	10.00	0	97.9	85	115				

Sample ID: **N008952-001A-MS** SampType: **MS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **11/21/2012** RunNo: **86505**
Client ID: **ZZZZZZ** Batch ID: **41289** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **11/30/2012** SeqNo: **1481497**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.574	1.0	10.00	0	95.7	75	125				
Manganese	93.573	0.50	100.0	0	93.6	75	125				
Molybdenum	14.955	0.50	10.00	4.322	106	75	125				

Sample ID: **N008952-001A-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **11/21/2012** RunNo: **86505**
Client ID: **ZZZZZZ** Batch ID: **41289** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **11/30/2012** SeqNo: **1481500**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.786	1.0	10.00	0	97.9	75	125	9.574	2.19	20	
Manganese	94.222	0.50	100.0	0	94.2	75	125	93.57	0.691	20	
Molybdenum	15.054	0.50	10.00	4.322	107	75	125	14.95	0.660	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: Truesdail Laboratories
Work Order: N008952
Project: PGE Topock, 423575.MP.02.RM

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **MB-41289** SampType: **MBLK** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **11/21/2012** RunNo: **86516**
Client ID: **PBW** Batch ID: **41289** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **11/30/2012** SeqNo: **1481846**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.100	0.10									
Selenium	ND	0.50									

Sample ID: **LCS-41289** SampType: **LCS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **11/21/2012** RunNo: **86516**
Client ID: **LCSW** Batch ID: **41289** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **11/30/2012** SeqNo: **1481849**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	9.921	0.10	10.00	0	99.2	85	115				
Selenium	9.930	0.50	10.00	0	99.3	85	115				

Sample ID: **N008952-001A-MS** SampType: **MS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **11/21/2012** RunNo: **86516**
Client ID: **ZZZZZZ** Batch ID: **41289** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **11/30/2012** SeqNo: **1481869**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	12.362	0.10	10.00	2.499	98.6	75	125				
Selenium	11.274	0.50	10.00	1.691	95.8	75	125				

Sample ID: **N008952-001A-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **11/21/2012** RunNo: **86516**
Client ID: **ZZZZZZ** Batch ID: **41289** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **11/30/2012** SeqNo: **1481870**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	12.434	0.10	10.00	2.499	99.3	75	125	12.36	0.580	20	
Selenium	10.918	0.50	10.00	1.691	92.3	75	125	11.27	3.21	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CHAIN OF CUSTODY

TRUESDAIL LABORATORIES, INC.
14201 FRANKLIN AVENUE - TUSTIN, CA 92780-7008
(714) 730-6239 - FAX (714) 730-6462

[X] TURNAROUND TIME Normal TAT
DATE: 11/19/2012 PAGE: 1 OF 1

METHODS

COMPANY Truesdail Laboratories, Inc.
CONTACT Sean Condon
PHONE 714-730-6239 x202 FAX
ADDRESS 14201 Franklin Ave.
Tustin, CA 92780
Project Name PGE Topock Project # 423575.MP.02.RM
Project 2012-RMP-188

COMMENTS
Level IV data package w/ EDD
Samples were Field Filtered

SAMPLE I.D.	DATE	TIME	DESCRIPTION	Diss. Metals (6020A dis) FF As, Mn, Se, Mo, Cr											NUMBER OF CONTAINERS	TLI Sample ID
C-BNS-D-188	11/01/12	11:04	Water	X		N008952-1									1	804636-1
C-I-3-D-188	11/01/12	09:32	Water	X					-	2					1	804636-2
C-I-3-S-188	11/01/12	09:46	Water	X					-	3					1	804636-3
C-MAR-D-188	11/01/12	12:14	Water	X					-	4					1	804636-4
C-MAR-S-188	11/01/12	12:29	Water	X					-	5					1	804636-5
C-R22A-D-188	11/01/12	10:28	Water	X					-	6					1	804636-6
C-R22A-S-188	11/01/12	10:43	Water	X					-	7					1	804636-7
C-R27-D-188	11/01/12	11:38	Water	X					-	8					1	804636-8
C-R27-S-188	11/01/12	11:52	Water	X					-	9					1	804636-9
C-TAZ-D-188	11/01/12	08:47	Water	X					-	10					1	804636-10
C-TAZ-S-188	11/01/12	09:05	Water	X					-	11					1	804636-11
R-19-188	11/01/12	13:06	Water	X					-	12					1	804636-12
R-28-188	11/01/12	12:49	Water	X					-	13					1	804636-13
R63-188	11/01/12	10:01	Water	X					-	14					1	804636-14
RRB-188	11/01/12	13:23	Water	X					-	15					1	804636-15

TOTAL NUMBER OF CONTAINERS 15

Chain of Custody Signature Record

	Signature	Company/ Agency	Date/ Time
1.	[illegible]	TLI	11-20-12 2:00
2.	REC: [illegible]	ATL INC	11/21/12 @ 0955
3.			
4.			
5.			
6.			
7.			

SAMPLE CONDITIONS:
RECEIVED
Cool [ ] Warm [ ]
NA
Yes [ ] No [ ]

SPECIAL REQUIREMENTS:

COOLER #1

Advanced Technology Laboratories, Inc.

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	11/21/2012	Workorder:	N008952
Rep sample Temp (Deg C):	na	IR Gun ID:	na
Temp Blank:	☐ Yes ☑ No		
Carrier name:	Golden State Overnight		
Last 4 digits of Tracking No.:	3580	Packing Material Used:	None
Cooling process:	☐ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☑ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☐	No ☑	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☐	No ☐	NA ☑
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments:

Checklist Completed B MBC 11/21/12

Reviewed By:

Sample Calculation

METHOD: EPA 6020
TEST NAME: Heavy Metals by ICP-MS
MATRIX: Aqueous

FORMULA:

Calculate the Arsenic concentration, in ug/L, in the original sample as follows:

Arsenic, ug/L = A * DF * PF

where:

A = ug/L, calculated concentration
DF = dilution factor
PF = Final Vol. of Digestate in mL / Vol. of Sample used in mL

For Sample **N008952-001A**, the concentration in ug/L is calculated as follows:

Arsenic, ug/L = 2.49945042394163 * 1 * (25/25)

= 2.49945042394163

Reporting result in two significant figures,

Arsenic, ug/L = 2.5

NS for
12/5/12

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N008952
Test Method: EPA 6020
Analysis Date: 11/30/12

Matrix: Water
Batch No.: 41289

Instrument ID: ICP-MS #2
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution Test is not applicable to Cr, Mn, and Mo. The calculated value was <25X RL. PS passed the criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N008952-001A-DT 5X	Chromium	µg/L	0	FAILED	0	0.00%	10
N008952-001A-DT 5X	Manganese	µg/L	0	FAILED	0	0.00%	10
N008952-001A-DT 5X	Molybdenum	µg/L	4.283809725	NA	4.322353952	0.89%	10

Note: NA - Not applicable

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N008952
Test Method: EPA 6020
Analysis Date: 11/30/12

Matrix: Water
Batch No.: 41289

Instrument ID: ICP-MS #2
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution Test is not applicable to Se. The calculated value was <25X RL. Dilution test in As failed. PS passed the criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N008952-001A-DT 5X	Arsenic	µg/L	2.959985822	FAILED	2.499450424	18.43%	10
N008952-001A-DT 5X	Selenium	µg/L	1.55075807	NA	1.691344606	8.31%	10

Note: NA - Not applicable

Advanced Technology Laboratories, Inc.

Date: *05-Dec-12*

CLIENT: Truesdail Laboratories
Work Order: N008952
Project: PGE Topock, 423575.MP.02.RM

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N008952-001A-PS** SampType: **PS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **86505**
Client ID: **ZZZZZZ** Batch ID: **41289** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **11/30/2012** SeqNo: **1481496**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.033	2.0	20.00	0	100	75	125				
Manganese	199.612	1.0	200.0	0	99.8	75	125				
Molybdenum	26.335	1.0	20.00	4.322	110	75	125				

Sample ID: **N008952-001A-PS** SampType: **PS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **86516**
Client ID: **ZZZZZZ** Batch ID: **41289** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **11/30/2012** SeqNo: **1481868**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	23.335	0.20	20.00	2.499	104	75	125				
Selenium	21.091	1.0	20.00	1.691	97.0	75	125				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

14201 FRANKLIN AVENUE
TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462
www.truesdail.com

October 10, 2012

E2 Consulting Engineers, Inc.
Mr. Shawn Duffy
155 Grand Ave., Suite 1000
Oakland, California 94612

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK 2012-GMP-187SAMPLEMETHODT, GROUNDWATER MONITORING PROJECT, TLI NO.: 803860

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2012-GMP-187SAMPLEMETHODT groundwater-monitoring project. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, quality control data, and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data are under Section 5.

The samples were received and delivered with the chain of custody September 18, 2012, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

On September 20, 2012, Mr. Duffy modified the requested analytes and provided a revised chain-of-custody.

Due to the discrepancy between the Total Dissolved Chromium (5.3 ug/L) and Hexavalent Chromium (ND<1.0 ug/L) results for sample MW-44-125-187, sample from the Total Dissolved Chromium and Hexavalent Chromium sample containers were digested and analyzed for Total Dissolved Chromium. The results were 5.2 ug/L and 8.7 ug/L, respectively. The original digestate was re-analyzed for confirmation and yielded a result of 4.9 ug/L. After discussing the results with Mr. Duffy, the original Total Dissolved Chromium result was reported.

Due to the discrepancy between the Total Dissolved Chromium (4.0 ug/L) and Hexavalent Chromium (ND<1.0 ug/L) results for sample MW-124-187, sample from the Total Dissolved Chromium and Hexavalent Chromium sample containers were digested and analyzed for Total Dissolved Chromium. The results were 3.9 ug/L and 8.6 ug/L, respectively. The original digestate was re-analyzed for confirmation and yielded a result of 4.1 ug/L. After discussing the results with Mr. Duffy, the original Total Dissolved Chromium result was reported.

No other violations or non-conformance actions occurred for this data package.

If you have any questions or require additional information, please contact me at (714) 730-6239 ext. 200.

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

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Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy

Laboratory No.: 803860
Date Received: September 18, 2012

Project Name: PG&E Topock Project
Project No.: 423575.MP.06.TS
P.O. No.: 423575.MP.06.TS

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
803860-001	MW-44-125-187	E218.6	FLDFLT	9/13/2012	15:35	Chromium, Hexavalent	ND	ug/L	1.0
803860-001	MW-44-125-187	SW6010B	FLDFLT	9/13/2012	15:35	Calcium	104	mg/L	25.0
803860-001	MW-44-125-187	SW6010B	FLDFLT	9/13/2012	15:35	Iron	646	ug/L	50.0
803860-001	MW-44-125-187	SW6010B	FLDFLT	9/13/2012	15:35	Magnesium	9.28	mg/L	2.50
803860-001	MW-44-125-187	SW6010B	FLDFLT	9/13/2012	15:35	Sodium	2480	mg/L	500
803860-001	MW-44-125-187	SW6020	FLDFLT	9/13/2012	15:35	Arsenic	3.6	ug/L	0.50
803860-001	MW-44-125-187	SW6020	FLDFLT	9/13/2012	15:35	Chromium	5.3	ug/L	1.0
803860-001	MW-44-125-187	SW6020	FLDFLT	9/13/2012	15:35	Manganese	670	ug/L	2.0
803860-001	MW-44-125-187	SW6020	FLDFLT	9/13/2012	15:35	Molybdenum	125	ug/L	2.0
803860-001	MW-44-125-187	SW6020	FLDFLT	9/13/2012	15:35	Selenium	ND	ug/L	5.0
803860-002	MW-44-125-187EB	E218.6	FLDFLT	9/13/2012	9:20	Chromium, Hexavalent	ND	ug/L	0.20
803860-002	MW-44-125-187EB	SW6020	FLDFLT	9/13/2012	9:20	Chromium	ND	ug/L	1.0
803860-003	MW-124-187	E218.6	FLDFLT	9/13/2012	8:10	Chromium, Hexavalent	ND	ug/L	1.0
803860-003	MW-124-187	SW6010B	FLDFLT	9/13/2012	8:10	Calcium	102	mg/L	5.00
803860-003	MW-124-187	SW6010B	FLDFLT	9/13/2012	8:10	Iron	577	ug/L	100
803860-003	MW-124-187	SW6010B	FLDFLT	9/13/2012	8:10	Magnesium	8.90	mg/L	5.00
803860-003	MW-124-187	SW6010B	FLDFLT	9/13/2012	8:10	Sodium	2750	mg/L	250
803860-003	MW-124-187	SW6020	FLDFLT	9/13/2012	8:10	Arsenic	3.7	ug/L	0.50
803860-003	MW-124-187	SW6020	FLDFLT	9/13/2012	8:10	Chromium	4.0	ug/L	1.0
803860-003	MW-124-187	SW6020	FLDFLT	9/13/2012	8:10	Manganese	682	ug/L	2.0
803860-003	MW-124-187	SW6020	FLDFLT	9/13/2012	8:10	Molybdenum	134	ug/L	2.0
803860-003	MW-124-187	SW6020	FLDFLT	9/13/2012	8:10	Selenium	ND	ug/L	5.0

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from Truesdail Laboratories.

TRUESDAIL LABORATORIES, INC.

Report Continued

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
803860-004	MW-110-187	E218.6	FLDFLT	9/13/2012	18:00	Chromium, Hexavalent	ND	ug/L	0.20

ND: Non Detected (below reporting limit)

mg/L: Milligrams per liter.

Note: The following "Significant Figures" rule has been applied to all results:

Results below 0.01ppm will have two (2) significant figures.

Result above or equal to 0.01ppm will have three (3) significant figures.

Quality Control data will always have three (3) significant figures.

005

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REPORT

Client: **E2 Consulting Engineers, Inc.**
155 Grand Avenue, Suite 800
Oakland, CA 94612
Attention: Shawn Duffy
Project Name: PG&E Topock Project
Project Number: 423575.MP.06.TS
P.O. Number: 423575.MP.06.TS
Release Number:

Laboratory No. 803860

Printed 10/10/2012

Samples Received on 9/18/2012 9:30:00 PM

Field ID	Lab ID	Collected	Matrix
MW-44-125-187	803860-001	09/13/2012 15:35	Water
MW-44-125-187EB	803860-002	09/13/2012 09:20	Water
MW-124-187	803860-003	09/13/2012 08:10	Water
MW-110-187	803860-004	09/13/2012 18:00	Water

Chrome VI by EPA 218.6 Batch 09CrH12G

Parameter	Unit	Analyzed	DF	MDL	RL	Result
803860-001 Chromium, Hexavalent	ug/L	09/19/2012 14:21	5.00	0.0460	1.0	ND
803860-002 Chromium, Hexavalent	ug/L	09/19/2012 12:26	1.00	0.00920	0.20	ND
803860-003 Chromium, Hexavalent	ug/L	09/19/2012 14:31	5.00	0.0460	1.0	ND
803860-004 Chromium, Hexavalent	ug/L	09/19/2012 12:47	1.00	0.00920	0.20	ND

Method Blank

Parameter	Unit	DF	Result
Chromium, Hexavalent	ug/L	1.00	ND

Duplicate — Lab ID = 803859-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.230	0.235	2.19	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.194	0.200	96.8	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.88	5.00	97.5	90 - 110

Matrix Spike — Lab ID = 803859-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.22	1.24(1.00)	98.4	90 - 110

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Matrix Spike — Lab ID = 803860-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.906	1.00(1.00)	90.6	90 - 110

Matrix Spike — Lab ID = 803860-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.05	5.29(5.00)	95.3	90 - 110

Matrix Spike — Lab ID = 803860-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.990	1.00(1.00)	99.0	90 - 110

Matrix Spike — Lab ID = 803860-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.86	5.00(5.00)	97.2	90 - 110

Matrix Spike — Lab ID = 803860-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.928	1.00(1.00)	92.8	90 - 110

Matrix Spike — Lab ID = 803860-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.969	1.00(1.00)	96.9	90 - 110

Matrix Spike — Lab ID = 803861-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.14	1.14(1.00)	100.	90 - 110

Matrix Spike — Lab ID = 803861-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.954	1.00(1.00)	95.4	90 - 110

Matrix Spike — Lab ID = 803861-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.29	1.26(1.00)	104.	90 - 110

Matrix Spike — Lab ID = 803861-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.04	1.00(1.00)	104.	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.89	5.00	97.7	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.91	10.0	99.1	95 - 105

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Metals by EPA 6020A, Dissolved

Batch 092612B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
803860-001 Chromium	ug/L	09/27/2012 08:16	5.00	0.195	1.0	5.3
803860-002 Chromium	ug/L	09/27/2012 07:05	5.00	0.195	1.0	ND
803860-003 Chromium	ug/L	09/27/2012 08:23	5.00	0.195	1.0	4.0

Method Blank

Parameter	Unit	DF	Result
Chromium	ug/L	1.00	ND
Manganese	ug/L	1.00	ND

Duplicate

Lab ID = 803860-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	5.00	ND	0.00	0	0 - 20
Manganese	ug/L	5.00	ND	0.00	0	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.193	0.200	96.7	70 - 130
Manganese	ug/L	1.00	0.117	0.100	117.	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	5.00	98.4	100.	98.4	85 - 115
Manganese	ug/L	5.00	104.	100.	104.	85 - 115

Matrix Spike

Lab ID = 803860-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	5.00	97.7	100.(100.)	97.7	75 - 125
Manganese	ug/L	5.00	104.	100.(100.)	104.	75 - 125

Matrix Spike Duplicate

Lab ID = 803860-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	5.00	95.9	100.(100.)	95.9	75 - 125
Manganese	ug/L	5.00	100.	100.(100.)	100.	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.1	20.0	95.4	90 - 110
Manganese	ug/L	1.00	20.2	20.0	101.	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.2	20.0	90.8	90 - 110

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Metals by EPA 6020A, Dissolved

Batch 100312B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
803860-001 Arsenic	ug/L	10/04/2012 00:21	5.00	0.265	0.50	3.6
Manganese	ug/L	10/04/2012 00:28	20.0	1.08	2.0	670.
Selenium	ug/L	10/04/2012 00:21	5.00	0.355	5.0	ND
803860-003 Arsenic	ug/L	10/04/2012 00:43	5.00	0.265	0.50	3.7
Manganese	ug/L	10/04/2012 00:50	20.0	1.08	2.0	682.
Selenium	ug/L	10/04/2012 00:43	5.00	0.355	5.0	ND

Method Blank

Parameter	Unit	DF	Result
Arsenic	ug/L	1.00	ND
Selenium	ug/L	1.00	ND
Manganese	ug/L	1.00	ND

Duplicate

Lab ID = 803860-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Arsenic	ug/L	5.00	ND	0.00	0	0 - 20
Selenium	ug/L	5.00	ND	0.00	0	0 - 20
Manganese	ug/L	5.00	ND	0.00	0	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	0.0793	0.100	79.3	70 - 130
Selenium	ug/L	1.00	0.950	1.00	95.0	70 - 130
Manganese	ug/L	1.00	0.0979	0.100	97.9	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	5.00	95.9	100.	95.9	85 - 115
Selenium	ug/L	5.00	90.1	100.	90.1	85 - 115
Manganese	ug/L	5.00	106.	100.	106.	85 - 115

Matrix Spike

Lab ID = 803860-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	5.00	90.5	100.(100.)	90.5	75 - 125
Selenium	ug/L	5.00	87.2	100.(100.)	87.2	75 - 125
Manganese	ug/L	5.00	106.	100.(100.)	106.	75 - 125

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Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project Page 8 of 16
Project Number: 423575.MP.06.TS Printed 10/10/2012

Matrix Spike Duplicate Lab ID = 803860-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	5.00	95.4	100.(100.)	95.4	75 - 125
Selenium	ug/L	5.00	90.4	100.(100.)	90.4	75 - 125
Manganese	ug/L	5.00	106.	100.(100.)	106.	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	19.7	20.0	98.5	90 - 110
Selenium	ug/L	1.00	19.0	20.0	95.0	90 - 110
Manganese	ug/L	1.00	21.5	20.0	107.	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	19.8	20.0	99.2	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	19.6	20.0	98.0	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	20.8	20.0	104	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	19.9	20.0	99.3	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Selenium	ug/L	1.00	18.2	20.0	91.0	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Selenium	ug/L	1.00	19.4	20.0	97.2	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Selenium	ug/L	1.00	20.0	20.0	99.9	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Selenium	ug/L	1.00	21.6	20.0	108.	90 - 110

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Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project
Project Number: 423575.MP.06.TS Printed 10/10/2012

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Selenium	ug/L	1.00	ND	0.00		
Manganese	ug/L	1.00	21.9	20.0	109.	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	21.2	20.0	106.	80 - 120

Serial Dilution Lab ID = 803860-003

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Manganese	ug/L	100	696.	682	2.06	0 - 10

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Metals by EPA 6020A, Dissolved Batch 100412A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
803860-001 Molybdenum	ug/L	10/04/2012 17:25	5.00	0.150	2.0	125
803860-003 Molybdenum	ug/L	10/04/2012 17:39	5.00	0.150	2.0	134.

Method Blank

Parameter	Unit	DF	Result
Molybdenum	ug/L	1.00	ND

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Molybdenum	ug/L	1.00	0.416	0.400	104.	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Molybdenum	ug/L	5.00	97.8	100.	97.8	85 - 115

Matrix Spike — Lab ID = 803860-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Molybdenum	ug/L	5.00	102.	100.(100.)	102.	75 - 125

Matrix Spike Duplicate — Lab ID = 803860-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Molybdenum	ug/L	5.00	94.2	100.(100.)	94.2	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Molybdenum	ug/L	1.00	18.6	20.0	93.0	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Molybdenum	ug/L	1.00	18.1	20.0	90.4	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Molybdenum	ug/L	1.00	21.2	20.0	106.	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Molybdenum	ug/L	1.00	19.8	20.0	99.1	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Molybdenum	ug/L	1.00	19.8	20.0	98.8	90 - 110

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Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Molybdenum	ug/L	1.00	ND	0.00		

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Molybdenum	ug/L	1.00	ND	0.00		

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Molybdenum	ug/L	1.00	ND	0.00		

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Molybdenum	ug/L	1.00	ND	0.00		

Serial Dilution Lab ID = 803860-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Molybdenum	ug/L	25.0	136.	125	8.50	0 - 10

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Metals by EPA 6010B, Dissolved

Batch 092412A-Th2

Parameter	Unit	Analyzed	DF	MDL	RL	Result
803860-001 Calcium	mg/L	09/24/2012 12:57	50.0	0.575	25.0	104.
Iron	ug/L	09/24/2012 13:14	5.00	4.50	50.0	646.
Magnesium	mg/L	09/24/2012 13:14	5.00	0.0675	2.50	9.28
Sodium	mg/L	09/24/2012 12:19	1000	27.8	500.	2480
803860-003 Calcium	mg/L	09/24/2012 14:37	10.0	0.115	5.00	102.
Iron	ug/L	09/24/2012 14:37	10.0	9.00	100.	577.
Magnesium	mg/L	09/24/2012 14:37	10.0	0.135	5.00	8.90
Sodium	mg/L	09/24/2012 13:32	500	13.9	250.	2750

Method Blank

Parameter	Unit	DF	Result
Calcium	mg/L	1.00	ND
Iron	ug/L	1.00	ND
Sodium	mg/L	1.00	ND
Magnesium	mg/L	1.00	ND

Duplicate

Lab ID = 803860-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Calcium	mg/L	50.0	97.9	104	6.04	0 - 20
Iron	ug/L	5.00	639.	646	1.15	0 - 20
Sodium	mg/L	1000	2450	2480	1.30	0 - 20
Magnesium	mg/L	5.00	9.22	9.28	0.594	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	mg/L	1.00	1.86	2.00	93.0	85 - 115
Iron	ug/L	1.00	1970	2000	98.4	85 - 115
Sodium	mg/L	1.00	1.83	2.00	91.5	85 - 115
Magnesium	mg/L	1.00	1.92	2.00	95.8	85 - 115

Matrix Spike

Lab ID = 803860-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Calcium	mg/L	50.0	208.	204(100.)	104.	75 - 125
Iron	ug/L	5.00	10300	10600(10000)	96.8	75 - 125
Sodium	mg/L	1000	4510	4480(2000)	101.	75 - 125
Magnesium	mg/L	5.00	18.9	19.3(10.0)	96.4	75 - 125

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Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project
Project Number: 423575.MP.06.TS Printed 10/10/2012

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2150	2000	108.	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sodium	mg/L	1.00	1.92	2.00	96.0	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sodium	mg/L	1.00	1.78	2.00	89.2	80 - 120
Magnesium	mg/L	1.00	2.00	2.00	100.	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Magnesium	mg/L	1.00	2.14	2.00	107.	80 - 120

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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Trials TLI 9-13-12

CH2MHILL

CHAIN OF CUSTODY RECORD

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy

Project Number 423575.MP.06.TS
Task Order
Project 2012-GMP-187SAMPLEMETHODT
Turnaround Time 10 Days
Shipping Date: 9/12/2012
COC Number: TLI-187SMT

Container	250 ml Poly	250 ml Poly	500 ml Poly	1x500 ml Poly	1x500 ml Poly
Preservatives	(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C
Filtered	Field	Field	Field	Field	Field
Holding Time	28	28	180	180	180
	Cr6 (E218.6) FF	Cr6 (SM3500B) FF	Metals (6020A/F) FF Chromium	Metals (6010BFF) FF Ca,Mg,Na,Fe	Metals (6020A/F) FF As,Mo,Se,Mn,Cr

Please cancel the metals analysis on the MW-44-125-187EB except for Cr.
Please add the metals indicated on sample MW-124-187.

9/20/2012

DATE	TIME	Matrix	Cr6 (E218.6) FF	Cr6 (SM3500B) FF	Metals (6020A/F) FF Chromium	Metals (6010BFF) FF Ca,Mg,Na,Fe	Metals (6020A/F) FF As,Mo,Se,Mn,Cr	Sample Names	Number of Containers	COMMENTS
9/13/12	1535	GW	✓			✓	✓	MW-44-125-187		
	1620	GW	✓		X	✓	✓	MW-44-125-187EB		
	0810	W	✓		✓	✓	✓	MW-124-187		
	1800	W	✓			SPD		MW-110-187		

	Signatures	Date/Time
Approved by		9-18-12
Sampled by		1515
Relinquished by		
Received by	Rafael Davila	9-18-12 15:15
Relinquished by		
Received by		

Shipping Details
Method of Shipment: FedEx
On Ice: yes / no
Airbill No:
Lab Name: Truesdail Laboratories, Inc.
Lab Phone: (714) 730-6239

Special Instructions:
ATTN:
Sample Custody

Report Copy to
Shawn Duffy
(530) 229-3303

CH2MHILL

CHAIN OF CUSTODY RECORD

803860

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.06.TS
Task Order
Project 2012-GMP-187SAMPLEMETHOD
Turnaround Time 10 Days
Shipping Date: 9/12/2012
COC Number: TLI-187SMT

Rec'd 09/18/12
S 803860

				Cr6 (E218.6) FF	Cr6 (SM3500B) FF	Metals (6020AFF) FF Chromium	Metals (6010BFF) FF Ca,Mg,Na,Fe	Metals (6020AFF) FF As,Mo,Se,Mn,Cr		Number of Containers	COMMENTS
Container:				250 ml Poly	250 ml Poly	500 ml Poly	1x500 ml Poly	1x500 ml Poly			
Preservatives:				(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C			
Filtered:				Field	Field	Field	Field	Field			
Holding Time:				28	28	180	180	180			
	DATE	TIME	Matrix						Sample Names		
-1	9/13/12	1535	GW	✓			✓	✓	mw-44-125-187		pH=2 6020.7
-2	↓	0920	GW	✓			✓	✓	mw-44-125-187EB		
-3		0810	W	✓		✓			mw-124-187		
-4		1800	W	✓					mw-110-187		

Sample Conditions
See Form Attached

ALERT !!
Level III QC

	Signatures	Date/Time
Approved by		9-18-12
Sampled by		1515
Relinquished by		
Received by	Rafael Davila	9-18-12 15:15
Relinquished by	Rafael Davila	9-18-12 21:38
Received by	Shabenina, TLI	9/18/12 21:30

Shipping Details
Method of Shipment: FedEx
On Ice: yes / no
Airbill No:
Lab Name: Truesdail Laboratories, Inc.
Lab Phone: (714) 730-6239

Special Instructions:
ATTN:
Sample Custody

Report Copy to
Shawn Duffy
(530) 229-3303

0051

Hexavalent Chromium

Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
09/14/12	803810-10	10	N/A	N/A	N/A	HAV
	-11	9.5				
	-12	10				
	-13	10				
HAV 09/14/12						
09/19/12	803859	7	2 ml	9.5	8:15 AM	HAV
09/19/12	803860-1	9.5	N/A	N/A	N/A	HAV
	-2					
	-3					
	-4					
09/19/12	803861-1	9.5	N/A	N/A	N/A	HAV
	-2					
	-3					
	-4					
09/19/12	803862-1	~~10~~ 9.5	N/A	N/A	N/A	HAV
	-2	9.5				
HAV 09/19/12	-3	9.5				
	-4	~~10~~ 9.5				
	-5	9.5				
	-6	~~10~~ 9.5				
09/20/12	803902-1	7.5	2 ml	9.5	5:15 PM	HAV
	-2	9.5	N/A	N/A	N/A	HAV

TRUESDAIL LABORATORIES, INC.

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
803728	>1	<2	9-12-12	BE	3010A			
803731	<1	>2			NO	12:30	9-13-12	PH<2
803743(1-3)							9/14/12	pH<2
803744	>1	<2			3010A			
803745								
803746								
803747								
803748								
803752(1-2)								
803785	<1	>2	9/13/12	ES	NO	9:00am	9/14/12	PH<2
803776	<1	>2	9/13/12	BE	NO	10:20am	9/17	PH<2
803779(10-12)						12:00pm	9-17	
803795	>1	<2			3010A			
803796								
803809(1-3)	<1	<2	9-14-12	BE	3010A			
803810(1-13)								
803800	>1							
803801								
803802								
803803								
803804								
803805								
803806								
803807								
803808	<1	>2			NO	12:pm	9-18	PH<2
803820		<2			3010A			
803819		>2				13:00	9-19	PH<2
803822	<1	<2	9/17/12	ES	3010A			
803834	>1			BE				
803839			9-18-12					
803843	>1	<2	9-19-19	BE	3010A			
803844								
803845								
803859	<1	>2						
803860(1-3)		<2						
803861(1-4)								
803862(1-6)								
803849		>2			NO	11:30 AM	9/24	PH<2
803856(1-3)								
803867	>1	<2			3010A			
803877(10-12)	<1	>2	9-20-19	BE	NO	7:30 AM	9-24	PH<2
803872	>1				3010A			
803901	>1	<2	9-21-12	BE	3010A			
803893(1-3)	>1	<2			3010A			

Notes:
1. Samples should be analyzed after 24 hrs of pH adjustment to pH2 for Dissolved Analytes.
2. All Total Recoverable Analytes must be pH adjusted and digested.
3. Do not use disposable pipette to measure pH; pour a little amount of sample from the bottle.

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: E2 **Lab #** 803860

Date Delivered: 09/18/12 **Time:** 21:30 **By:** ☐Mail ☒Field Service ☐Client

1. Was a Chain of Custody received and signed? ☒Yes ☐No ☐N/A
2. Does Customer require an acknowledgement of the COC? ☐Yes ☐No ☒N/A
3. Are there any special requirements or notes on the COC? ☐Yes ☐No ☒N/A
4. If a letter was sent with the COC, does it match the COC? ☐Yes ☐No ☒N/A
5. Were all requested analyses understood and acceptable? ☒Yes ☐No ☐N/A
6. Were samples received in a chilled condition? ☒Yes ☐No ☐N/A
   Temperature (if yes)? 4.5°C
7. Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)? ☒Yes ☐No ☐N/A
8. Were sample custody seals intact? ☐Yes ☐No ☒N/A
9. Does the number of samples received agree with COC? ☒Yes ☐No ☐N/A
10. Did sample labels correspond with the client ID's? ☒Yes ☐No ☐N/A
11. Did sample labels indicate proper preservation? ☒Yes ☐No ☐N/A
    Preserved (if yes) by: ☒Truesdail ☐Client
12. Were samples pH checked? pH = see C.O.C. ☒Yes ☐No ☐N/A
13. Were all analyses within holding time at time of receipt? ☒Yes ☐No ☐N/A
    If not, notify Project Manager.
14. Have Project due dates been checked and accepted? ☒Yes ☐No ☐N/A
    Turn Around Time (TAT): ☐ RUSH ☒ Std
15. **Sample Matrix:** ☐Liquid ☐Drinking Water ☒Ground Water ☐Waste Water
    ☐Sludge ☐Soil ☐Wipe ☐Paint ☐Solid ☐Other_____
16. Comments: _____
17. Sample Check-In completed by **Truesdail** Log-In/Receiving: Linda Shabunny

ALERT !!
Level III QC

C:\Users\Test\Desktop\Forms A - D\Discrp.FormBlank.doc

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

14201 FRANKLIN AVENUE
TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462
www.truesdail.com

October 12, 2012

E2 Consulting Engineers, Inc.
Mr. Shawn Duffy
155 Grand Ave., Suite 1000
Oakland, California 94612

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK 2012-GMP-187SAMPLEMETHODT, GROUNDWATER MONITORING PROJECT, TLI NO.: 803903

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2012-GMP-187SAMPLEMETHODT groundwater-monitoring project. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, quality control data, and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data are under Section 5.

The samples were received and delivered with the chain of custody September 20, 2012, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

No other violations or non-conformance actions occurred for this data package.

If you have any questions or require additional information, please contact me at (714) 730-6239 ext. 200.

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.
INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES
Established 1931
14201 FRANKLIN AVENUE · TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462 · www.truesdail.com

Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy

Laboratory No.: 803903
Date Received: September 20, 2012

Project Name: PG&E Topock Project
Project No.: 423575.MP.02.GM.03
P.O. No.: 423575.MP.02.GM.03

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
803903-001	MW-50-095-187	E218.6	FLDFLT	9/19/2012	11:42	Chromium, Hexavalent	13.7	ug/L	0.20
803903-001	MW-50-095-187	SW6010B	FLDFLT	9/19/2012	11:42	Calcium	125	mg/L	25.0
803903-001	MW-50-095-187	SW6010B	FLDFLT	9/19/2012	11:42	Iron	ND	ug/L	20.0
803903-001	MW-50-095-187	SW6010B	FLDFLT	9/19/2012	11:42	Magnesium	13.8	mg/L	2.50
803903-001	MW-50-095-187	SW6010B	FLDFLT	9/19/2012	11:42	Sodium	962	mg/L	250
803903-001	MW-50-095-187	SW6020	FLDFLT	9/19/2012	11:42	Arsenic	2.4	ug/L	1.0
803903-001	MW-50-095-187	SW6020	FLDFLT	9/19/2012	11:42	Chromium	14.9	ug/L	1.0
803903-001	MW-50-095-187	SW6020	FLDFLT	9/19/2012	11:42	Manganese	ND	ug/L	0.50
803903-001	MW-50-095-187	SW6020	FLDFLT	9/19/2012	11:42	Molybdenum	16	ug/L	2.0
803903-001	MW-50-095-187	SW6020	FLDFLT	9/19/2012	11:42	Selenium	ND	ug/L	5.0
803903-002	MW-111-187	E218.6	FLDFLT	9/20/2012	10:50	Chromium, Hexavalent	ND	ug/L	0.20
803903-002	MW-111-187	SW6020	FLDFLT	9/20/2012	10:50	Chromium	ND	ug/L	1.0

ND: Non Detected (below reporting limit)
mg/L: Milligrams per liter.
Note: The following "Significant Figures" rule has been applied to all results:
Results below 0.01ppm will have two (2) significant figures.
Result above or equal to 0.01ppm will have three (3) significant figures.
Quality Control data will always have three (3) significant figures.

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REPORT

Client: **E2 Consulting Engineers, Inc.**
155 Grand Avenue, Suite 800
Oakland, CA 94612
Attention: Shawn Duffy
Project Name: PG&E Topock Project
Project Number: 423575.MP.06.TS
P.O. Number: 423575.MP.06.TS
Release Number:

Laboratory No. 803903

Printed 10/12/2012

Samples Received on 9/20/2012 4:30:00 PM

Field ID	Lab ID	Collected	Matrix
MW-50-095-187	803903-001	09/19/2012 11:42	Water
MW-111-187	803903-002	09/20/2012 10:50	Water

Chrome VI by EPA 218.6

Batch 09CrH12J

Parameter	Unit	Analyzed	DF	MDL	RL	Result
803903-001 Chromium, Hexavalent	ug/L	09/21/2012 10:37	1.00	0.00580	0.20	13.7
803903-002 Chromium, Hexavalent	ug/L	09/21/2012 10:47	1.00	0.00580	0.20	ND

Method Blank

Parameter	Unit	DF	Result
Chromium, Hexavalent	ug/L	1.00	ND

Duplicate

Lab ID = 803903-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	14.0	13.7	1.88	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.198	0.200	99.0	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.89	5.00	97.8	90 - 110

Matrix Spike

Lab ID = 803903-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	28.6	28.7(15.0)	99.4	90 - 110

Matrix Spike

Lab ID = 803903-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.940	1.00(1.00)	94.0	90 - 110

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Metals by EPA 6020A, Dissolved

Batch 100412C

Parameter	Unit	Analyzed	DF	MDL	RL	Result
803903-002 Chromium	ug/L	10/05/2012 09:34	5.00	0.195	1.0	ND

Method Blank

Parameter	Unit	DF	Result
Chromium	ug/L	1.00	ND

Duplicate

Lab ID = 803904-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	5.00	14.4	14.1	2.45	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.217	0.200	108.	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	5.00	104.	100.	104.	85 - 115

Matrix Spike

Lab ID = 803904-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	5.00	120.	114.(100.)	106.	75 - 125

Matrix Spike Duplicate

Lab ID = 803904-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	5.00	120.	114.(100.)	106.	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	21.5	20.0	108.	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.9	20.0	99.6	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.0	20.0	100.	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.8	20.0	98.8	90 - 110

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Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project Page 6 of 17
Project Number: 423575.MP.06.TS Printed 10/12/2012

Metals by EPA 6020A, Dissolved

Batch 100412C

Parameter	Unit	Analyzed	DF	MDL	RL	Result
803903-001 Arsenic	ug/L	10/05/2012 11:12	5.00	0.265	1.0	2.4
Chromium	ug/L	10/05/2012 11:12	5.00	0.195	1.0	14.9
Manganese	ug/L	10/05/2012 11:12	5.00	0.270	0.50	ND
Molybdenum	ug/L	10/05/2012 11:12	5.00	0.150	2.0	16.0

Method Blank

Parameter	Unit	DF	Result
Arsenic	ug/L	1.00	ND
Chromium	ug/L	1.00	ND
Manganese	ug/L	1.00	ND
Molybdenum	ug/L	1.00	ND

Duplicate

Lab ID = 804030-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Arsenic	ug/L	5.00	12.4	12.2	1.46	0 - 20
Chromium	ug/L	5.00	ND	0.00	0	0 - 20
Manganese	ug/L	5.00	27.6	28.1	1.61	0 - 20
Molybdenum	ug/L	5.00	5.88	6.44	9.16	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	0.148	0.200	73.8	70 - 130
Chromium	ug/L	1.00	0.217	0.200	108.	70 - 130
Manganese	ug/L	1.00	0.0912	0.100	91.2	70 - 130
Molybdenum	ug/L	1.00	0.432	0.400	108.	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	5.00	92.8	100.	92.8	85 - 115
Chromium	ug/L	5.00	102.	100.	102.	85 - 115
Manganese	ug/L	5.00	106.	100.	106.	85 - 115
Molybdenum	ug/L	5.00	98.6	100.	98.6	85 - 115

Matrix Spike

Lab ID = 804030-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	5.00	112	112.(100.)	99.8	75 - 125
Chromium	ug/L	5.00	108.	100.(100.)	108.	75 - 125
Manganese	ug/L	5.00	137	128.(100.)	109.	75 - 125
Molybdenum	ug/L	5.00	107	106.(100.)	100.	75 - 125

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Metals by EPA 6020A, Dissolved

Batch 100912A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
803903-001 Selenium	ug/L	10/10/2012 03:00	5.00	0.355	5.0	ND

Method Blank

Parameter	Unit	DF	Result
Selenium	ug/L	1.00	ND

Duplicate

Lab ID = 803904-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Selenium	ug/L	5.00	ND	0.00	0	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Selenium	ug/L	1.00	1.15	1.00	115.	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Selenium	ug/L	5.00	95.8	100.	95.8	85 - 115

Matrix Spike

Lab ID = 803904-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Selenium	ug/L	5.00	94.4	100.(100.)	94.4	75 - 125

Matrix Spike Duplicate

Lab ID = 803904-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Selenium	ug/L	5.00	95.8	100.(100.)	95.8	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Selenium	ug/L	1.00	19.5	20.0	97.3	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Selenium	ug/L	1.00	19.8	20.0	99.2	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Selenium	ug/L	1.00	18.2	20.0	91.0	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Selenium	ug/L	1.00	19.3	20.0	96.6	90 - 110

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Metals by EPA 6010B, Dissolved

Batch 100112A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
803903-001 Calcium	mg/L	10/01/2012 12:48	50.0	0.575	25.0	125.
Magnesium	mg/L	10/01/2012 13:45	5.00	0.0675	2.50	13.8
Sodium	mg/L	10/01/2012 13:08	500	13.9	250.	962.

Method Blank

Parameter	Unit	DF	Result
Calcium	mg/L	1.00	ND
Sodium	mg/L	1.00	ND
Magnesium	mg/L	1.00	ND

Duplicate

Lab ID = 803903-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Calcium	mg/L	50.0	113.	125	9.73	0 - 20
Sodium	mg/L	500	950.	962	1.26	0 - 20
Magnesium	mg/L	5.00	13.8	13.8	0.0725	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	mg/L	1.00	2.25	2.00	112.	85 - 115
Sodium	mg/L	1.00	2.28	2.00	114.	85 - 115
Magnesium	mg/L	1.00	2.25	2.00	112.	85 - 115

Matrix Spike

Lab ID = 803903-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Calcium	mg/L	50.0	219.	225(100.)	94.1	75 - 125
Sodium	mg/L	500	1900	1960(1000)	93.5	75 - 125
Magnesium	mg/L	5.00	24.3	23.8(10.0)	105.	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	mg/L	1.00	5.17	5.00	103.	90 - 110
Sodium	mg/L	1.00	5.05	5.00	101.	90 - 110
Magnesium	mg/L	1.00	5.19	5.00	104.	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	mg/L	1.00	4.86	5.00	97.1	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	mg/L	1.00	4.76	5.00	95.1	90 - 110

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Metals by EPA 6010B, Dissolved Batch 100312A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
803903-001 Iron	ug/L	10/03/2012 11:12	1.00	0.900	20.0	ND

Method Blank

Parameter	Unit	DF	Result
Iron	ug/L	1.00	ND

Duplicate — Lab ID = 803903-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Iron	ug/L	1.00	ND	0.00	0	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2250	2000	113.	85 - 115

Matrix Spike — Lab ID = 803903-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	2000	2000(2000)	99.8	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5480	5000	110.	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	4840	5000	96.8	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5430	5000	108.	90 - 110

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2240	2000	112.	80 - 120

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2300	2000	115.	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2250	2000	112.	80 - 120

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Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2290	2000	114.	80 - 120

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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803903

CH2MHILL **CHAIN OF CUSTODY RECORD** Page 1 OF 1

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.~~06.TO~~ .02.GM.03
Task Order
Project 2012-GMP-187SAMPLEMETHODT
Turnaround Time 10 Days
Shipping Date: 9/12/2012
COC Number: TLI-187SMT

				Cr6 (E218.6) FF	Cr6 (SM3500B) FF	Metals (6020AFF) FF Chromium	Metals (6010BFF) FF Ca,Mg,Na,Fe	Metals (6020AFF) FF As,Mo,Se,Mn,Cr		Number of Containers	COMMENTS
Container:				250 ml Poly	250 ml Poly	500 ml Poly	1x500 ml Poly	1x500 ml Poly			
Preservatives:				(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C			
Filtered:				Field	Field	Field	Field	Field			
Holding Time:				28	28	180	180	180			
	DATE	TIME	Matrix								
-1	9-19-12	1142	water	X			X	X	Sample ID: MW-50-095-187 ~~MW-33-090-187~~	2	pH=2 6010B/ 6020A
-2	9-20-12	1050		X		X			MW-111-187	2	
									TOTAL NUMBER OF CONTAINERS	2	

Rec'd 09/20/12
S3c 803903

ALERT !!
Level III QC

For Sample Conditions
See Form Attached

	Signatures	Date/Time
Approved by		9-20-12
Sampled by		
Relinquished by		1110
Received by	Rafael Davila	9/20/12 11:10
Relinquished by	Rafael Davila	9/20/12 4:30
Received by		9/20/12 4:30

Shipping Details
Method of Shipment: FedEx
On Ice: yes / no
Airbill No:
Lab Name: Truesdail Laboratories, Inc.
Lab Phone: (714) 730-6239

Special Instructions:
ATTN:
Sample Custody

Report Copy to
Shawn Duffy
(530) 229-3303

Hexavalent Chromium

Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
09/21/12	803903-1	9.5	N/A	N/A	N/A	GW
↓	↓ -2	↓	↓	↓	↓	
09/21/12	803904-1	9.5	N/A	N/A	N/A	
	-2					
	-3					
	-4					
09/21/12	803905-1	9.5	N/A	N/A	N/A	
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					

C:\My Documents\Templates\Hexavalent Chromium\Cr6+ pH Log

HAV
09/24/12

GW 9/25/12

TRUESDAIL LABORATORIES, INC.

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
803894	>1	BE >~~1~~2	9-21-12	BE	3010A			~~-3 <2~~ BE
803895(1-3								-3 pH<2
803892(1-3)		~~1~~2						
803903(1-2)	<1							
803904(1-4)								
803905 (1-7)								
803914	>1							
803915(1-2+5)	>~~1~~ BE	>2				10:30 AM		
803908(1-2)	~~<1~~					10:30 AM		
803943	>1	<2	9-24-12	BE	3010A			
803929								
803903 (1-2)	<1	<2	9-24-12	M.M	3010A			
803904 (1-4)								
803905 (1-7)								
803925	>1	<2	9/24/12	M.M	3010B			
803943								
803983	>1	<2	9-25-12	BE	3010A			
803984								
803985								
803966								
803987								
803980	<1	>2	9-26-12	M.M	3010A			
803981		<2						
803982(1-6)								
803983(1-3)								
803964	>1	<2	9-26-12	M.M	3010A			
803965								
803971(1-3)	<1	>2	9-26-12	BE	NO	15:30	9-27	pH <2
803977								
804011	>1	>2	9-26-12	M.M	3010A	16:00	9-27	pH<2
804012(10-12)	<1	>2		BE	NO	17:15		
804010(1-3)								
804009(1-9)								
804012(1-40)							9-28	pH<2
804015(1-5)	<1	<2	9-27-12	M.M	3010A			
804030(1-3)	<1	<2	9-28-12	M.M	3010A			
804020	<1	<2	10/1/12	ES	3010A			
804024								
804052								
804062	<1	<2	10/2/12	MM	3010A			
Sludge 804100 M.M	~~<1~~	~~>2~~	10/03/12	MM	3010A			
804101 (1-2)	<1	~~>~~2						
804102 (1-3)	<1	<2						
804103 (1-3)								

Notes:
1. Samples should be analyzed after 24 hrs of pH adjustment to pH2 for Dissolved Analytes.
2. All Total Recoverable Analytes must be pH adjusted and digested.
3. Do not use disposable pipette to measure pH; pour a little amount of sample from the bottle.

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: E2 **Lab #** 803903

Date Delivered: 09/20/12 **Time:** 16:30 **By:** ☐Mail ☒Field Service ☐Client

1. Was a Chain of Custody received and signed? ☒Yes ☐No ☐N/A
2. Does Customer require an acknowledgement of the COC? ☐Yes ☐No ☒N/A
3. Are there any special requirements or notes on the COC? ☐Yes ☐No ☒N/A
4. If a letter was sent with the COC, does it match the COC? ☐Yes ☐No ☒N/A
5. Were all requested analyses understood and acceptable? ☒Yes ☐No ☐N/A
6. Were samples received in a chilled condition? ☒Yes ☐No ☐N/A
   Temperature (if yes)? 4.5°C
7. Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)? ☒Yes ☐No ☐N/A
8. Were sample custody seals intact? ☐Yes ☐No ☒N/A
9. Does the number of samples received agree with COC? ☒Yes ☐No ☐N/A
10. Did sample labels correspond with the client ID's? ☒Yes ☐No ☐N/A
11. Did sample labels indicate proper preservation? ☒Yes ☐No ☐N/A
    Preserved (if yes) by: ☒Truesdail ☐Client
12. Were samples pH checked? pH = See C.O.C. ☒Yes ☐No ☐N/A
13. Were all analyses within holding time at time of receipt? ☒Yes ☐No ☐N/A
    If not, notify Project Manager.
14. Have Project due dates been checked and accepted? ☒Yes ☐No ☐N/A
    Turn Around Time (TAT): ☐ RUSH ☒ Std
15. **Sample Matrix:** ☐Liquid ☐Drinking Water ☐Ground Water ☐Waste Water ☐Sludge ☐Soil ☐Wipe ☐Paint ☐Solid ☒Other Water
16. Comments: _____
17. Sample Check-In completed by Truesdail Log-In/Receiving: L. Shakeman

ALERT !! Level III QC

C:\Users\Test\Desktop\Forms A - D\Discrp.FormBlank.doc

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

14201 FRANKLIN AVENUE
TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462
www.truesdail.com

October 12, 2012

E2 Consulting Engineers, Inc.
Mr. Shawn Duffy
155 Grand Ave., Suite 1000
Oakland, California 94612

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK 2012-GMP-187SAMPLEMETHODT, GROUNDWATER MONITORING PROJECT, TLI NO.: 803981

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2012-GMP-187SAMPLEMETHODT groundwater-monitoring project. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, quality control data, and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data are under Section 5.

The samples were received and delivered with the chain of custody September 25, 2012, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

No other violations or non-conformance actions occurred for this data package.

If you have any questions or require additional information, please contact me at (714) 730-6239 ext. 200.

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.
INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES

Established 1931

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(714) 730-6239 · FAX (714) 730-6462 · www.truesdail.com

Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy

Laboratory No.: 803981
Date Received: September 25, 2012

Project Name: PG&E Topock Project
Project No.: 423575.MP.06.TS
P.O. No.: 423575.MP.06.TS

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
803981-001	MW-33-090-187	E218.6	FLDFLT	9/24/2012	10:15	Chromium, Hexavalent	16.5	ug/L	1.0
803981-001	MW-33-090-187	SW6010B	FLDFLT	9/24/2012	10:15	Calcium	296	mg/L	25.0
803981-001	MW-33-090-187	SW6010B	FLDFLT	9/24/2012	10:15	Iron	ND	ug/L	20.0
803981-001	MW-33-090-187	SW6010B	FLDFLT	9/24/2012	10:15	Magnesium	28.6	mg/L	1.00
803981-001	MW-33-090-187	SW6010B	FLDFLT	9/24/2012	10:15	Sodium	1810	mg/L	50.0
803981-001	MW-33-090-187	SW6020	FLDFLT	9/24/2012	10:15	Arsenic	1.6	ug/L	0.50
803981-001	MW-33-090-187	SW6020	FLDFLT	9/24/2012	10:15	Chromium	17.2	ug/L	1.0
803981-001	MW-33-090-187	SW6020	FLDFLT	9/24/2012	10:15	Manganese	2.2	ug/L	0.50
803981-001	MW-33-090-187	SW6020	FLDFLT	9/24/2012	10:15	Molybdenum	17.8	ug/L	5.0
803981-001	MW-33-090-187	SW6020	FLDFLT	9/24/2012	10:15	Selenium	ND	ug/L	5.0

ND: Non Detected (below reporting limit)
mg/L: Milligrams per liter.
Note: The following "Significant Figures" rule has been applied to all results:
Results below 0.01ppm will have two (2) significant figures.
Result above or equal to 0.01ppm will have three (3) significant figures.
Quality Control data will always have three (3) significant figures.

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REPORT

Client: **E2 Consulting Engineers, Inc.**
155 Grand Avenue, Suite 800
Oakland, CA 94612
Attention: Shawn Duffy
Project Name: PG&E Topock Project
Project Number: 423575.MP.06.TS
P.O. Number: 423575.MP.06.TS
Release Number:

Laboratory No. 803981

Printed 10/12/2012

Samples Received on 9/25/2012 11:30:00 PM

Field ID	Lab ID	Collected	Matrix
MW-33-090-187	803981-001	09/24/2012 10:15	Water

Chrome VI by EPA 218.6

Batch 09CrH12K

Parameter	Unit	Analyzed	DF	MDL	RL	Result
803981-001 Chromium, Hexavalent	ug/L	09/26/2012 10:38	5.00	0.0460	1.0	16.5

Method Blank

Parameter	Unit	DF	Result
Chromium, Hexavalent	ug/L	1.00	ND

Duplicate — Lab ID = 803982-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	100	2330	2370	1.51	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.178	0.200	89.1	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.88	5.00	97.7	90 - 110

Matrix Spike — Lab ID = 803810-007

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	39.0	39.2(25.0)	99.1	90 - 110

Matrix Spike — Lab ID = 803810-008

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.79	5.86(5.00)	98.5	90 - 110

Matrix Spike — Lab ID = 803810-009

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	81.2	82.8(50.0)	96.9	90 - 110

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Matrix Spike — Lab ID = 803810-010

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	37.3	37.8(25.0)	98.0	90 - 110

Matrix Spike — Lab ID = 803810-011

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	1210	1230(625)	96.4	90 - 110

Matrix Spike — Lab ID = 803810-012

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	1200	1210(625)	98.0	90 - 110

Matrix Spike — Lab ID = 803810-013

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	178.	181.(100.)	96.9	90 - 110

Matrix Spike — Lab ID = 803980-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.97	5.16(5.00)	96.4	90 - 110

Matrix Spike — Lab ID = 803981-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	39.5	41.5(25.0)	91.9	90 - 110

Matrix Spike — Lab ID = 803982-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	1820	1850(1000)	96.9	90 - 110

Matrix Spike — Lab ID = 803982-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	100	4770	4870(2500)	95.9	90 - 110

Matrix Spike — Lab ID = 803982-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	250	7000	6950(3750)	101.	90 - 110

Matrix Spike — Lab ID = 803982-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	100	4510	4630(2500)	95.0	90 - 110

Matrix Spike — Lab ID = 803982-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1000	35800	36400(20000)	96.9	90 - 110

Matrix Spike — Lab ID = 803982-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	100	3920	4000(2000)	96.1	90 - 110

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Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project Page 4 of 14
Project Number: 423575.MP.06.TS Printed 10/12/2012

Metals by EPA 6020A, Dissolved

Batch 100812B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
803981-001 Arsenic	ug/L	10/08/2012 22:33	5.00	0.265	0.50	1.6
Manganese	ug/L	10/08/2012 22:33	5.00	0.270	0.50	2.2
Molybdenum	ug/L	10/08/2012 22:33	5.00	0.150	5.0	17.8

Method Blank

Parameter	Unit	DF	Result
Arsenic	ug/L	1.00	ND
Manganese	ug/L	1.00	ND
Molybdenum	ug/L	1.00	ND

Duplicate

Lab ID = 803982-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Arsenic	ug/L	5.00	2.06	2.10	1.68	0 - 20
Manganese	ug/L	5.00	15.7	15.2	3.17	0 - 20
Molybdenum	ug/L	5.00	18.3	18.0	1.71	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	0.104	0.100	104.	70 - 130
Manganese	ug/L	1.00	0.111	0.100	111.	70 - 130
Molybdenum	ug/L	1.00	1.09	1.00	109.	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	5.00	93.8	100.	93.8	85 - 115
Manganese	ug/L	5.00	104.	100.	104.	85 - 115
Molybdenum	ug/L	5.00	102.	100.	102.	85 - 115

Matrix Spike

Lab ID = 803982-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	5.00	99.8	102.(100.)	97.7	75 - 125
Manganese	ug/L	5.00	121.	115.(100.)	106.	75 - 125
Molybdenum	ug/L	5.00	125.	118(100.)	107.	75 - 125

Matrix Spike Duplicate

Lab ID = 803982-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	5.00	104.	102.(100.)	101.	75 - 125
Manganese	ug/L	5.00	121.	115.(100.)	106	75 - 125
Molybdenum	ug/L	5.00	128	118(100.)	110.	75 - 125

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Metals by EPA 6020A, Dissolved

Batch 100912A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
803981-001 Chromium	ug/L	10/10/2012 00:08	5.00	0.195	1.0	17.2
Selenium	ug/L	10/10/2012 00:08	5.00	0.355	5.0	ND

Method Blank

Parameter	Unit	DF	Result
Chromium	ug/L	1.00	ND
Selenium	ug/L	1.00	ND

Duplicate

Lab ID = 803982-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	20.0	865.	846	2.19	0 - 20
Selenium	ug/L	5.00	5.57	5.33	4.46	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.196	0.200	98.2	70 - 130
Selenium	ug/L	1.00	1.15	1.00	115.	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	5.00	99.8	100.	99.8	85 - 115
Selenium	ug/L	5.00	93.2	100.	93.2	85 - 115

Matrix Spike

Lab ID = 803982-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	20.0	1370	1300(450.)	117.	75 - 125
Selenium	ug/L	5.00	92.8	105.(100.)	87.5	75 - 125

Matrix Spike Duplicate

Lab ID = 803982-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Selenium	ug/L	5.00	91.8	105.(100.)	86.4	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.1	20.0	101.	90 - 110
Selenium	ug/L	1.00	19.5	20.0	97.3	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.3	20.0	102.	90 - 110

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Metals by EPA 6010B, Dissolved

Batch 100212A-Th2

Parameter	Unit	Analyzed	DF	MDL	RL	Result
803981-001 Calcium	mg/L	10/02/2012 15:11	50.0	0.575	25.0	296.
Iron	ug/L	10/02/2012 17:18	1.00	0.900	20.0	ND
Magnesium	mg/L	10/02/2012 16:28	2.00	0.0270	1.00	28.6
Sodium	mg/L	10/02/2012 15:20	100	2.78	50.0	1810

Method Blank

Parameter	Unit	DF	Result
Calcium	mg/L	1.00	ND
Iron	ug/L	1.00	ND
Sodium	mg/L	1.00	ND
Magnesium	mg/L	1.00	ND

Duplicate

Lab ID = 803983-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Calcium	mg/L	100	185.	179	3.40	0 - 20
Iron	ug/L	1.00	ND	0.00	0	0 - 20
Sodium	mg/L	200	724.	714	1.42	0 - 20
Magnesium	mg/L	10.0	28.8	29.1	0.863	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	mg/L	1.00	2.02	2.00	101.	85 - 115
Iron	ug/L	1.00	2120	2000	106.	85 - 115
Sodium	mg/L	1.00	1.84	2.00	91.9	85 - 115
Magnesium	mg/L	1.00	2.04	2.00	102	85 - 115

Matrix Spike

Lab ID = 803983-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Calcium	mg/L	100	372.	379(200.)	96.6	75 - 125
Iron	ug/L	1.00	1910	2000(2000)	95.3	75 - 125
Sodium	mg/L	200	1130	1110(400.)	104.	75 - 125
Magnesium	mg/L	10.0	48.9	49.1(20.0)	99.0	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	mg/L	1.00	5.03	5.00	101.	90 - 110
Iron	ug/L	1.00	5160	5000	103.	90 - 110
Sodium	mg/L	1.00	4.88	5.00	97.6	90 - 110
Magnesium	mg/L	1.00	5.05	5.00	101.	90 - 110

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Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	mg/L	1.00	1.98	2.00	98.8	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	mg/L	1.00	1.91	2.00	95.4	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2120	2000	106.	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2250	2000	112.	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sodium	mg/L	1.00	1.79	2.00	89.6	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sodium	mg/L	1.00	1.91	2.00	95.5	80 - 120
Magnesium	mg/L	1.00	1.88	2.00	94.2	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Magnesium	mg/L	1.00	2.04	2.00	102.	80 - 120

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for- Mona Nassimi
Manager, Analytical Services

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CH2MHILL

CHAIN OF CUSTODY RECORD

803 981

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy

Project Number 423575.MP.06.TS
Task Order
Project 2012-GMP-187SAMPLEMETHOD
Turnaround Time 10 Days
Shipping Date: 9/12/2012
COC Number: TLI-187SMT

	Cr6 (E218.6) FF	Cr6 (SM3500B) FF	Metals (6020AFF) FF Chromium	Metals (6010BFF) FF Ca,Mg,Na,Fe	Metals (6020AFF) FF As,Mo,Se,Mn,Cr				Number of Containers	COMMENTS
Container:	250 ml Poly	250 ml Poly	500 ml Poly	1x500 ml Poly	1x500 ml Poly					
Preservatives:	(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C					
Filtered:	Field	Field	Field	Field	Field					
Holding Time:	28	28	180	180	180					
DATE	TIME	Matrix								
9-24-12	1015	water	X		X	X	Sample ID: MW-33-090-187		2	pH-2 6020A/ 6010B

ALERT !!
Level III QC

For Sample Conditions See Form Attached

	Signatures	Date/Time
Approved by		9-25-12
Sampled by		1640
Relinquished by		
Received by	Rafael Davila	9/25/12 16:40
Relinquished by	Rafael Davila	9-25-12 23:30
Received by	Shabeeeeina	9/25/12 23:30

Shipping Details
Method of Shipment: FedEx
On Ice: yes / no
Airbill No:
Lab Name: Truesdail Laboratories, Inc.
Lab Phone: (714) 730-6239

Special Instructions:

ATTN:
Sample Custody

Report Copy to
Shawn Duffy
(530) 229-3303

047

Hexavalent Chromium

Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
09/21/12	803903-1	9.5	N/A	N/A	N/A	[illegible]
↓	↓ -2	↓	↓	↓	↓	↓
09/21/12	803904-1	9.5	N/A	N/A	N/A	↓
↓	↓ -2	↓	↓	↓	↓	↓
↓	↓ -3	↓	↓	↓	↓	↓
↓	↓ -4	↓	↓	↓	↓	↓
09/21/12	803905-1	9.5	N/A	N/A	N/A	↓
↓	↓ -2	↓	↓	↓	↓	↓
↓	↓ -3	↓	↓	↓	↓	↓
↓	↓ -4	↓	↓	↓	↓	↓
↓	↓ -5	↓	↓	↓	↓	↓
↓	↓ -6	↓	↓	↓	↓	↓
↓	↓ -7	↓	↓	↓	↓	↓
09/26/12	803980	7	2 ml	9.5	8:30 AM	HAV
09/26/12	803981	9.5	N/A	N/A	N/A	HAV
09/26/12	803982-1	9.5	N/A	N/A	N/A	HAV
↓	↓ -2	↓	↓	↓	↓	↓
↓	↓ -3	↓	↓	↓	↓	↓
↓	↓ -4	↓	↓	↓	↓	↓
↓	↓ -5	↓	↓	↓	↓	↓
↓	↓ -6	↓	↓	↓	↓	↓
09/26/12	803983-1	9.5	N/A	N/A	N/A	HAV
↓	↓ -2	↓	↓	↓	↓	↓
↓	↓ -3	↓	↓	↓	↓	↓

HAV
09/27/12

[illegible] 9/28/12

TRUESDAIL LABORATORIES, INC.

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
803894	>1	BE >~~1~~2	9-21-12	BE	3010A			~~-3 <2~~ BE
803895(1-3	↓	↓	↓	↓	↓			-3 pH<2
803892(1-3)	↓	~~1~~2	↓	↓	↓			
803943(1-2)	<1	↓	↓	↓	↓			
803904(1-4)	↓	↓	↓	↓	↓			
803905 (1-7)	↓	↓	↓	↓	↓			
803914	>1	↓	↓	↓	↓			
803915(-2+5)	>~~1~~ BE	>2	↓	↓	↓	10:30 AM		
803908(1-2)	~~<1~~	↓	↓	↓	↓	10:30 AM		
803943	>1	<2	9-24-12	BE	3010A			
803929	↓	↓	↓	↓	↓			
803903 (1-2)	<1	<2	9-24-12	M.M	3010A			
803904 (1-4)	↓	↓	↓	↓	↓			
803905 (1-7)	↓	↓	↓	↓	↓			
803925	>1	<2	9/24/12	M.M	3010B			
803943	↓	↓	↓	↓	↓			
803963	>1	<2	9-25-12	BE	3010A			
803984	↓	↓	↓	↓	↓			
803985	↓	↓	↓	↓	↓			
803966	↓	↓	↓	↓	↓			
803987	↓	↓	↓	↓	↓			
803980	<1	>2	9-26-12	M.M	3010A			
803981	↓	<2	↓	↓	↓			
803982(1-6)	↓	↓	↓	↓	↓			
803983(1-3)	↓	↓	↓	↓	↓			
803964	>1	<2	9-26-12	M.M	3010A			
803965	↓	↓	↓	↓	↓			
803971(1-3)	<1	>2	9-26-12	BE	NO	15:30	9-27	pH <2
803977	↓	↓	↓	↓	↓	↓	↓	
804011	>1	>2	9-26-12	M.M	3010A	16:00	9-27	pH<2
804012(1-12)	<1	>2	↓	BE	NO	17:15	↓	↓
804010(1-3)	↓	↓	↓	↓	↓	↓	↓	↓
804009(1-9)	↓	↓	↓	↓	↓	↓	↓	↓
804032(1-40)	↓	↓	↓	↓	↓	↓	9-28	pH<2
804015(1-5)	<1	<2	9-27-12	M.M	3010A			
804030(1-3)	<1	<2	9-28-12	M.M	3010A			
804020	<1	<2	10/1/12	ES	3010A			
804024	↓	↓	↓	↓	↓			
804052	↓	↓	↓	↓	↓			
804062	<1	<2	10/2/12	MM	3010A			
Sludge 804100	M.M ~~<1~~	~~>2~~	10/03/12	MM	3010A			
804101 (1-2)	<1	~~>~~2	↓	↓	↓			
804102 (1-3)	<1	<2	↓	↓	↓			
804103 (1-3)	↓	↓	↓	↓	↓			

Notes:
1. Samples should be analyzed after 24 hrs of pH adjustment to pH2 for Dissolved Analytes.
2. All Total Recoverable Analytes must be pH adjusted and digested.
3. Do not use disposable pipette to measure pH; pour a little amount of sample from the bottle.

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: E2 **Lab #** 803981

Date Delivered: 09/25/12 **Time:** 23:30 **By:** ☐Mail ☒Field Service ☐Client

1. Was a Chain of Custody received and signed? ☒Yes ☐No ☐N/A
2. Does Customer require an acknowledgement of the COC? ☐Yes ☐No ☒N/A
3. Are there any special requirements or notes on the COC? ☐Yes ☐No ☒N/A
4. If a letter was sent with the COC, does it match the COC? ☐Yes ☐No ☒N/A
5. Were all requested analyses understood and acceptable? ☒Yes ☐No ☐N/A
6. Were samples received in a chilled condition? ☒Yes ☐No ☐N/A
   Temperature (if yes)? 3.8°C
7. Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)? ☒Yes ☐No ☐N/A
8. Were sample custody seals intact? ☐Yes ☐No ☒N/A
9. Does the number of samples received agree with COC? ☒Yes ☐No ☐N/A
10. Did sample labels correspond with the client ID's? ☒Yes ☐No ☐N/A
11. Did sample labels indicate proper preservation? ☒Yes ☐No ☐N/A
    Preserved (if yes) by: ☒Truesdail ☐Client
12. Were samples pH checked? pH = see C.O.C. ☒Yes ☐No ☐N/A
13. Were all analyses within holding time at time of receipt? ☒Yes ☐No ☐N/A
    If not, notify Project Manager.
14. Have Project due dates been checked and accepted? ☒Yes ☐No ☐N/A
    Turn Around Time (TAT): ☐ RUSH ☒ Std
15. **Sample Matrix:** ☐Liquid ☐Drinking Water ☐Ground Water ☐Waste Water ☐Sludge ☐Soil ☐Wipe ☐Paint ☐Solid ☒Other Water
16. Comments: _____
17. Sample Check-In completed by Truesdail Log-In/Receiving: L Shabunina

ALERT II Level III

C:\Users\Test\Desktop\Forms A - D\Discrp.FormBlank.doc

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

14201 FRANKLIN AVENUE
TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462
www.truesdail.com

October 23, 2012

E2 Consulting Engineers, Inc.
Mr. Shawn Duffy
155 Grand Ave., Suite 1000
Oakland, California 94612

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK 2012-GMP-187-Q3, GROUNDWATER MONITORING PROJECT, TLI NO.: 804104

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2012-GMP-187-Q3 groundwater-monitoring project. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, quality control data, and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data are under Section 5.

The samples were received and delivered with the chain of custody October 2, 2012, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

No other violations or non-conformance actions occurred for this data package.

If you have any questions or require additional information, please contact me at (714) 730-6239 ext. 200.

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.
INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES
Established 1931
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Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy

Laboratory No.: 804104
Date Received: October 2, 2012

Project Name: PG&E Topock Project
Project No.: 423575.MP.02.GM.03
P.O. No.: 423575.MP.02.GM.03

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
804104-001	MW-46-175-187	E218.6	FLDFLT	9/26/2012	15:05	Chromium, Hexavalent	46.7	ug/L	1.0
804104-001	MW-46-175-187	SW6010B	FLDFLT	9/26/2012	15:05	Calcium	94.5	mg/L	25.0
804104-001	MW-46-175-187	SW6010B	FLDFLT	9/26/2012	15:05	Iron	ND	ug/L	20.0
804104-001	MW-46-175-187	SW6010B	FLDFLT	9/26/2012	15:05	Magnesium	3.13	mg/L	1.00
804104-001	MW-46-175-187	SW6010B	FLDFLT	9/26/2012	15:05	Sodium	4130	mg/L	500
804104-001	MW-46-175-187	SW6020	FLDFLT	9/26/2012	15:05	Arsenic	1.2	ug/L	0.50
804104-001	MW-46-175-187	SW6020	FLDFLT	9/26/2012	15:05	Chromium	52.6	ug/L	1.0
804104-001	MW-46-175-187	SW6020	FLDFLT	9/26/2012	15:05	Manganese	9.9	ug/L	5.0
804104-001	MW-46-175-187	SW6020	FLDFLT	9/26/2012	15:05	Molybdenum	158	ug/L	2.0
804104-001	MW-46-175-187	SW6020	FLDFLT	9/26/2012	15:05	Selenium	ND	ug/L	5.0
804104-002	MW-44-115-187	E218.6	FLDFLT	9/27/2012	11:27	Chromium, Hexavalent	88.2	ug/L	1.0
804104-002	MW-44-115-187	SW6010B	FLDFLT	9/27/2012	11:27	Calcium	105	mg/L	5.00
804104-002	MW-44-115-187	SW6010B	FLDFLT	9/27/2012	11:27	Iron	ND	ug/L	20.0
804104-002	MW-44-115-187	SW6010B	FLDFLT	9/27/2012	11:27	Magnesium	7.01	mg/L	1.00
804104-002	MW-44-115-187	SW6010B	FLDFLT	9/27/2012	11:27	Sodium	2270	mg/L	100
804104-002	MW-44-115-187	SW6020	FLDFLT	9/27/2012	11:27	Arsenic	3.6	ug/L	0.50
804104-002	MW-44-115-187	SW6020	FLDFLT	9/27/2012	11:27	Chromium	98.2	ug/L	1.0
804104-002	MW-44-115-187	SW6020	FLDFLT	9/27/2012	11:27	Manganese	5.0	ug/L	1.0
804104-002	MW-44-115-187	SW6020	FLDFLT	9/27/2012	11:27	Molybdenum	77.0	ug/L	2.0
804104-002	MW-44-115-187	SW6020	FLDFLT	9/27/2012	11:27	Selenium	ND	ug/L	5.0

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Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
804104-003	MW-61-110-187	E218.6	FLDFLT	9/27/2012	15:32	Chromium, Hexavalent	656	ug/L	10.0
804104-003	MW-61-110-187	SW6010B	FLDFLT	9/27/2012	15:32	Calcium	637	mg/L	25.0
804104-003	MW-61-110-187	SW6010B	FLDFLT	9/27/2012	15:32	Iron	ND	ug/L	20.0
804104-003	MW-61-110-187	SW6010B	FLDFLT	9/27/2012	15:32	Magnesium	23.4	mg/L	1.00
804104-003	MW-61-110-187	SW6010B	FLDFLT	9/27/2012	15:32	Sodium	2840	mg/L	100
804104-003	MW-61-110-187	SW6020	FLDFLT	9/27/2012	15:32	Arsenic	2.0	ug/L	0.50
804104-003	MW-61-110-187	SW6020	FLDFLT	9/27/2012	15:32	Chromium	714	ug/L	2.0
804104-003	MW-61-110-187	SW6020	FLDFLT	9/27/2012	15:32	Manganese	172	ug/L	10.0
804104-003	MW-61-110-187	SW6020	FLDFLT	9/27/2012	15:32	Molybdenum	24.1	ug/L	4.0
804104-003	MW-61-110-187	SW6020	FLDFLT	9/27/2012	15:32	Selenium	ND	ug/L	5.0
804104-004	MW-126-187	E218.6	FLDFLT	9/27/2012	12:02	Chromium, Hexavalent	661	ug/L	10.0
804104-004	MW-126-187	SW6010B	FLDFLT	9/27/2012	12:02	Calcium	624	mg/L	25.0
804104-004	MW-126-187	SW6010B	FLDFLT	9/27/2012	12:02	Iron	ND	ug/L	20.0
804104-004	MW-126-187	SW6010B	FLDFLT	9/27/2012	12:02	Magnesium	22.9	mg/L	1.00
804104-004	MW-126-187	SW6010B	FLDFLT	9/27/2012	12:02	Sodium	2790	mg/L	100
804104-004	MW-126-187	SW6020	FLDFLT	9/27/2012	12:02	Arsenic	2.1	ug/L	0.50
804104-004	MW-126-187	SW6020	FLDFLT	9/27/2012	12:02	Chromium	738	ug/L	4.0
804104-004	MW-126-187	SW6020	FLDFLT	9/27/2012	12:02	Manganese	165	ug/L	5.0
804104-004	MW-126-187	SW6020	FLDFLT	9/27/2012	12:02	Molybdenum	20.2	ug/L	2.0
804104-004	MW-126-187	SW6020	FLDFLT	9/27/2012	12:02	Selenium	ND	ug/L	5.0

ND: Non Detected (below reporting limit)

mg/L: Milligrams per liter.

Note: The following "Significant Figures" rule has been applied to all results:

Results below 0.01ppm will have two (2) significant figures.

Result above or equal to 0.01ppm will have three (3) significant figures.

Quality Control data will always have three (3) significant figures.

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REPORT

Client: **E2 Consulting Engineers, Inc.**
155 Grand Avenue, Suite 800
Oakland, CA 94612
Attention: Shawn Duffy
Project Name: PG&E Topock Project
Project Number: 423575.MP.02.GM
P.O. Number: 423575.MP.02.GM
Release Number:

Laboratory No. 804104

Printed 10/23/2012

Samples Received on 10/2/2012 10:00:00 PM

Field ID	Lab ID	Collected	Matrix
MW-46-175-187	804104-001	09/26/2012 15:05	Water
MW-44-115-187	804104-002	09/27/2012 11:27	Water
MW-61-110-187	804104-003	09/27/2012 15:32	Water
MW-126-187	804104-004	09/27/2012 12:02	Water

Chrome VI by EPA 218.6

Batch 10CrH12B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
804104-001 Chromium, Hexavalent	ug/L	10/04/2012 14:42	5.00	0.0460	1.0	46.7
804104-002 Chromium, Hexavalent	ug/L	10/04/2012 14:53	5.00	0.0460	1.0	88.2
804104-003 Chromium, Hexavalent	ug/L	10/04/2012 15:55	50.0	0.460	10.0	656.
804104-004 Chromium, Hexavalent	ug/L	10/04/2012 16:05	50.0	0.460	10.0	661.

Method Blank

Parameter	Unit	DF	Result
Chromium, Hexavalent	ug/L	1.00	ND

Duplicate

Lab ID = 804103-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.306	0.282	8.23	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.186	0.200	93.2	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.91	5.00	98.3	90 - 110

Matrix Spike

Lab ID = 804103-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.71	5.00(5.00)	94.3	90 - 110

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Matrix Spike — Lab ID = 804103-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.922	1.00(1.00)	92.2	90 - 110

Matrix Spike — Lab ID = 804103-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.20	1.28(1.00)	92.2	90 - 110

Matrix Spike — Lab ID = 804103-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	144.	145(75.0)	99.2	90 - 110

Matrix Spike — Lab ID = 804103-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.945	1.02(1.00)	92.0	90 - 110

Matrix Spike — Lab ID = 804103-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.75	5.00(5.00)	95.1	90 - 110

Matrix Spike — Lab ID = 804103-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.933	1.00(1.00)	93.3	90 - 110

Matrix Spike — Lab ID = 804103-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.930	1.00(1.00)	93.0	90 - 110

Matrix Spike — Lab ID = 804103-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.67	5.00(5.00)	93.4	90 - 110

Matrix Spike — Lab ID = 804103-007

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	145.	145(75.0)	99.5	90 - 110

Matrix Spike — Lab ID = 804104-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	96.8	96.7(50.0)	100.	90 - 110

Matrix Spike — Lab ID = 804104-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	185.	188.(100.)	96.9	90 - 110

Matrix Spike — Lab ID = 804104-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	1390	1410(750.)	97.9	90 - 110

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Matrix Spike Lab ID = 804104-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	1390	1410(750.)	97.9	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.91	5.00	98.2	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.86	10.0	98.6	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.88	10.0	98.8	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	10.0	10.0	100.	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	10.0	10.0	100.	95 - 105

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Metals by EPA 6020A, Dissolved Batch 100812C

Parameter		Unit	Analyzed	DF	MDL	RL	Result
804104-001	Chromium	ug/L	10/09/2012 05:59	5.00	0.195	1.0	52.6
	Manganese	ug/L	10/09/2012 05:59	5.00	0.270	5.0	9.9
	Molybdenum	ug/L	10/09/2012 05:59	5.00	0.150	2.0	158
	Selenium	ug/L	10/09/2012 05:59	5.00	0.355	5.0	ND
804104-002	Chromium	ug/L	10/09/2012 06:06	5.00	0.195	1.0	98.2
	Molybdenum	ug/L	10/09/2012 06:06	5.00	0.150	2.0	77.0
	Selenium	ug/L	10/09/2012 06:06	5.00	0.355	5.0	ND
804104-003	Chromium	ug/L	10/09/2012 06:21	10.0	0.390	2.0	714.
	Manganese	ug/L	10/09/2012 06:21	10.0	0.540	10.0	172.
	Molybdenum	ug/L	10/09/2012 06:21	10.0	0.300	4.0	24.1
	Selenium	ug/L	10/09/2012 06:21	10.0	0.710	10.0	ND
804104-004	Manganese	ug/L	10/09/2012 06:35	5.00	0.270	5.0	165
	Molybdenum	ug/L	10/09/2012 06:35	5.00	0.150	2.0	20.2
	Selenium	ug/L	10/09/2012 06:35	5.00	0.355	5.0	ND

Method Blank

Parameter	Unit	DF	Result
Chromium	ug/L	1.00	ND
Selenium	ug/L	1.00	ND
Manganese	ug/L	1.00	ND
Molybdenum	ug/L	1.00	ND

Duplicate Lab ID = 804101-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	5.00	6.82	7.04	3.25	0 - 20
Selenium	ug/L	5.00	ND	0.00	0	0 - 20
Manganese	ug/L	5.00	47.1	46.9	0.426	0 - 20
Molybdenum	ug/L	5.00	21.5	21.2	1.40	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.182	0.200	91.2	70 - 130
Selenium	ug/L	1.00	0.211	0.200	105.	70 - 130
Manganese	ug/L	1.00	0.901	1.00	90.1	70 - 130
Molybdenum	ug/L	1.00	0.414	0.400	104.	70 - 130

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Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	5.00	106	100.	106	85 - 115
Selenium	ug/L	5.00	96.8	100.	96.8	85 - 115
Manganese	ug/L	5.00	104	100.	104	85 - 115
Molybdenum	ug/L	5.00	101.	100.	101.	85 - 115

Matrix Spike — Lab ID = 804101-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	5.00	111.	107.(100.)	104.	75 - 125
Selenium	ug/L	5.00	92.4	100.(100.)	92.4	75 - 125
Manganese	ug/L	5.00	151.	147.(100.)	104.	75 - 125
Molybdenum	ug/L	5.00	125.	121.(100.)	104.	75 - 125

Matrix Spike Duplicate — Lab ID = 804101-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	5.00	114.	107.(100.)	107.	75 - 125
Selenium	ug/L	5.00	91.3	100.(100.)	91.3	75 - 125
Manganese	ug/L	5.00	149.	147.(100.)	102.	75 - 125
Molybdenum	ug/L	5.00	126.	121.(100.)	104.	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.4	20.0	102.	90 - 110
Selenium	ug/L	1.00	20.5	20.0	102.	90 - 110
Manganese	ug/L	1.00	19.8	20.0	99.2	90 - 110
Molybdenum	ug/L	1.00	21.6	20.0	108	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.0	20.0	100.	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.7	20.0	104.	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.3	20.0	101.	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.6	20.0	98.0	90 - 110

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Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Selenium	ug/L	1.00	ND	0.00		
Manganese	ug/L	1.00	19.3	20.0	96.6	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	20.5	20.0	102.	80 - 120
Molybdenum	ug/L	1.00	ND	0.00		

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Molybdenum	ug/L	1.00	ND	0.00		

Serial Dilution Lab ID = 804104-003

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	50.0	718.	714	0.531	0 - 10
Manganese	ug/L	50.0	162.	172	6.11	0 - 10

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Metals by EPA 6020A, Dissolved Batch 101512A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
804104-001 Arsenic	ug/L	10/15/2012 18:32	1.00	0.0530	0.50	1.2
804104-002 Arsenic	ug/L	10/15/2012 18:39	1.00	0.0530	0.50	3.6
804104-003 Arsenic	ug/L	10/15/2012 18:46	1.00	0.0530	0.50	2.0
804104-004 Arsenic	ug/L	10/15/2012 18:54	1.00	0.0530	0.50	2.1

Method Blank

Parameter	Unit	DF	Result
Arsenic	ug/L	1.00	ND
Chromium	ug/L	1.00	ND

Duplicate Lab ID = 804101-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Arsenic	ug/L	5.00	3.78	3.69	2.46	0 - 20
Chromium	ug/L	5.00	6.58	6.32	3.98	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	0.199	0.200	99.7	70 - 130
Chromium	ug/L	1.00	0.227	0.200	114.	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	5.00	88.9	100.	88.9	85 - 115
Chromium	ug/L	5.00	93.2	100.	93.2	85 - 115

Matrix Spike Lab ID = 804101-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	5.00	90.4	104.(100.)	86.7	75 - 125
Chromium	ug/L	5.00	97.9	106.(100.)	91.6	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	18.4	20.0	92.2	90 - 110
Chromium	ug/L	1.00	19.6	20.0	97.8	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	18.9	20.0	94.4	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	19.8	20.0	99.0	90 - 110

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Metals by EPA 6020A, Dissolved

Batch 101012A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
804104-002 Manganese	ug/L	10/10/2012 22:55	5.00	0.270	1.0	5.0
804104-004 Chromium	ug/L	10/10/2012 23:16	10.0	0.390	4.0	738.

Method Blank

Parameter	Unit	DF	Result
Chromium	ug/L	1.00	ND
Manganese	ug/L	1.00	ND

Duplicate

Lab ID = 804101-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	5.00	7.93	7.48	5.84	0 - 20
Manganese	ug/L	5.00	45.5	46.2	1.55	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.509	0.400	127.	70 - 130
Manganese	ug/L	1.00	0.206	0.200	103.	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	5.00	111.	100.	111.	85 - 115
Manganese	ug/L	5.00	99.4	100.	99.4	85 - 115

Matrix Spike

Lab ID = 804101-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	5.00	110.	107.(100.)	102.	75 - 125
Manganese	ug/L	5.00	142.	146.(100.)	96.1	75 - 125

Matrix Spike Duplicate

Lab ID = 804101-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	5.00	116.	107.(100.)	109.	75 - 125
Manganese	ug/L	5.00	144.	146.(100.)	97.9	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.6	20.0	103.	90 - 110
Manganese	ug/L	1.00	19.7	20.0	98.6	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	21.6	20.0	108.	90 - 110

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Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.4	20.0	102.	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	20.0	20.0	99.8	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	19.9	20.0	99.3	80 - 120

Serial Dilution Lab ID = 804104-004

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	50.0	730.	738	1.12	0 - 10

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Metals by EPA 6010B, Dissolved Batch 100512A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
804104-001 Calcium	mg/L	10/05/2012 13:01	50.0	0.835	25.0	94.5
Iron	ug/L	10/05/2012 15:42	1.00	5.10	20.0	ND
804104-002 Calcium	mg/L	10/05/2012 13:32	10.0	0.167	5.00	105.
Iron	ug/L	10/05/2012 15:59	1.00	5.10	20.0	ND
804104-003 Calcium	mg/L	10/05/2012 13:38	50.0	0.835	25.0	637.
Iron	ug/L	10/05/2012 16:04	2.00	10.2	20.0	ND
804104-004 Calcium	mg/L	10/05/2012 13:43	50.0	0.835	25.0	624.
Iron	ug/L	10/05/2012 16:10	2.00	10.2	20.0	ND

Method Blank

Parameter	Unit	DF	Result
Calcium	mg/L	1.00	ND
Iron	ug/L	1.00	ND

Duplicate — Lab ID = 804104-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Calcium	mg/L	50.0	97.8	94.5	3.41	0 - 20
Iron	ug/L	1.00	ND	0.00	0	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	mg/L	1.00	1.95	2.00	97.6	85 - 115
Iron	ug/L	1.00	2010	2000	101.	85 - 115

Matrix Spike — Lab ID = 804104-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Calcium	mg/L	50.0	197.	194.(100.)	102.	75 - 125
Iron	ug/L	1.00	1750	2000(2000)	87.3	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	mg/L	1.00	4.94	5.00	98.7	90 - 110
Iron	ug/L	1.00	5240	5000	105.	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	mg/L	1.00	4.52	5.00	90.5	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	mg/L	1.00	4.55	5.00	91.0	90 - 110

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Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project Page 18 of 21
Project Number: 423575.MP.02.GM Printed 10/23/2012

Metals by EPA 6010B, Dissolved

Batch 100412A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
804104-001 Sodium	mg/L	10/04/2012 11:30	1000	11.3	500.	4130
804104-002 Sodium	mg/L	10/04/2012 12:14	200	2.26	100.	2270
804104-003 Sodium	mg/L	10/04/2012 12:19	200	2.26	100.	2840
804104-004 Sodium	mg/L	10/04/2012 12:25	200	2.26	100.	2790

Method Blank

Parameter	Unit	DF	Result
Sodium	mg/L	1.00	ND

Duplicate — Lab ID = 804104-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Sodium	mg/L	1000	3990	4130	3.52	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sodium	mg/L	1.00	1.94	2.00	97.2	85 - 115

Matrix Spike — Lab ID = 804104-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Sodium	mg/L	1000	5970	6130(2000)	92.2	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sodium	mg/L	1.00	4.69	5.00	93.8	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sodium	mg/L	1.00	4.62	5.00	92.4	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sodium	mg/L	1.00	4.76	5.00	95.2	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sodium	mg/L	1.00	4.73	5.00	94.6	90 - 110

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sodium	mg/L	1.00	1.86	2.00	92.8	80 - 120

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Metals by EPA 6010B, Dissolved

Batch 100812A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
804104-001 Magnesium	mg/L	10/08/2012 12:12	2.00	0.103	1.00	3.13
804104-002 Magnesium	mg/L	10/08/2012 12:56	2.00	0.103	1.00	7.01
804104-003 Magnesium	mg/L	10/08/2012 13:02	2.00	0.103	1.00	23.4
804104-004 Magnesium	mg/L	10/08/2012 13:07	2.00	0.103	1.00	22.9

Method Blank

Parameter	Unit	DF	Result
Magnesium	mg/L	1.00	ND

Duplicate — Lab ID = 804104-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Magnesium	mg/L	2.00	3.17	3.13	1.40	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Magnesium	mg/L	1.00	2.16	2.00	108.	85 - 115

Matrix Spike — Lab ID = 804104-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Magnesium	mg/L	2.00	5.18	5.13(2.00)	103.	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Magnesium	mg/L	1.00	5.19	5.00	104.	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Magnesium	mg/L	1.00	4.78	5.00	95.6	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Magnesium	mg/L	1.00	4.61	5.00	92.2	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Magnesium	mg/L	1.00	5.18	5.00	104.	90 - 110

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Magnesium	mg/L	1.00	2.21	2.00	110.	80 - 120

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Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Magnesium	mg/L	1.00	1.88	2.00	93.8	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Magnesium	mg/L	1.00	2.20	2.00	110.	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Magnesium	mg/L	1.00	1.91	2.00	95.6	80 - 120

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

Sean Carl
for Mona Nassimi
Manager, Analytical Services

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CH2MHILL

CHAIN OF CUSTODY RECORD

8804 104

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy

Project Number 423575.MP.~~00.TS~~
Task Order .02.GM.03
Project 2012-GMP-187~~SAMPLEMETHOD~~
Turnaround Time 10 Days
Shipping Date: ~~9/12/2012~~ 10-2-12
COC Number: TLI-187SMT

				Container: 250 ml Poly; Preservatives: (NH4)2SO4/NH4OH, 4°C; Filtered: Field; Holding Time: 28 — Cr6 (E218.6) FF	250 ml Poly; (NH4)2SO4/NH4OH, 4°C; Field; 28 — Cr6 (SM3500B) FF	500 ml Poly; HNO3, 4°C; Field; 180 — Metals (6020AFF) FF Chromium	1x500 ml Poly; HNO3, 4°C; Field; 180 — Metals (6010BFF) FF Ca,Mg,Na,Fe	1x500 ml Poly; HNO3, 4°C; Field; 180 — Metals (6020AFF) FF As,Mo,Se,Mn,Cr		Number of Containers	COMMENTS
	DATE	TIME	Matrix								
-1	9-26-12	1505	Water	X			X	X	Sample ID: MW-46-175-187	2	pH=2
-2	9-27-12	1127		X			X	X	MW-44-115-187	2	6020A/
-3		1532		X			X	X	MW-61-110-187	2	6010B
-4		1202		X			X	X	MW-126-187	2	

For Sample Conditions See Form Attached

ALERT !! Level III QC

	Signatures	Date/Time
Approved by		
Sampled by		10-2-12
Relinquished by	[signature]	1530
Received by	Rafael Davila	10/2/12 15:38
Relinquished by	Rafael Davila	10/2/12 22:00
Received by	[signature]	10/2/12 22:00

Shipping Details
Method of Shipment: FedEx
On Ice: yes / no
Airbill No:
Lab Name: Truesdail Laboratories, Inc.
Lab Phone: (714) 730-6239

ATTN: Sample Custody

Special Instructions:

Report Copy to
Shawn Duffy
(530) 229-3303

069

Hexavalent Chromium

Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
10/03/12	804103-3	9.5	N/A	N/A	N/A	HAV
	-4					
	-5					
	-6					
	-7					
HAV 10/03/12	~~-8~~					
10/03/12	804104-1	9.5	N/A	N/A	N/A	HAV
	-2					
	-3					
	-4					
10/03/12	804105-1	9.5	N/A	N/A	N/A	HAV
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
10/04/12	804129-1	9.5	N/A	N/A	N/A	HAV
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
10/05/12	804157-1	9.5	N/A	N/A	N/A	HAV
	-2					
	-3					
	-4					

HAV
10/06/12

C:\My Documents\Templates\Hexavalent Chromium\Cr6+ pH Log

070

10/9/12

TRUESDAIL LABORATORIES, INC.

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
804104 (1-4)	<1	<2	10/03/12	M.M	3010A			
804105 (1-9)	↓	↓	↓	↓	↓			
804079	>1	<2	10/03/12	M.M	3010A			
804080	↓	↓	↓	↓	↓			
804071	>1	<2	10/03/12	M.M	3010A			
804072	↓	↓	↓		↓			
804073								
804074								
804075								
804099								
804111	↓	↓	↓		↓			
804147	>1	>2	10-5-12	BF	3010A	8:30AM		
804142	↓	↓	↓	↓	↓	↓		
804083	<1				NO	9:00AM		
804094 (1-3)	↓	↓	↓	↓	↓	↓		
804112 (10-12)								
804117 (2,5-6)	↓	↓	↓	↓	↓	↓		
804154	>1	<2	10/05/12	M.M	3010A			
804155	↓	↓	↓	↓	↓			
804156								
804172								
804173	↓	↓	↓	↓	↓			
804129 (1-7)	<1	<2	10/05/12	M.M	3010A			
804157 (1-5)	↓	↓		↓	↓			
804179	<1	<2	10/09/12	M.M	3010A			
804180 (1-4)	↓	↓	↓	↓	↓			
804181 (1-11)								
804182 (1-4)								
804183 (1-4)								
804199 (1-4)								
804200 (1-9)	↓	↓	↓	↓	↓			
804229	<1	>2	10/10/12	M.M	3010A			
804230	↓	<2	↓	↓	↓			
804231 (1-9)		↓						
804232 (1-9,11)								
804233 (1-3,5)								
804234 (1-9)	↓	↓	↓	↓	↓			
804120	>1	<2	10/10/12	M.M	3010A			
804139	↓	↓	↓	↓	↓			
804187								
804186								
804189								
804190 (1-4)								
804197	↓	↓	↓	↓	↓			

Notes:
1. Samples should be analyzed after 24 hrs of pH adjustment to pH2 for Dissolved Analytes.
2. All Total Recoverable Analytes must be pH adjusted and digested.
3. Do not use disposable pipette to measure pH; pour a little amount of sample from the bottle.

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: E2 **Lab #** 804104

Date Delivered: 10/02/12 **Time:** 22:00 **By:** ☐Mail ☒Field Service ☐Client

1. Was a Chain of Custody received and signed? ☒Yes ☐No ☐N/A
2. Does Customer require an acknowledgement of the COC? ☐Yes ☐No ☒N/A
3. Are there any special requirements or notes on the COC? ☐Yes ☐No ☒N/A
4. If a letter was sent with the COC, does it match the COC? ☐Yes ☐No ☒N/A
5. Were all requested analyses understood and acceptable? ☒Yes ☐No ☐N/A
6. Were samples received in a chilled condition? ☒Yes ☐No ☐N/A
   Temperature (if yes)? 4.8°C
7. Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)? ☒Yes ☐No ☐N/A
8. Were sample custody seals intact? ☐Yes ☐No ☒N/A
9. Does the number of samples received agree with COC? ☒Yes ☐No ☐N/A
10. Did sample labels correspond with the client ID's? ☒Yes ☐No ☐N/A
11. Did sample labels indicate proper preservation? ☒Yes ☐No ☐N/A
    Preserved (if yes) by: ☒Truesdail ☐Client
12. Were samples pH checked? pH = see C.O.C. ☒Yes ☐No ☐N/A
13. Were all analyses within holding time at time of receipt? ☒Yes ☐No ☐N/A
    If not, notify Project Manager.
14. Have Project due dates been checked and accepted? ☒Yes ☐No ☐N/A
    Turn Around Time (TAT): ☐ RUSH ☒ Std
15. **Sample Matrix:** ☐Liquid ☐Drinking Water ☐Ground Water ☐Waste Water ☐Sludge ☐Soil ☐Wipe ☐Paint ☐Solid ☒Other Water
16. Comments: _____
17. Sample Check-In completed by **Truesdail** Log-In/Receiving: L. Shabunin

ALERT !! Level III QC

C:\Users\Test\Desktop\Forms A - D\Discrp.FormBlank.doc

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

14201 FRANKLIN AVENUE
TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462
www.truesdail.com

October 29, 2012

E2 Consulting Engineers, Inc.
Mr. Shawn Duffy
155 Grand Ave., Suite 1000
Oakland, California 94612

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK 2012-GMP-187-Q3, GROUNDWATER MONITORING PROJECT, TLI NO.: 804182

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2012-GMP-187-Q3 groundwater-monitoring project. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, quality control data, and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data are under Section 5.

The samples were received and delivered with the chain of custody October 5, 2012, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

No violations or non-conformance actions occurred for this data package.

If you have any questions or require additional information, please contact me at (714) 730-6239 ext. 200.

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.
INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES

Established 1931

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(714) 730-6239 · FAX (714) 730-6462 · www.truesdail.com

Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy

Laboratory No.: 804182
Date Received: October 5, 2012

Project Name: PG&E Topock Project
Project No.: 423575.MP.02.GM.03
P.O. No.: 423575.MP.02.GM.03

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
804182-001	MW-12-187	SM3500-CrB	FLDFLT	10/2/2012	10:39	Chromium, Hexavalent	2740	ug/L	250
804182-001	MW-12-187	SW6010B	FLDFLT	10/2/2012	10:39	Calcium	32.8	mg/L	10.0
804182-001	MW-12-187	SW6010B	FLDFLT	10/2/2012	10:39	Iron	ND	ug/L	20.0
804182-001	MW-12-187	SW6010B	FLDFLT	10/2/2012	10:39	Magnesium	6.86	mg/L	2.50
804182-001	MW-12-187	SW6010B	FLDFLT	10/2/2012	10:39	Sodium	1640	mg/L	50.0
804182-001	MW-12-187	SW6010B	FLDFLT	10/2/2012	10:39	Zinc	ND	ug/L	10.0
804182-001	MW-12-187	SW6020	FLDFLT	10/2/2012	10:39	Antimony	7.1	ug/L	2.0
804182-001	MW-12-187	SW6020	FLDFLT	10/2/2012	10:39	Arsenic	42.4	ug/L	1.0
804182-001	MW-12-187	SW6020	FLDFLT	10/2/2012	10:39	Barium	61.8	ug/L	5.0
804182-001	MW-12-187	SW6020	FLDFLT	10/2/2012	10:39	Beryllium	ND	ug/L	0.50
804182-001	MW-12-187	SW6020	FLDFLT	10/2/2012	10:39	Cadmium	ND	ug/L	1.0
804182-001	MW-12-187	SW6020	FLDFLT	10/2/2012	10:39	Chromium	2970	ug/L	20.0
804182-001	MW-12-187	SW6020	FLDFLT	10/2/2012	10:39	Cobalt	ND	ug/L	5.0
804182-001	MW-12-187	SW6020	FLDFLT	10/2/2012	10:39	Copper	ND	ug/L	5.0
804182-001	MW-12-187	SW6020	FLDFLT	10/2/2012	10:39	Lead	ND	ug/L	1.0
804182-001	MW-12-187	SW6020	FLDFLT	10/2/2012	10:39	Manganese	ND	ug/L	0.50
804182-001	MW-12-187	SW6020	FLDFLT	10/2/2012	10:39	Mercury	ND	ug/L	1.0
804182-001	MW-12-187	SW6020	FLDFLT	10/2/2012	10:39	Molybdenum	10.3	ug/L	2.0
804182-001	MW-12-187	SW6020	FLDFLT	10/2/2012	10:39	Nickel	ND	ug/L	2.0
804182-001	MW-12-187	SW6020	FLDFLT	10/2/2012	10:39	Selenium	13.0	ug/L	5.0
804182-001	MW-12-187	SW6020	FLDFLT	10/2/2012	10:39	Silver	ND	ug/L	5.0
804182-001	MW-12-187	SW6020	FLDFLT	10/2/2012	10:39	Thallium	ND	ug/L	1.0
804182-001	MW-12-187	SW6020	FLDFLT	10/2/2012	10:39	Vanadium	19	ug/L	5.0

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Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
804182-002	MW-59-100-187	E218.6	FLDFLT	10/2/2012	13:24	Chromium, Hexavalent	4510	ug/L	40.0
804182-002	MW-59-100-187	SW6010B	FLDFLT	10/2/2012	13:24	Calcium	628	mg/L	50.0
804182-002	MW-59-100-187	SW6010B	FLDFLT	10/2/2012	13:24	Iron	ND	ug/L	20.0
804182-002	MW-59-100-187	SW6010B	FLDFLT	10/2/2012	13:24	Magnesium	22.7	mg/L	10.0
804182-002	MW-59-100-187	SW6010B	FLDFLT	10/2/2012	13:24	Sodium	1560	mg/L	50.0
804182-002	MW-59-100-187	SW6020	FLDFLT	10/2/2012	13:24	Arsenic	2.9	ug/L	1.0
804182-002	MW-59-100-187	SW6020	FLDFLT	10/2/2012	13:24	Chromium	4640	ug/L	20.0
804182-002	MW-59-100-187	SW6020	FLDFLT	10/2/2012	13:24	Manganese	1.3	ug/L	0.50
804182-002	MW-59-100-187	SW6020	FLDFLT	10/2/2012	13:24	Molybdenum	4.9	ug/L	2.0
804182-002	MW-59-100-187	SW6020	FLDFLT	10/2/2012	13:24	Selenium	ND	ug/L	5.0
804182-003	MW-50-200-187	SM3500-CrB	FLDFLT	10/3/2012	14:17	Chromium, Hexavalent	8290	ug/L	500
804182-003	MW-50-200-187	SW6010B	FLDFLT	10/3/2012	14:17	Calcium	501	mg/L	50.0
804182-003	MW-50-200-187	SW6010B	FLDFLT	10/3/2012	14:17	Iron	ND	ug/L	20.0
804182-003	MW-50-200-187	SW6010B	FLDFLT	10/3/2012	14:17	Magnesium	34.8	mg/L	10.0
804182-003	MW-50-200-187	SW6010B	FLDFLT	10/3/2012	14:17	Sodium	5080	mg/L	250
804182-003	MW-50-200-187	SW6020	FLDFLT	10/3/2012	14:17	Arsenic	3.8	ug/L	1.0
804182-003	MW-50-200-187	SW6020	FLDFLT	10/3/2012	14:17	Chromium	8720	ug/L	20.0
804182-003	MW-50-200-187	SW6020	FLDFLT	10/3/2012	14:17	Manganese	0.56	ug/L	0.50
804182-003	MW-50-200-187	SW6020	FLDFLT	10/3/2012	14:17	Molybdenum	39.3	ug/L	2.0
804182-003	MW-50-200-187	SW6020	FLDFLT	10/3/2012	14:17	Selenium	ND	ug/L	5.0
804182-004	MW-125-187	SM3500-CrB	FLDFLT	10/3/2012	12:20	Chromium, Hexavalent	8000	ug/L	500
804182-004	MW-125-187	SW6010B	FLDFLT	10/3/2012	12:20	Calcium	498	mg/L	50.0
804182-004	MW-125-187	SW6010B	FLDFLT	10/3/2012	12:20	Iron	ND	ug/L	20.0
804182-004	MW-125-187	SW6010B	FLDFLT	10/3/2012	12:20	Magnesium	32.4	mg/L	10.0
804182-004	MW-125-187	SW6010B	FLDFLT	10/3/2012	12:20	Sodium	5260	mg/L	250
804182-004	MW-125-187	SW6020	FLDFLT	10/3/2012	12:20	Arsenic	3.4	ug/L	1.0
804182-004	MW-125-187	SW6020	FLDFLT	10/3/2012	12:20	Chromium	8520	ug/L	20.0
804182-004	MW-125-187	SW6020	FLDFLT	10/3/2012	12:20	Manganese	0.83	ug/L	0.50
804182-004	MW-125-187	SW6020	FLDFLT	10/3/2012	12:20	Molybdenum	40.2	ug/L	2.0
804182-004	MW-125-187	SW6020	FLDFLT	10/3/2012	12:20	Selenium	ND	ug/L	5.0

ND: Non Detected (below reporting limit)

mg/L: Milligrams per liter.

Note: The following "Significant Figures" rule has been applied to all results:

Results below 0.01ppm will have two (2) significant figures.

Result above or equal to 0.01ppm will have three (3) significant figures.

Quality Control data will always have three (3) significant figures.

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REPORT

Client: **E2 Consulting Engineers, Inc.**
155 Grand Avenue, Suite 800
Oakland, CA 94612
Attention: Shawn Duffy
Project Name: PG & E Topock
Project Number: 423575.MP.02.GM.03
P.O. Number: 423575.MP.02.GM.03
Release Number:

Laboratory No. 804182

Printed 11/2/2012
Revised

Samples Received on 10/5/2012 4:30:00 PM

Field ID	Lab ID	Collected	Matrix
MW-12-187	804182-001	10/02/2012 10:39	Water
MW-59-100-187	804182-002	10/02/2012 13:24	Water
MW-50-200-187	804182-003	10/03/2012 14:17	Water
MW-125-187	804182-004	10/03/2012 12:20	Water

Chrome VI by EPA 218.6

Batch 10CrH12E

Parameter	Unit	Analyzed	DF	MDL	RL	Result
804182-002 Chromium, Hexavalent	ug/L	10/10/2012 12:59	200	1.84	40.0	4510

Method Blank

Parameter	Unit	DF	Result
Chromium, Hexavalent	ug/L	1.00	ND

Duplicate — Lab ID = 804181-010

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	10.0	140.	140.	0.273	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.172	0.200	86.2	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.88	5.00	97.5	90 - 110

Matrix Spike — Lab ID = 804181-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	250	10500	10500(5000)	100.	90 - 110

Matrix Spike — Lab ID = 804181-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	200	8870	8850(4000)	100.	90 - 110

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Matrix Spike Lab ID = 804181-009

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	701.	691(375)	103.	90 - 110

Matrix Spike Lab ID = 804181-010

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	10.0	282.	290.(150.)	94.8	90 - 110

Matrix Spike Lab ID = 804181-011

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	631.	625(375)	102.	90 - 110

Matrix Spike Lab ID = 804182-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	200	8460	8510(4000)	98.8	90 - 110

Matrix Spike Lab ID = 804183-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.840	1.00(1.00)	84.0	90 - 110

Matrix Spike Lab ID = 804183-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.66	5.00(5.00)	93.2	90 - 110

Matrix Spike Lab ID = 804183-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.50	5.00(5.00)	90.0	90 - 110

Matrix Spike Lab ID = 804183-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.814	1.00(1.00)	81.4	90 - 110

Matrix Spike Lab ID = 804183-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	ND	1.00(1.00)		90 - 110

Matrix Spike Lab ID = 804183-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.77	5.00(5.00)	95.4	90 - 110

Matrix Spike Lab ID = 804183-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	7.08	7.32(5.00)	95.2	90 - 110

Matrix Spike Lab ID = 804229-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.19	1.18(1.00)	101.	90 - 110

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Client: E2 Consulting Engineers, Inc.

Project Name: PG & E Topock
Project Number: 423575.MP.02.GM.03

Metals by EPA 6020A, Dissolved Batch 101912B

Parameter		Unit	Analyzed	DF	MDL	RL	Result
804182-001	Barium	ug/L	10/20/2012 12:00	5.00	0.205	5.0	61.8
	Beryllium	ug/L	10/20/2012 12:00	5.00	0.140	0.50	ND
	Cadmium	ug/L	10/20/2012 12:00	5.00	0.135	1.0	ND
	Chromium	ug/L	10/20/2012 11:45	100	3.90	20.0	2970
	Cobalt	ug/L	10/20/2012 12:00	5.00	0.270	5.0	ND
	Lead	ug/L	10/20/2012 12:00	5.00	0.265	1.0	ND
	Manganese	ug/L	10/20/2012 12:00	5.00	0.270	0.50	ND
	Mercury	ug/L	10/20/2012 12:00	5.00	0.120	1.0	ND
	Molybdenum	ug/L	10/20/2012 12:00	5.00	0.150	5.0	10.3
	Nickel	ug/L	10/20/2012 12:00	5.00	0.355	2.0	ND
	Selenium	ug/L	10/20/2012 12:00	5.00	0.355	5.0	13.0
	Thallium	ug/L	10/20/2012 12:00	5.00	0.265	1.0	ND
	Vanadium	ug/L	10/20/2012 12:00	5.00	0.325	5.0	19.0
804182-002	Chromium	ug/L	10/20/2012 12:07	100	3.90	20.0	4640
	Manganese	ug/L	10/20/2012 12:22	5.00	0.270	0.50	1.3
	Selenium	ug/L	10/20/2012 12:22	5.00	0.355	5.0	ND
804182-003	Chromium	ug/L	10/20/2012 12:29	100	3.90	20.0	8720
	Manganese	ug/L	10/20/2012 12:44	5.00	0.270	0.50	0.56
	Selenium	ug/L	10/20/2012 12:44	5.00	0.355	5.0	ND
804182-004	Chromium	ug/L	10/20/2012 13:20	100	3.90	20.0	8520
	Manganese	ug/L	10/20/2012 13:28	5.00	0.270	0.50	0.83
	Selenium	ug/L	10/20/2012 13:28	5.00	0.355	5.0	ND

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Method Blank

Parameter	Unit	DF	Result
Barium	ug/L	1.00	ND
Beryllium	ug/L	1.00	ND
Cadmium	ug/L	1.00	ND
Cobalt	ug/L	1.00	ND
Chromium	ug/L	1.00	ND
Mercury	ug/L	1.00	ND
Nickel	ug/L	1.00	ND
Selenium	ug/L	1.00	ND
Lead	ug/L	1.00	ND
Thallium	ug/L	1.00	ND
Vanadium	ug/L	1.00	ND
Manganese	ug/L	1.00	ND
Molybdenum	ug/L	1.00	ND

Duplicate Lab ID = 804180-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Barium	ug/L	5.00	42.6	42.2	0.826	0 - 20
Beryllium	ug/L	5.00	ND	0.00	0	0 - 20
Cadmium	ug/L	5.00	ND	0.00	0	0 - 20
Cobalt	ug/L	5.00	ND	0.00	0	0 - 20
Chromium	ug/L	5.00	2.66	2.61	1.82	0 - 20
Mercury	ug/L	5.00	ND	0.00	0	0 - 20
Nickel	ug/L	5.00	ND	0.00	0	0 - 20
Selenium	ug/L	5.00	ND	0.00	0	0 - 20
Lead	ug/L	5.00	ND	0.00	0	0 - 20
Thallium	ug/L	5.00	ND	0.00	0	0 - 20
Vanadium	ug/L	5.00	5.50	5.37	2.39	0 - 20
Manganese	ug/L	5.00	0.532	0.604	12.7	0 - 20
Molybdenum	ug/L	5.00	ND	0.00	0	0 - 20

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Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Barium	ug/L	1.00	0.218	0.200	109.	70 - 130
Beryllium	ug/L	1.00	0.0808	0.100	80.8	70 - 130
Cadmium	ug/L	1.00	0.180	0.200	90.0	70 - 130
Cobalt	ug/L	1.00	0.957	1.00	95.7	70 - 130
Chromium	ug/L	1.00	0.202	0.200	101.	70 - 130
Mercury	ug/L	1.00	0.204	0.200	102.	70 - 130
Nickel	ug/L	1.00	0.248	0.200	124.	70 - 130
Selenium	ug/L	1.00	0.841	1.00	84.1	70 - 130
Lead	ug/L	1.00	0.173	0.200	86.4	70 - 130
Thallium	ug/L	1.00	0.180	0.200	90.2	70 - 130
Vanadium	ug/L	1.00	0.764	1.00	76.4	70 - 130
Manganese	ug/L	1.00	0.0930	0.100	93.0	70 - 130
Molybdenum	ug/L	1.00	0.787	1.00	78.7	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Barium	ug/L	5.00	99.0	100.	99.0	85 - 115
Beryllium	ug/L	5.00	101.	100.	101.	85 - 115
Cadmium	ug/L	5.00	102.	100.	102.	85 - 115
Cobalt	ug/L	5.00	97.5	100.	97.5	85 - 115
Chromium	ug/L	5.00	101	100.	101	85 - 115
Mercury	ug/L	5.00	10.3	10.0	103	85 - 115
Nickel	ug/L	5.00	104.	100.	104.	85 - 115
Selenium	ug/L	5.00	102.	100.	102.	85 - 115
Lead	ug/L	5.00	101.	100.	101.	85 - 115
Thallium	ug/L	5.00	99.9	100.	99.9	85 - 115
Vanadium	ug/L	5.00	102.	100.	102.	85 - 115
Manganese	ug/L	5.00	99.0	100.	99.0	85 - 115
Molybdenum	ug/L	5.00	96.1	100.	96.1	85 - 115

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Client: E2 Consulting Engineers, Inc. Project Name: PG & E Topock
Project Number: 423575.MP.02.GM.03 Printed 10/29/2012

Matrix Spike Lab ID = 804180-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Barium	ug/L	5.00	137.	142.(100.)	94.5	75 - 125
Beryllium	ug/L	5.00	98.2	100.(100.)	98.2	75 - 125
Cadmium	ug/L	5.00	92.5	100.(100.)	92.5	75 - 125
Cobalt	ug/L	5.00	92.3	100.(100.)	92.3	75 - 125
Chromium	ug/L	5.00	95.5	103.(100.)	92.9	75 - 125
Mercury	ug/L	5.00	9.29	10.0(10.0)	92.9	75 - 125
Nickel	ug/L	5.00	92.8	100.(100.)	92.8	75 - 125
Selenium	ug/L	5.00	87.4	100.(100.)	87.4	75 - 125
Lead	ug/L	5.00	92.8	100.(100.)	92.8	75 - 125
Thallium	ug/L	5.00	92.1	100.(100.)	92.1	75 - 125
Vanadium	ug/L	5.00	101.	105.(100.)	95.3	75 - 125
Manganese	ug/L	5.00	94.5	101.(100.)	93.9	75 - 125
Molybdenum	ug/L	5.00	101	100.(100.)	101	75 - 125

Matrix Spike Duplicate Lab ID = 804180-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Barium	ug/L	5.00	135.	142.(100.)	93.0	75 - 125
Beryllium	ug/L	5.00	97.5	100.(100.)	97.5	75 - 125
Cadmium	ug/L	5.00	92.7	100.(100.)	92.7	75 - 125
Cobalt	ug/L	5.00	90.2	100.(100.)	90.2	75 - 125
Chromium	ug/L	5.00	97.7	103.(100.)	95.1	75 - 125
Mercury	ug/L	5.00	9.22	10.0(10.0)	92.2	75 - 125
Nickel	ug/L	5.00	94.4	100.(100.)	94.4	75 - 125
Selenium	ug/L	5.00	88.8	100.(100.)	88.8	75 - 125
Lead	ug/L	5.00	92.0	100.(100.)	92.0	75 - 125
Thallium	ug/L	5.00	91.4	100.(100.)	91.4	75 - 125
Vanadium	ug/L	5.00	99.8	105.(100.)	94.4	75 - 125
Manganese	ug/L	5.00	93.0	101.(100.)	92.4	75 - 125
Molybdenum	ug/L	5.00	101.	100.(100.)	101.	75 - 125

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Metals by EPA 6020A, Dissolved

Batch 102312A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
804182-001 Arsenic	ug/L	10/23/2012 23:51	5.00	0.265	1.0	42.4
804182-002 Arsenic	ug/L	10/24/2012 01:19	5.00	0.265	1.0	2.9
Molybdenum	ug/L	10/24/2012 01:19	5.00	0.150	2.0	4.9

Method Blank

Parameter	Unit	DF	Result
Arsenic	ug/L	1.00	ND
Chromium	ug/L	1.00	ND
Manganese	ug/L	1.00	ND
Molybdenum	ug/L	1.00	ND

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	0.167	0.200	83.6	70 - 130
Chromium	ug/L	1.00	0.466	0.400	116.	70 - 130
Manganese	ug/L	1.00	0.0821	0.100	82.1	70 - 130
Molybdenum	ug/L	1.00	0.206	0.200	103.	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	5.00	99.6	100.	99.6	85 - 115
Chromium	ug/L	5.00	104.	100.	104.	85 - 115
Manganese	ug/L	5.00	101.	100.	101.	85 - 115
Molybdenum	ug/L	5.00	98.5	100.	98.5	85 - 115

Matrix Spike

Lab ID = 804180-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	5.00	98.6	101.(100.)	97.5	125 - 125
Chromium	ug/L	5.00	104.	103.(100.)	102.	125 - 125
Manganese	ug/L	5.00	96.3	101.(100.)	95.7	125 - 125
Molybdenum	ug/L	5.00	102.	102.(100.)	99.3	125 - 125

Matrix Spike Duplicate

Lab ID = 804180-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	5.00	102.	101.(100.)	101.	125 - 125
Chromium	ug/L	5.00	108.	103.(100.)	105.	125 - 125
Manganese	ug/L	5.00	105	101.(100.)	104.	125 - 125
Molybdenum	ug/L	5.00	112.	102.(100.)	110.	125 - 125

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Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Molybdenum	ug/L	1.00	ND	0.00		

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Molybdenum	ug/L	1.00	ND	0.00		

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	19.6	20.0	98.2	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	18.4	20.0	91.8	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.3	20.0	101.	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.4	20.0	92.2	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	19.0	20.0	95.0	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	18.7	20.0	93.6	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Molybdenum	ug/L	1.00	ND	0.00		

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Molybdenum	ug/L	1.00	ND	0.00		

Serial Dilution — Lab ID = 804181-006

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Manganese	ug/L	25.0	34.3	34.3	0.0583	0 - 10

Serial Dilution — Lab ID = 804182-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Arsenic	ug/L	25.0	42.4	42.4	0.118	0 - 10

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Metals by EPA 6020A, Dissolved

Batch 102412A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
804182-001 Copper	ug/L	10/24/2012 17:20	5.00	0.235	5.0	ND
804182-003 Arsenic	ug/L	10/24/2012 20:59	5.00	0.265	1.0	3.8
804182-004 Arsenic	ug/L	10/24/2012 21:50	5.00	0.265	1.0	3.4

Method Blank

Parameter	Unit	DF	Result
Arsenic	ug/L	1.00	ND
Copper	ug/L	1.00	ND

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	0.199	0.200	99.5	70 - 130
Copper	ug/L	1.00	1.07	1.00	107.	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	5.00	101.	100.	101.	85 - 115
Copper	ug/L	5.00	103.	100.	103.	85 - 115

Matrix Spike

Lab ID = 804180-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	5.00	96.2	101.(100.)	95.0	75 - 125
Copper	ug/L	5.00	100.	100.(100.)	100.	75 - 120

Matrix Spike Duplicate

Lab ID = 804180-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	5.00	105.	101.(100.)	104.	75 - 125
Copper	ug/L	5.00	107.	100.(100.)	107.	75 - 120

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	19.3	20.0	96.5	90 - 110
Copper	ug/L	1.00	19.9	20.0	99.6	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	20.5	20.0	102.	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	19.7	20.0	98.3	90 - 110

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Metals by EPA 6020A, Dissolved

Batch 102412B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
804182-001 Antimony	ug/L	10/25/2012 10:53	5.00	0.420	2.0	7.1
804182-003 Molybdenum	ug/L	10/25/2012 11:37	5.00	0.150	2.0	39.3
804182-004 Molybdenum	ug/L	10/25/2012 11:58	5.00	0.150	2.0	40.2

Method Blank

Parameter	Unit	DF	Result
Antimony	ug/L	1.00	ND
Molybdenum	ug/L	1.00	ND

Duplicate

Lab ID = 804180-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Antimony	ug/L	5.00	ND	0.00	0	0 - 20
Molybdenum	ug/L	5.00	2.04	2.24	9.49	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Antimony	ug/L	1.00	0.509	0.400	127.	70 - 130
Molybdenum	ug/L	1.00	0.391	0.400	97.8	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Antimony	ug/L	5.00	114.	100.	114.	85 - 115
Molybdenum	ug/L	5.00	91.3	100.	91.3	85 - 115

Matrix Spike

Lab ID = 804180-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Antimony	ug/L	5.00	104.	100.(100.)	104.	75 - 125
Molybdenum	ug/L	5.00	106	102.(100.)	104.	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Antimony	ug/L	1.00	19.9	20.0	99.6	90 - 110
Molybdenum	ug/L	1.00	19.1	20.0	95.7	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Antimony	ug/L	1.00	21.6	20.0	108.	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Antimony	ug/L	1.00	20.3	20.0	102.	90 - 110

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Metals by EPA 6020A, Dissolved

Batch 102512A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
804182-001 Silver	ug/L	10/25/2012 20:26	5.00	0.125	5.0	ND

Method Blank

Parameter	Unit	DF	Result
Silver	ug/L	1.00	ND

Duplicate — Lab ID = 804436-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Silver	ug/L	5.00	ND	0.00	0	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Silver	ug/L	1.00	1.06	1.00	106.	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Silver	ug/L	5.00	102.	100.	102.	85 - 115

Matrix Spike — Lab ID = 804436-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Silver	ug/L	5.00	90.9	100.(100.)	90.9	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Silver	ug/L	1.00	19.9	20.0	99.4	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Silver	ug/L	1.00	19.0	20.0	95.2	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Silver	ug/L	1.00	19.5	20.0	97.4	90 - 110

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Silver	ug/L	1.00	ND	0.00		

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Silver	ug/L	1.00	ND	0.00		

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Metals by EPA 6010B, Dissolved

Batch 101212A-Th2

Parameter	Unit	Analyzed	DF	MDL	RL	Result
804182-001 Iron	ug/L	10/12/2012 18:06	2.00	1.80	20.0	ND
804182-002 Iron	ug/L	10/12/2012 18:12	2.00	1.80	20.0	ND
804182-003 Iron	ug/L	10/12/2012 18:18	2.00	1.80	20.0	ND
804182-004 Iron	ug/L	10/12/2012 18:24	2.00	1.80	20.0	ND

Method Blank

Parameter	Unit	DF	Result
Iron	ug/L	1.00	ND

Duplicate — Lab ID = 804180-004

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Iron	ug/L	1.00	16.8	15.3	9.34	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2170	2000	108.	85 - 115

Matrix Spike — Lab ID = 804180-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	2100	2020(2000)	104.	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5150	5000	103.	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5050	5000	101	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	4930	5000	98.6	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	4870	5000	97.4	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5210	5000	104.	90 - 110

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Metals by EPA 6010B, Dissolved

Batch 101112A-Th2

Parameter	Unit	Analyzed	DF	MDL	RL	Result
804182-001 Calcium	mg/L	10/11/2012 18:03	20.0	0.230	10.0	32.8
804182-002 Magnesium	mg/L	10/11/2012 18:09	20.0	0.270	10.0	22.7
804182-003 Magnesium	mg/L	10/11/2012 18:15	20.0	0.270	10.0	34.8
804182-004 Magnesium	mg/L	10/11/2012 18:21	20.0	0.270	10.0	32.4

Method Blank

Parameter	Unit	DF	Result
Calcium	mg/L	1.00	ND
Potassium	mg/L	1.00	ND
Sodium	mg/L	1.00	ND
Magnesium	mg/L	1.00	ND

Duplicate

Lab ID = 804180-004

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Calcium	mg/L	50.0	61.4	63.5	3.30	0 - 20
Potassium	mg/L	1.00	2.54	2.67	4.91	0 - 20
Sodium	mg/L	50.0	70.0	72.5	3.56	0 - 20
Magnesium	mg/L	5.00	12.3	12.5	1.61	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	mg/L	1.00	1.98	2.00	99.1	85 - 115
Potassium	mg/L	1.00	1.98	2.00	98.8	85 - 115
Sodium	mg/L	1.00	1.93	2.00	96.6	85 - 115
Magnesium	mg/L	1.00	2.10	2.00	105.	85 - 115

Matrix Spike

Lab ID = 804180-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Calcium	mg/L	50.0	160.	164.(100.)	96.4	75 - 125
Potassium	mg/L	1.00	4.32	4.67(2.00)	82.8	75 - 125
Sodium	mg/L	50.0	168.	172.(100.)	95.1	75 - 125
Magnesium	mg/L	5.00	22.8	22.5(10.0)	103.	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	mg/L	1.00	4.88	5.00	97.5	90 - 110
Potassium	mg/L	1.00	4.98	5.00	99.6	90 - 110
Sodium	mg/L	1.00	4.85	5.00	96.9	90 - 110
Magnesium	mg/L	1.00	5.02	5.00	100.	90 - 110

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Metals by EPA 6010B, Dissolved

Batch 101312A-Th2

Parameter	Unit	Analyzed	DF	MDL	RL	Result
804182-001 Sodium	mg/L	10/13/2012 14:38	100	2.78	50.0	1640
804182-002 Sodium	mg/L	10/13/2012 14:44	100	2.78	50.0	1560
804182-003 Sodium	mg/L	10/13/2012 14:50	500	13.9	250.	5080
804182-004 Sodium	mg/L	10/13/2012 14:55	500	13.9	250.	5260

Method Blank

Parameter	Unit	DF	Result
Sodium	mg/L	1.00	ND

Duplicate — Lab ID = 804180-004

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Sodium	mg/L	50.0	66.7	69.8	4.60	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sodium	mg/L	1.00	1.97	2.00	98.4	85 - 115

Matrix Spike — Lab ID = 804180-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Sodium	mg/L	50.0	181.	170.(100.)	111.	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sodium	mg/L	1.00	5.39	5.00	108.	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sodium	mg/L	1.00	5.26	5.00	105.	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sodium	mg/L	1.00	5.26	5.00	105.	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sodium	mg/L	1.00	5.36	5.00	107.	90 - 110

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sodium	mg/L	1.00	1.91	2.00	95.7	80 - 120

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Metals by EPA 6010B, Dissolved

Batch 101512A-Th2

Parameter	Unit	Analyzed	DF	MDL	RL	Result
804182-001 Magnesium	mg/L	10/15/2012 14:03	5.00	0.0675	2.50	6.86

Method Blank

Parameter	Unit	DF	Result
Magnesium	mg/L	1.00	ND

Duplicate — Lab ID = 804180-004

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Magnesium	mg/L	5.00	11.1	11.5	3.18	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Magnesium	mg/L	1.00	1.92	2.00	96.0	85 - 115

Matrix Spike — Lab ID = 804180-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Magnesium	mg/L	5.00	20.4	21.5(10.0)	89.2	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Magnesium	mg/L	1.00	5.02	5.00	100.	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Magnesium	mg/L	1.00	4.58	5.00	91.6	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Magnesium	mg/L	1.00	4.54	5.00	90.7	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Magnesium	mg/L	1.00	4.81	5.00	96.2	90 - 110

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Magnesium	mg/L	1.00	2.09	2.00	104.	80 - 120

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Magnesium	mg/L	1.00	1.80	2.00	90.0	80 - 120

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Metals by EPA 6010B, Dissolved

Batch 101612A-Th2

Parameter	Unit	Analyzed	DF	MDL	RL	Result
804182-002 Calcium	mg/L	10/16/2012 12:27	100	1.15	50.0	628.
804182-003 Calcium	mg/L	10/16/2012 12:33	100	1.15	50.0	501.
804182-004 Calcium	mg/L	10/16/2012 12:38	100	1.15	50.0	498.

Method Blank

Parameter	Unit	DF	Result
Calcium	mg/L	1.00	ND

Duplicate — Lab ID = 804180-004

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Calcium	mg/L	50.0	62.9	64.9	3.18	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	mg/L	1.00	1.96	2.00	98.2	85 - 115

Matrix Spike — Lab ID = 804180-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Calcium	mg/L	50.0	162.	165.(100.)	97.6	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	mg/L	1.00	4.86	5.00	97.2	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	mg/L	1.00	4.62	5.00	92.3	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	mg/L	1.00	4.51	5.00	90.1	90 - 110

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	mg/L	1.00	1.90	2.00	95.2	80 - 120

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	mg/L	1.00	1.80	2.00	89.9	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	mg/L	1.00	1.89	2.00	94.4	80 - 120

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Metals by EPA 6010B, Dissolved Batch 101712A-Th2

Parameter	Unit	Analyzed	DF	MDL	RL	Result
804182-001 Zinc	ug/L	10/17/2012 13:43	1.00	0.00460	10.0	ND

Method Blank

Parameter	Unit	DF	Result
Zinc	ug/L	1.00	ND

Duplicate — Lab ID = 804181-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Zinc	ug/L	1.00	ND	0.00	0	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Zinc	ug/L	1.00	90.2	100.	90.2	85 - 115

Matrix Spike — Lab ID = 804181-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Zinc	ug/L	1.00	98.2	100.(100.)	98.2	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Zinc	ug/L	1.00	5280	5000	106.	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Zinc	ug/L	1.00	4780	5000	95.5	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Zinc	ug/L	1.00	5170	5000	103.	90 - 110

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Zinc	ug/L	1.00	ND	0.00		

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Zinc	ug/L	1.00	ND	0.00		

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Zinc	ug/L	1.00	2130	2000	106.	80 - 120

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Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Zinc	ug/L	1.00	2220	2000	111.	80 - 120

Chromium, Hexavalent by SM 3500-Cr B Batch 10CrH12B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
804182-001 Chromium, Hexavalent	ug/L	10/24/2012 14:00	25.0	37.5	250.	2740
804182-003 Chromium, Hexavalent	ug/L	10/24/2012 14:01	50.0	75.0	500.	8290
804182-004 Chromium, Hexavalent	ug/L	10/24/2012 14:02	50.0	75.0	500.	8000

Method Blank

Parameter	Unit	DF	Result
Chromium, Hexavalent	ug/L	1.00	ND

Duplicate — Lab ID = 804181-007

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	10100	9900	2.44	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	100.	100.	100.	90 - 110

Matrix Spike — Lab ID = 804181-008

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	10700	10600(5000)	104.	85 - 115

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	62.0	60.0	103.	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	58.4	60.0	97.3	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	58.4	60.0	97.3	90 - 110

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Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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804182

CH2MHILL

CHAIN OF CUSTODY RECORD

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.~~06.TS~~
Task Order .02GM.03
Project 2012-GMP-187~~SAMPLEMETHODT~~
Turnaround Time 10 Days
Shipping Date: ~~9/12/2012~~ 10-5-12
COC Number: TLI-187SMT

Container:	250 ml Poly	250 ml Poly	500 ml Poly	1x500 ml Poly	1x500 ml Poly	1x 500ml poly						
Preservatives:	(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3 4°C						
Filtered:	Field	Field	Field	Field	Field	Field						
Holding Time:	28	28	180	180	180	180						
	Cr6 (E218.6) FF	Cr6 (SM3500B) FF	Metals (6020AFF) FF Chromium	Metals (6010BFF) FF Ca,Mg,Na,Fe	Metals (6020AFF) FF As,Mo,Se,Mn,Cr	Title 22 metals (6010B/6020A/7470) Sb, Ba, Be, Cd, Co, Cu, Pb, Hg, Ni, Ag, Tl, V, Zn				Number of Containers	COMMENTS
-1	10-2-12	1039	Water		X		X	X	X	Sample ID: MW-12-187	2	
-2		1324		X			X	X		MW-59-100-187	2	
-3	10-3-12	1417			X		X	X		MW-50-200-187	2	
-4		1220			X		X	X		MW-125-187	2	
	~~10-4-12~~											

Rec'd 10/05/12
S 804182

pH 12 metals

ALERT !!
Level III QC

Sample Conditions
See Form Attached

	Signatures	Date/Time
Approved by		10-4-12
Sampled by	[signature]	1700
Relinquished by		
Received by	Rafael Davila	10/5/12 9:30
Relinquished by	Rafael Davila	10-5-12 4:30
Received by	[signature]	10/5/12 4:30

Shipping Details
Method of Shipment: FedEx
On Ice: yes / no
Airbill No:
Lab Name: Truesdail Laboratories, Inc.
Lab Phone: (714) 730-6239

Special Instructions:
ATTN:
Sample Custody

Report Copy to
Shawn Duffy
(530) 229-3303

123

Hexavalent Chromium

Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
10/05/12	804157-5	9.5	N/A	N/A	N/A	HAV
↓	↓ -6	↓	↓	↓	↓	↓
10/05/12	804180-1	9.5	N/A	N/A	N/A	HAV
↓	↓ -2	↓	↓	↓	↓	↓
↓	↓ -3	↓	↓	↓	↓	↓
↓	↓ -4	↓	↓	↓	↓	↓
↓	↓ -5	↓	↓	↓	↓	↓
10/05/12	804181-3	9.5	N/A	N/A	N/A	HAV
↓	↓ -4	↓	↓	↓	↓	↓
↓	↓ -9	↓	↓	↓	↓	↓
↓	↓ -10	↓	↓	↓	↓	↓
↓	↓ -11	↓	↓	↓	↓	↓
10/05/12	804182-2	9.5	N/A	N/A	N/A	HAV
10/05/12	804183-1	9.5	N/A	N/A	N/A	HAV
↓	↓ -2	↓	↓	↓	↓	↓
↓	↓ -3	↓	↓	↓	↓	↓
↓	↓ -4	↓	↓	↓	↓	↓
10/09/12	804199-1	9.5	N/A	N/A	N/A	HAV
↓	↓ -2	↓	↓	↓	↓	↓
↓	↓ -3	↓	↓	↓	↓	↓
↓	↓ -4	↓	↓	↓	↓	↓
↓	↓ -5	↓	↓	↓	↓	↓
10/09/12	804200-1	9.5	N/A	N/A	N/A	HAV
↓	↓ -2	↓	↓	↓	↓	↓
↓	↓ -3	↓	↓	↓	↓	↓
↓	↓ -4	↓	↓	↓	↓	↓
↓	↓ -5	↓	↓	↓	↓	↓
↓	↓ -6	↓	↓	↓	↓	↓
↓	↓ -7	↓	↓	↓	↓	↓
↓	↓ -8	↓	↓	↓	↓	↓
↓	↓ -9	↓	↓	↓	↓	↓

10-15-12 HAV
10/12/12

TRUESDAIL LABORATORIES, INC.

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
804104 (1-4)	<1	<2	10/03/12	M.M	3010A			
804105 (1-9)	↓	↓	↓	↓	↓			
804079	>1	<2	10/03/12	M.M	3010A			
804080	↓	↓	↓	↓	↓			
804071	>1	<2	10/03/12	M.M	3010A			
804072								
804073								
804074								
804075								
804099								
804111	↓	↓	↓		↓			
804147	>1	>2	10-5-12	BE	3010A	8:30AM		
804142					↓	↓		
804083	<1				NO	9:00AM		
804094 (1-3)								
804112 (1-12)								
804117 (2,5-6)	↓	↓	↓	↓	↓	↓		
804154	>1	<2	10/05/12	M.M	3010A			
804155								
804156								
804172								
804173	↓	↓	↓	↓	↓			
804129 (1-7)	<1	<2	10/05/12	M.M	3010A			
804157 (1-5)	↓	↓		↓	↓			
804179	<1	<2	10/09/12	M.M	3010A			
804180 (1-4)								
804181 (1-11)								
804182 (1-4)								
804183 (1-4)								
804199 (1-4)								
804200 (1-9)	↓	↓	↓	↓	↓			
804229	<1	>2	10/10/12	M.M	3010A			
804230		<2						
804231 (1-9)								
804232 (1-9,11)								
804233 (1-3,5)								
804234 (1-9)	↓	↓	↓	↓	↓			
804120	>1	<2	10/10/12	M.M	3010A			
804139								
804177								
804186								
804189								
804190 (1-4)								
804197	↓	↓	↓	↓	↓			

Notes:
1. Samples should be analyzed after 24 hrs of pH adjustment to pH2 for Dissolved Analytes.
2. All Total Recoverable Analytes must be pH adjusted and digested.
3. Do not use disposable pipette to measure pH; pour a little amount of sample from the bottle.

TRUESDAIL LABORATORIES, INC.

ALERT !!
Level III QC

Sample Integrity & Analysis Discrepancy Form

Client: E2 **Lab #** 804182

Date Delivered: 10/5/12 **Time:** 4:30 **By:** ☐Mail ☒Field Service ☐Client

1. Was a Chain of Custody received and signed? ☒Yes ☐No ☐N/A
2. Does Customer require an acknowledgement of the COC? ☐Yes ☐No ☒N/A
3. Are there any special requirements or notes on the COC? ☐Yes ☐No ☒N/A
4. If a letter was sent with the COC, does it match the COC? ☐Yes ☐No ☒N/A
5. Were all requested analyses understood and acceptable? ☒Yes ☐No ☐N/A
6. Were samples received in a chilled condition? ☒Yes ☐No ☐N/A
   Temperature (if yes)? 4.1 °C
7. Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)? ☒Yes ☐No ☐N/A
8. Were sample custody seals intact? ☐Yes ☐No ☒N/A
9. Does the number of samples received agree with COC? ☒Yes ☐No ☐N/A
10. Did sample labels correspond with the client ID's? ☒Yes ☐No ☐N/A
11. Did sample labels indicate proper preservation? ☒Yes ☐No ☐N/A
    Preserved (if yes) by: ☒**Truesdail** ☐Client
12. Were samples pH checked? pH = See COC ☒Yes ☐No ☐N/A
13. Were all analyses within holding time at time of receipt? ☒Yes ☐No ☐N/A
    If not, notify Project Manager.
14. Have Project due dates been checked and accepted? ☒Yes ☐No ☐N/A
    Turn Around Time (TAT): ☐ **RUSH** ☒ Std
15. **Sample Matrix:** ☐Liquid ☐Drinking Water ☐Ground Water ☐Waste Water
    ☐Sludge ☐Soil ☐Wipe ☐Paint ☐Solid ☒Other Water
16. Comments: _____
17. Sample Check-In completed by **Truesdail** Log-In/Receiving: Max

September 26, 2012

Shawn P. Duffy
CH2M HILL
155 Grand Avenue, Suite 1000
Oakland, CA 94612

TEL: (530) 229-3303
FAX: (530) 339-3303

CA-ELAP No.: 2676
NV Cert. No.: NV-009222007A

Workorder No.: N008501

RE: PG&E Topock, 423575.MP.06.TS

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on September 13, 2012 by Advanced Technology Laboratories, Inc. . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

for

Jose Tenorio Jr.
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and Advanced Technology Laboratories - Las Vegas.

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.06.TS
Lab Order: N008501

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.

Advanced Technology Laboratories, Inc.

Date: *26-Sep-12*

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.06.TS
Lab Order: N008501
Contract No: 2012-GMP-187S

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N008501-001A	MW-44-125-187	Groundwater	9/13/2012 3:35:00 PM	9/13/2012	9/26/2012
N008501-002A	MW-124-187	Groundwater	9/13/2012 8:10:00 AM	9/13/2012	9/26/2012

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *26-Sep-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-44-125-187
Lab Order:	N008501	**Collection Date:**	9/13/2012 3:35:00 PM
Project:	PG&E Topock, 423575.MP.06.TS	**Matrix:**	GROUNDWATER
Lab ID:	N008501-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_120914E**	QC Batch: **R85559**			PrepDate:			Analyst: **QBM**
Specific Conductance	12000	0.10	0.10		umhos/cm	1	9/14/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *26-Sep-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-124-187
Lab Order:	N008501	**Collection Date:**	9/13/2012 8:10:00 AM
Project:	PG&E Topock, 423575.MP.06.TS	**Matrix:**	GROUNDWATER
Lab ID:	N008501-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_120914E**	QC Batch: **R85559**			PrepDate:			Analyst: **QBM**
Specific Conductance	12000	0.10	0.10		umhos/cm	1	9/14/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N008501
Project: PG&E Topock, 423575.MP.06.TS

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: **LCS-R85559** SampType: **LCS** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **85559**
Client ID: **LCSW** Batch ID: **R85559** TestNo: **EPA 120.1** Analysis Date: **9/14/2012** SeqNo: **1443261**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	9890.000	0.10	9977	0	99.1	85	115				

Sample ID: **N008500-001BDUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **85559**
Client ID: **ZZZZZZ** Batch ID: **R85559** TestNo: **EPA 120.1** Analysis Date: **9/14/2012** SeqNo: **1443263**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	15350.000	0.10						15440	0.585	10	

Sample ID: **N008500-002BMS** SampType: **MS** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **85559**
Client ID: **ZZZZZZ** Batch ID: **R85559** TestNo: **EPA 120.1** Analysis Date: **9/14/2012** SeqNo: **1443265**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	26100.000	0.20	9977	15410	107	75	125				

Sample ID: **N008500-002BMSD** SampType: **MSD** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **85559**
Client ID: **ZZZZZZ** Batch ID: **R85559** TestNo: **EPA 120.1** Analysis Date: **9/14/2012** SeqNo: **1443266**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	26040.000	0.20	9977	15410	107	75	125	26100	0.230	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

Advanced Technology Laboratories, Inc.

Print Date: *26-Sep-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-44-125-187
Lab Order:	N008501	**Collection Date:**	9/13/2012 3:35:00 PM
Project:	PG&E Topock, 423575.MP.06.TS	**Matrix:**	GROUNDWATER
Lab ID:	N008501-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_120915C**	QC Batch: **R85578**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	110	1.2	5.0		mg/L	1	9/15/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	9/15/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	9/15/2012
Alkalinity, Total (As CaCO3)	110	1.2	5.0		mg/L	1	9/15/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *26-Sep-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-124-187
Lab Order:	N008501	**Collection Date:**	9/13/2012 8:10:00 AM
Project:	PG&E Topock, 423575.MP.06.TS	**Matrix:**	GROUNDWATER
Lab ID:	N008501-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_120915C**	QC Batch: **R85578**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	98	1.2	5.0		mg/L	1	9/15/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	9/15/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	9/15/2012
Alkalinity, Total (As CaCO3)	98	1.2	5.0		mg/L	1	9/15/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

Date: *26-Sep-12*

CLIENT: CH2M HILL
Work Order: N008501
Project: PG&E Topock, 423575.MP.06.TS

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **LCS-R85578** SampType: **LCS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **85578**
Client ID: **LCSW** Batch ID: **R85578** TestNo: **SM 2320 B** Analysis Date: **9/15/2012** SeqNo: **1444048**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	101.087	5.0	100.0	0	101	85	115				
Alkalinity, Total (As CaCO3)	101.087	5.0	100.0	0	101	85	115				

Sample ID: **LCSD-R85578** SampType: **LCSD** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **85578**
Client ID: **LCSS02** Batch ID: **R85578** TestNo: **SM 2320 B** Analysis Date: **9/15/2012** SeqNo: **1444049**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	101.087	5.0	100.0	0	101	85	115	101.1	0	20	
Alkalinity, Total (As CaCO3)	101.087	5.0	100.0	0	101	85	115	101.1	0	20	

Sample ID: **MB-R85578** SampType: **MBLK** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **85578**
Client ID: **PBW** Batch ID: **R85578** TestNo: **SM 2320 B** Analysis Date: **9/15/2012** SeqNo: **1444050**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	2.174	5.0									
Alkalinity, Carbonate (As CaCO3)	ND	5.0									
Alkalinity, Hydroxide (As CaCO3)	ND	5.0									
Alkalinity, Total (As CaCO3)	2.174	5.0									

Sample ID: **N008492-001DDUP** SampType: **DUP** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **85578**
Client ID: **ZZZZZZ** Batch ID: **R85578** TestNo: **SM 2320 B** Analysis Date: **9/15/2012** SeqNo: **1444053**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	391.304	5.0						390.2	0.278	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)	391.304	5.0						390.2	0.278	30	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

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CLIENT: CH2M HILL
Work Order: N008501
Project: PG&E Topock, 423575.MP.06.TS

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **N008508-001CMS** SampType: **MS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **85578**
Client ID: **ZZZZZZ** Batch ID: **R85578** TestNo: **SM 2320 B** Analysis Date: **9/15/2012** SeqNo: **1444061**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	225.000	5.0	100.0	125.0	100	75	125				
Alkalinity, Total (As CaCO3)	225.000	5.0	100.0	125.0	100	75	125				

Sample ID: **N008508-001CMSD** SampType: **MSD** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **85578**
Client ID: **ZZZZZZ** Batch ID: **R85578** TestNo: **SM 2320 B** Analysis Date: **9/15/2012** SeqNo: **1444062**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	223.913	5.0	100.0	125.0	98.9	75	125	225.0	0.484	20	
Alkalinity, Total (As CaCO3)	223.913	5.0	100.0	125.0	98.9	75	125	225.0	0.484	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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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *26-Sep-12*

CLIENT: CH2M HILL
Lab Order: N008501
Project: PG&E Topock, 423575.MP.06.TS
Lab ID: N008501-001

Client Sample ID: MW-44-125-187
Collection Date: 9/13/2012 3:35:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_120914A** QC Batch: **R85576** PrepDate: Analyst: **QBM**							
Chloride	3400	7.0	250		mg/L	500	9/14/2012 06:32 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_120914A** QC Batch: **R85576** PrepDate: Analyst: **QBM**							
Sulfate	620	1.6	25		mg/L	50	9/14/2012 05:22 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_120914A** QC Batch: **R85576** PrepDate: Analyst: **QBM**							
Nitrate as N	ND	0.060	2.5		mg/L	5	9/14/2012 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

Advanced Technology Laboratories, Inc.

Print Date: *26-Sep-12*

CLIENT: CH2M HILL
Lab Order: N008501
Project: PG&E Topock, 423575.MP.06.TS
Lab ID: N008501-002

Client Sample ID: MW-124-187
Collection Date: 9/13/2012 8:10:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_120914A** QC Batch: **R85576** PrepDate: Analyst: **QBM**							
Chloride	3600	7.0	250		mg/L	500	9/14/2012 10:01 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_120914A** QC Batch: **R85576** PrepDate: Analyst: **QBM**							
Sulfate	650	1.6	25		mg/L	50	9/14/2012 10:13 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_120914A** QC Batch: **R85576** PrepDate: Analyst: **QBM**							
Nitrate as N	ND	0.060	2.5		mg/L	5	9/14/2012 10:25 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		

CLIENT: CH2M HILL
Work Order: N008501
Project: PG&E Topock, 423575.MP.06.TS

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **MB-R85576_CL** SampType: **MBLK** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **85576**
Client ID: **PBW** Batch ID: **R85576** TestNo: **EPA 300.0** Analysis Date: **9/14/2012** SeqNo: **1443753**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.50									

Sample ID: **LCS-R85576_CL** SampType: **LCS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **85576**
Client ID: **LCSW** Batch ID: **R85576** TestNo: **EPA 300.0** Analysis Date: **9/14/2012** SeqNo: **1443754**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.383	0.50	2.500	0	95.3	90	110				

Sample ID: **N008500-001BDUP** SampType: **DUP** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **85576**
Client ID: **ZZZZZZ** Batch ID: **R85576** TestNo: **EPA 300.0** Analysis Date: **9/14/2012** SeqNo: **1443760**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	4773.000	500						4727	0.968	20	

Sample ID: **N008500-002BMS** SampType: **MS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **85576**
Client ID: **ZZZZZZ** Batch ID: **R85576** TestNo: **EPA 300.0** Analysis Date: **9/14/2012** SeqNo: **1443762**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	7485.000	500	2500	4880	104	80	120				

Sample ID: **N008500-002BMSD** SampType: **MSD** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **85576**
Client ID: **ZZZZZZ** Batch ID: **R85576** TestNo: **EPA 300.0** Analysis Date: **9/14/2012** SeqNo: **1443763**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	7430.000	500	2500	4880	102	80	120	7485	0.738	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: N008501
Project: PG&E Topock, 423575.MP.06.TS

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **MB-R85576_SO4** SampType: **MBLK** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **85576**
Client ID: **PBW** Batch ID: **R85576** TestNo: **EPA 300.0** Analysis Date: **9/14/2012** SeqNo: **1443835**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID: **LCS-R85576_SO4** SampType: **LCS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **85576**
Client ID: **LCSW** Batch ID: **R85576** TestNo: **EPA 300.0** Analysis Date: **9/14/2012** SeqNo: **1443836**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.833	0.50	5.000	0	96.7	90	110				

Sample ID: **N008500-001BDUP** SampType: **DUP** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **85576**
Client ID: **ZZZZZZ** Batch ID: **R85576** TestNo: **EPA 300.0** Analysis Date: **9/14/2012** SeqNo: **1443843**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	630.450	25						629.0	0.222	20	

Sample ID: **N008500-002BMS** SampType: **MS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **85576**
Client ID: **ZZZZZZ** Batch ID: **R85576** TestNo: **EPA 300.0** Analysis Date: **9/14/2012** SeqNo: **1443844**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	909.550	25	250.0	632.9	111	80	120				

Sample ID: **N008500-002BMSD** SampType: **MSD** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **85576**
Client ID: **ZZZZZZ** Batch ID: **R85576** TestNo: **EPA 300.0** Analysis Date: **9/14/2012** SeqNo: **1443845**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	906.800	25	250.0	632.9	110	80	120	909.6	0.303	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: N008501
Project: PG&E Topock, 423575.MP.06.TS

ANALYTICAL QC SUMMARY REPORT

TestCode: 300W_NO3PGE

Sample ID: **MB-R85576_NO3** SampType: **MBLK** TestCode: **300W_NO3P** Units: **mg/L** Prep Date: RunNo: **85576**
Client ID: **PBW** Batch ID: **R85576** TestNo: **EPA 300.0** Analysis Date: **9/14/2012** SeqNo: **1443807**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate as N	ND	0.50									

Sample ID: **LCS-R85576_NO3** SampType: **LCS** TestCode: **300W_NO3P** Units: **mg/L** Prep Date: RunNo: **85576**
Client ID: **LCSW** Batch ID: **R85576** TestNo: **EPA 300.0** Analysis Date: **9/14/2012** SeqNo: **1443808**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate as N	2.345	0.50	2.500	0	93.8	90	110				

Sample ID: **N008500-001BDUP** SampType: **DUP** TestCode: **300W_NO3P** Units: **mg/L** Prep Date: RunNo: **85576**
Client ID: **ZZZZZZ** Batch ID: **R85576** TestNo: **EPA 300.0** Analysis Date: **9/14/2012** SeqNo: **1443813**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate as N	ND	2.5						0	0	20	

Sample ID: **N008500-002BMS** SampType: **MS** TestCode: **300W_NO3P** Units: **mg/L** Prep Date: RunNo: **85576**
Client ID: **ZZZZZZ** Batch ID: **R85576** TestNo: **EPA 300.0** Analysis Date: **9/14/2012** SeqNo: **1443814**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate as N	11.570	2.5	12.50	0	92.6	80	120				

Sample ID: **N008500-002BMSD** SampType: **MSD** TestCode: **300W_NO3P** Units: **mg/L** Prep Date: RunNo: **85576**
Client ID: **ZZZZZZ** Batch ID: **R85576** TestNo: **EPA 300.0** Analysis Date: **9/14/2012** SeqNo: **1443815**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate as N	11.510	2.5	12.50	0	92.1	80	120	11.57	0.520	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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CH2MHILL

CHAIN OF CUSTODY RECORD

N008501

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.06.TS
Task Order
Project 2012-GMP-187SAMPLEMETHODT
Turnaround Time 10 Days
Shipping Date: 9/12/2012
COC Number: ATL-187SMT

Container:	1x1 Liter	1x1 Liter	1x1 Liter	1x1 Liter	1Liter Poly						
Preservatives:	4°C	4°C	4°C	4°C	4°C						
Filtered:	NA	NA	NA	NA	NA						
Holding Time:	2	2	2	2	30						
	Specific Conductance (E120.1)	Anions (E300.0) Chloride,Sulfate,Nitrate	Anions (E300.0) Chloride,Sulfate,Nitrate,Fluoride	Alkalinity (SM2320B)	Extra (*)					Number of Containers	COMMENTS
DATE	TIME	Matrix					Sample Name				
9/13/12	1535	GW	✓	✓		✓		MW-44-125-187	N008501-1	1	
9/13/12	0810	GW	✓	✓		✓		MW-124-187	↓ -2	1	
								~~MW-06~~ 9/13/12			

	Signatures	Date/Time
Approved by		9-13-12
Sampled by		1830
Relinquished by		
Received by		9/13/12 1830
Relinquished by		9/13/12 2019
Received by		9/13/12 2019

Shipping Details
Method of Shipment: ~~FedEx~~ CONRIER/ATL
On Ice: yes / no 2.2°C
Airbill No: 1R#2 ICE
Lab Name: ADVANCED TECHNOLOGY LABORATO
Lab Phone: (702) 307-2659

ATTN:
Sample Custody
and
Marlon

Special Instructions:

Report Copy to
Shawn Duffy
(530) 229-3303

Advanced Technology Laboratories, Inc.

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	9/13/2012	Workorder:	N008501
Rep sample Temp (Deg C):	2.2	IR Gun ID:	2
Temp Blank:	☐ Yes ☑ No		
Carrier name:	ATL		
Last 4 digits of Tracking No.:	na	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☐	No ☐	NA ☑
15. Did the bottle labels indicate correct preservatives used?	Yes ☐	No ☐	NA ☑
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments:

Checklist Completed B MBC 9/14/12

Reviewed By: [illegible]

Sample ID: **N008501-001A @ pH 7.60**

A. Standardization of Sulfuric Acid (titrant):

Normality of acid = (A)(B)/(53.00)(C)

Where:

A, grams weighed for Na_2CO_3 solution (Na_2CO_3 Standardization Solution)
B, mL Na2CO3 solution taken for titration, and
C, ml of sulfuric acid used to inflection point

Spike Standards

Na_2CO_3 Standardization Solution, ACS Grade (1.00 ml = 2500ug as $CaCO_3$): Dissolve 2.650 grams of Na_2CO_3 in distilled water and dilute to 1 liter.

LCS/MS/MSD Stock $NaHCO_3$, ACS Grade (1.00 ml = 5000 ug as $CaCO_3$): Dissolve 0.8398 grams of $NaHCO_3$ in distilled water and dilute to 1 liter.

Therefore,

Normality of Acid = (2.65g/L) (5mL) / (53.00) (11.5mL)

= **0.02174 N**

B. CALCULATION OF ALKALINITY (for a 50 ml sample)

Total Alkalinity (as $CaCO_3$), mg/L = $M_{vol.}$ * N H_2SO_4 * DF * 1000

Where:

$M_{vol.}$, volume titrant used to reach pH 4.5, ml
N, Normality of H_2SO_4
DF, Dilution Factor = (50 ml) / (Vol. of Sample used)

Therefore,

Total Alkalinity (as $CaCO_3$), mg/L = (4.85) (0.02174N) (1) * 1000

= **105.439 mg/L**

Reporting results in two significant figures,

= **110 mg/L** as CaCO3 ✓ Ra110L

C. SPECIATED ALKALINITY:

Phenolphthalein Alkalinity

P alkalinity, mg/L as $CaCO_3$ = $P_{vol.}$ * N H_2SO_4 * DF * 1000

= (0) (0.02174 N) (1) * 1000

= **0**

Total Alkalinity

T alkalinity, mg/L as $CaCO_3$ = $M_{vol.}$ * N H_2SO_4 * DF * 1000

= (4.85mL) (0.02174) (1) * 1000

= **105.439 mg/L** as CaCO3

Where:

$P_{vol.}$ - volume titrant used to reach pH 8.3, ml
$M_{vol.}$ - volume titrant used to reach pH 4.5, ml
N - Normality of H_2SO_4
DF - Dilution Factor = (50 ml) / (Vol. of Sample used)

Then OH, CO_3, HCO_3 alkalinities as $CaCO_3$ will be calculated as follows:

Result of Titration	OH Alkalinity as $CaCO_3$	CO_3 Alkalinity as $CaCO_3$	HCO_3 Alkalinity as $CaCO_3$
P = 0	0	0	T
P < ½ T	0	2P	T – 2P
P = ½ T	0	2P	0
P > ½ T	2P – T	2(T – P)	0
P = T	T	0	0

Therefore,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = **105.439 mg/L**

Reporting results in two significant figures,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = **110 mg/L**

MS 9/24/2012

Sample Calculation

METHOD: EPA 300
TEST NAME: INORGANIC ANIONS BY IC
MATRIX: WATER

FORMULA:

CHLORIDE MS 9/26/2012

Calculate the ~~Nitrate~~ concentration, in mg/L, in the original sample as follows:

Chloride, mg/L = A * DF

where:

A = mg/L, IC calculated concentration
DF = dilution factor

For **N008501-001A**, concentration in mg/L are calculated as follows:

Chloride, mg/L	=	6.862 * 500
	=	3431 mg/L

Reporting **N008501-001A**, results in two significant figures,

Chloride, mg/L = 3400 mg/L Nalnlc

MS 9/26/2012

October 03, 2012

Shawn P. Duffy
CH2M HILL
155 Grand Avenue, Suite 1000
Oakland, CA 94612

TEL: (530) 229-3303
FAX: (530) 339-3303

CA-ELAP No.: 2676
NV Cert. No.: NV-009222007A

Workorder No.: N008537

RE: PG&E Topock, 423575.MP.02.GM.03

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on September 19, 2012 by Advanced Technology Laboratories, Inc. . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

for Jose Tenorio

Jose Tenorio Jr.
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and Advanced Technology Laboratories - Las Vegas.

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.03
Lab Order: N008537

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.

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

Date: *03-Oct-12*

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.03
Lab Order: N008537
Contract No: 2012.GMP.187S

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N008537-001A	MW-50-095-187	Water	9/19/2012 11:42:00 AM	9/19/2012	10/3/2012

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *03-Oct-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-50-095-187
Lab Order:	N008537	**Collection Date:**	9/19/2012 11:42:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N008537-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
EPA 120.1							
RunID: **WETCHEM_120920A**	QC Batch: **R85628**			PrepDate:			Analyst: **KAB**
Specific Conductance	5300	0.10	0.10		umhos/cm	1	9/20/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

Date: *03-Oct-12*

CLIENT: CH2M HILL
Work Order: N008537
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: **LCS-R85628** SampType: **LCS** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **85628**
Client ID: **LCSW** Batch ID: **R85628** TestNo: **EPA 120.1** Analysis Date: **9/20/2012** SeqNo: **1446535**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	9950.000	0.10	9977	0	99.7	85	115				

Sample ID: **N008537-001A-DUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **85628**
Client ID: **ZZZZZZ** Batch ID: **R85628** TestNo: **EPA 120.1** Analysis Date: **9/20/2012** SeqNo: **1446546**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	5260.000	0.10						5270	0.190	10	

Sample ID: **N008537-001A-MS** SampType: **MS** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **85628**
Client ID: **ZZZZZZ** Batch ID: **R85628** TestNo: **EPA 120.1** Analysis Date: **9/20/2012** SeqNo: **1446547**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	15440.000	0.20	9977	5270	102	75	125				

Sample ID: **N008537-001A-MSD** SampType: **MSD** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **85628**
Client ID: **ZZZZZZ** Batch ID: **R85628** TestNo: **EPA 120.1** Analysis Date: **9/20/2012** SeqNo: **1446548**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	15440.000	0.20	9977	5270	102	75	125	15440	0	10	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *03-Oct-12*

CLIENT: CH2M HILL
Lab Order: N008537
Project: PG&E Topock, 423575.MP.02.GM.03
Lab ID: N008537-001

Client Sample ID: MW-50-095-187
Collection Date: 9/19/2012 11:42:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_120921A**	QC Batch: **R85637**			PrepDate:			Analyst: **KAB**
Alkalinity, Bicarbonate (As CaCO3)	55	1.2	5.0		mg/L	1	9/21/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	9/21/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	9/21/2012
Alkalinity, Total (As CaCO3)	55	1.2	5.0		mg/L	1	9/21/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

Date: *03-Oct-12*

CLIENT: CH2M HILL
Work Order: N008537
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **LCS-R85637** SampType: **LCS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **85637**
Client ID: **LCSW** Batch ID: **R85637** TestNo: **SM 2320 B** Analysis Date: **9/21/2012** SeqNo: **1446866**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	95.238	5.0	100.0	0	95.2	85	115				
Alkalinity, Total (As CaCO3)	99.567	5.0	100.0	0	99.6	85	115				

Sample ID: **LCSD-R85637** SampType: **LCSD** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **85637**
Client ID: **LCSS02** Batch ID: **R85637** TestNo: **SM 2320 B** Analysis Date: **9/21/2012** SeqNo: **1446867**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	95.238	5.0	100.0	0	95.2	85	115	95.24	0	20	
Alkalinity, Total (As CaCO3)	99.567	5.0	100.0	0	99.6	85	115	99.57	0	20	

Sample ID: **MB-R85637** SampType: **MBLK** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **85637**
Client ID: **PBW** Batch ID: **R85637** TestNo: **SM 2320 B** Analysis Date: **9/21/2012** SeqNo: **1446868**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	2.165	5.0									
Alkalinity, Carbonate (As CaCO3)	ND	5.0									
Alkalinity, Hydroxide (As CaCO3)	ND	5.0									
Alkalinity, Total (As CaCO3)	2.165	5.0									

Sample ID: **N008537-001A-DUP** SampType: **DUP** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **85637**
Client ID: **ZZZZZZ** Batch ID: **R85637** TestNo: **SM 2320 B** Analysis Date: **9/21/2012** SeqNo: **1446874**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	55.195	5.0						55.19	0	30	
Alkalinity, Carbonate (As CaCO3)	ND	5.0						0	0	30	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0						0	0	30	
Alkalinity, Total (As CaCO3)	55.195	5.0						55.19	0	30	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: CH2M HILL
Work Order: N008537
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **N008537-001A-MS** SampType: **MS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **85637**
Client ID: **ZZZZZZ** Batch ID: **R85637** TestNo: **SM 2320 B** Analysis Date: **9/21/2012** SeqNo: **1446875**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	154.762	5.0	100.0	55.19	99.6	75	125				
Alkalinity, Total (As CaCO3)	154.762	5.0	100.0	55.19	99.6	75	125				

Sample ID: **N008537-001A-MSD** SampType: **MSD** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **85637**
Client ID: **ZZZZZZ** Batch ID: **R85637** TestNo: **SM 2320 B** Analysis Date: **9/21/2012** SeqNo: **1446876**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	155.844	5.0	100.0	55.19	101	75	125	154.8	0.697	20	
Alkalinity, Total (As CaCO3)	155.844	5.0	100.0	55.19	101	75	125	154.8	0.697	20	

Sample ID: **N008542-001C-DUP** SampType: **DUP** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **85637**
Client ID: **ZZZZZZ** Batch ID: **R85637** TestNo: **SM 2320 B** Analysis Date: **9/21/2012** SeqNo: **1446878**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	4.329	5.0						4.329	0	30	
Alkalinity, Carbonate (As CaCO3)	ND	5.0						0	0	30	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0						0	0	30	
Alkalinity, Total (As CaCO3)	4.329	5.0						4.329	0	30	

Sample ID: **N008542-001C-MS** SampType: **MS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **85637**
Client ID: **ZZZZZZ** Batch ID: **R85637** TestNo: **SM 2320 B** Analysis Date: **9/21/2012** SeqNo: **1446879**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	101.732	5.0	100.0	4.329	97.4	75	125				
Alkalinity, Total (As CaCO3)	101.732	5.0	100.0	4.329	97.4	75	125				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

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3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *03-Oct-12*

CLIENT: CH2M HILL
Lab Order: N008537
Project: PG&E Topock, 423575.MP.02.GM.03
Lab ID: N008537-001

Client Sample ID: MW-50-095-187
Collection Date: 9/19/2012 11:42:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_120920A** QC Batch: **R85791** PrepDate: Analyst: **QBM**							
Chloride	1400	5.5	250		mg/L	500	9/20/2012 03:24 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_120920A** QC Batch: **R85791** PrepDate: Analyst: **QBM**							
Sulfate	260	1.8	25		mg/L	50	9/20/2012 02:43 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_120920A** QC Batch: **R85791** PrepDate: Analyst: **QBM**							
Nitrate as N	1.4	0.028	1.0		mg/L	2	9/20/2012 12:59 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
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CLIENT: CH2M HILL
Work Order: N008537
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **MB-R85791_CL** SampType: **MBLK** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **85791**
Client ID: **PBW** Batch ID: **R85791** TestNo: **EPA 300.0** Analysis Date: **9/20/2012** SeqNo: **1452082**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.50									

Sample ID: **LCS-R85791_CL** SampType: **LCS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **85791**
Client ID: **LCSW** Batch ID: **R85791** TestNo: **EPA 300.0** Analysis Date: **9/20/2012** SeqNo: **1452083**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.428	0.50	2.500	0	97.1	90	110				

Sample ID: **N008536-001AMS** SampType: **MS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **85791**
Client ID: **ZZZZZZ** Batch ID: **R85791** TestNo: **EPA 300.0** Analysis Date: **9/20/2012** SeqNo: **1452093**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2735.500	250	1250	1439	104	80	120				

Sample ID: **N008536-001AMSD** SampType: **MSD** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **85791**
Client ID: **ZZZZZZ** Batch ID: **R85791** TestNo: **EPA 300.0** Analysis Date: **9/20/2012** SeqNo: **1452094**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2769.500	250	1250	1439	106	80	120	2736	1.24	20	

Sample ID: **N008536-002ADUP** SampType: **DUP** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **85791**
Client ID: **ZZZZZZ** Batch ID: **R85791** TestNo: **EPA 300.0** Analysis Date: **9/20/2012** SeqNo: **1452095**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1428.500	250						1437	0.593	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N008537
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **MB-R85791_SO4** SampType: **MBLK** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **85791**
Client ID: **PBW** Batch ID: **R85791** TestNo: **EPA 300.0** Analysis Date: **9/20/2012** SeqNo: **1452100**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID: **LCS-R85791_SO4** SampType: **LCS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **85791**
Client ID: **LCSW** Batch ID: **R85791** TestNo: **EPA 300.0** Analysis Date: **9/20/2012** SeqNo: **1452101**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.893	0.50	5.000	0	97.9	90	110				

Sample ID: **N008536-001AMS** SampType: **MS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **85791**
Client ID: **ZZZZZZ** Batch ID: **R85791** TestNo: **EPA 300.0** Analysis Date: **9/20/2012** SeqNo: **1452111**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	510.950	25	250.0	261.6	99.7	80	120				

Sample ID: **N008536-001AMSD** SampType: **MSD** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **85791**
Client ID: **ZZZZZZ** Batch ID: **R85791** TestNo: **EPA 300.0** Analysis Date: **9/20/2012** SeqNo: **1452112**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	515.250	25	250.0	261.6	101	80	120	511.0	0.838	20	

Sample ID: **N008536-002ADUP** SampType: **DUP** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **85791**
Client ID: **ZZZZZZ** Batch ID: **R85791** TestNo: **EPA 300.0** Analysis Date: **9/20/2012** SeqNo: **1452113**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	265.050	25						253.8	4.36	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N008537
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 300W_NO3PGE

Sample ID: **MB-R85791_NO3** SampType: **MBLK** TestCode: **300W_NO3P** Units: **mg/L** Prep Date: RunNo: **85791**
Client ID: **PBW** Batch ID: **R85791** TestNo: **EPA 300.0** Analysis Date: **9/20/2012** SeqNo: **1452045**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate as N	ND	0.50									

Sample ID: **LCS-R85791_NO3** SampType: **LCS** TestCode: **300W_NO3P** Units: **mg/L** Prep Date: RunNo: **85791**
Client ID: **LCSW** Batch ID: **R85791** TestNo: **EPA 300.0** Analysis Date: **9/20/2012** SeqNo: **1452046**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate as N	2.385	0.50	2.500	0	95.4	90	110				

Sample ID: **N008536-003AMS** SampType: **MS** TestCode: **300W_NO3P** Units: **mg/L** Prep Date: RunNo: **85791**
Client ID: **ZZZZZZ** Batch ID: **R85791** TestNo: **EPA 300.0** Analysis Date: **9/20/2012** SeqNo: **1452060**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate as N	12.875	2.5	12.50	1.265	92.9	80	120				

Sample ID: **N008536-003AMSD** SampType: **MSD** TestCode: **300W_NO3P** Units: **mg/L** Prep Date: RunNo: **85791**
Client ID: **ZZZZZZ** Batch ID: **R85791** TestNo: **EPA 300.0** Analysis Date: **9/20/2012** SeqNo: **1452061**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate as N	12.780	2.5	12.50	1.265	92.1	80	120	12.88	0.741	20	

Sample ID: **N008536-004ADUP** SampType: **DUP** TestCode: **300W_NO3P** Units: **mg/L** Prep Date: RunNo: **85791**
Client ID: **ZZZZZZ** Batch ID: **R85791** TestNo: **EPA 300.0** Analysis Date: **9/20/2012** SeqNo: **1452062**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate as N	1.085	2.5						1.075	0	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
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CH2MHILL

CHAIN OF CUSTODY RECORD

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.~~00.TS~~ 02.GM.03
Task Order
Project 2012-GMP-187SAMPLEMETHODT
Turnaround Time 10 Days
Shipping Date: 9/12/2012
COC Number: ATL-187SMT

			Container:	1x1 Liter	1x1 Liter	1x1 Liter	1x1 Liter	1Liter Poly			
			Preservatives:	4°C	4°C	4°C	4°C	4°C			
			Filtered:	NA	NA	NA	NA	NA			
			Holding Time:	2	2	2	2	30			
	DATE	TIME	Matrix	Specific Conductance (E120.1)	Anions (E300.0) Chloride,Sulfate,Nitrate	Anions (E300.0) Chloride,Sulfate,Nitrate,Fluoride	Alkalinity (SM2320B)	Extra (*)		Number of Containers	COMMENTS
	9-19-12	1142	Water	X	X		X		Sample ID: MW-50-095-187 N008537-1	1	

	Signatures	Date/Time
Approved by		9-19-12
Sampled by	[signature]	1800
Relinquished by		
Received by	[signature]	9/19/12 @ 1905
Relinquished by		
Received by		

Shipping Details
Method of Shipment: FedEx ATL
On Ice: yes / no 4.8°C
Airbill No: ICE IR#2
Lab Name: ADVANCED TECHNOLOGY LABORATO
Lab Phone: (702) 307-2659

ATTN:
Sample Custody
and
Marlon

Special Instructions:

Report Copy to
Shawn Duffy
(530) 229-3303

Advanced Technology Laboratories, Inc.

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	9/19/2012	Workorder:	N008537
Rep sample Temp (Deg C):	4.8	IR Gun ID:	2
Temp Blank:	☐ Yes ☑ No		
Carrier name:	ATL		
Last 4 digits of Tracking No.:	na	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☐	No ☐	NA ☑
15. Did the bottle labels indicate correct preservatives used?	Yes ☐	No ☐	NA ☑
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments:

Checklist Completed B MBC 9/20/12

Reviewed By:

Sample ID: **N008537-001A @ pH 7.94**

A. Standardization of Sulfuric Acid (titrant):

Normality of acid = (A)(B)/(53.00)(C)

Where:

A, grams weighed for Na_2CO_3 solution (Na_2CO_3 Standardization Solution)
B, mL Na2CO3 solution taken for titration, and
C, ml of sulfuric acid used to inflection point

Spike Standards

Na_2CO_3 Standardization Solution, ACS Grade (1.00 ml = 2500ug as $CaCO_3$): Dissolve 2.650 grams of Na_2CO_3 in distilled water and dilute to 1 liter.

LCS/MS/MSD Stock $NaHCO_3$, ACS Grade (1.00 ml = 5000 ug as $CaCO_3$): Dissolve 0.8398 grams of $NaHCO_3$ in distilled water and dilute to 1 liter.

Therefore,

Normality of Acid = (2.65g/L) (5mL) / (53.00) (11.55mL)

= **0.02165 N**

B. CALCULATION OF ALKALINITY (for a 50 ml sample)

Total Alkalinity (as $CaCO_3$), mg/L = $M_{vol.}$ * N H_2SO_4 * DF * 1000

Where:

$M_{vol.}$, volume titrant used to reach pH 4.5, ml
N, Normality of H_2SO_4
DF, Dilution Factor = (50 ml) / (Vol. of Sample used)

Therefore,

Total Alkalinity (as $CaCO_3$), mg/L = (2.55) (0.02165N) (1) * 1000

= **55.2075 mg/L**

Reporting results in two significant figures,

= **55 mg/L** as CaCO3

C. SPECIATED ALKALINITY:

Phenolphthalein Alkalinity

P alkalinity, mg/L as $CaCO_3$ = $P_{vol.}$ * N H_2SO_4 * DF * 1000

= (0) (0.02165 N) (1) * 1000

= **0**

Total Alkalinity

T alkalinity, mg/L as $CaCO_3$ = $M_{vol.}$ * N H_2SO_4 * DF * 1000

= (2.55mL) (0.02165) (1) * 1000

= **55.2075 mg/L** as CaCO3

Where:

$P_{vol.}$ - volume titrant used to reach pH 8.3, ml
$M_{vol.}$ - volume titrant used to reach pH 4.5, ml
N - Normality of H_2SO_4
DF - Dilution Factor = (50 ml) / (Vol. of Sample used)

Then OH, CO_3, HCO_3 alkalinities as $CaCO_3$ will be calculated as follows:

Result of Titration	OH Alkalinity as $CaCO_3$	CO_3 Alkalinity as $CaCO_3$	HCO_3 Alkalinity as $CaCO_3$
P = 0	0	0	T
P < ½ T	0	2P	T – 2P
P = ½ T	0	2P	0
P > ½ T	2P – T	2(T – P)	0
P = T	T	0	0

Therefore,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = **55.2075 mg/L**

Reporting results in two significant figures,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = **55 mg/L**

MS 10/1/2012

Sample Calculation

METHOD: EPA 300
TEST NAME: INORGANIC ANIONS BY IC
MATRIX: WATER

FORMULA:

Calculate the Nitrate concentration, in mg/L, in the original sample as follows:

Nitrate, mg/L = A * DF

where:

A = mg/L, IC calculated concentration
DF = dilution factor

For **N008537-001A**, concentration in mg/L are calculated as follows:

Nitrate, mg/L	=	0.687 * 2
	=	1.374 mg/L

Reporting **N008537-001A**, results in two significant figures,

Nitrate, mg/L	**=**	**1.4 mg/L**

Two sig

October 08, 2012

Shawn P. Duffy
CH2M HILL
155 Grand Avenue, Suite 1000
Oakland, CA 94612

TEL: (530) 229-3303
FAX: (530) 339-3303

CA-ELAP No.: 2676
NV Cert. No.: NV-009222007A

Workorder No.: N008558

RE: PG&E Topock, 423575.MP.06.TS

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on September 24, 2012 by Advanced Technology Laboratories, Inc. . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

for Jose Tenorio

Jose Tenorio Jr.
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and Advanced Technology Laboratories - Las Vegas.

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.06.TS
Lab Order: N008558

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.

Advanced Technology Laboratories, Inc.

Date: *08-Oct-12*

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.06.TS
Lab Order: N008558
Contract No: 2012-GMP-187S

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N008558-001A	MW-33-090-187	Water	9/24/2012 10:15:00 AM	9/24/2012	10/8/2012

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *08-Oct-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-33-090-187
Lab Order:	N008558	**Collection Date:**	9/24/2012 10:15:00 AM
Project:	PG&E Topock, 423575.MP.06.TS	**Matrix:**	WATER
Lab ID:	N008558-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_120925C**	QC Batch: **R85674**			PrepDate:			Analyst: **KAB**
Specific Conductance	10000	0.10	0.10		umhos/cm	1	9/25/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

Date: *08-Oct-12*

CLIENT: CH2M HILL
Work Order: N008558
Project: PG&E Topock, 423575.MP.06.TS

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: **LCS-R85674** SampType: **LCS** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **85674**
Client ID: **LCSW** Batch ID: **R85674** TestNo: **EPA 120.1** Analysis Date: **9/25/2012** SeqNo: **1448140**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	9990.000	0.10	9977	0	100	85	115				

Sample ID: **N008557-003A-DUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **85674**
Client ID: **ZZZZZZ** Batch ID: **R85674** TestNo: **EPA 120.1** Analysis Date: **9/25/2012** SeqNo: **1448144**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	4760.000	0.10						4760	0	10	

Sample ID: **N008557-003A-MS** SampType: **MS** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **85674**
Client ID: **ZZZZZZ** Batch ID: **R85674** TestNo: **EPA 120.1** Analysis Date: **9/25/2012** SeqNo: **1448145**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	14600.000	0.20	9977	4760	98.6	75	125				

Sample ID: **N008557-003A-MSD** SampType: **MSD** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **85674**
Client ID: **ZZZZZZ** Batch ID: **R85674** TestNo: **EPA 120.1** Analysis Date: **9/25/2012** SeqNo: **1448146**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	14600.000	0.20	9977	4760	98.6	75	125	14600	0	10	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *08-Oct-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-33-090-187
Lab Order:	N008558	**Collection Date:**	9/24/2012 10:15:00 AM
Project:	PG&E Topock, 423575.MP.06.TS	**Matrix:**	WATER
Lab ID:	N008558-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_120925D**	QC Batch: **R85675**			PrepDate:			Analyst: **KAB**
Alkalinity, Bicarbonate (As CaCO3)	74	1.2	5.0		mg/L	1	9/25/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	9/25/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	9/25/2012
Alkalinity, Total (As CaCO3)	74	1.2	5.0		mg/L	1	9/25/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

Date: *08-Oct-12*

CLIENT: CH2M HILL
Work Order: N008558
Project: PG&E Topock, 423575.MP.06.TS

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **LCS-R85675** SampType: **LCS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **85675**
Client ID: **LCSW** Batch ID: **R85675** TestNo: **SM 2320 B** Analysis Date: **9/25/2012** SeqNo: **1448148**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	99.567	5.0	100.0	0	99.6	85	115				
Alkalinity, Total (As CaCO3)	99.567	5.0	100.0	0	99.6	85	115				

Sample ID: **LCSD-R85675** SampType: **LCSD** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **85675**
Client ID: **LCSS02** Batch ID: **R85675** TestNo: **SM 2320 B** Analysis Date: **9/25/2012** SeqNo: **1448149**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	99.567	5.0	100.0	0	99.6	85	115	99.57	0	20	
Alkalinity, Total (As CaCO3)	99.567	5.0	100.0	0	99.6	85	115	99.57	0	20	

Sample ID: **MB-R85675** SampType: **MBLK** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **85675**
Client ID: **PBW** Batch ID: **R85675** TestNo: **SM 2320 B** Analysis Date: **9/25/2012** SeqNo: **1448150**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	2.165	5.0									
Alkalinity, Carbonate (As CaCO3)	ND	5.0									
Alkalinity, Hydroxide (As CaCO3)	ND	5.0									
Alkalinity, Total (As CaCO3)	2.165	5.0									

Sample ID: **N008557-003A-DUP** SampType: **DUP** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **85675**
Client ID: **ZZZZZZ** Batch ID: **R85675** TestNo: **SM 2320 B** Analysis Date: **9/25/2012** SeqNo: **1448154**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	62.771	5.0						62.77	0	30	
Alkalinity, Carbonate (As CaCO3)	ND	5.0						0	0	30	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0						0	0	30	
Alkalinity, Total (As CaCO3)	62.771	5.0						62.77	0	30	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: CH2M HILL
Work Order: N008558
Project: PG&E Topock, 423575.MP.06.TS

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **N008557-003A-MS** SampType: **MS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **85675**
Client ID: **ZZZZZZ** Batch ID: **R85675** TestNo: **SM 2320 B** Analysis Date: **9/25/2012** SeqNo: **1448155**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	162.338	5.0	100.0	62.77	99.6	75	125				
Alkalinity, Total (As CaCO3)	162.338	5.0	100.0	62.77	99.6	75	125				

Sample ID: **N008557-003A-MSD** SampType: **MSD** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **85675**
Client ID: **ZZZZZZ** Batch ID: **R85675** TestNo: **SM 2320 B** Analysis Date: **9/25/2012** SeqNo: **1448156**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	161.255	5.0	100.0	62.77	98.5	75	125	162.3	0.669	20	
Alkalinity, Total (As CaCO3)	161.255	5.0	100.0	62.77	98.5	75	125	162.3	0.669	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *08-Oct-12*

CLIENT: CH2M HILL
Lab Order: N008558
Project: PG&E Topock, 423575.MP.06.TS
Lab ID: N008558-001

Client Sample ID: MW-33-090-187
Collection Date: 9/24/2012 10:15:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_120925A** QC Batch: **R85840** PrepDate: Analyst: **QBM**							
Chloride	3000	11	500		mg/L	1000	9/25/2012 08:07 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_120925A** QC Batch: **R85840** PrepDate: Analyst: **QBM**							
Fluoride	ND	0.12	5.0		mg/L	10	9/25/2012 08:19 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_120925A** QC Batch: **R85840** PrepDate: Analyst: **QBM**							
Sulfate	700	3.5	50		mg/L	100	9/25/2012 04:38 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_120925A** QC Batch: **R85840** PrepDate: Analyst: **QBM**							
Nitrate as N	ND	0.070	2.5		mg/L	5	9/25/2012 03:22 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N008558
Project: PG&E Topock, 423575.MP.06.TS

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **MB-R85840_CL** SampType: **MBLK** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **85840**
Client ID: **PBW** Batch ID: **R85840** TestNo: **EPA 300.0** Analysis Date: **9/25/2012** SeqNo: **1454195**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.50									

Sample ID: **LCS-R85840_CL** SampType: **LCS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **85840**
Client ID: **LCSW** Batch ID: **R85840** TestNo: **EPA 300.0** Analysis Date: **9/25/2012** SeqNo: **1454196**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.444	0.50	2.500	0	97.8	90	110				

Sample ID: **N008557-001ADUP** SampType: **DUP** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **85840**
Client ID: **ZZZZZZ** Batch ID: **R85840** TestNo: **EPA 300.0** Analysis Date: **9/25/2012** SeqNo: **1454201**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1350.500	250						1338	0.930	20	

Sample ID: **N008557-002AMS** SampType: **MS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **85840**
Client ID: **ZZZZZZ** Batch ID: **R85840** TestNo: **EPA 300.0** Analysis Date: **9/25/2012** SeqNo: **1454205**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2592.500	250	1250	1347	99.6	80	120				

Sample ID: **N008557-002AMSD** SampType: **MSD** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **85840**
Client ID: **ZZZZZZ** Batch ID: **R85840** TestNo: **EPA 300.0** Analysis Date: **9/25/2012** SeqNo: **1454206**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2591.500	250	1250	1347	99.6	80	120	2592	0.0386	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: N008558
Project: PG&E Topock, 423575.MP.06.TS

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_FPGE

Sample ID: **MB-R85840_F** SampType: **MBLK** TestCode: **300_W_FPGE** Units: **mg/L** Prep Date: RunNo: **85840**
Client ID: **PBW** Batch ID: **R85840** TestNo: **EPA 300.0** Analysis Date: **9/25/2012** SeqNo: **1454179**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	ND	0.50									

Sample ID: **LCS-R85840_F** SampType: **LCS** TestCode: **300_W_FPGE** Units: **mg/L** Prep Date: RunNo: **85840**
Client ID: **LCSW** Batch ID: **R85840** TestNo: **EPA 300.0** Analysis Date: **9/25/2012** SeqNo: **1454180**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	2.504	0.50	2.500	0	100	90	110				

Sample ID: **N008557-001ADUP** SampType: **DUP** TestCode: **300_W_FPGE** Units: **mg/L** Prep Date: RunNo: **85840**
Client ID: **ZZZZZZ** Batch ID: **R85840** TestNo: **EPA 300.0** Analysis Date: **9/25/2012** SeqNo: **1454185**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	3.132	1.0						3.174	1.33	20	

Sample ID: **N008557-002AMS** SampType: **MS** TestCode: **300_W_FPGE** Units: **mg/L** Prep Date: RunNo: **85840**
Client ID: **ZZZZZZ** Batch ID: **R85840** TestNo: **EPA 300.0** Analysis Date: **9/25/2012** SeqNo: **1454186**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	8.366	1.0	5.000	3.160	104	80	120				

Sample ID: **N008557-002AMSD** SampType: **MSD** TestCode: **300_W_FPGE** Units: **mg/L** Prep Date: RunNo: **85840**
Client ID: **ZZZZZZ** Batch ID: **R85840** TestNo: **EPA 300.0** Analysis Date: **9/25/2012** SeqNo: **1454187**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	8.260	1.0	5.000	3.160	102	80	120	8.366	1.28	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

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CLIENT: CH2M HILL
Work Order: N008558
Project: PG&E Topock, 423575.MP.06.TS

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **MB-R85840_SO4** SampType: **MBLK** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **85840**
Client ID: **PBW** Batch ID: **R85840** TestNo: **EPA 300.0** Analysis Date: **9/25/2012** SeqNo: **1454212**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID: **LCS-R85840_SO4** SampType: **LCS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **85840**
Client ID: **LCSW** Batch ID: **R85840** TestNo: **EPA 300.0** Analysis Date: **9/25/2012** SeqNo: **1454213**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	5.021	0.50	5.000	0	100	90	110				

Sample ID: **N008557-001ADUP** SampType: **DUP** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **85840**
Client ID: **ZZZZZZ** Batch ID: **R85840** TestNo: **EPA 300.0** Analysis Date: **9/25/2012** SeqNo: **1454220**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	250.200	25						246.4	1.51	20	

Sample ID: **N008557-002AMS** SampType: **MS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **85840**
Client ID: **ZZZZZZ** Batch ID: **R85840** TestNo: **EPA 300.0** Analysis Date: **9/25/2012** SeqNo: **1454221**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	495.150	25	250.0	234.6	104	80	120				

Sample ID: **N008557-002AMSD** SampType: **MSD** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **85840**
Client ID: **ZZZZZZ** Batch ID: **R85840** TestNo: **EPA 300.0** Analysis Date: **9/25/2012** SeqNo: **1454222**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	504.450	25	250.0	234.6	108	80	120	495.2	1.86	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: N008558
Project: PG&E Topock, 423575.MP.06.TS

ANALYTICAL QC SUMMARY REPORT

TestCode: 300W_NO3PGE

Sample ID: **MB-R85840_NO3** SampType: **MBLK** TestCode: **300W_NO3P** Units: **mg/L** Prep Date: RunNo: **85840**
Client ID: **PBW** Batch ID: **R85840** TestNo: **EPA 300.0** Analysis Date: **9/25/2012** SeqNo: **1454162**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate as N	ND	0.50									

Sample ID: **LCS-R85840_NO3** SampType: **LCS** TestCode: **300W_NO3P** Units: **mg/L** Prep Date: RunNo: **85840**
Client ID: **LCSW** Batch ID: **R85840** TestNo: **EPA 300.0** Analysis Date: **9/25/2012** SeqNo: **1454163**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate as N	2.473	0.50	2.500	0	98.9	90	110				

Sample ID: **N008557-001ADUP** SampType: **DUP** TestCode: **300W_NO3P** Units: **mg/L** Prep Date: RunNo: **85840**
Client ID: **ZZZZZZ** Batch ID: **R85840** TestNo: **EPA 300.0** Analysis Date: **9/25/2012** SeqNo: **1454170**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate as N	1.632	1.0						1.596	2.23	20	

Sample ID: **N008557-002AMS** SampType: **MS** TestCode: **300W_NO3P** Units: **mg/L** Prep Date: RunNo: **85840**
Client ID: **ZZZZZZ** Batch ID: **R85840** TestNo: **EPA 300.0** Analysis Date: **9/25/2012** SeqNo: **1454171**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate as N	6.602	1.0	5.000	1.616	99.7	80	120				

Sample ID: **N008557-002AMSD** SampType: **MSD** TestCode: **300W_NO3P** Units: **mg/L** Prep Date: RunNo: **85840**
Client ID: **ZZZZZZ** Batch ID: **R85840** TestNo: **EPA 300.0** Analysis Date: **9/25/2012** SeqNo: **1454172**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate as N	6.604	1.0	5.000	1.616	99.8	80	120	6.602	0.0303	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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CH2MHILL

CHAIN OF CUSTODY RECORD

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.06.TS
Task Order
Project 2012-GMP-187SAMPLEMETHODT
Turnaround Time 10 Days
Shipping Date: 9/12/2012
COC Number: ATL-187SMT

			Container:	1x1 Liter	1x1 Liter	1x1 Liter	1x1 Liter	1Liter Poly			
			Preservatives:	4°C	4°C	4°C	4°C	4°C			
			Filtered:	NA	NA	NA	NA	NA			
			Holding Time:	2	2	2	2	30			
DATE	TIME	Matrix		Specific Conductance (E120.1)	Anions (E300.0) Chloride,Sulfate,Nitrate	Anions (E300.0) Chloride,Sulfate,Nitrate,Fluoride	Alkalinity (SM2320B)	Extra (*)		Number of Containers	COMMENTS
N0085580-1	9-24-12	1015	water	X		X	X		Sample ID: MW-33-090-187	1	

Signatures		Date/Time
Approved by		9-24-12
Sampled by		1540
Relinquished by		
Received by		9/24/12
Relinquished by		9/24/12 1540
Received by		1554
		9/24/12 0754

Shipping Details
Method of Shipment: FedEx
On Ice: ~~yes~~ / no 2 gel packs
Airbill No:
Lab Name: ADVANCED TECHNOLOGY LABORATO
Lab Phone: (702) 307-2659

ATTN:
Sample Custody and Marlon

Special Instructions:

Report Copy to
Shawn Duffy
(530) 229-3303

Advanced Technology Laboratories, Inc.

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	9/24/2012	Workorder:	N008558
Rep sample Temp (Deg C):	2.8	IR Gun ID:	1
Temp Blank:	☐ Yes ☑ No		
Carrier name:	ATL		
Last 4 digits of Tracking No.:	na	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☐	No ☐	NA ☑
15. Did the bottle labels indicate correct preservatives used?	Yes ☐	No ☐	NA ☑
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments:

Checklist Completed B MBC 9/25/12

Reviewed By: [illegible]

Sample ID: **N008558-001A @ pH 7.77**

A. Standardization of Sulfuric Acid (titrant):

Normality of acid = (A)(B)/(53.00)(C)

Where:

A, grams weighed for Na_2CO_3 solution (Na_2CO_3 Standardization Solution)
B, mL Na2CO3 solution taken for titration, and
C, ml of sulfuric acid used to inflection point

Spike Standards

Na_2CO_3 Standardization Solution, ACS Grade (1.00 ml = 2500ug as $CaCO_3$): Dissolve 2.650 grams of Na_2CO_3 in distilled water and dilute to 1 liter.

LCS/MS/MSD Stock $NaHCO_3$, ACS Grade (1.00 ml = 5000 ug as $CaCO_3$): Dissolve 0.8398 grams of $NaHCO_3$ in distilled water and dilute to 1 liter.

Therefore,

Normality of Acid = (2.65g/L) (5mL) / (53.00) (11.55mL)

= **0.02165 N**

B. CALCULATION OF ALKALINITY (for a 50 ml sample)

Total Alkalinity (as $CaCO_3$), mg/L = $M_{vol.}$ * N H_2SO_4 * DF * 1000

Where:

$M_{vol.}$, volume titrant used to reach pH 4.5, ml
N, Normality of H_2SO_4
DF, Dilution Factor = (50 ml) / (Vol. of Sample used)

Therefore,

Total Alkalinity (as $CaCO_3$), mg/L = (3.40) (0.02165N) (1) * 1000

= **73.61 mg/L**

Reporting results in two significant figures,

= **74 mg/L** as CaCO3

C. SPECIATED ALKALINITY:

Phenolphthalein Alkalinity

P alkalinity, mg/L as $CaCO_3$ = $P_{vol.}$ * N H_2SO_4 * DF * 1000

= (0) (0.02165 N) (1) * 1000

= **0**

Total Alkalinity

T alkalinity, mg/L as $CaCO_3$ = $M_{vol.}$ * N H_2SO_4 * DF * 1000

= (3.40mL) (0.02165) (1) * 1000

= **73.61 mg/L** as CaCO3

Where:

$P_{vol.}$ - volume titrant used to reach pH 8.3, ml
$M_{vol.}$ - volume titrant used to reach pH 4.5, ml
N - Normality of H_2SO_4
DF - Dilution Factor = (50 ml) / (Vol. of Sample used)

Then OH, CO_3, HCO_3 alkalinities as $CaCO_3$ will be calculated as follows:

Result of Titration	**OH Alkalinity as $CaCO_3$**	**CO_3 Alkalinity as $CaCO_3$**	**HCO_3 Alkalinity as $CaCO_3$**
P = 0	0	0	T
P < ½ T	0	2P	T – 2P
P = ½ T	0	2P	0
P > ½ T	2P – T	2(T – P)	0
P = T	T	0	0

Therefore,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = **73.61 mg/L**

Reporting results in two significant figures,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = **74 mg/L**

MS 10/1/2012

Sample Calculation

METHOD: EPA 300
TEST NAME: INORGANIC ANIONS BY IC
MATRIX: WATER

FORMULA:

Calculate the ~~Nitrate~~ Chloride concentration, in mg/L, in the original sample as follows: MS 10/8/2012

Chloride, mg/L = A * DF

where:

A = mg/L, IC calculated concentration
DF = dilution factor

For **N008558-001A**, concentration in mg/L are calculated as follows:

Chloride, mg/L = 3.012 * 1000

= 3012 mg/L

Reporting **N008558-001A**, results in two significant figures,

Chloride, mg/L = 3000 mg/L mg/L

MS 10/8/2012

October 11, 2012

Shawn P. Duffy
CH2M HILL
155 Grand Avenue, Suite 1000
Oakland, CA 94612

TEL: (530) 229-3303
FAX: (530) 339-3303

CA-ELAP No.: 2676
NV Cert. No.: NV-009222007A

Workorder No.: N008585

RE: PG&E Topock, 423575.MP.02.GM.03

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on September 27, 2012 by Advanced Technology Laboratories, Inc. . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

for Jose Tenorio

Jose Tenorio Jr.
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and Advanced Technology Laboratories - Las Vegas.

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.03
Lab Order: N008585

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

Samples were received intact with proper chain of custody documentation.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Samples were analyzed within method holding time.

Analytical Comments for EPA 300.0:

Samples were diluted due to the high concentration of Chloride.

Advanced Technology Laboratories, Inc.

Date: *11-Oct-12*

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.03
Lab Order: N008585
Contract No: 2012-GMP-187S

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N008585-001A	MW-44-115-187	Water	9/27/2012 11:27:00 AM	9/27/2012	10/11/2012
N008585-002A	MW-61-110-187	Water	9/27/2012 3:32:00 PM	9/27/2012	10/11/2012
N008585-002B	MW-61-110-187	Water	9/27/2012 3:32:00 PM	9/27/2012	10/11/2012
N008585-003A	MW-126-187	Water	9/27/2012 12:02:00 PM	9/27/2012	10/11/2012
N008585-003B	MW-126-187	Water	9/27/2012 12:02:00 PM	9/27/2012	10/11/2012

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *11-Oct-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-44-115-187
Lab Order:	N008585	**Collection Date:**	9/27/2012 11:27:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N008585-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_120928B**	QC Batch: **R85746**			PrepDate:			Analyst: **KAB**
Specific Conductance	11000	0.10	0.10		umhos/cm	1	9/28/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *11-Oct-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-61-110-187
Lab Order:	N008585	**Collection Date:**	9/27/2012 3:32:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N008585-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_120928B**	QC Batch: **R85746**			PrepDate:			Analyst: **KAB**
Specific Conductance	17000	0.10	0.10		umhos/cm	1	9/28/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

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ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *11-Oct-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-126-187
Lab Order:	N008585	**Collection Date:**	9/27/2012 12:02:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N008585-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
EPA 120.1							
RunID: **WETCHEM_120928B**	QC Batch: **R85746**			PrepDate:			Analyst: **KAB**
Specific Conductance	17000	0.10	0.10		umhos/cm	1	9/28/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

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Advanced Technology Laboratories, Inc.

Date: *11-Oct-12*

CLIENT: CH2M HILL
Work Order: N008585
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: **LCS-R85746** SampType: **LCS** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **85746**
Client ID: **LCSW** Batch ID: **R85746** TestNo: **EPA 120.1** Analysis Date: **9/28/2012** SeqNo: **1450539**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	99800.000	0.10	99800	0	100	85	115				

Sample ID: **N008586-004A-DUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **85746**
Client ID: **ZZZZZZ** Batch ID: **R85746** TestNo: **EPA 120.1** Analysis Date: **9/28/2012** SeqNo: **1450548**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	16900.000	0.10						16900	0	10	

Sample ID: **N008586-004A-MS** SampType: **MS** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **85746**
Client ID: **ZZZZZZ** Batch ID: **R85746** TestNo: **EPA 120.1** Analysis Date: **9/28/2012** SeqNo: **1450549**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	123200.000	0.20	99800	16900	107	75	125				

Sample ID: **N008586-004A-MSD** SampType: **MSD** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **85746**
Client ID: **ZZZZZZ** Batch ID: **R85746** TestNo: **EPA 120.1** Analysis Date: **9/28/2012** SeqNo: **1450550**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	123200.000	0.20	99800	16900	107	75	125	123200	0	10	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *11-Oct-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-44-115-187
Lab Order:	N008585	**Collection Date:**	9/27/2012 11:27:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N008585-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_120928E**	QC Batch: **R85750**			PrepDate:			Analyst: **KAB**
Alkalinity, Bicarbonate (As CaCO3)	78	1.2	5.0		mg/L	1	9/28/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	9/28/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	9/28/2012
Alkalinity, Total (As CaCO3)	78	1.2	5.0		mg/L	1	9/28/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *11-Oct-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-61-110-187
Lab Order:	N008585	**Collection Date:**	9/27/2012 3:32:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N008585-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_120928E**	QC Batch: **R85750**			PrepDate:			Analyst: **KAB**
Alkalinity, Bicarbonate (As CaCO3)	45	1.2	5.0		mg/L	1	9/28/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	9/28/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	9/28/2012
Alkalinity, Total (As CaCO3)	45	1.2	5.0		mg/L	1	9/28/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *11-Oct-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-126-187
Lab Order:	N008585	**Collection Date:**	9/27/2012 12:02:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N008585-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_120928E**	QC Batch: **R85750**			PrepDate:			Analyst: **KAB**
Alkalinity, Bicarbonate (As CaCO3)	46	1.2	5.0		mg/L	1	9/28/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	9/28/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	9/28/2012
Alkalinity, Total (As CaCO3)	46	1.2	5.0		mg/L	1	9/28/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

Date: *11-Oct-12*

CLIENT: CH2M HILL
Work Order: N008585
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **LCS-R85750** SampType: **LCS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **85750**
Client ID: **LCSW** Batch ID: **R85750** TestNo: **SM 2320 B** Analysis Date: **9/28/2012** SeqNo: **1450670**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	94.017	5.0	100.0	0	94.0	85	115				
Alkalinity, Total (As CaCO3)	98.291	5.0	100.0	0	98.3	85	115				

Sample ID: **LCSD-R85750** SampType: **LCSD** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **85750**
Client ID: **LCSS02** Batch ID: **R85750** TestNo: **SM 2320 B** Analysis Date: **9/28/2012** SeqNo: **1450671**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	94.017	5.0	100.0	0	94.0	85	115	94.02	0	20	
Alkalinity, Total (As CaCO3)	98.291	5.0	100.0	0	98.3	85	115	98.29	0	20	

Sample ID: **MB-R85750** SampType: **MBLK** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **85750**
Client ID: **PBW** Batch ID: **R85750** TestNo: **SM 2320 B** Analysis Date: **9/28/2012** SeqNo: **1450672**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	2.137	5.0									
Alkalinity, Carbonate (As CaCO3)	ND	5.0									
Alkalinity, Hydroxide (As CaCO3)	ND	5.0									
Alkalinity, Total (As CaCO3)	2.137	5.0									

Sample ID: **N008583-001E-DUP** SampType: **DUP** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **85750**
Client ID: **ZZZZZZ** Batch ID: **R85750** TestNo: **SM 2320 B** Analysis Date: **9/28/2012** SeqNo: **1450674**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	116.453	5.0						116.5	0	30	
Alkalinity, Carbonate (As CaCO3)	ND	5.0						0	0	30	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0						0	0	30	
Alkalinity, Total (As CaCO3)	116.453	5.0						116.5	0	30	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

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CLIENT: CH2M HILL
Work Order: N008585
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **N008583-001E-MS** SampType: **MS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **85750**
Client ID: **ZZZZZZ** Batch ID: **R85750** TestNo: **SM 2320 B** Analysis Date: **9/28/2012** SeqNo: **1450675**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	207.265	5.0	100.0	116.5	90.8	75	125				
Alkalinity, Total (As CaCO3)	211.538	5.0	100.0	116.5	95.1	75	125				

Sample ID: **N008583-001E-MSD** SampType: **MSD** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **85750**
Client ID: **ZZZZZZ** Batch ID: **R85750** TestNo: **SM 2320 B** Analysis Date: **9/28/2012** SeqNo: **1450676**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	207.265	5.0	100.0	116.5	90.8	75	125	207.3	0	20	
Alkalinity, Total (As CaCO3)	211.538	5.0	100.0	116.5	95.1	75	125	211.5	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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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *11-Oct-12*

CLIENT: CH2M HILL
Lab Order: N008585
Project: PG&E Topock, 423575.MP.02.GM.03
Lab ID: N008585-001

Client Sample ID: MW-44-115-187
Collection Date: 9/27/2012 11:27:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_120928A** QC Batch: **R85841** PrepDate: Analyst: **QBM**							
Chloride	3200	11	500		mg/L	1000	9/28/2012 07:44 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_120928A** QC Batch: **R85841** PrepDate: Analyst: **QBM**							
Sulfate	770	3.5	50		mg/L	100	9/28/2012 07:56 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_120928A** QC Batch: **R85841** PrepDate: Analyst: **QBM**							
Nitrate as N	ND	0.070	2.5		mg/L	5	9/28/2012 03:22 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *11-Oct-12*

CLIENT: CH2M HILL
Lab Order: N008585
Project: PG&E Topock, 423575.MP.02.GM.03
Lab ID: N008585-002

Client Sample ID: MW-61-110-187
Collection Date: 9/27/2012 3:32:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_120928A** QC Batch: **R85841** PrepDate: Analyst: **QBM**							
Chloride	5400	11	500		mg/L	1000	9/28/2012 08:07 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_120928A** QC Batch: **R85841** PrepDate: Analyst: **QBM**							
Sulfate	690	3.5	50		mg/L	100	9/28/2012 08:19 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_120928A** QC Batch: **R85841** PrepDate: Analyst: **QBM**							
Nitrate as N	ND	0.070	2.5		mg/L	5	9/28/2012 03:34 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *11-Oct-12*

CLIENT: CH2M HILL
Lab Order: N008585
Project: PG&E Topock, 423575.MP.02.GM.03
Lab ID: N008585-003

Client Sample ID: MW-126-187
Collection Date: 9/27/2012 12:02:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_120928A** QC Batch: **R85841** PrepDate: Analyst: **QBM**							
Chloride	5300	11	500		mg/L	1000	9/28/2012 08:31 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_120928A** QC Batch: **R85841** PrepDate: Analyst: **QBM**							
Sulfate	700	3.5	50		mg/L	100	9/28/2012 08:42 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_120928A** QC Batch: **R85841** PrepDate: Analyst: **QBM**							
Nitrate as N	ND	0.070	2.5		mg/L	5	9/28/2012 03:46 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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CLIENT: CH2M HILL
Work Order: N008585
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **MB-R85841_CL** SampType: **MBLK** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **85841**
Client ID: **PBW** Batch ID: **R85841** TestNo: **EPA 300.0** Analysis Date: **9/28/2012** SeqNo: **1454298**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.50									

Sample ID: **LCS-R85841_CL** SampType: **LCS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **85841**
Client ID: **LCSW** Batch ID: **R85841** TestNo: **EPA 300.0** Analysis Date: **9/28/2012** SeqNo: **1454299**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.367	0.50	2.500	0	94.7	90	110				

Sample ID: **N008583-001DDUP** SampType: **DUP** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **85841**
Client ID: **ZZZZZZ** Batch ID: **R85841** TestNo: **EPA 300.0** Analysis Date: **9/28/2012** SeqNo: **1454306**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	36.250	5.0						36.57	0.879	20	

Sample ID: **N008583-002DMS** SampType: **MS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **85841**
Client ID: **ZZZZZZ** Batch ID: **R85841** TestNo: **EPA 300.0** Analysis Date: **9/28/2012** SeqNo: **1454307**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	109.240	10	50.00	61.72	95.0	80	120				

Sample ID: **N008583-002DMSD** SampType: **MSD** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **85841**
Client ID: **ZZZZZZ** Batch ID: **R85841** TestNo: **EPA 300.0** Analysis Date: **9/28/2012** SeqNo: **1454308**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	110.260	10	50.00	61.72	97.1	80	120	109.2	0.929	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: N008585
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **N008583-003DMS** SampType: **MS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **85841**
Client ID: **ZZZZZZ** Batch ID: **R85841** TestNo: **EPA 300.0** Analysis Date: **9/28/2012** SeqNo: **1454312**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	263.600	25	125.0	143.8	95.8	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

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CLIENT: CH2M HILL
Work Order: N008585
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **MB-R85841_SO4** SampType: **MBLK** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **85841**
Client ID: **PBW** Batch ID: **R85841** TestNo: **EPA 300.0** Analysis Date: **9/28/2012** SeqNo: **1454328**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID: **LCS-R85841_SO4** SampType: **LCS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **85841**
Client ID: **LCSW** Batch ID: **R85841** TestNo: **EPA 300.0** Analysis Date: **9/28/2012** SeqNo: **1454329**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.959	0.50	5.000	0	99.2	90	110				

Sample ID: **N008583-001DDUP** SampType: **DUP** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **85841**
Client ID: **ZZZZZZ** Batch ID: **R85841** TestNo: **EPA 300.0** Analysis Date: **9/28/2012** SeqNo: **1454336**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	40.610	5.0						41.16	1.35	20	

Sample ID: **N008583-002DMS** SampType: **MS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **85841**
Client ID: **ZZZZZZ** Batch ID: **R85841** TestNo: **EPA 300.0** Analysis Date: **9/28/2012** SeqNo: **1454337**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	187.980	10	100.0	93.00	95.0	80	120				

Sample ID: **N008583-002DMSD** SampType: **MSD** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **85841**
Client ID: **ZZZZZZ** Batch ID: **R85841** TestNo: **EPA 300.0** Analysis Date: **9/28/2012** SeqNo: **1454338**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	193.480	10	100.0	93.00	100	80	120	188.0	2.88	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N008585
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **N008583-003DMS** SampType: **MS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **85841**
Client ID: **ZZZZZZ** Batch ID: **R85841** TestNo: **EPA 300.0** Analysis Date: **9/28/2012** SeqNo: **1454345**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	450.300	25	250.0	212.8	95.0	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: N008585
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 300W_NO3PGE

Sample ID: **MB-R85841_NO3** SampType: **MBLK** TestCode: **300W_NO3P** Units: **mg/L** Prep Date: RunNo: **85841**
Client ID: **PBW** Batch ID: **R85841** TestNo: **EPA 300.0** Analysis Date: **9/28/2012** SeqNo: **1454229**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate as N	ND	0.50									

Sample ID: **LCS-R85841_NO3** SampType: **LCS** TestCode: **300W_NO3P** Units: **mg/L** Prep Date: RunNo: **85841**
Client ID: **LCSW** Batch ID: **R85841** TestNo: **EPA 300.0** Analysis Date: **9/28/2012** SeqNo: **1454230**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate as N	2.397	0.50	2.500	0	95.9	90	110				

Sample ID: **N008583-001DDUP** SampType: **DUP** TestCode: **300W_NO3P** Units: **mg/L** Prep Date: RunNo: **85841**
Client ID: **ZZZZZZ** Batch ID: **R85841** TestNo: **EPA 300.0** Analysis Date: **9/28/2012** SeqNo: **1454235**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate as N	0.078	0.50						0.07500	0	20	

Sample ID: **N008583-002DMS** SampType: **MS** TestCode: **300W_NO3P** Units: **mg/L** Prep Date: RunNo: **85841**
Client ID: **ZZZZZZ** Batch ID: **R85841** TestNo: **EPA 300.0** Analysis Date: **9/28/2012** SeqNo: **1454236**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate as N	2.761	0.50	2.500	0.4030	94.3	80	120				

Sample ID: **N008583-002DMSD** SampType: **MSD** TestCode: **300W_NO3P** Units: **mg/L** Prep Date: RunNo: **85841**
Client ID: **ZZZZZZ** Batch ID: **R85841** TestNo: **EPA 300.0** Analysis Date: **9/28/2012** SeqNo: **1454237**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate as N	2.750	0.50	2.500	0.4030	93.9	80	120	2.761	0.399	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
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CLIENT: CH2M HILL
Work Order: N008585
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 300W_NO3PGE

Sample ID: **N008584-001BMS** SampType: **MS** TestCode: **300W_NO3P** Units: **mg/L** Prep Date: RunNo: **85841**
Client ID: **ZZZZZZ** Batch ID: **R85841** TestNo: **EPA 300.0** Analysis Date: **9/28/2012** SeqNo: **1454249**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate as N	2.739	0.50	2.500	0.4380	92.0	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CH2MHILL

CHAIN OF CUSTODY RECORD

N008585

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.~~06.TS~~ .03.GM.03
Task Order
Project 2012-GMP-187SAMPLEMETHODT
Turnaround Time 10 Days
Shipping Date: 9/12/2012
COC Number: ATL-187SMT

	Specific Conductance (E120.1)	Anions (E300.0) Chloride,Sulfate,Nitrate	Anions (E300.0) Chloride,Sulfate,Nitrate,Fluoride	Alkalinity (SM2320B)	Extra (*)
Container:	1x1 Liter	1x1 Liter	1x1 Liter	1x1 Liter	1Liter Poly
Preservatives:	4°C	4°C	4°C	4°C	4°C
Filtered:	NA	NA	NA	NA	NA
Holding Time:	2	2	2	2	30

DATE	TIME	Matrix	Specific Conductance (E120.1)	Anions (E300.0) Chloride,Sulfate,Nitrate	Anions (E300.0) Chloride,Sulfate,Nitrate,Fluoride	Alkalinity (SM2320B)	Extra (*)			Number of Containers	COMMENTS
9-27-12	1127	Water	X	X		X		Sample ID: MW-44-115-187	N008585-1	1	
	1532		X	X		X	X	MW-61-110-187	-2	1	
	1202		X	X		X	X	MW-126-187	-3	1	

	Signatures	Date/Time
Approved by		9-27-12
Sampled by		1700
Relinquished by		
Received by		9/27/12 1700
Relinquished by		9/27/12 1900
Received by		9/27/12 1900

Shipping Details
Method of Shipment: FedEx
On Ice: ~~yes~~ no 2.5°C (pH 1)
Airbill No:
Lab Name: ADVANCED TECHNOLOGY LABORATO
Lab Phone: (702) 307-2659

ATTN:
Sample Custody
and
Marlon

Special Instructions:

Report Copy to
Shawn Duffy
(530) 229-3303

Advanced Technology Laboratories, Inc.

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	9/27/2012	Workorder:	N008585
Rep sample Temp (Deg C):	2.8	IR Gun ID:	1
Temp Blank:	☐ Yes ☑ No		
Carrier name:	ATL		
Last 4 digits of Tracking No.:	na	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☐	No ☐	NA ☑
15. Did the bottle labels indicate correct preservatives used?	Yes ☐	No ☐	NA ☑
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments:

Checklist Completed B MBC 9/28/12

Reviewed By:

Sample ID: **N008585-001A @ pH 8.15**

A. Standardization of Sulfuric Acid (titrant):

Normality of acid = (A)(B)/(53.00)(C)

Where:

A, grams weighed for Na_2CO_3 solution (Na_2CO_3 Standardization Solution)
B, mL Na2CO3 solution taken for titration, and
C, ml of sulfuric acid used to inflection point

Spike Standards

Na_2CO_3 Standardization Solution, ACS Grade (1.00 ml = 2500ug as $CaCO_3$): Dissolve 2.650 grams of Na_2CO_3 in distilled water and dilute to 1 liter.

LCS/MS/MSD Stock $NaHCO_3$, ACS Grade (1.00 ml = 5000 ug as $CaCO_3$): Dissolve 0.8398 grams of $NaHCO_3$ in distilled water and dilute to 1 liter.

Therefore,

Normality of Acid = (2.65g/L) (5mL) / (53.00) (11.70mL)

= **0.02137 N**

B. CALCULATION OF ALKALINITY (for a 50 ml sample)

Total Alkalinity (as $CaCO_3$), mg/L = $M_{vol.}$ * N H_2SO_4 * DF * 1000

Where:

$M_{vol.}$, volume titrant used to reach pH 4.5, ml
N, Normality of H_2SO_4
DF, Dilution Factor = (50 ml) / (Vol. of Sample used)

Therefore,

Total Alkalinity (as $CaCO_3$), mg/L = (3.65) (0.02137N) (1) * 1000

= **78.00 mg/L**

Reporting results in two significant figures,

= **78 mg/L** as CaCO3

C. SPECIATED ALKALINITY:

Phenolphthalein Alkalinity

P alkalinity, mg/L as $CaCO_3$ = $P_{vol.}$ * N H_2SO_4 * DF * 1000

= (0) (0.02137 N) (1) * 1000

= **0**

Total Alkalinity

T alkalinity, mg/L as $CaCO_3$ = $M_{vol.}$ * N H_2SO_4 * DF * 1000

= (3.65mL) (0.02137) (1) * 1000

= **78.00 mg/L** as CaCO3

Where:

$P_{vol.}$ - volume titrant used to reach pH 8.3, ml
$M_{vol.}$ - volume titrant used to reach pH 4.5, ml
N - Normality of H_2SO_4
DF - Dilution Factor = (50 ml) / (Vol. of Sample used)

Then OH, CO_3, HCO_3 alkalinities as $CaCO_3$ will be calculated as follows:

Result of Titration	**OH Alkalinity as $CaCO_3$**	**CO_3 Alkalinity as $CaCO_3$**	**HCO_3 Alkalinity as $CaCO_3$**
P = 0	0	0	T
P < ½ T	0	2P	T – 2P
P = ½ T	0	2P	0
P > ½ T	2P – T	2(T – P)	0
P = T	T	0	0

Therefore,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = **78.00 mg/L**

Reporting results in two significant figures,

OH Alkalinity as $CaCO_3$ = **0**

MS 10/1/2012

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = **78 mg/L**

Sample Calculation

METHOD: EPA 300
TEST NAME: INORGANIC ANIONS BY IC
MATRIX: WATER

FORMULA:

Calculate the ~~Nitrate~~ CHLORIDE concentration, in mg/L, in the original sample as follows: MS 10/11/2012

Chloride, mg/L = A * DF

where:

A = mg/L, IC calculated concentration
DF = dilution factor

For **N008585-001A**, concentration in mg/L are calculated as follows:

Chloride, mg/L = 3.225 * 1000

= 3225 mg/L

Reporting **N008585-001A**, results in two significant figures,

Chloride, mg/L = 3200 mg/L Analyt

MS 10/11/2012

October 16, 2012

Shawn P. Duffy
CH2M HILL
155 Grand Avenue, Suite 1000
Oakland, CA 94612

TEL: (530) 229-3303
FAX: (530) 339-3303

CA-ELAP No.: 2676
NV Cert. No.: NV-009222007A

Workorder No.: N008618

RE: PG&E Topock, 423575.MP.02.GM.03

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on October 02, 2012 by Advanced Technology Laboratories, Inc. . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

for

Jose Tenorio Jr.
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and Advanced Technology Laboratories - Las Vegas.

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.03
Lab Order: N008618

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.

Advanced Technology Laboratories, Inc.

Date: *16-Oct-12*

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.03
Lab Order: N008618
Contract No: 2012-GMP-187

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N008618-001A	MW-12-187	Water	10/2/2012 10:39:00 AM	10/2/2012	10/16/2012
N008618-002A	MW-59-100-187	Water	10/2/2012 1:24:00 PM	10/2/2012	10/16/2012
N008618-002B	MW-59-100-187	Water	10/2/2012 1:24:00 PM	10/2/2012	10/16/2012

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *16-Oct-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-12-187
Lab Order:	N008618	**Collection Date:**	10/2/2012 10:39:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N008618-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121003A**	QC Batch: **R85795**			PrepDate:			Analyst: **KAB**
Specific Conductance	7100	0.10	0.10		umhos/cm	1	10/3/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

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ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *16-Oct-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-59-100-187
Lab Order:	N008618	**Collection Date:**	10/2/2012 1:24:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N008618-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121003A**	QC Batch: **R85795**			PrepDate:			Analyst: **KAB**
Specific Conductance	9700	0.10	0.10		umhos/cm	1	10/3/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

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Advanced Technology Laboratories, Inc.

Date: *16-Oct-12*

CLIENT: CH2M HILL
Work Order: N008618
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: **LCS-R85795** SampType: **LCS** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **85795**
Client ID: **LCSW** Batch ID: **R85795** TestNo: **EPA 120.1** Analysis Date: **10/3/2012** SeqNo: **1452172**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	99900.000	0.10	99800	0	100	85	115				

Sample ID: **N008620-001B-DUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **85795**
Client ID: **ZZZZZZ** Batch ID: **R85795** TestNo: **EPA 120.1** Analysis Date: **10/3/2012** SeqNo: **1452180**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	17620.000	0.10						17630	0.0567	10	

Sample ID: **N008620-001B-MS** SampType: **MS** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **85795**
Client ID: **ZZZZZZ** Batch ID: **R85795** TestNo: **EPA 120.1** Analysis Date: **10/3/2012** SeqNo: **1452181**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	116800.000	0.20	99800	17630	99.4	75	125				

Sample ID: **N008620-001B-MSD** SampType: **MSD** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **85795**
Client ID: **ZZZZZZ** Batch ID: **R85795** TestNo: **EPA 120.1** Analysis Date: **10/3/2012** SeqNo: **1452182**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	116800.000	0.20	99800	17630	99.4	75	125	116800	0	10	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *16-Oct-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-12-187
Lab Order:	N008618	**Collection Date:**	10/2/2012 10:39:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N008618-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121003D**	QC Batch: **R85799**			PrepDate:			Analyst: **KAB**
Alkalinity, Bicarbonate (As CaCO3)	120	1.2	5.0		mg/L	1	10/3/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	10/3/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	10/3/2012
Alkalinity, Total (As CaCO3)	120	1.2	5.0		mg/L	1	10/3/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *16-Oct-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-59-100-187
Lab Order:	N008618	**Collection Date:**	10/2/2012 1:24:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N008618-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121003D**	QC Batch: **R85799**			PrepDate:			Analyst: **KAB**
Alkalinity, Bicarbonate (As CaCO3)	120	1.2	5.0		mg/L	1	10/3/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	10/3/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	10/3/2012
Alkalinity, Total (As CaCO3)	120	1.2	5.0		mg/L	1	10/3/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

Date: *16-Oct-12*

CLIENT: CH2M HILL
Work Order: N008618
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **LCS-R85799** SampType: **LCS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **85799**
Client ID: **LCSW** Batch ID: **R85799** TestNo: **SM 2320 B** Analysis Date: **10/3/2012** SeqNo: **1452197**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	97.872	5.0	100.0	0	97.9	85	115				
Alkalinity, Total (As CaCO3)	100.000	5.0	100.0	0	100	85	115				

Sample ID: **LCSD-R85799** SampType: **LCSD** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **85799**
Client ID: **LCSS02** Batch ID: **R85799** TestNo: **SM 2320 B** Analysis Date: **10/3/2012** SeqNo: **1452198**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	97.872	5.0	100.0	0	97.9	85	115	97.87	0	20	
Alkalinity, Total (As CaCO3)	100.000	5.0	100.0	0	100	85	115	100.0	0	20	

Sample ID: **MB-R85799** SampType: **MBLK** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **85799**
Client ID: **PBW** Batch ID: **R85799** TestNo: **SM 2320 B** Analysis Date: **10/3/2012** SeqNo: **1452199**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	2.128	5.0									
Alkalinity, Carbonate (As CaCO3)	ND	5.0									
Alkalinity, Hydroxide (As CaCO3)	ND	5.0									
Alkalinity, Total (As CaCO3)	2.128	5.0									

Sample ID: **N008619-004A-DUP** SampType: **DUP** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **85799**
Client ID: **ZZZZZZ** Batch ID: **R85799** TestNo: **SM 2320 B** Analysis Date: **10/3/2012** SeqNo: **1452207**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	80.851	5.0						80.85	0	30	
Alkalinity, Carbonate (As CaCO3)	ND	5.0						0	0	30	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0						0	0	30	
Alkalinity, Total (As CaCO3)	80.851	5.0						80.85	0	30	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

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CLIENT: CH2M HILL
Work Order: N008618
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **N008619-004A-MS** SampType: **MS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **85799**
Client ID: **ZZZZZZ** Batch ID: **R85799** TestNo: **SM 2320 B** Analysis Date: **10/3/2012** SeqNo: **1452208**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	179.787	5.0	100.0	80.85	98.9	75	125				
Alkalinity, Total (As CaCO3)	179.787	5.0	100.0	80.85	98.9	75	125				

Sample ID: **N008619-004A-MSD** SampType: **MSD** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **85799**
Client ID: **ZZZZZZ** Batch ID: **R85799** TestNo: **SM 2320 B** Analysis Date: **10/3/2012** SeqNo: **1452209**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	179.787	5.0	100.0	80.85	98.9	75	125	179.8	0	20	
Alkalinity, Total (As CaCO3)	179.787	5.0	100.0	80.85	98.9	75	125	179.8	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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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *16-Oct-12*

CLIENT: CH2M HILL
Lab Order: N008618
Project: PG&E Topock, 423575.MP.02.GM.03
Lab ID: N008618-001

Client Sample ID: MW-12-187
Collection Date: 10/2/2012 10:39:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121003A** QC Batch: **R85915** PrepDate: Analyst: **QBM**							
Chloride	1900	5.5	250		mg/L	500	10/3/2012 06:34 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121003A** QC Batch: **R85915** PrepDate: Analyst: **QBM**							
Sulfate	480	3.5	50		mg/L	100	10/3/2012 05:00 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121003A** QC Batch: **R85915** PrepDate: Analyst: **QBM**							
Nitrate as N	10	0.070	2.5		mg/L	5	10/3/2012 02:54 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *16-Oct-12*

CLIENT: CH2M HILL
Lab Order: N008618
Project: PG&E Topock, 423575.MP.02.GM.03
Lab ID: N008618-002

Client Sample ID: MW-59-100-187
Collection Date: 10/2/2012 1:24:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121003A** QC Batch: **R85915** PrepDate: Analyst: **QBM**							
Chloride	2900	11	500		mg/L	1000	10/3/2012 06:46 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121003A** QC Batch: **R85915** PrepDate: Analyst: **QBM**							
Sulfate	660	3.5	50		mg/L	100	10/3/2012 05:11 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121003A** QC Batch: **R85915** PrepDate: Analyst: **QBM**							
Nitrate as N	3.6	0.070	2.5		mg/L	5	10/3/2012 03:06 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: CH2M HILL
Work Order: N008618
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **MB-R85915_CL** SampType: **MBLK** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **85915**
Client ID: **PBW** Batch ID: **R85915** TestNo: **EPA 300.0** Analysis Date: **10/3/2012** SeqNo: **1458399**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.50									

Sample ID: **LCS-R85915_CL** SampType: **LCS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **85915**
Client ID: **LCSW** Batch ID: **R85915** TestNo: **EPA 300.0** Analysis Date: **10/3/2012** SeqNo: **1458400**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.370	0.50	2.500	0	94.8	90	110				

Sample ID: **N008616-006CDUP** SampType: **DUP** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **85915**
Client ID: **ZZZZZZ** Batch ID: **R85915** TestNo: **EPA 300.0** Analysis Date: **10/3/2012** SeqNo: **1458404**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	59.140	5.0						60.67	2.55	20	

Sample ID: **N008616-006CMS** SampType: **MS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **85915**
Client ID: **ZZZZZZ** Batch ID: **R85915** TestNo: **EPA 300.0** Analysis Date: **10/3/2012** SeqNo: **1458405**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	85.370	5.0	25.00	60.67	98.8	80	120				

Sample ID: **N008616-006CMSD** SampType: **MSD** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **85915**
Client ID: **ZZZZZZ** Batch ID: **R85915** TestNo: **EPA 300.0** Analysis Date: **10/3/2012** SeqNo: **1458406**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	84.110	5.0	25.00	60.67	93.8	80	120	85.37	1.49	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: N008618
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **MB-R85915_SO4** SampType: **MBLK** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **85915**
Client ID: **PBW** Batch ID: **R85915** TestNo: **EPA 300.0** Analysis Date: **10/3/2012** SeqNo: **1458423**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID: **LCS-R85915_SO4** SampType: **LCS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **85915**
Client ID: **LCSW** Batch ID: **R85915** TestNo: **EPA 300.0** Analysis Date: **10/3/2012** SeqNo: **1458424**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.953	0.50	5.000	0	99.1	90	110				

Sample ID: **N008616-006CDUP** SampType: **DUP** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **85915**
Client ID: **ZZZZZZ** Batch ID: **R85915** TestNo: **EPA 300.0** Analysis Date: **10/3/2012** SeqNo: **1458431**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	44.040	5.0						44.57	1.20	20	

Sample ID: **N008616-006CMS** SampType: **MS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **85915**
Client ID: **ZZZZZZ** Batch ID: **R85915** TestNo: **EPA 300.0** Analysis Date: **10/3/2012** SeqNo: **1458432**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	92.910	5.0	50.00	44.57	96.7	80	120				

Sample ID: **N008616-006CMSD** SampType: **MSD** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **85915**
Client ID: **ZZZZZZ** Batch ID: **R85915** TestNo: **EPA 300.0** Analysis Date: **10/3/2012** SeqNo: **1458433**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	91.900	5.0	50.00	44.57	94.7	80	120	92.91	1.09	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

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CLIENT: CH2M HILL
Work Order: N008618
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **N008609-002BMS** SampType: **MS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **85915**
Client ID: **ZZZZZZ** Batch ID: **R85915** TestNo: **EPA 300.0** Analysis Date: **10/3/2012** SeqNo: **1458445**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	1498.900	50	500.0	975.4	105	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: N008618
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 300W_NO3PGE

Sample ID: **MB-R85915_NO3** SampType: **MBLK** TestCode: **300W_NO3P** Units: **mg/L** Prep Date: RunNo: **85915**
Client ID: **PBW** Batch ID: **R85915** TestNo: **EPA 300.0** Analysis Date: **10/3/2012** SeqNo: **1458352**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate as N	ND	0.50									

Sample ID: **LCS-R85915_NO3** SampType: **LCS** TestCode: **300W_NO3P** Units: **mg/L** Prep Date: RunNo: **85915**
Client ID: **LCSW** Batch ID: **R85915** TestNo: **EPA 300.0** Analysis Date: **10/3/2012** SeqNo: **1458353**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate as N	2.407	0.50	2.500	0	96.3	90	110				

Sample ID: **N008616-005CMS** SampType: **MS** TestCode: **300W_NO3P** Units: **mg/L** Prep Date: RunNo: **85915**
Client ID: **ZZZZZZ** Batch ID: **R85915** TestNo: **EPA 300.0** Analysis Date: **10/3/2012** SeqNo: **1458356**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate as N	2.909	0.50	2.500	0.4940	96.6	80	120				

Sample ID: **N008616-005CMSD** SampType: **MSD** TestCode: **300W_NO3P** Units: **mg/L** Prep Date: RunNo: **85915**
Client ID: **ZZZZZZ** Batch ID: **R85915** TestNo: **EPA 300.0** Analysis Date: **10/3/2012** SeqNo: **1458357**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate as N	2.924	0.50	2.500	0.4940	97.2	80	120	2.909	0.514	20	

Sample ID: **N008616-006CDUP** SampType: **DUP** TestCode: **300W_NO3P** Units: **mg/L** Prep Date: RunNo: **85915**
Client ID: **ZZZZZZ** Batch ID: **R85915** TestNo: **EPA 300.0** Analysis Date: **10/3/2012** SeqNo: **1458358**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate as N	1.000	0.50						0.9710	2.94	20	

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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CH2MHILL

CHAIN OF CUSTODY RECORD

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.~~06.TS~~
Task Order .02.GM.03
Project 2012-GMP-187~~SAMPLEMETHOD~~
Turnaround Time 10 Days
Shipping Date: ~~9/12/2012~~ 10-9-12
COC Number: ATL-187SMT

	Specific Conductance (E120.1)	Anions (E300.0) Chloride,Sulfate,Nitrate	Anions (E300.0) Chloride,Sulfate,Nitrate,Fluoride	Alkalinity (SM2320B)	Extra (*)
Container:	1x1 Liter	1x1 Liter	1x1 Liter	1x1 Liter	1Liter Poly
Preservatives:	4°C	4°C	4°C	4°C	4°C
Filtered:	NA	NA	NA	NA	NA
Holding Time:	2	2	2	2	30

DATE	TIME	Matrix	Specific Conductance (E120.1)	Anions (E300.0) Chloride,Sulfate,Nitrate	Anions (E300.0) Chloride,Sulfate,Nitrate,Fluoride	Alkalinity (SM2320B)	Extra (*)		Number of Containers	COMMENTS
10-2-12	1039	Water	X	X		X		Sample ID: MW-12-187 N0086 18-1	1	
↓	1324	↓	X	X		X	X	MW-59-100-187 ↓ -2	2	

	Signatures	Date/Time
Approved by		
Sampled by		10-2-12
Relinquished by		1624
Received by	MBEARTON	10/2/12 1624
Relinquished by		
Received by		

Shipping Details
Method of Shipment: FedEx
On Ice: (yes) / no 4.6 IR1 ICE
Airbill No:
Lab Name: ADVANCED TECHNOLOGY LABORATO
Lab Phone: (702) 307-2659

ATTN:
Sample Custody
and
Marlon

Special Instructions:

Report Copy to
Shawn Duffy
(530) 229-3303

Advanced Technology Laboratories, Inc.

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	10/2/2012	Workorder:	N008618
Rep sample Temp (Deg C):	4.6	IR Gun ID:	1
Temp Blank:	☐ Yes ☑ No		
Carrier name:	ATL		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☐	No ☐	NA ☑
15. Did the bottle labels indicate correct preservatives used?	Yes ☐	No ☐	NA ☑
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments:

Checklist Completed B MBC 10/3/12

Reviewed By:

Sample ID: **N008618-001A @ pH 8.21**

A. Standardization of Sulfuric Acid (titrant):

Normality of acid = (A)(B)/(53.00)(C)

Where:

A, grams weighed for Na_2CO_3 solution (Na_2CO_3 Standardization Solution)
B, mL Na2CO3 solution taken for titration, and
C, ml of sulfuric acid used to inflection point

Spike Standards

Na_2CO_3 Standardization Solution, ACS Grade (1.00 ml = 2500ug as $CaCO_3$): Dissolve 2.650 grams of Na_2CO_3 in distilled water and dilute to 1 liter.

LCS/MS/MSD Stock $NaHCO_3$, ACS Grade (1.00 ml = 5000 ug as $CaCO_3$): Dissolve 0.8398 grams of $NaHCO_3$ in distilled water and dilute to 1 liter.

Therefore,

Normality of Acid = (2.65g/L) (5mL) / (53.00) (11.75mL)

= **0.02128 N**

B. CALCULATION OF ALKALINITY (for a 50 ml sample)

Total Alkalinity (as $CaCO_3$), mg/L = $M_{vol.}$ * N H_2SO_4 * DF * 1000

Where:

$M_{vol.}$, volume titrant used to reach pH 4.5, ml
N, Normality of H_2SO_4
DF, Dilution Factor = (50 ml) / (Vol. of Sample used)

Therefore,

Total Alkalinity (as $CaCO_3$), mg/L = (5.45) (0.02128N) (1) * 1000

= **115.98 mg/L**

Reporting results in two significant figures,

= **120 mg/L** as CaCO3

C. SPECIATED ALKALINITY:

Phenolphthalein Alkalinity

P alkalinity, mg/L as $CaCO_3$ = $P_{vol.}$ * N H_2SO_4 * DF * 1000

= (0) (0.02128 N) (1) * 1000

= **0**

Total Alkalinity

T alkalinity, mg/L as $CaCO_3$ = $M_{vol.}$ * N H_2SO_4 * DF * 1000

= (5.45mL) (0.02128) (1) * 1000

= **115.98 mg/L** as CaCO3

Where:

$P_{vol.}$ - volume titrant used to reach pH 8.3, ml
$M_{vol.}$ - volume titrant used to reach pH 4.5, ml
N - Normality of H_2SO_4
DF - Dilution Factor = (50 ml) / (Vol. of Sample used)

Then OH, CO_3, HCO_3 alkalinities as $CaCO_3$ will be calculated as follows:

Result of Titration	OH Alkalinity as $CaCO_3$	CO_3 Alkalinity as $CaCO_3$	HCO_3 Alkalinity as $CaCO_3$
P = 0	0	0	T
P < ½ T	0	2P	T – 2P
P = ½ T	0	2P	0
P > ½ T	2P – T	2(T – P)	0
P = T	T	0	0

Therefore,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = **115.98 mg/L**

Reporting results in two significant figures,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = **120 mg/L**

MS 10/5/2012

Sample Calculation

METHOD: EPA 300
TEST NAME: INORGANIC ANIONS BY IC
MATRIX: WATER

FORMULA:

Calculate the Nitrate concentration, in mg/L, in the original sample as follows:

Nitrate, mg/L = A * DF

where:

A = mg/L, IC calculated concentration
DF = dilution factor

For **N008618-001A**, concentration in mg/L are calculated as follows:

Nitrate, mg/L	=	2.098 * 5
	=	10.49 mg/L

Reporting **N008618-001A**, results in two significant figures,

Nitrate, mg/L	**=**	**10 mg/L**

MS 10/15/2012

October 17, 2012

Shawn P. Duffy
CH2M HILL
155 Grand Avenue, Suite 1000
Oakland, CA 94612

TEL: (530) 229-3303
FAX: (530) 339-3303

CA-ELAP No.: 2676
NV Cert. No.: NV-009222007A

Workorder No.: N008636

RE: PG&E Topock, 423575.MP.02.GM.03

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on October 03, 2012 by Advanced Technology Laboratories, Inc. . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

for Jose Tenorio

Jose Tenorio Jr.
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and Advanced Technology Laboratories - Las Vegas.

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.03
Lab Order: N008636

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.

Advanced Technology Laboratories, Inc.

Date: *17-Oct-12*

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.03
Lab Order: N008636
Contract No: 2012-GMP-187

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N008636-001A	MW-50-200-187	Water	10/3/2012 2:17:00 PM	10/3/2012	10/17/2012
N008636-002A	MW-125-187	Water	10/3/2012 12:20:00 PM	10/3/2012	10/17/2012

Advanced Technology Laboratories, Inc.
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ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *17-Oct-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-50-200-187
Lab Order:	N008636	**Collection Date:**	10/3/2012 2:17:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N008636-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121004A**	QC Batch: **R85809**			PrepDate:			Analyst: **KAB**
Specific Conductance	22000	0.10	0.10		umhos/cm	1	10/4/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

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ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *17-Oct-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-125-187
Lab Order:	N008636	**Collection Date:**	10/3/2012 12:20:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N008636-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
EPA 120.1							
RunID: **WETCHEM_121004A**	QC Batch: **R85809**			PrepDate:			Analyst: **KAB**
Specific Conductance	22000	0.10	0.10		umhos/cm	1	10/4/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

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Advanced Technology Laboratories, Inc.

Date: *17-Oct-12*

CLIENT: CH2M HILL
Work Order: N008636
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: **LCS-R85809** SampType: **LCS** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **85809**
Client ID: **LCSW** Batch ID: **R85809** TestNo: **EPA 120.1** Analysis Date: **10/4/2012** SeqNo: **1452442**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	99800.000	0.10	99800	0	100	85	115				

Sample ID: **N008636-002A-DUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **85809**
Client ID: **ZZZZZZ** Batch ID: **R85809** TestNo: **EPA 120.1** Analysis Date: **10/4/2012** SeqNo: **1452454**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	22200.000	0.10						22200	0	10	

Sample ID: **N008636-002A-MS** SampType: **MS** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **85809**
Client ID: **ZZZZZZ** Batch ID: **R85809** TestNo: **EPA 120.1** Analysis Date: **10/4/2012** SeqNo: **1452455**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	120000.000	0.20	99800	22200	98.0	75	125				

Sample ID: **N008636-002A-MSD** SampType: **MSD** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **85809**
Client ID: **ZZZZZZ** Batch ID: **R85809** TestNo: **EPA 120.1** Analysis Date: **10/4/2012** SeqNo: **1452456**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	120000.000	0.20	99800	22200	98.0	75	125	120000	0	10	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

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ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *17-Oct-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-50-200-187
Lab Order:	N008636	**Collection Date:**	10/3/2012 2:17:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N008636-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121004B**	QC Batch: **R85833**			PrepDate:			Analyst: **KAB**
Alkalinity, Bicarbonate (As CaCO3)	36	1.2	5.0		mg/L	1	10/4/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	10/4/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	10/4/2012
Alkalinity, Total (As CaCO3)	36	1.2	5.0		mg/L	1	10/4/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *17-Oct-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-125-187
Lab Order:	N008636	**Collection Date:**	10/3/2012 12:20:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N008636-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121004B**	QC Batch: **R85833**			PrepDate:			Analyst: **KAB**
Alkalinity, Bicarbonate (As CaCO3)	37	1.2	5.0		mg/L	1	10/4/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	10/4/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	10/4/2012
Alkalinity, Total (As CaCO3)	37	1.2	5.0		mg/L	1	10/4/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

Date: *17-Oct-12*

CLIENT: CH2M HILL
Work Order: N008636
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **LCS-R85833** SampType: **LCS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **85833**
Client ID: **LCSW** Batch ID: **R85833** TestNo: **SM 2320 B** Analysis Date: **10/4/2012** SeqNo: **1453947**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	99.138	5.0	100.0	0	99.1	85	115				
Alkalinity, Total (As CaCO3)	101.293	5.0	100.0	0	101	85	115				

Sample ID: **LCSD-R85833** SampType: **LCSD** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **85833**
Client ID: **LCSS02** Batch ID: **R85833** TestNo: **SM 2320 B** Analysis Date: **10/4/2012** SeqNo: **1453948**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	98.060	5.0	100.0	0	98.1	85	115	99.14	1.09	20	
Alkalinity, Total (As CaCO3)	100.216	5.0	100.0	0	100	85	115	101.3	1.07	20	

Sample ID: **MB-R85833** SampType: **MBLK** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **85833**
Client ID: **PBW** Batch ID: **R85833** TestNo: **SM 2320 B** Analysis Date: **10/4/2012** SeqNo: **1453949**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	2.155	5.0									
Alkalinity, Carbonate (As CaCO3)	ND	5.0									
Alkalinity, Hydroxide (As CaCO3)	ND	5.0									
Alkalinity, Total (As CaCO3)	2.155	5.0									

Sample ID: **N008636-002A-DUP** SampType: **DUP** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **85833**
Client ID: **ZZZZZZ** Batch ID: **R85833** TestNo: **SM 2320 B** Analysis Date: **10/4/2012** SeqNo: **1453956**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	36.638	5.0						36.64	0	30	
Alkalinity, Carbonate (As CaCO3)	ND	5.0						0	0	30	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0						0	0	30	
Alkalinity, Total (As CaCO3)	36.638	5.0						36.64	0	30	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

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CLIENT: CH2M HILL
Work Order: N008636
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **N008636-002A-MS** SampType: **MS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **85833**
Client ID: **ZZZZZZ** Batch ID: **R85833** TestNo: **SM 2320 B** Analysis Date: **10/4/2012** SeqNo: **1453957**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	135.776	5.0	100.0	36.64	99.1	75	125				
Alkalinity, Total (As CaCO3)	135.776	5.0	100.0	36.64	99.1	75	125				

Sample ID: **N008636-002A-MSD** SampType: **MSD** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **85833**
Client ID: **ZZZZZZ** Batch ID: **R85833** TestNo: **SM 2320 B** Analysis Date: **10/4/2012** SeqNo: **1453958**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	135.776	5.0	100.0	36.64	99.1	75	125	135.8	0	20	
Alkalinity, Total (As CaCO3)	135.776	5.0	100.0	36.64	99.1	75	125	135.8	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

Advanced Technology Laboratories, Inc.

Print Date: *17-Oct-12*

CLIENT: CH2M HILL
Lab Order: N008636
Project: PG&E Topock, 423575.MP.02.GM.03
Lab ID: N008636-001

Client Sample ID: MW-50-200-187
Collection Date: 10/3/2012 2:17:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121004A** QC Batch: **R85946** PrepDate: Analyst: **QBM**							
Chloride	7300	11	500		mg/L	1000	10/4/2012 05:40 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121004A** QC Batch: **R85946** PrepDate: Analyst: **QBM**							
Sulfate	1000	3.5	50		mg/L	100	10/4/2012 05:52 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121004A** QC Batch: **R85946** PrepDate: Analyst: **QBM**							
Nitrate as N	5.2	0.070	2.5		mg/L	5	10/4/2012 04:42 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Advanced Technology Laboratories, Inc.

Print Date: *17-Oct-12*

CLIENT: CH2M HILL
Lab Order: N008636
Project: PG&E Topock, 423575.MP.02.GM.03
Lab ID: N008636-002

Client Sample ID: MW-125-187
Collection Date: 10/3/2012 12:20:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121004A** QC Batch: **R85946** PrepDate: Analyst: **QBM**							
Chloride	7300	11	500		mg/L	1000	10/4/2012 06:27 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121004A** QC Batch: **R85946** PrepDate: Analyst: **QBM**							
Sulfate	1000	3.5	50		mg/L	100	10/4/2012 06:39 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121004A** QC Batch: **R85946** PrepDate: Analyst: **QBM**							
Nitrate as N	5.2	0.070	2.5		mg/L	5	10/4/2012 04:54 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.
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CLIENT: CH2M HILL
Work Order: N008636
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **MB-R85946_CL** SampType: **MBLK** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **85946**
Client ID: **PBW** Batch ID: **R85946** TestNo: **EPA 300.0** Analysis Date: **10/4/2012** SeqNo: **1459263**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.50									

Sample ID: **LCS-R85946_CL** SampType: **LCS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **85946**
Client ID: **LCSW** Batch ID: **R85946** TestNo: **EPA 300.0** Analysis Date: **10/4/2012** SeqNo: **1459264**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.380	0.50	2.500	0	95.2	90	110				

Sample ID: **N008629-004CMS** SampType: **MS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **85946**
Client ID: **ZZZZZZ** Batch ID: **R85946** TestNo: **EPA 300.0** Analysis Date: **10/4/2012** SeqNo: **1459268**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	43.790	2.5	12.50	30.30	108	80	120				

Sample ID: **N008629-004CMSD** SampType: **MSD** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **85946**
Client ID: **ZZZZZZ** Batch ID: **R85946** TestNo: **EPA 300.0** Analysis Date: **10/4/2012** SeqNo: **1459269**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	43.960	2.5	12.50	30.30	109	80	120	43.79	0.387	20	

Sample ID: **N008635-004ADUP** SampType: **DUP** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **85946**
Client ID: **ZZZZZZ** Batch ID: **R85946** TestNo: **EPA 300.0** Analysis Date: **10/4/2012** SeqNo: **1459276**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	510.900	50						548.3	7.06	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

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CLIENT: CH2M HILL
Work Order: N008636
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **MB-R85946_SO4** SampType: **MBLK** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **85946**
Client ID: **PBW** Batch ID: **R85946** TestNo: **EPA 300.0** Analysis Date: **10/4/2012** SeqNo: **1459285**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID: **LCS-R85946_SO4** SampType: **LCS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **85946**
Client ID: **LCSW** Batch ID: **R85946** TestNo: **EPA 300.0** Analysis Date: **10/4/2012** SeqNo: **1459286**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.938	0.50	5.000	0	98.8	90	110				

Sample ID: **N008629-001CDUP** SampType: **DUP** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **85946**
Client ID: **ZZZZZZ** Batch ID: **R85946** TestNo: **EPA 300.0** Analysis Date: **10/4/2012** SeqNo: **1459288**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	14.410	0.50						14.48	0.464	20	

Sample ID: **N008629-004CMS** SampType: **MS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **85946**
Client ID: **ZZZZZZ** Batch ID: **R85946** TestNo: **EPA 300.0** Analysis Date: **10/4/2012** SeqNo: **1459293**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	47.950	2.5	25.00	22.74	101	80	120				

Sample ID: **N008629-004CMSD** SampType: **MSD** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **85946**
Client ID: **ZZZZZZ** Batch ID: **R85946** TestNo: **EPA 300.0** Analysis Date: **10/4/2012** SeqNo: **1459294**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	48.370	2.5	25.00	22.74	103	80	120	47.95	0.872	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N008636
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 300W_NO3PGE

Sample ID: **MB-R85946_NO3** SampType: **MBLK** TestCode: **300W_NO3P** Units: **mg/L** Prep Date: RunNo: **85946**
Client ID: **PBW** Batch ID: **R85946** TestNo: **EPA 300.0** Analysis Date: **10/4/2012** SeqNo: **1459239**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate as N	ND	0.50									

Sample ID: **LCS-R85946_NO3** SampType: **LCS** TestCode: **300W_NO3P** Units: **mg/L** Prep Date: RunNo: **85946**
Client ID: **LCSW** Batch ID: **R85946** TestNo: **EPA 300.0** Analysis Date: **10/4/2012** SeqNo: **1459240**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate as N	2.382	0.50	2.500	0	95.3	90	110				

Sample ID: **N008629-001CDUP** SampType: **DUP** TestCode: **300W_NO3P** Units: **mg/L** Prep Date: RunNo: **85946**
Client ID: **ZZZZZZ** Batch ID: **R85946** TestNo: **EPA 300.0** Analysis Date: **10/4/2012** SeqNo: **1459243**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate as N	ND	0.50						0	0	20	

Sample ID: **N008629-004CMS** SampType: **MS** TestCode: **300W_NO3P** Units: **mg/L** Prep Date: RunNo: **85946**
Client ID: **ZZZZZZ** Batch ID: **R85946** TestNo: **EPA 300.0** Analysis Date: **10/4/2012** SeqNo: **1459244**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate as N	2.348	0.50	2.500	0	93.9	80	120				

Sample ID: **N008629-004CMSD** SampType: **MSD** TestCode: **300W_NO3P** Units: **mg/L** Prep Date: RunNo: **85946**
Client ID: **ZZZZZZ** Batch ID: **R85946** TestNo: **EPA 300.0** Analysis Date: **10/4/2012** SeqNo: **1459245**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate as N	2.345	0.50	2.500	0	93.8	80	120	2.348	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		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CH2MHILL

CHAIN OF CUSTODY RECORD

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.~~06.TS~~ .03.GM.03
Task Order
Project 2012-GMP-187~~SAMPLEMETHODT~~
Turnaround Time 10 Days
Shipping Date: ~~9/12/2012~~ 10-3-12
COC Number: ATL-187SMT

Container:				1x1 Liter	1x1 Liter	1x1 Liter	1x1 Liter	1Liter Poly			
Preservatives:				4°C	4°C	4°C	4°C	4°C			
Filtered:				NA	NA	NA	NA	NA			
Holding Time:				2	2	2	2	30			
	DATE	TIME	Matrix	Specific Conductance (E120.1)	Anions (E300.0) Chloride,Sulfate,Nitrate	Anions (E300.0) Chloride,Sulfate,Nitrate,Fluoride	Alkalinity (SM2320B)	Extra (*)		Number of Containers	COMMENTS
	10-3-12	1417	water	X	X		X		Sample ID: MW-50-200-187 N00E6316-1	1	
	1	1820	1	X	X		X		MW-125-187 ↓ -2	1	

	Signatures	Date/Time
Approved by		10-3-12
Sampled by		1615
Relinquished by		
Received by		10-3-12
Relinquished by		1615
Received by		10-3-12 1820

Shipping Details
Method of Shipment: FedEx
On Ice: (yes) no 42 IR1 ICE
Airbill No:
Lab Name: ADVANCED TECHNOLOGY LABORATO
Lab Phone: (702) 307-2659

ATTN:
Sample Custody
and
Marlon

Special Instructions:

Report Copy to
Shawn Duffy
(530) 229-3303

Advanced Technology Laboratories, Inc.

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	10/3/2012	Workorder:	N008636
Rep sample Temp (Deg C):	4.2	IR Gun ID:	1
Temp Blank:	☐ Yes ☑ No		
Carrier name:	ATL		
Last 4 digits of Tracking No.:	na	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☐	No ☐	NA ☑
15. Did the bottle labels indicate correct preservatives used?	Yes ☐	No ☐	NA ☑
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments:

Checklist Completed B MBC 10/4/12

Reviewed By:

Sample ID: **N008636-001A @ pH 7.65**

A. Standardization of Sulfuric Acid (titrant):

Normality of acid = (A)(B)/(53.00)(C)

Where:

A, grams weighed for Na_2CO_3 solution (Na_2CO_3 Standardization Solution)
B, mL Na2CO3 solution taken for titration, and
C, ml of sulfuric acid used to inflection point

Spike Standards

Na_2CO_3 Standardization Solution, ACS Grade (1.00 ml = 2500ug as $CaCO_3$):
Dissolve 2.650 grams of Na_2CO_3 in distilled water and dilute to 1 liter.

LCS/MS/MSD Stock $NaHCO_3$, ACS Grade (1.00 ml = 5000 ug as $CaCO_3$):
Dissolve 0.8398 grams of $NaHCO_3$ in distilled water and dilute to 1 liter.

Therefore,

Normality of Acid = (2.65g/L) (5mL) / (53.00) (11.60mL)

= **0.02155 N**

B. CALCULATION OF ALKALINITY (for a 50 ml sample)

Total Alkalinity (as $CaCO_3$), mg/L = $M_{vol.}$ * N H_2SO_4 * DF * 1000

Where:

$M_{vol.}$, volume titrant used to reach pH 4.5, ml
N, Normality of H_2SO_4
DF, Dilution Factor = (50 ml) / (Vol. of Sample used)

Therefore,

Total Alkalinity (as $CaCO_3$), mg/L = (1.65) (0.02155N) (1) * 1000

= **35.56 mg/L**

Reporting results in two significant figures,

= **36 mg/L** as CaCO3

NS for
10/8/12

C. SPECIATED ALKALINITY:

Phenolphthalein Alkalinity

P alkalinity, mg/L as $CaCO_3$ = $P_{vol.}$ * N H_2SO_4 * DF * 1000

= (0) (0.02155 N) (1) * 1000

= **0**

Total Alkalinity

T alkalinity, mg/L as $CaCO_3$ = $M_{vol.}$ * N H_2SO_4 * DF * 1000

= (1.65mL) (0.02155) (1) * 1000

= **35.56 mg/L** as CaCO3

Where:

$P_{vol.}$ - volume titrant used to reach pH 8.3, ml
$M_{vol.}$ - volume titrant used to reach pH 4.5, ml
N - Normality of H_2SO_4
DF - Dilution Factor = (50 ml) / (Vol. of Sample used)

Then OH, CO_3, HCO_3 alkalinities as $CaCO_3$ will be calculated as follows:

Result of Titration	**OH Alkalinity as $CaCO_3$**	**CO_3 Alkalinity as $CaCO_3$**	**HCO_3 Alkalinity as $CaCO_3$**
P = 0	0	0	T
P < ½ T	0	2P	T – 2P
P = ½ T	0	2P	0
P > ½ T	2P – T	2(T – P)	0
P = T	T	0	0

Therefore,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = **35.56 mg/L**

Reporting results in two significant figures,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = **36 mg/L**

Sample Calculation

METHOD: EPA 300
TEST NAME: INORGANIC ANIONS BY IC
MATRIX: WATER

FORMULA:

Calculate the Nitrate concentration, in mg/L, in the original sample as follows:

Nitrate, mg/L = A * DF

where:

A = mg/L, IC calculated concentration
DF = dilution factor

For **N008636-001A**, concentration in mg/L are calculated as follows:

Nitrate, mg/L	=	1.045 * 5
	=	5.225 mg/L

Reporting **N008636-001A**, results in two significant figures,

Nitrate, mg/L	**=**	**5.2**

MS 10/17/2012

Sean Condon
Project Manager
Truesdail Laboratories
14201 Frankline Avenue
Tustin, CA 92780
Tel: 714.730.6239
Project: 2012-GMP-188SAMPLEMETHOD
Project No.: 423575.MP.02.GM.01
Email: seanc@truesdail.com

Dr. Yi Wang
Director of ZymaX Forensics Isotope
Senior Environmental Geochemist of DPRA
600 S. Andreasen Dr., Suite B
Escondido, CA 92029
Tel: 760.781.3338 ext 43
Fax: 760.781.3339
Cell: 609.721.2843
Email: yi.wang@zymaxusa.com

ZymaX FORENSICS

REPORT OF ENVIRONMENTAL FORENSICS ISOTOPE ANALYSES

Date Received: November 20th, 2012
Date Reported: December 10th, 2012

Water samples from Truesdail Lab (Sean Condon) for $\delta^{18}O$ and δD (‰ VSMOW) stable isotope analysis

ZymaX ID	Sample ID	$\delta^{18}O$	δD
42884-1	MW-124-188	-10.5	-83.4
42884-2	MW-44-125-188	-10.5	-82.5

ZymaX ID	$\delta^{18}O$	δD
QC-01	-4.7	-37.3
QC-02	-4.6	-36.8
Mean	-4.7	-37.1
Precision (STDEV)	0.1	0.4

ZYMAX FORENSICS ISOTOPE LABORATORY ANALYSES

Gas

^{13}C and D of C1 to C4; ^{13}C of CO_2; C-14 of Methane and CO_2; ^{34}S of H_2S; ^{15}N and ^{18}O of N_2O gas

Oil, Extract, Fraction and Kerogen

Compound-Specific ^{13}C and D of MTBE,Chlorinated Solvents,PAH,Gasoline,Oil; Bulk ^{13}C, D/H, ^{34}S, and ^{15}N

Water

D and ^{18}O; ^{34}S and ^{18}O of dissolved sulfate; ^{34}S of dissolved H_2S; ^{37}Cl, ^{13}C and D of chlorinated solvents

^{15}N and ^{18}O of dissolved Nitrate; ^{15}N of Ammonia; ^{13}C of dissolved CO_2 and Carbonate/Bicarbonate

Soil and Minerals:

^{13}C, ^{15}N, ^{34}S, D/H, ^{18}O; C-14 of carbonate or organics

804735

CH2MHILL

CHAIN OF CUSTODY RECORD

11/6/2012 4:18:08 PM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number ~~423575.MP.06.TS~~ 423575.MP.02.Gm.d
Task Order
Project 2012-GMP-188SAMPLEMETHOD
Turnaround Time 10 Days
Shipping Date: 11/6/2012
COC Number: 3

				Container:	250 ml Poly			
				Preservatives:	4°C			
				Filtered:	NA			
				Holding Time:	NA			
	DATE	TIME	Matrix	Oxy_Deut (CF-IRMS)			Number of Containers	COMMENTS
MW-124-188	11/6/2012	17:45	Water	x	42884-1		1	
MW-44-125-188	11/6/2012	15:10	Water	x	-2		1	
						TOTAL NUMBER OF CONTAINERS	2	

ALERT !!
Level III QC

Received by: Ryan Woon 11/20/12 11:00

	Signatures	Date/Time
Approved by		11/6/12
Sampled by		1730
Relinquished by		
Received by	Rafael Davila	11-6-12 17:30
Relinquished by	Rafael Davila	11-6-12 23:45
Received by	[illegible]	11/6/12 23:45

Shipping Details
Method of Shipment: courier
On Ice: yes / no
Airbill No:
Lab Name: Zymax Envirotechnology
Lab Phone: (805) 544-4696

ATTN:
Sample Custody
and
Michael Ng

Special Instructions:
Nov 5 - Dec 14, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

Sean Condon
Project Manager
Truesdail Laboratories
14201 Frankline Avenue
Tustin, CA 92780
Tel: 714.730.6239
Project: 2012-GMP-188SAMPLEMETHOD
Project No.: 423575.MP.06.TS
Email: seanc@truesdail.com

Dr. Yi Wang
Director of ZymaX Forensics Isotope
Senior Environmental Geochemist of DPRA
600 S. Andreasen Dr., Suite B
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Cell: 609.721.2843
Email: yi.wang@zymaxusa.com

ZymaX FORENSICS

REPORT OF ENVIRONMENTAL FORENSICS ISOTOPE ANALYSES

Date Received: November 20th, 2012
Date Reported: December 10th, 2012

Water samples from Truesdail Lab (Sean Condon) for $\delta^{18}O$ and δD (‰ VSMOW) stable isotope analysis

ZymaX ID	Sample ID	$\delta^{18}O$	δD
42886-1	MW-47-055-188	-9.3	-71.4
42886-2	MW-47-115-188	-10.3	-81.0
42886-3	MW-33-090-188	-10.2	-79.9
42886-4	MW-36-100-188	-11.2	-90.3
42886-5	MW-46-175-188	-10.3	-81.3

ZymaX ID	$\delta^{18}O$	δD
QC-01	-4.7	-37.3
QC-02	-4.6	-36.8
Mean	-4.7	-37.1
Precision (STDEV)	0.1	0.4

ZYMAX FORENSICS ISOTOPE LABORATORY ANALYSES

Gas

^{13}C and D of C1 to C4; ^{13}C of CO_2; C-14 of Methane and CO_2; ^{34}S of H_2S; ^{15}N and ^{18}O of N_2O gas

Oil, Extract, Fraction and Kerogen

Compound-Specific ^{13}C and D of MTBE,Chlorinated Solvents,PAH,Gasoline,Oil; Bulk ^{13}C, D/H, ^{34}S, and ^{15}N

Water

D and ^{18}O; ^{34}S and ^{18}O of dissolved sulfate; ^{34}S of dissolved H_2S; ^{37}Cl, ^{13}C and D of chlorinated solvents
^{15}N and ^{18}O of dissolved Nitrate; ^{15}N of Ammonia; ^{13}C of dissolved CO_2 and Carbonate/Bicarbonate

Soil and Minerals:

^{13}C, ^{15}N, ^{34}S, D/H, ^{18}O; C-14 of carbonate or organics

804916

CH2MHILL

CHAIN OF CUSTODY RECORD

11/13/2012 4:09:59 PM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.06.TS
Task Order
Project 2012-GMP-188SAMPLEMETHOD
Turnaround Time 10 Days
Shipping Date: 11/13/2012
COC Number: 12

				Container:	250 ml .Poly			
				Preservatives:	4°C			
				Filtered:	NA			
				Holding Time:	NA			
	DATE	TIME	Matrix		Oxy_Deut (CF-IRMS)		Number of Containers	COMMENTS
MW-47-055-188	11/7/2012	9:27	Water		X	42886-1	1	
MW-47-115-188	11/7/2012	14:38	Water		X	-2	1	
MW-33-090-188	11/8/2012	10:06	Water		X	-3	1	
MW-36-100-188	11/8/2012	14:21	Water		X	-4	1	
MW-46-175-188	11/9/2012	10:08	Water		X	-5	1	
						TOTAL NUMBER OF CONTAINERS	5	

Received by: Ryan Woon 11/20/12 11:00

	Signatures	Date/Time
Approved by		11-13-12
Sampled by		1700
Relinquished by		
Received by	Rafael Davila	11-13-12 17:00
Relinquished by	Rafael Davila	11-13-12 23:00
Received by	Linda, TLI	11/13/12 23:00

Relinquished by [illegible]

Shipping Details

Method of Shipment: courier
On Ice: yes / no
Airbill No:
Lab Name: Zymax Envirotechnology
Lab Phone: (805) 544-4696

ATTN:
Sample Custody
and
Michael Ng

Special Instructions:
Nov 5 - Dec 14, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

Sean Condon
Project Manager
Truesdail Laboratories
14201 Frankline Avenue
Tustin, CA 92780
Tel: 714.730.6239
Project: 2012-GMP-188SAMPLEMETHOD
Project No.: 423575.MP.06.TS
Email: seanc@truesdail.com

Dr. Yi Wang
Director of ZymaX Forensics Isotope
Senior Environmental Geochemist of DPRA
600 S. Andreasen Dr., Suite B
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Tel: 760.781.3338 ext 43
Fax: 760.781.3339
Cell: 609.721.2843
Email: yi.wang@zymaxusa.com

ZymaX FORENSICS

REPORT OF ENVIRONMENTAL FORENSICS ISOTOPE ANALYSES

Date Received: December 7th, 2012
Date Reported: January 2nd, 2013

Water samples from Truesdail Lab (Sean Condon) for $\delta^{18}O$ and δD (‰ VSMOW) stable isotope analysis

ZymaX ID	Sample ID	$\delta^{18}O$	δD
42896-1	MW-44-115-188	-10.4	-82.7

ZymaX ID	$\delta^{18}O$	δD
QC-01	-4.7	-36.3
QC-02	-4.6	-36.9
Mean	-4.7	-36.6
Precision (STDEV)	0.1	0.4

ZYMAX FORENSICS ISOTOPE LABORATORY ANALYSES

Gas

^{13}C and D of C1 to C4; ^{13}C of CO_2; C-14 of Methane and CO_2; ^{34}S of H_2S; ^{15}N and ^{18}O of N_2O gas

Oil, Extract, Fraction and Kerogen

Compound-Specific ^{13}C and D of MTBE,Chlorinated Solvents,PAH,Gasoline,Oil; Bulk ^{13}C, D/H, ^{34}S, and ^{15}N

Water

D and ^{18}O; ^{34}S and ^{18}O of dissolved sulfate; ^{34}S of dissolved H_2S; ^{37}Cl, ^{13}C and D of chlorinated solvents
^{15}N and ^{18}O of dissolved Nitrate; ^{15}N of Ammonia; ^{13}C of dissolved CO_2 and Carbonate/Bicarbonate

Soil and Minerals:

^{13}C, ^{15}N, ^{34}S, D/H, ^{18}O; C-14 of carbonate or organics

CH2MHILL

CHAIN OF CUSTODY RECORD

11/26/2012 4:02:35 PM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.06.TS
Task Order
Project 2012-GMP-188SAMPLEMETHOD
Turnaround Time 10 Days
Shipping Date: 11/26/2012
COC Number: 18

				Container:	250 ml Poly			
				Preservatives:	4°C			
				Filtered:	NA			
				Holding Time:	NA			
	DATE	TIME	Matrix		Oxy_Deut (CF-IRMS)		Number of Containers	COMMENTS
MW-44-115-188	11/26/2012	11:36	Water		x	42896-1	1	
						TOTAL NUMBER OF CONTAINERS	1	

Received by: [illegible] 12/7/12 9:30

	Signatures	Date/Time
Approved by		11-27-12
Sampled by		1600
Relinquished by		
Received by	Rafael Davila	11-27-12 16:00
Relinquished by	Rafael Davila	11-27-12 22:00
Received by	Lucio TLT	11/27/12 22:00
Relinquished by	[illegible]	12/8/12

Shipping Details

Method of Shipment: courier
On Ice: yes / no
Airbill No:
Lab Name: Zymax Envirotechnology
Lab Phone: (805) 544-4696

ATTN:
Sample Custody
and
Michael Ng

Special Instructions:
Nov 5 - Dec 14, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

Sean Condon
Project Manager
Truesdail Laboratories
14201 Frankline Avenue
Tustin, CA 92780
Tel: 714.730.6239
Project: 2012-GMP-188SAMPLEMETHOD
Project No.: 423575.MP.06.TS
Email: seanc@truesdail.com

Dr. Yi Wang
Director of ZymaX Forensics Isotope
Senior Environmental Geochemist of DPRA
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Tel: 760.781.3338 ext 43
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Cell: 609.721.2843
Email: yi.wang@zymaxusa.com

ZymaX FORENSICS

REPORT OF ENVIRONMENTAL FORENSICS ISOTOPE ANALYSES

Date Received: December 7th, 2012
Date Reported: January 2nd, 2013

Water samples from Truesdail Lab (Sean Condon) for $\delta^{18}O$ and δD (‰ VSMOW) stable isotope analysis

ZymaX ID	Sample ID	$\delta^{18}O$	δD
42897-1	MW-20-070-188	-7.8	-62.6

ZymaX ID	$\delta^{18}O$	δD
QC-01	-4.7	-36.3
QC-02	-4.6	-36.9
Mean	-4.7	-36.6
Precision (STDEV)	0.1	0.4

ZYMAX FORENSICS ISOTOPE LABORATORY ANALYSES

Gas

^{13}C and D of C1 to C4; ^{13}C of CO_2; C-14 of Methane and CO_2; ^{34}S of H_2S; ^{15}N and ^{18}O of N_2O gas

Oil, Extract, Fraction and Kerogen

Compound-Specific ^{13}C and D of MTBE,Chlorinated Solvents,PAH,Gasoline,Oil; Bulk ^{13}C, D/H, ^{34}S, and ^{15}N

Water

D and ^{18}O; ^{34}S and ^{18}O of dissolved sulfate; ^{34}S of dissolved H_2S; ^{37}Cl, ^{13}C and D of chlorinated solvents
^{15}N and ^{18}O of dissolved Nitrate; ^{15}N of Ammonia; ^{13}C of dissolved CO_2 and Carbonate/Bicarbonate

Soil and Minerals:

^{13}C, ^{15}N, ^{34}S, D/H, ^{18}O; C-14 of carbonate or organics

CH2MHILL

CHAIN OF CUSTODY RECORD

11/27/2012 3:29:17 PM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.06.TS
Task Order
Project 2012-GMP-188SAMPLEMETHOD
Turnaround Time 10 Days
Shipping Date: 12/4/2012
COC Number: 7

				Container:	Preservatives:	Filtered:	Holding Time:			
				250 ml Poly	4°C	NA	NA			
	DATE	TIME	Matrix	Oxy_Deut (CF-IRMS)					Number of Containers	COMMENTS
MW-20-070-188	11/27/2012	15:16	Water	x	42897-1				1	
								TOTAL NUMBER OF CONTAINERS	1	

Received by: Ryan Woon 12/7/12 9:30

	Signatures	Date/Time
Approved by		11-27-12
Sampled by		1600
Relinquished by		
Received by	Rafael Davila	11-27-12 16:00
Relinquished by	Rafael Davila	11-27-12 22:00
Received by	Leedy, TEI	11/27/12 22:00

Shipping Details
Method of Shipment: courier
On Ice: yes / no
Airbill No:
Lab Name: Zymax Envirotechnology
Lab Phone: (805) 544-4696

ATTN:
Sample Custody
and
Michael Ng

Special Instructions:
Nov 5 - Dec 14, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

Sean Condon
Project Manager
Truesdail Laboratories
14201 Frankline Avenue
Tustin, CA 92780
Tel: 714.730.6239
Project: 2012-GMP-188SAMPLEMETHOD
Project No.: 423575.MP.02.GM.01
Email: seanc@truesdail.com

Dr. Yi Wang
Director of ZymaX Forensics Isotope
Senior Environmental Geochemist of DPRA
600 S. Andreasen Dr., Suite B
Escondido, CA 92029
Tel: 760.781.3338 ext 43
Fax: 760.781.3339
Cell: 609.721.2843
Email: yi.wang@zymaxusa.com

ZymaX FORENSICS

REPORT OF ENVIRONMENTAL FORENSICS ISOTOPE ANALYSES

Date Received: December 7th, 2012
Date Reported: January 2nd, 2013

Water samples from Truesdail Lab (Sean Condon) for $\delta^{18}O$ and δD (‰ VSMOW) stable isotope analysis

ZymaX ID	Sample ID	$\delta^{18}O$	δD
42899-1	MW-123-188	-6.6	-60.4
42899-2	MW-20-100-188	-7.0	-56.6
42899-3	MW-20-130-188	-6.6	-59.5

ZymaX ID	$\delta^{18}O$	δD
QC-01	-4.7	-36.3
QC-02	-4.6	-36.9
Mean	-4.7	-36.6
Precision (STDEV)	0.1	0.4

ZYMAX FORENSICS ISOTOPE LABORATORY ANALYSES

Gas

^{13}C and D of C1 to C4; ^{13}C of CO_2; C-14 of Methane and CO_2; ^{34}S of H_2S; ^{15}N and ^{18}O of N_2O gas

Oil, Extract, Fraction and Kerogen

Compound-Specific ^{13}C and D of MTBE,Chlorinated Solvents,PAH,Gasoline,Oil; Bulk ^{13}C, D/H, ^{34}S, and ^{15}N

Water

D and ^{18}O; ^{34}S and ^{18}O of dissolved sulfate; ^{34}S of dissolved H_2S; ^{37}Cl, ^{13}C and D of chlorinated solvents

^{15}N and ^{18}O of dissolved Nitrate; ^{15}N of Ammonia; ^{13}C of dissolved CO_2 and Carbonate/Bicarbonate

Soil and Minerals:

^{13}C, ^{15}N, ^{34}S, D/H, ^{18}O; C-14 of carbonate or organics

CH2MHILL

CHAIN OF CUSTODY RECORD

12/3/2012 12:49:11 PM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.~~06.TS~~
Task Order 02.GMN.01
Project 2012-GMP-188SAMPLEMETHOD
Turnaround Time 10 Days
Shipping Date: 12/4/2012
COC Number: 14

				Container:	250 ml Poly			
				Preservatives:	4°C			
				Filtered:	NA			
				Holding Time:	NA			
	DATE	TIME	Matrix	Oxy_Deut (CF-IRMS)			Number of Containers	COMMENTS
MW-123-188	11/29/2012	17:45	Water	X	47899-1		1	
MW-20-100-188	11/29/2012	15:45	Water	X	-2		1	
MW-20-130-188	11/29/2012	15:44	Water	X	-3		1	
						TOTAL NUMBER OF CONTAINERS	3	

Received by: Ryan Woon 12/7/12 9:30

	Signatures	Date/Time
Approved by		12-4-12
Sampled by		1620
Relinquished by		
Received by	Rafael Davila	12/4/12 16:20
Relinquished by	Rafael Davila	12-4-12 22:30
Received by	[illegible]	12/4/12 22:30
	[illegible]	12/6/12

Shipping Details

Method of Shipment: courier
On Ice: yes / no
Airbill No:
Lab Name: Zymax Envirotechnology
Lab Phone: (805) 544-4696

ATTN:

Sample Custody
and
Michael Ng

Special Instructions:

Nov 5 - Dec 14, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

14201 FRANKLIN AVENUE
TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462
www.truesdail.com

December 4, 2012

E2 Consulting Engineers, Inc.
Mr. Shawn Duffy
155 Grand Ave., Suite 1000
Oakland, California 94612

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK 2012-GMP-188-Q4, GROUNDWATER MONITORING PROJECT, TLI NO.: 804726

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2012-GMP-188-Q4 groundwater-monitoring project. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, quality control data, and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data are under Section 5.

The samples were received and delivered with the chain of custody November 6, 2012, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

No violations or non-conformance actions occurred for this data package.

If you have any questions or require additional information, please contact me at (714) 730-6239 ext. 200.

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.
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Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy

Laboratory No.: 804726
Date Received: November 6, 2012

Project Name: PG&E Topock Project
Project No.: 423575.MP.02.GM.01
P.O. No.: 423575.MP.02.GM.01

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
804726-001	MW-50-095-188	E218.6	FLDFLT	11/5/2012	14:05	Chromium, Hexavalent	12.9	ug/L	0.20
804726-001	MW-50-095-188	SW6010B	FLDFLT	11/5/2012	14:05	Calcium	116	mg/L	5.00
804726-001	MW-50-095-188	SW6010B	FLDFLT	11/5/2012	14:05	Iron	ND	ug/L	20.0
804726-001	MW-50-095-188	SW6010B	FLDFLT	11/5/2012	14:05	Magnesium	12.8	mg/L	0.500
804726-001	MW-50-095-188	SW6010B	FLDFLT	11/5/2012	14:05	Sodium	902	mg/L	100
804726-001	MW-50-095-188	SW6020	FLDFLT	11/5/2012	14:05	Arsenic	2.3	ug/L	0.50
804726-001	MW-50-095-188	SW6020	FLDFLT	11/5/2012	14:05	Chromium	12.5	ug/L	1.0
804726-001	MW-50-095-188	SW6020	FLDFLT	11/5/2012	14:05	Manganese	ND	ug/L	0.50
804726-001	MW-50-095-188	SW6020	FLDFLT	11/5/2012	14:05	Molybdenum	16.2	ug/L	2.0
804726-001	MW-50-095-188	SW6020	FLDFLT	11/5/2012	14:05	Selenium	ND	ug/L	5.0
804726-002	MW-49-188	E218.6	FLDFLT	11/5/2012	16:28	Chromium, Hexavalent	ND	ug/L	0.20
804726-003	MW-50-188	E218.6	FLDFLT	11/5/2012	16:20	Chromium, Hexavalent	ND	ug/L	0.20
804726-004	MW-52-188	E218.6	FLDFLT	11/5/2012	17:00	Chromium, Hexavalent	ND	ug/L	0.20
804726-005	MW-110-188	E218.6	FLDFLT	11/5/2012	16:16	Chromium, Hexavalent	ND	ug/L	0.20
804726-005	MW-110-188	SW6020	FLDFLT	11/5/2012	16:16	Chromium	ND	ug/L	1.0

ND: Non Detected (below reporting limit)
mg/L: Milligrams per liter.
Note: The following "Significant Figures" rule has been applied to all results:
Results below 0.01ppm will have two (2) significant figures.
Result above or equal to 0.01ppm will have three (3) significant figures.
Quality Control data will always have three (3) significant figures.

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REPORT

Client: **E2 Consulting Engineers, Inc.**
155 Grand Avenue, Suite 800
Oakland, CA 94612
Attention: Shawn Duffy
Project Name: PG&E Topock Project
Project Number: 423575.MP.02.GM
P.O. Number: 423575.MP.02.GM
Release Number:

Laboratory No. 804726

Printed 12/4/2012

Samples Received on 11/6/2012 11:45:00 PM

Field ID	Lab ID	Collected	Matrix
MW-50-095-188	804726-001	11/05/2012 14:05	Water
MW-49-188	804726-002	11/05/2012 16:28	Water
MW-50-188	804726-003	11/05/2012 16:20	Water
MW-52-188	804726-004	11/05/2012 17:00	Water
MW-110-188	804726-005	11/05/2012 16:16	Water

Chrome VI by EPA 218.6 Batch 11CrH12D

Parameter	Unit	Analyzed	DF	MDL	RL	Result
804726-001 Chromium, Hexavalent	ug/L	11/08/2012 11:19	1.00	0.00920	0.20	12.9
804726-002 Chromium, Hexavalent	ug/L	11/08/2012 12:11	1.00	0.00920	0.20	ND
804726-003 Chromium, Hexavalent	ug/L	11/08/2012 12:43	1.00	0.00920	0.20	ND
804726-004 Chromium, Hexavalent	ug/L	11/08/2012 12:53	1.00	0.00920	0.20	ND
804726-005 Chromium, Hexavalent	ug/L	11/08/2012 13:03	1.00	0.00920	0.20	ND

Method Blank

Parameter	Unit	DF	Result
Chromium, Hexavalent	ug/L	1.00	ND

Duplicate — Lab ID = 804723-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	6.87	6.88	0.141	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.195	0.200	97.7	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.95	5.00	99.0	90 - 110

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Matrix Spike — Lab ID = 804722-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.07	1.09(1.00)	97.8	90 - 110

Matrix Spike — Lab ID = 804722-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	1720	1760(1000)	96.1	90 - 110

Matrix Spike — Lab ID = 804723-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	16.4	16.9(10.0)	95.4	90 - 110

Matrix Spike — Lab ID = 804724-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.0300	29.0	29.0(15.0)	99.7	90 - 110

Matrix Spike — Lab ID = 804724-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.0300	28.0	28.0(15.0)	100	90 - 110

Matrix Spike — Lab ID = 804725-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	8.10	8.35(5.00)	95.1	90 - 110

Matrix Spike — Lab ID = 804725-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	34.1	34.9(25.0)	96.9	90 - 110

Matrix Spike — Lab ID = 804726-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.0300	27.8	27.9(15.0)	99.5	90 - 110

Matrix Spike — Lab ID = 804726-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.936	1.00(1.00)	93.6	90 - 110

Matrix Spike — Lab ID = 804726-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.971	1.00(1.00)	97.1	90 - 110

Matrix Spike — Lab ID = 804726-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.973	1.00(1.00)	97.3	90 - 110

Matrix Spike — Lab ID = 804726-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.962	1.00(1.00)	96.2	90 - 110

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Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project Page 4 of 17
Project Number: 423575.MP.02.GM Printed 12/4/2012

Metals by EPA 6020A, Dissolved

Batch 112812C

Parameter	Unit	Analyzed	DF	MDL	RL	Result
804726-001 Chromium	ug/L	11/29/2012 03:05	2.50	0.230	1.0	12.5
Selenium	ug/L	11/29/2012 03:05	2.50	0.200	5.0	ND
804726-005 Chromium	ug/L	11/29/2012 03:19	2.50	0.230	1.0	ND

Method Blank

Parameter	Unit	DF	Result
Chromium	ug/L	1.00	ND
Selenium	ug/L	1.00	ND

Duplicate

Lab ID = 804723-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	2.50	7.44	7.40	0.472	0 - 20
Selenium	ug/L	2.50	ND	0	0	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.176	0.200	88.2	70 - 130
Selenium	ug/L	1.00	0.416	0.500	83.1	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	2.50	46.2	50.0	92.5	85 - 115
Selenium	ug/L	2.50	43.6	50.0	87.2	85 - 115

Matrix Spike

Lab ID = 804723-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.50	53.7	57.4(50.0)	92.6	75 - 125
Selenium	ug/L	2.50	43.7	50.0(50.0)	87.4	75 - 125

Matrix Spike Duplicate

Lab ID = 804723-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.50	56.5	57.4(50.0)	98.1	75 - 125
Selenium	ug/L	2.50	44.1	50.0(50.0)	88.2	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.6	20.0	103	90 - 110
Selenium	ug/L	1.00	18.6	20.0	93.2	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.7	20.0	93.6	90 - 110

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Metals by EPA 6020A, Dissolved

Batch 112812D

Parameter	Unit	Analyzed	DF	MDL	RL	Result
804726-001 Arsenic	ug/L	11/29/2012 17:56	2.50	0.250	0.50	2.3
Manganese	ug/L	11/29/2012 17:56	2.50	0.215	0.50	ND

Method Blank

Parameter	Unit	DF	Result
Arsenic	ug/L	1.00	ND
Manganese	ug/L	1.00	ND

Duplicate

Lab ID = 804723-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Arsenic	ug/L	2.50	3.83	4.18	8.76	0 - 20
Manganese	ug/L	2.50	46.9	46.8	0.192	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	0.236	0.200	118	70 - 130
Manganese	ug/L	1.00	0.177	0.200	88.4	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	2.50	46.0	50.0	92.0	85 - 115
Manganese	ug/L	2.50	49.9	50.0	99.7	85 - 115

Matrix Spike

Lab ID = 804723-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	2.50	49.8	54.2(50.0)	91.2	75 - 125
Manganese	ug/L	2.50	90.8	96.8(50.0)	88.0	75 - 125

Matrix Spike Duplicate

Lab ID = 804723-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	2.50	50.8	54.2(50.0)	93.3	75 - 125
Manganese	ug/L	2.50	93.7	96.8(50.0)	93.9	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	20.1	20.0	100	90 - 110
Manganese	ug/L	1.00	20.0	20.0	100	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	19.4	20.0	96.9	90 - 110

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Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project Page 11 of 17
Project Number: 423575.MP.02.GM Printed 12/4/2012

Metals by EPA 6020A, Dissolved

Batch 120212A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
804726-001 Molybdenum	ug/L	12/02/2012 20:31	2.50	0.518	2.0	16.2

Method Blank

Parameter	Unit	DF	Result
Molybdenum	ug/L	1.00	ND

Duplicate — Lab ID = 804723-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Molybdenum	ug/L	2.50	22.2	22.6	1.88	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Molybdenum	ug/L	1.00	0.593	0.500	118	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Molybdenum	ug/L	2.50	53.9	50.0	108	85 - 115

Matrix Spike — Lab ID = 804723-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Molybdenum	ug/L	2.50	77.8	72.6(50.0)	110	75 - 125

Matrix Spike Duplicate — Lab ID = 804723-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Molybdenum	ug/L	2.50	76.9	72.6(50.0)	109	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Molybdenum	ug/L	1.00	19.9	20.0	99.4	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Molybdenum	ug/L	1.00	19.4	20.0	96.9	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Molybdenum	ug/L	1.00	18.9	20.0	94.6	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Molybdenum	ug/L	1.00	19.8	20.0	99.0	90 - 110

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Metals by EPA 6010B, Dissolved

Batch 111512A-Th2

Parameter	Unit	Analyzed	DF	MDL	RL	Result
804726-001 Iron	ug/L	11/15/2012 15:55	1.00	9.50	20.0	ND
Magnesium	mg/L	11/15/2012 15:55	1.00	0.0554	0.500	12.8
Sodium	mg/L	11/15/2012 13:54	100	39.4	100	902

Method Blank

Parameter	Unit	DF	Result
Iron	ug/L	1.00	ND
Sodium	mg/L	1.00	ND
Magnesium	mg/L	1.00	ND

Duplicate — Lab ID = 804328-004

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Iron	ug/L	1.00	ND	0	0	0 - 20
Sodium	mg/L	25.0	75.7	73.9	2.43	0 - 20
Magnesium	mg/L	5.00	10.5	10.4	0.957	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2120	2000	106	85 - 115
Sodium	mg/L	1.00	1.89	2.00	94.7	85 - 115
Magnesium	mg/L	1.00	2.12	2.00	106	85 - 115

Matrix Spike — Lab ID = 804328-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	2030	2000(2000)	102	75 - 125
Sodium	mg/L	25.0	127	124(50.0)	106	75 - 125
Magnesium	mg/L	5.00	19.8	20.4(10.0)	93.9	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5100	5000	102	90 - 110
Sodium	mg/L	1.00	4.76	5.00	95.1	90 - 110
Magnesium	mg/L	1.00	4.91	5.00	98.2	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5080	5000	102	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5060	5000	101	90 - 110

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Metals by EPA 6010B, Dissolved

Batch 111612A-Th2

Parameter	Unit	Analyzed	DF	MDL	RL	Result
804726-001 Calcium	mg/L	11/16/2012 14:36	10.0	0.120	5.00	116

Method Blank

Parameter	Unit	DF	Result
Calcium	mg/L	1.00	ND

Duplicate — Lab ID = 804328-004

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Calcium	mg/L	20.0	46.4	46.5	0.302	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	mg/L	1.00	2.16	2.00	108	85 - 115

Matrix Spike — Lab ID = 804328-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Calcium	mg/L	20.0	89.1	86.5(40.0)	106	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	mg/L	1.00	5.03	5.00	100	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	mg/L	1.00	4.60	5.00	92.0	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	mg/L	1.00	5.07	5.00	101	90 - 110

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	mg/L	1.00	1.96	2.00	98.0	80 - 120

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	mg/L	1.00	1.97	2.00	98.6	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	mg/L	1.00	1.94	2.00	97.2	80 - 120

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project
Project Number: 423575.MP.02.GM

Printed 12/4/2012

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	mg/L	1.00	1.93	2.00	96.4	80 - 120

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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CH2MHILL CHAIN OF CUSTODY RECORD 804726

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number ~~423575.MP.06.TS~~
Task Order 423575.MP.02.GMO1
Project 2012-GMP-188SAMPLEMETHODT
Turnaround Time 10 Days
Shipping Date: 10/19/2012
COC Number: TLI-188SMT

				Container:	250 ml Poly	2x250 ml Poly	~~2x500~~ 1x500 ml Poly	1x500 ml Poly	1x500 ml Poly	1x500 ml Poly	1x500 ml Poly	1x500 ml Poly	1x500 ml Poly			
				Preservatives:	(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C			
				Filtered:	Field	Field	Field	Field	Field	Field	Field	Field	Field			
				Holding Time:	28	28	180	180	180	180	180	180	180			
		DATE	TIME	Matrix	Cr6 (E218.6) FF	Cr6 (E218.6R) FF	Metals (6020AFF) FF Chromium	Metals (6020AFF) FF Chromium	Metals (6010BFF) FF Ca,Mg,Na,Fe	Metals (6010BFF) FF Ca,Mg,Na,Fe,K,B	Metals (6010B/6020A/7470Adis) FF Title 22:SbAsBaBeCdCrCoCuPbHgMoNiSeAgTlVZn	Metals (6020AFF) FF As,Mo,Se,Mn	Metals (6020AFF) FF As,Mo,Se,Mn,Cr	Number of Containers	pH for 6020A/6010B COMMENTS
-1	MW-50 095-188	11/5/12	1465	AW	X				X				X	2	pH=2
	~~MW~~												Total		
-2	MW-49-188	11/5/12	16:38		X									1	
-3	MW-50-188	11/5/12	16:20		X									1	
-4	MW-52-188	11/5/12	17:00		X									1	
-5	MW-110-188	11/5/12	16:14		X		X							2	pH=2
		SPD											Total	7	

Rec'd 11/06/12
S9c 804726

Please use the indicated Sampling dates and times as documented on the sample labels. Shawn P. Duffy 12/4/2012

For Sample Conditions See Form Attached

ALERT !! Level III QC

	Signatures	Date/Time
Approved by		11/6/12
Sampled by	[signature]	1800
Relinquished by		
Received by	Rafael Davila	11-6-12 18:00
Relinquished by	Rafael Davila	11-6-12 23:45
Received by	Linda, TLI	11/6/12 23:45

Shipping Details
Method of Shipment: FedEx
On Ice: yes / no
Airbill No:
Lab Name: Truesdall Laboratories, Inc.
Lab Phone: (714) 730-6239

ATTN: Sample Custody

Special Instructions: Title22:SbAsBaBeCdCoCuPbHgMoNiSeAgTlVZn

Report Copy to Shawn Duffy (530) 229-3303

CH2MHILL CHAIN OF CUSTODY RECORD 804726 Page 12 OF 81

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number ~~423575.MP.06.T6~~
Task Order 423575.MP.02.01.01
Project 2012-GMP-188SAMPLEMETHODT
Turnaround Time 10 Days
Shipping Date: 10/19/2012
COC Number: TLI-188SMT

Rec'd 11/06/12
Soc 804726

	DATE	TIME	Matrix	Cr6 (E218.6) FF	Cr6 (E218.6R) FF	Metals (6020AFF) FF Chromium	Metals (6020AFF) FF Chromium	Metals (6010BFF) FF Ca,Mg,Na,Fe	Metals (6010BFF) FF Ca,Mg,Na,Fe,K,B	Metals (6010B/6020A/7470Adis) FF Title 22:SbAsBaBeCdCrCoCuPbHgMoNiSeAgTlVZn	Metals (6020AFF) FF As,Mo,Se,Mn	Metals (6020AFF) FF As,Mo,Se,Mn,Cr	Number of Containers	COMMENTS
Container				250 ml Poly	2x250 ml Poly	~~2x500~~ 1x500 ml Poly	1x500 ml Poly	1x500 ml Poly	1x500 ml Poly	1x500 ml Poly	1x500 ml Poly	1x500 ml Poly		
Preservatives				(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C		
Filtered				Field	Field	Field	Field	Field	Field	Field	Field	Field		
Holding Time				28	28	180	180	180	180	180	180	180		
1	MW-50-095-188	11/5/12	1465	GW	X			X				X	2	pH=2
	~~MW-~~											Total		
2	MW-49-188				X								1	
3	MW-50-188				X								1	
4	MW-52-188				X								1	
5	MW-110-188				X	X							2	pH=2
												Total	7	

For Sample Conditions See Form Attached

ALERT !! Level III QC

Signatures	Date/Time
Approved by	11/6/12
Sampled by	1800
Relinquished by	
Received by	Rafael Davila 11-6-12 18:00
Relinquished by	Rafael Davila 11-6-12 23:45
Received by	Linda, TLI 11/6/12 23:45

Shipping Details
Method of Shipment: FedEx
On Ice: yes / no
Airbill No:
Lab Name: Truesdail Laboratories, Inc.
Lab Phone: (714) 730-6239

ATTN: Sample Custody

Special Instructions: Title22:SbAsBaBeCdCoCuPbHgMoNiSeAgTlVZn

Report Copy to
Shawn Duffy
(530) 229-3303

0509

Subject: RE: SDG 804726 COC Question
From: "Shawn.Duffy@CH2M.com" <Shawn.Duffy@CH2M.com>
Date: Tue, 4 Dec 2012 15:40:26 -0500
To: Sean Condon <seanc@truesdail.com>
CC: "Erlene.Contreras@CH2M.com" <Erlene.Contreras@CH2M.com>, "Priya.Kumar@CH2M.com" <Priya.Kumar@CH2M.com>

Hi Sean,

See attached for corrected COC.

Shawn

-----Original Message-----
From: Sean Condon [mailto:seanc@truesdail.com]
Sent: Tuesday, December 04, 2012 12:03 PM
To: Duffy, Shawn/RDD
Subject: SDG 804726 COC Question

Hi Shawn,

The sample date and time for the following samples were not provided on the COC. The date and time on the sample containers are as follows:

MW-49 - 11/5/12 @ 16:28
MW-50 - 11/5/12 @ 16:20
MW-52 - 11/5/12 @ 17:00
MW-110 - 11/5/12 @ 16:16

Do you want to provide a revised COC or should I just use the container times and note it in the case narrative.

Thank you,

Sean Condon
Project Manager
Truesdail Laboratories, Inc.
Phone: (714) 730-6239
Fax: (714) 730-6462

Topock-GMP-SDG 804746-COC_12-4-2012.pdf	**Content-Description:**	Topock-GMP-SDG 804746-COC_12-4-2012.pdf
	Content-Type:	application/pdf
	Content-Encoding:	base64

Hexavalent Chromium

Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
11/7/12	804724-1	9.5	N/A	N/A	N/A	[illegible]
	-2					
	804725-1					
	-2					
	804726-1					
	-2					
	-3					
	-4					
	-5					
11/8/12	804747-11	7	2mL / 100mL (Total)	9.5	8:15 Am	[illegible]
	-12				8:25 Am	
11/9/12	804777-1	7	2mL / 100mL (Total)	9.5	8:10 Am	[illegible]
	-2				8:15 Am	
	-3				8:20 Am	
	-4				8:25 Am	
	-5				8:30 Am	
	-6				8:35 Am	
	-7				8:40 Am	
	-8				8:45 Am	
	-9				8:50 Am	
	-10				8:55 Am	
	-11				9:00 Am	
11/9/12	804778-1	9.5	N/A	N/A	N/A	HAV
	-2					
	-3					
	-4					
11/9/12	804779-1	9.5	N/A	N/A	N/A	HAV
	-2					
	-3					
	-4					
	-5					
	-6					

HAV
11/12/12

C:\My Documents\Templates\Hexavalent Chromium\Cr6+ pH Log

[illegible] 11/14/12

TRUESDAIL LABORATORIES, INC.

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
804625	>1	<2	11-2-12	BE	3010A			
804626	↓	↓	↓	↓	↓			
804627	↓	↓	↓	↓	↓			
804600	<1	>2			NO	7:00 AM	11-4	PH<2
804617(10-12)	↓	↓	↓	↓	↓	↓	↓	↓
804635(1-3)	↓	↓	↓	↓	↓	↓	↓	↓
804636(1-15)	<1	<2	11/05/12	M-M	3010A			
804652(1-2,[illegible])	↓	↓	↓	↓	↓			
804647	>1	<2	11/05/12	MM	3010A			
804648	↓	↓	↓	↓	↓			
804649	↓	↓	↓	↓	↓			
804658(1,2,4)	<1	>2	11/5/12	MM	NO	4 pm	11-6	PH<2
804683(1,2,3)	<1	>1	11-6-12	BE	NO	5 pm	11-7	↓
804726(1,5)	<1	<2	11-7-12	M-M	3010A			
804725(1,2)	↓	↓	↓	↓	↓			
804722(1,2)	↓	<2,272	↓	↓	↓			
804723(1,2)	↓	>2	↓	↓	↓			
804724(1,2)	↓	↓	↓	↓	↓			
804690	—	— MM	11/07/12	M.M	TTLC	13:00	11/07/12	pH <2
804678-1	>1	~~>2~~ <2	11/07/12	MM	3010A			
804679	↓	↓	↓	↓	↓			
804680	↓	<2	↓	↓	↓			
804691	↓	↓	↓	↓	↓			
804692	↓	↓	↓	↓	↓			
804693	↓	↓	↓	↓	↓			
804694	↓	↓	↓	↓	↓			
804695	↓	↓	↓	↓	↓			
804706	↓	↓	↓	↓	↓			
804707	↓	↓	↓	↓	↓			
804708	↓	↓	↓	↓	↓			
804709	↓	↓	↓	↓	↓			
804721	↓	↓	↓	↓	↓			
804731	↓	~~>2~~	↓	↓	↓	13:00	11/07/12	pH <2
804678-2	>1	>2	11/07/2	M.M	3010A	13:00	11/07/12	pH <1
-3	↓	↓		↓	↓	↓	↓	↓
~~804300-02, 804300~~								
804300	<1	<2	10/16/12	M.M	3010A			
804301-302	↓	↓	↓	↓	↓			
804304-305	↓	↓	↓	↓	↓			
804733(1-3)	<1	>2	11-8-12	B.E	NO	5:30pm		
804720	↓	↓	↓	↓	↓	↓		
804743(10-12)	↓	↓	↓	↓	↓	↓		

Notes:
1. Samples should be analyzed after 24 hrs of pH adjustment to pH2 for Dissolved Analytes.
2. All Total Recoverable Analytes must be pH adjusted and digested.
3. Do not use disposable pipette to measure pH; pour a little amount of sample from the bottle.

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: E2 **Lab #** 804726

Date Delivered: 11 / 06 / 12 **Time:** 23:45 **By:** ☐ Mail ☒ Field Service ☐ Client

1. Was a Chain of Custody received and signed? ☒ Yes ☐ No ☐ N/A
2. Does Customer require an acknowledgement of the COC? ☐ Yes ☐ No ☒ N/A
3. Are there any special requirements or notes on the COC? ☐ Yes ☐ No ☒ N/A
4. If a letter was sent with the COC, does it match the COC? ☐ Yes ☐ No ☒ N/A
5. Were all requested analyses understood and acceptable? ☒ Yes ☐ No ☐ N/A
6. Were samples received in a chilled condition? ☒ Yes ☐ No ☐ N/A
   Temperature (if yes)? 4 °C
7. Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)? ☒ Yes ☐ No ☐ N/A
8. Were sample custody seals intact? ☐ Yes ☐ No ☒ N/A
9. Does the number of samples received agree with COC? ☒ Yes ☐ No ☐ N/A
10. Did sample labels correspond with the client ID's? ☒ Yes ☐ No ☐ N/A
11. Did sample labels indicate proper preservation? ☒ Yes ☐ No ☐ N/A
    Preserved (if yes) by: ☒ Truesdail ☐ Client
12. Were samples pH checked? pH = See C.O.C. ☒ Yes ☐ No ☐ N/A
13. Were all analyses within holding time at time of receipt? ☒ Yes ☐ No ☐ N/A
    If not, notify Project Manager.
14. Have Project due dates been checked and accepted? ☒ Yes ☐ No ☐ N/A
    Turn Around Time (TAT): ☐ RUSH ☒ Std
15. **Sample Matrix:** ☐ Liquid ☐ Drinking Water ☐ Ground Water ☐ Waste Water ☐ Sludge ☐ Soil ☐ Wipe ☐ Paint ☐ Solid ☒ Other Water
16. Comments: _____
17. Sample Check-In completed by **Truesdail** Log-In/Receiving: Linda

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TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

14201 FRANKLIN AVENUE
TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462
www.truesdail.com

December 17, 2012

E2 Consulting Engineers, Inc.
Mr. Shawn Duffy
155 Grand Ave., Suite 1000
Oakland, California 94612

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK 2012-GMP-188SAMPLEMETHODT, GROUNDWATER MONITORING PROJECT, TLI NO.: 804842

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2012-GMP-188SAMPLEMETHODT groundwater-monitoring project. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, quality control data, and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data are under Section 5.

The samples were received and delivered with the chain of custody November 13, 2012, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

Due to the discrepancy between the Total Dissolved Chromium (5.9 ug/L) and Hexavalent Chromium (ND<1.0 ug/L) results for sample MW-124-188, sample from the Total Dissolved Chromium and Hexavalent Chromium sample containers were digested and analyzed for Total Dissolved Chromium. The results were 5.8 ug/L and 6.7 ug/L, respectively. The original digestate was re-analyzed for confirmation and yielded a result of 6.0 ug/L. The original result was reported.

Due to the discrepancy between the Total Dissolved Chromium (6.4 ug/L) and Hexavalent Chromium (ND<1.0 ug/L) results for sample MW-44-125-188, sample from the Total Dissolved Chromium and Hexavalent Chromium sample containers were digested and analyzed for Total Dissolved Chromium. The results were 6.4 ug/L and 6.8 ug/L, respectively. The original digestate was re-analyzed for confirmation and yielded a result of 6.3 ug/L. The original result was reported.

No other violations or non-conformance actions occurred for this data package.

If you have any questions or require additional information, please contact me at (714) 730-6239 ext. 200.

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.
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14201 FRANKLIN AVENUE · TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462 · www.truesdail.com

Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy

Laboratory No.: 804842
Date Received: November 13, 2012

Project Name: PG&E Topock Project
Project No.: 423575.MP.06.TS
P.O. No.: 423575.MP.06.TS

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
804842-001	MW-124-188	E218.6	FLDFLT	11/6/2012	17:45	Chromium, Hexavalent	ND	ug/L	1.0
804842-001	MW-124-188	SW6010B	FLDFLT	11/6/2012	17:45	Calcium	101	mg/L	12.5
804842-001	MW-124-188	SW6010B	FLDFLT	11/6/2012	17:45	Iron	287	ug/L	20.0
804842-001	MW-124-188	SW6010B	FLDFLT	11/6/2012	17:45	Magnesium	6.46	mg/L	1.00
804842-001	MW-124-188	SW6010B	FLDFLT	11/6/2012	17:45	Sodium	2470	mg/L	1000
804842-001	MW-124-188	SW6020	FLDFLT	11/6/2012	17:45	Arsenic	3.4	ug/L	0.50
804842-001	MW-124-188	SW6020	FLDFLT	11/6/2012	17:45	Chromium	5.9	ug/L	1.0
804842-001	MW-124-188	SW6020	FLDFLT	11/6/2012	17:45	Manganese	493	ug/L	4.0
804842-001	MW-124-188	SW6020	FLDFLT	11/6/2012	17:45	Molybdenum	148	ug/L	2.5
804842-001	MW-124-188	SW6020	FLDFLT	11/6/2012	17:45	Selenium	ND	ug/L	5.0
804842-002	MW-44-125-188	E218.6	FLDFLT	11/6/2012	15:10	Chromium, Hexavalent	ND	ug/L	1.0
804842-002	MW-44-125-188	SW6010B	FLDFLT	11/6/2012	15:10	Calcium	99.3	mg/L	5.00
804842-002	MW-44-125-188	SW6010B	FLDFLT	11/6/2012	15:10	Iron	289	ug/L	20.0
804842-002	MW-44-125-188	SW6010B	FLDFLT	11/6/2012	15:10	Magnesium	6.17	mg/L	0.500
804842-002	MW-44-125-188	SW6010B	FLDFLT	11/6/2012	15:10	Sodium	2440	mg/L	200
804842-002	MW-44-125-188	SW6020	FLDFLT	11/6/2012	15:10	Arsenic	3.6	ug/L	0.50
804842-002	MW-44-125-188	SW6020	FLDFLT	11/6/2012	15:10	Chromium	6.4	ug/L	1.0
804842-002	MW-44-125-188	SW6020	FLDFLT	11/6/2012	15:10	Manganese	508	ug/L	4.0
804842-002	MW-44-125-188	SW6020	FLDFLT	11/6/2012	15:10	Molybdenum	141	ug/L	2.0
804842-002	MW-44-125-188	SW6020	FLDFLT	11/6/2012	15:10	Selenium	ND	ug/L	5.0
804842-003	MW-44-125-188EB	E218.6	FLDFLT	11/6/2012	11:30	Chromium, Hexavalent	ND	ug/L	0.20

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Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
804842-004	MW-47-055-188	E218.6	FLDFLT	11/7/2012	9:27	Chromium, Hexavalent	28.8	ug/L	0.20
804842-004	MW-47-055-188	SW6010B	FLDFLT	11/7/2012	9:27	Calcium	157	mg/L	25.0
804842-004	MW-47-055-188	SW6010B	FLDFLT	11/7/2012	9:27	Iron	ND	ug/L	20.0
804842-004	MW-47-055-188	SW6010B	FLDFLT	11/7/2012	9:27	Magnesium	26.0	mg/L	1.00
804842-004	MW-47-055-188	SW6010B	FLDFLT	11/7/2012	9:27	Sodium	638	mg/L	50.0
804842-004	MW-47-055-188	SW6020	FLDFLT	11/7/2012	9:27	Arsenic	1.1	ug/L	0.50
804842-004	MW-47-055-188	SW6020	FLDFLT	11/7/2012	9:27	Chromium	29.6	ug/L	1.0
804842-004	MW-47-055-188	SW6020	FLDFLT	11/7/2012	9:27	Manganese	ND	ug/L	0.50
804842-004	MW-47-055-188	SW6020	FLDFLT	11/7/2012	9:27	Molybdenum	11.1	ug/L	2.0
804842-004	MW-47-055-188	SW6020	FLDFLT	11/7/2012	9:27	Selenium	ND	ug/L	5.0
804842-005	MW-47-115-188	E218.6	FLDFLT	11/7/2012	14:38	Chromium, Hexavalent	17.3	ug/L	1.0
804842-005	MW-47-115-188	SW6010B	FLDFLT	11/7/2012	14:38	Calcium	344	mg/L	100
804842-005	MW-47-115-188	SW6010B	FLDFLT	11/7/2012	14:38	Iron	ND	ug/L	20.0
804842-005	MW-47-115-188	SW6010B	FLDFLT	11/7/2012	14:38	Magnesium	32.6	mg/L	1.00
804842-005	MW-47-115-188	SW6010B	FLDFLT	11/7/2012	14:38	Sodium	2760	mg/L	200
804842-005	MW-47-115-188	SW6020	FLDFLT	11/7/2012	14:38	Arsenic	1.7	ug/L	0.50
804842-005	MW-47-115-188	SW6020	FLDFLT	11/7/2012	14:38	Chromium	19.2	ug/L	1.0
804842-005	MW-47-115-188	SW6020	FLDFLT	11/7/2012	14:38	Manganese	2.4	ug/L	0.50
804842-005	MW-47-115-188	SW6020	FLDFLT	11/7/2012	14:38	Molybdenum	24.2	ug/L	2.0
804842-005	MW-47-115-188	SW6020	FLDFLT	11/7/2012	14:38	Selenium	ND	ug/L	5.0
804842-006	MW-33-090-188	E218.6	FLDFLT	11/8/2012	10:06	Chromium, Hexavalent	16.5	ug/L	1.0
804842-006	MW-33-090-188	SW6010B	FLDFLT	11/8/2012	10:06	Calcium	297	mg/L	100
804842-006	MW-33-090-188	SW6010B	FLDFLT	11/8/2012	10:06	Iron	ND	ug/L	20.0
804842-006	MW-33-090-188	SW6010B	FLDFLT	11/8/2012	10:06	Magnesium	29.3	mg/L	1.00
804842-006	MW-33-090-188	SW6010B	FLDFLT	11/8/2012	10:06	Sodium	1900	mg/L	200
804842-006	MW-33-090-188	SW6020	FLDFLT	11/8/2012	10:06	Arsenic	1.1	ug/L	0.50
804842-006	MW-33-090-188	SW6020	FLDFLT	11/8/2012	10:06	Chromium	18.2	ug/L	1.0
804842-006	MW-33-090-188	SW6020	FLDFLT	11/8/2012	10:06	Manganese	2.1	ug/L	0.50
804842-006	MW-33-090-188	SW6020	FLDFLT	11/8/2012	10:06	Molybdenum	19.4	ug/L	2.0
804842-006	MW-33-090-188	SW6020	FLDFLT	11/8/2012	10:06	Selenium	ND	ug/L	5.0

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Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
804842-007	MW-36-100-188	E218.6	FLDFLT	11/8/2012	14:21	Chromium, Hexavalent	62.7	ug/L	1.0
804842-007	MW-36-100-188	SW6010B	FLDFLT	11/8/2012	14:21	Calcium	215	mg/L	100
804842-007	MW-36-100-188	SW6010B	FLDFLT	11/8/2012	14:21	Iron	31.9	ug/L	20.0
804842-007	MW-36-100-188	SW6010B	FLDFLT	11/8/2012	14:21	Magnesium	32.2	mg/L	1.00
804842-007	MW-36-100-188	SW6010B	FLDFLT	11/8/2012	14:21	Sodium	1820	mg/L	200
804842-007	MW-36-100-188	SW6020	FLDFLT	11/8/2012	14:21	Arsenic	6.2	ug/L	0.50
804842-007	MW-36-100-188	SW6020	FLDFLT	11/8/2012	14:21	Chromium	72.8	ug/L	1.0
804842-007	MW-36-100-188	SW6020	FLDFLT	11/8/2012	14:21	Manganese	85.3	ug/L	0.50
804842-007	MW-36-100-188	SW6020	FLDFLT	11/8/2012	14:21	Molybdenum	34.9	ug/L	2.0
804842-007	MW-36-100-188	SW6020	FLDFLT	11/8/2012	14:21	Selenium	ND	ug/L	5.0
804842-008	MW-46-175-188	E218.6	FLDFLT	11/9/2012	10:08	Chromium, Hexavalent	71.0	ug/L	1.0
804842-008	MW-46-175-188	SW6010B	FLDFLT	11/9/2012	10:08	Calcium	94.6	mg/L	5.00
804842-008	MW-46-175-188	SW6010B	FLDFLT	11/9/2012	10:08	Iron	ND	ug/L	20.0
804842-008	MW-46-175-188	SW6010B	FLDFLT	11/9/2012	10:08	Magnesium	2.53	mg/L	0.500
804842-008	MW-46-175-188	SW6010B	FLDFLT	11/9/2012	10:08	Sodium	4490	mg/L	500
804842-008	MW-46-175-188	SW6020	FLDFLT	11/9/2012	10:08	Arsenic	2.0	ug/L	0.50
804842-008	MW-46-175-188	SW6020	FLDFLT	11/9/2012	10:08	Chromium	73.5	ug/L	1.0
804842-008	MW-46-175-188	SW6020	FLDFLT	11/9/2012	10:08	Manganese	9.5	ug/L	0.50
804842-008	MW-46-175-188	SW6020	FLDFLT	11/9/2012	10:08	Molybdenum	194	ug/L	2.0
804842-008	MW-46-175-188	SW6020	FLDFLT	11/9/2012	10:08	Selenium	ND	ug/L	5.0

ND: Non Detected (below reporting limit)

mg/L: Milligrams per liter.

Note: The following "Significant Figures" rule has been applied to all results:

Results below 0.01ppm will have two (2) significant figures.

Result above or equal to 0.01ppm will have three (3) significant figures.

Quality Control data will always have three (3) significant figures.

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TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

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REPORT

Client: **E2 Consulting Engineers, Inc.**
155 Grand Avenue, Suite 800
Oakland, CA 94612
Attention: Shawn Duffy
Project Name: PG&E Topock Project
Project Number: 423575.MP.06.TS
P.O. Number: 423575.MP.06.TS
Release Number:

Laboratory No. 804842

Printed 12/17/2012

Samples Received on 11/13/2012 11:00:00 PM

Field ID	Lab ID	Collected	Matrix
MW-124-188	804842-001	11/06/2012 17:45	Water
MW-44-125-188	804842-002	11/06/2012 15:10	Water
MW-44-125-188EB	804842-003	11/06/2012 11:30	Water
MW-47-055-188	804842-004	11/07/2012 09:27	Water
MW-47-115-188	804842-005	11/07/2012 14:38	Water
MW-33-090-188	804842-006	11/08/2012 10:06	Water
MW-36-100-188	804842-007	11/08/2012 14:21	Water
MW-46-175-188	804842-008	11/09/2012 10:08	Water

Chrome VI by EPA 218.6

Batch 11CrH12H

Parameter	Unit	Analyzed	DF	MDL	RL	Result
804842-001 Chromium, Hexavalent	ug/L	11/16/2012 12:24	5.00	0.0460	1.0	ND
804842-002 Chromium, Hexavalent	ug/L	11/16/2012 12:34	5.00	0.0460	1.0	ND
804842-003 Chromium, Hexavalent	ug/L	11/16/2012 10:40	1.00	0.00920	0.20	ND
804842-004 Chromium, Hexavalent	ug/L	11/16/2012 10:50	1.00	0.00920	0.20	28.8
804842-005 Chromium, Hexavalent	ug/L	11/16/2012 13:26	5.00	0.0460	1.0	17.3
804842-006 Chromium, Hexavalent	ug/L	11/16/2012 13:57	5.00	0.0460	1.0	16.5
804842-007 Chromium, Hexavalent	ug/L	11/16/2012 14:08	5.00	0.0460	1.0	62.7
804842-008 Chromium, Hexavalent	ug/L	11/16/2012 16:02	5.00	0.0460	1.0	71.0

Method Blank

Parameter	Unit	DF	Result
Chromium, Hexavalent	ug/L	1.00	ND

Duplicate — Lab ID = 804842-005

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	17.3	17.3	0.150	0 - 20

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Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.191	0.200	95.6	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.95	5.00	99.0	90 - 110

Matrix Spike — Lab ID = 804841-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.04	1.07(1.00)	97.0	90 - 110

Matrix Spike — Lab ID = 804842-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.93	5.10(5.00)	96.7	90 - 110

Matrix Spike — Lab ID = 804842-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.01	1.10(1.00)	90.5	90 - 110

Matrix Spike — Lab ID = 804842-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.03	1.08(1.00)	94.9	90 - 110

Matrix Spike — Lab ID = 804842-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.94	5.12(5.00)	96.5	90 - 110

Matrix Spike — Lab ID = 804842-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.982	1.00(1.00)	98.2	90 - 110

Matrix Spike — Lab ID = 804842-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	47.5	48.8(20.0)	93.4	90 - 110

Matrix Spike — Lab ID = 804842-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	42.4	42.3(25.0)	100	90 - 110

Matrix Spike — Lab ID = 804842-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	41.6	41.5(25.0)	100	90 - 110

Matrix Spike — Lab ID = 804842-007

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	140	138(75.0)	104	90 - 110

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Matrix Spike — Lab ID = 804842-008

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	145	146(75.0)	98.4	90 - 110

Matrix Spike — Lab ID = 804843-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.94	5.27(5.00)	93.4	90 - 110

Matrix Spike — Lab ID = 804843-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.72	1.00(1.00)	972	90 - 110

Matrix Spike — Lab ID = 804843-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	6.09	6.24(5.00)	97.1	90 - 110

Matrix Spike — Lab ID = 804843-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.84	5.00(5.00)	96.7	90 - 110

Matrix Spike — Lab ID = 804843-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.38	1.00(1.00)	938	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.92	5.00	98.4	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.96	10.0	99.6	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.97	10.0	99.7	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.97	10.0	99.7	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.96	10.0	99.6	95 - 105

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project
Project Number: 423575.MP.06.TS

Printed 12/17/2012

Metals by EPA 6020A, Dissolved Batch 120612C

Parameter		Unit	Analyzed	DF	MDL	RL	Result
804842-001	Chromium	ug/L	12/07/2012 06:19	2.50	0.230	1.0	5.9
	Manganese	ug/L	12/07/2012 09:08	20.0	1.72	4.0	493
	Molybdenum	ug/L	12/07/2012 08:11	5.00	1.04	2.5	148
	Selenium	ug/L	12/07/2012 06:19	2.50	0.200	5.0	ND
804842-002	Chromium	ug/L	12/07/2012 10:30	2.50	0.230	1.0	6.4
	Manganese	ug/L	12/07/2012 10:38	20.0	1.72	4.0	508
	Molybdenum	ug/L	12/07/2012 10:52	5.00	1.04	2.5	141
	Selenium	ug/L	12/07/2012 10:30	2.50	0.200	5.0	ND
804842-004	Chromium	ug/L	12/07/2012 11:00	2.50	0.230	1.0	29.6
	Manganese	ug/L	12/07/2012 11:00	2.50	0.215	0.50	ND
	Molybdenum	ug/L	12/07/2012 11:00	2.50	0.518	2.0	11.1
	Selenium	ug/L	12/07/2012 11:00	2.50	0.200	5.0	ND
804842-005	Chromium	ug/L	12/07/2012 11:14	2.50	0.230	1.0	19.2
	Manganese	ug/L	12/07/2012 11:14	2.50	0.215	0.50	2.4
	Molybdenum	ug/L	12/07/2012 11:14	2.50	0.518	2.0	24.2
	Selenium	ug/L	12/07/2012 11:14	2.50	0.200	5.0	ND
804842-006	Chromium	ug/L	12/07/2012 11:21	2.50	0.230	1.0	18.2
	Manganese	ug/L	12/07/2012 11:21	2.50	0.215	0.50	2.1
	Molybdenum	ug/L	12/07/2012 11:21	2.50	0.518	2.0	19.4
	Selenium	ug/L	12/07/2012 11:21	2.50	0.200	5.0	ND
804842-007	Chromium	ug/L	12/07/2012 11:53	2.50	0.230	1.0	72.8
	Manganese	ug/L	12/07/2012 11:53	2.50	0.215	0.50	85.3
	Molybdenum	ug/L	12/07/2012 11:53	2.50	0.518	2.0	34.9
	Selenium	ug/L	12/07/2012 11:53	2.50	0.200	5.0	ND
804842-008	Chromium	ug/L	12/07/2012 12:07	2.50	0.230	1.0	73.5
	Manganese	ug/L	12/07/2012 12:07	2.50	0.215	0.50	9.5
	Molybdenum	ug/L	12/07/2012 12:07	2.50	0.518	2.0	194
	Selenium	ug/L	12/07/2012 12:07	2.50	0.200	5.0	ND

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Method Blank

Parameter	Unit	DF	Result
Chromium	ug/L	1.00	ND
Selenium	ug/L	1.00	ND
Manganese	ug/L	1.00	ND
Molybdenum	ug/L	1.00	ND

Duplicate — Lab ID = 804842-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	2.50	6.08	5.88	3.36	0 - 20
Selenium	ug/L	2.50	ND	0	0	0 - 20
Manganese	ug/L	20.0	502	493	1.83	0 - 20
Molybdenum	ug/L	5.00	152	148	2.86	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.181	0.200	90.6	70 - 130
Selenium	ug/L	1.00	0.251	0.200	125	70 - 130
Manganese	ug/L	1.00	0.186	0.200	93.1	70 - 130
Molybdenum	ug/L	1.00	0.548	0.500	110	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	2.50	48.8	50.0	97.5	85 - 115
Selenium	ug/L	2.50	44.9	50.0	89.9	85 - 115
Manganese	ug/L	2.50	46.8	50.0	93.7	85 - 115
Molybdenum	ug/L	2.50	57.2	50.0	114	85 - 115

Matrix Spike — Lab ID = 804842-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.50	62.0	55.9(50.0)	112	75 - 125
Selenium	ug/L	2.50	39.1	50.0(50.0)	78.2	75 - 125
Manganese	ug/L	20.0	712	743(250)	87.7	75 - 125
Molybdenum	ug/L	5.00	198	198(50.0)	101	75 - 125

Matrix Spike Duplicate — Lab ID = 804842-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.50	56.4	55.9(50.0)	101	75 - 125
Selenium	ug/L	2.50	38.8	50.0(50.0)	77.7	75 - 125
Manganese	ug/L	20.0	706	743(250)	85.4	75 - 125
Molybdenum	ug/L	5.00	208	198(50.0)	120	75 - 125

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Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Selenium	ug/L	1.00	ND	0		
Manganese	ug/L	1.00	ND	0		

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	ND	0		
Molybdenum	ug/L	1.00	ND	0		

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Molybdenum	ug/L	1.00	ND	0		

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.7	20.0	103	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.2	20.0	101	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Selenium	ug/L	1.00	ND	0		

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Selenium	ug/L	1.00	ND	0		
Manganese	ug/L	1.00	19.3	20.0	96.6	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	19.6	20.0	98.0	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Molybdenum	ug/L	1.00	ND	0		

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Molybdenum	ug/L	1.00	ND	0		

Serial Dilution Lab ID = 804842-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Manganese	ug/L	100	494	508	2.81	0 - 10

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Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project
Project Number: 423575.MP.06.TS Printed 12/17/2012

Serial Dilution Lab ID = 804842-004

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	12.5	30.1	29.6	1.64	0 - 10

Serial Dilution Lab ID = 804842-008

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Molybdenum	ug/L	12.5	194	194	0.206	0 - 10

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Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project
Project Number: 423575.MP.06.TS Printed 12/17/2012

Metals by EPA 6020A, Dissolved

Batch 121312A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
804842-001 Arsenic	ug/L	12/13/2012 15:32	2.50	0.250	0.50	3.4
804842-002 Arsenic	ug/L	12/13/2012 16:29	2.50	0.250	0.50	3.6
804842-004 Arsenic	ug/L	12/13/2012 16:36	2.50	0.250	0.50	1.1
804842-005 Arsenic	ug/L	12/13/2012 17:12	2.50	0.250	0.50	1.7
804842-006 Arsenic	ug/L	12/13/2012 16:50	2.50	0.250	0.50	1.1
804842-007 Arsenic	ug/L	12/13/2012 16:58	2.50	0.250	0.50	6.2
804842-008 Arsenic	ug/L	12/13/2012 17:50	2.50	0.250	0.50	2.0

Method Blank

Parameter	Unit	DF	Result
Arsenic	ug/L	1.00	ND

Duplicate

Lab ID = 804842-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Arsenic	ug/L	2.50	3.27	3.42	4.51	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	0.149	0.200	74.4	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	2.50	44.2	50.0	88.4	85 - 115

Matrix Spike

Lab ID = 804842-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	2.50	44.8	53.4(50.0)	82.7	75 - 125

Matrix Spike Duplicate

Lab ID = 804842-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	2.50	44.8	53.4(50.0)	82.7	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	19.1	20.0	95.6	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	20.2	20.0	101	90 - 110

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Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project
Project Number: 423575.MP.06.TS Printed 12/17/2012

Metals by EPA 6010B, Dissolved Batch 112712A-Th2

Parameter		Unit	Analyzed	DF	MDL	RL	Result
804842-001	Calcium	mg/L	11/27/2012 13:51	25.0	0.300	12.5	101
	Iron	ug/L	11/27/2012 16:44	1.00	9.50	20.0	287
	Magnesium	mg/L	11/27/2012 14:58	2.00	0.111	1.00	6.46
	Sodium	mg/L	11/27/2012 11:38	1000	394	1000	2470
804842-002	Calcium	mg/L	11/27/2012 14:14	10.0	0.120	5.00	99.3
	Iron	ug/L	11/27/2012 15:21	1.00	9.50	20.0	289
	Magnesium	mg/L	11/27/2012 15:21	1.00	0.0554	0.500	6.17
	Sodium	mg/L	11/27/2012 11:55	200	78.8	200	2440
804842-004	Calcium	mg/L	11/27/2012 12:48	50.0	0.600	25.0	157
	Iron	ug/L	11/27/2012 17:07	1.00	9.50	20.0	ND
	Magnesium	mg/L	11/27/2012 15:27	2.00	0.111	1.00	26.0
	Sodium	mg/L	11/27/2012 12:48	50.0	19.7	50.0	638
804842-005	Calcium	mg/L	11/27/2012 12:25	200	2.40	100	344
	Iron	ug/L	11/27/2012 17:13	1.00	9.50	20.0	ND
	Magnesium	mg/L	11/27/2012 15:33	2.00	0.111	1.00	32.6
	Sodium	mg/L	11/27/2012 12:25	200	78.8	200	2760
804842-006	Calcium	mg/L	11/27/2012 12:31	200	2.40	100	297
	Iron	ug/L	11/27/2012 17:19	1.00	9.50	20.0	ND
	Magnesium	mg/L	11/27/2012 15:39	2.00	0.111	1.00	29.3
	Sodium	mg/L	11/27/2012 12:31	200	78.8	200	1900
804842-007	Calcium	mg/L	11/27/2012 12:37	200	2.40	100	215
	Iron	ug/L	11/27/2012 17:25	1.00	9.50	20.0	31.9
	Magnesium	mg/L	11/27/2012 16:03	2.00	0.111	1.00	32.2
	Sodium	mg/L	11/27/2012 12:37	200	78.8	200	1820
804842-008	Calcium	mg/L	11/27/2012 14:20	10.0	0.120	5.00	94.6
	Iron	ug/L	11/27/2012 16:09	1.00	9.50	20.0	ND
	Magnesium	mg/L	11/27/2012 16:09	1.00	0.0554	0.500	2.53
	Sodium	mg/L	11/27/2012 12:57	500	197	500	4490

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Method Blank

Parameter	Unit	DF	Result
Calcium	mg/L	1.00	ND
Iron	ug/L	1.00	ND
Sodium	mg/L	1.00	ND
Magnesium	mg/L	1.00	ND

Duplicate — Lab ID = 804842-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Calcium	mg/L	25.0	97.4	101	3.61	0 - 20
Iron	ug/L	1.00	278	287	3.22	0 - 20
Sodium	mg/L	1000	2440	2470	1.10	0 - 20
Magnesium	mg/L	2.00	6.14	6.46	5.11	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	mg/L	1.00	1.95	2.00	97.6	85 - 115
Iron	ug/L	1.00	2120	2000	106	85 - 115
Sodium	mg/L	1.00	1.89	2.00	94.5	85 - 115
Magnesium	mg/L	1.00	1.94	2.00	97.0	85 - 115

Matrix Spike — Lab ID = 804842-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Calcium	mg/L	25.0	145	151(50.0)	87.4	75 - 125
Iron	ug/L	1.00	2100	2290(2000)	90.6	75 - 125
Sodium	mg/L	1000	4950	4470(2000)	124	75 - 125
Magnesium	mg/L	2.00	10.0	10.5(4.00)	89.5	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	mg/L	1.00	4.73	5.00	94.5	90 - 110
Iron	ug/L	1.00	5270	5000	105	90 - 110
Sodium	mg/L	1.00	4.86	5.00	97.2	90 - 110
Magnesium	mg/L	1.00	5.10	5.00	102	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	mg/L	1.00	4.81	5.00	96.1	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	mg/L	1.00	4.81	5.00	96.1	90 - 110

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Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	mg/L	1.00	1.89	2.00	94.6	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	mg/L	1.00	1.89	2.00	94.4	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2100	2000	105	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2230	2000	112	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sodium	mg/L	1.00	1.83	2.00	91.3	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sodium	mg/L	1.00	1.79	2.00	89.6	80 - 120
Magnesium	mg/L	1.00	2.03	2.00	101	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Magnesium	mg/L	1.00	1.97	2.00	98.6	80 - 120

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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804842

CH2MHILL

CHAIN OF CUSTODY RECORD

11/13/2012 4:10:53 PM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.06.TS
Task Order
Project 2012-GMP-188SAMPLEMETHOD
Turnaround Time 10 Days
Shipping Date: 11/13/2012
COC Number: 14

			Container:	250 ml Poly	2x250 ml Poly	2x500 ml Poly	1x500 ml Poly	1x500 ml Poly	1x500 ml Poly			
			Preservatives:	(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C			
			Filtered:	Field	Field	Field	Field	Field	Field			
			Holding Time:	28	28	180	180	180	180			
		DATE	TIME	Matrix	Cr6 (E218.6) Field Filtered	Cr6 (E218.6R) Field Filtered	Metals (6020AFF) Field Filtered Chromium	Metals (6010BFF) Field Filtered Ca,Mg,Na,Fe	Metals (6020AFF) Field Filtered As,Mo,Se,Mn	Metals (6020AFF) Field Filtered As,Mo,Se,Mn,Cr		Number of Containers	COMMENTS
1	MW-124-188	11/6/2012	17:45	Water		X	X	X	X			5	PH=2
2	MW-44-125-188	11/6/2012	15:10	Water		X	X	X	X			5	
3	MW-44-125-188EB	11/6/2012	11:30	Water	X							1	6020A/ 6010B
4	MW-47-055-188	11/7/2012	9:27	Water	X			X		X		2	PH=2 6020A/ 6010B
5	MW-47-115-188	11/7/2012	14:38	Water	X			X		X		2	
6	MW-33-090-188	11/8/2012	10:06	Water	X			X		X		2	
7	MW-36-100-188	11/8/2012	14:21	Water	X			X		X		2	
8	MW-46-175-188	11/9/2012	10:08	Water	X			X		X		2	
											TOTAL NUMBER OF CONTAINERS	21	

* where provided w/2 bottles for Cr6 + diss. metals, please hold 1 + analyze 1

For Sample Conditions
See Form Attached

ALERT !!
Level III QC

	Signatures	Date/Time
Approved by		11-13-12 1700
Sampled by		
Relinquished by		
Received by	Rafael Davila	11-13-12 17:00
Relinquished by	Rafael Davila	11-13-12 23:00
Received by	Linda, TLC	11/13/12 23:00

Shipping Details
Method of Shipment: courier
On Ice: yes / no
Airbill No:
Lab Name: Truesdail Laboratories, Inc.
Lab Phone: (714) 730-6239

ATTN:
Sample Custody

Special Instructions:
Nov 5 - Dec 14, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

Hexavalent Chromium

Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
11/14/12	804841	7	2ml/100ml (total)	9.5	11 AM	[illegible]
11/14/12	804842-1	9.5	N/A	N/A	N/A	[illegible]
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
11/14/12	804843-1	9.5	N/A	N/A	N/A	[illegible]
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
	-13					
	-14					
	-15					
	-16					
	-17					

[illegible] 11/26/12

TRUESDAIL LABORATORIES, INC.

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
804779 (1-6)	<1	<2	11/09/12	M.M	3010A			
804745								
804749								
804781								
804793								
804795								
804794								
804799	<1	<2	11/12/12	M.M	3010A			
804800			11/16					
804325	<1	<2	10/~~17~~/12	M.M	3010A			
804332 (1-9)			10/17/12					
804328 (1-5)			10/16/12					
804329 (1-5)								
804330 (1-4)								
804331 (1-3)								
804803 (1-2,4)	<1	>2	11/13/12	KK	NO	@ 1:30pm	11-14	PH<2
804815	<1	>2	11/13/12				11/19/12 (23)	pH <2
804817	>1	<2	11/14/12	M.M	3010A			
804825								
804834								
804835								
804849								
804851	>1	>2						
804841	<1	>2	11/14/12	M.M	3010A			
804842 (1-8)	<1	<2						
804843 (1-8)								
804844 (1-14)								
804840 (1-3)	<1	>2	11/19/12	KK	NO	@ 1:30pm	PH<2	11-23-12
804839								
804859 (10-12)								
804862 (1-3)								
804820-6	<1	>2	11/19/12	ES	NO	@ 4:00		
804887	<1	<1			yes			
804898								
804896								
804927 (1-3)		>2			NO	@ 9:00	11-23-12	PH<2
804966	>1	<2	11/21/12	ES	yes 3010A	3010		
804957								
804973 (1-5)	<1	<2	11/21-12	BE	3010A			
804914 (1-2)								
~~804955,6,7,8,9~~								
804961 (1-3)	<1	>2	11-23-12	BE	NO	@ 9:00AM		
804982 (10-12)								

11/21/12 KK

Notes:
1. Samples should be analyzed after 24 hrs of pH adjustment to pH2 for Dissolved Analytes.
2. All Total Recoverable Analytes must be pH adjusted and digested.
3. Do not use disposable pipette to measure pH; pour a little amount of sample from the bottle.

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: E2 **Lab #** 804842

Date Delivered: 11 / 13 / 12 **Time:** 23:00 **By:** ☐Mail ☒Field Service ☐Client

1. Was a Chain of Custody received and signed? ☒Yes ☐No ☐N/A
2. Does Customer require an acknowledgement of the COC? ☐Yes ☐No ☒N/A
3. Are there any special requirements or notes on the COC? ☐Yes ☐No ☒N/A
4. If a letter was sent with the COC, does it match the COC? ☐Yes ☐No ☒N/A
5. Were all requested analyses understood and acceptable? ☒Yes ☐No ☐N/A
6. Were samples received in a chilled condition? ☒Yes ☐No ☐N/A
   Temperature (if yes)? 2.9°C
7. Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)? ☒Yes ☐No ☐N/A
8. Were sample custody seals intact? ☐Yes ☐No ☒N/A
9. Does the number of samples received agree with COC? ☒Yes ☐No ☐N/A
10. Did sample labels correspond with the client ID's? ☒Yes ☐No ☐N/A
11. Did sample labels indicate proper preservation? ☒Yes ☐No ☐N/A
    Preserved (if yes) by: ☒Truesdail ☐Client
12. Were samples pH checked? pH = See C.O.C. ☒Yes ☐No ☐N/A
13. Were all analyses within holding time at time of receipt? ☒Yes ☐No ☐N/A
    If not, notify Project Manager.
14. Have Project due dates been checked and accepted? ☒Yes ☐No ☐N/A
    Turn Around Time (TAT): ☐ RUSH ☒ Std
15. **Sample Matrix:** ☐Liquid ☐Drinking Water ☐Ground Water ☐Waste Water ☐Sludge ☐Soil ☐Wipe ☐Paint ☐Solid ☒Other Water
16. Comments: _____
17. Sample Check-In completed by **Truesdail** Log-In/Receiving: L. Shakerine

ALERT !!
Level III QC

C:\Users\Test\Desktop\Forms A - D\Discrp.FormBlank.doc

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

14201 FRANKLIN AVENUE
TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462
www.truesdail.com

December 17, 2012

E2 Consulting Engineers, Inc.
Mr. Shawn Duffy
155 Grand Ave., Suite 1000
Oakland, California 94612

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK 2012-GMP-188SAMPLEMETHODT, GROUNDWATER MONITORING PROJECT, TLI NO.: 805019

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2012-GMP-188SAMPLEMETHODT groundwater-monitoring project. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, quality control data, and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data are under Section 5.

The samples were received and delivered with the chain of custody November 27, 2012, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

No violations or non-conformance actions occurred for this data package.

If you have any questions or require additional information, please contact me at (714) 730-6239 ext. 200.

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.
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(714) 730-6239 · FAX (714) 730-6462 · www.truesdail.com

Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy

Laboratory No.: 805019
Date Received: November 27, 2012

Project Name: PG&E Topock Project
Project No.: 423575.MP.06.TS
P.O. No.: 423575.MP.06.TS

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
805019-001	MW-19-188	E218.6	FLDFLT	11/26/2012	15:19	Chromium, Hexavalent	209	ug/L	2.0
805019-001	MW-19-188	SW6010B	FLDFLT	11/26/2012	15:19	Calcium	97.3	mg/L	50.0
805019-001	MW-19-188	SW6010B	FLDFLT	11/26/2012	15:19	Iron	ND	ug/L	20.0
805019-001	MW-19-188	SW6010B	FLDFLT	11/26/2012	15:19	Magnesium	16.1	mg/L	2.50
805019-001	MW-19-188	SW6010B	FLDFLT	11/26/2012	15:19	Sodium	283	mg/L	100
805019-001	MW-19-188	SW6020	FLDFLT	11/26/2012	15:19	Arsenic	1.0	ug/L	0.50
805019-001	MW-19-188	SW6020	FLDFLT	11/26/2012	15:19	Chromium	212	ug/L	1.0
805019-001	MW-19-188	SW6020	FLDFLT	11/26/2012	15:19	Manganese	ND	ug/L	0.50
805019-001	MW-19-188	SW6020	FLDFLT	11/26/2012	15:19	Molybdenum	6.5	ug/L	2.0
805019-001	MW-19-188	SW6020	FLDFLT	11/26/2012	15:19	Selenium	ND	ug/L	5.0
805019-002	MW-44-115-188	E218.6	FLDFLT	11/26/2012	11:36	Chromium, Hexavalent	73.6	ug/L	1.0
805019-002	MW-44-115-188	SW6010B	FLDFLT	11/26/2012	11:36	Calcium	105	mg/L	12.5
805019-002	MW-44-115-188	SW6010B	FLDFLT	11/26/2012	11:36	Iron	ND	ug/L	20.0
805019-002	MW-44-115-188	SW6010B	FLDFLT	11/26/2012	11:36	Magnesium	6.94	mg/L	0.500
805019-002	MW-44-115-188	SW6010B	FLDFLT	11/26/2012	11:36	Sodium	2260	mg/L	200
805019-002	MW-44-115-188	SW6020	FLDFLT	11/26/2012	11:36	Arsenic	5.4	ug/L	0.50
805019-002	MW-44-115-188	SW6020	FLDFLT	11/26/2012	11:36	Chromium	78.1	ug/L	1.0
805019-002	MW-44-115-188	SW6020	FLDFLT	11/26/2012	11:36	Manganese	4.6	ug/L	0.50
805019-002	MW-44-115-188	SW6020	FLDFLT	11/26/2012	11:36	Molybdenum	73.2	ug/L	2.0
805019-002	MW-44-115-188	SW6020	FLDFLT	11/26/2012	11:36	Selenium	ND	ug/L	5.0

ND: Non Detected (below reporting limit)
mg/L: Milligrams per liter.
Note: The following "Significant Figures" rule has been applied to all results:
Results below 0.01ppm will have two (2) significant figures.
Result above or equal to 0.01ppm will have three (3) significant figures.
Quality Control data will always have three (3) significant figures.

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REPORT

Client: **E2 Consulting Engineers, Inc.**
155 Grand Avenue, Suite 800
Oakland, CA 94612
Attention: Shawn Duffy
Project Name: PG&E Topock Project
Project Number: 423575.MP.06.TS
P.O. Number: 423575.MP.06.TS
Release Number:

Laboratory No. 805019

Printed 12/17/2012

Samples Received on 11/27/2012 10:00:00 PM

Field ID	Lab ID	Collected	Matrix
MW-19-188	805019-001	11/26/2012 15:19	Water
MW-44-115-188	805019-002	11/26/2012 11:36	Water

Chrome VI by EPA 218.6

Batch 12CrH12A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805019-002 Chromium, Hexavalent	ug/L	12/01/2012 13:01	5.00	0.0460	1.0	73.6

Method Blank

Parameter	Unit	DF	Result
Chromium, Hexavalent	ug/L	1.00	ND

Duplicate

Lab ID = 805019-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	10.0	209	209	0.0161	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.191	0.200	95.6	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.80	5.00	95.9	90 - 110

Matrix Spike

Lab ID = 805017-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.08	1.12(1.00)	95.9	90 - 110

Matrix Spike

Lab ID = 805018-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	10.0	361	367(200)	97.0	90 - 110

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Matrix Spike — Lab ID = 805019-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	146	149(75.0)	96.7	90 - 110

Matrix Spike — Lab ID = 805020-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.954	1.00(1.00)	95.4	90 - 110

Matrix Spike — Lab ID = 805020-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	1380	1430(750)	93.5	90 - 110

Matrix Spike — Lab ID = 805020-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	250	6650	6770(3750)	96.9	90 - 110

Matrix Spike — Lab ID = 805020-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	100	3710	3800(2000)	95.6	90 - 110

Matrix Spike — Lab ID = 805020-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	1370	1420(750)	93.8	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.80	5.00	96.0	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	10.0	10.0	100	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	10.0	10.0	100	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	10.0	10.0	100	95 - 105

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Chrome VI by EPA 218.6

Batch 12CrH12B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805019-001 Chromium, Hexavalent	ug/L	12/03/2012 10:46	10.0	0.0920	2.0	209

Method Blank

Parameter	Unit	DF	Result
Chromium, Hexavalent	ug/L	1.00	ND

Duplicate — Lab ID = 805020-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	250	2600	2310	12.0	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.173	0.200	86.7	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.81	5.00	96.2	90 - 110

Matrix Spike — Lab ID = 805018-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	10.0	362	366(200)	98.0	90 - 110

Matrix Spike — Lab ID = 805019-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	10.0	450	459(250)	96.3	90 - 110

Matrix Spike — Lab ID = 805020-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	250	5040	4810(2500)	109	90 - 110

Matrix Spike — Lab ID = 805021-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.943	1.00(1.00)	94.3	90 - 110

Matrix Spike — Lab ID = 805021-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	188	197(100)	90.2	90 - 110

Matrix Spike — Lab ID = 805021-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	185	192(100)	93.2	90 - 110

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Metals by EPA 6020A, Dissolved

Batch 120712B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805019-001 Arsenic	ug/L	12/08/2012 07:07	2.50	0.250	0.50	1.0
Chromium	ug/L	12/08/2012 07:07	2.50	0.230	1.0	212
Manganese	ug/L	12/08/2012 07:07	2.50	0.215	0.50	ND
Selenium	ug/L	12/08/2012 07:07	2.50	0.200	5.0	ND
805019-002 Arsenic	ug/L	12/08/2012 06:02	2.50	0.250	0.50	5.4
Chromium	ug/L	12/08/2012 06:02	2.50	0.230	1.0	78.1
Manganese	ug/L	12/08/2012 06:02	2.50	0.215	0.50	4.6
Selenium	ug/L	12/08/2012 06:02	2.50	0.200	5.0	ND

Method Blank

Parameter	Unit	DF	Result
Arsenic	ug/L	1.00	ND
Chromium	ug/L	1.00	ND
Selenium	ug/L	1.00	ND
Manganese	ug/L	1.00	ND

Duplicate

Lab ID = 805019-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Arsenic	ug/L	2.50	5.17	5.40	4.43	0 - 20
Chromium	ug/L	2.50	82.6	78.1	5.58	0 - 20
Selenium	ug/L	2.50	ND	0	0	0 - 20
Manganese	ug/L	2.50	4.73	4.60	2.85	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	0.210	0.200	105	70 - 130
Chromium	ug/L	1.00	0.200	0.200	99.8	70 - 130
Selenium	ug/L	1.00	0.476	0.400	119	70 - 130
Manganese	ug/L	1.00	0.187	0.200	93.3	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	2.50	46.4	50.0	92.7	85 - 115
Chromium	ug/L	2.50	49.8	50.0	99.7	85 - 115
Selenium	ug/L	2.50	45.5	50.0	90.9	85 - 115
Manganese	ug/L	2.50	47.9	50.0	95.7	85 - 115

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Matrix Spike — Lab ID = 805019-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	2.50	52.4	55.4(50.0)	93.9	75 - 125
Chromium	ug/L	2.50	136	128(50.0)	116	75 - 125
Selenium	ug/L	2.50	40.3	50.0(50.0)	80.6	75 - 125
Manganese	ug/L	2.50	53.8	54.6(50.0)	98.4	75 - 125

Matrix Spike Duplicate — Lab ID = 805019-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	2.50	51.3	55.4(50.0)	91.8	75 - 125
Chromium	ug/L	2.50	132	128(50.0)	108	75 - 125
Selenium	ug/L	2.50	40.9	50.0(50.0)	81.8	75 - 125
Manganese	ug/L	2.50	52.3	54.6(50.0)	95.3	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	19.4	20.0	97.2	90 - 110
Chromium	ug/L	1.00	20.2	20.0	101	90 - 110
Selenium	ug/L	1.00	21.8	20.0	109	90 - 110
Manganese	ug/L	1.00	19.4	20.0	96.8	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	20.1	20.0	100	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	20.3	20.0	101	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	20.0	20.0	99.8	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	20.4	20.0	102	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.8	20.0	94.2	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.2	20.0	95.8	90 - 110

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Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project
Project Number: 423575.MP.06.TS Printed 12/17/2012

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Selenium	ug/L	1.00	ND	0		
Manganese	ug/L	1.00	19.6	20.0	97.8	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	19.7	20.0	98.3	80 - 120

Serial Dilution Lab ID = 805019-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	12.5	71.6	78.1	8.64	0 - 10

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Metals by EPA 6020A, Dissolved

Batch 121312A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805019-001 Molybdenum	ug/L	12/13/2012 19:49	2.50	0.518	2.0	6.5
805019-002 Molybdenum	ug/L	12/13/2012 18:58	2.50	0.518	2.0	73.2

Method Blank

Parameter	Unit	DF	Result
Chromium	ug/L	1.00	ND
Manganese	ug/L	1.00	ND
Molybdenum	ug/L	1.00	ND

Duplicate

Lab ID = 805019-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	2.50	75.8	80.3	5.79	0 - 20
Manganese	ug/L	2.50	4.16	4.37	5.02	0 - 20
Molybdenum	ug/L	2.50	72.8	73.2	0.507	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.202	0.200	101	70 - 130
Manganese	ug/L	1.00	0.217	0.200	108	70 - 130
Molybdenum	ug/L	1.00	0.495	0.500	99.1	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	2.50	49.1	50.0	98.2	85 - 115
Manganese	ug/L	2.50	49.8	50.0	99.6	85 - 115
Molybdenum	ug/L	2.50	53.1	50.0	106	85 - 115

Matrix Spike

Lab ID = 805019-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.50	127	130(50.0)	92.8	75 - 125
Manganese	ug/L	2.50	53.1	54.4(50.0)	97.5	75 - 125
Molybdenum	ug/L	2.50	127	123(50.0)	108	75 - 125

Matrix Spike Duplicate

Lab ID = 805019-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.50	126	130(50.0)	92.4	75 - 125
Manganese	ug/L	2.50	52.0	54.4(50.0)	95.4	75 - 125
Molybdenum	ug/L	2.50	126	123(50.0)	105	75 - 125

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Metals by EPA 6010B, Dissolved

Batch 120512A-Th2

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805019-001 Calcium	mg/L	12/05/2012 12:20	100	1.20	50.0	97.3
Iron	ug/L	12/05/2012 18:20	1.00	9.50	20.0	ND
Magnesium	mg/L	12/05/2012 15:35	5.00	0.277	2.50	16.1
Sodium	mg/L	12/05/2012 12:20	100	39.4	100	283
805019-002 Calcium	mg/L	12/05/2012 13:02	25.0	0.300	12.5	105
Iron	ug/L	12/05/2012 15:58	1.00	9.50	20.0	ND
Magnesium	mg/L	12/05/2012 15:58	1.00	0.0554	0.500	6.94
Sodium	mg/L	12/05/2012 14:20	200	78.8	200	2260

Method Blank

Parameter	Unit	DF	Result
Calcium	mg/L	1.00	ND
Iron	ug/L	1.00	ND
Sodium	mg/L	1.00	ND
Magnesium	mg/L	1.00	ND

Duplicate

Lab ID = 805019-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Calcium	mg/L	100	99.7	97.3	2.42	0 - 20
Iron	ug/L	1.00	ND	0	0	0 - 20
Sodium	mg/L	100	285	283	0.634	0 - 20
Magnesium	mg/L	5.00	16.4	16.1	2.03	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	mg/L	1.00	2.05	2.00	102	85 - 115
Iron	ug/L	1.00	2200	2000	110	85 - 115
Sodium	mg/L	1.00	1.81	2.00	90.6	85 - 115
Magnesium	mg/L	1.00	2.07	2.00	104	85 - 115

Matrix Spike

Lab ID = 805019-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Calcium	mg/L	100	292	297(200)	97.2	75 - 125
Iron	ug/L	1.00	1970	2000(2000)	98.4	75 - 125
Sodium	mg/L	100	460	483(200)	88.4	75 - 125
Magnesium	mg/L	5.00	28.0	26.1(10.0)	119	75 - 125

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Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	mg/L	1.00	1.86	2.00	92.8	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2120	2000	106	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2190	2000	110	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sodium	mg/L	1.00	1.72	2.00	86.2	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sodium	mg/L	1.00	1.87	2.00	93.7	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Magnesium	mg/L	1.00	2.10	2.00	105	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Magnesium	mg/L	1.00	2.01	2.00	100	80 - 120

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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805019

CH2MHILL

CHAIN OF CUSTODY RECORD

11/26/2012 4:04:11 PM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.06.TS
Task Order
Project 2012-GMP-188SAMPLEMETHOD
Turnaround Time 10 Days
Shipping Date: 11/27/2012
COC Number: 21

				Container:	250 ml Poly	1x500 ml Poly	1x500 ml Poly			
				Preservatives:	(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C	HNO3, 4°C			
				Filtered:	Field	Field	Field			
				Holding Time:	28	180	180			
	DATE	TIME	Matrix		Cr6 (E218.6) Field Filtered	Metals (6010BFF) Field Filtered Ca,Mg,Na,Fe	Metals (6020AFF) Field Filtered As,Mo,Se,Mn,Cr		Number of Containers	COMMENTS
-1 MW-19-188	11/26/2012	15:19	Water		X	X	X		2	
-2 MW-44-115-188	11/26/2012	11:36	Water		X	X	X		2	PH=2
								TOTAL NUMBER OF CONTAINERS	4	6020A/ 6010B

ALERT !!
Level III QC

For Sample Conditions
See Form Attached

	Signatures	Date/Time
Approved by		11-27-12
Sampled by		1600
Relinquished by		
Received by	Rafael Davila	11-27-12 16:00
Relinquished by	Rafael Davila	11-27-12 22:00
Received by	L. Shakemina, FCI,	11/27/12 22:00

Shipping Details

Method of Shipment: courier
On Ice: yes / no
Airbill No:
Lab Name: Truesdail Laboratories, Inc.
Lab Phone: (714) 730-6239

ATTN:
Sample Custody

Special Instructions:
Nov 5 - Dec 14, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

Hexavalent Chromium

Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
11/28/12	805017	7	2ml/100ml (total)	9.5	10 Am	[illegible]
11/28/12	805018-1	9.5	N/A	N/A	N/A	[illegible]
↓	↓ -2	↓	↓	↓	↓	↓
11/28/12	805019 -1	9.5	N/A	N/A	N/A	[illegible]
↓	↓ -2	↓	↓	↓	↓	↓
11/28/12	805020 -1	9.5	N/A	N/A	N/A	[illegible]
↓	-2	↓	↓	↓	↓	↓
	-3					
	-4					
	-5					
	-6					
11/28/12	805021 -1	9.5	N/A	N/A	N/A	[illegible]
↓	-2	↓	↓	↓	↓	↓
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
11/28/12	805022-1	9.5	N/A	N/A	N/A	HAV
↓	-2	↓	↓	↓	↓	↓
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					

HAV 12/04/12

[illegible] 12-10-12

HAV 12/18/12

TRUESDAIL LABORATORIES, INC.

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
805021 (1-5)	<1	<2	12/3/12	ES	yes			
805019 (1-2)								
804967		>2				12:00 p.m		
805017								
~~805~~ 12/4								
805116 (1-4)	<1	<2	12/4/12	KK	YES			
804746	<1	<2	11/9/12	KK	YES			
805022 (10)	<1	<2	12/4/12	BE	yes			
805117-1	<1	<2	12/4/12	ES	yes			
805145-(1-3)	<1	>2	12/6/12	AA	NO	8:30 am		
805160 (1-3)	<1	>2						
805171 (10-12)	<1	>2						
805175-(1-3)	<1	>2						
805179	<1	<2	12/6/12	BE	yes			
805180 (1-5)	<1	<2	12/6/12	ES	yes			
805076	<1	>2			NO	10:00 am		
805114 (17,24)								
805152 (1-3	<1	<2	12/7/12	BE	yes			
12-7/12 BE 805153 (1-2)								
805155 (1-2)		>2					Acidified after filt.	
805156 ~~805156~~ BE (1-2)								
805157 (1-9)		<2						
805159 (1-12)								
805158 (1-13, 17-27, 33)	<1							
BE ~~805~~ 805182 (1-8)								
805181 (6-7)								
805219 (1-4,5)								
805220 (1-3)								
805221 (1-4)								
~~805214~~ ES 12/7/12								
805095	<1	<2	12/7/12	ES	yes			
805098								
805104								
805106								
805125								
805126								
805127								
805128								
805120								
805190								
805191								
805192								
805[illegible]								
805201								

Notes:
1. Samples should be analyzed after 24 hrs of pH adjustment to pH2 for Dissolved Analytes.
2. All Total Recoverable Analytes must be pH adjusted and digested.
3. Do not use disposable pipette to measure pH; pour a little amount of sample from the bottle.

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: E 2 **Lab #** 805019

Date Delivered: 11 / 27 / 12 **Time:** 22:00 **By:** ☐Mail ☒Field Service ☐Client

1. Was a Chain of Custody received and signed? ☒Yes ☐No ☐N/A
2. Does Customer require an acknowledgement of the COC? ☐Yes ☐No ☒N/A
3. Are there any special requirements or notes on the COC? ☐Yes ☐No ☒N/A
4. If a letter was sent with the COC, does it match the COC? ☐Yes ☐No ☒N/A
5. Were all requested analyses understood and acceptable? ☒Yes ☐No ☐N/A
6. Were samples received in a chilled condition? ☒Yes ☐No ☐N/A
   Temperature (if yes)? 3.8 °C
7. Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)? ☒Yes ☐No ☐N/A
8. Were sample custody seals intact? ☐Yes ☐No ☒N/A
9. Does the number of samples received agree with COC? ☒Yes ☐No ☐N/A
10. Did sample labels correspond with the client ID's? ☒Yes ☐No ☐N/A
11. Did sample labels indicate proper preservation? ☒Yes ☐No ☐N/A
    Preserved (if yes) by: ☒Truesdail ☐Client
12. Were samples pH checked? pH = see c.o.c. ☒Yes ☐No ☐N/A
13. Were all analyses within holding time at time of receipt? ☒Yes ☐No ☐N/A
    If not, notify Project Manager.
14. Have Project due dates been checked and accepted? ☒Yes ☐No ☐N/A
    Turn Around Time (TAT): ☐ RUSH ☒ Std
15. **Sample Matrix:** ☐Liquid ☐Drinking Water ☐Ground Water ☐Waste Water ☐Sludge ☐Soil ☐Wipe ☐Paint ☐Solid ☒Other Water
16. Comments: _____
17. Sample Check-In completed by **Truesdail** Log-In/Receiving: Linda Shabuning

ALERT !!
Level III QC

C:\Users\Test\Desktop\Forms A - D\Discrp.FormBlank.doc

TRUESDAIL LABORATORIES, INC.

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www.truesdail.com

January 9, 2013

E2 Consulting Engineers, Inc.
Mr. Shawn Duffy
155 Grand Ave., Suite 1000
Oakland, California 94612

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK 2012-GMP-188SAMPLEMETHODT, GROUNDWATER MONITORING PROJECT, TLI NO.: 805020

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2012-GMP-188SAMPLEMETHODT groundwater-monitoring project. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, quality control data, and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data are under Section 5.

The samples were received and delivered with the chain of custody November 27, 2012, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

No violations or non-conformance actions occurred for this data package.

If you have any questions or require additional information, please contact me at (714) 730-6239 ext. 200.

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.
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Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy

Laboratory No.: 805020
Date Received: November 27, 2012

Project Name: PG&E Topock Project
Project No.: 423575.MP.06.TS
P.O. No.: 423575.MP.06.TS

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
805020-001	MW-116-188	E218.6	FLDFLT	11/27/2012	15:40	Chromium, Hexavalent	ND	ug/L	0.20
805020-001	MW-116-188	SW6020	FLDFLT	11/27/2012	15:40	Chromium	ND	ug/L	1.0
805020-002	MW-12-188	E218.6	FLDFLT	11/27/2012	13:22	Chromium, Hexavalent	2310	ug/L	50.0
805020-002	MW-12-188	SW6010B	FLDFLT	11/27/2012	13:22	Calcium	30000	ug/L	12500
805020-002	MW-12-188	SW6010B	FLDFLT	11/27/2012	13:22	Iron	ND	ug/L	20.0
805020-002	MW-12-188	SW6010B	FLDFLT	11/27/2012	13:22	Magnesium	6760	ug/L	500
805020-002	MW-12-188	SW6010B	FLDFLT	11/27/2012	13:22	Sodium	1310000	ug/L	200000
805020-002	MW-12-188	SW6010B	FLDFLT	11/27/2012	13:22	Zinc	ND	ug/L	20.0
805020-002	MW-12-188	SW6020	FLDFLT	11/27/2012	13:22	Antimony	ND	ug/L	2.0
805020-002	MW-12-188	SW6020	FLDFLT	11/27/2012	13:22	Arsenic	38.5	ug/L	0.50
805020-002	MW-12-188	SW6020	FLDFLT	11/27/2012	13:22	Barium	56.5	ug/L	5.0
805020-002	MW-12-188	SW6020	FLDFLT	11/27/2012	13:22	Beryllium	ND	ug/L	0.50
805020-002	MW-12-188	SW6020	FLDFLT	11/27/2012	13:22	Cadmium	ND	ug/L	1.0
805020-002	MW-12-188	SW6020	FLDFLT	11/27/2012	13:22	Chromium	2630	ug/L	10.0
805020-002	MW-12-188	SW6020	FLDFLT	11/27/2012	13:22	Cobalt	ND	ug/L	5.0
805020-002	MW-12-188	SW6020	FLDFLT	11/27/2012	13:22	Copper	ND	ug/L	5.0
805020-002	MW-12-188	SW6020	FLDFLT	11/27/2012	13:22	Lead	ND	ug/L	1.0
805020-002	MW-12-188	SW6020	FLDFLT	11/27/2012	13:22	Mercury	ND	ug/L	0.50
805020-002	MW-12-188	SW6020	FLDFLT	11/27/2012	13:22	Molybdenum	12.7	ug/L	2.0
805020-002	MW-12-188	SW6020	FLDFLT	11/27/2012	13:22	Nickel	ND	ug/L	2.0
805020-002	MW-12-188	SW6020	FLDFLT	11/27/2012	13:22	Selenium	13.6	ug/L	5.0
805020-002	MW-12-188	SW6020	FLDFLT	11/27/2012	13:22	Silver	ND	ug/L	5.0
805020-002	MW-12-188	SW6020	FLDFLT	11/27/2012	13:22	Thallium	ND	ug/L	1.0
805020-002	MW-12-188	SW6020	FLDFLT	11/27/2012	13:22	Vanadium	19.6	ug/L	5.0

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Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
805020-003	MW-125-188	E218.6	FLDFLT	11/27/2012	7:40	Chromium, Hexavalent	678	ug/L	10.0
805020-003	MW-125-188	SW6010B	FLDFLT	11/27/2012	7:40	Calcium	637000	ug/L	100000
805020-003	MW-125-188	SW6010B	FLDFLT	11/27/2012	7:40	Iron	ND	ug/L	20.0
805020-003	MW-125-188	SW6010B	FLDFLT	11/27/2012	7:40	Magnesium	21800	ug/L	1000
805020-003	MW-125-188	SW6010B	FLDFLT	11/27/2012	7:40	Sodium	2860000	ug/L	200000
805020-003	MW-125-188	SW6020	FLDFLT	11/27/2012	7:40	Arsenic	3.1	ug/L	0.50
805020-003	MW-125-188	SW6020	FLDFLT	11/27/2012	7:40	Chromium	716	ug/L	2.0
805020-003	MW-125-188	SW6020	FLDFLT	11/27/2012	7:40	Manganese	179	ug/L	1.0
805020-003	MW-125-188	SW6020	FLDFLT	11/27/2012	7:40	Molybdenum	20.9	ug/L	2.0
805020-003	MW-125-188	SW6020	FLDFLT	11/27/2012	7:40	Selenium	ND	ug/L	5.0
805020-004	MW-20-070-188	E218.6	FLDFLT	11/27/2012	15:16	Chromium, Hexavalent	3020	ug/L	50.0
805020-004	MW-20-070-188	SW6010B	FLDFLT	11/27/2012	15:16	BORON	484	ug/L	200
805020-004	MW-20-070-188	SW6010B	FLDFLT	11/27/2012	15:16	Calcium	79200	ug/L	12500
805020-004	MW-20-070-188	SW6010B	FLDFLT	11/27/2012	15:16	Iron	ND	ug/L	20.0
805020-004	MW-20-070-188	SW6010B	FLDFLT	11/27/2012	15:16	Magnesium	22200	ug/L	1000
805020-004	MW-20-070-188	SW6010B	FLDFLT	11/27/2012	15:16	Potassium	8070	ug/L	1000
805020-004	MW-20-070-188	SW6010B	FLDFLT	11/27/2012	15:16	Sodium	350000	ug/L	25000
805020-004	MW-20-070-188	SW6020	FLDFLT	11/27/2012	15:16	Arsenic	1.9	ug/L	0.50
805020-004	MW-20-070-188	SW6020	FLDFLT	11/27/2012	15:16	Chromium	3110	ug/L	10.0
805020-004	MW-20-070-188	SW6020	FLDFLT	11/27/2012	15:16	Manganese	0.55	ug/L	0.50
805020-004	MW-20-070-188	SW6020	FLDFLT	11/27/2012	15:16	Molybdenum	38.9	ug/L	2.0
805020-004	MW-20-070-188	SW6020	FLDFLT	11/27/2012	15:16	Selenium	5.9	ug/L	5.0
805020-005	MW-26-188	E218.6	FLDFLT	11/27/2012	11:30	Chromium, Hexavalent	1800	ug/L	20.0
805020-005	MW-26-188	SW6010B	FLDFLT	11/27/2012	11:30	Calcium	168000	ug/L	12500
805020-005	MW-26-188	SW6010B	FLDFLT	11/27/2012	11:30	Iron	ND	ug/L	20.0
805020-005	MW-26-188	SW6010B	FLDFLT	11/27/2012	11:30	Magnesium	45000	ug/L	2500
805020-005	MW-26-188	SW6010B	FLDFLT	11/27/2012	11:30	Sodium	564000	ug/L	200000
805020-005	MW-26-188	SW6020	FLDFLT	11/27/2012	11:30	Arsenic	1.7	ug/L	0.50
805020-005	MW-26-188	SW6020	FLDFLT	11/27/2012	11:30	Chromium	1820	ug/L	4.0
805020-005	MW-26-188	SW6020	FLDFLT	11/27/2012	11:30	Manganese	ND	ug/L	0.50
805020-005	MW-26-188	SW6020	FLDFLT	11/27/2012	11:30	Molybdenum	28.4	ug/L	2.0
805020-005	MW-26-188	SW6020	FLDFLT	11/27/2012	11:30	Selenium	37.5	ug/L	5.0

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Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
805020-006	MW-61-110-188	E218.6	FLDFLT	11/27/2012	9:24	Chromium, Hexavalent	666	ug/L	10.0
805020-006	MW-61-110-188	SW6010B	FLDFLT	11/27/2012	9:24	Calcium	604000	ug/L	100000
805020-006	MW-61-110-188	SW6010B	FLDFLT	11/27/2012	9:24	Iron	ND	ug/L	20.0
805020-006	MW-61-110-188	SW6010B	FLDFLT	11/27/2012	9:24	Magnesium	21600	ug/L	1000
805020-006	MW-61-110-188	SW6010B	FLDFLT	11/27/2012	9:24	Sodium	2750000	ug/L	200000
805020-006	MW-61-110-188	SW6020	FLDFLT	11/27/2012	9:24	Arsenic	3.2	ug/L	0.50
805020-006	MW-61-110-188	SW6020	FLDFLT	11/27/2012	9:24	Chromium	709	ug/L	2.0
805020-006	MW-61-110-188	SW6020	FLDFLT	11/27/2012	9:24	Manganese	165	ug/L	1.0
805020-006	MW-61-110-188	SW6020	FLDFLT	11/27/2012	9:24	Molybdenum	21.9	ug/L	2.0
805020-006	MW-61-110-188	SW6020	FLDFLT	11/27/2012	9:24	Selenium	ND	ug/L	5.0

ND: Non Detected (below reporting limit)

mg/L: Milligrams per liter.

Note: The following "Significant Figures" rule has been applied to all results:

Results below 0.01ppm will have two (2) significant figures.

Result above or equal to 0.01ppm will have three (3) significant figures.

Quality Control data will always have three (3) significant figures.

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TUSTIN, CALIFORNIA 92780-7008
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REPORT

Client: **E2 Consulting Engineers, Inc.**
155 Grand Avenue, Suite 800
Oakland, CA 94612
Attention: Shawn Duffy
Project Name: PG&E Topock Project
Project Number: 423575.MP.06.TS
P.O. Number: 423575.MP.06.TS
Release Number:

Laboratory No. 805020

Printed 1/9/2013

Samples Received on 11/27/2012 10:00:00 PM

Field ID	Lab ID	Collected	Matrix
MW-116-188	805020-001	11/27/2012 15:40	Water
MW-12-188	805020-002	11/27/2012 13:22	Water
MW-125-188	805020-003	11/27/2012 07:40	Water
MW-20-070-188	805020-004	11/27/2012 15:16	Water
MW-26-188	805020-005	11/27/2012 11:30	Water
MW-61-110-188	805020-006	11/27/2012 09:24	Water

Chrome VI by EPA 218.6

Batch 12CrH12A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805020-001 Chromium, Hexavalent	ug/L	12/01/2012 13:12	1.00	0.00920	0.20	ND
805020-003 Chromium, Hexavalent	ug/L	12/01/2012 14:04	50.0	0.460	10.0	678
805020-004 Chromium, Hexavalent	ug/L	12/01/2012 14:14	250	2.30	50.0	3020
805020-005 Chromium, Hexavalent	ug/L	12/01/2012 14:25	100	0.920	20.0	1800
805020-006 Chromium, Hexavalent	ug/L	12/01/2012 14:35	50.0	0.460	10.0	666

Method Blank

Parameter	Unit	DF	Result
Chromium, Hexavalent	ug/L	1.00	ND

Duplicate — Lab ID = 805019-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	10.0	209	209	0.0161	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.191	0.200	95.6	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.80	5.00	95.9	90 - 110

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Matrix Spike — Lab ID = 805017-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.08	1.12(1.00)	95.9	90 - 110

Matrix Spike — Lab ID = 805018-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	10.0	361	367(200)	97.0	90 - 110

Matrix Spike — Lab ID = 805019-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	146	149(75.0)	96.7	90 - 110

Matrix Spike — Lab ID = 805020-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.954	1.00(1.00)	95.4	90 - 110

Matrix Spike — Lab ID = 805020-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	1380	1430(750)	93.5	90 - 110

Matrix Spike — Lab ID = 805020-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	250	6650	6770(3750)	96.9	90 - 110

Matrix Spike — Lab ID = 805020-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	100	3710	3800(2000)	95.6	90 - 110

Matrix Spike — Lab ID = 805020-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	1370	1420(750)	93.8	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.80	5.00	96.0	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	10.0	10.0	100	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	10.0	10.0	100	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	10.0	10.0	100	95 - 105

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Chrome VI by EPA 218.6

Batch 12CrH12B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805020-002 Chromium, Hexavalent	ug/L	12/03/2012 10:56	250	2.30	50.0	2310

Method Blank

Parameter	Unit	DF	Result
Chromium, Hexavalent	ug/L	1.00	ND

Duplicate — Lab ID = 805020-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	250	2600	2310	12.0	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.173	0.200	86.7	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.81	5.00	96.2	90 - 110

Matrix Spike — Lab ID = 805018-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	10.0	362	366(200)	98.0	90 - 110

Matrix Spike — Lab ID = 805019-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	10.0	450	459(250)	96.3	90 - 110

Matrix Spike — Lab ID = 805020-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	250	5040	4810(2500)	109	90 - 110

Matrix Spike — Lab ID = 805021-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.943	1.00(1.00)	94.3	90 - 110

Matrix Spike — Lab ID = 805021-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	188	197(100)	90.2	90 - 110

Matrix Spike — Lab ID = 805021-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	185	192(100)	93.2	90 - 110

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Metals by EPA 6020A, Dissolved

Batch 121212D

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805020-002 Cadmium	ug/L	12/13/2012 05:54	2.50	0.218	1.0	ND
Cobalt	ug/L	12/13/2012 05:54	2.50	0.198	5.0	ND
Thallium	ug/L	12/13/2012 05:54	2.50	0.282	1.0	ND

Method Blank

Parameter	Unit	DF	Result
Cadmium	ug/L	1.00	ND
Cobalt	ug/L	1.00	ND
Thallium	ug/L	1.00	ND

Duplicate

Lab ID = 805019-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Cadmium	ug/L	2.50	ND	0	0	0 - 20
Cobalt	ug/L	2.50	ND	0	0	0 - 20
Thallium	ug/L	2.50	ND	0	0	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Cadmium	ug/L	1.00	0.214	0.200	107	70 - 130
Cobalt	ug/L	1.00	0.230	0.200	115	70 - 130
Thallium	ug/L	1.00	0.432	0.400	108	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Cadmium	ug/L	2.50	47.2	50.0	94.5	85 - 115
Cobalt	ug/L	2.50	49.0	50.0	98.0	85 - 115
Thallium	ug/L	2.50	46.8	50.0	93.6	85 - 115

Matrix Spike

Lab ID = 805019-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Cadmium	ug/L	2.50	39.8	50.0(50.0)	79.6	75 - 125
Cobalt	ug/L	2.50	48.7	50.0(50.0)	97.5	75 - 125
Thallium	ug/L	2.50	42.5	50.0(50.0)	85.0	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Cadmium	ug/L	1.00	19.3	20.0	96.5	90 - 110
Cobalt	ug/L	1.00	19.6	20.0	98.0	90 - 110
Thallium	ug/L	1.00	19.8	20.0	98.8	90 - 110

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Metals by EPA 6020A, Dissolved

Batch 121412A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805020-001 Chromium	ug/L	12/14/2012 18:47	2.50	0.230	1.0	ND
805020-002 Chromium	ug/L	12/14/2012 20:20	50.0	4.60	10.0	2630
805020-003 Chromium	ug/L	12/14/2012 20:27	10.0	0.920	2.0	716
805020-004 Chromium	ug/L	12/14/2012 20:41	50.0	4.60	10.0	3110
805020-005 Chromium	ug/L	12/14/2012 20:49	20.0	1.84	4.0	1820
805020-006 Chromium	ug/L	12/14/2012 20:56	10.0	0.920	2.0	709

Method Blank

Parameter	Unit	DF	Result
Chromium	ug/L	1.00	ND

Duplicate

Lab ID = 805019-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	2.50	76.9	72.3	6.11	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.233	0.200	116	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	2.50	49.2	50.0	98.4	85 - 115

Matrix Spike

Lab ID = 805019-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.50	129	122(50.0)	113	75 - 125

Matrix Spike Duplicate

Lab ID = 805019-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.50	127	122(50.0)	110	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.7	20.0	98.6	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.7	20.0	98.5	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.6	20.0	98.0	90 - 110

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MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.5	20.0	97.6	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.5	20.0	97.5	90 - 110

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	ND	0		

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	ND	0		

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.4	20.0	97.2	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.2	20.0	101	80 - 120

Serial Dilution Lab ID = 805020-003

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	50.0	712	716	0.560	0 - 10

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Metals by EPA 6020A, Dissolved Batch 121412D

Parameter		Unit	Analyzed	DF	MDL	RL	Result
805020-002	Arsenic	ug/L	12/15/2012 18:16	2.50	0.250	0.50	38.5
	Barium	ug/L	12/15/2012 18:16	2.50	0.470	5.0	56.5
	Beryllium	ug/L	12/15/2012 18:16	2.50	0.0750	0.50	ND
	Copper	ug/L	12/15/2012 18:16	2.50	0.642	5.0	ND
	Lead	ug/L	12/15/2012 18:16	2.50	0.185	1.0	ND
	Mercury	ug/L	12/15/2012 18:16	2.50	0.100	0.50	ND
	Molybdenum	ug/L	12/15/2012 18:16	2.50	0.518	2.0	12.7
	Selenium	ug/L	12/15/2012 18:16	2.50	0.200	5.0	13.6
	Vanadium	ug/L	12/15/2012 18:16	2.50	0.452	5.0	19.6
805020-003	Arsenic	ug/L	12/15/2012 19:14	2.50	0.250	0.50	3.1
	Molybdenum	ug/L	12/15/2012 19:14	2.50	0.518	2.0	20.9
	Selenium	ug/L	12/15/2012 19:14	2.50	0.200	5.0	ND
805020-004	Arsenic	ug/L	12/15/2012 19:28	2.50	0.250	0.50	1.9
	Molybdenum	ug/L	12/15/2012 19:28	2.50	0.518	2.0	38.9
	Selenium	ug/L	12/15/2012 19:28	2.50	0.200	5.0	5.9
805020-005	Arsenic	ug/L	12/15/2012 19:42	2.50	0.250	0.50	1.7
	Molybdenum	ug/L	12/15/2012 19:42	2.50	0.518	2.0	28.4
805020-006	Arsenic	ug/L	12/15/2012 19:56	2.50	0.250	0.50	3.2
	Molybdenum	ug/L	12/15/2012 19:56	2.50	0.518	2.0	21.9
	Selenium	ug/L	12/15/2012 19:56	2.50	0.200	5.0	ND

Method Blank

Parameter	Unit	DF	Result
Arsenic	ug/L	1.00	ND
Barium	ug/L	1.00	ND
Beryllium	ug/L	1.00	ND
Mercury	ug/L	1.00	ND
Selenium	ug/L	1.00	ND
Copper	ug/L	1.00	ND
Lead	ug/L	1.00	ND
Vanadium	ug/L	1.00	ND
Molybdenum	ug/L	1.00	ND

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Duplicate

Lab ID = 805019-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Arsenic	ug/L	2.50	5.04	4.86	3.70	0 - 20
Barium	ug/L	2.50	19.0	18.5	2.93	0 - 20
Beryllium	ug/L	2.50	ND	0	0	0 - 20
Mercury	ug/L	2.50	ND	0	0	0 - 20
Selenium	ug/L	2.50	ND	0	0	0 - 20
Copper	ug/L	2.50	ND	0	0	0 - 20
Lead	ug/L	2.50	ND	0	0	0 - 20
Vanadium	ug/L	2.50	7.23	7.28	0.703	0 - 20
Molybdenum	ug/L	5.00	72.7	74.8	2.83	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	0.187	0.200	93.7	70 - 130
Barium	ug/L	1.00	0.490	0.500	97.9	70 - 130
Beryllium	ug/L	1.00	0.198	0.200	98.9	70 - 130
Mercury	ug/L	1.00	0.222	0.200	111	70 - 130
Selenium	ug/L	1.00	0.486	0.500	97.3	70 - 130
Copper	ug/L	1.00	0.448	0.500	89.5	70 - 130
Lead	ug/L	1.00	0.240	0.200	120	70 - 130
Vanadium	ug/L	1.00	0.438	0.500	87.7	70 - 130
Molybdenum	ug/L	1.00	0.523	0.500	105	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	2.50	45.2	50.0	90.3	85 - 115
Barium	ug/L	2.50	50.2	50.0	100	85 - 115
Beryllium	ug/L	2.50	48.2	50.0	96.5	85 - 115
Mercury	ug/L	1.00	4.84	5.00	96.8	85 - 115
Selenium	ug/L	2.50	45.0	50.0	90.0	85 - 115
Copper	ug/L	2.50	47.2	50.0	94.5	85 - 115
Lead	ug/L	1.00	52.1	50.0	104	85 - 115
Vanadium	ug/L	2.50	47.7	50.0	95.4	85 - 115
Molybdenum	ug/L	2.50	56.5	50.0	113	85 - 115

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Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Selenium	ug/L	1.00	ND	0		
Copper	ug/L	1.00	18.8	20.0	93.8	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Copper	ug/L	1.00	18.7	20.0	93.4	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Lead	ug/L	1.00	ND	0		

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Lead	ug/L	1.00	ND	0		

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Vanadium	ug/L	1.00	ND	0		

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Vanadium	ug/L	1.00	ND	0		
Molybdenum	ug/L	1.00	ND	0		

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Molybdenum	ug/L	1.00	ND	0		

Serial Dilution Lab ID = 805019-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Molybdenum	ug/L	12.5	74.1	74.8	0.994	0 - 10

Serial Dilution Lab ID = 805020-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Arsenic	ug/L	12.5	41.9	38.5	8.50	0 - 10
Barium	ug/L	12.5	61.8	56.5	8.90	0 - 10

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Metals by EPA 6020A, Dissolved

Batch 121912A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805020-002 Nickel	ug/L	12/19/2012 21:40	1.00	0.786	2.0	ND

Method Blank

Parameter	Unit	DF	Result
Chromium	ug/L	1.00	ND
Nickel	ug/L	1.00	ND

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.234	0.200	117	70 - 130
Nickel	ug/L	1.00	1.97	2.00	98.5	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	2.50	46.6	50.0	93.3	85 - 115
Nickel	ug/L	2.50	46.0	50.0	91.9	85 - 115

Matrix Spike

Lab ID = 804843-011

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.50	51.4	53.2(50.0)	96.3	75 - 125
Nickel	ug/L	2.50	47.2	50.0(50.0)	94.4	75 - 125

Matrix Spike Duplicate

Lab ID = 804843-011

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.50	52.6	53.2(50.0)	98.7	75 - 125
Nickel	ug/L	2.50	48.3	50.0(50.0)	96.5	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.5	20.0	97.4	90 - 110
Nickel	ug/L	1.00	19.4	20.0	97.2	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.9	20.0	99.7	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.5	20.0	97.6	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.9	20.0	99.6	90 - 110

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Metals by EPA 6020A, Dissolved

Batch 010213B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805020-002 Antimony	ug/L	01/02/2013 22:38	2.50	0.830	2.0	ND

Method Blank

Parameter	Unit	DF	Result
Antimony	ug/L	1.00	ND

Duplicate

Lab ID = 805019-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Antimony	ug/L	2.50	ND	0	0	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Antimony	ug/L	1.00	0.862	0.800	108	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Antimony	ug/L	2.50	56.8	50.0	114	85 - 115

Matrix Spike

Lab ID = 805019-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Antimony	ug/L	2.50	51.8	50.0(50.0)	104	75 - 125

Matrix Spike Duplicate

Lab ID = 805019-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Antimony	ug/L	2.50	54.5	50.0(50.0)	109	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Antimony	ug/L	1.00	20.3	20.0	102	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Antimony	ug/L	1.00	20.0	20.0	100	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Antimony	ug/L	1.00	19.4	20.0	97.1	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Antimony	ug/L	1.00	19.7	20.0	98.6	90 - 110

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Metals by EPA 6020A, Dissolved

Batch 010413A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805020-003 Manganese	ug/L	01/04/2013 11:18	5.00	0.430	1.0	179
805020-004 Manganese	ug/L	01/04/2013 11:42	2.50	0.215	0.50	0.55
805020-005 Manganese	ug/L	01/04/2013 11:56	2.50	0.215	0.50	ND
805020-006 Manganese	ug/L	01/04/2013 12:04	5.00	0.430	1.0	165

Method Blank

Parameter	Unit	DF	Result
Manganese	ug/L	1.00	ND

Duplicate

Lab ID = 805019-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Manganese	ug/L	2.50	4.35	4.83	10.4	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	0.229	0.200	115	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	2.50	52.3	50.0	104	85 - 115

Matrix Spike

Lab ID = 805019-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Manganese	ug/L	2.50	54.8	54.8(50.0)	100	75 - 125

Matrix Spike Duplicate

Lab ID = 805019-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Manganese	ug/L	2.50	56.3	54.8(50.0)	103	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	19.8	20.0	99.2	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	18.7	20.0	93.4	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	19.5	20.0	97.5	90 - 110

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Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	ND	0		

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	ND	0		

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	20.5	20.0	102	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	19.4	20.0	96.9	80 - 120

Serial Dilution Lab ID = 805020-006

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Manganese	ug/L	25.0	172	165	4.44	0 - 10

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Metals by EPA 6020A, Dissolved

Batch 010713A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805020-005 Selenium	ug/L	01/07/2013 17:21	2.50	0.200	5.0	37.5

Method Blank

Parameter	Unit	DF	Result
Selenium	ug/L	1.00	ND

Duplicate — Lab ID = 805019-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Selenium	ug/L	2.50	ND	0	0	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Selenium	ug/L	1.00	0.194	0.200	97.2	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Selenium	ug/L	2.50	44.3	50.0	88.6	85 - 115

Matrix Spike — Lab ID = 805019-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Selenium	ug/L	2.50	40.8	50.0(50.0)	81.7	75 - 125

Matrix Spike Duplicate — Lab ID = 805019-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Selenium	ug/L	2.50	43.0	50.0(50.0)	86.0	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Selenium	ug/L	1.00	20.2	20.0	101	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Selenium	ug/L	1.00	20.3	20.0	102	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Selenium	ug/L	1.00	19.7	20.0	98.6	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Selenium	ug/L	1.00	19.5	20.0	97.3	90 - 110

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Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Selenium	ug/L	1.00	ND	0		

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Selenium	ug/L	1.00	ND	0		

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Selenium	ug/L	1.00	ND	0		

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Selenium	ug/L	1.00	ND	0		

Serial Dilution Lab ID = 805020-005

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Selenium	ug/L	12.5	39.3	37.5	4.69	0 - 10

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Metals by EPA 6020A, Dissolved

Batch 010713A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805020-002 Silver	ug/L	01/07/2013 14:45	2.50	0.135	5.0	ND

Method Blank

Parameter	Unit	DF	Result
Silver	ug/L	1.00	ND

Duplicate

Lab ID = 805508-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Silver	ug/L	2.50	ND	0	0	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Silver	ug/L	1.00	1.09	1.00	109	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Silver	ug/L	2.50	57.2	50.0	114	85 - 115

Matrix Spike

Lab ID = 805508-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Silver	ug/L	2.50	46.5	50.0(50.0)	93.0	75 - 125

Matrix Spike Duplicate

Lab ID = 805508-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Silver	ug/L	2.50	53.7	50.0(50.0)	107	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Silver	ug/L	1.00	20.6	20.0	103	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Silver	ug/L	1.00	20.5	20.0	102	90 - 110

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Silver	ug/L	1.00	ND	0		

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Silver	ug/L	1.00	ND	0		

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Metals by EPA 6010B, Dissolved Batch 120512A-Th2

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805020-002 Calcium	ug/L	12/05/2012 13:08	25.0	300	12500	30000
Iron	ug/L	12/05/2012 16:04	1.00	9.50	20.0	ND
Magnesium	ug/L	12/05/2012 16:04	1.00	55.4	500	6760
Sodium	ug/L	12/05/2012 14:26	200	78800	200000	1310000
805020-003 Calcium	ug/L	12/05/2012 14:32	200	2400	100000	637000
Iron	ug/L	12/05/2012 18:37	1.00	9.50	20.0	ND
Magnesium	ug/L	12/05/2012 16:10	2.00	111	1000	21800
Sodium	ug/L	12/05/2012 14:32	200	78800	200000	2860000
805020-004 Calcium	ug/L	12/05/2012 13:20	25.0	300	12500	79200
Iron	ug/L	12/05/2012 19:14	1.00	9.50	20.0	ND
Magnesium	ug/L	12/05/2012 16:16	2.00	111	1000	22200
Sodium	ug/L	12/05/2012 13:20	25.0	9850	25000	350000
805020-005 Calcium	ug/L	12/05/2012 13:25	25.0	300	12500	168000
Iron	ug/L	12/05/2012 19:20	1.00	9.50	20.0	ND
Magnesium	ug/L	12/05/2012 16:42	5.00	277	2500	45000
Sodium	ug/L	12/05/2012 14:38	200	78800	200000	564000
805020-006 Calcium	ug/L	12/05/2012 14:44	200	2400	100000	604000
Iron	ug/L	12/05/2012 19:26	1.00	9.50	20.0	ND
Magnesium	ug/L	12/05/2012 16:47	2.00	111	1000	21600
Sodium	ug/L	12/05/2012 14:44	200	78800	200000	2750000

Method Blank

Parameter	Unit	DF	Result
Calcium	ug/L	1.00	ND
Iron	ug/L	1.00	ND
Sodium	ug/L	1.00	ND
Magnesium	ug/L	1.00	ND

Duplicate Lab ID = 805019-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Calcium	ug/L	100	99700	97300	2.42	0 - 20
Iron	ug/L	1.00	ND	0	0	0 - 20
Sodium	ug/L	100	285000	283000	0.634	0 - 20
Magnesium	ug/L	5.00	16400	16100	2.03	0 - 20

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Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	2050	2000	102	85 - 115
Iron	ug/L	1.00	2200	2000	110	85 - 115
Sodium	ug/L	1.00	1810	2000	90.6	85 - 115
Magnesium	ug/L	1.00	2070	2000	104	85 - 115

Matrix Spike — Lab ID = 805019-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Calcium	ug/L	100	292000	297000(200000)	97.2	75 - 125
Iron	ug/L	1.00	1970	2000(2000)	98.4	75 - 125
Sodium	ug/L	100	460000	483000(200000)	88.4	75 - 125
Magnesium	ug/L	5.00	28000	26100(10000)	119	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	4960	5000	99.1	90 - 110
Iron	ug/L	1.00	5160	5000	103	90 - 110
Sodium	ug/L	1.00	4610	5000	92.2	90 - 110
Magnesium	ug/L	1.00	5030	5000	101	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	4800	5000	96.0	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	4710	5000	94.3	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	4670	5000	93.4	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	4650	5000	93.0	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5220	5000	104	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5340	5000	107	90 - 110

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Metals by EPA 6010B, Dissolved

Batch 120612A-Th2

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805020-002 Zinc	ug/L	12/06/2012 13:07	1.00	7.00	20.0	ND
805020-004 Boron	ug/L	12/06/2012 13:13	1.00	5.00	200	484
Potassium	ug/L	12/06/2012 13:13	1.00	270	1000	8070

Method Blank

Parameter	Unit	DF	Result
Zinc	ug/L	1.00	ND
Potassium	ug/L	1.00	ND
Boron	ug/L	1.00	ND

Duplicate

Lab ID = 805019-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Zinc	ug/L	1.00	ND	0	0	0 - 20
Potassium	ug/L	2.00	8150	7660	6.16	0 - 20
Boron	ug/L	1.00	340	332	2.38	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Zinc	ug/L	1.00	2180	2000	109	85 - 115
Potassium	ug/L	1.00	2020	2000	101	85 - 115
Boron	ug/L	1.00	1990	2000	99.5	85 - 115

Matrix Spike

Lab ID = 805019-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Zinc	ug/L	1.00	2140	2000(2000)	107	75 - 125
Potassium	ug/L	2.00	12300	11700(4000)	115	75 - 125
Boron	ug/L	1.00	2280	2330(2000)	97.2	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Zinc	ug/L	1.00	5340	5000	107	90 - 110
Potassium	ug/L	1.00	4900	5000	98.0	90 - 110
Boron	ug/L	1.00	5120	5000	102	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Zinc	ug/L	1.00	5270	5000	105	90 - 110

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Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Boron	ug/L	1.00	ND	0		

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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CH2MHILL

CHAIN OF CUSTODY RECORD

805020

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.06.TS
Task Order
Project 2012-GMP-188SAMPLEMETHODT
Turnaround Time 10 Days
Shipping Date: 10/19/2012
COC Number: TLI-188SMT

				Container:	250 ml Poly	2x250 ml Poly	2x500 ml Poly	1x500 ml Poly	1x500 ml Poly	1x500 ml Poly	1x500 ml Poly	1x500 ml Poly	1x500 ml Poly			
				Preservatives:	(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C			
				Filtered:	Field	Field	Field	Field	Field	Field	Field	Field	Field			
				Holding Time:	28	28	180	180	180	180	180	180	180			
		DATE	TIME	Matrix	Cr6 (E218.6) FF	Cr6 (E218.6R) FF	Metals (6020AFF) FF Chromium	Metals (6020AFF) FF Chromium	Metals (6010BFF) FF Ca,Mg,Na,Fe	Metals (6010BFF) FF Ca,Mg,Na,Fe,K,B	Metals (6010B/6020A/7470Adis) FF Title 22:SbAsBaBeCdCrCoCuPbHgMoNiSeAgTlVZn	Metals (6020AFF) FF As,Mo,Se,Mn	Metals (6020AFF) FF As,Mo,Se,Mn,Cr		Number of Containers	COMMENTS
-1	mw-116-188	11/27/12	1540	Water	X		X								2	
-2	mw-12-188		1322		X				X		X				2	
-3	mw-125-188		0740		X				X				X		2	pH=2
-4	mw-70-070-188		1516		X				~~X~~	X			X		2	Metals
-5	mw-26-188		1130		X				X				X		2	
-6	mw-61-110-188		0924		X				X				X		2	
														Total	12	

ALERT !!
Level III QC

For Sample Conditions
See Form Attached

	Signatures	Date/Time
Approved by		11-27-12
Sampled by		1600
Relinquished by		
Received by	Rafael Davila	11-27-12 16:00
Relinquished by	Rafael Davila	11-27-12 22:00
Received by	L. Shabumina, TLI	11/27/12 22:00

Shipping Details
Method of Shipment: FedEx
On Ice: yes / no
Airbill No:
Lab Name: Truesdail Laboratories, Inc.
Lab Phone: (714) 730-6239

ATTN:
Sample Custody

Special Instructions:
Title22:SbAsBaBeCdCoCuPbHgMoNiSeAgTlVZn

Report Copy to
Shawn Duffy
(530) 229-3303

121

Hexavalent Chromium

Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
11/28/12	805017	7	2ml/100ml (total)	9.5	10 Am	[illegible]
11/28/12	805018-1	9.5	N/A	N/A	N/A	[illegible]
↓	↓ -2	↓	↓	↓	↓	↓
11/28/12	805019 -1	9.5	N/A	N/A	N/A	[illegible]
↓	↓ -2	↓	↓	↓	↓	↓
11/28/12	805020 -1	9.5	N/A	N/A	N/A	[illegible]
↓	↓ -2	↓	↓	↓	↓	↓
	-3					
	-4					
	-5					
	-6					
11/28/12	805021 -1	9.5	N/A	N/A	N/A	[illegible]
↓	↓ -2	↓	↓	↓	↓	↓
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
11/28/12	805022 -1	9.5	N/A	N/A	N/A	HAV
↓	↓ -2	↓	↓	↓	↓	↓
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					

HAV 12/04/12

12-10-12

HAV 12/05/12

TRUESDAIL LABORATORIES, INC.

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
804747 (11-12)	<1	<2	11/09/12	KK	YES			
~~804834~~ KK								
804933	>1	~~<2~~ <2	~~11/28~~ 11/29/12	KK	YES			
804950	>1	~~<2~~ <2			YES			
804951	>1	~~<2~~ <2						
804952	>1	~~<2~~ <2						
804953	>1	<2						
804954	>1	<2						
804960 (1-4)	>1	<2						
~~804966~~ KK								
804979	>1	>2				PM 12/9	12-7	PH<2
804993	>1	<2						
805002	>1	<2						
805039	>1	>2						
805003	>1	<2	11/30/12	KK	yes			
805058	>1	<2	11/30/12	KK	YES			
805059	>1	<2	11/30/12	AA	yes			
805055	>1	<2						
805060	>1	<2						
805057	>1	<2						
805056	>1	<2						
805050 (1-3)	>1	<2						
805053	>1	<2						
805054	>1	<2						
805048	>1	<2						
805049 (1-4)	>1	<2						
805007-1	<1	>2	11/30/12	KK	—	12:30 pm	12/5/12 8:45	
805010 (1-3)	<1	>2			—			
805035 (10-12)	<1	>2	11/30/12	AA	—	12:30 pm		
805084 (1-2)	>1	<2	12/3/12	AA	yes			
805048	>1	<2						
805049 (1-4)	>1	<2						
805050 (1-3)	>1	<2						
805003	>1	<2						
805053	>1	<2						
805054	>1	<2						
805056	>1	<2						
805055	>1	~~<2~~ >2 AA 12/3/12				9:05 am		
805057	>1	<2						
805060	>1	<2						
805058	>1	<2						
805059	>1	<2						
804931 (1-8)	Solid	Solid	11/29/12	KK	YES			
805020 (1-6)	<1	<2	12/3/12	ES	yes			

Notes:
1. Samples should be analyzed after 24 hrs of pH adjustment to pH2 for Dissolved Analytes.
2. All Total Recoverable Analytes must be pH adjusted and digested.
3. Do not use disposable pipette to measure pH; pour a little amount of sample from the bottle.

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: E 2 **Lab #** 8050 20

Date Delivered: 11 / 27 / 12 **Time:** 22:00 **By:** ☐Mail ☒Field Service ☐Client

1. Was a Chain of Custody received and signed? ☒Yes ☐No ☐N/A
2. Does Customer require an acknowledgement of the COC? ☐Yes ☐No ☒N/A
3. Are there any special requirements or notes on the COC? ☐Yes ☐No ☒N/A
4. If a letter was sent with the COC, does it match the COC? ☐Yes ☐No ☒N/A
5. Were all requested analyses understood and acceptable? ☒Yes ☐No ☐N/A
6. Were samples received in a chilled condition? ☒Yes ☐No ☐N/A
   Temperature (if yes)? 3.8°C
7. Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)? ☒Yes ☐No ☐N/A
8. Were sample custody seals intact? ☐Yes ☐No ☒N/A
9. Does the number of samples received agree with COC? ☒Yes ☐No ☐N/A
10. Did sample labels correspond with the client ID's? ☒Yes ☐No ☐N/A
11. Did sample labels indicate proper preservation? ☒Yes ☐No ☐N/A
    Preserved (if yes) by: ☒Truesdail ☐Client
12. Were samples pH checked? pH = see C.O.C. ☒Yes ☐No ☐N/A
13. Were all analyses within holding time at time of receipt? ☒Yes ☐No ☐N/A
    If not, notify Project Manager.
14. Have Project due dates been checked and accepted? ☒Yes ☐No ☐N/A
    Turn Around Time (TAT): ☐ RUSH ☒ Std
15. **Sample Matrix:** ☐Liquid ☐Drinking Water ☐Ground Water ☐Waste Water ☐Sludge ☐Soil ☐Wipe ☐Paint ☐Solid ☒Other Water
16. Comments: __________
17. Sample Check-In completed by **Truesdail** Log-In/Receiving: L. Shakeevna

ALERT !! Level III QC

C:\Users\Test\Desktop\Forms A - D\Discrp.FormBlank.doc

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

14201 FRANKLIN AVENUE
TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462
www.truesdail.com

January 15, 2013

E2 Consulting Engineers, Inc.
Mr. Shawn Duffy
155 Grand Ave., Suite 1000
Oakland, California 94612

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK 2012-GMP-188SAMPLEMETHODT, GROUNDWATER MONITORING PROJECT, TLI NO.: 805157

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2012-GMP-188SAMPLEMETHODT groundwater-monitoring project. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, quality control data, and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data are under Section 5.

The samples were received and delivered with the chain of custody December 4, 2012, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

No violations or non-conformance actions occurred for this data package.

If you have any questions or require additional information, please contact me at (714) 730-6239 ext. 200.

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.
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Established 1931

14201 FRANKLIN AVENUE · TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462 · www.truesdail.com

Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy

Laboratory No.: 805157
Date Received: December 4, 2012

Project Name: PG&E Topock Project
Project No.: 423575.MP.02.GM.01
P.O. No.: 423575.MP.02.GM.01

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
805157-001	MW-117-188	E218.6	FLDFLT	11/28/2012	16:00	Chromium, Hexavalent	ND	ug/L	0.20
805157-001	MW-117-188	SW6020	FLDFLT	11/28/2012	16:00	Chromium	ND	ug/L	1.0
805157-002	MW-51-188	E218.6	FLDFLT	11/28/2012	13:22	Chromium, Hexavalent	4480	ug/L	50.0
805157-002	MW-51-188	SW6010B	FLDFLT	11/28/2012	13:22	Calcium	235000	ug/L	25000
805157-002	MW-51-188	SW6010B	FLDFLT	11/28/2012	13:22	Iron	ND	ug/L	20.0
805157-002	MW-51-188	SW6010B	FLDFLT	11/28/2012	13:22	Magnesium	20200	ug/L	2500
805157-002	MW-51-188	SW6010B	FLDFLT	11/28/2012	13:22	Sodium	2140000	ug/L	100000
805157-002	MW-51-188	SW6020	FLDFLT	11/28/2012	13:22	Arsenic	4.9	ug/L	1.0
805157-002	MW-51-188	SW6020	FLDFLT	11/28/2012	13:22	Chromium	4370	ug/L	20.0
805157-002	MW-51-188	SW6020	FLDFLT	11/28/2012	13:22	Manganese	ND	ug/L	0.50
805157-002	MW-51-188	SW6020	FLDFLT	11/28/2012	13:22	Molybdenum	40.0	ug/L	2.0
805157-002	MW-51-188	SW6020	FLDFLT	11/28/2012	13:22	Selenium	14.6	ug/L	5.0
805157-003	MW-59-100-188	E218.6	FLDFLT	11/28/2012	9:31	Chromium, Hexavalent	3980	ug/L	50.0
805157-003	MW-59-100-188	SW6010B	FLDFLT	11/28/2012	9:31	Calcium	691000	ug/L	25000
805157-003	MW-59-100-188	SW6010B	FLDFLT	11/28/2012	9:31	Iron	ND	ug/L	20.0
805157-003	MW-59-100-188	SW6010B	FLDFLT	11/28/2012	9:31	Magnesium	26100	ug/L	2500
805157-003	MW-59-100-188	SW6010B	FLDFLT	11/28/2012	9:31	Sodium	1440000	ug/L	100000
805157-003	MW-59-100-188	SW6020	FLDFLT	11/28/2012	9:31	Arsenic	4.4	ug/L	1.0
805157-003	MW-59-100-188	SW6020	FLDFLT	11/28/2012	9:31	Chromium	3970	ug/L	20.0
805157-003	MW-59-100-188	SW6020	FLDFLT	11/28/2012	9:31	Manganese	0.78	ug/L	0.50
805157-003	MW-59-100-188	SW6020	FLDFLT	11/28/2012	9:31	Molybdenum	4.3	ug/L	2.0
805157-003	MW-59-100-188	SW6020	FLDFLT	11/28/2012	9:31	Selenium	ND	ug/L	5.0
805157-004	MW-118-188	E218.6	FLDFLT	11/29/2012	16:10	Chromium, Hexavalent	ND	ug/L	0.20
805157-004	MW-118-188	SW6020	FLDFLT	11/29/2012	16:10	Chromium	ND	ug/L	1.0

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Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
805157-005	MW-119-188	E218.6	FLDFLT	11/29/2012	16:15	Chromium, Hexavalent	ND	ug/L	0.20
805157-005	MW-119-188	SW6020	FLDFLT	11/29/2012	16:15	Chromium	ND	ug/L	1.0
805157-006	MW-123-188	E218.6	FLDFLT	11/29/2012	17:45	Chromium, Hexavalent	9560	ug/L	100
805157-006	MW-123-188	SW6010B	FLDFLT	11/29/2012	17:45	BORON	2060	ug/L	200
805157-006	MW-123-188	SW6010B	FLDFLT	11/29/2012	17:45	Calcium	284000	ug/L	25000
805157-006	MW-123-188	SW6010B	FLDFLT	11/29/2012	17:45	Iron	ND	ug/L	20.0
805157-006	MW-123-188	SW6010B	FLDFLT	11/29/2012	17:45	Magnesium	24200	ug/L	2500
805157-006	MW-123-188	SW6010B	FLDFLT	11/29/2012	17:45	Potassium	32900	ug/L	2000
805157-006	MW-123-188	SW6010B	FLDFLT	11/29/2012	17:45	Sodium	2410000	ug/L	100000
805157-006	MW-123-188	SW6020	FLDFLT	11/29/2012	17:45	Arsenic	1.3	ug/L	0.50
805157-006	MW-123-188	SW6020	FLDFLT	11/29/2012	17:45	Chromium	9270	ug/L	80.0
805157-006	MW-123-188	SW6020	FLDFLT	11/29/2012	17:45	Manganese	ND	ug/L	0.50
805157-006	MW-123-188	SW6020	FLDFLT	11/29/2012	17:45	Molybdenum	41.3	ug/L	2.0
805157-006	MW-123-188	SW6020	FLDFLT	11/29/2012	17:45	Selenium	20.7	ug/L	5.0
805157-007	MW-20-100-188	E218.6	FLDFLT	11/29/2012	15:45	Chromium, Hexavalent	2910	ug/L	50.0
805157-007	MW-20-100-188	SW6010B	FLDFLT	11/29/2012	15:45	BORON	952	ug/L	200
805157-007	MW-20-100-188	SW6010B	FLDFLT	11/29/2012	15:45	Calcium	149000	ug/L	25000
805157-007	MW-20-100-188	SW6010B	FLDFLT	11/29/2012	15:45	Iron	ND	ug/L	20.0
805157-007	MW-20-100-188	SW6010B	FLDFLT	11/29/2012	15:45	Magnesium	30600	ug/L	2500
805157-007	MW-20-100-188	SW6010B	FLDFLT	11/29/2012	15:45	Potassium	9640	ug/L	2000
805157-007	MW-20-100-188	SW6010B	FLDFLT	11/29/2012	15:45	Sodium	376000	ug/L	25000
805157-007	MW-20-100-188	SW6020	FLDFLT	11/29/2012	15:45	Arsenic	2.9	ug/L	1.0
805157-007	MW-20-100-188	SW6020	FLDFLT	11/29/2012	15:45	Chromium	3090	ug/L	20.0
805157-007	MW-20-100-188	SW6020	FLDFLT	11/29/2012	15:45	Manganese	ND	ug/L	0.50
805157-007	MW-20-100-188	SW6020	FLDFLT	11/29/2012	15:45	Molybdenum	4.3	ug/L	2.0
805157-007	MW-20-100-188	SW6020	FLDFLT	11/29/2012	15:45	Selenium	5.1	ug/L	5.0

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Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
805157-008	MW-20-130-188	E218.6	FLDFLT	11/29/2012	15:44	Chromium, Hexavalent	9540	ug/L	100
805157-008	MW-20-130-188	SW6010B	FLDFLT	11/29/2012	15:44	BORON	2130	ug/L	200
805157-008	MW-20-130-188	SW6010B	FLDFLT	11/29/2012	15:44	Calcium	286000	ug/L	25000
805157-008	MW-20-130-188	SW6010B	FLDFLT	11/29/2012	15:44	Iron	ND	ug/L	20.0
805157-008	MW-20-130-188	SW6010B	FLDFLT	11/29/2012	15:44	Magnesium	24000	ug/L	2500
805157-008	MW-20-130-188	SW6010B	FLDFLT	11/29/2012	15:44	Potassium	32700	ug/L	2000
805157-008	MW-20-130-188	SW6010B	FLDFLT	11/29/2012	15:44	Sodium	2310000	ug/L	100000
805157-008	MW-20-130-188	SW6020	FLDFLT	11/29/2012	15:44	Arsenic	5.3	ug/L	0.50
805157-008	MW-20-130-188	SW6020	FLDFLT	11/29/2012	15:44	Chromium	9710	ug/L	80.0
805157-008	MW-20-130-188	SW6020	FLDFLT	11/29/2012	15:44	Manganese	ND	ug/L	0.50
805157-008	MW-20-130-188	SW6020	FLDFLT	11/29/2012	15:44	Molybdenum	40.5	ug/L	2.0
805157-008	MW-20-130-188	SW6020	FLDFLT	11/29/2012	15:44	Selenium	20.4	ug/L	5.0
805157-009	MW-50-200-188	E218.6	FLDFLT	11/29/2012	12:22	Chromium, Hexavalent	6680	ug/L	100
805157-009	MW-50-200-188	SW6010B	FLDFLT	11/29/2012	12:22	Calcium	536000	ug/L	100000
805157-009	MW-50-200-188	SW6010B	FLDFLT	11/29/2012	12:22	Iron	ND	ug/L	20.0
805157-009	MW-50-200-188	SW6010B	FLDFLT	11/29/2012	12:22	Magnesium	36800	ug/L	5000
805157-009	MW-50-200-188	SW6010B	FLDFLT	11/29/2012	12:22	Sodium	4750000	ug/L	500000
805157-009	MW-50-200-188	SW6020	FLDFLT	11/29/2012	12:22	Arsenic	3.8	ug/L	0.50
805157-009	MW-50-200-188	SW6020	FLDFLT	11/29/2012	12:22	Chromium	7000	ug/L	40.0
805157-009	MW-50-200-188	SW6020	FLDFLT	11/29/2012	12:22	Manganese	1.7	ug/L	0.50
805157-009	MW-50-200-188	SW6020	FLDFLT	11/29/2012	12:22	Molybdenum	38.3	ug/L	2.0
805157-009	MW-50-200-188	SW6020	FLDFLT	11/29/2012	12:22	Selenium	ND	ug/L	5.0

ND: Non Detected (below reporting limit)

mg/L: Milligrams per liter.

Note: The following "Significant Figures" rule has been applied to all results:

Results below 0.01ppm will have two (2) significant figures.

Result above or equal to 0.01ppm will have three (3) significant figures.

Quality Control data will always have three (3) significant figures.

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TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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REPORT

Client: **E2 Consulting Engineers, Inc.**
155 Grand Avenue, Suite 800
Oakland, CA 94612
Attention: Shawn Duffy
Project Name: PG&E Topock Project
Project Number: 423575.MP.02.GM.01
P.O. Number: 423575.MP.02.GM.01
Release Number:

Laboratory No. 805157

Printed 1/15/2013

Samples Received on 12/4/2012 10:30:00 PM

Field ID	Lab ID	Collected	Matrix
MW-117-188	805157-001	11/28/2012 16:00	Water
MW-51-188	805157-002	11/28/2012 13:22	Water
MW-59-100-188	805157-003	11/28/2012 09:31	Water
MW-118-188	805157-004	11/29/2012 16:10	Water
MW-119-188	805157-005	11/29/2012 16:15	Water
MW-123-188	805157-006	11/29/2012 17:45	Water
MW-20-100-188	805157-007	11/29/2012 15:45	Water
MW-20-130-188	805157-008	11/29/2012 15:44	Water
MW-50-200-188	805157-009	11/29/2012 12:22	Water

Chrome VI by EPA 218.6

Batch 12CrH12I

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805157-001 Chromium, Hexavalent	ug/L	12/10/2012 14:09	1.00	0.00920	0.20	ND
805157-002 Chromium, Hexavalent	ug/L	12/10/2012 14:20	250	2.30	50.0	4480
805157-003 Chromium, Hexavalent	ug/L	12/10/2012 14:30	250	2.30	50.0	3980
805157-004 Chromium, Hexavalent	ug/L	12/10/2012 14:40	1.00	0.00920	0.20	ND
805157-005 Chromium, Hexavalent	ug/L	12/10/2012 15:22	1.00	0.00920	0.20	ND
805157-006 Chromium, Hexavalent	ug/L	12/10/2012 16:14	500	4.60	100	9560
805157-007 Chromium, Hexavalent	ug/L	12/10/2012 16:25	250	2.30	50.0	2910
805157-008 Chromium, Hexavalent	ug/L	12/10/2012 15:53	500	4.60	100	9540
805157-009 Chromium, Hexavalent	ug/L	12/10/2012 16:04	500	4.60	100	6680

Method Blank

Parameter	Unit	DF	Result
Chromium, Hexavalent	ug/L	1.00	ND

Duplicate — Lab ID = 805156-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	740	746	0.838	0 - 20

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Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.212	0.200	106	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.80	5.00	96.1	90 - 110

Matrix Spike — Lab ID = 805155-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	16.4	17.0(10.0)	93.6	90 - 110

Matrix Spike — Lab ID = 805156-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.20	1.21(1.00)	98.5	90 - 110

Matrix Spike — Lab ID = 805156-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	1470	1500(750)	97.1	90 - 110

Matrix Spike — Lab ID = 805157-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.939	1.00(1.00)	93.9	90 - 110

Matrix Spike — Lab ID = 805157-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	250	9220	9480(5000)	94.7	90 - 110

Matrix Spike — Lab ID = 805157-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	250	8790	8980(5000)	96.1	90 - 110

Matrix Spike — Lab ID = 805157-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.956	1.00(1.00)	95.6	90 - 110

Matrix Spike — Lab ID = 805157-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.08	1.11(1.00)	96.5	90 - 110

Matrix Spike — Lab ID = 805157-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	500	19300	19600(10000)	97.4	90 - 110

Matrix Spike — Lab ID = 805157-007

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	250	6580	6660(3750)	97.8	90 - 110

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Matrix Spike — Lab ID = 805157-008

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	500	19200	19500(10000)	96.9	90 - 110

Matrix Spike — Lab ID = 805157-009

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	500	14000	14200(7500)	98.4	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.81	5.00	96.1	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	10.0	10.0	100	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.86	10.0	98.6	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.94	10.0	99.4	95 - 105

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Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project
Project Number: 423575.MP.02.GM.01

Metals by EPA 6020A, Dissolved Batch 010913A

Parameter		Unit	Analyzed	DF	MDL	RL	Result
805157-002	Chromium	ug/L	01/09/2013 18:14	50.0	4.60	20.0	4370
	Manganese	ug/L	01/09/2013 18:28	2.50	0.215	0.50	ND
	Molybdenum	ug/L	01/09/2013 18:28	2.50	0.518	2.0	40.0
	Selenium	ug/L	01/09/2013 18:28	2.50	0.200	5.0	14.6
805157-003	Chromium	ug/L	01/09/2013 18:43	50.0	4.60	20.0	3970
	Manganese	ug/L	01/09/2013 18:57	2.50	0.215	0.50	0.78
	Molybdenum	ug/L	01/09/2013 18:57	2.50	0.518	2.0	4.3
	Selenium	ug/L	01/09/2013 18:57	2.50	0.200	5.0	ND
805157-006	Chromium	ug/L	01/09/2013 20:16	200	18.4	80.0	9270
	Manganese	ug/L	01/09/2013 20:23	2.50	0.215	0.50	ND
	Molybdenum	ug/L	01/09/2013 20:23	2.50	0.518	2.0	41.3
	Selenium	ug/L	01/09/2013 20:23	2.50	0.200	5.0	20.7
805157-007	Chromium	ug/L	01/09/2013 20:38	50.0	4.60	20.0	3090
	Manganese	ug/L	01/09/2013 20:52	2.50	0.215	0.50	ND
	Molybdenum	ug/L	01/09/2013 20:52	2.50	0.518	2.0	4.3
	Selenium	ug/L	01/09/2013 20:52	2.50	0.200	5.0	5.1
805157-008	Chromium	ug/L	01/09/2013 21:06	200	18.4	80.0	9710
	Manganese	ug/L	01/09/2013 21:14	2.50	0.215	0.50	ND
	Molybdenum	ug/L	01/09/2013 21:14	2.50	0.518	2.0	40.5
	Selenium	ug/L	01/09/2013 21:14	2.50	0.200	5.0	20.4
805157-009	Chromium	ug/L	01/09/2013 19:18	100	9.20	40.0	7000
	Molybdenum	ug/L	01/09/2013 19:26	2.50	0.518	2.0	38.3
	Selenium	ug/L	01/09/2013 19:26	2.50	0.200	5.0	ND

Method Blank

Parameter	Unit	DF	Result
Chromium	ug/L	1.00	ND
Selenium	ug/L	1.00	ND
Manganese	ug/L	1.00	ND
Molybdenum	ug/L	1.00	ND

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Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.361	0.400	90.4	70 - 130
Selenium	ug/L	1.00	0.362	0.400	90.5	70 - 130
Manganese	ug/L	1.00	0.236	0.200	118	70 - 130
Molybdenum	ug/L	1.00	0.502	0.500	100	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	2.50	49.2	50.0	98.3	85 - 115
Selenium	ug/L	2.50	43.1	50.0	86.2	85 - 115
Manganese	ug/L	2.50	53.5	50.0	107	85 - 115
Molybdenum	ug/L	2.50	53.9	50.0	108	85 - 115

Matrix Spike Lab ID = 805152-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.50	51.8	51.8(50.0)	100	75 - 125
Selenium	ug/L	2.50	43.8	50.0(50.0)	87.6	75 - 125
Manganese	ug/L	2.50	52.5	51.1(50.0)	103	75 - 125
Molybdenum	ug/L	2.50	57.3	54.3(50.0)	106	75 - 125

Matrix Spike Duplicate Lab ID = 805152-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.50	51.1	51.8(50.0)	98.7	75 - 125
Selenium	ug/L	2.50	41.3	50.0(50.0)	82.6	75 - 125
Manganese	ug/L	2.50	50.9	51.1(50.0)	99.6	75 - 125
Molybdenum	ug/L	2.50	56.8	54.3(50.0)	105	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.4	20.0	97.0	90 - 110
Selenium	ug/L	1.00	18.8	20.0	94.2	90 - 110
Manganese	ug/L	1.00	20.5	20.0	102	90 - 110
Molybdenum	ug/L	1.00	20.6	20.0	103	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.8	20.0	98.8	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.9	20.0	99.6	90 - 110

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Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project Page 8 of 28
Project Number: 423575.MP.02.GM.01 Printed 1/15/2013

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Molybdenum	ug/L	1.00	ND	0		

Serial Dilution — Lab ID = 805157-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	250	4400	4370	0.684	0 - 10

Serial Dilution — Lab ID = 805157-009

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Molybdenum	ug/L	12.5	40.3	38.3	5.09	0 - 10

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Metals by EPA 6020A, Dissolved

Batch 011113A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805157-001 Chromium	ug/L	01/11/2013 10:44	2.50	0.230	1.0	ND
805157-002 Arsenic	ug/L	01/11/2013 10:51	2.50	0.130	1.0	4.9
805157-003 Arsenic	ug/L	01/11/2013 11:20	2.50	0.130	1.0	4.4
805157-004 Chromium	ug/L	01/11/2013 11:13	2.50	0.230	1.0	ND
805157-007 Arsenic	ug/L	01/11/2013 11:42	2.50	0.130	1.0	2.9

Method Blank

Parameter	Unit	DF	Result
Arsenic	ug/L	1.00	ND
Chromium	ug/L	1.00	ND

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	0.416	0.400	104	70 - 130
Chromium	ug/L	1.00	0.187	0.200	93.6	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	2.50	49.7	50.0	99.4	85 - 115
Chromium	ug/L	2.50	53.0	50.0	106	85 - 115

Matrix Spike

Lab ID = 805152-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	2.50	54.1	51.1(50.0)	106	75 - 125
Chromium	ug/L	2.50	60.2	52.0(50.0)	116	75 - 125

Matrix Spike Duplicate

Lab ID = 805152-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	2.50	50.7	51.1(50.0)	99.2	75 - 125
Chromium	ug/L	2.50	53.6	52.0(50.0)	103	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	20.1	20.0	100	90 - 110
Chromium	ug/L	1.00	20.8	20.0	104	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	19.9	20.0	99.6	90 - 110

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Metals by EPA 6020A, Dissolved

Batch 011313B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805157-008 Arsenic	ug/L	01/14/2013 04:28	2.50	0.250	0.50	5.3
805157-009 Arsenic	ug/L	01/14/2013 04:34	2.50	0.250	0.50	3.8
Manganese	ug/L	01/14/2013 04:34	2.50	0.215	0.50	1.7

Method Blank

Parameter	Unit	DF	Result
Arsenic	ug/L	1.00	ND
Manganese	ug/L	1.00	ND

Duplicate

Lab ID = 805152-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Arsenic	ug/L	2.50	0.709	0.683	3.74	0 - 20
Manganese	ug/L	2.50	0.794	0.770	3.07	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	0.184	0.200	92.0	70 - 130
Manganese	ug/L	1.00	0.195	0.200	97.5	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	2.50	48.3	50.0	96.5	85 - 115
Manganese	ug/L	2.50	46.3	50.0	92.7	85 - 115

Matrix Spike

Lab ID = 805152-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	2.50	52.8	50.7(50.0)	104	75 - 125
Manganese	ug/L	2.50	49.4	50.8(50.0)	97.4	75 - 125

Matrix Spike Duplicate

Lab ID = 805152-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	2.50	51.0	50.7(50.0)	101	75 - 125
Manganese	ug/L	2.50	47.6	50.8(50.0)	93.6	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	19.7	20.0	98.3	90 - 110
Manganese	ug/L	1.00	19.0	20.0	94.8	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	19.3	20.0	96.4	90 - 110

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Metals by EPA 6020A, Dissolved

Batch 011313D

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805157-006 Arsenic	ug/L	01/14/2013 12:31	2.50	0.250	0.50	1.3

Method Blank

Parameter	Unit	DF	Result
Arsenic	ug/L	1.00	ND

Duplicate

Lab ID = 805152-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Arsenic	ug/L	2.50	0.660	0.679	2.84	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	0.195	0.200	97.5	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	2.50	47.4	50.0	94.9	85 - 115

Matrix Spike

Lab ID = 805152-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	2.50	53.8	50.7(50.0)	106	75 - 125

Matrix Spike Duplicate

Lab ID = 805152-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	2.50	51.4	50.7(50.0)	101	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	19.8	20.0	99.0	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	19.4	20.0	96.8	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	19.4	20.0	97.3	90 - 110

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	ND	0		

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Metals by EPA 6020A, Dissolved

Batch 011513A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805157-005 Chromium	ug/L	01/15/2013 18:56	1.00	0.0920	1.0	ND

Method Blank

Parameter	Unit	DF	Result
Chromium	ug/L	1.00	ND

Duplicate

Lab ID = 805305-003

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	1.00	ND	0	0	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.887	1.00	88.7	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	49.5	50.0	99.1	85 - 115

Matrix Spike

Lab ID = 805305-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	1.00	47.1	50.0(50.0)	94.2	75 - 125

Matrix Spike Duplicate

Lab ID = 805305-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	1.00	46.6	50.0(50.0)	93.3	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.4	20.0	102	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.6	20.0	103	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.4	20.0	102	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.9	20.0	99.7	90 - 110

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Metals by EPA 6010B, Dissolved

Batch 122712A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805157-002 Calcium	ug/L	12/27/2012 17:16	50.0	1900	25000	235000
Sodium	ug/L	12/27/2012 18:26	200	20000	100000	2140000
805157-003 Calcium	ug/L	12/27/2012 17:22	50.0	1900	25000	691000
Sodium	ug/L	12/27/2012 18:31	200	20000	100000	1440000
805157-006 Calcium	ug/L	12/27/2012 17:27	50.0	1900	25000	284000
Potassium	ug/L	12/27/2012 20:21	2.00	526	2000	32900
Sodium	ug/L	12/27/2012 18:37	200	20000	100000	2410000
805157-007 Calcium	ug/L	12/27/2012 17:32	50.0	1900	25000	149000
Potassium	ug/L	12/27/2012 20:26	2.00	526	2000	9640
Sodium	ug/L	12/27/2012 17:32	50.0	5000	25000	376000
805157-008 Calcium	ug/L	12/27/2012 17:38	50.0	1900	25000	286000
Potassium	ug/L	12/27/2012 20:32	2.00	526	2000	32700
Sodium	ug/L	12/27/2012 18:42	200	20000	100000	2310000

Method Blank

Parameter	Unit	DF	Result
Calcium	ug/L	1.00	ND
Potassium	ug/L	1.00	ND
Sodium	ug/L	1.00	ND

Duplicate

Lab ID = 805153-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Calcium	ug/L	25.0	34300	34100	0.672	0 - 20
Potassium	ug/L	2.00	1690	1910	12.4	0 - 20
Sodium	ug/L	25.0	55100	55100	0.0363	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	2020	2000	101	85 - 115
Potassium	ug/L	1.00	1950	2000	97.6	85 - 115
Sodium	ug/L	1.00	1900	2000	94.8	85 - 115

Matrix Spike

Lab ID = 805153-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Calcium	ug/L	25.0	88200	84100(50000)	108	75 - 125
Potassium	ug/L	2.00	3930	3910(2000)	101	75 - 125
Sodium	ug/L	25.0	108000	105000(50000)	105	75 - 125

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Metals by EPA 6010B, Dissolved

Batch 122812A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805157-002 Iron	ug/L	12/28/2012 16:24	1.00	3.57	20.0	ND
Magnesium	ug/L	12/28/2012 14:01	5.00	275	2500	20200
805157-003 Iron	ug/L	12/28/2012 16:30	1.00	3.57	20.0	ND
Magnesium	ug/L	12/28/2012 14:06	5.00	275	2500	26100
805157-006 Boron	ug/L	12/28/2012 16:35	1.00	6.47	200	2060
Iron	ug/L	12/28/2012 16:35	1.00	3.57	20.0	ND
Magnesium	ug/L	12/28/2012 14:12	5.00	275	2500	24200
805157-007 Boron	ug/L	12/28/2012 16:59	1.00	6.47	200	952
Iron	ug/L	12/28/2012 16:59	1.00	3.57	20.0	ND
Magnesium	ug/L	12/28/2012 14:17	5.00	275	2500	30600
805157-008 Boron	ug/L	12/28/2012 17:05	1.00	6.47	200	2130
Iron	ug/L	12/28/2012 17:05	1.00	3.57	20.0	ND
Magnesium	ug/L	12/28/2012 14:23	5.00	275	2500	24000

Method Blank

Parameter	Unit	DF	Result
Iron	ug/L	1.00	ND
Magnesium	ug/L	1.00	ND
Boron	ug/L	1.00	ND

Duplicate

Lab ID = 805153-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Iron	ug/L	1.00	ND	0	0	0 - 20
Magnesium	ug/L	2.00	6660	6500	2.40	0 - 20
Boron	ug/L	1.00	156	156	0.128	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2130	2000	106	85 - 115
Magnesium	ug/L	1.00	2200	2000	110	85 - 115
Boron	ug/L	1.00	1970	2000	98.4	85 - 115

Matrix Spike

Lab ID = 805153-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	2140	2000(2000)	107	75 - 125
Magnesium	ug/L	2.00	11000	10500(4000)	113	75 - 125
Boron	ug/L	1.00	2280	2160(2000)	106	75 - 125

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Metals by EPA 6010B, Dissolved

Batch 010413A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805157-009 Calcium	ug/L	01/04/2013 16:09	200	7610	100000	536000
Iron	ug/L	01/04/2013 18:08	1.00	3.57	20.0	ND
Magnesium	ug/L	01/04/2013 16:57	10.0	549	5000	36800
Sodium	ug/L	01/04/2013 17:20	1000	100000	500000	4750000

Method Blank

Parameter	Unit	DF	Result
Calcium	ug/L	1.00	ND
Iron	ug/L	1.00	ND
Sodium	ug/L	1.00	ND
Magnesium	ug/L	1.00	ND

Duplicate

Lab ID = 805157-009

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Calcium	ug/L	200	526000	536000	1.81	0 - 20
Iron	ug/L	1.00	ND	0	0	0 - 20
Sodium	ug/L	1000	4680000	4750000	1.53	0 - 20
Magnesium	ug/L	10.0	36300	36800	1.26	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	2140	2000	107	85 - 115
Iron	ug/L	1.00	2220	2000	111	85 - 115
Sodium	ug/L	1.00	2050	2000	103	85 - 115
Magnesium	ug/L	1.00	2190	2000	110	85 - 115

Matrix Spike

Lab ID = 805157-009

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Calcium	ug/L	200	954000	936000(400000)	104	75 - 125
Iron	ug/L	1.00	1780	2000(2000)	88.8	75 - 125
Sodium	ug/L	1000	6680000	6750000(20000C	96.6	75 - 125
Magnesium	ug/L	10.0	56300	56800(20000)	97.7	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	4990	5000	99.7	90 - 110
Iron	ug/L	1.00	5200	5000	104	90 - 110
Sodium	ug/L	1.00	4890	5000	97.8	90 - 110
Magnesium	ug/L	1.00	4560	5000	91.3	90 - 110

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Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Magnesium	ug/L	1.00	2100	2000	105	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	2000	2000	100	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	1990	2000	99.6	80 - 120
Iron	ug/L	1.00	2210	2000	110	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2210	2000	110	80 - 120
Sodium	ug/L	1.00	1960	2000	98.0	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sodium	ug/L	1.00	2090	2000	104	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Magnesium	ug/L	1.00	1950	2000	97.4	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Magnesium	ug/L	1.00	2130	2000	106	80 - 120

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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CH2MHILL CHAIN OF CUSTODY RECORD 805157 12/3/2012 3:48:02 PM Page 1 OF 1

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.~~06.TO~~ .02.GM.Ø1
Task Order
Project 2012-GMP-188SAMPLEMETHOD
Turnaround Time 10 Days
Shipping Date: 12/4/2012
COC Number: 12

				Container:	250 ml Poly	1x500 ml Poly	1x500 ml Poly	1x500 ml Poly	1x500 ml Poly		
				Preservatives:	(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C		
				Filtered:	Field	Field	Field	Field	Field		
				Holding Time:	28	180	180	180	180		
		DATE	TIME	Matrix	Cr6 (E218.6) Field Filtered	Metals (6020AFF) Field Filtered Chromium	Metals (6010BFF) Field Filtered Ca,Mg,Na,Fe	Metals (6010BFF) Field Filtered Ca,Mg,Na,Fe,K,B	Metals (6020AFF) Field Filtered As,Mo,Se,Mn,Cr		Number of Containers	COMMENTS
1	MW-117-188	11/28/2012	16:00	Water	X	X					2	
2	MW-51-188	11/28/2012	13:22	Water	X		X		X		2	
3	MW-59-100-188	11/28/2012	9:31	Water	X		X		X		2	
4	MW-118-188	11/29/2012	16:10	Water	X	X					2	DU=2
5	MW-119-188	11/29/2012	16:15	Water	X	X					2	6020A/
6	MW-123-188	11/29/2012	17:45	Water	X			X	X		2	6010B
7	MW-20-100-188	11/29/2012	15:45	Water	X			X	X		2	
8	MW-20-130-188	11/29/2012	15:44	Water	X			X	X		2	
9	MW-50-200-188	11/29/2012	12:22	Water	X		X		X		2	
										TOTAL NUMBER OF CONTAINERS	18	

For Sample Conditions See Form Attached

ALERT !! Level III QC

	Signatures	Date/Time
Approved by		12-4-12
Sampled by		1620
Relinquished by		
Received by	Rafael Davila	12-4-12 16:20
Relinquished by	Rafael Davila	12-4-12-22:30
Received by	Linda, TLI	12/4/12 22:30

Shipping Details
Method of Shipment: courier
On Ice: yes / no
Airbill No:
Lab Name: Truesdail Laboratories, Inc.
Lab Phone: (714) 730-6239

ATTN: Sample Custody

Special Instructions:
Nov 5 - Dec 14, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

089

Hexavalent Chromium

Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
12/04/12	805116-1	9.5	N/A	N/A	N/A	HAV
	-2					
	-3					
	-4					
12/05/12	805154-1	7	2 ml	9.5	8:30 AM	HAV
	-2	9.5	N/A	N/A	N/A	HAV
	-3	7	2 ml	9.5	8:40 AM	HAV
	-4	9.5	N/A	N/A	N/A	HAV
	-5	7	2 ml	9.5	8:50 AM	HAV
	-6				9:00 AM	HAV
	-7				9:05 AM	HAV
	-8				9:10 AM	HAV
	-9				9:15 AM	HAV
	-10				9:20 AM	HAV
	-11				9:25 AM	HAV
	-12				9:30 AM	HAV
12/05/12	805155-1	7	2 ml	9.5	10:00 AM	HAV
	-2					
12/05/12	805156-1	7	2 ml	9.5	10:30 AM	HAV
	-2				10:40 AM	
12/05/12	805157-1	9.5	N/A	N/A	N/A	HAV
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					

12-17-12

TRUESDAIL LABORATORIES, INC.

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
805021 (1-5)	<1	<2	12/3/12	ES	yes			
805019 (1-2)	↓	↓	↓	↓	↓			
804967	↓	>2	↓	↓	↓	11:00 p.m		
805017	↓	↓	↓	↓	↓	↓		
~~8050~~ 12/4								
805116 (1-4)	<1	<2	12/4/12	KK	YES			
804746	<1	<2	11/9/12	KK	YES			
805022 (10)	<1	<2	12/4/12	BE	yes			
805117-1	<1	<2	12/4/12	ES	yes			
805145-(1-3)	<1	>2	12/6/12	AA	NO	8:30am		
805160 (1-3)	<1	>2	↓	↓	↓	↓		
805171 (10-12)	<1	>2	↓	↓	↓	↓		
805175-(1-3)	<1	>2	↓	↓	↓	↓		
805179	<1	<2	12/6/12	BE	yes			
805180 (1-5)	<1	<2	12/6/12	ES	yes			
805076	<1	>2	↓	↓	NO	10:00 am		
805114 (17,24)	↓	↓	↓	↓	↓	↓		
805152 (1-3	<1	<2	12/7/12	BE	yes			
12-7/12 BE 805153 (1-2)	↓	↓	↓	↓	↓			
805155 (1-2)	↓	>2	↓	↓	↓		Acidified after filt.	
805156 ~~805156~~ BE (1-2)	↓	↓	↓	↓	↓			
805157 (1-9)	↓	<2	↓	↓	↓			
805159 (1-12)	↓	↓	↓	↓	↓			
805158 (1-13, 17-27, 33)	<1	↓	↓	↓	↓			
BE ~~805~~ 805182 (1-8)	↓	↓	↓	↓	↓			
805181 (6,7)	↓	↓	↓	↓	↓			
805219 (1-4,5)	↓	↓	↓	↓	↓			
805220 (1-3)	↓	↓	↓	↓	↓			
805221 (1-4)	↓	↓	↓	↓	↓			
~~805214~~ ES 12/7/12								
805095	<1	<2	12/7/12	ES	yes			
805098	↓	↓	↓	↓	↓			
805104	↓	↓	↓	↓	↓			
805106	↓	↓	↓	↓	↓			
805125	↓	↓	↓	↓	↓			
805126	↓	↓	↓	↓	↓			
805127	↓	↓	↓	↓	↓			
805128	↓	↓	↓	↓	↓			
805120	↓	↓	↓	↓	↓			
805190	↓	↓	↓	↓	↓			
805191	↓	↓	↓	↓	↓			
805192	↓	↓	↓	↓	↓			
805200	↓	↓	↓	↓	↓			
805201	↓	↓	↓	↓	↓			

Notes:
1. Samples should be analyzed after 24 hrs of pH adjustment to pH2 for Dissolved Analytes.
2. All Total Recoverable Analytes must be pH adjusted and digested.
3. Do not use disposable pipette to measure pH; pour a little amount of sample from the bottle.

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: E2 **Lab #** 805157

Date Delivered: 12 / 4 / 12 **Time:** 22:30 **By:** ☐Mail ☒Field Service ☐Client

1. Was a Chain of Custody received and signed? ☒Yes ☐No ☐N/A
2. Does Customer require an acknowledgement of the COC? ☐Yes ☐No ☒N/A
3. Are there any special requirements or notes on the COC? ☐Yes ☐No ☒N/A
4. If a letter was sent with the COC, does it match the COC? ☐Yes ☐No ☒N/A
5. Were all requested analyses understood and acceptable? ☒Yes ☐No ☐N/A
6. Were samples received in a chilled condition? ☒Yes ☐No ☐N/A
   Temperature (if yes)? 3.6°C
7. Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)? ☒Yes ☐No ☐N/A
8. Were sample custody seals intact? ☐Yes ☐No ☒N/A
9. Does the number of samples received agree with COC? ☒Yes ☐No ☐N/A
10. Did sample labels correspond with the client ID's? ☒Yes ☐No ☐N/A
11. Did sample labels indicate proper preservation? ☒Yes ☐No ☐N/A
    Preserved (if yes) by: ☒Truesdail ☐Client
12. Were samples pH checked? pH = See C.O.C. ☒Yes ☐No ☐N/A
13. Were all analyses within holding time at time of receipt? ☒Yes ☐No ☐N/A
    If not, notify Project Manager.
14. Have Project due dates been checked and accepted? ☒Yes ☐No ☐N/A
    Turn Around Time (TAT): ☐ RUSH ☒ Std
15. **Sample Matrix:** ☐Liquid ☐Drinking Water ☐Ground Water ☐Waste Water ☐Sludge ☐Soil ☐Wipe ☐Paint ☐Solid ☒Other Water
16. Comments: _____
17. Sample Check-In completed by **Truesdail** Log-In/Receiving: L. Shabuwine

C:\Users\Test\Desktop\Forms A - D\Discrp.FormBlank.doc

ALERT !!
Level III QC

CH2MHILL
Applied Sciences Laboratory

ANALYTICAL REPORT

For:
PGE Topock

ASL Report #: L2840
Project ID: 423575.MP.02.GM.01
Attn: Jay Piper
cc:
Data Center/RDD

Authorized and Released By:

Kathy McKinley

Laboratory Project Manager
Kathy McKinley
(541) 758-0235 ext.23144
January 14, 2013

All analyses performed by CH2M HILL are clearly indicated. Any subcontracted analyses are included as appended reports as received from the subcontracted laboratory. The results included in this report only relate to the samples listed on the following Sample Cross-Reference page. This report shall not be reproduced except in full, without the written approval of the laboratory.

Any unusual difficulties encountered during the analysis of your samples are discussed in the attached case narratives.

Oregon (100022)
Arizona (0771)
Louisiana (05031)

ASL Report #: L2840

Sample Receipt Comments

We certify that the test results meet all NELAP requirements.

Sample Cross-Reference

ASL Sample ID	Client Sample ID	Date/Time Collected	Date Received
L284001	MW-124H-188SMT	11/05/12 08:02	11/15/12
L284002	MW-44-125H-188SMT	11/05/12 15:30	11/15/12
L284003	MW-50-095H-188SMT	11/05/12 12:28	11/15/12
L284004	MW-50-095MD-188SMT	11/05/12 13:16	11/15/12
L284005	MW-124MD-188SMT	11/06/12 06:50	11/15/12
L284006	MW-44-125MD-188SMT	11/06/12 09:44	11/15/12
L284007	MW-47-055H-188SMT	11/06/12 10:30	11/15/12
L284008	MW-33-090H-188SMT	11/07/12 15:40	11/15/12
L284009	MW-47-055MD-188SMT	11/07/12 08:45	11/15/12
L284010	MW-47-115H-188SMT	11/07/12 12:00	11/15/12
L284011	MW-47-115MD-188SMT	11/07/12 13:40	11/15/12
L284012	MW-33-090MD-188SMT	11/08/12 08:54	11/15/12
L284013	MW-36-100H-188SMT	11/08/12 11:20	11/15/12
L284014	MW-36-100MD-188SMT	11/08/12 13:12	11/15/12
L284015	MW-46-175H-188SMT	11/09/12 08:00	11/15/12
L284016	MW-46-175MD-188SMT	11/09/12 08:49	11/15/12
L284017	MW-50-095-188	11/05/12 14:05	11/15/12
L284018	MW-124-188	11/06/12 17:45	11/15/12
L284019	MW-44-125-188	11/06/12 15:10	11/15/12
L284020	MW-47-055-188	11/07/12 09:27	11/15/12
L284021	MW-47-115-188	11/07/12 14:38	11/15/12
L284022	MW-33-090-188	11/08/12 10:06	11/15/12
L284023	MW-36-100-188	11/08/12 14:21	11/15/12
L284024	MW-46-175-188	11/09/12 10:08	11/15/12

CASE NARRATIVE
AUTOMATED CHEMISTRY ANALYSIS

Lab Name: CH2M HILL/LAB/CVO ASL SDG#: L2840

Project: PGE Topock Project #: 423575.MP.02.GM.01

I. Method(s):

Analysis: E350.1

II. Receipt/Holding Times:

All acceptance criteria were met.

III. Analysis:

A. Initial Calibration(s):

All acceptance criteria were met.

B. Calibration Verification(s):

All acceptance criteria were met.

C. Blanks:

All acceptance criteria were met.

D. Laboratory Control Sample(s):

All acceptance criteria were met.

E. Matrix Spike/Matrix Spike Duplicate Sample(s):

Analyzed in accordance with standard operating procedure.

F. Analytical Exception(s):

None.

IV. Documentation Exception(s):

None.

V. I certify that this data package is in compliance with the terms and conditions agreed to by the client and CH2M HILL, both technically and for completeness, except for the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or designee, as verified by the following signatures.

Prepared by: Emily [illegible] Date: 1/9/13

Reviewed by: Kathy McKnight Date: 1/9/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-50-095-188

SDG No.: L2840

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L284017

Date Received: 11/15/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	MG/L	1	2 ML	E350.1	11/20/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-124-188

SDG No.: L2840

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L284018

Date Received: 11/15/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	MG/L	1	2 ML	E350.1	11/20/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-44-125-188

SDG No.: L2840

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L284019

Date Received: 11/15/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.383		MG/L	1	2 ML	E350.1	11/20/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-47-055-188

SDG No.: L2840

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L284020

Date Received: 11/15/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	MG/L	1	2 ML	E350.1	11/20/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-47-115-188

SDG No.: L2840

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L284021

Date Received: 11/15/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	MG/L	1	2 ML	E350.1	11/20/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-33-090-188

SDG No.: L2840

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L284022

Date Received: 11/15/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	MG/L	1	2 ML	E350.1	11/20/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-36-100-188

SDG No.: L2840

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L284023

Date Received: 11/15/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	MG/L	1	2 ML	E350.1	11/20/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-46-175-188

SDG No.: L2840

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L284024

Date Received: 11/15/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	MG/L	1	2 ML	E350.1	11/20/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB1-1120

SDG No.: L2840

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: WB1-1120

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	MG/L	1	2 ML	E350.1	11/20/12

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: L2840

Lab Name: CH2M HILL/LAB/CVO

Analysis Method: E350.1

LCS ID: BS1W1120

Initial Calibration ID: 092512NH3LAcal

Date Analyzed: 11/20/12

Matrix: (Soil/Water) WATER

Time Analyzed: 1233

Instrument: LACH8500

Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Ammonia-N	1.09	1.12	103	90-110	

* Values outside of QC limits

Comments:

CASE NARRATIVE
AUTOMATED CHEMISTRY ANALYSIS

Lab Name: CH2M HILL/LAB/CVO ASL SDG#: L2840

Project: PGE Topock Project #: 423575.MP.02.GM.01

I. Method(s):
Analysis: E353.2

II. Receipt/Holding Times:
All acceptance criteria were met.

III. Analysis:

A. Initial Calibration(s):
All acceptance criteria were met.

B. Calibration Verification(s):
All acceptance criteria were met.

C. Blanks:
All acceptance criteria were met.

D. Laboratory Control Sample(s):
All acceptance criteria were met.

E. Matrix Spike/Matrix Spike Duplicate Sample(s):
Analyzed in accordance with standard operating procedure.

F. Analytical Exception(s):
None.

IV. Documentation Exception(s):
None.

V. I certify that this data package is in compliance with the terms and conditions agreed to by the client and CH2M HILL, both technically and for completeness, except for the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or designee, as verified by the following signatures.

Prepared by: Emily Ell Date: 1/9/13

Reviewed by: Kathy McKnley Date: 1/9/13

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-124H-188SMT

SDG No.: L2840

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L284001

Date Received: 11/15/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0383		MG/L	1	3 ML	E353.2	11/20/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-44-125H-188SMT

SDG No.: L2840

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L284002

Date Received: 11/15/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0385		MG/L	1	3 ML	E353.2	11/20/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-50-095H-188SMT

SDG No.: L2840

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L284003

Date Received: 11/15/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0280	0.100	1.56		MG/L	10	3 ML	E353.2	11/20/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-50-095MD-188SMT

SDG No.: L2840

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L284004

Date Received: 11/15/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0280	0.100	1.56		MG/L	10	3 ML	E353.2	11/20/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-124MD-188SMT

SDG No.: L2840

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L284005

Date Received: 11/15/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.165		MG/L	1	3 ML	E353.2	11/20/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-44-125MD-188SMT

SDG No.: L2840

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L284006

Date Received: 11/15/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.163		MG/L	1	3 ML	E353.2	11/20/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-47-055H-188SMT

SDG No.: L2840

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L284007

Date Received: 11/15/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0280	0.100	1.75		MG/L	10	3 ML	E353.2	11/20/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-33-090H-188SMT

SDG No.: L2840

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L284008

Date Received: 11/15/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0280	0.100	0.913		MG/L	10	3 ML	E353.2	11/20/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-47-055MD-188SMT

SDG No.: L2840

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L284009

Date Received: 11/15/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0280	0.100	1.81		MG/L	10	3 ML	E353.2	11/20/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-47-115H-188SMT

SDG No.: L2840

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L284010

Date Received: 11/15/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0140	0.0500	1.97		MG/L	5	3 ML	E353.2	11/20/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-47-115MD-188SMT

SDG No.: L2840

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L284011

Date Received: 11/15/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0140	0.0500	1.95		MG/L	5	3 ML	E353.2	11/20/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-33-090MD-188SMT

SDG No.: L2840

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L284012

Date Received: 11/15/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0140	0.0500	1.30		MG/L	5	3 ML	E353.2	11/20/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-36-100H-188SMT

SDG No.: L2840

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L284013

Date Received: 11/15/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0140	0.0500	0.324		MG/L	5	3 ML	E353.2	11/20/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-36-100MD-188SMT

SDG No.: L2840

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L284014

Date Received: 11/15/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0140	0.0500	0.104		MG/L	5	3 ML	E353.2	11/20/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-46-175H-188SMT

SDG No.: L2840

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L284015

Date Received: 11/15/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0140	0.0500	0.851		MG/L	5	3 ML	E353.2	11/20/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-46-175MD-188SMT

SDG No.: L2840

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L284016

Date Received: 11/15/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.931		MG/L	1	3 ML	E353.2	11/20/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-50-095-188

SDG No.: L2840

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L284017

Date Received: 11/15/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00560	0.0200	1.49		MG/L	2	3 ML	E353.2	11/20/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-124-188

SDG No.: L2840

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L284018

Date Received: 11/15/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.363		MG/L	1	3 ML	E353.2	11/20/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-44-125-188

SDG No.: L2840

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L284019

Date Received: 11/15/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.384		MG/L	1	3 ML	E353.2	11/20/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-47-055-188

SDG No.: L2840

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L284020

Date Received: 11/15/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0112	0.0400	2.19		MG/L	4	3 ML	E353.2	11/20/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-47-115-188

SDG No.: L2840

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L284021

Date Received: 11/15/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0140	0.0500	2.09		MG/L	5	3 ML	E353.2	11/20/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-33-090-188

SDG No.: L2840

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L284022

Date Received: 11/15/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0140	0.0500	1.57		MG/L	5	3 ML	E353.2	11/20/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-36-100-188

SDG No.: L2840

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L284023

Date Received: 11/15/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0957		MG/L	1	3 ML	E353.2	11/20/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-46-175-188

SDG No.: L2840

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L284024

Date Received: 11/15/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.922		MG/L	1	3 ML	E353.2	11/20/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB1-112012

SDG No.: L2840

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: WB1-112012

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	11/20/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB2-112012

SDG No.: L2840

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: WB2-112012

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	11/20/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB3-112012

SDG No.: L2840

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: WB3-112012

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	11/20/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB4-112012

SDG No.: L2840

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: WB4-112012

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	11/20/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB5-112012

SDG No.: L2840

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: WB5-112012

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	11/20/12

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: L2840

Lab Name: CH2M HILL/LAB/CVO

Analysis Method: E353.2

LCS ID: BS1W1120

Initial Calibration ID: 052112NO32SMcal

Date Analyzed: 11/20/12

Matrix: (Soil/Water) WATER

Time Analyzed: 1559

Instrument: SMARTCHEM

Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.416	0.417	100	90-110	

* Values outside of QC limits

Comments:

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: L2840

Lab Name: CH2M HILL/LAB/CVO

Analysis Method: E353.2

LCS ID: BS2W1120

Initial Calibration ID: 052112NO32SMcal

Date Analyzed: 11/20/12

Matrix: (Soil/Water) WATER

Time Analyzed: 1732

Instrument: SMARTCHEM

Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.416	0.430	103	90-110	

* Values outside of QC limits

Comments:

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: L2840

Lab Name: CH2M HILL/LAB/CVO

Analysis Method: E353.2

LCS ID: BS3W1120

Initial Calibration ID: 052112NO32SMcal

Date Analyzed: 11/20/12

Matrix: (Soil/Water) WATER

Time Analyzed: 1803

Instrument: SMARTCHEM

Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.416	0.430	103	90-110	

* Values outside of QC limits

Comments:

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: L2840

Lab Name: CH2M HILL/LAB/CVO

Analysis Method: E353.2

LCS ID: BS4W1120

Initial Calibration ID: 052112NO32SMcal

Date Analyzed: 11/20/12

Matrix: (Soil/Water) WATER

Time Analyzed: 1838

Instrument: SMARTCHEM

Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.416	0.435	104	90-110	

* Values outside of QC limits

Comments:

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: L2840

Lab Name: CH2M HILL/LAB/CVO

Analysis Method: E353.2

LCS ID: BS5W1120

Initial Calibration ID: 052112NO32SMcal

Date Analyzed: 11/20/12

Matrix: (Soil/Water) WATER

Time Analyzed: 1927

Instrument: SMARTCHEM

Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.416	0.409	98	90-110	

* Values outside of QC limits

Comments:

L 2840

CH2MHILL

CHAIN OF CUSTODY RECORD

11/13/2012 4:54:55 PM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.06.TS
Task Order
Project 2012-GMP-188SAMPLEMETHOD
Turnaround Time 10 Days
Shipping Date: 11/8/2012
COC Number: 0

				Container:	250 ml Poly			
				Preservatives:	H2SO4, pH<2, 4°C			
				Filtered:	NA			
				Holding Time:	28			
	DATE	TIME	Matrix		Nitrate/Nitrite (E353.3)		Number of Containers	COMMENTS
MW-124H-188SMT	11/5/2012	8:02	Water		x	1	1	
MW-44-125H-188SMT	11/5/2012	15:30	Water		x	2	1	
MW-50-095H-188SMT	11/5/2012	12:28	Water		x	3	1	
MW-50-095MD-188S SMT	11/5/2012	13:16	Water		x	4	1	
MW-124MD-188SMT	11/6/2012	6:50	Water		x	5	1	
MW-44-125MD-188S SMT	11/6/2012	9:44	Water		x	6	1	
MW-47-055H-188SMT	11/6/2012	10:30	Water		x	7	1	
MW-33-090H-188SMT	11/7/2012	15:40	Water		x	8	1	
MW-47-055MD-188S SMT	11/7/2012	8:45	Water		x	9	1	
MW-47-115H-188SMT	11/7/2012	12:00	Water		x	10	1	
MW-47-115MD-188S SMT	11/7/2012	13:40	Water		x	11	1	
MW-33-090MD-188S SMT	11/8/2012	8:54	Water		x	12	1	
MW-36-100H-188SMT	11/8/2012	11:20	Water		x	13	1	
MW-36-100MD-188S SMT	11/8/2012	13:12	Water		x	14	1	

1.7 ice

	Signatures	Date/Time
Approved by		11-13-12 1700
Sampled by		
Relinquished by		
Received by		11/13/12 1700
Relinquished by		11/13/12 1915
Received by		11/13/12 @ 1915
REL BY		11/14/12 @ 1600

Shipping Details

Method of Shipment: FedEx
On Ice: ~~yes~~ / no 3.0°C / 2.6°C (BT)
Airbill No: CHMC
Lab Name: ~~ADVANCED TECHNOLOGY LABORATO~~
Lab Phone: ~~(702) 307-2659~~ 541-768-3144
Kathey McKinley 11/15/12 1400

ATTN:
Sample Custody
and
Marlon

Special Instructions:
Nov 5 - Dec 14, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

L 2840

CH2MHILL

CHAIN OF CUSTODY RECORD

11/13/2012 4:54:55 PM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.06.TS
Task Order
Project 2012-GMP-188SAMPLEMETHOD
Turnaround Time 10 Days
Shipping Date: 11/8/2012
COC Number: 0

			Container:	250 ml Poly			
			Preservatives:	H2SO4, pH<2, 4°C			
			Filtered:	NA			
			Holding Time:	28			
	DATE	TIME	Matrix	Nitrate/Nitrite (E353.3)		Number of Containers	COMMENTS
MW-46-175H-188SMT	11/9/2012	8:00	Water	X	15	1	
MW-46-175MD-188SMT	11/9/2012	8:49	Water	X	16	1	
					TOTAL NUMBER OF CONTAINERS	16	

	Signatures	Date/Time
Approved by		11-13-12 1700
Sampled by		
Relinquished by		11/13/12 1700
Received by		11/13/12 1915
Relinquished by		11/13/12 @ 1915
Received by		11/14/12 @ 1600

REL: 11/14/12 @ 1600

Shipping Details

Method of Shipment: FedEx
On Ice: yes / no 2, 4°C Exit 1
Airbill No: CHMC
Lab Name: ~~ADVANCED TECHNOLOGY LABORATO~~
Lab Phone: (702) 307-2659 541-768-3144
KMcKnG 11/15/12 1400

ATTN:
Sample Custody and Marlon

Special Instructions:
Nov 5 - Dec 14, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

L2840

CH2MHILL CHAIN OF CUSTODY RECORD 11/13/2012 4:54:32 PM Page 1 OF 1

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.06.TS
Task Order
Project 2012-GMP-188SAMPLEMETHOD
Turnaround Time 10 Days
Shipping Date: 11/13/2012
COC Number: 15

Container:				1 Liter Poly	1 Liter Poly			
Preservatives:				H2SO4, pH<2, 4°C	H2SO4, pH<2, 4°C			
Filtered:				NA	NA			
Holding Time:				28	28			
	DATE	TIME	Matrix	Ammonia (SM4500NH3)	Nitrate/Nitrite (E353.3)		Number of Containers	COMMENTS
MW-50-095-188	11/5/2012	14:05	Water	x	x	17	1	
MW-124-188	11/6/2012	17:45	Water	x	x	18	1	
MW-44-125-188	11/6/2012	15:10	Water	x	x	19	1	
MW-47-055-188	11/7/2012	9:27	Water	x	x	20	1	
MW-47-115-188	11/7/2012	14:38	Water	x	x	21	1	
MW-33-090-188	11/8/2012	10:06	Water	x	x	22	1	
MW-36-100-188	11/8/2012	14:21	Water	x	x	23	1	
MW-46-175-188	11/9/2012	10:08	Water	x	x	24	1	
						TOTAL NUMBER OF CONTAINERS	8	

	Signatures	Date/Time
Approved by		11-13-12
Sampled by		1700
Relinquished by		
Received by		11/13/12 1700
Relinquished by		11/13/12 1715
Received by	MBLACKTIN	11/13/12 @ 1915

Shipping Details
Method of Shipment: courier
On Ice: ~~yes~~ / no 3.0 °C / 2.6 °C
Airbill No: 1R#1
Lab Name: ADVANCED TECHNOLOGY LABORATO
Lab Phone: (702) 307-2659

ATTN:
Sample Custody and Marlon

Special Instructions:
Nov 5 - Dec 14, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

REL BY: 11/14/12 @ 1600 Kathleen McKnle 11/15/12 1400

CH2MHILL
Applied Sciences Laboratory (ASL)

Sample Receipt Record

Batch Number: L2840
Client/Project: PGE

Date received: 11/15/12
Checked by: KAM
Checked by:

VERIFICATION OF SAMPLE CONDITIONS (verify all items), HD = Client Hand delivered Samples	NA	YES	NO
Radiological Screening for DoD	X		
Were custody seals intact and on the outside of the cooler?		X	
Type of packing material: Ice Blue Ice Bubble wrap			
Was a Chain of Custody (CoC) Provided?		X	
Was the CoC correctly filled out (If No, document in the SRER)		X	
Did the CoC list a correct bottle count and the preservative types (Y=OK, N=Corrected on CoC)		X	
Were the sample containers in good condition (broken or leaking)?		X	
Containers supplied by ASL?			X
Any sample with < 1/2 holding time remaining? If so contact LPM			X
Samples have multi-phase? If yes, document on SRER			X
Was there ice in the cooler? Enter temp. If >6°C contact client/SRER 1.7 °C		X	
All VOCs free of air bubbles? No, document on SRER	X		
pH of all samples checked and met requirements? No, then document in SRER		X	
Enough sample volume provided for analysis? No, document in SRER		X	
Did sample labels agree with COC? No, document in SRER		X	
Dissolved/Soluble metals filtered in the field?	X		
Dissolved/Soluble metals have sediment in bottom of container? Document in SRER	X		

Sample ID	Reagent	Reagent Lot Number	Volume Added	Initials

CH2MHILL
Applied Sciences Laboratory (ASL)

Sample Receipt Exception Report

Sample Batch Number: L2840 **Client/Project** PGE TOPOCK

The following exceptions were noted:		Comments (write number of exception description and the impacted sample numbers)
	1. No custody seal as required by project	11) ASL perform ammonia by E 350.1 COC requested SM4500 NH3
	2. No chain-of-custody provided	
	3. Analysis, description, date of collection not provided	
	4. Samples broken or leaking on receipt.	
	5. Temperature of samples inappropriate for analysis requested	
	6. Container inappropriate for analysis requested	
	7. Inadequate sample volume.	
	8. Preservation inappropriate for analysis requested	
	9. Samples received out of holding time for analysis requested	
	10. Discrepancies between COC form and container labels.	
X	11. Other.	

ACTION TAKEN:

Originator: Kathy McKnee Date: 11/15/12

Client was notified on: (Date/Time) 11/15/12 Client Contact: Shawn Duffy

Client Services:

CH2MHILL
Applied Sciences Laboratory

ANALYTICAL REPORT

For:
PGE Topock

ASL Report #: L2925
Project ID: 423575.MP.06.TS
Attn: Jay Piper/LAS
cc:
Data Center/RDD

Authorized and Released By:

Kathy McKinley

Laboratory Project Manager
Kathy McKinley
(541) 758-0235 ext.23144
January 11, 2013

This data package meets standards requested by client and is not intended or implied to meet any other standard.

All analyses performed by CH2M HILL are clearly indicated. Any subcontracted analyses are included as appended reports as received from the subcontracted laboratory. The results included in this report only relate to the samples listed on the following Sample Cross-Reference page. This report shall not be reproduced except in full, without the written approval of the laboratory.

Any unusual difficulties encountered during the analysis of your samples are discussed in the attached case narratives.

CH2M HILL Applied Sciences Laboratory • 1100 NE Circle Boulevard, Suite 300 • Corvallis, Oregon 97330 • www.ch2mhill.com/asl

ASL Report #: L2925

Sample Receipt Comments

We certify that the test results meet all standard ASL requirements.

Sample Cross-Reference

ASL Sample ID	Client Sample ID	Date/Time Collected	Date Received
L292501	MW-19-188	11/26/12 15:19	11/29/12
L292502	MW-44-115-188	11/26/12 11:36	11/29/12
L292503	MW-125H-188SMT	11/27/12 17:10	11/29/12
L292504	MW-125MD-188SMT	11/27/12 07:10	11/29/12
L292505	MW-12H-188SMT	11/27/12 12:11	11/29/12
L292506	MW-12MD-188SMT	11/27/12 12:53	11/29/12
L292507	MW-20-070H-188SMT	11/27/12 14:00	11/29/12
L292508	MW-20-070MD-188SMT	11/27/12 14:45	11/29/12
L292509	MW-26H-188SMT	11/27/12 10:15	11/29/12
L292510	MW-26MD-188SMT	11/27/12 10:55	11/29/12
L292511	MW-61-110H-188SMT	11/27/12 07:30	11/29/12
L292512	MW-61-110MD-188SMT	11/27/12 08:38	11/29/12
L292513	MW-19H-188SMT	11/26/12 13:55	11/29/12
L292514	MW-19MD-188SMT	11/26/12 14:43	11/29/12
L292515	MW-44-115H-188SMT	11/26/12 08:31	11/29/12
L292516	MW-44-115MD-188SMT	11/26/12 10:16	11/29/12
L292517	MW-12-188	11/27/12 13:22	11/29/12
L292518	MW-125-188	11/27/12 07:40	11/29/12
L292519	MW-20-070-188	11/27/12 15:16	11/29/12
L292520	MW-26-188	11/27/12 11:30	11/29/12
L292521	MW-61-110-188	11/27/12 09:24	11/29/12

CASE NARRATIVE
AUTOMATED CHEMISTRY ANALYSIS

Lab Name: CH2M HILL/LAB/CVO ASL SDG#: L2925

Project: PGE Topock Project #: 423575.MP.06.TS

I. Method(s):
Analysis: E350.1

II. Receipt/Holding Times:
Samples MW-125-188 and MW-61-110-188 for Ammonia-N were analyzed outside of holding time.

III. Analysis:

A. Initial Calibration(s):
All acceptance criteria were met.

B. Calibration Verification(s):
All acceptance criteria were met.

C. Blanks:
All acceptance criteria were met.

D. Laboratory Control Sample(s):
All acceptance criteria were met.

E. Matrix Spike/Matrix Spike Duplicate Sample(s):
Analyzed in accordance with standard operating procedure.

F. Analytical Exception(s):
None.

IV. Documentation Exception(s):
None.

V. I certify that this data package is in compliance with the terms and conditions agreed to by the client and CH2M HILL, both technically and for completeness, except for the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or designee, as verified by the following signatures.

Prepared by: [signature] Date: 12/28/2012

Reviewed by: Kathy McKinley Date: 12/31/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-44-115-188

SDG No.: L2925

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L292502

Date Received: 11/29/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	MG/L	1	2 ML	E350.1	12/04/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-125-188

SDG No.: L2925

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L292518

Date Received: 11/29/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	mg/L	1	2 ML	E350.1	12/28/12

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-61-110-188

SDG No.: L2925

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L292521

Date Received: 11/29/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.370		mg/L	1	2 ML	E350.1	12/28/12

FORM I GEN CHEM

YL121228-17:06-L2925-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB1-1204

SDG No.: L2925

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: WB1-1204

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	MG/L	1	2 ML	E350.1	12/04/12

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: L2925

Lab Name: CH2M HILL/LAB/CVO

Analysis Method: E350.1

LCS ID: BS1W1204

Initial Calibration ID: 092512NH3LAcal

Date Analyzed: 12/04/12

Matrix: (Soil/Water) WATER

Time Analyzed: 1318

Instrument: LACH8500

Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Ammonia-N	1.09	1.14	105	90-110	

* Values outside of QC limits

Comments:

CASE NARRATIVE
AUTOMATED CHEMISTRY ANALYSIS

Lab Name: CH2M HILL/LAB/CVO ASL SDG#: L2925

Project: PGE Topock Project #: 423575.MP.06.TS

I. Method(s):
Analysis: E353.2

II. Receipt/Holding Times:
All acceptance criteria were met.

III. Analysis:

A. Initial Calibration(s):
All acceptance criteria were met.

B. Calibration Verification(s):
All acceptance criteria were met.

C. Blanks:
All acceptance criteria were met.

D. Laboratory Control Sample(s):
All acceptance criteria were met.

E. Matrix Spike/Matrix Spike Duplicate Sample(s):
MS and MSD recovery of Nitrate/Nitrite-N (113% and 112%) in MW-26MD-188SMT (L292510) did not meet acceptance criteria of 90-110%.

F. Analytical Exception(s):
None.

IV. Documentation Exception(s):
None.

V. I certify that this data package is in compliance with the terms and conditions agreed to by the client and CH2M HILL, both technically and for completeness, except for the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or designee, as verified by the following signatures.

Prepared by: Emily Ehl Date: 12/13/12

Reviewed by: Kathy McCarley Date: 12/14/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-44-115MD-188SMT

SDG No.: L2925

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L292516

Date Received: 11/29/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.329		MG/L	1	3 ML	E353.2	12/12/12

FORM I GEN CHEM

EC130111-14:25-L2925-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-44-115-188

SDG No.: L2925

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L292502

Date Received: 11/29/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.290		MG/L	1	3 ML	E353.2	12/12/12

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-125H-188SMT

SDG No.: L2925

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L292503

Date Received: 11/29/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.262		MG/L	1	3 ML	E353.2	12/12/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-125MD-188SMT

SDG No.: L2925

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L292504

Date Received: 11/29/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.837		MG/L	1	3 ML	E353.2	12/12/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-12H-188SMT

SDG No.: L2925

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L292505

Date Received: 11/29/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0560	0.200	13.2		MG/L	20	3 ML	E353.2	12/12/12

EC121219-16:00-L2925-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-12MD-188SMT

SDG No.: L2925

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L292506

Date Received: 11/29/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0560	0.200	13.2		MG/L	20	3 ML	E353.2	12/12/12

FORM I GEN CHEM

EC121219-16:00-L2925-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-20-070H-188SMT

SDG No.: L2925

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L292507

Date Received: 11/29/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0560	0.200	9.57		MG/L	20	3 ML	E353.2	12/12/12

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-20-070MD-188SMT

SDG No.: L2925

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L292508

Date Received: 11/29/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0560	0.200	9.75		MG/L	20	3 ML	E353.2	12/12/12

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-26H-188SMT

SDG No.: L2925

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L292509

Date Received: 11/29/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0560	0.200	14.7		MG/L	20	3 ML	E353.2	12/12/12

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-26MD-188SMT

SDG No.: L2925

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L292510

Date Received: 11/29/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.140	0.500	18.1		MG/L	50	3 ML	E353.2	12/12/12

FORM I GEN CHEM

EC121219-16:00-L2925-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-61-110H-188SMT

SDG No.: L2925

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L292511

Date Received: 11/29/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.267		MG/L	1	3 ML	E353.2	12/12/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-61-110MD-188SMT

SDG No.: L2925

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L292512

Date Received: 11/29/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.832		MG/L	1	3 ML	E353.2	12/12/12

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-19H-188SMT

SDG No.: L2925

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L292513

Date Received: 11/29/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0560	0.200	5.00		MG/L	20	3 ML	E353.2	12/12/12

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-19MD-188SMT

SDG No.: L2925

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L292514

Date Received: 11/29/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0560	0.200	4.92		MG/L	20	3 ML	E353.2	12/12/12

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-44-115H-188SMT

SDG No.: L2925

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L292515

Date Received: 11/29/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.442		MG/L	1	3 ML	E353.2	12/12/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-44-115MD-188S

SDG No.: L2925

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L292516

Date Received: 11/29/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.329		MG/L	1	3 ML	E353.2	12/12/12

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-12-188

SDG No.: L2925

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L292517

Date Received: 11/29/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0560	0.200	13.1		MG/L	20	3 ML	E353.2	12/12/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-125-188

SDG No.: L2925

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L292518

Date Received: 11/29/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.899		MG/L	1	3 ML	E353.2	12/12/12

FORM I GEN CHEM

EC121219-16:00-L2925-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-20-070-188

SDG No.: L2925

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L292519

Date Received: 11/29/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0560	0.200	10.6		MG/L	20	3 ML	E353.2	12/12/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-26-188

SDG No.: L2925

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L292520

Date Received: 11/29/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.140	0.500	15.6		MG/L	50	3 ML	E353.2	12/12/12

FORM I GEN CHEM

EC121219-16:00-L2925-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-61-110-188

SDG No.: L2925

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L292521

Date Received: 11/29/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.866		MG/L	1	3 ML	E353.2	12/12/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB2-121212

SDG No.: L2925

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: WB2-121212

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	12/12/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB3-121212

SDG No.: L2925

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: WB3-121212

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	12/12/12

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB5-121212

SDG No.: L2925

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: WB5-121212

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	12/12/12

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: L2925

Lab Name: CH2M HILL/LAB/CVO

Analysis Method: E353.2

LCS ID: BS2W1212

Initial Calibration ID: 120712NO32SM1

Date Analyzed: 12/12/12

Matrix: (Soil/Water) WATER

Time Analyzed: 1600

Instrument: SMARTCHEM

Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.416	0.407	98	90-110	

* Values outside of QC limits

Comments:

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: L2925

Lab Name: CH2M HILL/LAB/CVO

Analysis Method: E353.2

LCS ID: BS3W1212

Initial Calibration ID: 120712NO32SM1

Date Analyzed: 12/12/12

Matrix: (Soil/Water) WATER

Time Analyzed: 1630

Instrument: SMARTCHEM

Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.416	0.400	96	90-110	

* Values outside of QC limits

Comments:

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: L2925

Lab Name: CH2M HILL/LAB/CVO

Analysis Method: E353.2

LCS ID: BS5W1212

Initial Calibration ID: 120712NO32SM1

Date Analyzed: 12/12/12

Matrix: (Soil/Water) WATER

Time Analyzed: 1833

Instrument: SMARTCHEM

Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.416	0.413	99	90-110	

* Values outside of QC limits

Comments:

L2925

CH2MHILL

CHAIN OF CUSTODY RECORD

11/26/2012 4:04:42 PM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.06.TS
Task Order
Project 2012-GMP-188SAMPLEMETHOD
Turnaround Time 10 Days
Shipping Date: 11/27/2012
COC Number: 22

				Container:	250 ml Poly	1 Liter Poly	1 Liter Poly			
				Preservatives:	H2SO4, pH<2, 4°C	H2SO4, pH<2, 4°C	H2SO4, pH<2, 4°C			
				Filtered:	NA	NA	NA			
				Holding Time:	28	28	28			
	DATE	TIME	Matrix		Nitrate/Nitrite (E353.3)	Ammonia (SM4500NH3)	Nitrate/Nitrite (E353.3)		Number of Containers	COMMENTS
MW-19-188	11/26/2012	15:19	Water		X			N00f993 11/28/12	1	1
MW-44-115-188	11/26/2012	11:36	Water			X	X		1	2
								TOTAL NUMBER OF CONTAINERS	2	

	Signatures	Date/Time
Approved by		11-27-12
Sampled by		1545
Relinquished by		
Received by		11/27/12 1545
Relinquished by		11/27/12 1700
Received by		11/27/12 1700

REL: MBCARTIN 11/28/12 @1700

Shipping Details

Method of Shipment: courier
On Ice: ~~yes~~ no 2.2°C/3.8°C/3.4°C
Airbill No: 1 of 1
Lab Name: ADVANCED TECHNOLOGY LABORATO
Lab Phone: (702) 307-2659

ATTN:
Sample Custody
and
Marlon

Carmen Bell 11/29/12 1200

Special Instructions:
Nov 5 - Dec 14, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

L2925

CH2MHILL

CHAIN OF CUSTODY RECORD

11/27/2012 3:28:25 PM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy

Project Number 423575.MP.06.TS
Task Order
Project 2012-GMP-188SAMPLEMETHOD
Turnaround Time 10 Days
Shipping Date: 12/4/2012
COC Number: 6

Container:	250 ml Poly
Preservatives:	H2SO4, pH<2, 4°C
Filtered:	NA
Holding Time:	28

	DATE	TIME	Matrix	Nitrate/Nitrite (E353.3)	~~N00F948~~ 11/28/12	Number of Containers	COMMENTS
MW-125H-188SMT	11/27/2012	17:10	Water	X		1	3
MW-125MD-188SMT	11/27/2012	7:10	Water	X		1	4
MW-12H-188SMT	11/27/2012	12:11	Water	X		1	5
MW-12MD-188SMT	11/27/2012	12:53	Water	X		1	6
MW-20-070H-188SMT	11/27/2012	14:00	Water	X		1	7
MW-20-070MD-188SMT	11/27/2012	14:45	Water	X		1	8
MW-26H-188SMT	11/27/2012	10:15	Water	X		1	9
MW-26MD-188SMT	11/27/2012	10:55	Water	X		1	10
MW-61-110H-188SMT	11/27/2012	7:30	Water	X		1	11
MW-61-110MD-188SMT	11/27/2012	8:38	Water	X		1	12
					TOTAL NUMBER OF CONTAINERS	10	

	Signatures	Date/Time
Approved by		11-27-12
Sampled by		1545
Relinquished by		
Received by	[signature]	11/27/12 1545
Relinquished by	[signature]	11/27/12 1800
Received by	[signature]	11/27/12 1800

Shipping Details

Method of Shipment: courier
On Ice: ~~yes~~ / no 2.2°C/3.5°C/3.4°C
Airbill No: 1F#1
Lab Name: ADVANCED TECHNOLOGY LABORATO
Lab Phone: (702) 307-2659

ATTN:
Sample Custody
and
Marlon

Special Instructions:
Nov 5 - Dec 14, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

REL: MBCARTIN [signature] 11/28/12 @1700

[signature] 11/29/12 1700

L2925

CH2MHILL

CHAIN OF CUSTODY RECORD

11/26/2012 4:03:10 PM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.06.TS
Task Order
Project 2012-GMP-188SAMPLEMETHOD
Turnaround Time 10 Days
Shipping Date: 11/27/2012
COC Number: 19

	DATE	TIME	Matrix	Nitrate/Nitrite (E353.3)		Number of Containers	COMMENTS
Container:				250 ml Poly			
Preservatives:				H2SO4, pH<2, 4°C			
Filtered:				NA			
Holding Time:				28			
MW-19H-188SMT	11/26/2012	13:55	Water	X		1	13
MW-19MD-188SMT	11/26/2012	14:43	Water	X		1	14
MW-44-115H-188SMT	11/26/2012	8:31	Water	X		1	15
MW-44-115MD-188S	11/26/2012	10:16	Water	X		1	16
					TOTAL NUMBER OF CONTAINERS	4	

	Signatures	Date/Time
Approved by		11-27-12
Sampled by		1545
Relinquished by		
Received by		11/27/12 1545
Relinquished by		11/27/12 1800
Received by	MBCARTIN	11/27/12 @ 1800

PEL: MBCARTIN 11/28/12 @ 1500

Shipping Details

Method of Shipment: courier
On Ice: ~~yes~~ / no 2.2°C / 3.8°C / 3.4°C
Airbill No: CHMC 1844
Lab Name: ~~ADVANCED TECHNOLOGY LABORATO~~
Lab Phone: ~~(702) 307-2659~~ 541-768-3144

ATTN:
Sample Custody and Marlon

Carmen Bell 11/29/12 1700

Special Instructions:
Nov 5 - Dec 14, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

L2925

CH2MHILL CHAIN OF CUSTODY RECORD 11/27/2012 3:27:52 PM Page 1 OF 1

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.06.TS
Task Order
Project 2012-GMP-188SAMPLEMETHOD
Turnaround Time 10 Days
Shipping Date: 11/29/2012
COC Number: 5

			Container:	250 ml Poly	1 Liter Poly	1 Liter Poly			
			Preservatives:	H2SO4, pH<2, 4°C	H2SO4, pH<2, 4°C	H2SO4, pH<2, 4°C			
			Filtered:	NA	NA	NA			
			Holding Time:	28	28	28			
	DATE	TIME	Matrix	Nitrate/Nitrite (E353.3)	Ammonia (SM4500NH3)	Nitrate/Nitrite (E353.3)	~~N008494~~ 11/20/12	Number of Containers	COMMENTS
MW-12-188	11/27/2012	13:22	Water	X				1	17
MW-125-188	11/27/2012	7:40	Water		X	X		1	18
MW-20-070-188	11/27/2012	15:16	Water	X				1	19
MW-26-188	11/27/2012	11:30	Water	X				1	20
MW-61-110-188	11/27/2012	9:24	Water		X	X		1	21
							TOTAL NUMBER OF CONTAINERS	5	

	Signatures	Date/Time
Approved by		11-27-12
Sampled by	[signature]	1545
Relinquished by		
Received by	[signature]	11/27/12 1545
Relinquished by	[signature]	11/27/12 1800
Received by	[signature]	11/27/12 1800

Shipping Details
Method of Shipment: courier
On Ice: ~~yes~~ / no 2.2 C/3.8 C/3.4 C 1 cell
Airbill No: CHMC
Lab Name: ~~ADVANCED TECHNOLOGY LABORATO~~
Lab Phone: ~~(702) 307-2659~~ 541-768-3144

ATTN:
Sample Custody and Marlon

Special Instructions:
Nov 5 - Dec 14, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

REL: McCARTIN [signature] 11/28/12 @1700 Carmen Bell 11/29/12 1200

CH2MHILL
Applied Sciences Laboratory (ASL)

Sample Receipt Record

Batch Number: L2925
Client/Project: Topock

Date received: 11/29/12
Checked by: BB
Checked by:

VERIFICATION OF SAMPLE CONDITIONS (verify all items), HD = Client Hand delivered Samples	NA	YES	NO
Radiological Screening for DoD	✓		
Were custody seals intact and on the outside of the cooler?		✓	
Type of packing material: (Ice) Blue Ice Bubble wrap		✓	
Was a Chain of Custody (CoC) Provided?		✓	
Was the CoC correctly filled out (If No, document in the SRER)		✓	
Did the CoC list a correct bottle count and the preservative types (Y=OK, N=Corrected on CoC)		✓	
Were the sample containers in good condition (broken or leaking)?		✓	
Containers supplied by ASL?		✓	
Any sample with < 1/2 holding time remaining? If so contact LPM			✓
Samples have multi-phase? If yes, document on SRER			✓
Was there ice in the cooler? Enter temp. If >6°C contact client/SRER 2.6 °C		✓	
All VOCs free of air bubbles? No, document on SRER	✓		
pH of all samples checked and met requirements? No, then document in SRER		✓	
Enough sample volume provided for analysis? No, document in SRER		✓	
Did sample labels agree with COC? No, document in SRER		✓	
Dissolved/Soluble metals filtered in the field?	✓		
Dissolved/Soluble metals have sediment in bottom of container? Document in SRER	✓		

Sample ID	Reagent	Reagent Lot Number	Volume Added	Initials

CH2MHILL
Applied Sciences Laboratory

ANALYTICAL REPORT

For:
PGE Topock

ASL Report #: L2965
Project ID: 423575.MP.06.TS
Attn: Jay Piper/LAS
cc:
Data Center/RDD

Authorized and Released By:

Kathy McKinley

Laboratory Project Manager
Kathy McKinley
(541) 758-0235 ext.23144
December 24, 2012

This data package meets standards requested by client and is not intended or implied to meet any other standard.

All analyses performed by CH2M HILL are clearly indicated. Any subcontracted analyses are included as appended reports as received from the subcontracted laboratory. The results included in this report only relate to the samples listed on the following Sample Cross-Reference page. This report shall not be reproduced except in full, without the written approval of the laboratory.

Any unusual difficulties encountered during the analysis of your samples are discussed in the attached case narratives.

CH2M HILL Applied Sciences Laboratory • 1100 NE Circle Boulevard, Suite 300 • Corvallis, Oregon 97330 • www.ch2mhill.com/asl

ASL Report #: L2965

Sample Receipt Comments

We certify that the test results meet all standard ASL requirements.

Sample Cross-Reference

ASL Sample ID	Client Sample ID	Date/Time Collected	Date Received
L296501	MW-51H-188SMT	11/28/12 10:13	12/04/12
L296502	MW-51MD-188SMT	11/28/12 11:16	12/04/12
L296503	MW-59-100H-188SMT	11/28/12 07:35	12/04/12
L296504	MW-59-100MD-188SMT	11/28/12 09:03	12/04/12
L296505	MW-123H-188SMT	11/29/12 06:52	12/04/12
L296506	MW-123MD-188SMT	11/29/12 07:10	12/04/12
L296507	MW-20-100H-188SMT	11/29/12 14:05	12/04/12
L296508	MW-20-100MD-188SMT	11/29/12 14:40	12/04/12
L296509	MW-20-130H-188SMT	11/29/12 13:34	12/04/12
L296510	MW-20-130MD-188SMT	11/29/12 14:28	12/04/12
L296511	MW-50-200H-188SMT	11/29/12 07:55	12/04/12
L296512	MW-50-200MD-188SMT	11/29/12 07:55	12/04/12
L296513	MW-51-188	11/28/12 13:22	12/04/12
L296514	MW-59-100-188	11/28/12 09:31	12/04/12
L296515	MW-123-188	11/29/12 17:45	12/04/12
L296516	MW-20-100-188	11/29/12 15:45	12/04/12
L296517	MW-20-130-188	11/29/12 15:44	12/04/12
L296518	MW-50-200-188	11/29/12 12:22	12/04/12

CASE NARRATIVE
AUTOMATED CHEMISTRY ANALYSIS

Lab Name: CH2M HILL/LAB/CVO ASL SDG#: L2965

Project: PGE Topock Project #: 423575.MP.06.TS

I. Method(s):
Analysis: E350.1

II. Receipt/Holding Times:
All acceptance criteria were met.

III. Analysis:

A. Initial Calibration(s):
All acceptance criteria were met.

B. Calibration Verification(s):
All acceptance criteria were met.

C. Blanks:
All acceptance criteria were met.

D. Laboratory Control Sample(s):
All acceptance criteria were met.

E. Matrix Spike/Matrix Spike Duplicate Sample(s):
Recoveries of MS/MSD on sample L296518 were detected 82%/78% (Limit 90-110%).

F. Analytical Exception(s):
None.

IV. Documentation Exception(s):
None.

V. I certify that this data package is in compliance with the terms and conditions agreed to by the client and CH2M HILL, both technically and for completeness, except for the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or designee, as verified by the following signatures.

Prepared by: [signature] Date: 12/6/2012

Reviewed by: Kathy McKinley Date: 12/7/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-51-188

SDG No.: L2965

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L296513

Date Received: 12/04/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	MG/L	1	2 ML	E350.1	12/04/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-59-100-188

SDG No.: L2965

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L296514

Date Received: 12/04/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	MG/L	1	2 ML	E350.1	12/04/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-50-200-188

SDG No.: L2965

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L296518

Date Received: 12/04/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	MG/L	1	2 ML	E350.1	12/04/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB3-1204

SDG No.: L2965

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: WB3-1204

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
7664-41-7	Ammonia-N	0.0143	0.100	0.100	U	MG/L	1	2 ML	E350.1	12/04/12

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: L2965

Lab Name: CH2M HILL/LAB/CVO

Analysis Method: E350.1

LCS ID: BS3W1204

Initial Calibration ID: 092512NH3LAcal

Date Analyzed: 12/04/12

Matrix: (Soil/Water) WATER

Time Analyzed: 1412

Instrument: LACH8500

Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Ammonia-N	1.09	1.14	104	90-110	

* Values outside of QC limits

Comments:

CASE NARRATIVE
AUTOMATED CHEMISTRY ANALYSIS

Lab Name: CH2M HILL/LAB/CVO ASL SDG#: L2965

Project: PGE Topock Project #: 423575.MP.06.TS

I. Method(s):
Analysis: E353.2

II. Receipt/Holding Times:
All acceptance criteria were met.

III. Analysis:

A. Initial Calibration(s):
All acceptance criteria were met.

B. Calibration Verification(s):
All acceptance criteria were met.

C. Blanks:
All acceptance criteria were met.

D. Laboratory Control Sample(s):
All acceptance criteria were met.

E. Matrix Spike/Matrix Spike Duplicate Sample(s):
MSD recovery of Nitrate/Nitrite-N (88%) in MW-20-100-188 (L296516) did not meet acceptance criteria of 90-110%.

F. Analytical Exception(s):
None.

IV. Documentation Exception(s):
None.

V. I certify that this data package is in compliance with the terms and conditions agreed to by the client and CH2M HILL, both technically and for completeness, except for the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or designee, as verified by the following signatures.

Prepared by: Emily Clark Date: 12/13/12

Reviewed by: Kathy Manley Date: 12/14/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-51H-188SMT

SDG No.: L2965

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L296501

Date Received: 12/04/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0560	0.200	11.1		MG/L	20	3 ML	E353.2	12/12/12

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-51MD-188SMT

SDG No.: L2965

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L296502

Date Received: 12/04/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0560	0.200	10.7		MG/L	20	3 ML	E353.2	12/12/12

FORM I GEN CHEM

EC121219-15:54-L2965-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-59-100H-188SMT

SDG No.: L2965

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L296503

Date Received: 12/04/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0560	0.200	4.56		MG/L	20	3 ML	E353.2	12/12/12

EC121219-15:54-L2965-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-59-100MD-188SMT

SDG No.: L2965

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L296504

Date Received: 12/04/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0560	0.200	2.81		MG/L	20	3 ML	E353.2	12/12/12

EC121219-15:54-L2965-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-123H-188SMT

SDG No.: L2965

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L296505

Date Received: 12/04/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0560	0.200	17.7		MG/L	20	3 ML	E353.2	12/12/12

EC121219-15:54-L2965-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-123MD-188SMT

SDG No.: L2965

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L296506

Date Received: 12/04/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0560	0.200	18.6		MG/L	20	3 ML	E353.2	12/12/12

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-20-100H-188SMT

SDG No.: L2965

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L296507

Date Received: 12/04/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0560	0.200	14.2		MG/L	20	3 ML	E353.2	12/12/12

EC121219-15:54-L2965-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-20-100MD-188SMT

SDG No.: L2965

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L296508

Date Received: 12/04/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0560	0.200	14.1		MG/L	20	3 ML	E353.2	12/12/12

FORM I GEN CHEM

EC121219-15:54-L2965-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-20-130H-188SMT

SDG No.: L2965

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L296509

Date Received: 12/04/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0560	0.200	17.9		MG/L	20	3 ML	E353.2	12/12/12

EC121219-15:54-L2965-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-20-130MD-188SMT

SDG No.: L2965

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L296510

Date Received: 12/04/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0560	0.200	19.4		MG/L	20	3 ML	E353.2	12/12/12

FORM I GEN CHEM

EC121219-15:54-L2965-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-50-200H-188SMT

SDG No.: L2965

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L296511

Date Received: 12/04/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0560	0.200	7.58		MG/L	20	3 ML	E353.2	12/12/12

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-50-200MD-188SMT

SDG No.: L2965

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L296512

Date Received: 12/04/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0560	0.200	5.76		MG/L	20	3 ML	E353.2	12/12/12

EC121219-15:54-L2965-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-51-188

SDG No.: L2965

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L296513

Date Received: 12/04/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0560	0.200	12.4		MG/L	20	3 ML	E353.2	12/12/12

FORM I GEN CHEM

EC121219-15:54-L2965-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-59-100-188

SDG No.: L2965

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L296514

Date Received: 12/04/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0560	0.200	4.52		MG/L	20	3 ML	E353.2	12/12/12

FORM I GEN CHEM

EC121219-15:54-L2965-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-123-188

SDG No.: L2965

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L296515

Date Received: 12/04/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0560	0.200	14.1		MG/L	20	3 ML	E353.2	12/12/12

EC121219-15:54-L2965-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-20-100-188

SDG No.: L2965

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L296516

Date Received: 12/04/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0560	0.200	12.9		MG/L	20	3 ML	E353.2	12/12/12

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-20-130-188

SDG No.: L2965

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: L296517

Date Received: 12/04/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0560	0.200	14.1		MG/L	20	3 ML	E353.2	12/12/12

FORM I GEN CHEM

EC121219-15:54-L2965-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

MW-50-200-188

SDG No.: L2965

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: L296518

Date Received: 12/04/12

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.0560	0.200	5.80		MG/L	20	3 ML	E353.2	12/12/12

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB3-121212

SDG No.: L2965

Lab Name: CH2M HILL/LAB/CVO

Matrix: WATER

Lab Sample ID: WB3-121212

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	12/12/12

EC121219-15:54-L2965-W

FORM I GEN CHEM

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB4-121212

SDG No.: L2965

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: WB4-121212

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	12/12/12

FORM I GEN CHEM

EC121219-15:54-L2965-W

1A-WC

GENERAL CHEMISTRY ANALYSIS DATA SHEET

Field Sample ID:

WB6-121212

SDG No.: L2965

Matrix: WATER

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: WB6-121212

Date Received: / /

CAS No.	Analyte	DL	PQL	Result	Q	Units	DF	Sample Amount	Analysis Method	Date Analyzed
NO3NO2N	Nitrate/Nitrite-N	0.00280	0.0100	0.0100	U	MG/L	1	3 ML	E353.2	12/12/12

EC121219-15:54-L2965-W

FORM I GEN CHEM

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: L2965

Lab Name: CH2M HILL/LAB/CVO

Analysis Method: E353.2

LCS ID: BS3W1212

Initial Calibration ID: 120712NO32SM1

Date Analyzed: 12/12/12

Matrix: (Soil/Water) WATER

Time Analyzed: 1630

Instrument: SMARTCHEM

Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.416	0.400	96	90-110	

* Values outside of QC limits

Comments:

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: L2965

Lab Name: CH2M HILL/LAB/CVO

Analysis Method: E353.2

LCS ID: BS4W1212

Initial Calibration ID: 120712NO32SM1

Date Analyzed: 12/12/12

Matrix: (Soil/Water) WATER

Time Analyzed: 1700

Instrument: SMARTCHEM

Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.416	0.406	98	90-110	

* Values outside of QC limits

Comments:

GENERAL CHEMISTRY LABORATORY CONTROL SAMPLE

SDG No.: L2965

Lab Name: CH2M HILL/LAB/CVO

Analysis Method: E353.2

LCS ID: BS6W1212

Initial Calibration ID: 120712NO32SM1

Date Analyzed: 12/12/12

Matrix: (Soil/Water) WATER

Time Analyzed: 1903

Instrument: SMARTCHEM

Concentration Units: MG/L

Analyte	Expected	Found	%R	QC Limits %R	Q
Nitrate/Nitrite-N	0.416	0.432	104	90-110	

* Values outside of QC limits

Comments:

2.4°

CH2MHILL

CHAIN OF CUSTODY RECORD

11/29/2012 4:10:53 PM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.06.TS
Task Order
Project 2012-GMP-188SAMPLEMETHOD
Turnaround Time 10 Days
Shipping Date: 11/29/2012
COC Number: 11

L2965

				Container:	250 ml Poly			
				Preservatives:	H2SO4, pH<2, 4°C			
				Filtered:	NA			
				Holding Time:	28			
	DATE	TIME	Matrix		Nitrate/Nitrite (E353.3)		Number of Containers	COMMENTS
MW-51H-188SMT	11/28/2012	10:13	Water		X		1	1
MW-51MD-188SMT	11/28/2012	11:16	Water		X		1	2
MW-59-100H-188SMT	11/28/2012	7:35	Water		X		1	3
MW-59-100MD-188SMT	11/28/2012	9:03	Water		X		1	4
MW-123H-188SMT	11/29/2012	6:52	Water		X		1	5
MW-123MD-188SMT	11/29/2012	7:10	Water		X		1	6
MW-20-100H-188SMT	11/29/2012	14:05	Water		X		1	7
MW-20-100MD-188SMT	11/29/2012	14:40	Water		X		1	8
MW-20-130H-188SMT	11/29/2012	13:34	Water		X		1	9
MW-20-130MD-188SMT	11/29/2012	14:28	Water		X		1	10
MW-50-200H-188SMT	11/29/2012	7:55	Water		X		1	11
MW-50-200MD-188SMT	11/29/2012	10:54	Water		X		1	12
						TOTAL NUMBER OF CONTAINERS	12	

	Signatures	Date/Time
Approved by		11-29-12
Sampled by		1630
Relinquished by		
Received by		11/29/12 1630
Relinquished by		11/29/12 2200
Received by		

REL: 12/3/12 @ 1700

Shipping Details

Method of Shipment: courier
On Ice: ~~yes~~ / no 3.4°C / 1.6°C RH 1
Airbill No: CHMC
Lab Name: ~~ADVANCED TECHNOLOGY LABORATO~~
Lab Phone: ~~(702) 307-2659~~ 541-768-3144

Carmen Bell RECEIVED 1130

ATTN:
Sample Custody
and
Marlon

Special Instructions:
Nov 5 - Dec 14, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

L2965

CH2MHILL

CHAIN OF CUSTODY RECORD

11/29/2012 4:10:17 PM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.06.TS
Task Order
Project 2012-GMP-188SAMPLEMETHOD
Turnaround Time 10 Days
Shipping Date: 11/29/2012
COC Number: 10

				Nitrate/Nitrite (E353.3)	Ammonia (SM4500NH3)	Nitrate/Nitrite (E353.3)		Number of Containers	COMMENTS
			Container:	250 ml Poly	1 Liter Poly	1 Liter Poly			
			Preservatives:	H2SO4, pH<2, 4°C	H2SO4, pH<2, 4°C	H2SO4, pH<2, 4°C			
			Filtered:	NA	NA	NA			
			Holding Time:	28	28	28			
	DATE	TIME	Matrix						
MW-51-188	11/28/2012	13:22	Water		X	X		1	13
MW-59-100-188	11/28/2012	9:31	Water		X	X		1	14
MW-123-188	11/29/2012	17:45	Water	X				1	15
MW-20-100-188	11/29/2012	15:45	Water	X				1	16
MW-20-130-188	11/29/2012	15:44	Water	X				1	17
MW-50-200-188	11/29/2012	12:22	Water		X	X		1	18
							TOTAL NUMBER OF CONTAINERS	6	

	Signatures	Date/Time
Approved by		11-29-12
Sampled by		1630
Relinquished by		
Received by		11/29/12 1630
Relinquished by		11/29/12 2200
Received by		
REL:		12/3/12@1700

Shipping Details

Method of Shipment: courier
On Ice: ~~yes~~ / no 3.4°C / 1.6°C (R#1)
Airbill No: CHMC
Lab Name: ~~ADVANCED TECHNOLOGY LABORATO~~
Lab Phone: ~~(702) 307-2650~~ 541-768-3144

Carmen Boll 12/4/12 1130

ATTN:
Sample Custody
and
Marlon

Special Instructions:
Nov 5 - Dec 14, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

CH2MHILL
Applied Sciences Laboratory (ASL)

Sample Receipt Record

Batch Number: L2965
Client/Project: TOPCK

Date received: 12/4/12
Checked by: CB
Checked by:

VERIFICATION OF SAMPLE CONDITIONS (verify all items), HD = Client Hand delivered Samples	NA	YES	NO
Radiological Screening for DoD	✓		
Were custody seals intact and on the outside of the cooler?		✓	
Type of packing material: ~~Ice~~ Blue Ice Bubble wrap			
Was a Chain of Custody (CoC) Provided?		✓	
Was the CoC correctly filled out (If No, document in the SRER)		✓	
Did the CoC list a correct bottle count and the preservative types (Y=OK, N=Corrected on CoC)		✓	
Were the sample containers in good condition (broken or leaking)?		✓	
Containers supplied by ASL?		✓	
Any sample with < 1/2 holding time remaining? If so contact LPM			✓
Samples have multi-phase? If yes, document on SRER			✓
Was there ice in the cooler? Enter temp. If >6°C contact client/SRER 2.4 °C		✓	
All VOCs free of air bubbles? No, document on SRER	✓		
pH of all samples checked and met requirements? No, then document in SRER		✓	
Enough sample volume provided for analysis? No, document in SRER		✓	
Did sample labels agree with COC? No, document in SRER		✓	
Dissolved/Soluble metals filtered in the field?	✓		
Dissolved/Soluble metals have sediment in bottom of container? Document in SRER	✓		

Sample ID	Reagent	Reagent Lot Number	Volume Added	Initials

November 26, 2012

Shawn P. Duffy
CH2M HILL
155 Grand Avenue, Suite 1000
Oakland, CA 94612

TEL: (530) 229-3303
FAX: (530) 339-3303

CA-ELAP No.: 2676
NV Cert. No.: NV-009222007A

Workorder No.: N008841

RE: PG&E Topock, 423575.MP.02.GM.01

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on November 06, 2012 by Advanced Technology Laboratories, Inc. . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Jose Tenorio Jr.
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and Advanced Technology Laboratories - Las Vegas.

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.01
Lab Order: N008841

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.

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

Date: *26-Nov-12*

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.01
Lab Order: N008841
Contract No: 2012-GMP-188S

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N008841-001A	MW-50-095-188	Water	11/5/2012 2:05:00 PM	11/6/2012	11/26/2012
N008841-002A	MW-124-188	Water	11/6/2012 5:45:00 PM	11/6/2012	11/26/2012
N008841-003A	MW-44-125-188	Water	11/6/2012 3:10:00 PM	11/6/2012	11/26/2012

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *26-Nov-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-50-095-188
Lab Order:	N008841	**Collection Date:**	11/5/2012 2:05:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N008841-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
EPA 120.1							
RunID: **WETCHEM_121107C**	QC Batch: **R86232**			PrepDate:			Analyst: **KAB**
Specific Conductance	5400	0.10	0.10		umhos/cm	1	11/7/2012

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *26-Nov-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-124-188
Lab Order:	N008841	**Collection Date:**	11/6/2012 5:45:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N008841-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121107C**	QC Batch: **R86232**			PrepDate:			Analyst: **KAB**
Specific Conductance	10000	0.10	0.10		umhos/cm	1	11/7/2012

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *26-Nov-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-44-125-188
Lab Order:	N008841	**Collection Date:**	11/6/2012 3:10:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N008841-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121107C**	QC Batch: **R86232**			PrepDate:			Analyst: **KAB**
Specific Conductance	12000	0.10	0.10		umhos/cm	1	11/7/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

Date: *26-Nov-12*

CLIENT: CH2M HILL
Work Order: N008841
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: **LCS-R86232** SampType: **LCS** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86232**
Client ID: **LCSW** Batch ID: **R86232** TestNo: **EPA 120.1** Analysis Date: **11/7/2012** SeqNo: **1470206**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	99900.000	0.10	99800	0	100	85	115				

Sample ID: **N008839-001B-DUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86232**
Client ID: **ZZZZZZ** Batch ID: **R86232** TestNo: **EPA 120.1** Analysis Date: **11/7/2012** SeqNo: **1470208**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	22200.000	0.10						22200	0	10	

Sample ID: **N008839-001B-MS** SampType: **MS** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86232**
Client ID: **ZZZZZZ** Batch ID: **R86232** TestNo: **EPA 120.1** Analysis Date: **11/7/2012** SeqNo: **1470209**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	121200.000	0.20	99800	22200	99.2	75	125				

Sample ID: **N008839-001B-MSD** SampType: **MSD** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86232**
Client ID: **ZZZZZZ** Batch ID: **R86232** TestNo: **EPA 120.1** Analysis Date: **11/7/2012** SeqNo: **1470210**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	121200.000	0.20	99800	22200	99.2	75	125	121200	0	10	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

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ANALYTICAL RESULTS

Print Date: *26-Nov-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-50-095-188
Lab Order:	N008841	**Collection Date:**	11/5/2012 2:05:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N008841-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121107D**	QC Batch: **R86235**			PrepDate:			Analyst: **KAB**
Alkalinity, Bicarbonate (As CaCO3)	55	1.2	5.0		mg/L	1	11/7/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/7/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/7/2012
Alkalinity, Total (As CaCO3)	55	1.2	5.0		mg/L	1	11/7/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *26-Nov-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-124-188
Lab Order:	N008841	**Collection Date:**	11/6/2012 5:45:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N008841-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121107D**	QC Batch: **R86235**			PrepDate:			Analyst: **KAB**
Alkalinity, Bicarbonate (As CaCO3)	130	1.2	5.0		mg/L	1	11/7/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/7/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/7/2012
Alkalinity, Total (As CaCO3)	130	1.2	5.0		mg/L	1	11/7/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *26-Nov-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-44-125-188
Lab Order:	N008841	**Collection Date:**	11/6/2012 3:10:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.01	**Matrix:**	WATER
Lab ID:	N008841-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121107D**	QC Batch: **R86235**			PrepDate:			Analyst: **KAB**
Alkalinity, Bicarbonate (As CaCO3)	100	1.2	5.0		mg/L	1	11/7/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/7/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/7/2012
Alkalinity, Total (As CaCO3)	100	1.2	5.0		mg/L	1	11/7/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

Date: *26-Nov-12*

CLIENT: CH2M HILL
Work Order: N008841
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **LCS-R86235** SampType: **LCS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86235**
Client ID: **LCSW** Batch ID: **R86235** TestNo: **SM 2320 B** Analysis Date: **11/7/2012** SeqNo: **1470313**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	97.403	5.0	100.0	0	97.4	85	115				
Alkalinity, Total (As CaCO3)	99.567	5.0	100.0	0	99.6	85	115				

Sample ID: **LCSD-R86235** SampType: **LCSD** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86235**
Client ID: **LCSS02** Batch ID: **R86235** TestNo: **SM 2320 B** Analysis Date: **11/7/2012** SeqNo: **1470314**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	97.403	5.0	100.0	0	97.4	85	115	97.40	0	20	
Alkalinity, Total (As CaCO3)	99.567	5.0	100.0	0	99.6	85	115	99.57	0	20	

Sample ID: **MB-R86235** SampType: **MBLK** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86235**
Client ID: **PBW** Batch ID: **R86235** TestNo: **SM 2320 B** Analysis Date: **11/7/2012** SeqNo: **1470315**

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: **N008833-001A-DUP** SampType: **DUP** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86235**
Client ID: **ZZZZZZ** Batch ID: **R86235** TestNo: **SM 2320 B** Analysis Date: **11/7/2012** SeqNo: **1470317**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	4.329	5.0						4.329	0	30	
Alkalinity, Carbonate (As CaCO3)	ND	5.0						0	0	30	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0						0	0	30	
Alkalinity, Total (As CaCO3)	4.329	5.0						4.329	0	30	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

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CLIENT: CH2M HILL
Work Order: N008841
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **N008833-001A-MS** SampType: **MS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86235**
Client ID: **ZZZZZZ** Batch ID: **R86235** TestNo: **SM 2320 B** Analysis Date: **11/7/2012** SeqNo: **1470318**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	103.896	5.0	100.0	4.329	99.6	75	125				
Alkalinity, Total (As CaCO3)	103.896	5.0	100.0	4.329	99.6	75	125				

Sample ID: **N008833-001A-MSD** SampType: **MSD** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86235**
Client ID: **ZZZZZZ** Batch ID: **R86235** TestNo: **SM 2320 B** Analysis Date: **11/7/2012** SeqNo: **1470319**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	103.896	5.0	100.0	4.329	99.6	75	125	103.9	0	20	
Alkalinity, Total (As CaCO3)	103.896	5.0	100.0	4.329	99.6	75	125	103.9	0	20	

Sample ID: **N008841-003A-DUP** SampType: **DUP** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86235**
Client ID: **ZZZZZZ** Batch ID: **R86235** TestNo: **SM 2320 B** Analysis Date: **11/7/2012** SeqNo: **1470330**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	104.978	5.0						105.0	0	30	
Alkalinity, Carbonate (As CaCO3)	ND	5.0						0	0	30	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0						0	0	30	
Alkalinity, Total (As CaCO3)	104.978	5.0						105.0	0	30	

Sample ID: **N008841-003A-MS** SampType: **MS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86235**
Client ID: **ZZZZZZ** Batch ID: **R86235** TestNo: **SM 2320 B** Analysis Date: **11/7/2012** SeqNo: **1470331**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	203.463	5.0	100.0	105.0	98.5	75	125				
Alkalinity, Total (As CaCO3)	203.463	5.0	100.0	105.0	98.5	75	125				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

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ANALYTICAL RESULTS

Print Date: *26-Nov-12*

CLIENT: CH2M HILL
Lab Order: N008841
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N008841-001

Client Sample ID: MW-50-095-188
Collection Date: 11/5/2012 2:05:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121110A** QC Batch: **R86430** PrepDate: Analyst: **QBM**							
Chloride	1500	5.5	250		mg/L	500	11/10/2012 06:48 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121110A** QC Batch: **R86430** PrepDate: Analyst: **QBM**							
Sulfate	260	1.8	25		mg/L	50	11/10/2012 01:22 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *26-Nov-12*

CLIENT: CH2M HILL
Lab Order: N008841
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N008841-002

Client Sample ID: MW-124-188
Collection Date: 11/6/2012 5:45:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_121110A** QC Batch: **R86430**				PrepDate:			Analyst: **QBM**
Chloride	3500	11	500		mg/L	1000	11/10/2012 07:00 PM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_121110A** QC Batch: **R86430**				PrepDate:			Analyst: **QBM**
Sulfate	610	3.5	50		mg/L	100	11/10/2012 01:33 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *26-Nov-12*

CLIENT: CH2M HILL
Lab Order: N008841
Project: PG&E Topock, 423575.MP.02.GM.01
Lab ID: N008841-003

Client Sample ID: MW-44-125-188
Collection Date: 11/6/2012 3:10:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121110A** QC Batch: **R86430** PrepDate: Analyst: **QBM**							
Chloride	3200	11	500		mg/L	1000	11/10/2012 07:11 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121110A** QC Batch: **R86430** PrepDate: Analyst: **QBM**							
Sulfate	590	3.5	50		mg/L	100	11/10/2012 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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Date: *26-Nov-12*

CLIENT: CH2M HILL
Work Order: N008841
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **MB-R86430_CL** SampType: **MBLK** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86430**
Client ID: **PBW** Batch ID: **R86430** TestNo: **EPA 300.0** Analysis Date: **11/10/2012** SeqNo: **1477660**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.50									

Sample ID: **LCS-R86430_CL** SampType: **LCS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86430**
Client ID: **LCSW** Batch ID: **R86430** TestNo: **EPA 300.0** Analysis Date: **11/10/2012** SeqNo: **1477661**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.453	0.50	2.500	0	98.1	90	110				

Sample ID: **N008840-002ADUP** SampType: **DUP** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86430**
Client ID: **ZZZZZZ** Batch ID: **R86430** TestNo: **EPA 300.0** Analysis Date: **11/10/2012** SeqNo: **1477669**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1510.000	250						1512	0.132	20	

Sample ID: **N008840-001AMS** SampType: **MS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86430**
Client ID: **ZZZZZZ** Batch ID: **R86430** TestNo: **EPA 300.0** Analysis Date: **11/10/2012** SeqNo: **1477673**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2800.000	250	1250	1540	101	80	120				

Sample ID: **N008840-001AMSD** SampType: **MSD** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86430**
Client ID: **ZZZZZZ** Batch ID: **R86430** TestNo: **EPA 300.0** Analysis Date: **11/10/2012** SeqNo: **1477674**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2839.000	250	1250	1540	104	80	120	2800	1.38	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: N008841
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **N008840-005AMS** SampType: **MS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86430**
Client ID: **ZZZZZZ** Batch ID: **R86430** TestNo: **EPA 300.0** Analysis Date: **11/10/2012** SeqNo: **1477678**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2538.500	250	1250	1246	103	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

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CLIENT: CH2M HILL
Work Order: N008841
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **MB-R86430_SO4** SampType: **MBLK** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86430**
Client ID: **PBW** Batch ID: **R86430** TestNo: **EPA 300.0** Analysis Date: **11/10/2012** SeqNo: **1477700**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID: **LCS-R86430_SO4** SampType: **LCS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86430**
Client ID: **LCSW** Batch ID: **R86430** TestNo: **EPA 300.0** Analysis Date: **11/10/2012** SeqNo: **1477701**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	5.024	0.50	5.000	0	100	90	110				

Sample ID: **N008839-001BMS** SampType: **MS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86430**
Client ID: **ZZZZZZ** Batch ID: **R86430** TestNo: **EPA 300.0** Analysis Date: **11/10/2012** SeqNo: **1477706**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	1303.000	50	500.0	780.1	105	80	120				

Sample ID: **N008839-001BMSD** SampType: **MSD** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86430**
Client ID: **ZZZZZZ** Batch ID: **R86430** TestNo: **EPA 300.0** Analysis Date: **11/10/2012** SeqNo: **1477707**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	1306.600	50	500.0	780.1	105	80	120	1303	0.276	20	

Sample ID: **N008839-002BDUP** SampType: **DUP** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86430**
Client ID: **ZZZZZZ** Batch ID: **R86430** TestNo: **EPA 300.0** Analysis Date: **11/10/2012** SeqNo: **1477708**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	551.700	25						552.1	0.0634	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
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CLIENT: CH2M HILL
Work Order: N008841
Project: PG&E Topock, 423575.MP.02.GM.01

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **N008840-001AMS** SampType: **MS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86430**
Client ID: **ZZZZZZ** Batch ID: **R86430** TestNo: **EPA 300.0** Analysis Date: **11/10/2012** SeqNo: **1477709**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	532.000	25	250.0	271.2	104	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

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CH2MHILL

CHAIN OF CUSTODY RECORD

11/6/2012 4:26:49 PM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number ~~423575.MP.06.TS~~
Task Order 423575.MP.02.Gm.01
Project 2012-GMP-188SAMPLEMETHOD
Turnaround Time 10 Days
Shipping Date: 11/6/2012
COC Number: 4

				Specific Conductance (E120.1)	Anions (E300.0) Chloride,Sulfate	Alkalinity (SM2320B)		Number of Containers	COMMENTS
Container:				2x1 Liter	2x1 Liter	2x1 Liter			
Preservatives:				4°C	4°C	4°C			
Filtered:				NA	NA	NA			
Holding Time:				7	7	7			
	DATE	TIME	Matrix						
MW-50-095-188	11/5/2012	14:05	Water	X	X	X	N008841 -1	2	
MW-124-188	11/6/2012	17:45	Water	X	X	X	-2	2	
MW-44-125-188	11/6/2012	15:10	Water	X	X	X	-3	2	
							TOTAL NUMBER OF CONTAINERS	6	

	Signatures	Date/Time
Approved by		11/6/12
Sampled by		1641
Relinquished by		11/6/12 1641
Received by		11/6/12 1844
Relinquished by		11/6/12 1844
Received by		

Shipping Details

Method of Shipment: courier
On Ice: (yes) / no IR1 ICE 2.2
Airbill No:
Lab Name: ADVANCED TECHNOLOGY LABORATO
Lab Phone: (702) 307-2659

ATTN:
Sample Custody
and
Marlon

Special Instructions:
Nov 5 - Dec 14, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

Advanced Technology Laboratories, Inc.

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On: 11/6/2012 Workorder: N008841

Rep sample Temp (Deg C): 2.2 IR Gun ID: 1

Temp Blank: ☐ Yes ☑ No

Carrier name: ATL

Last 4 digits of Tracking No.: NA Packing Material Used: None

Cooling process: ☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☐	No ☐	NA ☑
15. Did the bottle labels indicate correct preservatives used?	Yes ☐	No ☐	NA ☑
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments:

Checklist Completed B MBC 11/7/12 Reviewed By: [illegible]

Sample ID: **N008841-001A @ pH 7.86**

A. Standardization of Sulfuric Acid (titrant):

Normality of acid = (A)(B)/(53.00)(C)

Where:

A, grams weighed for Na_2CO_3 solution (Na_2CO_3 Standardization Solution)
B, mL Na2CO3 solution taken for titration, and
C, ml of sulfuric acid used to inflection point

Spike Standards

Na_2CO_3 Standardization Solution, ACS Grade (1.00 ml = 2500ug as $CaCO_3$):
Dissolve 2.650 grams of Na_2CO_3 in distilled water and dilute to 1 liter.

LCS/MS/MSD Stock $NaHCO_3$, ACS Grade (1.00 ml = 5000 ug as $CaCO_3$):
Dissolve 0.8398 grams of $NaHCO_3$ in distilled water and dilute to 1 liter.

Therefore,

Normality of Acid = (2.65g/L) (5mL) / (53.00) (11.55mL)

= **0.02165 N**

B. CALCULATION OF ALKALINITY (for a 50 ml sample)

Total Alkalinity (as $CaCO_3$), mg/L = $M_{vol.}$ * N H_2SO_4 * DF * 1000

Where:

$M_{vol.}$, volume titrant used to reach pH 4.5, ml
N, Normality of H_2SO_4
DF, Dilution Factor = (50 ml) / (Vol. of Sample used)

Therefore,

Total Alkalinity (as $CaCO_3$), mg/L = (2.55) (0.02165N) (1) * 1000

= **55.21 mg/L**

Reporting results in two significant figures,

= **55 mg/L** as CaCO3

NJ for
H/wh

C. SPECIATED ALKALINITY:

Phenolphthalein Alkalinity

P alkalinity, mg/L as $CaCO_3$ = $P_{vol.}$ * N H_2SO_4 * DF * 1000

= (0) (0.02165 N) (1) * 1000

= **0**

Total Alkalinity

T alkalinity, mg/L as $CaCO_3$ = $M_{vol.}$ * N H_2SO_4 * DF * 1000

= (2.55mL) (0.02165) (1) * 1000

= **55.21 mg/L** as CaCO3

Where:

$P_{vol.}$ - volume titrant used to reach pH 8.3, ml
$M_{vol.}$ - volume titrant used to reach pH 4.5, ml
N - Normality of H_2SO_4
DF - Dilution Factor = (50 ml) / (Vol. of Sample used)

Then OH, CO_3, HCO_3 alkalinities as $CaCO_3$ will be calculated as follows:

Result of Titration	**OH Alkalinity as $CaCO_3$**	**CO_3 Alkalinity as $CaCO_3$**	**HCO_3 Alkalinity as $CaCO_3$**
P = 0	0	0	T
P < ½ T	0	2P	T – 2P
P = ½ T	0	2P	0
P > ½ T	2P – T	2(T – P)	0
P = T	T	0	0

Therefore,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = **55.21 mg/L**

Reporting results in two significant figures,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = **55 mg/L**

Sample Calculation

METHOD: EPA 300
TEST NAME: INORGANIC ANIONS BY IC
MATRIX: WATER

FORMULA:

Calculate the Nitrate concentration, in mg/L, in the original sample as follows:

Chloride, mg/L = A * DF

where:

A = mg/L, IC calculated concentration
DF = dilution factor

For **N008841-001A**, concentration in mg/L are calculated as follows:

Chloride, mg/L	=	2.921 * 500
	=	1460.5 mg/L

Reporting **N008841-001A** results in two significant figures,

Chloride, mg/L	**=**	**1500**

Nulzil

November 28, 2012

Shawn P. Duffy
CH2M HILL
155 Grand Avenue, Suite 1000
Oakland, CA 94612

TEL: (530) 229-3303
FAX: (530) 339-3303

CA-ELAP No.: 2676
NV Cert. No.: NV-009222007A

Workorder No.: N008876

RE: PG&E Topock, 423575.MP.06.TS

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on November 08, 2012 by Advanced Technology Laboratories, Inc. . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

for Jose Tenorio

Jose Tenorio Jr.
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and Advanced Technology Laboratories - Las Vegas.

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.06.TS
Lab Order: N008876

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.

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Advanced Technology Laboratories, Inc.

Date: *28-Nov-12*

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.06.TS
Lab Order: N008876
Contract No: 2012-GMP-188S

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N008876-001A	MW-47-055-188	Water	11/7/2012 9:27:00 AM	11/8/2012	11/28/2012
N008876-002A	MW-47-115-188	Water	11/7/2012 2:38:00 PM	11/8/2012	11/28/2012
N008876-003A	MW-33-090-188	Water	11/8/2012 10:06:00 AM	11/8/2012	11/28/2012
N008876-004A	MW-36-100-188	Water	11/8/2012 2:21:00 PM	11/8/2012	11/28/2012

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *28-Nov-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-47-055-188
Lab Order:	N008876	**Collection Date:**	11/7/2012 9:27:00 AM
Project:	PG&E Topock, 423575.MP.06.TS	**Matrix:**	WATER
Lab ID:	N008876-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121109C**	QC Batch: **R86267**			PrepDate:			Analyst: **KAB**
Specific Conductance	5100	0.10	0.10		umhos/cm	1	11/9/2012

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *28-Nov-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-47-115-188
Lab Order:	N008876	**Collection Date:**	11/7/2012 2:38:00 PM
Project:	PG&E Topock, 423575.MP.06.TS	**Matrix:**	WATER
Lab ID:	N008876-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
EPA 120.1							
RunID: **WETCHEM_121109C**	QC Batch: **R86267**			PrepDate:			Analyst: **KAB**
Specific Conductance	16000	0.10	0.10		umhos/cm	1	11/9/2012

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *28-Nov-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-33-090-188
Lab Order:	N008876	**Collection Date:**	11/8/2012 10:06:00 AM
Project:	PG&E Topock, 423575.MP.06.TS	**Matrix:**	WATER
Lab ID:	N008876-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
EPA 120.1							
RunID: **WETCHEM_121109C**	QC Batch: **R86267**			PrepDate:			Analyst: **KAB**
Specific Conductance	12000	0.10	0.10		umhos/cm	1	11/9/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *28-Nov-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-36-100-188
Lab Order:	N008876	**Collection Date:**	11/8/2012 2:21:00 PM
Project:	PG&E Topock, 423575.MP.06.TS	**Matrix:**	WATER
Lab ID:	N008876-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
EPA 120.1							
RunID: **WETCHEM_121109C**	QC Batch: **R86267**			PrepDate:			Analyst: **KAB**
Specific Conductance	10000	0.10	0.10		umhos/cm	1	11/9/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

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Advanced Technology Laboratories, Inc.

Date: *28-Nov-12*

CLIENT: CH2M HILL
Work Order: N008876
Project: PG&E Topock, 423575.MP.06.TS

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: **LCS-R86267** SampType: **LCS** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86267**
Client ID: **LCSW** Batch ID: **R86267** TestNo: **EPA 120.1** Analysis Date: **11/9/2012** SeqNo: **1470854**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	9990.000	0.10	9992	0	100	85	115				

Sample ID: **N008876-001A-DUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86267**
Client ID: **ZZZZZZ** Batch ID: **R86267** TestNo: **EPA 120.1** Analysis Date: **11/9/2012** SeqNo: **1470856**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	5130.000	0.10						5130	0	10	

Sample ID: **N008876-001A-MS** SampType: **MS** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86267**
Client ID: **ZZZZZZ** Batch ID: **R86267** TestNo: **EPA 120.1** Analysis Date: **11/9/2012** SeqNo: **1470857**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	13980.000	0.20	9992	5130	88.6	75	125				

Sample ID: **N008876-001A-MSD** SampType: **MSD** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86267**
Client ID: **ZZZZZZ** Batch ID: **R86267** TestNo: **EPA 120.1** Analysis Date: **11/9/2012** SeqNo: **1470858**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	13980.000	0.20	9992	5130	88.6	75	125	13980	0	10	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *28-Nov-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-47-055-188
Lab Order:	N008876	**Collection Date:**	11/7/2012 9:27:00 AM
Project:	PG&E Topock, 423575.MP.06.TS	**Matrix:**	WATER
Lab ID:	N008876-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121109F**	QC Batch: **R86270**			PrepDate:			Analyst: **KAB**
Alkalinity, Bicarbonate (As CaCO3)	67	1.2	5.0		mg/L	1	11/9/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/9/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/9/2012
Alkalinity, Total (As CaCO3)	67	1.2	5.0		mg/L	1	11/9/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *28-Nov-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-47-115-188
Lab Order:	N008876	**Collection Date:**	11/7/2012 2:38:00 PM
Project:	PG&E Topock, 423575.MP.06.TS	**Matrix:**	WATER
Lab ID:	N008876-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121109F**	QC Batch: **R86270**			PrepDate:			Analyst: **KAB**
Alkalinity, Bicarbonate (As CaCO3)	50	1.2	5.0		mg/L	1	11/9/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/9/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/9/2012
Alkalinity, Total (As CaCO3)	50	1.2	5.0		mg/L	1	11/9/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *28-Nov-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-33-090-188
Lab Order:	N008876	**Collection Date:**	11/8/2012 10:06:00 AM
Project:	PG&E Topock, 423575.MP.06.TS	**Matrix:**	WATER
Lab ID:	N008876-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121109F**	QC Batch: **R86270**			PrepDate:			Analyst: **KAB**
Alkalinity, Bicarbonate (As CaCO3)	71	1.2	5.0		mg/L	1	11/9/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/9/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/9/2012
Alkalinity, Total (As CaCO3)	71	1.2	5.0		mg/L	1	11/9/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *28-Nov-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-36-100-188
Lab Order:	N008876	**Collection Date:**	11/8/2012 2:21:00 PM
Project:	PG&E Topock, 423575.MP.06.TS	**Matrix:**	WATER
Lab ID:	N008876-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121109F**	QC Batch: **R86270**			PrepDate:			Analyst: **KAB**
Alkalinity, Bicarbonate (As CaCO3)	250	1.2	5.0		mg/L	1	11/9/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/9/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/9/2012
Alkalinity, Total (As CaCO3)	250	1.2	5.0		mg/L	1	11/9/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

Date: *28-Nov-12*

CLIENT: CH2M HILL
Work Order: N008876
Project: PG&E Topock, 423575.MP.06.TS

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **LCS-R86270** SampType: **LCS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86270**
Client ID: **LCSW** Batch ID: **R86270** TestNo: **SM 2320 B** Analysis Date: **11/9/2012** SeqNo: **1470887**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	93.348	5.0	100.0	0	93.3	85	115				
Alkalinity, Total (As CaCO3)	99.785	5.0	100.0	0	99.8	85	115				

Sample ID: **LCSD-R86270** SampType: **LCSD** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86270**
Client ID: **LCSS02** Batch ID: **R86270** TestNo: **SM 2320 B** Analysis Date: **11/9/2012** SeqNo: **1470888**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	94.421	5.0	100.0	0	94.4	85	115	93.35	1.14	20	
Alkalinity, Total (As CaCO3)	100.858	5.0	100.0	0	101	85	115	99.79	1.07	20	

Sample ID: **MB-R86270** SampType: **MBLK** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86270**
Client ID: **PBW** Batch ID: **R86270** TestNo: **SM 2320 B** Analysis Date: **11/9/2012** SeqNo: **1470889**

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: **N008876-001A-DUP** SampType: **DUP** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86270**
Client ID: **ZZZZZZ** Batch ID: **R86270** TestNo: **SM 2320 B** Analysis Date: **11/9/2012** SeqNo: **1470891**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	66.524	5.0						66.52	0	30	
Alkalinity, Carbonate (As CaCO3)	ND	5.0						0	0	30	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0						0	0	30	
Alkalinity, Total (As CaCO3)	66.524	5.0						66.52	0	30	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

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CLIENT: CH2M HILL
Work Order: N008876
Project: PG&E Topock, 423575.MP.06.TS

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **N008876-001A-MS** SampType: **MS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86270**
Client ID: **ZZZZZZ** Batch ID: **R86270** TestNo: **SM 2320 B** Analysis Date: **11/9/2012** SeqNo: **1470892**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	167.382	5.0	100.0	66.52	101	75	125				
Alkalinity, Total (As CaCO3)	167.382	5.0	100.0	66.52	101	75	125				

Sample ID: **N008876-001A-MSD** SampType: **MSD** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86270**
Client ID: **ZZZZZZ** Batch ID: **R86270** TestNo: **SM 2320 B** Analysis Date: **11/9/2012** SeqNo: **1470893**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	167.382	5.0	100.0	66.52	101	75	125	167.4	0	20	
Alkalinity, Total (As CaCO3)	167.382	5.0	100.0	66.52	101	75	125	167.4	0	20	

Sample ID: **N008877-001B-DUP** SampType: **DUP** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86270**
Client ID: **ZZZZZZ** Batch ID: **R86270** TestNo: **SM 2320 B** Analysis Date: **11/9/2012** SeqNo: **1470898**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	27.897	5.0						27.90	0	30	
Alkalinity, Carbonate (As CaCO3)	ND	5.0						0	0	30	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0						0	0	30	
Alkalinity, Total (As CaCO3)	27.897	5.0						27.90	0	30	

Sample ID: **N008877-001B-MS** SampType: **MS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86270**
Client ID: **ZZZZZZ** Batch ID: **R86270** TestNo: **SM 2320 B** Analysis Date: **11/9/2012** SeqNo: **1470899**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	126.609	5.0	100.0	27.90	98.7	75	125				
Alkalinity, Total (As CaCO3)	126.609	5.0	100.0	27.90	98.7	75	125				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *28-Nov-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-47-055-188
Lab Order:	N008876	**Collection Date:**	11/7/2012 9:27:00 AM
Project:	PG&E Topock, 423575.MP.06.TS	**Matrix:**	WATER
Lab ID:	N008876-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121114A** QC Batch: **R86467** PrepDate: Analyst: **QBM**							
Chloride	1200	5.5	250		mg/L	500	11/14/2012 01:12 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121114A** QC Batch: **R86467** PrepDate: Analyst: **QBM**							
Sulfate	230	0.70	10		mg/L	20	11/14/2012 11:12 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *28-Nov-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-47-115-188
Lab Order:	N008876	**Collection Date:**	11/7/2012 2:38:00 PM
Project:	PG&E Topock, 423575.MP.06.TS	**Matrix:**	WATER
Lab ID:	N008876-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121114A** QC Batch: **R86467** PrepDate: Analyst: **QBM**							
Chloride	4500	11	500		mg/L	1000	11/14/2012 01:24 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121114A** QC Batch: **R86467** PrepDate: Analyst: **QBM**							
Sulfate	740	3.5	50		mg/L	100	11/14/2012 11:23 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *28-Nov-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-33-090-188
Lab Order:	N008876	**Collection Date:**	11/8/2012 10:06:00 AM
Project:	PG&E Topock, 423575.MP.06.TS	**Matrix:**	WATER
Lab ID:	N008876-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121114A** QC Batch: **R86467** PrepDate: Analyst: **QBM**							
Chloride	3000	11	500		mg/L	1000	11/14/2012 01:36 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121114A** QC Batch: **R86467** PrepDate: Analyst: **QBM**							
Fluoride	5.5	0.12	5.0		mg/L	10	11/14/2012 10:19 AM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121114A** QC Batch: **R86467** PrepDate: Analyst: **QBM**							
Sulfate	710	3.5	50		mg/L	100	11/14/2012 11:35 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *28-Nov-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-36-100-188
Lab Order:	N008876	**Collection Date:**	11/8/2012 2:21:00 PM
Project:	PG&E Topock, 423575.MP.06.TS	**Matrix:**	WATER
Lab ID:	N008876-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121114A** QC Batch: **R86467** PrepDate: Analyst: **QBM**							
Chloride	2500	11	500		mg/L	1000	11/14/2012 01:47 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121114A** QC Batch: **R86467** PrepDate: Analyst: **QBM**							
Sulfate	810	3.5	50		mg/L	100	11/14/2012 11:46 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

Date: *28-Nov-12*

CLIENT: CH2M HILL
Work Order: N008876
Project: PG&E Topock, 423575.MP.06.TS

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **MB-R86467_CL** SampType: **MBLK** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86467**
Client ID: **PBW** Batch ID: **R86467** TestNo: **EPA 300.0** Analysis Date: **11/14/2012** SeqNo: **1479963**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.50									

Sample ID: **LCS-R86467_CL** SampType: **LCS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86467**
Client ID: **LCSW** Batch ID: **R86467** TestNo: **EPA 300.0** Analysis Date: **11/14/2012** SeqNo: **1479964**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.477	0.50	2.500	0	99.1	90	110				

Sample ID: **N008876-001ADUP** SampType: **DUP** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86467**
Client ID: **ZZZZZZ** Batch ID: **R86467** TestNo: **EPA 300.0** Analysis Date: **11/14/2012** SeqNo: **1479971**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1211.500	250						1216	0.330	20	

Sample ID: **N008876-002AMS** SampType: **MS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86467**
Client ID: **ZZZZZZ** Batch ID: **R86467** TestNo: **EPA 300.0** Analysis Date: **11/14/2012** SeqNo: **1479972**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	7189.000	500	2500	4533	106	80	120				

Sample ID: **N008876-002AMSD** SampType: **MSD** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86467**
Client ID: **ZZZZZZ** Batch ID: **R86467** TestNo: **EPA 300.0** Analysis Date: **11/14/2012** SeqNo: **1479973**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	7322.000	500	2500	4533	112	80	120	7189	1.83	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: N008876
Project: PG&E Topock, 423575.MP.06.TS

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_FPGE

Sample ID: **MB-R86467_F** SampType: **MBLK** TestCode: **300_W_FPGE** Units: **mg/L** Prep Date: RunNo: **86467**
Client ID: **PBW** Batch ID: **R86467** TestNo: **EPA 300.0** Analysis Date: **11/14/2012** SeqNo: **1479945**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	ND	0.50									

Sample ID: **LCS-R86467_F** SampType: **LCS** TestCode: **300_W_FPGE** Units: **mg/L** Prep Date: RunNo: **86467**
Client ID: **LCSW** Batch ID: **R86467** TestNo: **EPA 300.0** Analysis Date: **11/14/2012** SeqNo: **1479946**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	2.518	0.50	2.500	0	101	90	110				

Sample ID: **N008876-003ADUP** SampType: **DUP** TestCode: **300_W_FPGE** Units: **mg/L** Prep Date: RunNo: **86467**
Client ID: **ZZZZZZ** Batch ID: **R86467** TestNo: **EPA 300.0** Analysis Date: **11/14/2012** SeqNo: **1479948**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	5.480	5.0						5.490	0.182	20	

Sample ID: **N008876-003AMS** SampType: **MS** TestCode: **300_W_FPGE** Units: **mg/L** Prep Date: RunNo: **86467**
Client ID: **ZZZZZZ** Batch ID: **R86467** TestNo: **EPA 300.0** Analysis Date: **11/14/2012** SeqNo: **1479949**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	30.590	5.0	25.00	5.490	100	80	120				

Sample ID: **N008876-003AMSD** SampType: **MSD** TestCode: **300_W_FPGE** Units: **mg/L** Prep Date: RunNo: **86467**
Client ID: **ZZZZZZ** Batch ID: **R86467** TestNo: **EPA 300.0** Analysis Date: **11/14/2012** SeqNo: **1479950**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	29.970	5.0	25.00	5.490	97.9	80	120	30.59	2.05	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: N008876
Project: PG&E Topock, 423575.MP.06.TS

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **MB-R86467_SO4** SampType: **MBLK** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86467**
Client ID: **PBW** Batch ID: **R86467** TestNo: **EPA 300.0** Analysis Date: **11/14/2012** SeqNo: **1479991**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID: **LCS-R86467_SO4** SampType: **LCS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86467**
Client ID: **LCSW** Batch ID: **R86467** TestNo: **EPA 300.0** Analysis Date: **11/14/2012** SeqNo: **1479992**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	5.029	0.50	5.000	0	101	90	110				

Sample ID: **N008876-001ADUP** SampType: **DUP** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86467**
Client ID: **ZZZZZZ** Batch ID: **R86467** TestNo: **EPA 300.0** Analysis Date: **11/14/2012** SeqNo: **1479999**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	231.880	10						232.7	0.336	20	

Sample ID: **N008876-002AMS** SampType: **MS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86467**
Client ID: **ZZZZZZ** Batch ID: **R86467** TestNo: **EPA 300.0** Analysis Date: **11/14/2012** SeqNo: **1480000**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	1250.300	50	500.0	737.5	103	80	120				

Sample ID: **N008876-002AMSD** SampType: **MSD** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86467**
Client ID: **ZZZZZZ** Batch ID: **R86467** TestNo: **EPA 300.0** Analysis Date: **11/14/2012** SeqNo: **1480001**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	1263.000	50	500.0	737.5	105	80	120	1250	1.01	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

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CH2MHILL

CHAIN OF CUSTODY RECORD

11/8/2012 5:59:51 PM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy

Project Number 423575.MP.06.TS
Task Order
Project 2012-GMP-188SAMPLEMETHOD
Turnaround Time 10 Days
Shipping Date: 11/8/2012
COC Number: 9

				Specific Conductance (E120.1)	Anions (E300.0) Chloride,Sulfate	Anions (E300.0) Chloride,Sulfate,Fluoride	Alkalinity (SM2320B)		Number of Containers	COMMENTS
Container:				2x1 Liter	2x1 Liter	2x1 Liter	2x1 Liter			
Preservatives:				4°C	4°C	4°C	4°C			
Filtered:				NA	NA	NA	NA			
Holding Time:				7	7	7	7			
	DATE	TIME	Matrix							
MW-47-055-188	11/7/2012	9:27	Water	X	X		X	N008876 -1	2	
MW-47-115-188	11/7/2012	14:38	Water	X	X		X	-2	2	
MW-33-090-188	11/8/2012	10:06	Water	X		X	X	-3	2	
MW-36-100-188	11/8/2012	14:21	Water	X	X		X	-4	2	
								TOTAL NUMBER OF CONTAINERS	8	

	Signatures	Date/Time
Approved by		11-8-12
Sampled by		1815
Relinquished by		11-8-12 1815
Received by		11-8-12 2011
Relinquished by		
Received by		

Shipping Details

Method of Shipment: courier
On Ice: (yes) / no 3.4 1R1 ICE
Airbill No:
Lab Name: ADVANCED TECHNOLOGY LABORATO
Lab Phone: (702) 307-2659

ATTN:
Sample Custody
and
Marlon

Special Instructions:
Nov 5 - Dec 14, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

Advanced Technology Laboratories, Inc.

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	11/8/2012	Workorder:	N008876
Rep sample Temp (Deg C):	3.4	IR Gun ID:	1
Temp Blank:	☐ Yes ☑ No		
Carrier name:	ATL		
Last 4 digits of Tracking No.:	na	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☐	No ☐	NA ☑
15. Did the bottle labels indicate correct preservatives used?	Yes ☐	No ☐	NA ☑
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments:

Checklist Completed B MBC 11/9/12

Reviewed By:

Sample ID: **N008876-001A @ pH 7.70**

A. Standardization of Sulfuric Acid (titrant):

Normality of acid = (A)(B)/(53.00)(C)

Where:

A, grams weighed for Na_2CO_3 solution (Na_2CO_3 Standardization Solution)
B, mL Na2CO3 solution taken for titration, and
C, ml of sulfuric acid used to inflection point

Spike Standards

Na_2CO_3 Standardization Solution, ACS Grade (1.00 ml = 2500ug as $CaCO_3$): Dissolve 2.650 grams of Na_2CO_3 in distilled water and dilute to 1 liter.

LCS/MS/MSD Stock $NaHCO_3$, ACS Grade (1.00 ml = 5000 ug as $CaCO_3$): Dissolve 0.8398 grams of $NaHCO_3$ in distilled water and dilute to 1 liter.

Therefore,

Normality of Acid = (2.65g/L) (5mL) / (53.00) (11.65mL)

= 0.02146 N

B. CALCULATION OF ALKALINITY (for a 50 ml sample)

Total Alkalinity (as $CaCO_3$), mg/L = $M_{vol.}$ * N H_2SO_4 * DF * 1000

Where:

$M_{vol.}$, volume titrant used to reach pH 4.5, ml
N, Normality of H_2SO_4
DF, Dilution Factor = (50 ml) / (Vol. of Sample used)

Therefore,

Total Alkalinity (as $CaCO_3$), mg/L = (3.10) (0.02146N) (1) * 1000

= 66.53 mg/L

Reporting results in two significant figures,

= **67 mg/L** as CaCO3

NS for
11/28/12

C. SPECIATED ALKALINITY:

Phenolphthalein Alkalinity

P alkalinity, mg/L as $CaCO_3$ = $P_{vol.}$ * N H_2SO_4 * DF * 1000

= (0) (0.02146 N) (1) * 1000

= **0**

Total Alkalinity

T alkalinity, mg/L as $CaCO_3$ = $M_{vol.}$ * N H_2SO_4 * DF * 1000

= (3.10mL) (0.02146) (1) * 1000

= **66.53 mg/L** as CaCO3

Where:

$P_{vol.}$ - volume titrant used to reach pH 8.3, ml
$M_{vol.}$ - volume titrant used to reach pH 4.5, ml
N - Normality of H_2SO_4
DF - Dilution Factor = (50 ml) / (Vol. of Sample used)

Then OH, CO_3, HCO_3 alkalinities as $CaCO_3$ will be calculated as follows:

Result of Titration	**OH Alkalinity as $CaCO_3$**	**CO_3 Alkalinity as $CaCO_3$**	**HCO_3 Alkalinity as $CaCO_3$**
P = 0	0	0	T
P < ½ T	0	2P	T – 2P
P = ½ T	0	2P	0
P > ½ T	2P – T	2(T – P)	0
P = T	T	0	0

Therefore,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = **66.53 mg/L**

Reporting results in two significant figures,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = **67 mg/L**

Sample Calculation

METHOD: EPA 300
TEST NAME: INORGANIC ANIONS BY IC
MATRIX: WATER

FORMULA:

Calculate the Nitrate concentration, in mg/L, in the original sample as follows:

Chloride, mg/L = A * DF

where:

A = mg/L, IC calculated concentration
DF = dilution factor

For **N008876-001A**, concentration in mg/L are calculated as follows:

Chloride, mg/L = 2.431 * 500

= 1215.5 mg/L

Reporting **N008876-001A** results in two significant figures,

Chloride, mg/L = 1200 ✓ Aulzsh

November 30, 2012

Shawn P. Duffy
CH2M HILL
155 Grand Avenue, Suite 1000
Oakland, CA 94612

TEL: (530) 229-3303
FAX: (530) 339-3303

CA-ELAP No.: 2676
NV Cert. No.: NV-009222007A

Workorder No.: N008907

RE: PG&E Topock, 423575.MP.06.TS

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on November 13, 2012 by Advanced Technology Laboratories, Inc. . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

for Gregorio

Jose Tenorio Jr.
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and Advanced Technology Laboratories - Las Vegas.

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.06.TS
Lab Order: N008907

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.

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

Date: *30-Nov-12*

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.06.TS
Lab Order: N008907
Contract No: 2012-GMP-188S

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N008907-001A	MW-46-175-188	Water	11/9/2012 10:08:00 AM	11/13/2012	11/30/2012

Advanced Technology Laboratories, Inc.
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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *30-Nov-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-46-175-188
Lab Order:	N008907	**Collection Date:**	11/9/2012 10:08:00 AM
Project:	PG&E Topock, 423575.MP.06.TS	**Matrix:**	WATER
Lab ID:	N008907-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121114B**	QC Batch: **R86488**			PrepDate:			Analyst: **CEI**
Specific Conductance	18000	0.10	0.10		umhos/cm	1	11/14/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

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Advanced Technology Laboratories, Inc.

Date: *30-Nov-12*

CLIENT: CH2M HILL
Work Order: N008907
Project: PG&E Topock, 423575.MP.06.TS

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: **LCS-R86488** SampType: **LCS** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86488**
Client ID: **LCSW** Batch ID: **R86488** TestNo: **EPA 120.1** Analysis Date: **11/14/2012** SeqNo: **1480787**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	1444.000	0.10	1414	0	102	85	115				

Sample ID: **N008906-007BDUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86488**
Client ID: **ZZZZZZ** Batch ID: **R86488** TestNo: **EPA 120.1** Analysis Date: **11/14/2012** SeqNo: **1480794**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	1471.000	0.10						1467	0.272	10	

Sample ID: **N008906-007BMS** SampType: **MS** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86488**
Client ID: **ZZZZZZ** Batch ID: **R86488** TestNo: **EPA 120.1** Analysis Date: **11/14/2012** SeqNo: **1480795**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	2866.000	0.20	1414	1467	98.9	75	125				

Sample ID: **N008906-007BMSD** SampType: **MSD** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86488**
Client ID: **ZZZZZZ** Batch ID: **R86488** TestNo: **EPA 120.1** Analysis Date: **11/14/2012** SeqNo: **1480796**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	2874.000	0.20	1414	1467	99.5	75	125	2866	0.279	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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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *30-Nov-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-46-175-188
Lab Order:	N008907	**Collection Date:**	11/9/2012 10:08:00 AM
Project:	PG&E Topock, 423575.MP.06.TS	**Matrix:**	WATER
Lab ID:	N008907-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121116C**	QC Batch: **R86478**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	43	1.2	5.0		mg/L	1	11/16/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/16/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/16/2012
Alkalinity, Total (As CaCO3)	43	1.2	5.0		mg/L	1	11/16/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

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Advanced Technology Laboratories, Inc.

Date: *30-Nov-12*

CLIENT: CH2M HILL
Work Order: N008907
Project: PG&E Topock, 423575.MP.06.TS

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **LCS-R86478** SampType: **LCS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86478**
Client ID: **LCSW** Batch ID: **R86478** TestNo: **SM 2320 B** Analysis Date: **11/16/2012** SeqNo: **1480703**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	96.360	5.0	100.0	0	96.4	85	115				
Alkalinity, Total (As CaCO3)	100.642	5.0	100.0	0	101	85	115				

Sample ID: **LCSD-R86478** SampType: **LCSD** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86478**
Client ID: **LCSS02** Batch ID: **R86478** TestNo: **SM 2320 B** Analysis Date: **11/16/2012** SeqNo: **1480704**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	96.360	5.0	100.0	0	96.4	85	115	96.36	0	20	
Alkalinity, Total (As CaCO3)	100.642	5.0	100.0	0	101	85	115	100.6	0	20	

Sample ID: **MB-R86478** SampType: **MBLK** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86478**
Client ID: **PBW** Batch ID: **R86478** TestNo: **SM 2320 B** Analysis Date: **11/16/2012** SeqNo: **1480705**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	2.141	5.0									
Alkalinity, Carbonate (As CaCO3)	ND	5.0									
Alkalinity, Hydroxide (As CaCO3)	ND	5.0									
Alkalinity, Total (As CaCO3)	2.141	5.0									

Sample ID: **N008906-001BMS** SampType: **MS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86478**
Client ID: **ZZZZZZ** Batch ID: **R86478** TestNo: **SM 2320 B** Analysis Date: **11/16/2012** SeqNo: **1480707**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	122.056	5.0	100.0	23.55	98.5	75	125				
Alkalinity, Total (As CaCO3)	122.056	5.0	100.0	23.55	98.5	75	125				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

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CLIENT: CH2M HILL
Work Order: N008907
Project: PG&E Topock, 423575.MP.06.TS

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **N008906-001BMSD** SampType: **MSD** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86478**
Client ID: **ZZZZZZ** Batch ID: **R86478** TestNo: **SM 2320 B** Analysis Date: **11/16/2012** SeqNo: **1480708**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	122.056	5.0	100.0	23.55	98.5	75	125	122.1	0	20	
Alkalinity, Total (As CaCO3)	122.056	5.0	100.0	23.55	98.5	75	125	122.1	0	20	

Sample ID: **N008906-004BDUP** SampType: **DUP** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86478**
Client ID: **ZZZZZZ** Batch ID: **R86478** TestNo: **SM 2320 B** Analysis Date: **11/16/2012** SeqNo: **1480712**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	78.158	5.0						78.16	0	30	
Alkalinity, Carbonate (As CaCO3)	ND	5.0						0	0	30	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0						0	0	30	
Alkalinity, Total (As CaCO3)	78.158	5.0						78.16	0	30	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *30-Nov-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-46-175-188
Lab Order:	N008907	**Collection Date:**	11/9/2012 10:08:00 AM
Project:	PG&E Topock, 423575.MP.06.TS	**Matrix:**	WATER
Lab ID:	N008907-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121115A** QC Batch: **R86476** PrepDate: Analyst: **QBM**							
Chloride	6000	11	500		mg/L	1000	11/15/2012 11:13 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121115A** QC Batch: **R86476** PrepDate: Analyst: **QBM**							
Sulfate	760	3.5	50		mg/L	100	11/15/2012 08:18 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

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Advanced Technology Laboratories, Inc.

Date: *30-Nov-12*

CLIENT: CH2M HILL
Work Order: N008907
Project: PG&E Topock, 423575.MP.06.TS

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **MB-R86476_CL** SampType: **MBLK** TestCode: **300_W_CLP** Units: **mg/L** Prep Date: RunNo: **86476**
Client ID: **PBW** Batch ID: **R86476** TestNo: **EPA 300.0** Analysis Date: **11/15/2012** SeqNo: **1480326**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.50									

Sample ID: **LCS-R86476_CL** SampType: **LCS** TestCode: **300_W_CLP** Units: **mg/L** Prep Date: RunNo: **86476**
Client ID: **LCSW** Batch ID: **R86476** TestNo: **EPA 300.0** Analysis Date: **11/15/2012** SeqNo: **1480327**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.384	0.50	2.500	0	95.4	90	110				

Sample ID: **N008906-001BMS** SampType: **MS** TestCode: **300_W_CLP** Units: **mg/L** Prep Date: RunNo: **86476**
Client ID: **ZZZZZZ** Batch ID: **R86476** TestNo: **EPA 300.0** Analysis Date: **11/15/2012** SeqNo: **1480331**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	12504.000	1000	5000	7542	99.2	80	120				

Sample ID: **N008906-001BMSD** SampType: **MSD** TestCode: **300_W_CLP** Units: **mg/L** Prep Date: RunNo: **86476**
Client ID: **ZZZZZZ** Batch ID: **R86476** TestNo: **EPA 300.0** Analysis Date: **11/15/2012** SeqNo: **1480332**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	12502.000	1000	5000	7542	99.2	80	120	12500	0.0160	20	

Sample ID: **N008906-002BDUP** SampType: **DUP** TestCode: **300_W_CLP** Units: **mg/L** Prep Date: RunNo: **86476**
Client ID: **ZZZZZZ** Batch ID: **R86476** TestNo: **EPA 300.0** Analysis Date: **11/15/2012** SeqNo: **1480334**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2231.000	250						2255	1.07	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N008907
Project: PG&E Topock, 423575.MP.06.TS

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **MB-R86476_SO4** SampType: **MBLK** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86476**
Client ID: **PBW** Batch ID: **R86476** TestNo: **EPA 300.0** Analysis Date: **11/15/2012** SeqNo: **1480351**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID: **LCS-R86476_SO4** SampType: **LCS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86476**
Client ID: **LCSW** Batch ID: **R86476** TestNo: **EPA 300.0** Analysis Date: **11/15/2012** SeqNo: **1480352**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.795	0.50	5.000	0	95.9	90	110				

Sample ID: **N008906-001BMS** SampType: **MS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86476**
Client ID: **ZZZZZZ** Batch ID: **R86476** TestNo: **EPA 300.0** Analysis Date: **11/15/2012** SeqNo: **1480354**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	1242.900	50	500.0	736.7	101	80	120				

Sample ID: **N008906-001BMSD** SampType: **MSD** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86476**
Client ID: **ZZZZZZ** Batch ID: **R86476** TestNo: **EPA 300.0** Analysis Date: **11/15/2012** SeqNo: **1480355**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	1238.800	50	500.0	736.7	100	80	120	1243	0.330	20	

Sample ID: **N008906-002BDUP** SampType: **DUP** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86476**
Client ID: **ZZZZZZ** Batch ID: **R86476** TestNo: **EPA 300.0** Analysis Date: **11/15/2012** SeqNo: **1480367**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	2445.000	250						2410	1.42	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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CH2MHILL

CHAIN OF CUSTODY RECORD

11/13/2012 4:13:28 PM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.06.TS
Task Order
Project 2012-GMP-188SAMPLEMETHOD
Turnaround Time 10 Days
Shipping Date: 11/13/2012
COC Number: 13

			Container:	2x1 Liter	2x1 Liter	2x1 Liter			
			Preservatives:	4°C	4°C	4°C			
			Filtered:	NA	NA	NA			
			Holding Time:	7	7	7			
	DATE	TIME	Matrix	Specific Conductance (E120.1)	Anions (E300.0) Chloride,Sulfate	Alkalinity (SM2320B)		Number of Containers	COMMENTS
MW-46-175-188	11/9/2012	10:08	Water	X	X	X	N005907 ↓ —1	2	
							TOTAL NUMBER OF CONTAINERS	2	

	Signatures	Date/Time
Approved by		11-13-12
Sampled by		1700
Relinquished by		
Received by		11/13/12 1700
Relinquished by		11/13/12 1915
Received by		11/13/12 1915

Shipping Details

Method of Shipment: courier
On Ice: ~~yes~~ / no 3.0°C
Airbill No: IR#1
Lab Name: ADVANCED TECHNOLOGY LABORATO
Lab Phone: (702) 307-2659

ATTN:
Sample Custody
and
Marlon

Special Instructions:
Nov 5 - Dec 14, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

Advanced Technology Laboratories, Inc.

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	11/13/2012	Workorder:	N008907
Rep sample Temp (Deg C):	3.0	IR Gun ID:	1
Temp Blank:	☐ Yes ☑ No		
Carrier name:	ATL		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☐	No ☐	NA ☑
15. Did the bottle labels indicate correct preservatives used?	Yes ☐	No ☐	NA ☑
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments:

Checklist Completed B MBC 11/14/12

Reviewed By:

Sample ID: **N008907-001A @ pH 8.00**

A. Standardization of Sulfuric Acid (titrant):

Normality of acid = (A)(B)/(53.00)(C)

Where:

A, grams weighed for Na_2CO_3 solution (Na_2CO_3 Standardization Solution)
B, mL Na2CO3 solution taken for titration, and
C, ml of sulfuric acid used to inflection point

Spike Standards

Na_2CO_3 Standardization Solution, ACS Grade (1.00 ml = 2500ug as $CaCO_3$): Dissolve 2.650 grams of Na_2CO_3 in distilled water and dilute to 1 liter.

LCS/MS/MSD Stock $NaHCO_3$, ACS Grade (1.00 ml = 5000 ug as $CaCO_3$): Dissolve 0.8398 grams of $NaHCO_3$ in distilled water and dilute to 1 liter.

Therefore,

Normality of Acid = (2.65g/L) (5mL) / (53.00) (11.675mL)

= **0.02141 N**

B. CALCULATION OF ALKALINITY (for a 50 ml sample)

Total Alkalinity (as $CaCO_3$), mg/L = $M_{vol.}$ * N H_2SO_4 * DF * 1000

Where:

$M_{vol.}$, volume titrant used to reach pH 4.5, ml
N, Normality of H_2SO_4
DF, Dilution Factor = (50 ml) / (Vol. of Sample used)

Therefore,

Total Alkalinity (as $CaCO_3$), mg/L = (2.00) (0.02141N) (1) * 1000

= 42.82 **mg/L**

Reporting results in two significant figures,

= 43 **mg/L** as CaCO3

NS for n/2gh

C. SPECIATED ALKALINITY:

Phenolphthalein Alkalinity

P alkalinity, mg/L as $CaCO_3$ = $P_{vol.}$ * N H_2SO_4 * DF * 1000

= (0) (0.02141 N) (1) * 1000

= **0**

Total Alkalinity

T alkalinity, mg/L as $CaCO_3$ = $M_{vol.}$ * N H_2SO_4 * DF * 1000

= (2.00mL) (0.02141) (1) * 1000

= 42.82 **mg/L** as CaCO3

Where:

$P_{vol.}$ - volume titrant used to reach pH 8.3, ml
$M_{vol.}$ - volume titrant used to reach pH 4.5, ml
N - Normality of H_2SO_4
DF - Dilution Factor = (50 ml) / (Vol. of Sample used)

Then OH, CO_3, HCO_3 alkalinities as $CaCO_3$ will be calculated as follows:

Result of Titration	**OH Alkalinity as $CaCO_3$**	**CO_3 Alkalinity as $CaCO_3$**	**HCO_3 Alkalinity as $CaCO_3$**
P = 0	0	0	T
P < ½ T	0	2P	T – 2P
P = ½ T	0	2P	0
P > ½ T	2P – T	2(T – P)	0
P = T	T	0	0

Therefore,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = 42.82 **mg/L**

Reporting results in two significant figures,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = 43 **mg/L**

Sample Calculation

METHOD: EPA 300
TEST NAME: INORGANIC ANIONS BY IC
MATRIX: WATER

FORMULA:

Calculate the Chloride concentration, in mg/L, in the original sample as follows:

Chloride, mg/L = A * DF

where:

A = mg/L, IC calculated concentration
DF = dilution factor

For **N008907-001A**, concentration in mg/L are calculated as follows:

Chloride, mg/L = 5.998 * 1000

= 5998 mg/L

Reporting **N008907-001A** results in two significant figures,

Chloride, mg/L = 6000 Antrale

December 12, 2012

Shawn P. Duffy
CH2M HILL
155 Grand Avenue, Suite 1000
Oakland, CA 94612

TEL: (530) 229-3303
FAX: (530) 339-3303

CA-ELAP No.: 2676
NV Cert. No.: NV-009222007A

Workorder No.: N008994

RE: PG&E Topock, 423575.MP.06.TS

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on November 27, 2012 by Advanced Technology Laboratories, Inc. . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

for Jose Tenorio

Jose Tenorio Jr.
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and Advanced Technology Laboratories - Las Vegas.

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.06.TS
Lab Order: N008994

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.

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Advanced Technology Laboratories, Inc.

Date: *12-Dec-12*

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.06.TS
Lab Order: N008994
Contract No: 2012-GMP-188S

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N008994-001A	MW-19-188	Water	11/26/2012 3:19:00 PM	11/27/2012	12/12/2012
N008994-002A	MW-44-115-188	Water	11/26/2012 11:36:00 AM	11/27/2012	12/12/2012

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *12-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-19-188
Lab Order:	N008994	**Collection Date:**	11/26/2012 3:19:00 PM
Project:	PG&E Topock, 423575.MP.06.TS	**Matrix:**	WATER
Lab ID:	N008994-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
EPA 120.1							
RunID: **WETCHEM_121128E**	QC Batch: **R86493**			PrepDate:			Analyst: **CEI**
Specific Conductance	2200	0.10	0.10		umhos/cm	1	11/28/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *12-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-44-115-188
Lab Order:	N008994	**Collection Date:**	11/26/2012 11:36:00 AM
Project:	PG&E Topock, 423575.MP.06.TS	**Matrix:**	WATER
Lab ID:	N008994-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121128E**	QC Batch: **R86493**			PrepDate:			Analyst: **CEI**
Specific Conductance	11000	0.10	0.10		umhos/cm	1	11/28/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

Date: *12-Dec-12*

CLIENT: CH2M HILL
Work Order: N008994
Project: PG&E Topock, 423575.MP.06.TS

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: **LCS-R86493** SampType: **LCS** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86493**
Client ID: **LCSW** Batch ID: **R86493** TestNo: **EPA 120.1** Analysis Date: **11/28/2012** SeqNo: **1480863**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	9720.000	0.10	9992	0	97.3	85	115				

Sample ID: **N008997-002BDUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86493**
Client ID: **ZZZZZZ** Batch ID: **R86493** TestNo: **EPA 120.1** Analysis Date: **11/28/2012** SeqNo: **1480868**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	17170.000	0.10						17180	0.0582	10	

Sample ID: **N008997-002BMS** SampType: **MS** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86493**
Client ID: **ZZZZZZ** Batch ID: **R86493** TestNo: **EPA 120.1** Analysis Date: **11/28/2012** SeqNo: **1480869**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	26820.000	0.20	9992	17180	96.5	75	125				

Sample ID: **N008997-002BMSD** SampType: **MSD** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86493**
Client ID: **ZZZZZZ** Batch ID: **R86493** TestNo: **EPA 120.1** Analysis Date: **11/28/2012** SeqNo: **1480870**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	26780.000	0.20	9992	17180	96.1	75	125	26820	0.149	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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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *12-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-19-188
Lab Order:	N008994	**Collection Date:**	11/26/2012 3:19:00 PM
Project:	PG&E Topock, 423575.MP.06.TS	**Matrix:**	WATER
Lab ID:	N008994-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121130B**	QC Batch: **R86513**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	93	1.2	5.0		mg/L	1	11/30/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/30/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/30/2012
Alkalinity, Total (As CaCO3)	93	1.2	5.0		mg/L	1	11/30/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *12-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-44-115-188
Lab Order:	N008994	**Collection Date:**	11/26/2012 11:36:00 AM
Project:	PG&E Topock, 423575.MP.06.TS	**Matrix:**	WATER
Lab ID:	N008994-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121130B**	QC Batch: **R86513**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	76	1.2	5.0		mg/L	1	11/30/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/30/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/30/2012
Alkalinity, Total (As CaCO3)	76	1.2	5.0		mg/L	1	11/30/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

Date: *12-Dec-12*

CLIENT: CH2M HILL
Work Order: N008994
Project: PG&E Topock, 423575.MP.06.TS

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **LCS-R86513** SampType: **LCS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86513**
Client ID: **LCSW** Batch ID: **R86513** TestNo: **SM 2320 B** Analysis Date: **11/30/2012** SeqNo: **1481641**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	96.360	5.0	100.0	0	96.4	85	115				
Alkalinity, Total (As CaCO3)	100.642	5.0	100.0	0	101	85	115				

Sample ID: **MB-R86513** SampType: **MBLK** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86513**
Client ID: **PBW** Batch ID: **R86513** TestNo: **SM 2320 B** Analysis Date: **11/30/2012** SeqNo: **1481642**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	2.141	5.0									
Alkalinity, Carbonate (As CaCO3)	ND	5.0									
Alkalinity, Hydroxide (As CaCO3)	ND	5.0									
Alkalinity, Total (As CaCO3)	2.141	5.0									

Sample ID: **N008992-001ADUP** SampType: **DUP** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86513**
Client ID: **ZZZZZZ** Batch ID: **R86513** TestNo: **SM 2320 B** Analysis Date: **11/30/2012** SeqNo: **1481644**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	98.501	5.0						97.43	1.09	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)	98.501	5.0						97.43	1.09	30	

Sample ID: **N008992-002AMS** SampType: **MS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86513**
Client ID: **ZZZZZZ** Batch ID: **R86513** TestNo: **SM 2320 B** Analysis Date: **11/30/2012** SeqNo: **1481646**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	195.931	5.0	100.0	97.43	98.5	75	125				
Alkalinity, Total (As CaCO3)	195.931	5.0	100.0	97.43	98.5	75	125				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
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CLIENT: CH2M HILL
Work Order: N008994
Project: PG&E Topock, 423575.MP.06.TS

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **N008992-002AMSD** SampType: **MSD** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86513**
Client ID: **ZZZZZZ** Batch ID: **R86513** TestNo: **SM 2320 B** Analysis Date: **11/30/2012** SeqNo: **1481647**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	197.002	5.0	100.0	97.43	99.6	75	125	195.9	0.545	20	
Alkalinity, Total (As CaCO3)	197.002	5.0	100.0	97.43	99.6	75	125	195.9	0.545	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *12-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-19-188
Lab Order:	N008994	**Collection Date:**	11/26/2012 3:19:00 PM
Project:	PG&E Topock, 423575.MP.06.TS	**Matrix:**	WATER
Lab ID:	N008994-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121128A** QC Batch: **R86646** PrepDate: Analyst: **QBM**							
Chloride	510	1.1	50		mg/L	100	11/28/2012 03:30 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121128A** QC Batch: **R86646** PrepDate: Analyst: **QBM**							
Sulfate	170	0.70	10		mg/L	20	11/28/2012 12:22 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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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *12-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-44-115-188
Lab Order:	N008994	**Collection Date:**	11/26/2012 11:36:00 AM
Project:	PG&E Topock, 423575.MP.06.TS	**Matrix:**	WATER
Lab ID:	N008994-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121128A** QC Batch: **R86646** PrepDate: Analyst: **QBM**							
Chloride	3300	11	500		mg/L	1000	11/28/2012 03:42 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121128A** QC Batch: **R86646** PrepDate: Analyst: **QBM**							
Sulfate	760	3.5	50		mg/L	100	11/28/2012 12:34 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

Date: *12-Dec-12*

CLIENT: CH2M HILL
Work Order: N008994
Project: PG&E Topock, 423575.MP.06.TS

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **MB-R86646_CL** SampType: **MBLK** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86646**
Client ID: **PBW** Batch ID: **R86646** TestNo: **EPA 300.0** Analysis Date: **11/28/2012** SeqNo: **1487225**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.50									

Sample ID: **LCS-R86646_CL** SampType: **LCS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86646**
Client ID: **LCSW** Batch ID: **R86646** TestNo: **EPA 300.0** Analysis Date: **11/28/2012** SeqNo: **1487226**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.386	0.50	2.500	0	95.4	90	110				

Sample ID: **N008992-001AMS** SampType: **MS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86646**
Client ID: **ZZZZZZ** Batch ID: **R86646** TestNo: **EPA 300.0** Analysis Date: **11/28/2012** SeqNo: **1487230**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	766.800	50	250.0	498.2	107	80	120				

Sample ID: **N008992-001AMSD** SampType: **MSD** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86646**
Client ID: **ZZZZZZ** Batch ID: **R86646** TestNo: **EPA 300.0** Analysis Date: **11/28/2012** SeqNo: **1487231**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	766.500	50	250.0	498.2	107	80	120	766.8	0.0391	20	

Sample ID: **N008992-002ADUP** SampType: **DUP** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86646**
Client ID: **ZZZZZZ** Batch ID: **R86646** TestNo: **EPA 300.0** Analysis Date: **11/28/2012** SeqNo: **1487233**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	503.100	50						504.2	0.218	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: N008994
Project: PG&E Topock, 423575.MP.06.TS

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **N008996-006AMS** SampType: **MS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86646**
Client ID: **ZZZZZZ** Batch ID: **R86646** TestNo: **EPA 300.0** Analysis Date: **11/28/2012** SeqNo: **1487247**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2889.500	250	1250	1626	101	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

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CLIENT: CH2M HILL
Work Order: N008994
Project: PG&E Topock, 423575.MP.06.TS

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **MB-R86646_SO4** SampType: **MBLK** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86646**
Client ID: **PBW** Batch ID: **R86646** TestNo: **EPA 300.0** Analysis Date: **11/28/2012** SeqNo: **1487265**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID: **LCS-R86646_SO4** SampType: **LCS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86646**
Client ID: **LCSW** Batch ID: **R86646** TestNo: **EPA 300.0** Analysis Date: **11/28/2012** SeqNo: **1487266**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.864	0.50	5.000	0	97.3	90	110				

Sample ID: **N008992-001AMS** SampType: **MS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86646**
Client ID: **ZZZZZZ** Batch ID: **R86646** TestNo: **EPA 300.0** Analysis Date: **11/28/2012** SeqNo: **1487273**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	264.320	10	100.0	160.9	103	80	120				

Sample ID: **N008992-001AMSD** SampType: **MSD** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86646**
Client ID: **ZZZZZZ** Batch ID: **R86646** TestNo: **EPA 300.0** Analysis Date: **11/28/2012** SeqNo: **1487274**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	262.760	10	100.0	160.9	102	80	120	264.3	0.592	20	

Sample ID: **N008992-002ADUP** SampType: **DUP** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86646**
Client ID: **ZZZZZZ** Batch ID: **R86646** TestNo: **EPA 300.0** Analysis Date: **11/28/2012** SeqNo: **1487277**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	159.960	10						161.8	1.17	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

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CLIENT: CH2M HILL
Work Order: N008994
Project: PG&E Topock, 423575.MP.06.TS

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **N008996-006AMS** SampType: **MS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86646**

Client ID: **ZZZZZZ** Batch ID: **R86646** TestNo: **EPA 300.0** Analysis Date: **11/28/2012** SeqNo: **1487287**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	704.200	25	250.0	461.8	96.9	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

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CH2MHILL

CHAIN OF CUSTODY RECORD

11/26/2012 4:03:41 PM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.06.TS
Task Order
Project 2012-GMP-188SAMPLEMETHOD
Turnaround Time 10 Days
Shipping Date: 11/27/2012
COC Number: 20

				Specific Conductance (E120.1)	Anions (E300.0) Chloride,Sulfate	Alkalinity (SM2320B)		Number of Containers	COMMENTS
			Container:	2x1 Liter	2x1 Liter	2x1 Liter			
			Preservatives:	4°C	4°C	4°C			
			Filtered:	NA	NA	NA			
			Holding Time:	7	7	7			
	DATE	TIME	Matrix				N008994		
MW-19-188	11/26/2012	15:19	Water	x	x	x	-1	2	
MW-44-115-188	11/26/2012	11:36	Water	x	x	x	-2	2	
							TOTAL NUMBER OF CONTAINERS	4	

	Signatures	Date/Time
Approved by		11-27-12 1545
Sampled by		
Relinquished by		
Received by		11/27/12 1645
Relinquished by		11/27/12 1800
Received by		11/27/12 1800

Shipping Details

Method of Shipment: courier
On Ice: ~~yes~~ / no 2.2°C/3.8°C/3.4°C
Airbill No: IP#1
Lab Name: ADVANCED TECHNOLOGY LABORATO
Lab Phone: (702) 307-2659

ATTN:
Sample Custody
and
Marion

Special Instructions:
Nov 5 - Dec 14, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

Advanced Technology Laboratories, Inc.

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	11/27/2012	Workorder:	N008994
Rep sample Temp (Deg C):	2.2/3.8/3.4	IR Gun ID:	1
Temp Blank:	☐ Yes ☑ No		
Carrier name:	ATL		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☐	No ☐	NA ☑
15. Did the bottle labels indicate correct preservatives used?	Yes ☐	No ☐	NA ☑
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments:

Checklist Completed B MBC 11/28/12

Reviewed By:

Sample ID: **N008994-001A @ pH 7.84**

A. Standardization of Sulfuric Acid (titrant):

Normality of acid = (A)(B)/(53.00)(C)

Where:

A, grams weighed for Na_2CO_3 solution (Na_2CO_3 Standardization Solution)
B, mL Na2CO3 solution taken for titration, and
C, ml of sulfuric acid used to inflection point

Spike Standards

Na_2CO_3 Standardization Solution, ACS Grade (1.00 ml = 2500ug as $CaCO_3$): Dissolve 2.650 grams of Na_2CO_3 in distilled water and dilute to 1 liter.

LCS/MS/MSD Stock $NaHCO_3$, ACS Grade (1.00 ml = 5000 ug as $CaCO_3$): Dissolve 0.8398 grams of $NaHCO_3$ in distilled water and dilute to 1 liter.

Therefore,

Normality of Acid = (2.65g/L) (5mL) / (53.00) (11.675mL)

= **0.02141 N**

B. CALCULATION OF ALKALINITY (for a 50 ml sample)

Total Alkalinity (as $CaCO_3$), mg/L = $M_{vol.}$ * N H_2SO_4 * DF * 1000

Where:

$M_{vol.}$, volume titrant used to reach pH 4.5, ml
N, Normality of H_2SO_4
DF, Dilution Factor = (50 ml) / (Vol. of Sample used)

Therefore,

Total Alkalinity (as $CaCO_3$), mg/L = (4.35) (0.02141N) (1) * 1000

= 93.1335 **mg/L**

Reporting results in two significant figures,

= 93 **mg/L** as CaCO3

NS fn
12/5/

C. SPECIATED ALKALINITY:

Phenolphthalein Alkalinity

P alkalinity, mg/L as $CaCO_3$ = $P_{vol.}$ * N H_2SO_4 * DF * 1000

= (0) (0.02141 N) (1) * 1000

= **0**

Total Alkalinity

T alkalinity, mg/L as $CaCO_3$ = $M_{vol.}$ * N H_2SO_4 * DF * 1000

= (4.35mL) (0.02141) (1) * 1000

= 93.1335 **mg/L** as CaCO3

Where:

$P_{vol.}$ - volume titrant used to reach pH 8.3, ml
$M_{vol.}$ - volume titrant used to reach pH 4.5, ml
N - Normality of H_2SO_4
DF - Dilution Factor = (50 ml) / (Vol. of Sample used)

Then OH, CO_3, HCO_3 alkalinities as $CaCO_3$ will be calculated as follows:

Result of Titration	**OH Alkalinity as $CaCO_3$**	**CO_3 Alkalinity as $CaCO_3$**	**HCO_3 Alkalinity as $CaCO_3$**
P = 0	0	0	T
P < ½ T	0	2P	T – 2P
P = ½ T	0	2P	0
P > ½ T	2P – T	2(T – P)	0
P = T	T	0	0

Therefore,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = 93.1335 **mg/L**

Reporting results in two significant figures,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = 93 **mg/L**

Sample Calculation

METHOD: EPA 300
TEST NAME: INORGANIC ANIONS BY IC
MATRIX: WATER

FORMULA:

Calculate the Chloride concentration, in mg/L, in the original sample as follows:

Chloride, mg/L = A * DF

where:

A = mg/L, IC calculated concentration
DF = dilution factor

For **N008994-001A**, concentration in mg/L are calculated as follows:

Chloride, mg/L = 5.053* 100

= 505.3 mg/L

Reporting **N008994-001A** results in two significant figures,

Chloride, mg/L = 510

December 13, 2012

Shawn P. Duffy
CH2M HILL
155 Grand Avenue, Suite 1000
Oakland, CA 94612

TEL: (530) 229-3303
FAX: (530) 339-3303

CA-ELAP No.: 2676
NV Cert. No.: NV-009222007A

Workorder No.: N008995

RE: PG&E Topock, 423575.MP.06.TS

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on November 27, 2012 by Advanced Technology Laboratories, Inc. . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Jose Tenorio Jr.
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and Advanced Technology Laboratories - Las Vegas.

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.06.TS
Lab Order: N008995

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.

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Advanced Technology Laboratories, Inc.

Date: *13-Dec-12*

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.06.TS
Lab Order: N008995
Contract No: 2012-GMP-188S

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N008995-001A	MW-12-188	Water	11/27/2012 1:22:00 PM	11/27/2012	12/13/2012
N008995-002A	MW-125-188	Water	11/27/2012 7:40:00 AM	11/27/2012	12/13/2012
N008995-003A	MW-20-070-188	Water	11/27/2012 3:16:00 PM	11/27/2012	12/13/2012
N008995-004A	MW-26-188	Water	11/27/2012 11:30:00 AM	11/27/2012	12/13/2012
N008995-005A	MW-61-110-188	Water	11/27/2012 9:24:00 AM	11/27/2012	12/13/2012

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *13-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-12-188
Lab Order:	N008995	**Collection Date:**	11/27/2012 1:22:00 PM
Project:	PG&E Topock, 423575.MP.06.TS	**Matrix:**	WATER
Lab ID:	N008995-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121128C**	QC Batch: **R86491**			PrepDate:			Analyst: **CEI**
Specific Conductance	6700	0.10	0.10		umhos/cm	1	11/28/2012

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *13-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-125-188
Lab Order:	N008995	**Collection Date:**	11/27/2012 7:40:00 AM
Project:	PG&E Topock, 423575.MP.06.TS	**Matrix:**	WATER
Lab ID:	N008995-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
EPA 120.1							
RunID: **WETCHEM_121128C**	QC Batch: **R86491**			PrepDate:			Analyst: **CEI**
Specific Conductance	15000	0.10	0.10		umhos/cm	1	11/28/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *13-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-20-070-188
Lab Order:	N008995	**Collection Date:**	11/27/2012 3:16:00 PM
Project:	PG&E Topock, 423575.MP.06.TS	**Matrix:**	WATER
Lab ID:	N008995-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
EPA 120.1							
RunID: **WETCHEM_121128C**	QC Batch: **R86491**			PrepDate:			Analyst: **CEI**
Specific Conductance	2300	0.10	0.10		umhos/cm	1	11/28/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *13-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-26-188
Lab Order:	N008995	**Collection Date:**	11/27/2012 11:30:00 AM
Project:	PG&E Topock, 423575.MP.06.TS	**Matrix:**	WATER
Lab ID:	N008995-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
EPA 120.1							
RunID: **WETCHEM_121128C**	QC Batch: **R86491**			PrepDate:			Analyst: **CEI**
Specific Conductance	4000	0.10	0.10		umhos/cm	1	11/28/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *13-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-61-110-188
Lab Order:	N008995	**Collection Date:**	11/27/2012 9:24:00 AM
Project:	PG&E Topock, 423575.MP.06.TS	**Matrix:**	WATER
Lab ID:	N008995-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121128C**	QC Batch: **R86491**			PrepDate:			Analyst: **CEI**
Specific Conductance	15000	0.10	0.10		umhos/cm	1	11/28/2012

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	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 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

Date: *13-Dec-12*

CLIENT: CH2M HILL
Work Order: N008995
Project: PG&E Topock, 423575.MP.06.TS

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: **LCS-R86491** SampType: **LCS** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86491**
Client ID: **LCSW** Batch ID: **R86491** TestNo: **EPA 120.1** Analysis Date: **11/28/2012** SeqNo: **1480836**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	9730.000	0.10	9992	0	97.4	85	115				

Sample ID: **N008995-005ADUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86491**
Client ID: **ZZZZZZ** Batch ID: **R86491** TestNo: **EPA 120.1** Analysis Date: **11/28/2012** SeqNo: **1480846**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	15210.000	0.10						15220	0.0657	10	

Sample ID: **N008995-005AMS** SampType: **MS** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86491**
Client ID: **ZZZZZZ** Batch ID: **R86491** TestNo: **EPA 120.1** Analysis Date: **11/28/2012** SeqNo: **1480847**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	24480.000	0.20	9992	15220	92.7	75	125				

Sample ID: **N008995-005AMSD** SampType: **MSD** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86491**
Client ID: **ZZZZZZ** Batch ID: **R86491** TestNo: **EPA 120.1** Analysis Date: **11/28/2012** SeqNo: **1480848**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	24460.000	0.20	9992	15220	92.5	75	125	24480	0.0817	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: *13-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-20-070-188
Lab Order:	N008995	**Collection Date:**	11/27/2012 3:16:00 PM
Project:	PG&E Topock, 423575.MP.06.TS	**Matrix:**	WATER
Lab ID:	N008995-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **WETCHEM_121129B**	QC Batch: **41341**			PrepDate:	**11/29/2012**		Analyst: **QBM**
Total Dissolved Solids (Residue, Filterable)	1400	17	17		mg/L	1	11/29/2012

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

Date: *13-Dec-12*

CLIENT: CH2M HILL
Work Order: N008995
Project: PG&E Topock, 423575.MP.06.TS

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.1_2540C_W

Sample ID: **MB-41341** SampType: **MBLK** TestCode: **160.1_2540C_** Units: **mg/L** Prep Date: **11/29/2012** RunNo: **86535**
Client ID: **PBW** Batch ID: **41341** TestNo: **SM2540C** Analysis Date: **11/29/2012** SeqNo: **1482992**

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-41341** SampType: **LCS** TestCode: **160.1_2540C_** Units: **mg/L** Prep Date: **11/29/2012** RunNo: **86535**
Client ID: **LCSW** Batch ID: **41341** TestNo: **SM2540C** Analysis Date: **11/29/2012** SeqNo: **1482993**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	991.000	10	1000	0	99.1	80	120				

Sample ID: **N008988-001C-DUP** SampType: **DUP** TestCode: **160.1_2540C_** Units: **mg/L** Prep Date: **11/29/2012** RunNo: **86535**
Client ID: **ZZZZZZ** Batch ID: **41341** TestNo: **SM2540C** Analysis Date: **11/29/2012** SeqNo: **1482995**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	1578.333	17						1575	0.211	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: *13-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-12-188
Lab Order:	N008995	**Collection Date:**	11/27/2012 1:22:00 PM
Project:	PG&E Topock, 423575.MP.06.TS	**Matrix:**	WATER
Lab ID:	N008995-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121130B**	QC Batch: **R86513**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	120	1.2	5.0		mg/L	1	11/30/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/30/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/30/2012
Alkalinity, Total (As CaCO3)	120	1.2	5.0		mg/L	1	11/30/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *13-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-125-188
Lab Order:	N008995	**Collection Date:**	11/27/2012 7:40:00 AM
Project:	PG&E Topock, 423575.MP.06.TS	**Matrix:**	WATER
Lab ID:	N008995-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121130B**	QC Batch: **R86513**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	43	1.2	5.0		mg/L	1	11/30/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	11/30/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	11/30/2012
Alkalinity, Total (As CaCO3)	43	1.2	5.0		mg/L	1	11/30/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *13-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-20-070-188
Lab Order:	N008995	**Collection Date:**	11/27/2012 3:16:00 PM
Project:	PG&E Topock, 423575.MP.06.TS	**Matrix:**	WATER
Lab ID:	N008995-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121203A**	QC Batch: **R86538**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	89	1.2	5.0		mg/L	1	12/3/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/3/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/3/2012
Alkalinity, Total (As CaCO3)	89	1.2	5.0		mg/L	1	12/3/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *13-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-26-188
Lab Order:	N008995	**Collection Date:**	11/27/2012 11:30:00 AM
Project:	PG&E Topock, 423575.MP.06.TS	**Matrix:**	WATER
Lab ID:	N008995-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121203A**	QC Batch: **R86538**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	100	1.2	5.0		mg/L	1	12/3/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/3/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/3/2012
Alkalinity, Total (As CaCO3)	100	1.2	5.0		mg/L	1	12/3/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *13-Dec-12*

CLIENT: CH2M HILL
Lab Order: N008995
Project: PG&E Topock, 423575.MP.06.TS
Lab ID: N008995-005

Client Sample ID: MW-61-110-188
Collection Date: 11/27/2012 9:24:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121203A**	QC Batch: **R86538**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	46	1.2	5.0		mg/L	1	12/3/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/3/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/3/2012
Alkalinity, Total (As CaCO3)	46	1.2	5.0		mg/L	1	12/3/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

Date: *13-Dec-12*

CLIENT: CH2M HILL
Work Order: N008995
Project: PG&E Topock, 423575.MP.06.TS

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **LCS-R86513** SampType: **LCS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86513**
Client ID: **LCSW** Batch ID: **R86513** TestNo: **SM 2320 B** Analysis Date: **11/30/2012** SeqNo: **1481641**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	96.360	5.0	100.0	0	96.4	85	115				
Alkalinity, Total (As CaCO3)	100.642	5.0	100.0	0	101	85	115				

Sample ID: **MB-R86513** SampType: **MBLK** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86513**
Client ID: **PBW** Batch ID: **R86513** TestNo: **SM 2320 B** Analysis Date: **11/30/2012** SeqNo: **1481642**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	2.141	5.0									
Alkalinity, Carbonate (As CaCO3)	ND	5.0									
Alkalinity, Hydroxide (As CaCO3)	ND	5.0									
Alkalinity, Total (As CaCO3)	2.141	5.0									

Sample ID: **N008992-001ADUP** SampType: **DUP** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86513**
Client ID: **ZZZZZZ** Batch ID: **R86513** TestNo: **SM 2320 B** Analysis Date: **11/30/2012** SeqNo: **1481644**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	98.501	5.0						97.43	1.09	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)	98.501	5.0						97.43	1.09	30	

Sample ID: **N008992-002AMS** SampType: **MS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86513**
Client ID: **ZZZZZZ** Batch ID: **R86513** TestNo: **SM 2320 B** Analysis Date: **11/30/2012** SeqNo: **1481646**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	195.931	5.0	100.0	97.43	98.5	75	125				
Alkalinity, Total (As CaCO3)	195.931	5.0	100.0	97.43	98.5	75	125				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

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CLIENT: CH2M HILL
Work Order: N008995
Project: PG&E Topock, 423575.MP.06.TS

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **N008992-002AMSD** SampType: **MSD** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86513**
Client ID: **ZZZZZZ** Batch ID: **R86513** TestNo: **SM 2320 B** Analysis Date: **11/30/2012** SeqNo: **1481647**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	197.002	5.0	100.0	97.43	99.6	75	125	195.9	0.545	20	
Alkalinity, Total (As CaCO3)	197.002	5.0	100.0	97.43	99.6	75	125	195.9	0.545	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: N008995
Project: PG&E Topock, 423575.MP.06.TS

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **LCS-R86538** SampType: **LCS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86538**
Client ID: **LCSW** Batch ID: **R86538** TestNo: **SM 2320 B** Analysis Date: **12/3/2012** SeqNo: **1483186**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	95.745	5.0	100.0	0	95.7	85	115				
Alkalinity, Total (As CaCO3)	100.000	5.0	100.0	0	100	85	115				

Sample ID: **MB-R86538** SampType: **MBLK** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86538**
Client ID: **PBW** Batch ID: **R86538** TestNo: **SM 2320 B** Analysis Date: **12/3/2012** SeqNo: **1483187**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	2.128	5.0									
Alkalinity, Carbonate (As CaCO3)	ND	5.0									
Alkalinity, Hydroxide (As CaCO3)	ND	5.0									
Alkalinity, Total (As CaCO3)	2.128	5.0									

Sample ID: **N009012-004ADUP** SampType: **DUP** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86538**
Client ID: **ZZZZZZ** Batch ID: **R86538** TestNo: **SM 2320 B** Analysis Date: **12/3/2012** SeqNo: **1483195**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	72.340	5.0						72.34	0	30	
Alkalinity, Carbonate (As CaCO3)	ND	5.0						0	0	30	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0						0	0	30	
Alkalinity, Total (As CaCO3)	72.340	5.0						72.34	0	30	

Sample ID: **N009012-006AMS** SampType: **MS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86538**
Client ID: **ZZZZZZ** Batch ID: **R86538** TestNo: **SM 2320 B** Analysis Date: **12/3/2012** SeqNo: **1483198**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	197.872	5.0	100.0	98.94	98.9	75	125				
Alkalinity, Total (As CaCO3)	197.872	5.0	100.0	98.94	98.9	75	125				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

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CLIENT: CH2M HILL
Work Order: N008995
Project: PG&E Topock, 423575.MP.06.TS

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **N009012-006AMSD** SampType: **MSD** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86538**
Client ID: **ZZZZZZ** Batch ID: **R86538** TestNo: **SM 2320 B** Analysis Date: **12/3/2012** SeqNo: **1483199**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	197.872	5.0	100.0	98.94	98.9	75	125	197.9	0	20	
Alkalinity, Total (As CaCO3)	197.872	5.0	100.0	98.94	98.9	75	125	197.9	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: *13-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-12-188
Lab Order:	N008995	**Collection Date:**	11/27/2012 1:22:00 PM
Project:	PG&E Topock, 423575.MP.06.TS	**Matrix:**	WATER
Lab ID:	N008995-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121130A** QC Batch: **R86668** PrepDate: Analyst: **QBM**							
Chloride	1800	5.5	250		mg/L	500	11/30/2012 01:06 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121130A** QC Batch: **R86668** PrepDate: Analyst: **QBM**							
Sulfate	460	1.8	25		mg/L	50	11/30/2012 11:08 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *13-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-125-188
Lab Order:	N008995	**Collection Date:**	11/27/2012 7:40:00 AM
Project:	PG&E Topock, 423575.MP.06.TS	**Matrix:**	WATER
Lab ID:	N008995-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121130A** QC Batch: **R86668** PrepDate: Analyst: **QBM**							
Chloride	5500	11	500		mg/L	1000	11/30/2012 01:18 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121130A** QC Batch: **R86668** PrepDate: Analyst: **QBM**							
Sulfate	700	3.5	50		mg/L	100	11/30/2012 11:20 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

Advanced Technology Laboratories, Inc.

3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *13-Dec-12*

CLIENT: CH2M HILL
Lab Order: N008995
Project: PG&E Topock, 423575.MP.06.TS
Lab ID: N008995-003

Client Sample ID: MW-20-070-188
Collection Date: 11/27/2012 3:16:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121130A** QC Batch: **R86668** PrepDate: Analyst: **QBM**							
Bromide	ND	0.026	0.50		mg/L	1	11/30/2012 03:08 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121130A** QC Batch: **R86668** PrepDate: Analyst: **QBM**							
Chloride	450	1.1	50		mg/L	100	11/30/2012 01:29 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121130A** QC Batch: **R86668** PrepDate: Analyst: **QBM**							
Sulfate	290	0.70	10		mg/L	20	11/30/2012 11:31 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *13-Dec-12*

CLIENT: CH2M HILL
Lab Order: N008995
Project: PG&E Topock, 423575.MP.06.TS
Lab ID: N008995-004

Client Sample ID: MW-26-188
Collection Date: 11/27/2012 11:30:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121130A** QC Batch: **R86668** PrepDate: Analyst: **QBM**							
Chloride	930	2.2	100		mg/L	200	11/30/2012 01:41 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121130A** QC Batch: **R86668** PrepDate: Analyst: **QBM**							
Sulfate	520	1.8	25		mg/L	50	11/30/2012 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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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *13-Dec-12*

CLIENT: CH2M HILL
Lab Order: N008995
Project: PG&E Topock, 423575.MP.06.TS
Lab ID: N008995-005

Client Sample ID: MW-61-110-188
Collection Date: 11/27/2012 9:24:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121130A** QC Batch: **R86668** PrepDate: Analyst: **QBM**							
Chloride	5500	11	500		mg/L	1000	11/30/2012 01:53 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121130A** QC Batch: **R86668** PrepDate: Analyst: **QBM**							
Sulfate	680	3.5	50		mg/L	100	11/30/2012 11:54 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

Date: *13-Dec-12*

CLIENT: CH2M HILL
Work Order: N008995
Project: PG&E Topock, 423575.MP.06.TS

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_BRPGE

Sample ID: **MB-R86668_BR** SampType: **MBLK** TestCode: **300_W_BRP** Units: **mg/L** Prep Date: RunNo: **86668**
Client ID: **PBW** Batch ID: **R86668** TestNo: **EPA 300.0** Analysis Date: **11/30/2012** SeqNo: **1487876**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	ND	0.50									

Sample ID: **LCS-R86668_BR** SampType: **LCS** TestCode: **300_W_BRP** Units: **mg/L** Prep Date: RunNo: **86668**
Client ID: **LCSW** Batch ID: **R86668** TestNo: **EPA 300.0** Analysis Date: **11/30/2012** SeqNo: **1487877**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	2.441	0.50	2.500	0	97.6	90	110				

Sample ID: **N008995-003ADUP** SampType: **DUP** TestCode: **300_W_BRP** Units: **mg/L** Prep Date: RunNo: **86668**
Client ID: **ZZZZZZ** Batch ID: **R86668** TestNo: **EPA 300.0** Analysis Date: **11/30/2012** SeqNo: **1487883**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	0.306	0.50						0.3350	0	20	

Sample ID: **N008995-003AMS** SampType: **MS** TestCode: **300_W_BRP** Units: **mg/L** Prep Date: RunNo: **86668**
Client ID: **ZZZZZZ** Batch ID: **R86668** TestNo: **EPA 300.0** Analysis Date: **11/30/2012** SeqNo: **1487884**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	2.456	0.50	2.500	0.3350	84.8	80	120				

Sample ID: **N008995-003AMSD** SampType: **MSD** TestCode: **300_W_BRP** Units: **mg/L** Prep Date: RunNo: **86668**
Client ID: **ZZZZZZ** Batch ID: **R86668** TestNo: **EPA 300.0** Analysis Date: **11/30/2012** SeqNo: **1487885**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	2.454	0.50	2.500	0.3350	84.8	80	120	2.456	0.0815	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N008995
Project: PG&E Topock, 423575.MP.06.TS

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **MB-R86668_CL** SampType: **MBLK** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86668**
Client ID: **PBW** Batch ID: **R86668** TestNo: **EPA 300.0** Analysis Date: **11/30/2012** SeqNo: **1487897**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.50									

Sample ID: **LCS-R86668_CL** SampType: **LCS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86668**
Client ID: **LCSW** Batch ID: **R86668** TestNo: **EPA 300.0** Analysis Date: **11/30/2012** SeqNo: **1487898**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.414	0.50	2.500	0	96.6	90	110				

Sample ID: **N008995-003ADUP** SampType: **DUP** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86668**
Client ID: **ZZZZZZ** Batch ID: **R86668** TestNo: **EPA 300.0** Analysis Date: **11/30/2012** SeqNo: **1487906**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	463.300	50						451.4	2.60	20	

Sample ID: **N008995-003AMS** SampType: **MS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86668**
Client ID: **ZZZZZZ** Batch ID: **R86668** TestNo: **EPA 300.0** Analysis Date: **11/30/2012** SeqNo: **1487907**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	979.400	100	500.0	451.4	106	80	120				

Sample ID: **N008995-003AMSD** SampType: **MSD** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86668**
Client ID: **ZZZZZZ** Batch ID: **R86668** TestNo: **EPA 300.0** Analysis Date: **11/30/2012** SeqNo: **1487908**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	961.600	100	500.0	451.4	102	80	120	979.4	1.83	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N008995
Project: PG&E Topock, 423575.MP.06.TS

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **MB-R86668_SO4** SampType: **MBLK** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86668**
Client ID: **PBW** Batch ID: **R86668** TestNo: **EPA 300.0** Analysis Date: **11/30/2012** SeqNo: **1487925**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID: **LCS-R86668_SO4** SampType: **LCS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86668**
Client ID: **LCSW** Batch ID: **R86668** TestNo: **EPA 300.0** Analysis Date: **11/30/2012** SeqNo: **1487926**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.846	0.50	5.000	0	96.9	90	110				

Sample ID: **N008995-001ADUP** SampType: **DUP** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86668**
Client ID: **ZZZZZZ** Batch ID: **R86668** TestNo: **EPA 300.0** Analysis Date: **11/30/2012** SeqNo: **1487932**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	466.850	25						460.5	1.37	20	

Sample ID: **N008995-002AMS** SampType: **MS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86668**
Client ID: **ZZZZZZ** Batch ID: **R86668** TestNo: **EPA 300.0** Analysis Date: **11/30/2012** SeqNo: **1487933**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	1188.400	50	500.0	698.1	98.1	80	120				

Sample ID: **N008995-002AMSD** SampType: **MSD** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86668**
Client ID: **ZZZZZZ** Batch ID: **R86668** TestNo: **EPA 300.0** Analysis Date: **11/30/2012** SeqNo: **1487934**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	1186.300	50	500.0	698.1	97.6	80	120	1188	0.177	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Advanced Technology Laboratories, Inc.
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CH2MHILL

CHAIN OF CUSTODY RECORD

11/27/2012 3:24:56 PM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.06.TS
Task Order
Project 2012-GMP-188SAMPLEMETHOD
Turnaround Time 10 Days
Shipping Date: 11/27/2012
COC Number: 1

				Specific Conductance (E120.1)	Anions (E300.0) Bromide,Chloride,Sulfate	Anions (E300.0) Chloride,Sulfate	TDS (SM2540C)	Alkalinity (SM2320B)		Number of Containers	COMMENTS
Container:				2x1 Liter	2x1 Liter	2x1 Liter	2x1 Liter	2x1 Liter			
Preservatives:				4°C	4°C	4°C	4°C	4°C			
Filtered:				NA	NA	NA	NA	NA			
Holding Time:				14	14	14	14	14			
	DATE	TIME	Matrix								
MW-12-188	11/27/2012	13:22	Water	X		X		X	N0085975 -1	2	
MW-125-188	11/27/2012	7:40	Water	X		X		X	-2	2	
MW-20-070-188	11/27/2012	15:16	Water	X	X		X	X	-3	2	
MW-26-188	11/27/2012	11:30	Water	X		X		X	-4	2	
MW-61-110-188	11/27/2012	9:24	Water	X		X		X	-5	2	
									TOTAL NUMBER OF CONTAINERS	10	

	Signatures	Date/Time
Approved by		11-27-12 1545
Sampled by		
Relinquished by		
Received by		11/27/12 1845
Relinquished by		11/27/12 1800
Received by		11/27/12 1800

Shipping Details

Method of Shipment: courier
On Ice: ~~yes~~ no 2.2°C/3.4°C/3.4°C
Airbill No: 1RH1
Lab Name: ADVANCED TECHNOLOGY LABORATO
Lab Phone: (702) 307-2659

ATTN:
Sample Custody and Marion

Special Instructions:
Nov 5 - Dec 14, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

Advanced Technology Laboratories, Inc.

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	11/27/2012	Workorder:	N008995
Rep sample Temp (Deg C):	2.2/3.8/3.4	IR Gun ID:	1
Temp Blank:	☐ Yes ☑ No		
Carrier name:	ATL		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☐	No ☐	NA ☑
15. Did the bottle labels indicate correct preservatives used?	Yes ☐	No ☐	NA ☑
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments:

Checklist Completed B MBC 11/28/12

Reviewed By:

SAMPLE CALCULATION

METHOD: SM 2540C
TEST NAME: Total Filterable Residue
MATRIX: Water

FORMULA:

Calculate TDS concentration in mg/L, in the original sample as follows:

$$\text{TDS, mg/L} = \frac{(A-B)*1000000}{C}$$

Where:

A = weight in g of dish + residue after drying
B = weight of dish in g
C = volume of sample used in mL

For **N008995-003A,** TDS concentration in mg/L is calculated as follows:

$$\text{TDS, mg/L} = \frac{(60.0428 - 59.9581)*1000000}{60}$$
$$= 1411.67 \text{ mg/L}$$

Reporting result in two significant figures,

TDS = 1400 mg/L

TOTAL DISSOLVED SOLIDS, TDS

$$\text{TDS, mg/L} = \frac{(A-B) \times 1000000}{C}$$

where:
A = weight in grams of dish + residue after drying
B = weight of dish in grams
C = volume of sample used in mL

Date Started: 11/29/2012 Date Finished: 11/30/2012	vol	initial	final	calc	prep fact	TDS, mg/L	CONDUCTIVITY	TDS/CONDUCTIVITY RATIO
MB-41341	100	53.8201	53.8203	2	1	2.00		
LCS-41341	100	53.6664	53.7655	991	1	991.00		
N008988-001C	60	60.0023	60.0968	945	1.66667	1575.00	2310	0.68
N008988-001C-DUP	60	62.4658	62.5605	947	1.66667	1578.33	2310	0.68
N008988-002C	60	58.3265	58.4132	867	1.66667	1445.00	2520	0.57
N008988-003C	100	55.3944	55.4537	593	1	593.00	1123	0.53
N008988-004C	100	53.9437	53.9569	132	1	132.00	262	0.50
N008988-005C	100	62.2060	62.2170	110	1	110.00	208	0.53
N008995-003A	60	59.9581	60.0428	847	1.66667	1411.67	2320	0.61
N008997-001B	8	61.2015	61.2892	877	12.5	10962.50	17450	0.63
N008997-002B	8	60.3944	60.4828	884	12.5	11050.00	17360	0.64

Sample ID: **N008995-001A @ pH 8.28**

A. Standardization of Sulfuric Acid (titrant):

Normality of acid = (A)(B)/(53.00)(C)

Where:

A, grams weighed for Na_2CO_3 solution (Na_2CO_3 Standardization Solution)
B, mL Na2CO3 solution taken for titration, and
C, ml of sulfuric acid used to inflection point

Spike Standards

Na_2CO_3 Standardization Solution, ACS Grade (1.00 ml = 2500ug as $CaCO_3$):
Dissolve 2.650 grams of Na_2CO_3 in distilled water and dilute to 1 liter.

LCS/MS/MSD Stock $NaHCO_3$, ACS Grade (1.00 ml = 5000 ug as $CaCO_3$):
Dissolve 0.8398 grams of $NaHCO_3$ in distilled water and dilute to 1 liter.

Therefore,

Normality of Acid = (2.65g/L) (5mL) / (53.00) (11.675mL)

= **0.02141 N**

B. CALCULATION OF ALKALINITY (for a 50 ml sample)

Total Alkalinity (as $CaCO_3$), mg/L = $M_{vol.}$ * N H_2SO_4 * DF * 1000

Where:

$M_{vol.}$, volume titrant used to reach pH 4.5, ml
N, Normality of H_2SO_4
DF, Dilution Factor = (50 ml) / (Vol. of Sample used)

Therefore,

Total Alkalinity (as $CaCO_3$), mg/L = (5.55) (0.02141N) (1) * 1000

= 118.8255 **mg/L**

Reporting results in two significant figures,

= 120 **mg/L** as CaCO3

MJ fr
12/5h

C. SPECIATED ALKALINITY:

Phenolphthalein Alkalinity

P alkalinity, mg/L as $CaCO_3$ = $P_{vol.}$ * N H_2SO_4 * DF * 1000

= (0) (0.02141 N) (1) * 1000

= **0**

Total Alkalinity

T alkalinity, mg/L as $CaCO_3$ = $M_{vol.}$ * N H_2SO_4 * DF * 1000

= (5.55mL) (0.02141) (1) * 1000

= 118.8255 **mg/L** as CaCO3

Where:

$P_{vol.}$ - volume titrant used to reach pH 8.3, ml
$M_{vol.}$ - volume titrant used to reach pH 4.5, ml
N - Normality of H_2SO_4
DF - Dilution Factor = (50 ml) / (Vol. of Sample used)

Then OH, CO_3, HCO_3 alkalinities as $CaCO_3$ will be calculated as follows:

Result of Titration	**OH Alkalinity as $CaCO_3$**	**CO_3 Alkalinity as $CaCO_3$**	**HCO_3 Alkalinity as $CaCO_3$**
P = 0	0	0	T
P < ½ T	0	2P	T – 2P
P = ½ T	0	2P	0
P > ½ T	2P – T	2(T – P)	0
P = T	T	0	0

Therefore,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = 118.8255 **mg/L**

Reporting results in two significant figures,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = 120 **mg/L**

Sample Calculation

METHOD: EPA 300
TEST NAME: INORGANIC ANIONS BY IC
MATRIX: WATER

FORMULA:

Calculate the Chloride concentration, in mg/L, in the original sample as follows:

Chloride, mg/L = A * DF

where:

A = mg/L, IC calculated concentration
DF = dilution factor

For **N008995-001A**, concentration in mg/L are calculated as follows:

Chloride, mg/L	=	3.660* 500
	=	1830 mg/L

Reporting **N008995-001A** results in two significant figures,

Chloride, mg/L = 1800 / A12/13/L

December 17, 2012

Shawn P. Duffy
CH2M HILL
155 Grand Avenue, Suite 1000
Oakland, CA 94612

TEL: (530) 229-3303
FAX: (530) 339-3303

CA-ELAP No.: 2676
NV Cert. No.: NV-009222007A

Workorder No.: N009013

RE: PG&E Topock, 423575.MP.06.TS

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on November 29, 2012 by Advanced Technology Laboratories, Inc. . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

for Jose Tenorio Jr.

Jose Tenorio Jr.
Laboratory Director

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CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.06.TS
Lab Order: N009013

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

Samples were received intact with proper chain of custody documentation.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Samples were analyzed within method holding time.

Analytical Comments for EPA 300.0:

Dilution was necessary due to sample matrix.Sample required dilution due to high concentration of target analyte.

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Date: *17-Dec-12*

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.06.TS
Lab Order: N009013
Contract No: 2012-GMP-188S

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N009013-001A	MW-51-188	Water	11/28/2012 1:22:00 PM	11/29/2012	12/17/2012
N009013-002A	MW-59-100-188	Water	11/28/2012 9:31:00 AM	11/29/2012	12/17/2012
N009013-003A	MW-123-188	Water	11/29/2012 5:45:00 PM	11/29/2012	12/17/2012
N009013-004A	MW-20-100-188	Water	11/29/2012 3:45:00 PM	11/29/2012	12/17/2012
N009013-005A	MW-20-130-188	Water	11/29/2012 3:44:00 PM	11/29/2012	12/17/2012
N009013-006A	MW-50-200-188	Water	11/29/2012 12:22:00 PM	11/29/2012	12/17/2012

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ANALYTICAL RESULTS

Print Date: *17-Dec-12*

CLIENT: CH2M HILL
Lab Order: N009013
Project: PG&E Topock, 423575.MP.06.TS
Lab ID: N009013-001

Client Sample ID: MW-51-188
Collection Date: 11/28/2012 1:22:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
EPA 120.1							
RunID: **WETCHEM_121130D**	QC Batch: **R86700**			PrepDate:			Analyst: **CEI**
Specific Conductance	10000	0.10	0.10		umhos/cm	1	11/30/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *17-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-59-100-188
Lab Order:	N009013	**Collection Date:**	11/28/2012 9:31:00 AM
Project:	PG&E Topock, 423575.MP.06.TS	**Matrix:**	WATER
Lab ID:	N009013-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121130D**	QC Batch: **R86700**			PrepDate:			Analyst: **CEI**
Specific Conductance	9400	0.10	0.10		umhos/cm	1	11/30/2012

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *17-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-123-188
Lab Order:	N009013	**Collection Date:**	11/29/2012 5:45:00 PM
Project:	PG&E Topock, 423575.MP.06.TS	**Matrix:**	WATER
Lab ID:	N009013-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121130D**	QC Batch: **R86700**			PrepDate:			Analyst: **CEI**
Specific Conductance	11000	0.10	0.10		umhos/cm	1	11/30/2012

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *17-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-20-100-188
Lab Order:	N009013	**Collection Date:**	11/29/2012 3:45:00 PM
Project:	PG&E Topock, 423575.MP.06.TS	**Matrix:**	WATER
Lab ID:	N009013-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121130D**	QC Batch: **R86700**			PrepDate:			Analyst: **CEI**
Specific Conductance	2600	0.10	0.10		umhos/cm	1	11/30/2012

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *17-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-20-130-188
Lab Order:	N009013	**Collection Date:**	11/29/2012 3:44:00 PM
Project:	PG&E Topock, 423575.MP.06.TS	**Matrix:**	WATER
Lab ID:	N009013-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121130D**	QC Batch: **R86700**			PrepDate:			Analyst: **CEI**
Specific Conductance	11000	0.10	0.10		umhos/cm	1	11/30/2012

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *17-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-50-200-188
Lab Order:	N009013	**Collection Date:**	11/29/2012 12:22:00 PM
Project:	PG&E Topock, 423575.MP.06.TS	**Matrix:**	WATER
Lab ID:	N009013-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121130D**	QC Batch: **R86700**			PrepDate:			Analyst: **CEI**
Specific Conductance	20000	0.10	0.10		umhos/cm	1	11/30/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

Date: *17-Dec-12*

CLIENT: CH2M HILL
Work Order: N009013
Project: PG&E Topock, 423575.MP.06.TS

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: **LCS-R86700** SampType: **LCS** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86700**
Client ID: **LCSW** Batch ID: **R86700** TestNo: **EPA 120.1** Analysis Date: **11/30/2012** SeqNo: **1488973**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	9920.000	0.10	9992	0	99.3	85	115				

Sample ID: **N009013-006ADUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86700**
Client ID: **ZZZZZZ** Batch ID: **R86700** TestNo: **EPA 120.1** Analysis Date: **11/30/2012** SeqNo: **1488980**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	19550.000	0.10						19580	0.153	10	

Sample ID: **N009013-006AMS** SampType: **MS** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86700**
Client ID: **ZZZZZZ** Batch ID: **R86700** TestNo: **EPA 120.1** Analysis Date: **11/30/2012** SeqNo: **1488981**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	29180.000	0.20	9992	19580	96.1	75	125				

Sample ID: **N009013-006AMSD** SampType: **MSD** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **86700**
Client ID: **ZZZZZZ** Batch ID: **R86700** TestNo: **EPA 120.1** Analysis Date: **11/30/2012** SeqNo: **1488982**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	29140.000	0.20	9992	19580	95.7	75	125	29180	0.137	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: *17-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-123-188
Lab Order:	N009013	**Collection Date:**	11/29/2012 5:45:00 PM
Project:	PG&E Topock, 423575.MP.06.TS	**Matrix:**	WATER
Lab ID:	N009013-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **WETCHEM_121205F**	QC Batch: **41372**			PrepDate:	**12/5/2012**		Analyst: **QBM**
Total Dissolved Solids (Residue, Filterable)	7400	100	100		mg/L	1	12/5/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *17-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-20-100-188
Lab Order:	N009013	**Collection Date:**	11/29/2012 3:45:00 PM
Project:	PG&E Topock, 423575.MP.06.TS	**Matrix:**	WATER
Lab ID:	N009013-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **WETCHEM_121205F**	QC Batch: **41372**			PrepDate:	**12/5/2012**		Analyst: **QBM**
Total Dissolved Solids (Residue, Filterable)	1700	20	20		mg/L	1	12/5/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *17-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-20-130-188
Lab Order:	N009013	**Collection Date:**	11/29/2012 3:44:00 PM
Project:	PG&E Topock, 423575.MP.06.TS	**Matrix:**	WATER
Lab ID:	N009013-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **WETCHEM_121205F**	QC Batch: **41372**			PrepDate:	**12/5/2012**		Analyst: **QBM**
Total Dissolved Solids (Residue, Filterable)	7400	100	100		mg/L	1	12/5/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

Date: *17-Dec-12*

CLIENT: CH2M HILL
Work Order: N009013
Project: PG&E Topock, 423575.MP.06.TS

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.1_2540C_W

Sample ID: **MB-41372** SampType: **MBLK** TestCode: **160.1_2540C_** Units: **mg/L** Prep Date: **12/5/2012** RunNo: **86598**
Client ID: **PBW** Batch ID: **41372** TestNo: **SM2540C** Analysis Date: **12/5/2012** SeqNo: **1485360**

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-41372** SampType: **LCS** TestCode: **160.1_2540C_** Units: **mg/L** Prep Date: **12/5/2012** RunNo: **86598**
Client ID: **LCSW** Batch ID: **41372** TestNo: **SM2540C** Analysis Date: **12/5/2012** SeqNo: **1485361**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	1010.000	10	1000	0	101	80	120				

Sample ID: **N009013-003A-DUP** SampType: **DUP** TestCode: **160.1_2540C_** Units: **mg/L** Prep Date: **12/5/2012** RunNo: **86598**
Client ID: **ZZZZZZ** Batch ID: **41372** TestNo: **SM2540C** Analysis Date: **12/5/2012** SeqNo: **1485363**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	7340.000	100						7350	0.136	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: *17-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-51-188
Lab Order:	N009013	**Collection Date:**	11/28/2012 1:22:00 PM
Project:	PG&E Topock, 423575.MP.06.TS	**Matrix:**	WATER
Lab ID:	N009013-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121203A**	QC Batch: **R86538**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	100	1.2	5.0		mg/L	1	12/3/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/3/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/3/2012
Alkalinity, Total (As CaCO3)	100	1.2	5.0		mg/L	1	12/3/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *17-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-59-100-188
Lab Order:	N009013	**Collection Date:**	11/28/2012 9:31:00 AM
Project:	PG&E Topock, 423575.MP.06.TS	**Matrix:**	WATER
Lab ID:	N009013-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121203A**	QC Batch: **R86538**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	120	1.2	5.0		mg/L	1	12/3/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/3/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/3/2012
Alkalinity, Total (As CaCO3)	120	1.2	5.0		mg/L	1	12/3/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *17-Dec-12*

CLIENT: CH2M HILL
Lab Order: N009013
Project: PG&E Topock, 423575.MP.06.TS
Lab ID: N009013-003

Client Sample ID: MW-123-188
Collection Date: 11/29/2012 5:45:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121203A**	QC Batch: **R86538**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	79	1.2	5.0		mg/L	1	12/3/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/3/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/3/2012
Alkalinity, Total (As CaCO3)	79	1.2	5.0		mg/L	1	12/3/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *17-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-20-100-188
Lab Order:	N009013	**Collection Date:**	11/29/2012 3:45:00 PM
Project:	PG&E Topock, 423575.MP.06.TS	**Matrix:**	WATER
Lab ID:	N009013-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121203A**	QC Batch: **R86538**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	110	1.2	5.0		mg/L	1	12/3/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/3/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/3/2012
Alkalinity, Total (As CaCO3)	110	1.2	5.0		mg/L	1	12/3/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *17-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-20-130-188
Lab Order:	N009013	**Collection Date:**	11/29/2012 3:44:00 PM
Project:	PG&E Topock, 423575.MP.06.TS	**Matrix:**	WATER
Lab ID:	N009013-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121203A**	QC Batch: **R86538**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	80	1.2	5.0		mg/L	1	12/3/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/3/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/3/2012
Alkalinity, Total (As CaCO3)	80	1.2	5.0		mg/L	1	12/3/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *17-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-50-200-188
Lab Order:	N009013	**Collection Date:**	11/29/2012 12:22:00 PM
Project:	PG&E Topock, 423575.MP.06.TS	**Matrix:**	WATER
Lab ID:	N009013-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_121203A**	QC Batch: **R86538**			PrepDate:			Analyst: **QBM**
Alkalinity, Bicarbonate (As CaCO3)	38	1.2	5.0		mg/L	1	12/3/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	12/3/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	12/3/2012
Alkalinity, Total (As CaCO3)	38	1.2	5.0		mg/L	1	12/3/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

Date: *17-Dec-12*

CLIENT: CH2M HILL
Work Order: N009013
Project: PG&E Topock, 423575.MP.06.TS

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **LCS-R86538** SampType: **LCS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86538**
Client ID: **LCSW** Batch ID: **R86538** TestNo: **SM 2320 B** Analysis Date: **12/3/2012** SeqNo: **1483186**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	95.745	5.0	100.0	0	95.7	85	115				
Alkalinity, Total (As CaCO3)	100.000	5.0	100.0	0	100	85	115				

Sample ID: **MB-R86538** SampType: **MBLK** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86538**
Client ID: **PBW** Batch ID: **R86538** TestNo: **SM 2320 B** Analysis Date: **12/3/2012** SeqNo: **1483187**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	2.128	5.0									
Alkalinity, Carbonate (As CaCO3)	ND	5.0									
Alkalinity, Hydroxide (As CaCO3)	ND	5.0									
Alkalinity, Total (As CaCO3)	2.128	5.0									

Sample ID: **N009012-004ADUP** SampType: **DUP** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86538**
Client ID: **ZZZZZZ** Batch ID: **R86538** TestNo: **SM 2320 B** Analysis Date: **12/3/2012** SeqNo: **1483195**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	72.340	5.0						72.34	0	30	
Alkalinity, Carbonate (As CaCO3)	ND	5.0						0	0	30	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0						0	0	30	
Alkalinity, Total (As CaCO3)	72.340	5.0						72.34	0	30	

Sample ID: **N009012-006AMS** SampType: **MS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86538**
Client ID: **ZZZZZZ** Batch ID: **R86538** TestNo: **SM 2320 B** Analysis Date: **12/3/2012** SeqNo: **1483198**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	197.872	5.0	100.0	98.94	98.9	75	125				
Alkalinity, Total (As CaCO3)	197.872	5.0	100.0	98.94	98.9	75	125				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

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CLIENT: CH2M HILL
Work Order: N009013
Project: PG&E Topock, 423575.MP.06.TS

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **N009012-006AMSD** SampType: **MSD** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **86538**
Client ID: **ZZZZZZ** Batch ID: **R86538** TestNo: **SM 2320 B** Analysis Date: **12/3/2012** SeqNo: **1483199**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	197.872	5.0	100.0	98.94	98.9	75	125	197.9	0	20	
Alkalinity, Total (As CaCO3)	197.872	5.0	100.0	98.94	98.9	75	125	197.9	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: *17-Dec-12*

CLIENT: CH2M HILL
Lab Order: N009013
Project: PG&E Topock, 423575.MP.06.TS
Lab ID: N009013-001

Client Sample ID: MW-51-188
Collection Date: 11/28/2012 1:22:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121130A** QC Batch: **R86668** PrepDate: Analyst: **QBM**							
Chloride	3200	11	500		mg/L	1000	11/30/2012 07:28 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121130A** QC Batch: **R86668** PrepDate: Analyst: **QBM**							
Sulfate	680	3.5	50		mg/L	100	11/30/2012 06:29 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *17-Dec-12*

CLIENT: CH2M HILL
Lab Order: N009013
Project: PG&E Topock, 423575.MP.06.TS
Lab ID: N009013-002

Client Sample ID: MW-59-100-188
Collection Date: 11/28/2012 9:31:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121130A** QC Batch: **R86668** PrepDate: Analyst: **QBM**							
Chloride	3100	11	500		mg/L	1000	11/30/2012 07:40 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121130A** QC Batch: **R86668** PrepDate: Analyst: **QBM**							
Sulfate	680	3.5	50		mg/L	100	11/30/2012 06:40 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: *17-Dec-12*

CLIENT: CH2M HILL
Lab Order: N009013
Project: PG&E Topock, 423575.MP.06.TS
Lab ID: N009013-003

Client Sample ID: MW-123-188
Collection Date: 11/29/2012 5:45:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121130A** QC Batch: **R86668** PrepDate: Analyst: **QBM**							
Bromide	ND	0.13	2.5		mg/L	5	11/30/2012 04:09 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121130A** QC Batch: **R86668** PrepDate: Analyst: **QBM**							
Chloride	3400	11	500		mg/L	1000	11/30/2012 05:54 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121130A** QC Batch: **R86668** PrepDate: Analyst: **QBM**							
Sulfate	1100	3.5	50		mg/L	100	11/30/2012 05:19 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *17-Dec-12*

CLIENT: CH2M HILL
Lab Order: N009013
Project: PG&E Topock, 423575.MP.06.TS
Lab ID: N009013-004

Client Sample ID: MW-20-100-188
Collection Date: 11/29/2012 3:45:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121130A** QC Batch: **R86668** PrepDate: Analyst: **QBM**							
Bromide	ND	0.026	0.50		mg/L	1	11/30/2012 04:21 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121130A** QC Batch: **R86668** PrepDate: Analyst: **QBM**							
Chloride	570	1.1	50		mg/L	100	11/30/2012 06:05 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121130A** QC Batch: **R86668** PrepDate: Analyst: **QBM**							
Sulfate	350	1.8	25		mg/L	50	11/30/2012 05:30 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *17-Dec-12*

CLIENT: CH2M HILL
Lab Order: N009013
Project: PG&E Topock, 423575.MP.06.TS
Lab ID: N009013-005

Client Sample ID: MW-20-130-188
Collection Date: 11/29/2012 3:44:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121130A** QC Batch: **R86668** PrepDate: Analyst: **QBM**							
Bromide	ND	0.13	2.5		mg/L	5	11/30/2012 04:32 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121130A** QC Batch: **R86668** PrepDate: Analyst: **QBM**							
Chloride	3300	11	500		mg/L	1000	11/30/2012 06:17 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121130A** QC Batch: **R86668** PrepDate: Analyst: **QBM**							
Sulfate	1100	3.5	50		mg/L	100	11/30/2012 05:42 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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ANALYTICAL RESULTS

Print Date: *17-Dec-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-50-200-188
Lab Order:	N009013	**Collection Date:**	11/29/2012 12:22:00 PM
Project:	PG&E Topock, 423575.MP.06.TS	**Matrix:**	WATER
Lab ID:	N009013-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121130A** QC Batch: **R86668** PrepDate: Analyst: **QBM**							
Chloride	7400	22	1000		mg/L	2000	11/30/2012 07:51 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **IC2_121130A** QC Batch: **R86668** PrepDate: Analyst: **QBM**							
Sulfate	950	3.5	50		mg/L	100	11/30/2012 06:52 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

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Advanced Technology Laboratories, Inc.

Date: *17-Dec-12*

CLIENT: CH2M HILL
Work Order: N009013
Project: PG&E Topock, 423575.MP.06.TS

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_BRPGE

Sample ID: **MB-R86668_BR** SampType: **MBLK** TestCode: **300_W_BRP** Units: **mg/L** Prep Date: RunNo: **86668**
Client ID: **PBW** Batch ID: **R86668** TestNo: **EPA 300.0** Analysis Date: **11/30/2012** SeqNo: **1487876**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	ND	0.50									

Sample ID: **LCS-R86668_BR** SampType: **LCS** TestCode: **300_W_BRP** Units: **mg/L** Prep Date: RunNo: **86668**
Client ID: **LCSW** Batch ID: **R86668** TestNo: **EPA 300.0** Analysis Date: **11/30/2012** SeqNo: **1487877**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	2.441	0.50	2.500	0	97.6	90	110				

Sample ID: **N008995-003ADUP** SampType: **DUP** TestCode: **300_W_BRP** Units: **mg/L** Prep Date: RunNo: **86668**
Client ID: **ZZZZZZ** Batch ID: **R86668** TestNo: **EPA 300.0** Analysis Date: **11/30/2012** SeqNo: **1487883**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	0.306	0.50						0.3350	0	20	

Sample ID: **N008995-003AMS** SampType: **MS** TestCode: **300_W_BRP** Units: **mg/L** Prep Date: RunNo: **86668**
Client ID: **ZZZZZZ** Batch ID: **R86668** TestNo: **EPA 300.0** Analysis Date: **11/30/2012** SeqNo: **1487884**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	2.456	0.50	2.500	0.3350	84.8	80	120				

Sample ID: **N008995-003AMSD** SampType: **MSD** TestCode: **300_W_BRP** Units: **mg/L** Prep Date: RunNo: **86668**
Client ID: **ZZZZZZ** Batch ID: **R86668** TestNo: **EPA 300.0** Analysis Date: **11/30/2012** SeqNo: **1487885**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	2.454	0.50	2.500	0.3350	84.8	80	120	2.456	0.0815	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: N009013
Project: PG&E Topock, 423575.MP.06.TS

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **MB-R86668_CL** SampType: **MBLK** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86668**
Client ID: **PBW** Batch ID: **R86668** TestNo: **EPA 300.0** Analysis Date: **11/30/2012** SeqNo: **1487897**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.50									

Sample ID: **LCS-R86668_CL** SampType: **LCS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86668**
Client ID: **LCSW** Batch ID: **R86668** TestNo: **EPA 300.0** Analysis Date: **11/30/2012** SeqNo: **1487898**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.414	0.50	2.500	0	96.6	90	110				

Sample ID: **N008995-003ADUP** SampType: **DUP** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86668**
Client ID: **ZZZZZZ** Batch ID: **R86668** TestNo: **EPA 300.0** Analysis Date: **11/30/2012** SeqNo: **1487906**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	463.300	50						451.4	2.60	20	

Sample ID: **N008995-003AMS** SampType: **MS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86668**
Client ID: **ZZZZZZ** Batch ID: **R86668** TestNo: **EPA 300.0** Analysis Date: **11/30/2012** SeqNo: **1487907**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	979.400	100	500.0	451.4	106	80	120				

Sample ID: **N008995-003AMSD** SampType: **MSD** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **86668**
Client ID: **ZZZZZZ** Batch ID: **R86668** TestNo: **EPA 300.0** Analysis Date: **11/30/2012** SeqNo: **1487908**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	961.600	100	500.0	451.4	102	80	120	979.4	1.83	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: N009013
Project: PG&E Topock, 423575.MP.06.TS

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **MB-R86668_SO4** SampType: **MBLK** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86668**
Client ID: **PBW** Batch ID: **R86668** TestNo: **EPA 300.0** Analysis Date: **11/30/2012** SeqNo: **1487925**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID: **LCS-R86668_SO4** SampType: **LCS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86668**
Client ID: **LCSW** Batch ID: **R86668** TestNo: **EPA 300.0** Analysis Date: **11/30/2012** SeqNo: **1487926**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.846	0.50	5.000	0	96.9	90	110				

Sample ID: **N008995-001ADUP** SampType: **DUP** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86668**
Client ID: **ZZZZZZ** Batch ID: **R86668** TestNo: **EPA 300.0** Analysis Date: **11/30/2012** SeqNo: **1487932**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	466.850	25						460.5	1.37	20	

Sample ID: **N008995-002AMS** SampType: **MS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86668**
Client ID: **ZZZZZZ** Batch ID: **R86668** TestNo: **EPA 300.0** Analysis Date: **11/30/2012** SeqNo: **1487933**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	1188.400	50	500.0	698.1	98.1	80	120				

Sample ID: **N008995-002AMSD** SampType: **MSD** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **86668**
Client ID: **ZZZZZZ** Batch ID: **R86668** TestNo: **EPA 300.0** Analysis Date: **11/30/2012** SeqNo: **1487934**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	1186.300	50	500.0	698.1	97.6	80	120	1188	0.177	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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CH2MHILL

CHAIN OF CUSTODY RECORD

11/29/2012 4:08:20 PM

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.06.TS
Task Order
Project 2012-GMP-188SAMPLEMETHOD
Turnaround Time 10 Days
Shipping Date: 11/29/2012
COC Number: 8

				Specific Conductance (E120.1)	Anions (E300.0) Bromide,Chloride,Sulfate	Anions (E300.0) Chloride,Sulfate	TDS (SM2540C)	Alkalinity (SM2320B)		Number of Containers	COMMENTS
Container:				2x1 Liter	2x1 Liter	2x1 Liter	2x1 Liter	2x1 Liter			
Preservatives:				4°C	4°C	4°C	4°C	4°C			
Filtered:				NA	NA	NA	NA	NA			
Holding Time:				14	14	14	14	14			
	DATE	TIME	Matrix						N0090/3		
MW-51-188	11/28/2012	13:22	Water	X		X		X	-1	2	
MW-59-100-188	11/28/2012	9:31	Water	X		X		X	-2	2	
MW-123-188	11/29/2012	17:45	Water	X	X		X	X	-3	2	
MW-20-100-188	11/29/2012	15:45	Water	X	X		X	X	-4	2	
MW-20-130-188	11/29/2012	15:44	Water	X	X		X	X	-5	2	
MW-50-200-188	11/29/2012	12:22	Water	X		X		X	-6	2	
									TOTAL NUMBER OF CONTAINERS	12	

	Signatures	Date/Time
Approved by		11-29-12 1630
Sampled by		
Relinquished by		
Received by	[illegible]	11/29/12 1630
Relinquished by	[illegible]	11/29/12 2200
Received by	[illegible]	

Shipping Details
Method of Shipment: courier
On Ice: ~~yes~~ / no 3.4°C 1.6°C
Airbill No: 1R#1
Lab Name: ADVANCED TECHNOLOGY LABORATO
Lab Phone: (702) 307-2659

ATTN:
Sample Custody
and
Marlon

Special Instructions:
Nov 5 - Dec 14, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

Advanced Technology Laboratories, Inc.

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	11/29/2012	Workorder:	N009013
Rep sample Temp (Deg C):	3.4/1.6	IR Gun ID:	1
Temp Blank:	☐ Yes ☑ No		
Carrier name:	ATL		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☐	No ☐	NA ☑
15. Did the bottle labels indicate correct preservatives used?	Yes ☐	No ☐	NA ☑
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments:

Checklist Completed B MBC 11/30/12

Reviewed By:

SAMPLE CALCULATION

METHOD: SM 2540C
TEST NAME: Total Filterable Residue
MATRIX: Water

FORMULA:

Calculate TDS concentration in mg/L, in the original sample as follows:

$$\text{TDS, mg/L} = \frac{(A-B)*1000000}{C}$$

Where:

A = weight in g of dish + residue after drying
B = weight of dish in g
C = volume of sample used in mL

For **N009013-003A,** TDS concentration in mg/L is calculated as follows:

$$\text{TDS, mg/L} = \frac{(61.2747 - 61.2012)*1000000}{10}$$
$$= 7350 \text{ mg/L}$$

Reporting result in two significant figures,

TDS = 7400 mg/L

TOTAL DISSOLVED SOLIDS, TDS

$$\text{TDS, mg/L} = \frac{(A-B) \times 1000000}{C}$$

where: A = weight in grams of dish + residue after drying
B = weight of dish in grams
C = volume of sample used in mL

Date Started: 12/5/2012 Date Finished: 12/06/2012	vol	initial	final	calc	prep fact	TDS, mg/L	CONDUCTIVITY	TDS/CONDUCTIVITY RATIO
MB-41372	100	53.6656	53.6658	2	1	2.00		
LCS-41372	100	56.0558	56.1568	1010	1	1010.00		
N009013-003A	10	61.2012	61.2747	735	10	7350.00	11850	0.62
N009013-003A-DUP	10	61.7509	61.8243	734	10	7340.00	11850	0.62
N009013-004A	50	64.2862	64.3703	841	2	1682.00	2800	0.60
N009013-005A	10	61.16	61.2341	741	10	7410.00	11930	0.62
N009025-001A	100	53.9419	53.9972	553	1	553.00	880	0.63
N009025-002A	20	59.9491	60.0418	927	5	4635.00	7630	0.61
N009025-003A	20	61.2507	61.3453	946	5	4730.00	7530	0.63
N009049-001E	100	61.2436	61.2801	365	1	365.00	606	0.60
N009049-002E	100	55.3911	55.4294	383	1	383.00	615	0.62
N009049-003E	100	56.1378	56.2099	721	1	721.00	1196	0.60
N009055-001E	1	60.3923	60.4809	886	100	88600.00	122300	0.72

Sample ID: **N009013-001A @ pH 7.82**

A. Standardization of Sulfuric Acid (titrant):

Normality of acid = (A)(B)/(53.00)(C)

Where:

A, grams weighed for Na_2CO_3 solution (Na_2CO_3 Standardization Solution)
B, mL Na2CO3 solution taken for titration, and
C, ml of sulfuric acid used to inflection point

Spike Standards

Na_2CO_3 Standardization Solution, ACS Grade (1.00 ml = 2500ug as $CaCO_3$):
Dissolve 2.650 grams of Na_2CO_3 in distilled water and dilute to 1 liter.

LCS/MS/MSD Stock $NaHCO_3$, ACS Grade (1.00 ml = 5000 ug as $CaCO_3$):
Dissolve 0.8398 grams of $NaHCO_3$ in distilled water and dilute to 1 liter.

Therefore,

Normality of Acid = (2.65g/L) (5mL) / (53.00) (11.75mL)

= 0.021277 N

B. CALCULATION OF ALKALINITY (for a 50 ml sample)

Total Alkalinity (as $CaCO_3$), mg/L = $M_{vol.}$ * N H_2SO_4 * DF * 1000

Where:

$M_{vol.}$, volume titrant used to reach pH 4.5, ml
N, Normality of H_2SO_4
DF, Dilution Factor = (50 ml) / (Vol. of Sample used)

Therefore,

Total Alkalinity (as $CaCO_3$), mg/L = (4.75) (0.021277N) (1) * 1000

= 101.066 **mg/L**

Reporting results in two significant figures,

= 100 **mg/L** as CaCO3

NS for
12/5/

C. SPECIATED ALKALINITY:

Phenolphthalein Alkalinity

P alkalinity, mg/L as $CaCO_3$ = $P_{vol.}$ * N H_2SO_4 * DF * 1000

= (0) (0.021277 N) (1) * 1000

= **0**

Total Alkalinity

T alkalinity, mg/L as $CaCO_3$ = $M_{vol.}$ * N H_2SO_4 * DF * 1000

= (4.75mL) (0.021277) (1) * 1000

= 101.066 **mg/L** as CaCO3

Where:

$P_{vol.}$ - volume titrant used to reach pH 8.3, ml
$M_{vol.}$ - volume titrant used to reach pH 4.5, ml
N - Normality of H_2SO_4
DF - Dilution Factor = (50 ml) / (Vol. of Sample used)

Then OH, CO_3, HCO_3 alkalinities as $CaCO_3$ will be calculated as follows:

Result of Titration	**OH Alkalinity as $CaCO_3$**	**CO_3 Alkalinity as $CaCO_3$**	**HCO_3 Alkalinity as $CaCO_3$**
P = 0	0	0	T
P < ½ T	0	2P	T – 2P
P = ½ T	0	2P	0
P > ½ T	2P – T	2(T – P)	0
P = T	T	0	0

Therefore,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = 101.066 **mg/L**

Reporting results in two significant figures,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = 100 **mg/L**

Sample Calculation

METHOD: EPA 300
TEST NAME: INORGANIC ANIONS BY IC
MATRIX: WATER

FORMULA:

Calculate the Chloride concentration, in mg/L, in the original sample as follows:

Chloride, mg/L = A * DF

where:

A = mg/L, IC calculated concentration
DF = dilution factor

For **N009013-001A**, concentration in mg/L are calculated as follows:

Chloride, mg/L	=	3.160* 1000
	=	3160 mg/L

Reporting **N009013-001A** results in two significant figures,

Chloride, mg/L = 3200 ✓ 12/13/12

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

14201 FRANKLIN AVENUE
TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462
www.truesdail.com

December 2, 2012

E2 Consulting Engineers, Inc.
Mr. Shawn Duffy
155 Grand Ave., Suite 1000
Oakland, California 94612

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK IM3PLANT-EW-200, GROUNDWATER MONITORING PROJECT, TLI NO.: 804723

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-EW-200 groundwater-monitoring project for Total Dissolved and Hexavalent Chromium, Total Dissolved Solids, pH, and Specific Conductivity. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, wet chemistry raw data, quality control data and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data are under Section 5.

The samples were received and delivered with the chain of custody on November 6, 2012, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

Samples for Total Dissolved Chromium were analyzed by method EPA 200.8 with the approval of Mr. Shawn Duffy.

Samples for pH by SM 4500-H B were analyzed just past the method specified holding time.

No other violations or non-conformance actions occurred for this data package.

If you have any questions or require additional information, please contact me at (714) 730-6239 ext. 200.

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

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Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy
Sample: Two (2) Groundwater Samples
Project Name: PG&E Topock Project
Project No.: 456827.01.DM

Laboratory No.: 804723
Date: December 2, 2012
Collected: November 6, 2012
Received: November 6, 2012

ANALYST LIST

METHOD	PARAMETER	ANALYST
EPA 120.1	Specific Conductivity	Gautam Savani
SM 4500-H B	pH	Gautam Savani
SM 2540C	Total Dissolved Solids	Jenny Tankunakorn
EPA 200.8	Total Dissolved Chromium	Bita Emami
EPA 218.6	Hexavalent Chromium	George Wahba
SM 3500-CrB	Hexavalent Chromium	Jenny Tankunakorn

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Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy

Laboratory No.: 804723
Date Received: November 6, 2012

Project Name: PG&E Topock Project
Project No.: 456827.01.DM
P.O. No.: 456827.01.DM

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
804723-001	PE-01-200	E120.1	NONE	11/6/2012	13:26	EC	4760	umhos/cm	2.0
804723-001	PE-01-200	E200.8	LABFLT	11/6/2012	13:26	Chromium	8.0	ug/L	1.0
804723-001	PE-01-200	E218.6	LABFLT	11/6/2012	13:26	Chromium, Hexavalent	6.9	ug/L	0.20
804723-001	PE-01-200	SM2540C	NONE	11/6/2012	13:26	Total Dissolved Solids	2710	mg/L	125
804723-001	PE-01-200	SM4500HB	NONE	11/6/2012	13:26	PH	7.46 J	pH	4.00
804723-002	TW-03D-200	E120.1	NONE	11/6/2012	13:21	EC	8300	umhos/cm	2.00
804723-002	TW-03D-200	E200.8	LABFLT	11/6/2012	13:21	Chromium	891	ug/L	4.0
804723-002	TW-03D-200	SM2540C	NONE	11/6/2012	13:21	Total Dissolved Solids	5020	mg/L	250
804723-002	TW-03D-200	SM3500-CrB	LABFLT	11/6/2012	13:21	Chromium, Hexavalent	953	ug/L	250
804723-002	TW-03D-200	SM4500HB	NONE	11/6/2012	13:21	PH	7.16 J	pH	4.00

ND: Non Detected (below reporting limit)

Note: The following "Significant Figures" rule has been applied to all results:
Results below 0.01 will have two (2) significant figures.
Result above or equal to 0.01 will have three (3) significant figures.
Quality Control data will always have three (3) significant figures.

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REPORT

Client: **E2 Consulting Engineers, Inc.**
155 Grand Avenue, Suite 800
Oakland, CA 94612
Attention: Shawn Duffy
Project Name: PG&E Topock Project
Project Number: 456827.01.DM
P.O. Number: 456827.01.DM
Release Number:

Laboratory No. 804723

Printed 12/2/2012

Samples Received on 11/6/2012 11:45:00 PM

Field ID	Lab ID	Collected	Matrix
PE-01-200	804723-001	11/06/2012 13:26	Water
TW-03D-200	804723-002	11/06/2012 13:21	Water

Specific Conductivity - EPA 120.1

Batch 11EC12C

Parameter	Unit	Analyzed	DF	MDL	RL	Result
804723-001 Specific Conductivity	umhos/cm	11/08/2012	1.00	0.116	2.00	4760
804723-002 Specific Conductivity	umhos/cm	11/08/2012	1.00	0.116	2.00	8300

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate — Lab ID = 804723-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	8300	8300	0	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	703	706	99.6	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	708	706	100	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	973	996	97.7	90 - 110

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Chrome VI by EPA 218.6

Batch 11CrH12D

Parameter	Unit	Analyzed	DF	MDL	RL	Result
804723-001 Chromium, Hexavalent	ug/L	11/08/2012 09:14	1.00	0.00920	0.20	6.9

Method Blank

Parameter	Unit	DF	Result
Chromium, Hexavalent	ug/L	1.00	ND

Duplicate Lab ID = 804723-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	6.87	6.88	0.141	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.195	0.200	97.7	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.95	5.00	99.0	90 - 110

Matrix Spike Lab ID = 804722-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.07	1.09(1.00)	97.8	90 - 110

Matrix Spike Lab ID = 804722-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	1720	1760(1000)	96.1	90 - 110

Matrix Spike Lab ID = 804723-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	16.4	16.9(10.0)	95.4	90 - 110

Matrix Spike Lab ID = 804724-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.0300	29.0	29.0(15.0)	99.7	90 - 110

Matrix Spike Lab ID = 804724-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.0300	28.0	28.0(15.0)	100	90 - 110

Matrix Spike Lab ID = 804725-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	8.10	8.35(5.00)	95.1	90 - 110

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MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	10.0	10.0	100	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	10.1	10.0	101	95 - 105

Chromium, Hexavalent by SM 3500-Cr B

Batch 11CrH12A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
804723-002 Chromium, Hexavalent	ug/L	11/14/2012 11:44	25.0	37.5	250	953

Method Blank

Parameter	Unit	DF	Result
Chromium, Hexavalent	ug/L	1.00	ND

Duplicate — Lab ID = 804723-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	893	953	6.46	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	95.4	100	95.4	90 - 110

Matrix Spike — Lab ID = 804723-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	3520	3450(2500)	103	85 - 115

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	62.0	60.0	103	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	58.4	60.0	97.3	90 - 110

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pH by SM 4500-H B

Batch 11PH12E

Parameter	Unit	Analyzed	DF	MDL	RL	Result	
804723-001 pH	pH	11/07/2012 13:45	1.00	0.0784	4.00	7.46	J
804723-002 pH	pH	11/07/2012 13:47	1.00	0.0784	4.00	7.16	J

Duplicate — Lab ID = 804723-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
pH	pH	1.00	7.16	7.16	0	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
pH	pH	1.00	7.02	7.00	100	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
pH	pH	1.00	7.03	7.00	100	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
pH	pH	1.00	7.02	7.00	100	90 - 110

Total Dissolved Solids by SM 2540 C

Batch 11TDS12A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
804723-001 Total Dissolved Solids	mg/L	11/07/2012	1.00	0.757	125	2710
804723-002 Total Dissolved Solids	mg/L	11/07/2012	1.00	0.757	250	5020

Method Blank

Parameter	Unit	DF	Result
Total Dissolved Solids	mg/L	1.00	ND

Duplicate — Lab ID = 804696-010

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	558	552	1.08	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Dissolved Solids	mg/L	1.00	492	500	98.4	90 - 110

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Metals by EPA 200.8, Dissolved

Batch 112712A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
804723-001 Chromium	ug/L	11/27/2012 11:53	2.50	0.230	1.0	8.0
804723-002 Chromium	ug/L	11/27/2012 13:51	20.0	1.84	4.0	891

Method Blank

Parameter	Unit	DF	Result
Chromium	ug/L	1.00	ND
Uranium	ug/L	1.00	ND

Duplicate

Lab ID = 804723-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	2.50	7.91	8.04	1.58	0 - 20
Uranium	ug/L	2.50	4.30	4.36	1.43	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.173	0.200	86.5	70 - 130
Uranium	ug/L	1.00	0.186	0.200	93.2	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	2.50	50.0	50.0	100	85 - 115
Uranium	ug/L	2.50	47.3	50.0	94.6	85 - 115

Matrix Spike

Lab ID = 804723-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.50	54.6	58.0(50.0)	93.1	75 - 125
Uranium	ug/L	2.50	48.0	54.4(50.0)	87.4	75 - 125

Matrix Spike Duplicate

Lab ID = 804723-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.50	56.8	58.0(50.0)	97.5	75 - 125
Uranium	ug/L	2.50	51.2	54.4(50.0)	93.7	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.1	20.0	101	90 - 110
Uranium	ug/L	1.00	19.2	20.0	95.9	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.6	20.0	103	90 - 110

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Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.0	20.0	95.2	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Uranium	ug/L	1.00	ND	0		

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Uranium	ug/L	1.00	ND	0		

Serial Dilution Lab ID = 804723-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	100	899	891	0.849	0 - 10

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from Truesdail Laboratories.

e2

SC

Truesdail Laboratories, Inc.

Total Dissolved Solids by SM 2540 C

Calculations

Batch: 11TDS12A
Date Analyzed: 11/7/12

Laboratory Number	Sample volume, ml	Initial weight,g	1st Final weight,g	2nd Final weight,g	Weight Difference, g	Exceeds 0.5mg? Yes/No	Residue weight,g	Filterable residue, ppm	RL , ppm	Reported Value, ppm	DF
Blank	100	66.8065	66.8069	66.8065	0.0004	No	0.0000	0.0	25.0	ND	1
804680-17	100	77.7833	77.8391	77.8388	0.0003	No	0.0555	555.0	25.0	555.0	1
804683-1	50	74.9341	74.9818	74.9817	0.0001	No	0.0476	952.0	50.0	952.0	1
804683-2	100	74.6118	74.6663	74.6660	0.0003	No	0.0542	542.0	25.0	542.0	1
804683-3	50	67.2055	67.2361	67.2361	0.0000	No	0.0306	612.0	50.0	612.0	1
804696-9	100	72.0912	72.148	72.1477	0.0003	No	0.0565	565.0	25.0	565.0	1
804696-10	100	65.6243	65.6797	65.6795	0.0002	No	0.0552	552.0	25.0	552.0	1
804722-1	10	50.5009	50.5460	50.5457	0.0003	No	0.0448	4480.0	250.0	4480.0	1
804722-2	10	49.1760	49.2219	49.2215	0.0004	No	0.0455	4550.0	250.0	4550.0	1
804723-1	20	50.8333	50.8876	50.8875	0.0001	No	0.0542	2710.0	125.0	2710.0	1
804723-2	10	50.8652	50.9154	50.9154	0.0000	No	0.0502	5020.0	250.0	5020.0	1
804696-10D	100	69.4085	69.4645	69.4643	0.0002	No	0.0558	558.0	25.0	558.0	1
LCS	100	68.1277	68.1769	68.1769	0.0000	No	0.0492	492.0	25.0	492.0	1

Calculation as follows:

Filterable residue (TDS), mg/L = $\left(\frac{A-B}{C}\right) x\, 10^6$

Where:

A = weight of dish + residue in grams.
B = weight of dish in grams.
C = mL of sample filtered.

RL= reporting limit.
ND = not detected (below the reporting limit)

Laboratory Control Sample (LCS) Summary

QC Std I.D.	Measurd Value, ppm	Theoretical Value, ppm	Percent Rec	Acceptance Limit	QC Within Control?
LCS1	492	500	98.4%	90-110%	Yes
LCSD					

LCS Recovery

$$P = \left(\frac{LC}{LT}\right) x\, 100$$

P = Percent recovery.
LC = Measured LCS value (ppm).
LT = Theoretical LCS value (ppm).

Duplicate Determinations Difference Summary

Lab Number	Sample Weight, g	Sample Dup Weight, g	% RPD	Acceptance Limit	QC Within Control?
804696-10	0.0552	0.0558	0.5%	≤5%	Yes

Duplicate Determination Difference

$$\%\ Difference = \frac{|A \text{ or } B - C|}{C} x\, 100$$

$$where \quad C = \frac{A+B}{2}$$

A = Weght of the first sample in (g).
B = Weght of the second sample in (g).
C = Average weight in (g).

Jenny T.
Analyst Printed Name

Analyst Signature

Hope T.
Reviewer Printed Name

Reviewer Signature

WetChem TDS_2012.xls

Total Dissolved Solids by SM 2540 C

TDS/EC CHECK

Batch: 11TDS12A
Date Analyzed: 11/7/12

Laboratory Number	EC	TDS/EC Ratio: 0.55-.9	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
804680-17	962	0.58	625.3	0.89
804683-1	1674	0.57	1088.1	0.87
804683-2	962	0.56	625.3	0.87
804683-3	1040	0.59	676	0.91
804696-9	922	0.61	599.3	0.94
804696-10	902	0.61	586.3	0.94
804722-1	7300	0.61	4745	0.94
804722-2	7750	0.59	5037.5	0.90
804723-1	4800	0.56	3120	0.87
804723-2	8330	0.60	5414.5	0.93
804696-10	902	0.62	586.3	0.95
LCS				

Rec'd 11/06/12

S 804723

TRUESDAIL LABORATORIES, INC.
14201 Franklin Avenue, Tustin, CA 92780-7008
(714)730-6239 FAX: (714) 730-6462
www.truesdail.com

CHAIN OF CUSTODY RECORD

[IM3Plant-EW-200] 804723

TURNAROUND TIME 10 Days
DATE 11/06/12 PAGE 1 OF 1

COMPANY: CH2M HILL /E2
PROJECT NAME: PG&E Topock IM3Plant-EW
PHONE: 530-229-3303 FAX: 530-339-3303
ADDRESS: 155 Grand Ave Ste 1000, Oakland, CA 94612
P.O. NUMBER: 456827.01.DM
SAMPLERS (SIGNATURE: P. Lentz

	SAMPLE I.D.	DATE	TIME	DESCRIPTION	Dissolved Cr (200.7) Lab filtered	Cr(VI) (3500-Cr B)	pH (150.0) EC (120.1)	TDS (160.1)	Cr(VI) (218.6)	NUMBER OF CONTAINERS	COMMENTS
-1	PE-01-200	11/06/12	1326	Ground water	X		X	X	X	4	pH=6 (200.7)
-2	TW-03D-200	11/06/12	1321	Ground water	X	X	X	X		4	
										8	TOTAL NUMBER OF CONTAINERS

ALERT !!
For Sample Condition Level III QC
See Form Attached

CHAIN OF CUSTODY SIGNATURE RECORD

11.6.12

	Signature	Printed Name	Company/ Agency	Date/ Time
Relinquished	C. Knight	C. Knight	CH2MHILL	14:00
Received	Rafael Davila	Rafael	T.L.I	11-6-12 14:00
Relinquished	Rafael Davila	Rafael	T.L.I	11-6-12 23:45
Received	L. Shabunina	Linda	TLI	11/6/12 23:45
Relinquished				
Received				

SAMPLE CONDITIONS
RECEIVED COOL ☑ WARM ☐ 4.6°C
CUSTODY SEALED YES ☐ NO ☑
SPECIAL REQUIREMENTS:

0450

Hexavalent Chromium

Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
10/31/12	804602	7	2mL / 100mL	9.5	11 Am	[illegible]
11/2/12						
11/2/12	804636-1	9.5	N/A	N/A	N/A	[illegible]
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
	-13					
	-14					
	-15					
11/5/12	804652-1	9.5	N/A	N/A	N/A	[illegible]
	-2					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-12					
	-13					
11/7/12	804722-1	7	2mL / 100mL (Total)	9.5	11:00 Am	[illegible]
	-2				11:10 Am	
	804723-1	7			11:15 Am	
	-2				11:20 Am	

C:\My Documents\Templates\Hexavalent Chromium\Cr6+ pH Log

HAV
11/12/12

[illegible] 11/14/12

TRUESDAIL LABORATORIES, INC.

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
804625	>1	<2	11-2-12	BE	3010A			
804626	↓	↓	↓	↓	↓			
804627	↓	↓	↓	↓	↓			
804600	<1	>2			NO	7:00 AM	11-4	PH<2
804617 (10-12)	↓	↓	↓	↓	↓	↓	↓	↓
804635 (1-3)	↓	↓	↓	↓	↓	↓	↓	↓
804636 (1-15)	<1	<2	11/05/12	M-M	3010A			
804652 (1-2,4)	↓	↓	↓	↓	↓			
804647	>1	<2	11/05/12	MM	3010A			
804648	↓	↓	↓	↓	↓			
804649	↓	↓	↓	↓	↓			
804658 (1,2,4)	<1	>2	11/5/12	MM	NO	4 pm	10.6	PH<2
804683 (1,2,3)	<1	>1	11-6-12	BE	NO	5 pm	11-7	↓
804726 (1,5)	<1	<2	11-7-12	M.M	3010A			
804725 (1,2)	↓	↓	↓	↓	↓			
804722 (1,2)	↓	<2,2??	↓	↓	↓			
804723 (1,2)	↓	>2	↓	↓	↓			
804724 (1,2)	↓	↓	↓	↓	↓			
804690	—	— MM	11/07/12	M.M	TTLC	13:00	11/07/12	pH <2
804678-1	>1	~~>2~~ <2	11/07/12	MM	3010A			
804679	↓	<2	↓	↓	↓			
804680	↓	<2	↓	↓	↓			
804691	↓	↓	↓	↓	↓			
804692	↓	↓	↓	↓	↓			
804693	↓	↓	↓	↓	↓			
804694	↓	↓	↓	↓	↓			
804695	↓	↓	↓	↓	↓			
804706	↓	↓	↓	↓	↓			
804707	↓	↓	↓	↓	↓			
804708	↓	↓	↓	↓	↓			
804709	↓	↓	↓	↓	↓			
804721	↓	↓	↓	↓	↓			
804731	↓	~~>2~~	↓	↓	↓	13:00	11/07/12	pH <2
804678-2	>1	>2	11/07/2	M.M	3010A	13:00	11/07/12	pH <2
-3	↓	↓		↓	↓	↓	↓	↓
~~804300-02, 804300~~								
804300	<1	<2	10/16/12	M.M	3010A			
804301-302	↓	↓	↓	↓	↓			
804304-305	↓	↓	↓	↓	↓			
804733 (1-3)	<1	>2	11-8-12	B.E	NO	5:30 pM		
804720	↓	↓	↓	↓	↓	↓		
804743 (10-12)	↓	↓	↓	↓	↓	↓		

Notes:
1. Samples should be analyzed after 24 hrs of pH adjustment to pH2 for Dissolved Analytes.
2. All Total Recoverable Analytes must be pH adjusted and digested.
3. Do not use disposable pipette to measure pH; pour a little amount of sample from the bottle.

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: E2 **Lab #** 804723

Date Delivered: 11 / 06 / 12 **Time:** 23:45 **By:** ☐Mail ☒Field Service ☐Client

1. Was a Chain of Custody received and signed? ☒Yes ☐No ☐N/A
2. Does Customer require an acknowledgement of the COC? ☐Yes ☐No ☒N/A
3. Are there any special requirements or notes on the COC? ☐Yes ☐No ☒N/A
4. If a letter was sent with the COC, does it match the COC? ☐Yes ☐No ☒N/A
5. Were all requested analyses understood and acceptable? ☒Yes ☐No ☐N/A
6. Were samples received in a chilled condition? ☒Yes ☐No ☐N/A
   Temperature (if yes)? 4.6° C
7. Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)? ☒Yes ☐No ☐N/A
8. Were sample custody seals intact? ☐Yes ☐No ☒N/A
9. Does the number of samples received agree with COC? ☒Yes ☐No ☐N/A
10. Did sample labels correspond with the client ID's? ☒Yes ☐No ☐N/A
11. Did sample labels indicate proper preservation? ☐Yes ☐No ☒N/A
    Preserved (if yes) by: ☐Truesdall ☐Client
12. Were samples pH checked? pH = see c.o.c ☒Yes ☐No ☐N/A
13. Were all analyses within holding time at time of receipt? ☒Yes ☐No ☐N/A
    If not, notify Project Manager.
14. Have Project due dates been checked and accepted? ☒Yes ☐No ☐N/A
    Turn Around Time (TAT): ☐ RUSH ☒Std
15. **Sample Matrix:** ☐Liquid ☐Drinking Water ☒Ground Water ☐Waste Water
    ☐Sludge ☐Soil ☐Wipe ☐Paint ☐Solid ☐Other_____
16. Comments: _____
17. Sample Check-In completed by **Truesdail** Log-In/Receiving: Linda

ALERT !!
Level III QC

C:\Users\Tes\Desktop\Forms A - D\Discrp.FormBlank.doc

TRUESDAIL LABORATORIES, INC.

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14201 FRANKLIN AVENUE
TUSTIN, CALIFORNIA 92780-7008
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www.truesdail.com

January 7, 2013

E2 Consulting Engineers, Inc.
Mr. Shawn Duffy
155 Grand Ave., Suite 1000
Oakland, California 94612

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK IM3PLANT-EW-201, GROUNDWATER MONITORING PROJECT, TLI NO.: 805155

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-EW-201 groundwater-monitoring project. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, wet chemistry raw data, quality control data and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data are under Section 5.

The samples were received and delivered with the chain of custody on December 4, 2012, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

Samples for Total Dissolved Metals were analyzed by methods EPA 200.8 and EPA 200.7 with the approval of Mr. Shawn Duffy.

No violations or non-conformance actions occurred for this data package.

If you have any questions or require additional information, please contact me at (714) 730-6239 ext. 200.

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.
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www.truesdail.com

Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy
Sample: Two (2) Groundwater Samples
Project Name: PG&E Topock Project
Project No.: 456827.01.DM

Laboratory No.: 805155
Date: January 7, 2013
Collected: December 4, 2012
Received: December 4, 2012

ANALYST LIST

METHOD	PARAMETER	ANALYST
EPA 120.1	Specific Conductivity	Gautam Savani
SM 4500-H B	pH	Gautam Savani
SM 2540C	Total Dissolved Solids	Jenny Tankunakorn
SM 2320B	Total Alkalinity	Melissa Scharfe
EPA 300.0	Anions	Giawad Ghenniwa
EPA 200.7	Metals by ICP	Ethel Suico
EPA 200.8	Metals by ICP/MS	Bita Emami
EPA 218.6	Hexavalent Chromium	Himani Vaishnav
SM 3500-CrB	Hexavalent Chromium	Jenny Tankunakorn

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Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy

Laboratory No.: 805155
Date Received: December 4, 2012

Project Name: PG&E Topock Project
Project No.: 456827.01.DM
P.O. No.: 456827.01.DM

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
805155-001	PE-01-201	E120.1	NONE	12/4/2012	12:19	EC	4760	umhos/cm	2.0
805155-001	PE-01-201	E200.7	LABFLT	12/4/2012	12:19	Calcium	114	mg/L	25.0
805155-001	PE-01-201	E200.7	LABFLT	12/4/2012	12:19	Iron	ND	ug/L	20.0
805155-001	PE-01-201	E200.7	LABFLT	12/4/2012	12:19	Magnesium	26.2	mg/L	2.50
805155-001	PE-01-201	E200.7	LABFLT	12/4/2012	12:19	Sodium	874	mg/L	50.0
805155-001	PE-01-201	E200.8	LABFLT	12/4/2012	12:19	Chromium	7.3	ug/L	1.0
805155-001	PE-01-201	E200.8	LABFLT	12/4/2012	12:19	Manganese	44.2	ug/L	0.50
805155-001	PE-01-201	E218.6	LABFLT	12/4/2012	12:19	Chromium, Hexavalent	7.0	ug/L	0.20
805155-001	PE-01-201	E300	NONE	12/4/2012	12:19	Chloride	1170	mg/L	20.0
805155-001	PE-01-201	E300	NONE	12/4/2012	12:19	Nitrate as N	ND	mg/L	0.500
805155-001	PE-01-201	E300	NONE	12/4/2012	12:19	Sulfate	424	mg/L	25.0
805155-001	PE-01-201	SM2320B	NONE	12/4/2012	12:19	Alkalinity	195	mg/L	5.00
805155-001	PE-01-201	SM2320B	NONE	12/4/2012	12:19	Alkalinity, Bicarbonate (As CaCO3)	195	mg/L	5.00
805155-001	PE-01-201	SM2320B	NONE	12/4/2012	12:19	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
805155-001	PE-01-201	SM2540C	NONE	12/4/2012	12:19	Total Dissolved Solids	2780	mg/L	125
805155-001	PE-01-201	SM4500HB	NONE	12/4/2012	12:19	PH	7.49	pH	4.00

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Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
805155-002	TW-03D-201	E120.1	NONE	12/4/2012	12:26	EC	8470	umhos/cm	2.00
805155-002	TW-03D-201	E200.7	LABFLT	12/4/2012	12:26	Calcium	264	mg/L	25.0
805155-002	TW-03D-201	E200.7	LABFLT	12/4/2012	12:26	Iron	ND	ug/L	20.0
805155-002	TW-03D-201	E200.7	LABFLT	12/4/2012	12:26	Magnesium	41.8	mg/L	2.50
805155-002	TW-03D-201	E200.7	LABFLT	12/4/2012	12:26	Sodium	1570	mg/L	100
805155-002	TW-03D-201	E200.8	LABFLT	12/4/2012	12:26	Chromium	879	ug/L	4.0
805155-002	TW-03D-201	E200.8	LABFLT	12/4/2012	12:26	Manganese	5.8	ug/L	0.50
805155-002	TW-03D-201	E300	NONE	12/4/2012	12:26	Chloride	2460	mg/L	50.0
805155-002	TW-03D-201	E300	NONE	12/4/2012	12:26	Nitrate as N	4.01	mg/L	0.500
805155-002	TW-03D-201	E300	NONE	12/4/2012	12:26	Sulfate	552	mg/L	25.0
805155-002	TW-03D-201	SM2320B	NONE	12/4/2012	12:26	Alkalinity	120	mg/L	5.00
805155-002	TW-03D-201	SM2320B	NONE	12/4/2012	12:26	Alkalinity, Bicarbonate (As CaCO3)	120	mg/L	5.00
805155-002	TW-03D-201	SM2320B	NONE	12/4/2012	12:26	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
805155-002	TW-03D-201	SM2540C	NONE	12/4/2012	12:26	Total Dissolved Solids	5060	mg/L	250
805155-002	TW-03D-201	SM3500-CrB	LABFLT	12/4/2012	12:26	Chromium, Hexavalent	893	ug/L	250
805155-002	TW-03D-201	SM4500HB	NONE	12/4/2012	12:26	PH	7.19	pH	4.00

ND: Non Detected (below reporting limit)

Note: The following "Significant Figures" rule has been applied to all results:
Results below 0.01 will have two (2) significant figures.
Result above or equal to 0.01 will have three (3) significant figures.
Quality Control data will always have three (3) significant figures.

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from Truesdail Laboratories.

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REPORT

Client: **E2 Consulting Engineers, Inc.**
155 Grand Avenue, Suite 800
Oakland, CA 94612
Attention: Shawn Duffy
Project Name: PG&E Topock Project
Project Number: 456827.01.DM
P.O. Number: 456827.01.DM
Release Number:

Laboratory No. 805155

Printed 1/7/2013

Samples Received on 12/4/2012 10:30:00 PM

Field ID	Lab ID	Collected	Matrix
PE-01-201	805155-001	12/04/2012 12:19	Water
TW-03D-201	805155-002	12/04/2012 12:26	Water

Anions By I.C. - EPA 300.0

Batch 12AN12D

Parameter		Unit	Analyzed	DF	MDL	RL	Result
805155-001	Chloride	mg/L	12/05/2012 16:39	200	6.98	20.0	1170
	Nitrate as Nitrogen	mg/L	12/05/2012 14:11	5.00	0.0415	0.500	ND
	Sulfate	mg/L	12/05/2012 17:02	50.0	1.54	25.0	424
805155-002	Chloride	mg/L	12/05/2012 16:51	500	17.4	50.0	2460
	Nitrate as Nitrogen	mg/L	12/05/2012 14:22	5.00	0.0415	0.500	4.01
	Sulfate	mg/L	12/05/2012 17:36	50.0	1.54	25.0	552

Method Blank

Parameter	Unit	DF	Result
Chloride	mg/L	1.00	ND
Fluoride	mg/L	1.00	ND
Sulfate	mg/L	1.00	ND
Nitrate as Nitrogen	mg/L	1.00	ND

Duplicate Lab ID = 805156-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Fluoride	mg/L	5.00	2.38	2.38	0.168	0 - 20
Nitrate as Nitrogen	mg/L	5.00	3.28	3.25	0.858	0 - 20

Duplicate Lab ID = 805162-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chloride	mg/L	1.00	ND	0	0	0 - 20
Sulfate	mg/L	1.00	ND	0	0	0 - 20

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Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project
Project Number: 456827.01.DM Printed 1/7/2013

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chloride	mg/L	1.00	3.96	4.00	99.0	90 - 110
Fluoride	mg/L	1.00	4.13	4.00	103	90 - 110
Sulfate	mg/L	1.00	20.2	20.0	101	90 - 110
Nitrate as Nitrogen	mg/L	1.00	4.03	4.00	101	90 - 110

Matrix Spike — Lab ID = 805156-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Fluoride	mg/L	5.00	23.1	22.4(20.0)	104	85 - 115
Nitrate as Nitrogen	mg/L	5.00	23.7	23.2(20.0)	102	85 - 115

Matrix Spike — Lab ID = 805162-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chloride	mg/L	1.00	2.06	2.00(2.00)	103	85 - 115
Sulfate	mg/L	1.00	2.02	2.00(2.00)	101	85 - 115

Matrix Spike Duplicate — Lab ID = 805162-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chloride	mg/L	1.00	2.05	2.00(2.00)	102	85 - 115
Sulfate	mg/L	1.00	2.01	2.00(2.00)	100	85 - 115

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chloride	mg/L	1.00	3.98	4.00	99.6	90 - 110
Fluoride	mg/L	1.00	4.15	4.00	104	90 - 110
Sulfate	mg/L	1.00	20.3	20.0	101	90 - 110
Nitrate as Nitrogen	mg/L	1.00	4.04	4.00	101	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chloride	mg/L	1.00	2.98	3.00	99.3	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chloride	mg/L	1.00	2.94	3.00	98.1	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chloride	mg/L	1.00	2.94	3.00	98.1	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Fluoride	mg/L	1.00	3.11	3.00	104	90 - 110

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Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project
Project Number: 456827.01.DM

Alkalinity by SM 2320B

Batch 12ALK12B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805155-001 Alkalinity as CaCO3	mg/L	12/06/2012	1.00	0.555	5.00	195
Bicarbonate (Calculated)	mg/L	12/06/2012	1.00	0.555	5.00	195
Carbonate (Calculated)	mg/L	12/06/2012	1.00	0.555	5.00	ND
805155-002 Alkalinity as CaCO3	mg/L	12/06/2012	1.00	0.555	5.00	120
Bicarbonate (Calculated)	mg/L	12/06/2012	1.00	0.555	5.00	120
Carbonate (Calculated)	mg/L	12/06/2012	1.00	0.555	5.00	ND

Method Blank

Parameter	Unit	DF	Result
Alkalinity as CaCO3	mg/L	1.00	ND

Duplicate

Lab ID = 805181-007

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Alkalinity as CaCO3	mg/L	1.00	90.0	88.0	2.25	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Alkalinity as CaCO3	mg/L	1.00	96.0	100	96.0	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Alkalinity as CaCO3	mg/L	1.00	95.0	100	95.0	90 - 110

Matrix Spike

Lab ID = 805181-007

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Alkalinity as CaCO3	mg/L	1.00	183	188(100)	95.0	75 - 125

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Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project
Project Number: 456827.01.DM

Specific Conductivity - EPA 120.1

Batch 12EC12A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805155-001 Specific Conductivity	umhos/cm	12/06/2012	1.00	0.116	2.00	4760
805155-002 Specific Conductivity	umhos/cm	12/06/2012	1.00	0.116	2.00	8470

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate — Lab ID = 805156-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	7390	7380	0.135	0 - 10

Duplicate — Lab ID = 805156-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	7810	7810	0	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	710	706	100	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	712	706	101	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	695	706	98.4	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	980	996	98.4	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	988	996	99.2	90 - 110

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Chrome VI by EPA 218.6

Batch 12CrH12I

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805155-001 Chromium, Hexavalent	ug/L	12/10/2012 13:38	1.00	0.00920	0.20	7.0

Method Blank

Parameter	Unit	DF	Result
Chromium, Hexavalent	ug/L	1.00	ND

Duplicate Lab ID = 805156-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	740	746	0.838	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.212	0.200	106	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.80	5.00	96.1	90 - 110

Matrix Spike Lab ID = 805155-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	16.4	17.0(10.0)	93.6	90 - 110

Matrix Spike Lab ID = 805156-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.20	1.21(1.00)	98.5	90 - 110

Matrix Spike Lab ID = 805156-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	1470	1500(750)	97.1	90 - 110

Matrix Spike Lab ID = 805157-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.939	1.00(1.00)	93.9	90 - 110

Matrix Spike Lab ID = 805157-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	250	9220	9480(5000)	94.7	90 - 110

Matrix Spike Lab ID = 805157-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	250	8790	8980(5000)	96.1	90 - 110

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Chromium, Hexavalent by SM 3500-Cr B Batch 12CrH12A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805155-002 Chromium, Hexavalent	ug/L	12/12/2012 15:43	25.0	37.5	250	893

Method Blank

Parameter	Unit	DF	Result
Chromium, Hexavalent	ug/L	1.00	ND

Duplicate — Lab ID = 805155-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	923	893	3.34	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	101	100	101	90 - 110

Matrix Spike — Lab ID = 805155-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	3370	3390(2500)	99.1	85 - 115

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	58.4	60.0	97.3	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	60.8	60.0	101	90 - 110

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pH by SM 4500-H B Batch 12PH12C

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805155-001 pH	pH	12/05/2012 11:20	1.00	0.0784	4.00	7.49
805155-002 pH	pH	12/05/2012 11:23	1.00	0.0784	4.00	7.19

Duplicate — Lab ID = 805137-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
pH	pH	1.00	7.98	7.97	0.125	0 - 20

Duplicate — Lab ID = 805155-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
pH	pH	1.00	7.20	7.19	0.139	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
pH	pH	1.00	7.00	7.00	100	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
pH	pH	1.00	7.02	7.00	100	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
pH	pH	1.00	7.03	7.00	100	90 - 110

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Total Dissolved Solids by SM 2540 C

Batch 12TDS12A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805155-001 Total Dissolved Solids	mg/L	12/06/2012	1.00	0.757	125	2780
805155-002 Total Dissolved Solids	mg/L	12/06/2012	1.00	0.757	250	5060

Method Blank

Parameter	Unit	DF	Result
Total Dissolved Solids	mg/L	1.00	ND

Duplicate — Lab ID = 805145-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	560	565	0.889	0 - 10

Duplicate — Lab ID = 805156-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	4670	4660	0.214	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Dissolved Solids	mg/L	1.00	503	500	101	90 - 110

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Metals by EPA 200.8, Dissolved

Batch 121512A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805155-001 Chromium	ug/L	12/16/2012 02:47	2.50	0.230	1.0	7.3
Manganese	ug/L	12/16/2012 02:47	2.50	0.215	0.50	44.2
805155-002 Chromium	ug/L	12/16/2012 03:09	20.0	1.84	4.0	879
Manganese	ug/L	12/16/2012 03:02	2.50	0.215	0.50	5.8

Method Blank

Parameter	Unit	DF	Result
Chromium	ug/L	1.00	ND
Manganese	ug/L	1.00	ND

Duplicate

Lab ID = 805152-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	2.50	1.87	1.84	1.72	0 - 20
Manganese	ug/L	2.50	0.876	0.823	6.22	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.243	0.200	122	70 - 130
Manganese	ug/L	1.00	0.247	0.200	123	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	2.50	46.0	50.0	92.0	85 - 115
Manganese	ug/L	2.50	49.8	50.0	99.6	85 - 115

Matrix Spike

Lab ID = 805152-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.50	48.7	51.8(50.0)	93.8	75 - 125
Manganese	ug/L	2.50	52.4	50.8(50.0)	103	75 - 125

Matrix Spike Duplicate

Lab ID = 805152-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.50	48.2	51.8(50.0)	92.7	75 - 125
Manganese	ug/L	2.50	50.0	50.8(50.0)	98.3	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	9.42	10.0	94.2	90 - 110
Manganese	ug/L	1.00	9.95	10.0	99.5	90 - 110

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Serial Dilution — Lab ID = 805155-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Manganese	ug/L	12.5	46.3	44.2	4.68	0 - 10

Serial Dilution — Lab ID = 805155-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	100	909	879	3.34	0 - 10

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Metals by 200.7, Dissolved

Batch 122712A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805155-001 Calcium	mg/L	12/27/2012 17:06	50.0	1.90	25.0	114
805155-002 Calcium	mg/L	12/27/2012 17:11	50.0	1.90	25.0	264

Method Blank

Parameter	Unit	DF	Result
Calcium	mg/L	1.00	ND
Sodium	mg/L	1.00	ND

Duplicate

Lab ID = 805153-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Calcium	mg/L	25.0	34.3	34.1	0.672	0 - 20
Sodium	mg/L	25.0	55.1	55.1	0.0363	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	mg/L	1.00	2.02	2.00	101	85 - 115
Sodium	mg/L	1.00	1.90	2.00	94.8	85 - 115

Matrix Spike

Lab ID = 805153-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Calcium	mg/L	25.0	88.2	84.1(50.0)	108	75 - 125
Sodium	mg/L	25.0	108	105(50.0)	105	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	mg/L	1.00	4.89	5.00	97.9	95 - 105
Sodium	mg/L	1.00	4.70	5.00	94.1	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	mg/L	1.00	4.75	5.00	95.0	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	mg/L	1.00	4.86	5.00	97.2	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	mg/L	1.00	4.86	5.00	97.2	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	mg/L	1.00	4.74	5.00	94.9	90 - 110

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Metals by 200.7, Dissolved

Batch 122812A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805155-001 Iron	ug/L	12/28/2012 16:13	1.00	3.57	20.0	ND
Magnesium	mg/L	12/28/2012 13:50	5.00	0.275	2.50	26.2
805155-002 Iron	ug/L	12/28/2012 16:19	1.00	3.57	20.0	ND
Magnesium	mg/L	12/28/2012 13:56	5.00	0.275	2.50	41.8

Method Blank

Parameter	Unit	DF	Result
Iron	ug/L	1.00	ND
Magnesium	mg/L	1.00	ND

Duplicate

Lab ID = 805153-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Iron	ug/L	1.00	ND	0	0	0 - 20
Magnesium	mg/L	2.00	6.66	6.50	2.40	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2130	2000	106	85 - 115
Magnesium	mg/L	1.00	2.20	2.00	110	85 - 115

Matrix Spike

Lab ID = 805153-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	2140	2000(2000)	107	75 - 125
Magnesium	mg/L	2.00	11.0	10.5(4.00)	113	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5090	5000	102	95 - 105
Magnesium	mg/L	1.00	5.18	5.00	104	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	4570	5000	91.4	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5370	5000	107	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5410	5000	108	90 - 110

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Metals by 200.7, Dissolved

Batch 010413A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805155-001 Sodium	mg/L	01/04/2013 12:51	100	10.0	50.0	874
805155-002 Sodium	mg/L	01/04/2013 13:15	200	20.0	100	1570

Method Blank

Parameter	Unit	DF	Result
Sodium	mg/L	1.00	ND

Duplicate

Lab ID = 805153-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Sodium	mg/L	25.0	56.9	55.6	2.36	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sodium	mg/L	1.00	2.02	2.00	101	85 - 115

Matrix Spike

Lab ID = 805153-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Sodium	mg/L	25.0	108	106(50.0)	104	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sodium	mg/L	1.00	4.89	5.00	97.8	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sodium	mg/L	1.00	4.94	5.00	98.8	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sodium	mg/L	1.00	5.02	5.00	100	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sodium	mg/L	1.00	4.93	5.00	98.5	90 - 110

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sodium	mg/L	1.00	1.93	2.00	96.6	80 - 120

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sodium	mg/L	1.00	1.96	2.00	98.2	80 - 120

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Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project
Project Number: 456827.01.DM Printed 1/7/2013

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sodium	mg/L	1.00	1.96	2.00	98.0	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sodium	mg/L	1.00	2.02	2.00	101	80 - 120

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from Truesdail Laboratories.

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Truesdail Laboratories, Inc.

Total Dissolved Solids by SM 2540 C

Calculations

Batch: 12TDS12A
Date Analyzed: 12/6/12

Laboratory Number	Sample volume, ml	Initial weight,g	1st Final weight,g	2nd Final weight,g	Weight Difference, g	Exceeds 0.5mg? Yes/No	Residue weight,g	Filterable residue, ppm	RL , ppm	Reported Value, ppm	DF
Blank	100	76.2806	76.2806	76.2806	0.0000	No	0.0000	0.0	25.0	ND	1
805073	100	72.7713	72.8154	72.8151	0.0003	No	0.0438	438.0	25.0	438.0	1
805076	100	74.2237	74.2517	74.2513	0.0004	No	0.0276	276.0	25.0	276.0	1
805114-17	100	78.8044	78.8653	78.8651	0.0002	No	0.0607	607.0	25.0	607.0	1
805117-1	100	77.2938	77.35	77.35	0.0000	No	0.0562	562.0	25.0	562.0	1
805117-2	100	74.9329	74.9691	74.9689	0.0002	No	0.0360	360.0	25.0	360.0	1
805117-3	50	47.7619	47.8335	47.8333	0.0002	No	0.0714	1428.0	50.0	1428.0	1
805117-4	100	68.3733	68.4104	68.4102	0.0002	No	0.0369	369.0	25.0	369.0	1
805137-9	100	66.7063	66.7667	66.7664	0.0003	No	0.0601	601.0	25.0	601.0	1
805137-10	100	77.9934	78.0502	78.0502	0.0000	No	0.0568	568.0	25.0	568.0	1
805145-1	100	77.7805	77.8374	77.837	0.0004	No	0.0565	565.0	25.0	565.0	1
805145-1D	100	72.0896	72.1457	72.1456	0.0001	No	0.0560	560.0	25.0	560.0	1
LCS	100	66.8022	66.8525	66.8525	0.0000	No	0.0503	503.0	25.0	503.0	1
805145-2	100	75.2763	75.3295	75.3292	0.0003	No	0.0529	529.0	25.0	529.0	1
805145-3	100	73.8010	73.8538	73.8534	0.0004	No	0.0524	524.0	25.0	524.0	1
805160-4	100	72.3814	72.4155	72.4155	0.0000	No	0.0341	341.0	25.0	341.0	1
805192	50	78.6179	78.7268	78.7268	0.0000	No	0.1089	2178.0	50.0	2178.0	1
805193	990	112.9662	112.9668	112.9668	0.0000	No	0.0006	0.6	2.5	ND	1
805194-1	100	74.5318	74.5862	74.5858	0.0004	No	0.0540	540.0	25.0	540.0	1
805155-1	20	49.8815	49.9373	49.9372	0.0001	No	0.0557	2785.0	125.0	2785.0	1
805155-2	10	49.1750	49.2258	49.2256	0.0002	No	0.0506	5060.0	250.0	5060.0	1
805156-1	10	50.7515	50.7955	50.7953	0.0002	No	0.0438	4380.0	250.0	4380.0	1
805156-2	10	47.4325	47.4791	47.4791	0.0000	No	0.0466	4660.0	250.0	4660.0	1
805156-2D	10	48.5867	48.6335	48.6334	0.0001	No	0.0467	4670.0	250.0	4670.0	1

Calculation as follows:

$$\text{Filterable residue (TDS), mg/L} = \left(\frac{A-B}{C}\right) x\ 10^6$$

Where:

A = weight of dish + residue in grams.
B = weight of dish in grams.
C = mL of sample filtered.

RL= reporting limit.
ND = not detected (below the reporting limit)

Laboratory Control Sample (LCS) Summary

QC Std I.D.	Measurd Value, ppm	Theoretical Value, ppm	Percent Rec	Acceptance Limit	QC Within Control?
LCS1	503	500	100.6%	90-110%	Yes
LCSD					

LCS Recovery

$$P = \left(\frac{LC}{LT}\right) x\ 100$$

P = Percent recovery.
LC = Measured LCS value (ppm).
LT = Theoretical LCS value (ppm).

Duplicate Determinations Difference Summary

Lab Number	Sample Weight, g	Sample Dup Weight, g	% RPD	Acceptance Limit	QC Within Control?
805145-1	0.0565	0.056	0.4%	≤5%	Yes
805156-2	0.0466	0.0467	0.1%	5%	Yes

Duplicate Determination Difference

$$\%\ Difference = \frac{|A \text{ or } B - C|}{C} x\ 100$$

$$where \quad C = \frac{A+B}{2}$$

A = Weght of the first sample in (g).
B = Weght of the second sample in (g).
C = Average weight in (g).

Jenny T.
Analyst Printed Name

Analyst Signature

Maksim G.
Reviewer Printed Name

Reviewer Signature

Total Dissolved Solids by SM 2540 C

TDS/EC CHECK

Batch: 12TDS12A
Date Analyzed: 12/6/12

Laboratory Number	EC	TDS/EC Ratio: 0.55-.9	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
805073	679	0.65	441.35	0.99
805076	427	0.65	277.55	0.99
805114-17	996	0.61	647.4	0.94
805117-1	823	0.68	534.95	1.05
805117-2	539	0.67	350.35	1.03
805117-3	2030	0.70	1319.5	1.08
805117-4	524	0.70	340.6	1.08
805137-9	925	0.65	601.25	1.00
805137-10	895	0.63	581.75	0.98
805145-1	899	0.63	584.35	0.97
805145-1D	899	0.62	584.35	0.96
LCS				
805145-2	862	0.61	560.3	0.94
805145-3	851	0.62	553.15	0.95
805160-4	564	0.60	366.6	0.93
805192	2620	0.83	1703	1.28
805193	3.19	ND	2.0735	ND
805194-1	677	0.80	440.05	1.23
805155-1	4750	0.59	3087.5	0.90
805155-2	8480	0.60	5512	0.92
805156-1	7380	0.59	4797	0.91
805156-2	7810	0.60	5076.5	0.92
805156-2D	7810	0.60	5076.5	0.92

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Alkalinity by SM 2320B

Calculations

Analytical Batch:	12ALK12B
Matrix:	Water
Date of Analysis:	12/6/12

Lab ID	Sample pH	Sample Volume (ml)	N of HCL	Titrant Volume to reach pH 8.3	P Alkalinity as CaCO3	Titrant Volume to reach pH 4.5	Total mL titrant to reach pH 0.3 unit lower	Total Alkalinity as CaCO3	RL, ppm	Total Alkalinity Reported Value	HCO3 Conc. as $CaCO_3$ (ppm)	CO3 Alkalinity as $CaCO_3$ (ppm)	OH Alkalinity as $CaCO_3$ (ppm)	Low Alkalinity as $CaCO_3$ (<20ppm)
BLANK	6.90	50	0.02		0.0	0.00		0.0	5	ND	ND	ND	ND	
805076	7.83	50	0.02		0.0	4.75		95.0	5	95.0	95.0	ND	ND	
805114-21	7.87	50	0.02		0.0	4.00		80.0	5	80.0	80.0	ND	ND	
805117-1	7.55	50	0.02		0.0	9.00		180.0	5	180.0	180.0	ND	ND	
805153-1	7.67	50	0.02		0.0	5.80		116.0	5	116.0	116.0	ND	ND	
805153-2	7.74	50	0.02		0.0	5.15		103.0	5	103.0	103.0	ND	ND	
805155-1	7.60	50	0.02		0.0	9.75		195.0	5	195.0	195.0	ND	ND	
805155-2	7.29	50	0.02		0.0	6.00		120.0	5	120.0	120.0	ND	ND	
805160-7	7.66	50	0.02		0.0	3.80		76.0	5	76.0	76.0	ND	ND	
805181-6	7.94	50	0.02		0.0	7.60		152.0	5	152.0	152.0	ND	ND	
805181-7	7.40	50	0.02		0.0	4.40		88.0	5	88.0	88.0	ND	ND	
805181-7 DUP	7.40	50	0.02		0.0	4.50		90.0	5	90.0	90.0	ND	ND	
805181-7 MS	9.08	50	0.02	1.7	33.0	9.15		183.0	5	183.0	117.0	66	ND	
LCS	10.47	50	0.02	2.2	43.0	4.80		96.0	5	96.0	10.0	86	ND	
LCSD	10.50	50	0.02	2.2	44.0	4.75		95.0	5	95.0	7.0	88	ND	
805156-2	7.30	50	0.02		0.0	6.35		127.0	5	127.0	127.0	ND	ND	

Calculations as follows:

$$T \text{ or } P = \left(\frac{A \times N \times 50000}{mL\ sample} \right)$$

Where:

T = Total Alkalinity, mg CaCO3/L

P = Phenolphthalein Alkalinity, mg CaCO3/L

A = mL standard acid used

N = normality of standard acid

$$\text{Low Alkalinity: as mg/L CaCO3} = \frac{(2 \times B - C) \times N \times 50000}{mL\ sample}$$

Where:

B = mL titrant to first recorded pH

C = Total mL titrant to reach pH 0.3 unit lower

N = Normality of standard acid

LCS = Laboratory Control Standard/Duplicate

MS/MSD = Matrix Spike/Duplicate

ND = Not Detected (below the reporting limit)

Blank Summary

Reporting Limit, RL	Measured Value, ppm	Accept Limit	QC Within Control?
5 ppm	0	<5	Yes

Laboratory Control Sample (LCS/LCSD) Summary

QC Std I.D.	Measured Value, ppm	Theoretical Value, ppm	%Recovery	Accetance Limit	QC Within Control?
LCS	96	100	96.0%	90-110	Yes
LCSD	95	100	95.0%	90-110	Yes

Duplicate Determination Difference Summary

Lab Number I.D.	Measured Value, ppm	Dup Value, ppm	RPD	Accetance Limit	QC Within Control?
805181-7	88	90	2.2%	≤20%	Yes

Sample Matrix Spike (MS/MSD) Summary

Lab Number	Conc of Unspk spl	Dil Factor	Added Spk Conc	MS/MSD Amt	Measrd Conc of Spk Spl	Theor Conc of Spk Spl	MS/MSD %Rec	MS Accept Limit	QC Within Control?	RPD	RPD Accept Limit	QC Within Control?
805181-7	88	1	100	100	183	188.00	95%	75-125	Yes			
		1	100	100								

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Melissa S.
Analyst Printed Name

Analyst Signature

Hope T. Malosh
Reviewer Printed Name

Reviewer Signature

120612b

C2 SC

TRUESDAIL LABORATORIES, INC.
14201 Franklin Avenue, Tustin, CA 92780-7008
(714)730-6239 FAX: (714) 730-6462
www.truesdail.com

CHAIN OF CUSTODY RECORD

[IM3Plant-EW-201]

805155

TURNAROUND TIME 10 Days
DATE 12/04/12
PAGE 1 OF 1

COMPANY: CH2M HILL /E2
PROJECT NAME: PG&E Topock IM3Plant-EW
PHONE: 530-229-3303 FAX: 530-339-3303
ADDRESS: 155 Grand Ave Ste 1000, Oakland, CA 94612
P.O. NUMBER: 456827.01.DM
SAMPLERS (SIGNATURE: C. Knight

For Sample Conditions See Form Attached

	SAMPLE I.D.	DATE	TIME	DESCRIPTION	Diss Cr (200.7) Lab filtered (see below)	Cr(VI) (3500-Cr B)	pH (150.0) EC (120.1) (See below)	TDS (160.1)	Cr(VI) (218.6)									NUMBER OF CONTAINERS	COMMENTS
-1	PE-01-201	12/04/12	12:19	Ground water	X		X	X	X									4	pH=6 } 200.7
-2	TW-03D-201	12/04/12	12:26	Ground water	X	X	X	X										4	pH=6 } 200.7
																		8	TOTAL NUMBER OF CONTAINERS

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CHAIN OF CUSTODY SIGNATURE RECORD

	Signature	Printed Name	Company/ Agency	Date/ Time
Signature (Relinquished)	C. Knight	C. Knight	CH2M HILL	12-4-12 15:30
Signature (Received)	Rafael Davila	Rafael	T.L.I	12-4-12 15:30
Signature (Relinquished)	Rafael Davila	Rafael	T.L.I	12-4-12 22:30
Signature (Received)	Linda	Shakeerina	TLI	12/4/12 22:30
Signature (Relinquished)				
Signature (Received)				

SAMPLE CONDITIONS
RECEIVED COOL ☑ WARM ☐ 3.6 °C
CUSTODY SEALED YES ☐ NO ☑

SPECIAL REQUIREMENTS:
Additional metals - Ca, Mg, Na, Fe, Mn
Additional Gen Chem. - Cl, SO4, NO3, Alkilinity

080

Hexavalent Chromium

Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
12/04/12	805116-1	9.5	N/A	N/A	N/A	HAV
	-2					
	-3					
	-4					
12/05/12	805154-1	7	2 ml	9.5	8:30 AM	HAV
	-2	9.5	N/A	N/A	N/A	HAV
	-3	7	2 ml	9.5	8:40 AM	HAV
	-4	9.5	N/A	N/A	N/A	HAV
	-5	7	2 ml	9.5	8:50 AM	HAV
	-6				9:00 AM	HAV
	-7				9:05 AM	HAV
	-8				9:10 AM	HAV
	-9				9:15 AM	HAV
	-10				9:20 AM	HAV
	-11				9:25 AM	HAV
	-12				9:30 AM	HAV
12/05/12	805155-1	7	2 ml	9.5	10:00 AM	HAV
	-2					
12/05/12	805156-1	7	2 ml	9.5	10:30 AM	HAV
	-2				10:40 AM	
12/05/12	805157-1	9.5	N/A	N/A	N/A	HAV
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					

12-17-12

TRUESDAIL LABORATORIES, INC.

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
805021 (1-5)	<1	<2	12/3/12	ES	yes			
805019 (1-2)								
804967		>2				12:00 p.m		
805017								
~~8050~~ 12/4								
805116 (1-4)	<1	<2	12/4/12	KK	yes			
804746	<1	<2	11/9/12	KK	yes			
805022 (10)	<1	<2	12/4/12	BE	yes			
805117-1	<1	<2	12/4/12	ES	yes			
805145-(1-3)	<1	>2	12/6/12	AA	NO	8:30 am		
805160 (1-3)	<1	>2						
805171 (10-12)	<1	>2						
805175 (1-3)	<1	>2						
805179	<1	<2	12/6/12	BE	yes			
805180 (1-5)	<1	<2	12/6/12	ES	yes			
805076	<1	>2			NO	10:00 am		
805114 (17,24)								
805152 (1-3	<1	<2	12/7/12	BE	yes			
12-7/12 805153 (1-2)								
BE 805155 (1-2)		>2					Acidified after filt.	
805156 ~~805156~~ BE (1-2)								
805157 (1-9)		<2						
805159 (1-12)								
805158 (1-13, 17-27, 33)	<1							
BE ~~805~~ 805182 (1-8)								
805181 (6,7)								
805219 (1-4,5)								
805220 (1-3)								
805221 (1-4)								
~~805214~~ ES 12/7/12								
805095	<1	<2	12/7/12	ES	yes			
805098								
805104								
805106								
805125								
805126								
805127								
805128								
805129								
805130								
805131								
805192								
805200								
805201								

Notes:
1. Samples should be analyzed after 24 hrs of pH adjustment to pH2 for Dissolved Analytes.
2. All Total Recoverable Analytes must be pH adjusted and digested.
3. Do not use disposable pipette to measure pH; pour a little amount of sample from the bottle.

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: E2 **Lab #** 805155

Date Delivered: 12 / 4 / 12 **Time:** 22:30 **By:** ☐Mail ☑Field Service ☐Client

1. Was a Chain of Custody received and signed? ☑Yes ☐No ☐N/A
2. Does Customer require an acknowledgement of the COC? ☐Yes ☐No ☑N/A
3. Are there any special requirements or notes on the COC? ☐Yes ☐No ☑N/A
4. If a letter was sent with the COC, does it match the COC? ☐Yes ☐No ☑N/A
5. Were all requested analyses understood and acceptable? ☑Yes ☐No ☐N/A
6. Were samples received in a chilled condition? ☑Yes ☐No ☐N/A
   Temperature (if yes)? 3.6 °C
7. Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)? ☑Yes ☐No ☐N/A
8. Were sample custody seals intact? ☐Yes ☐No ☑N/A
9. Does the number of samples received agree with COC? ☑Yes ☐No ☐N/A
10. Did sample labels correspond with the client ID's? ☑Yes ☐No ☐N/A
11. Did sample labels indicate proper preservation? ☐Yes ☐No ☑N/A
    Preserved (if yes) by: ☐**Truesdail** ☐Client
12. Were samples pH checked? pH = see c.o.c. ☑Yes ☐No ☐N/A
13. Were all analyses within holding time at time of receipt? ☑Yes ☐No ☐N/A
    If not, notify Project Manager.
14. Have Project due dates been checked and accepted? ☑Yes ☐No ☐N/A
    Turn Around Time (TAT): ☐ **RUSH** ☑Std
15. **Sample Matrix:** ☐Liquid ☐Drinking Water ☒Ground Water ☐Waste Water
    ☐Sludge ☐Soil ☐Wipe ☐Paint ☐Solid ☐Other_____
16. Comments: _____
17. Sample Check-In completed by **Truesdail** Log-In/Receiving: L. Shabunine

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Level III QC

Appendix C
Chromium Trend Graphs

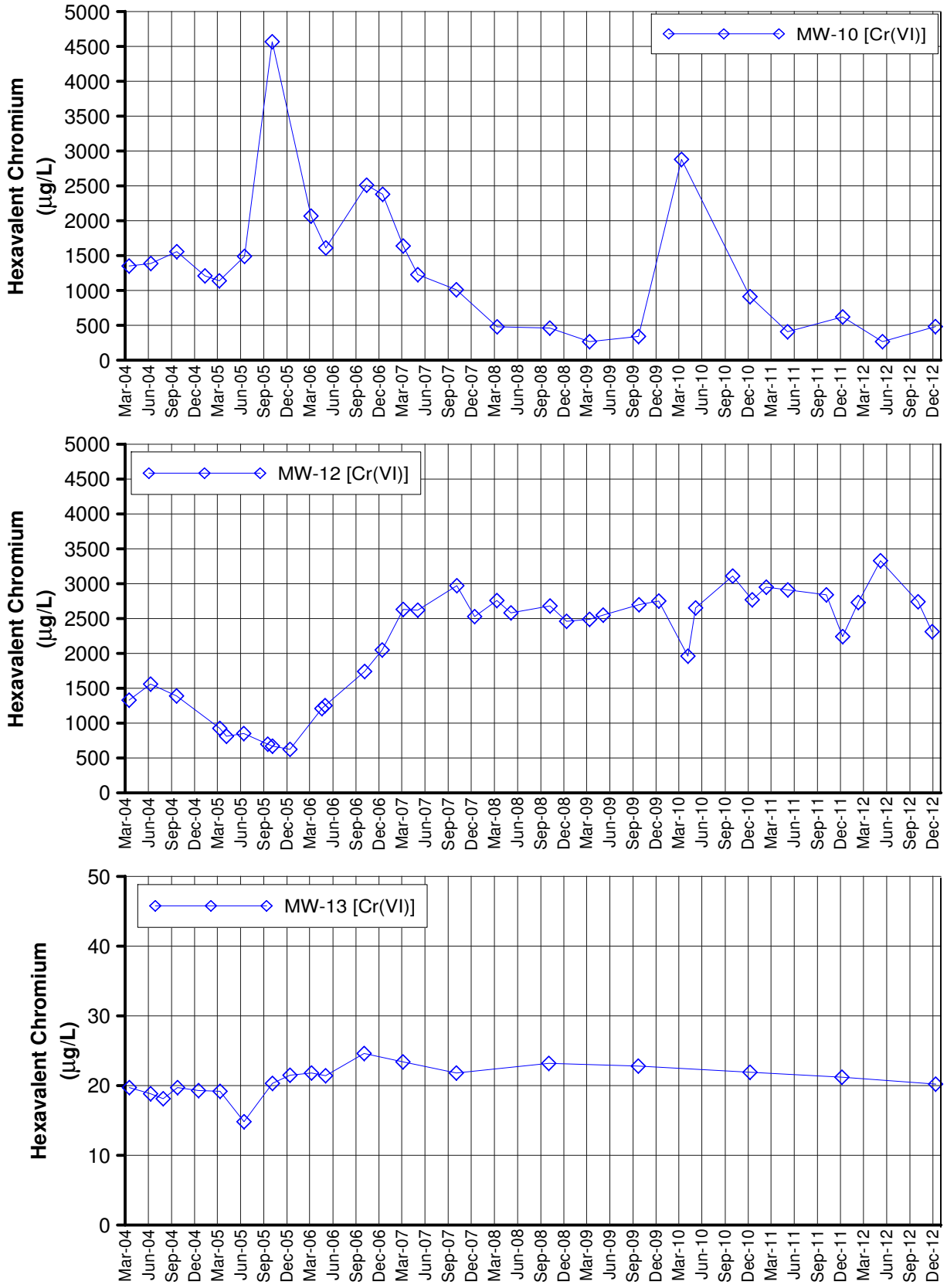


FIGURE C-1
HEXAVALENT CHROMIUM
IN MW-10, MW-12 AND MW-13
FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

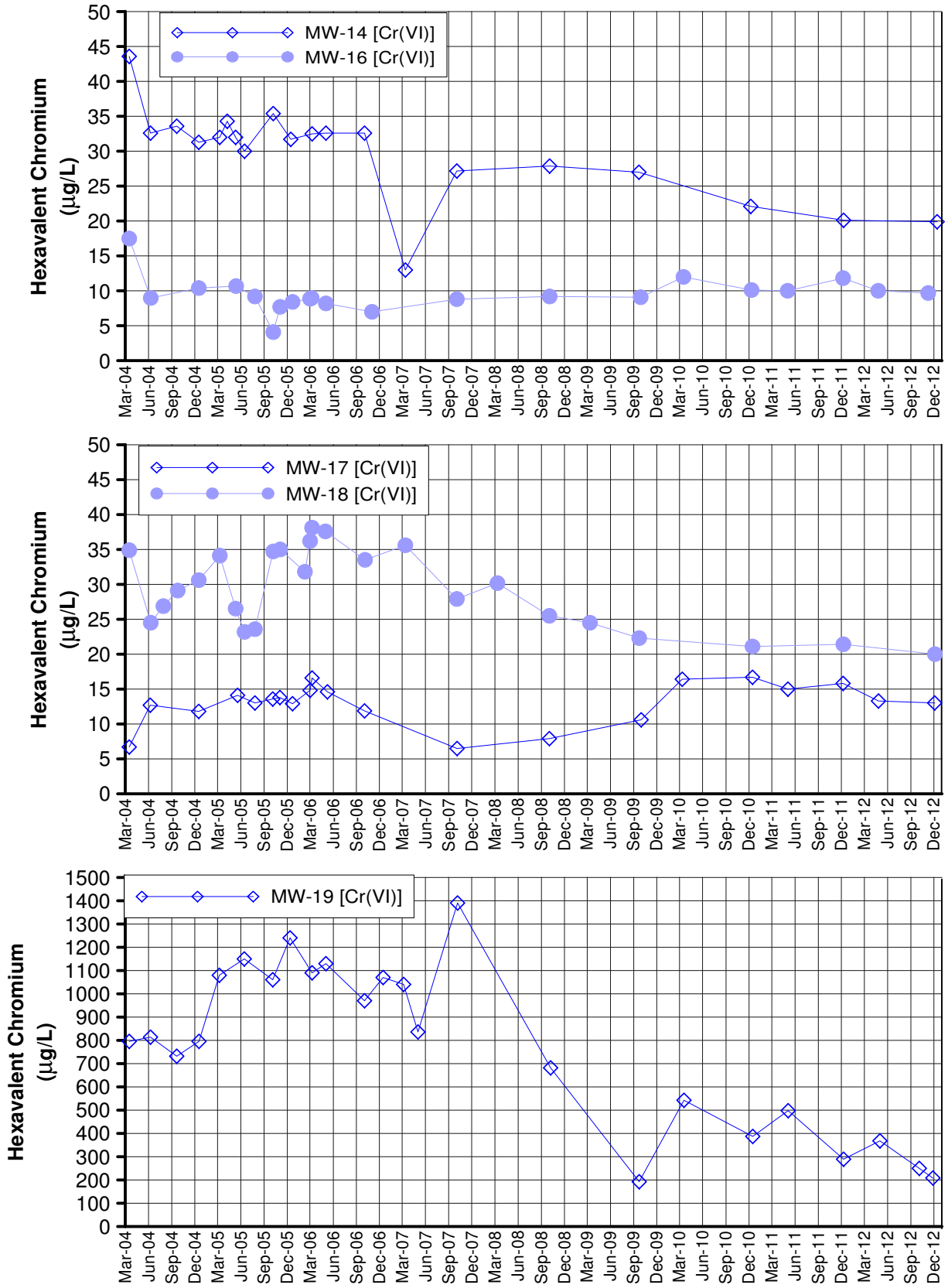
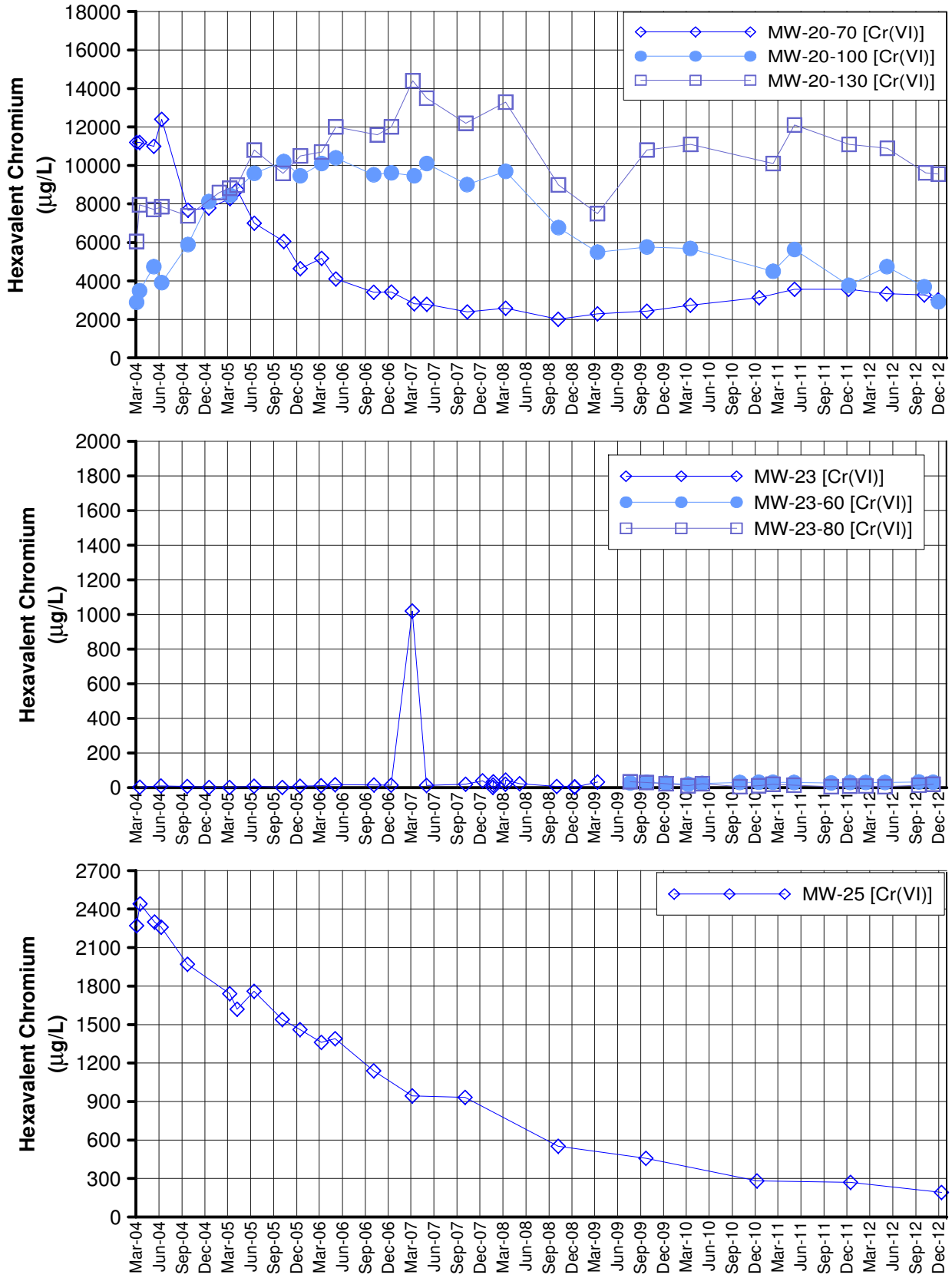


FIGURE C-2
HEXAVALENT CHROMIUM
IN MW-14, MW-16, MW-17, MW-18 AND MW-19
FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

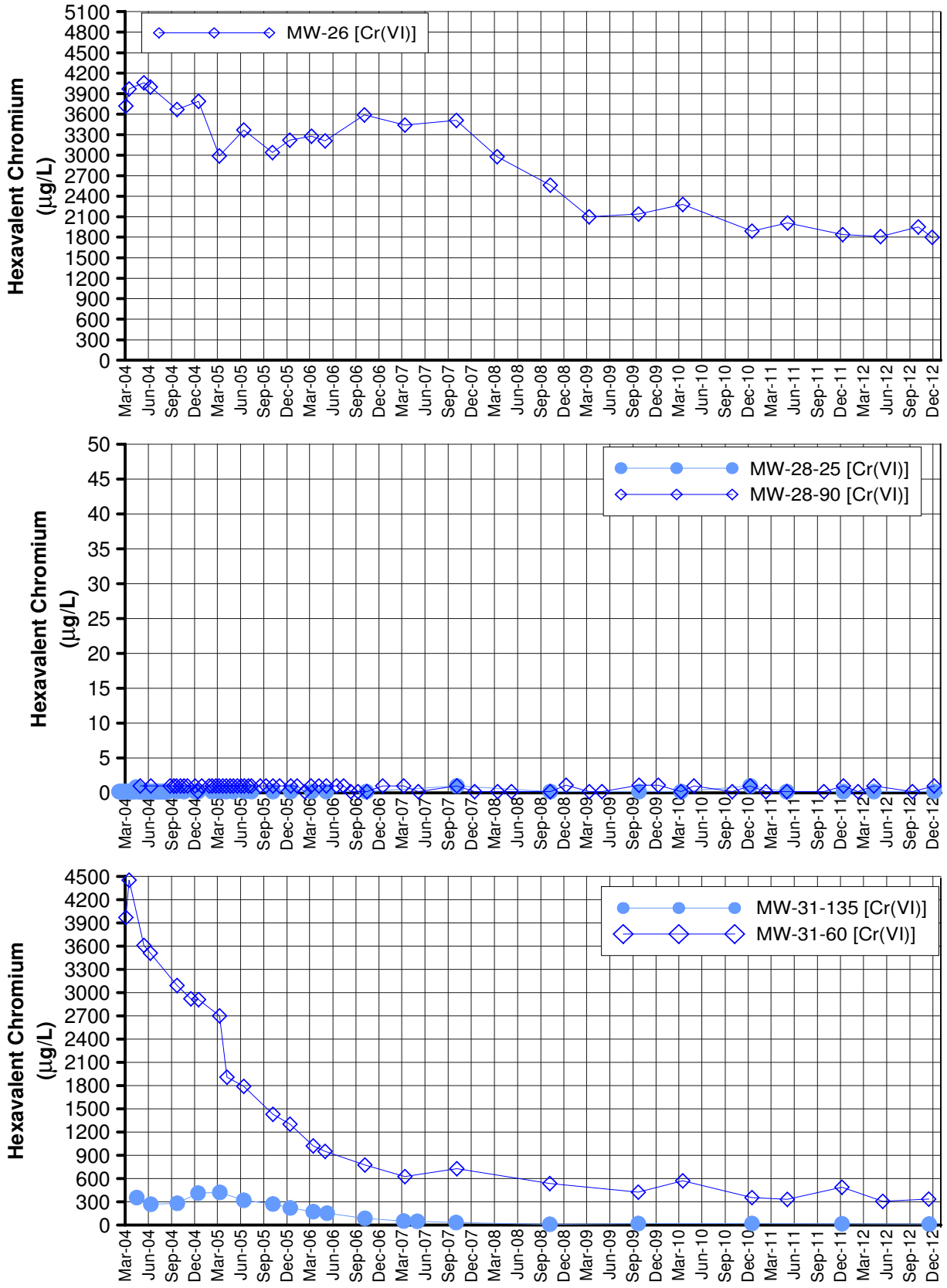
CH2MHILL



Notes:
1) Fourth Quarter 2010 data for MW-20-100 and MW-20-130 collected in February 2011 due to logistical issues.

FIGURE C-3
HEXAVALENT CHROMIUM
IN MW-20 CLUSTER, MW-23 CLUSTER AND MW-25
FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

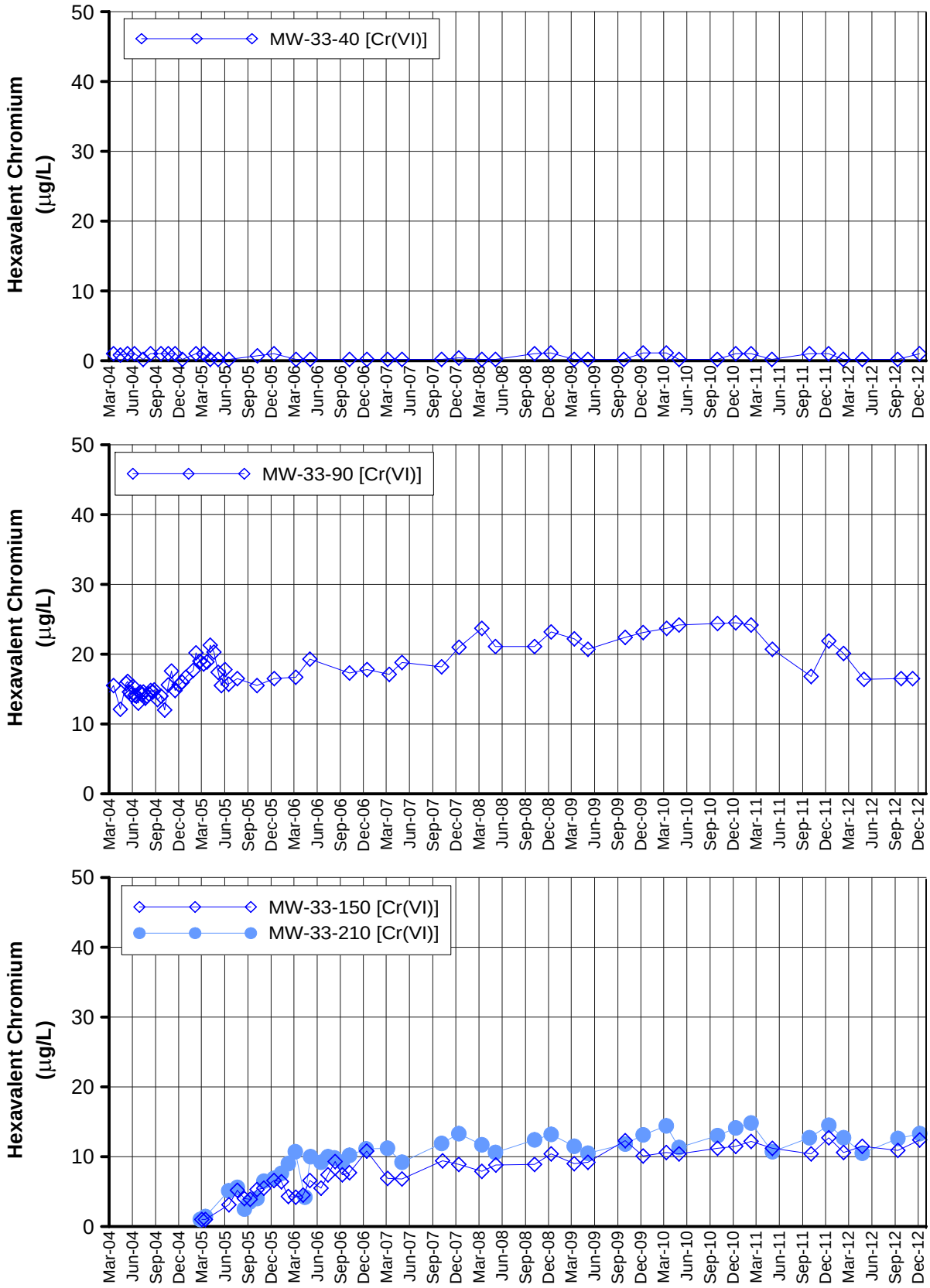
CH2MHILL



Notes:
1) The IM Contingency Plan and hexavalent chromium [Cr(VI)] trigger levels were updated July 17, 2008 (DTSC, 2008b).
2) The trigger level for MW-28-90 is 20 µg/L.

FIGURE C-4
HEXAVALENT CHROMIUM
IN MW-26, MW-28 CLUSTER AND MW-31 CLUSTER
FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL



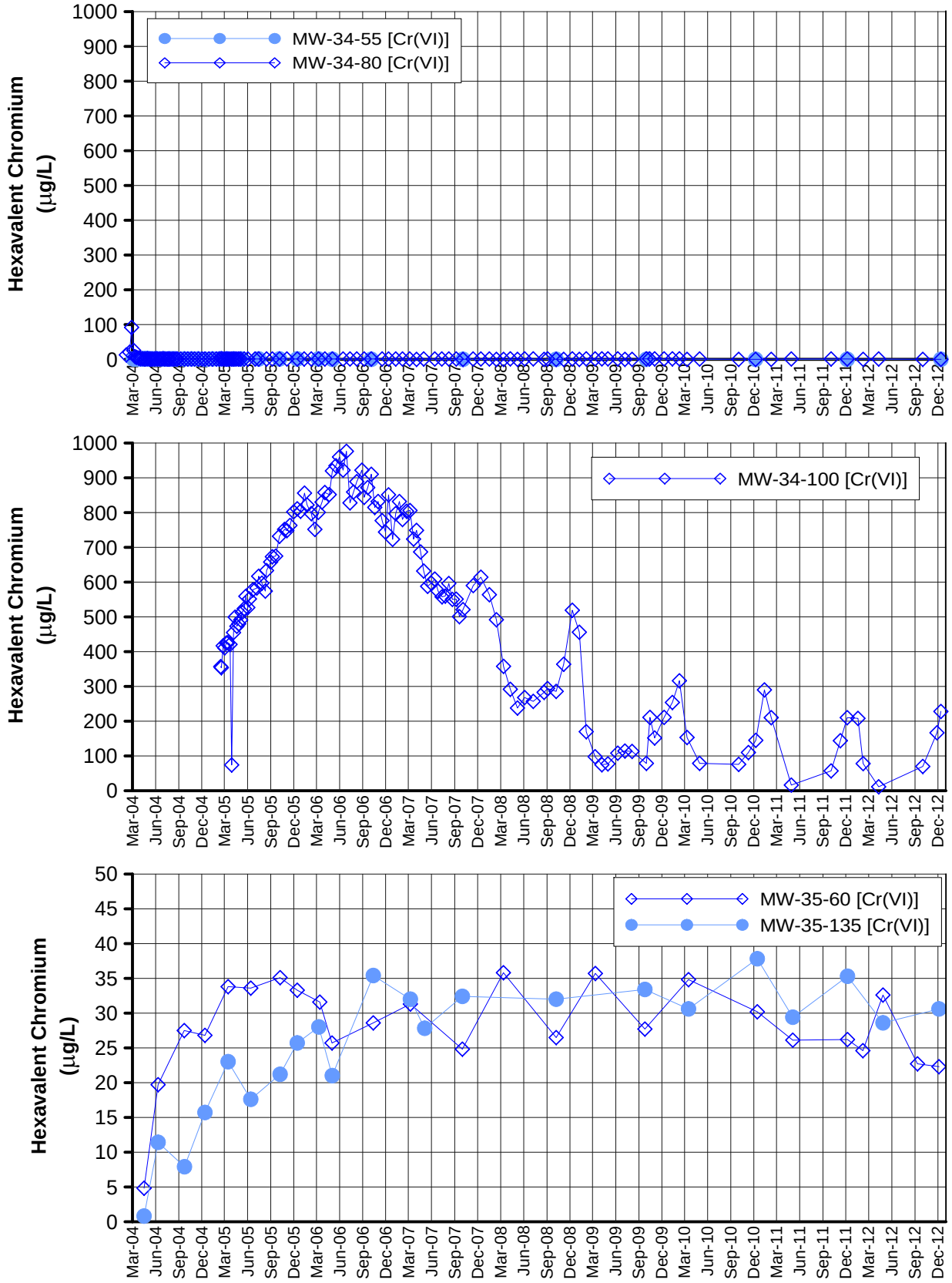
Notes:

1) The IM Contingency Plan and hexavalent chromium [Cr(VI)] trigger levels were updated July 17, 2008 (DTSC, 2008b).
2) The trigger level for MW-33-40 is 20 µg/L.
3) The trigger level for MW-33-90 is 25 µg/L.
4) The trigger level for MW-33-150 is 20 µg/L.
5) The trigger level for MW-33-210 is 20 µg/L.

FIGURE C-5
HEXAVALENT CHROMIUM
IN MW-33 CLUSTER

FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

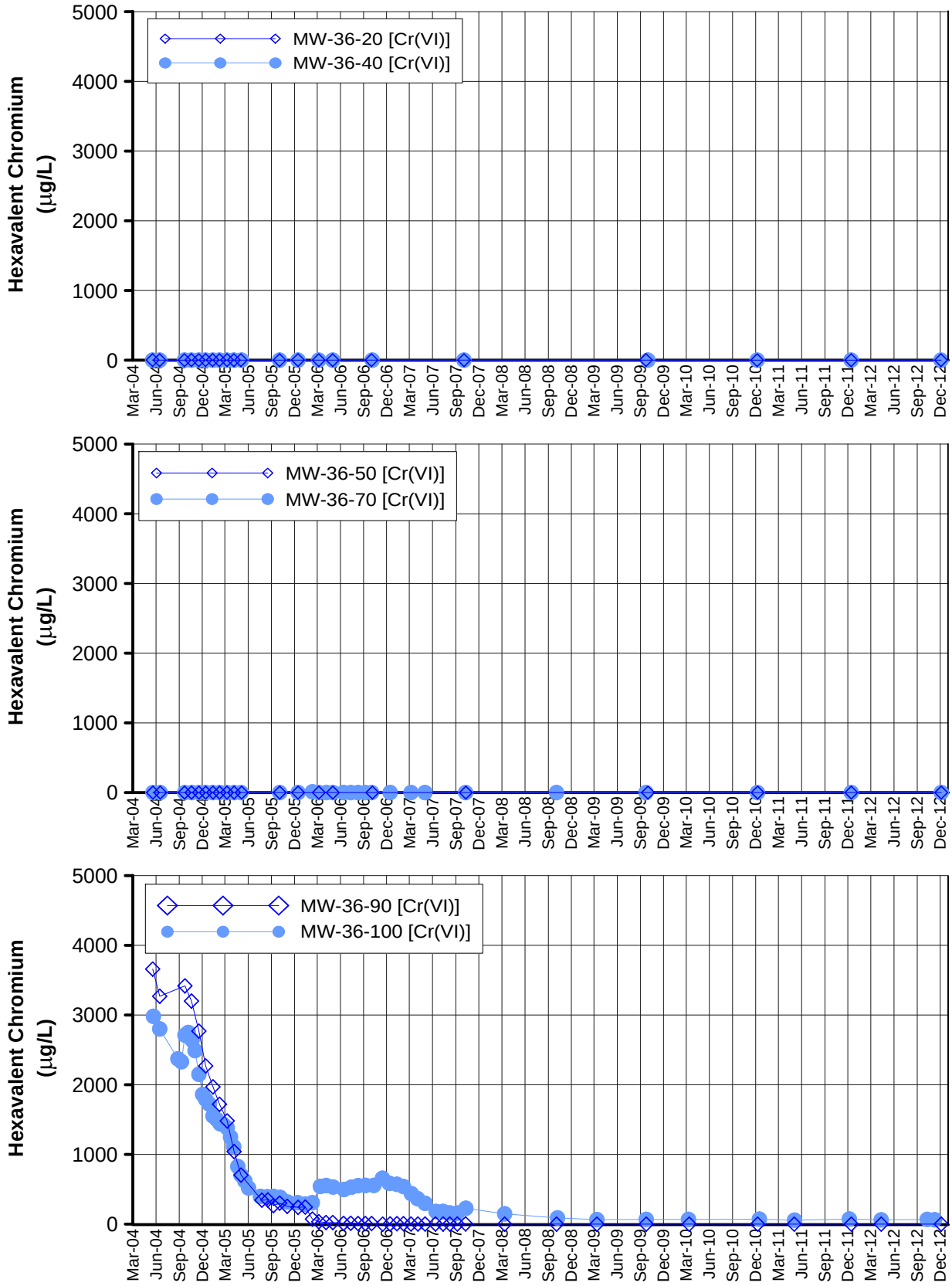
CH2MHILL



Notes:
1) The IM Contingency Plan and hexavalent chromium [Cr(VI)] trigger levels were updated July 17, 2008 (DTSC, 2008b).
2) The trigger level for MW-34-80 is 20 µg/L.
3) The trigger level for MW-34-100 is 750 µg/L.

FIGURE C-6
HEXAVALENT CHROMIUM
IN MW-34 AND MW-35 CLUSTERS
FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

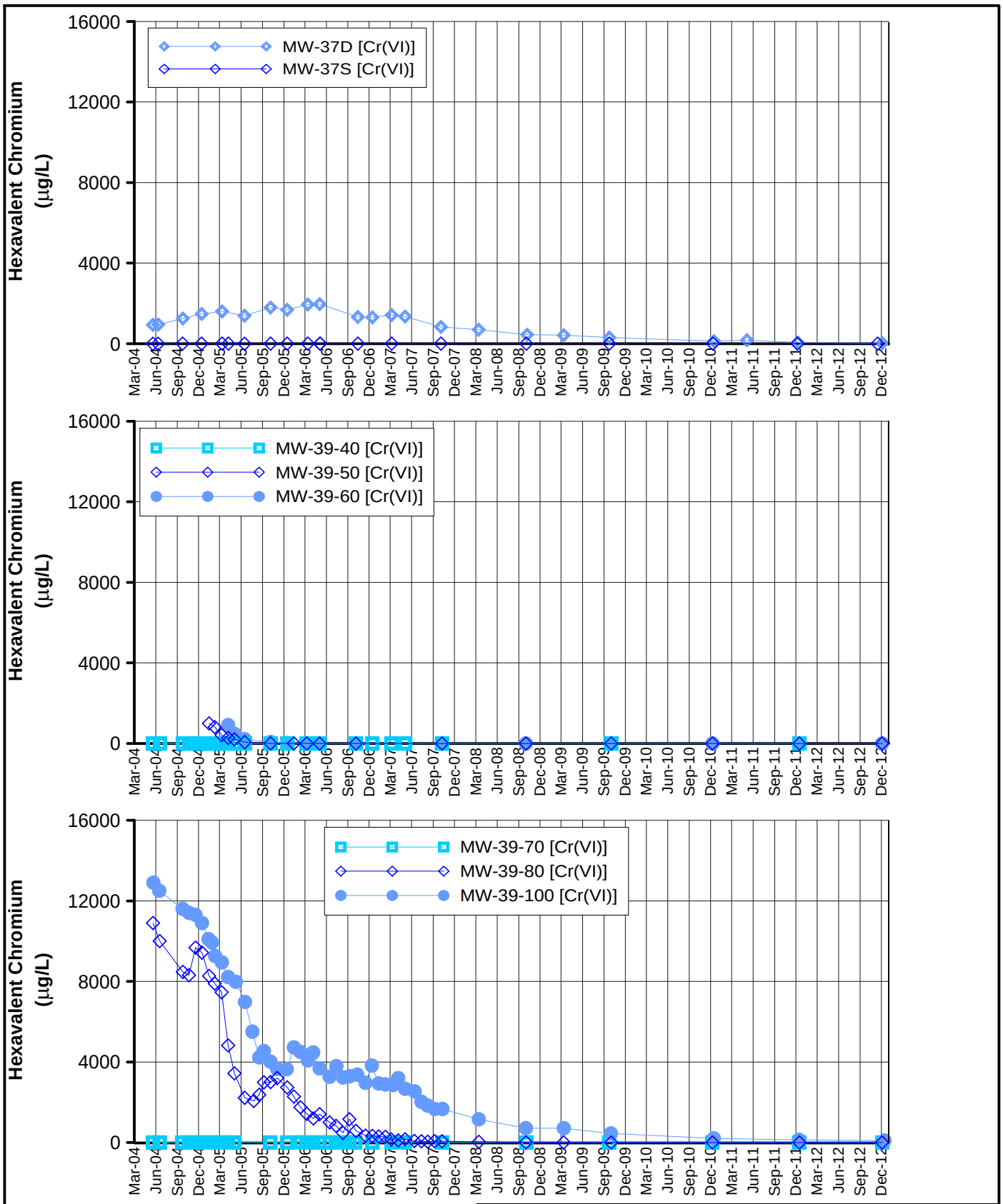
CH2MHILL



Notes:
1) The IM Contingency Plan and hexavalent chromium [Cr(VI)] trigger levels were updated July 17, 2008 (DTSC, 2008b).
2) The trigger level for MW-36-70 is 20 µg/L.

FIGURE C-7
HEXAVALENT CHROMIUM
IN MW-36 CLUSTER
FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL



Notes:
1) The IM Contingency Plan and hexavalent chromium [Cr(VI)] trigger levels were updated July 17, 2008 (DTSC, 2008b).
2) The trigger level for MW-39-40 is 20 µg/L.

FIGURE C-8
HEXAVALENT CHROMIUM
IN MW-37 AND MW-39 CLUSTERS
FOURTH QUARTER 2012 AND ANNUAL 2012 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

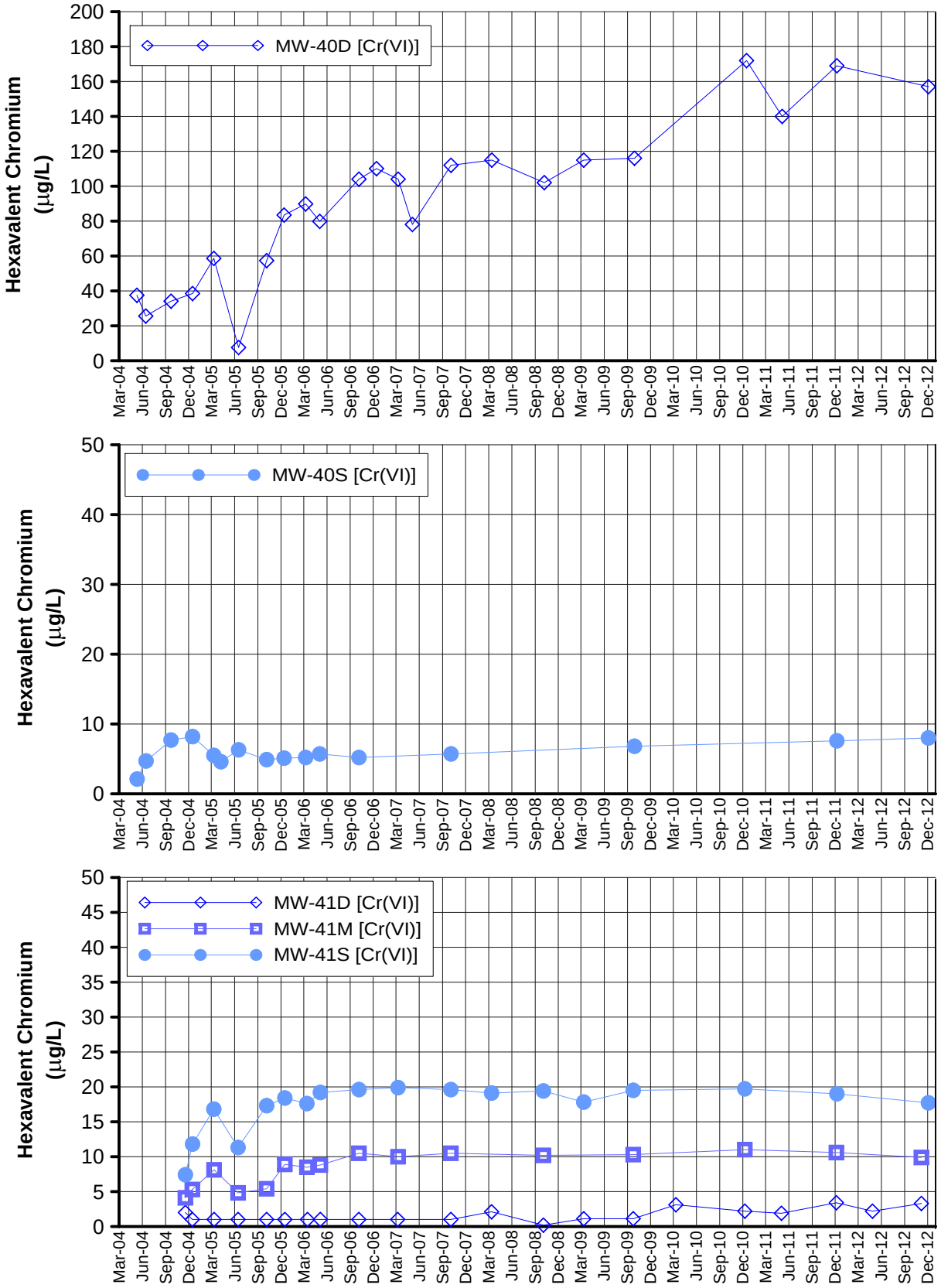
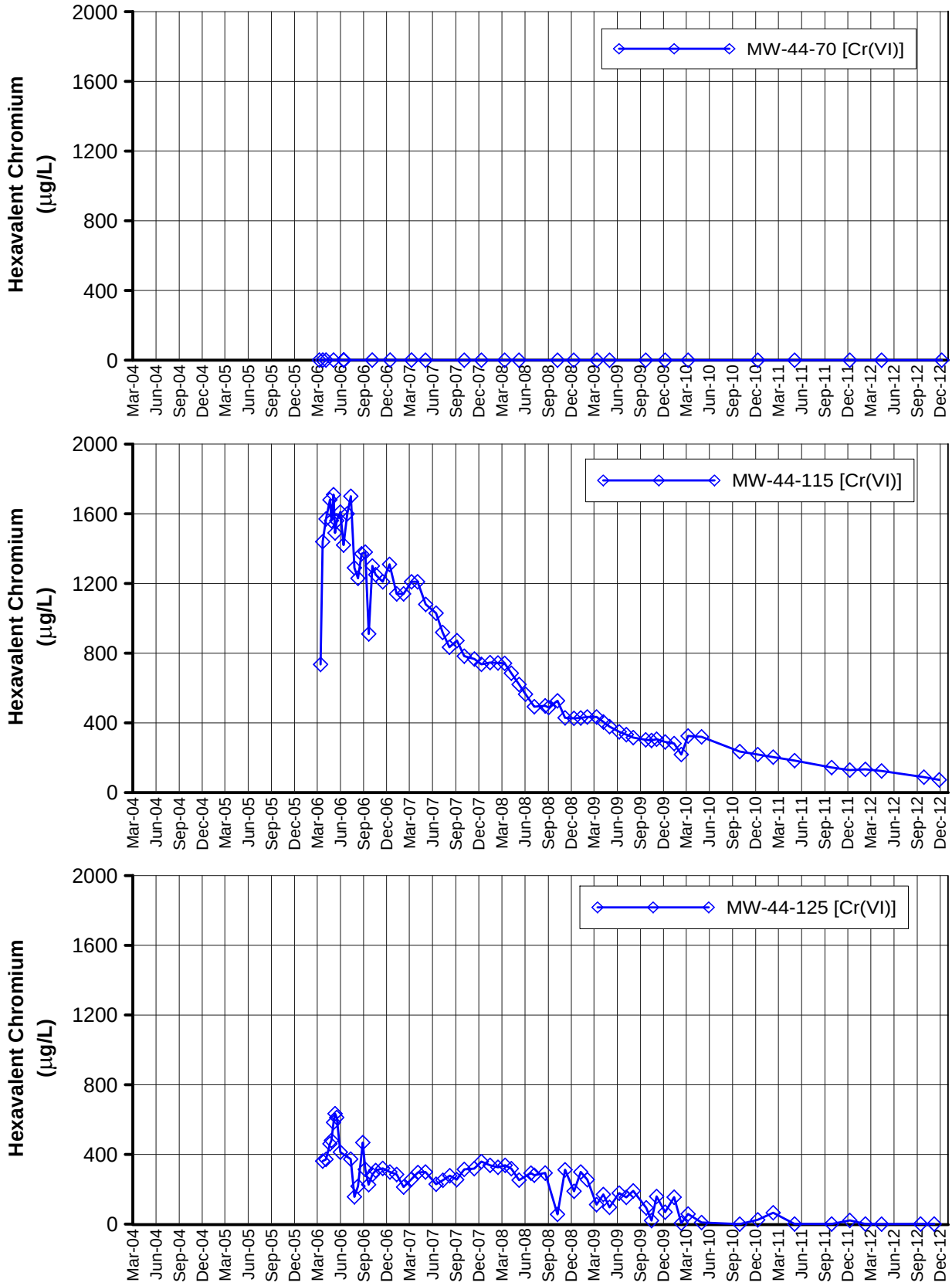


FIGURE C-9
HEXAVALENT CHROMIUM
IN MW-40 AND MW-41 CLUSTERS
FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL



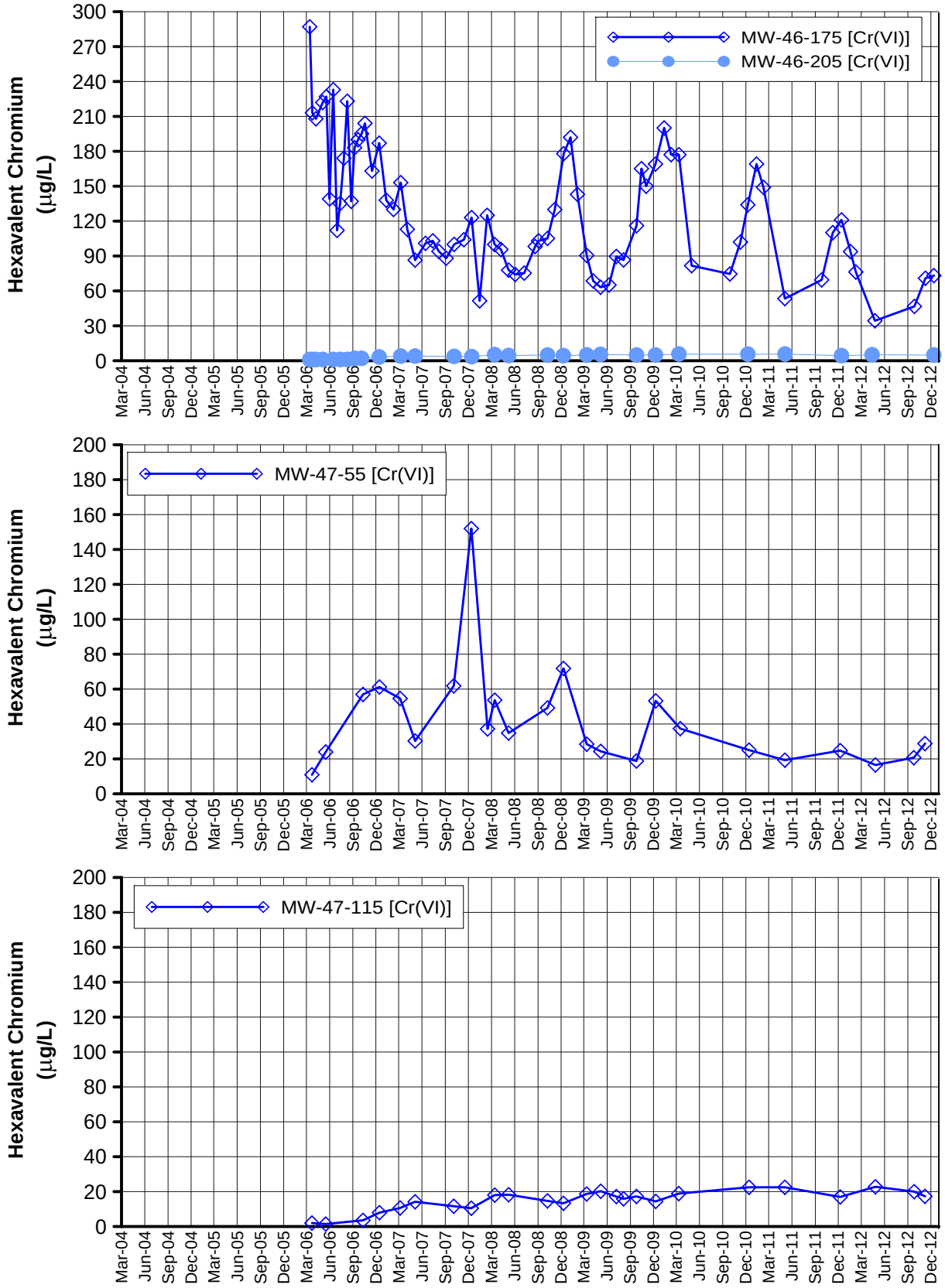
Notes:

1) The IM Contingency Plan and hexavalent chromium [Cr(VI)] trigger levels were updated July 17, 2008 (DTSC, 2008b).
2) The trigger level for MW-44-70 is 20 µg/L.
3) The trigger level for MW-44-115 is 1,200 µg/L.
4) The trigger level for MW-44-125 is 475 µg/L.

FIGURE C-10
HEXAVALENT CHROMIUM
IN MW-44 CLUSTER

FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

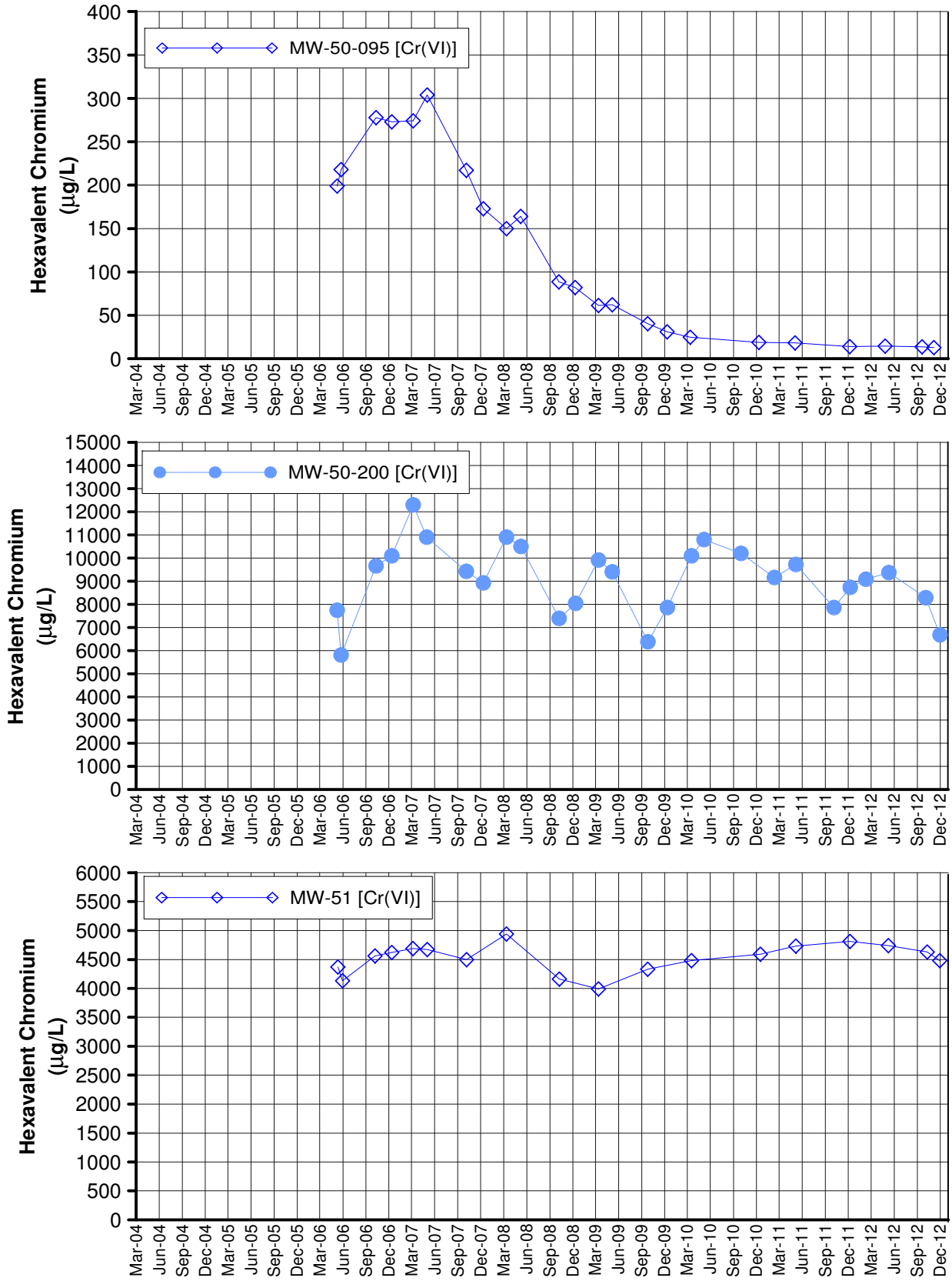


Notes:

1) The IM Contingency Plan and hexavalent chromium [Cr(VI)] trigger levels were updated July 17, 2008 (DTSC, 2008b).
2) The trigger level for MW-46-175 is 225 µg/L.
3) The trigger level for MW-46-205 is 20 µg/L.
4) The trigger level for MW-47-55 is 475 µg/L.
5) The trigger level for MW-47-115 is 31 µg/L.

FIGURE C-11
HEXAVALENT CHROMIUM
IN MW-46 AND MW-47 CLUSTERS
FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

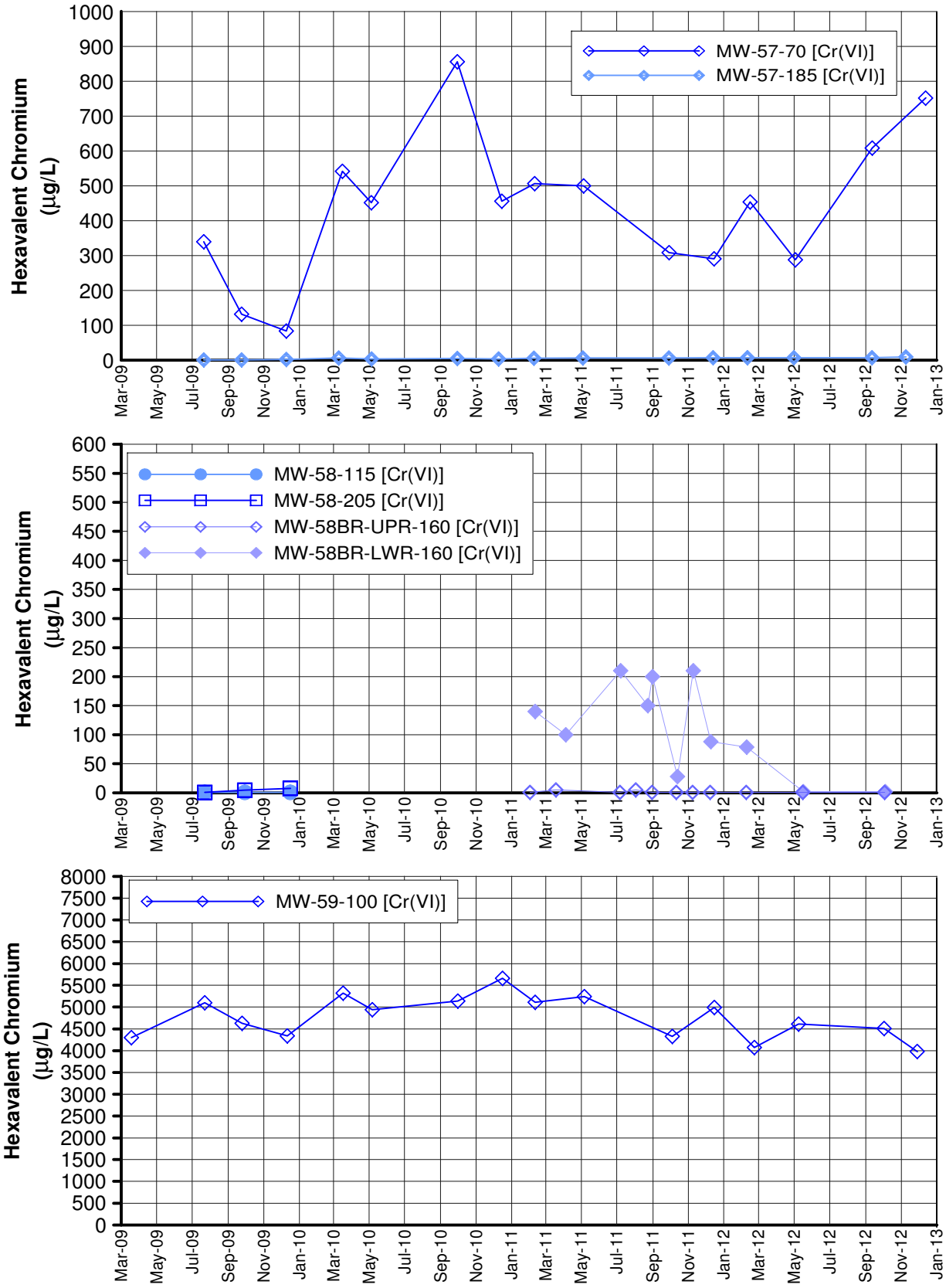
CH2MHILL



Notes:
1) Fourth Quarter 2010 data for MW-50-200 collected in February 2011 due to logistical issues.

FIGURE C-12
HEXAVALENT CHROMIUM
IN MW-50 CLUSTER AND MW-51
FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

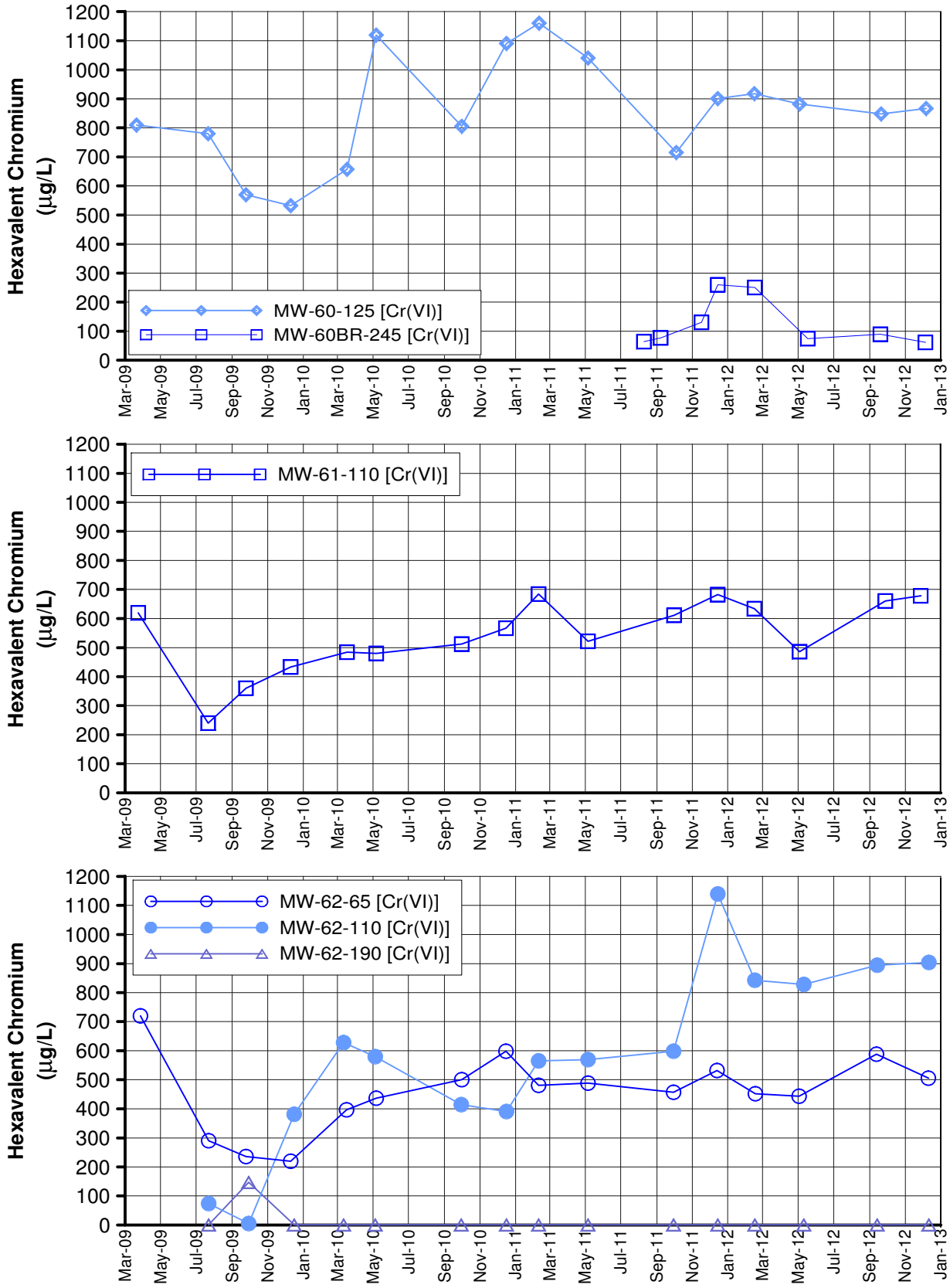


Notes:
MW-58BR upper and lower packer data prior to May 2012 is reported in:

CH2M HILL. 2012d. Technical Memorandum. *Addendum to the Summary of Findings Associated with the East Ravine Groundwater Investigation Report, PG&E Company, Topock Compressor Station, Needles, California*. November 15.

FIGURE C-13
HEXAVALENT CHROMIUM
IN MW-57 CLUSTER, MW-58 CLUSTER AND MW-59-100
FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

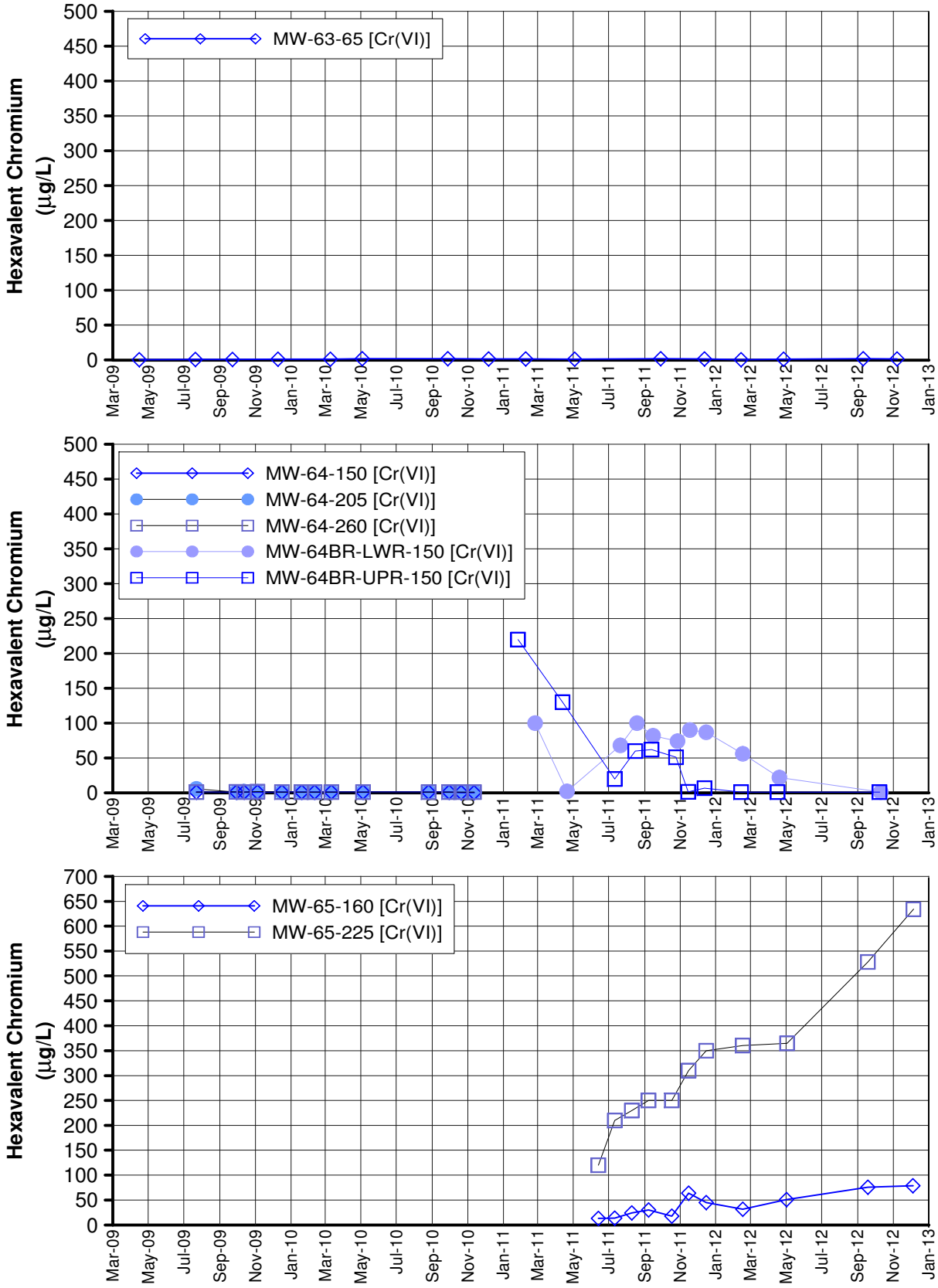


Notes:
MW-60BR-245 data prior to May 2012 is reported in:

CH2M HILL. 2012d. Technical Memorandum. *Addendum to the Summary of Findings Associated with the East Ravine Groundwater Investigation Report, PG&E Company, Topock Compressor Station, Needles, California*. November 15.

FIGURE C-14
HEXAVALENT CHROMIUM
IN MW-60 CLUSTER, MW-61-110 AND MW-62 CLUSTER
FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

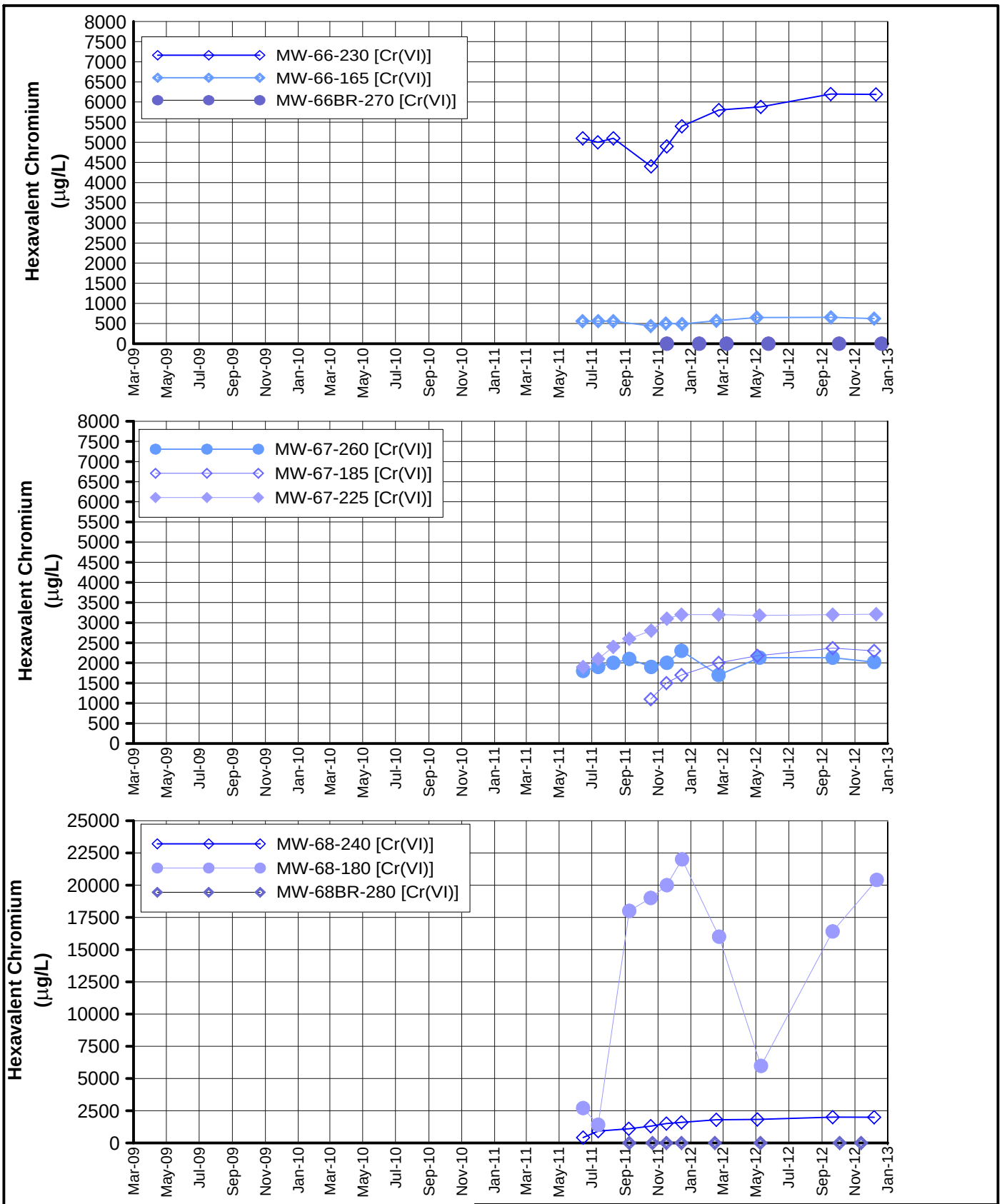


Notes:
MW-64BR upper and lower packer data, MW-65-160, and MW-65-225 data prior to May 2012 is reported in:

CH2M HILL. 2012d. Technical Memorandum. *Addendum to the Summary of Findings Associated with the East Ravine Groundwater Investigation Report, PG&E Company, Topock Compressor Station, Needles, California.* November 15.

FIGURE C-15
HEXAVALENT CHROMIUM
IN MW-63-65, MW-64 CLUSTER AND MW-65 CLUSTER
FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

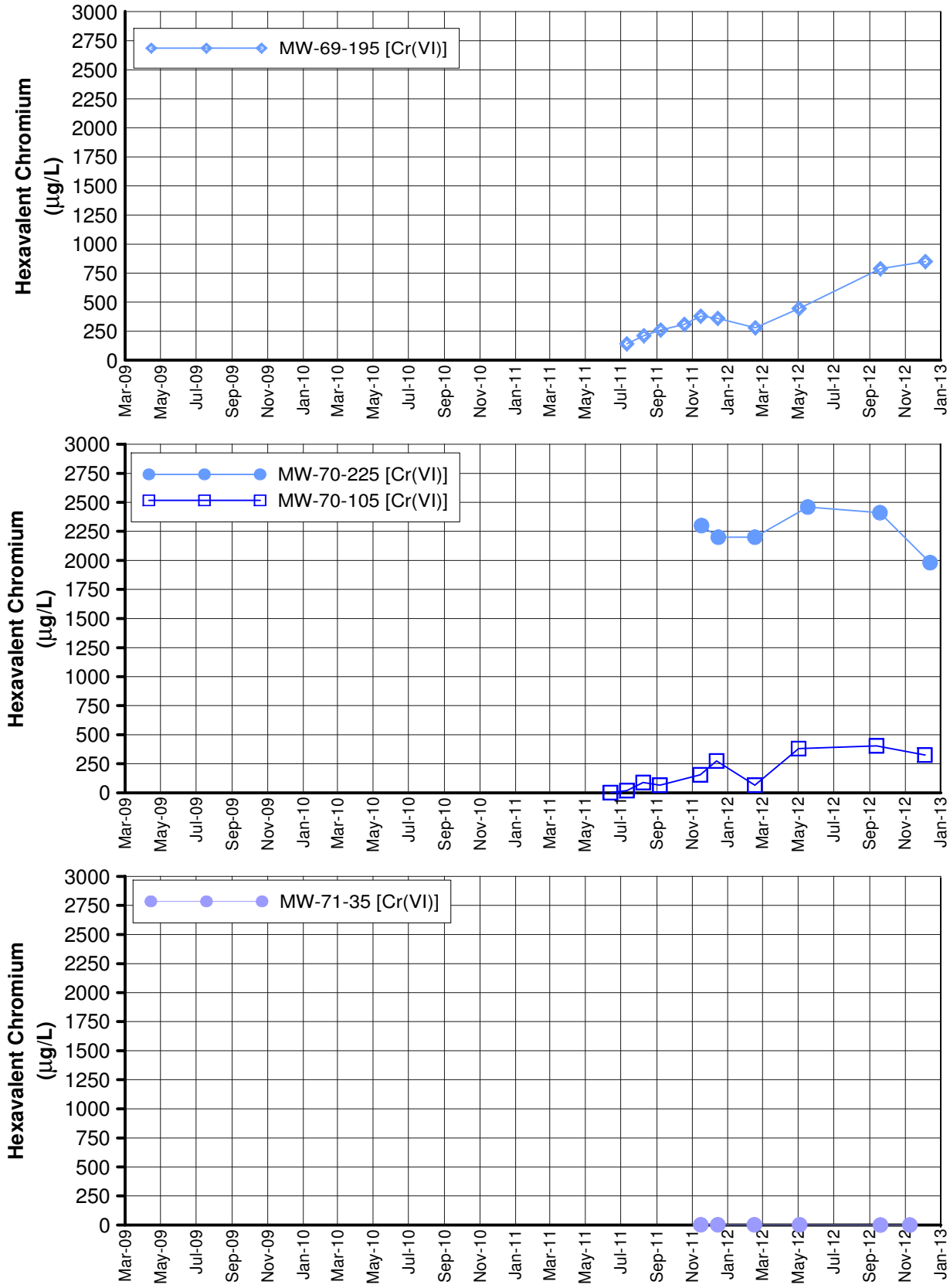


Notes:
Data prior to May 2012 is reported in:

CH2M HILL. 2012d. Technical Memorandum. *Addendum to the Summary of Findings Associated with the East Ravine Groundwater Investigation Report, PG&E Company, Topock Compressor Station, Needles, California*. November 15.

FIGURE C-16
HEXAVALENT CHROMIUM
IN MW-66, MW-67 AND MW-68 CLUSTERS
FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

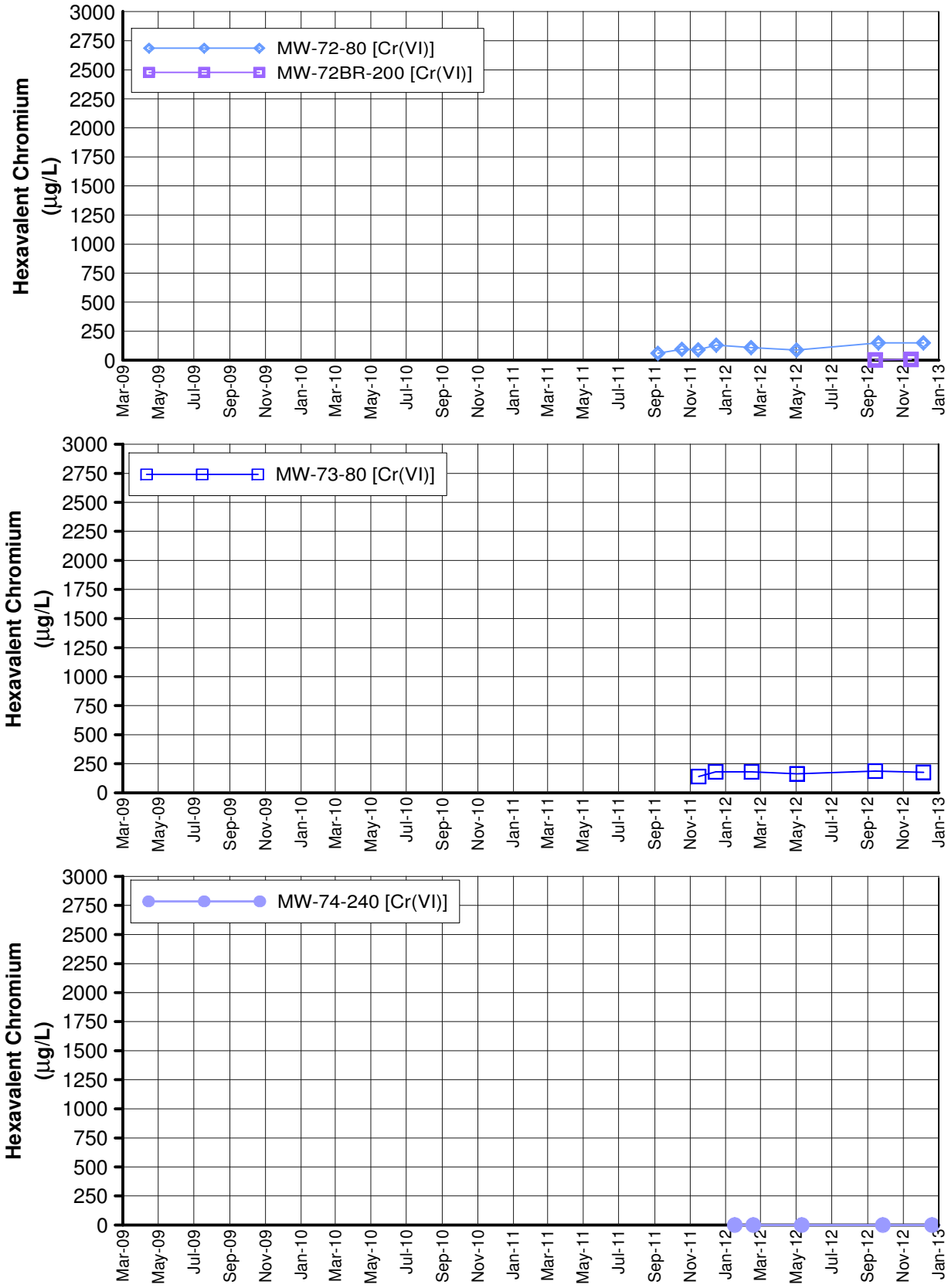


Notes:
Data prior to May 2012 is reported in:

CH2M HILL. 2012d. Technical Memorandum. *Addendum to the Summary of Findings Associated with the East Ravine Groundwater Investigation Report, PG&E Company, Topock Compressor Station, Needles, California*. November 15.

FIGURE C-17
HEXAVALENT CHROMIUM
IN MW-69-195, MW-70 CLUSTER AND MW-71-35
FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL



Notes:
Data prior to May 2012 is reported in:

CH2M HILL. 2012d. Technical Memorandum. *Addendum to the Summary of Findings Associated with the East Ravine Groundwater Investigation Report, PG&E Company, Topock Compressor Station, Needles, California*. November 15.

FIGURE C-18
HEXAVALENT CHROMIUM
IN MW-72 CLUSTER, MW-73-80 AND MW-74-240
FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

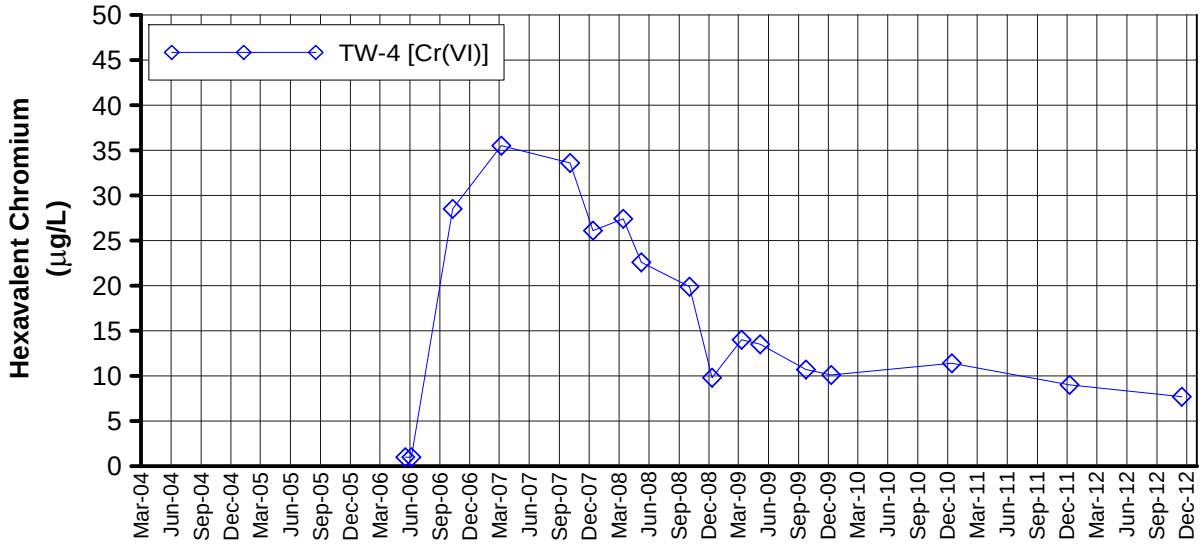


FIGURE C-19
HEXAVALENT CHROMIUM
IN TW-4
FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

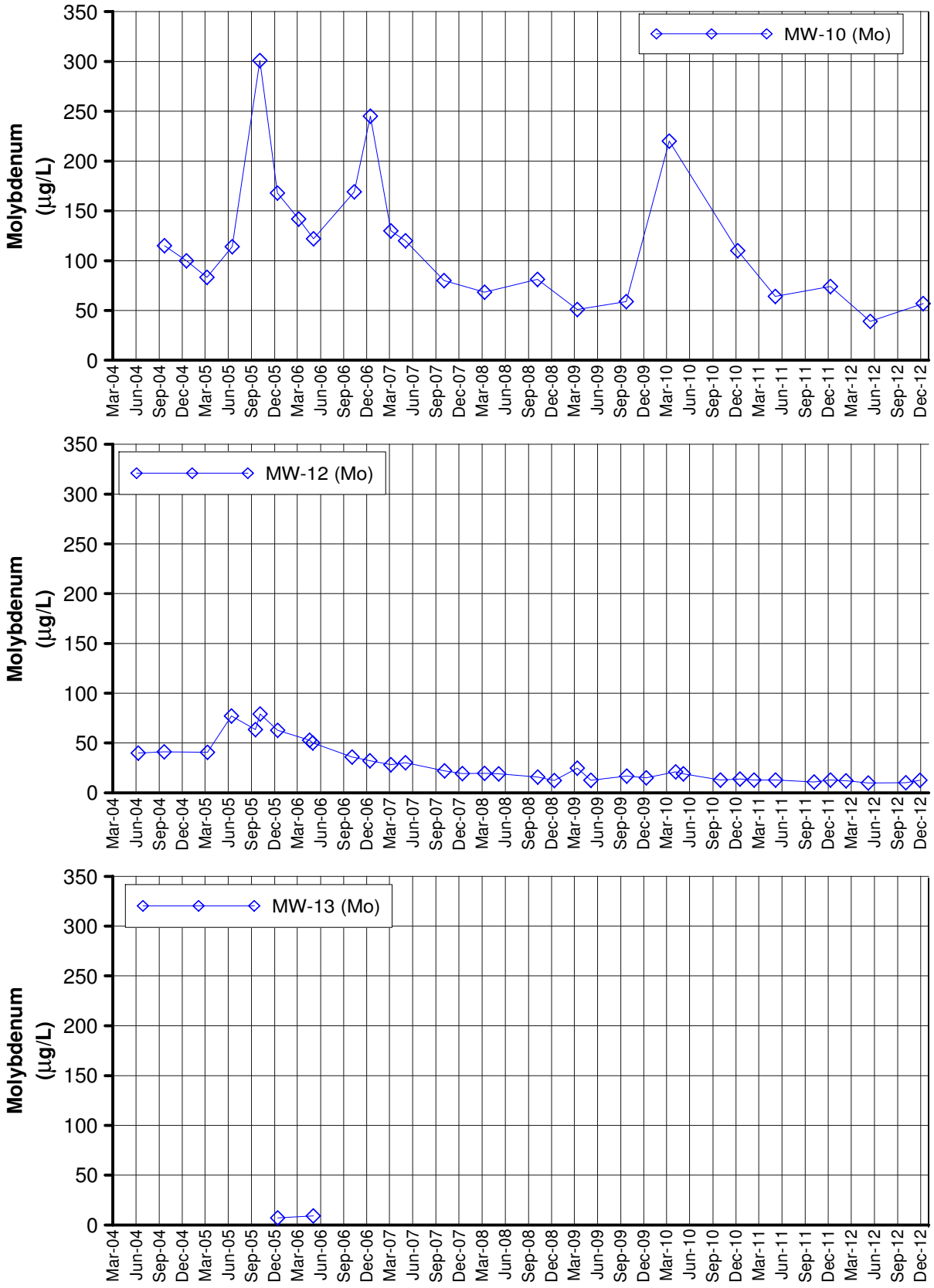


FIGURE C-20
MOLYBDENUM
IN MW-10, MW-12 AND MW-13
FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

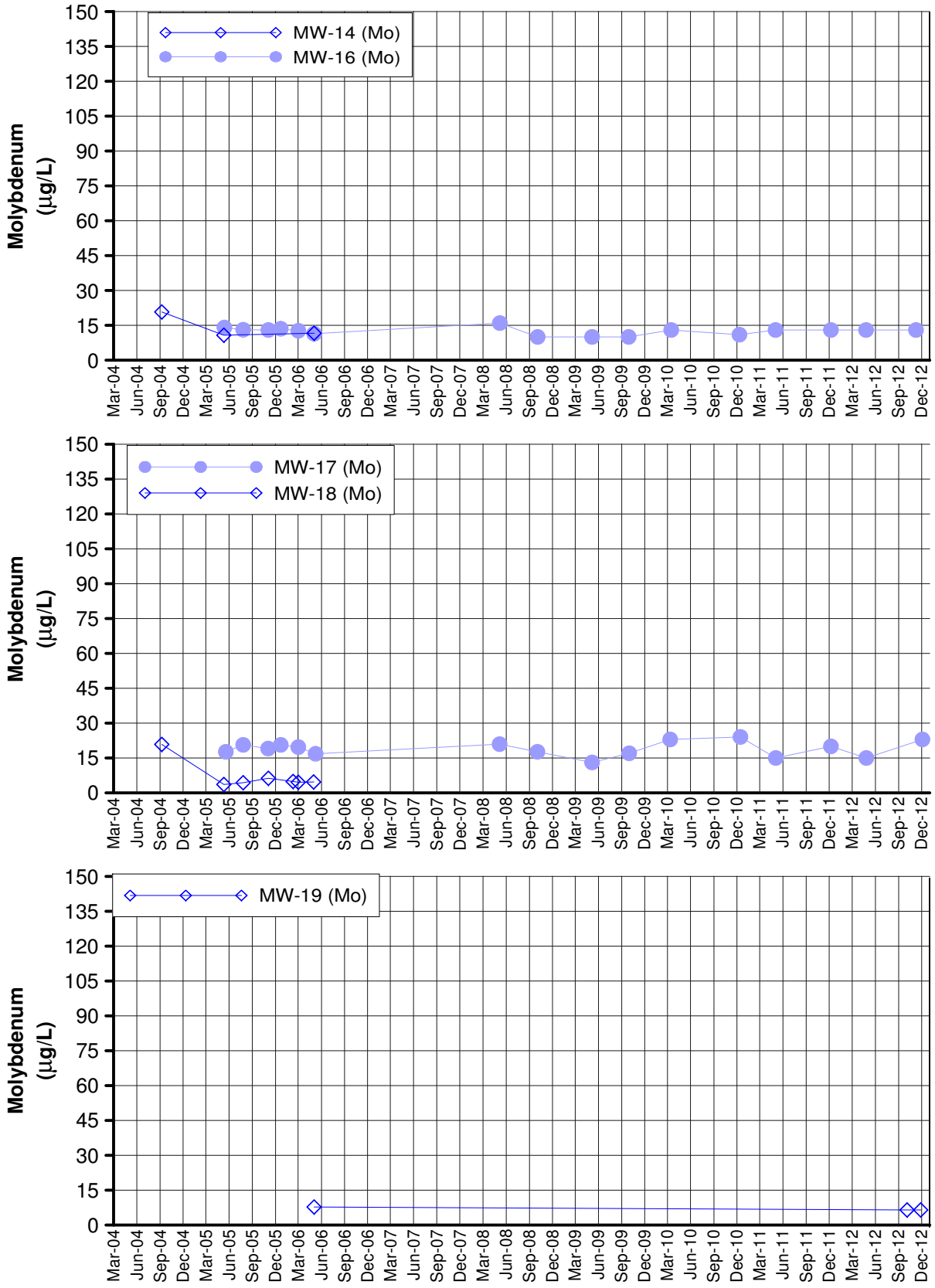


FIGURE C-21
MOLYBDENUM
IN MW-14, MW-16, MW-17, MW-18 AND MW-19
FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

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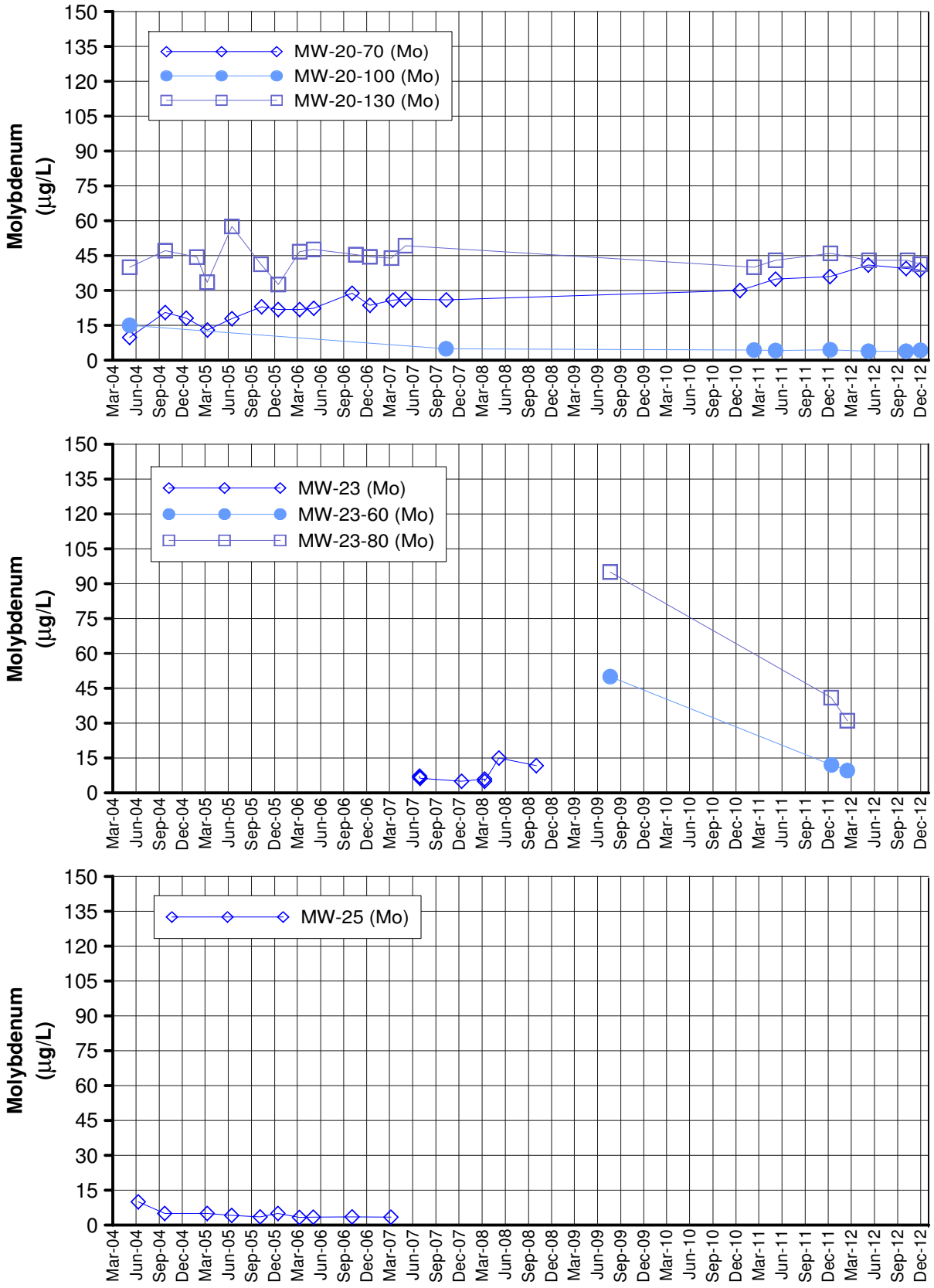

FIGURE C-22
MOLYBDENUM
IN MW-20 CLUSTER, MW-23 CLUSTER, AND MW-25
FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

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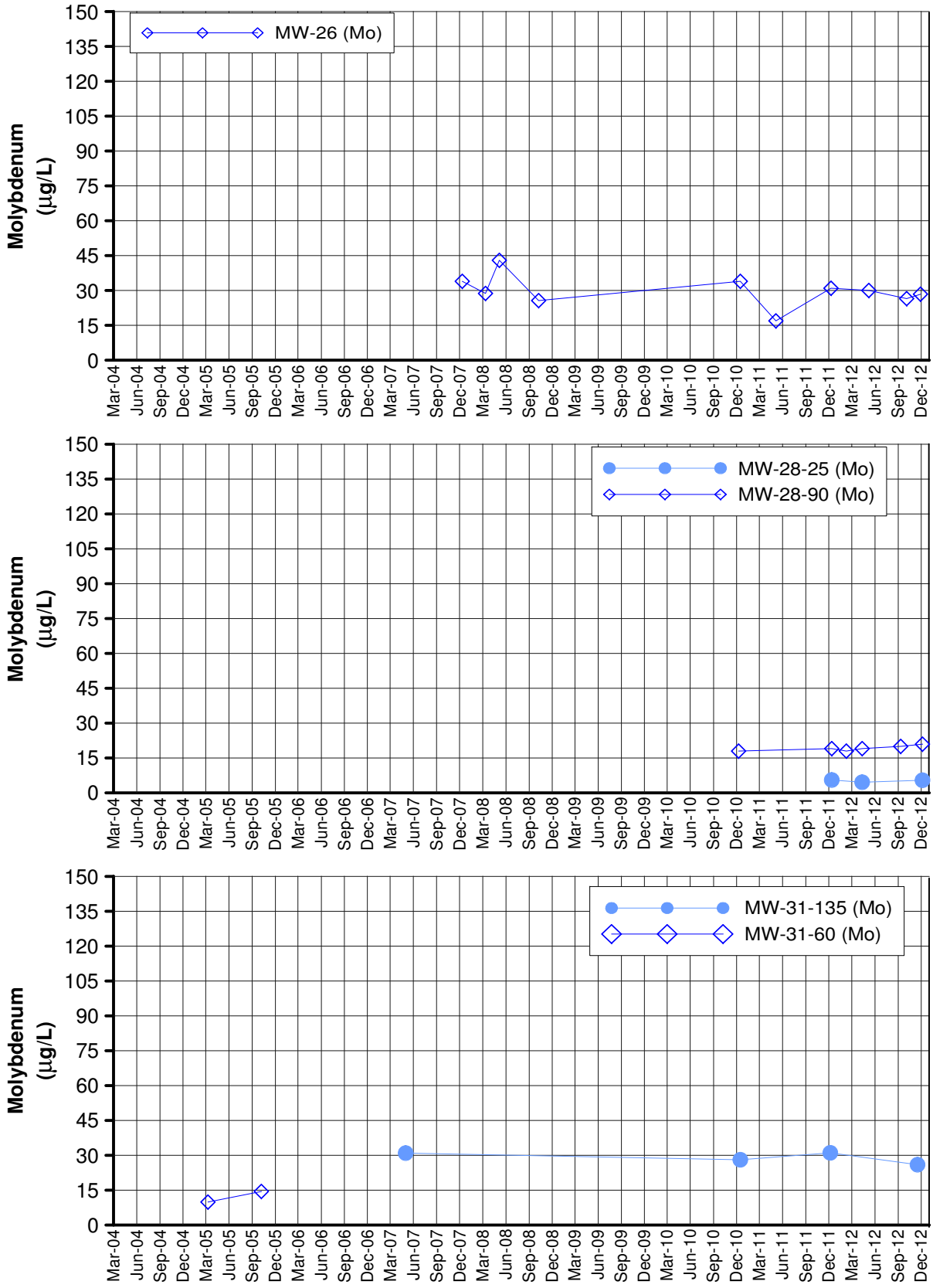

FIGURE C-23
MOLYBDENUM
IN MW-26, MW-28 CLUSTER AND MW-31 CLUSTER
FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

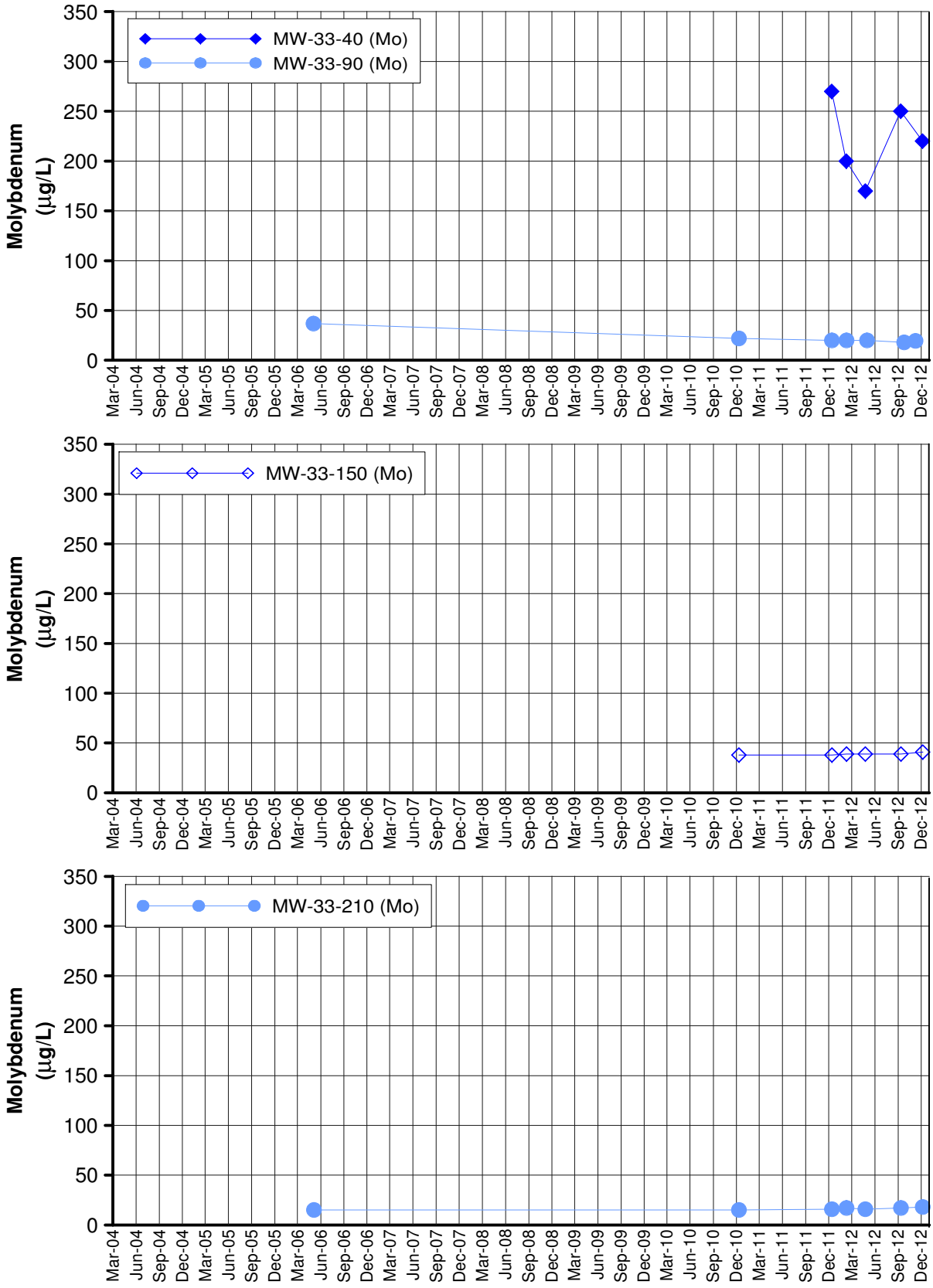

FIGURE C-24
MOLYBDENUM
IN MW-33 CLUSTER
FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

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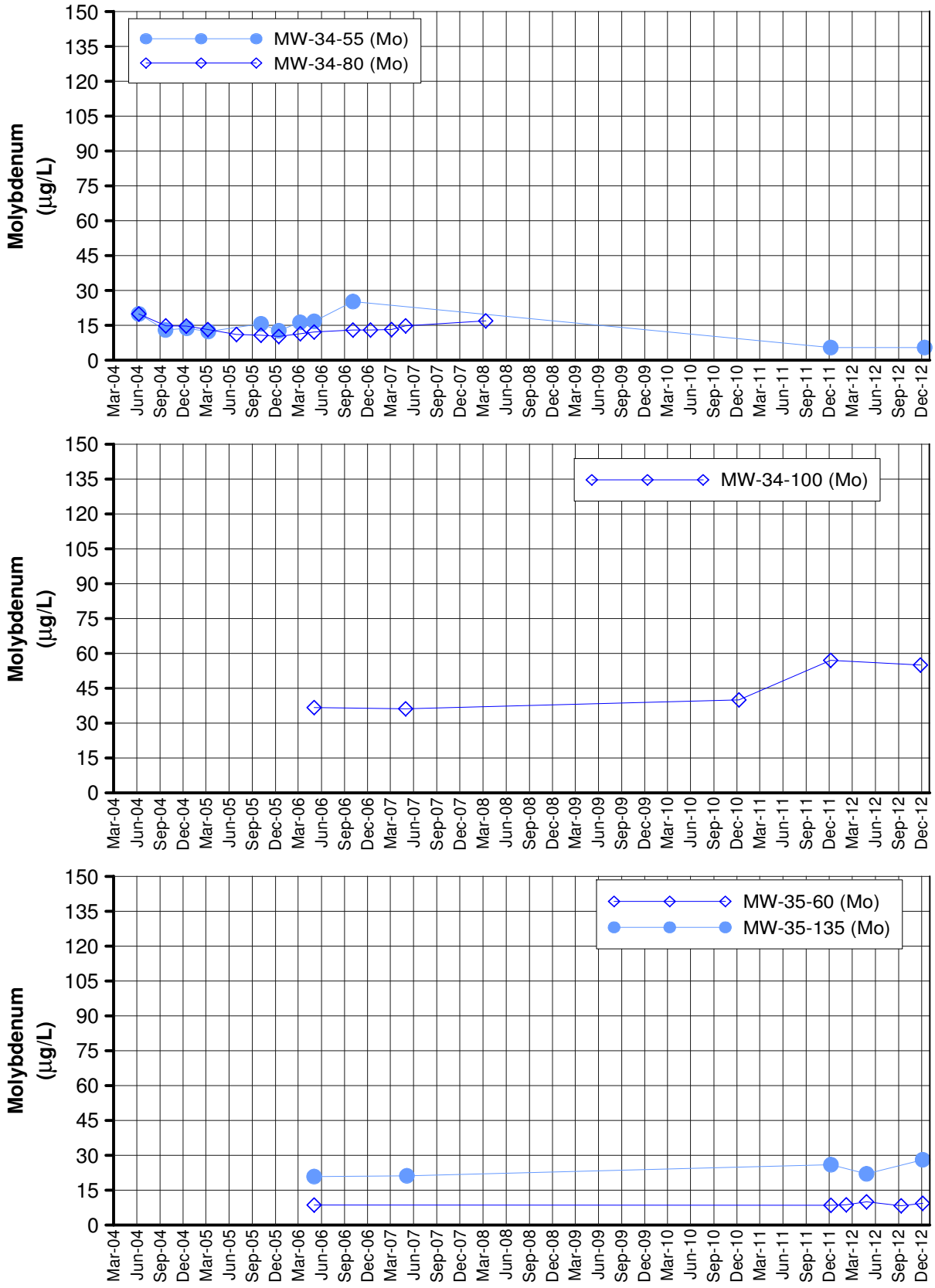


FIGURE C-25
MOLYBDENUM
IN MW-34 AND MW-35 CLUSTERS
FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

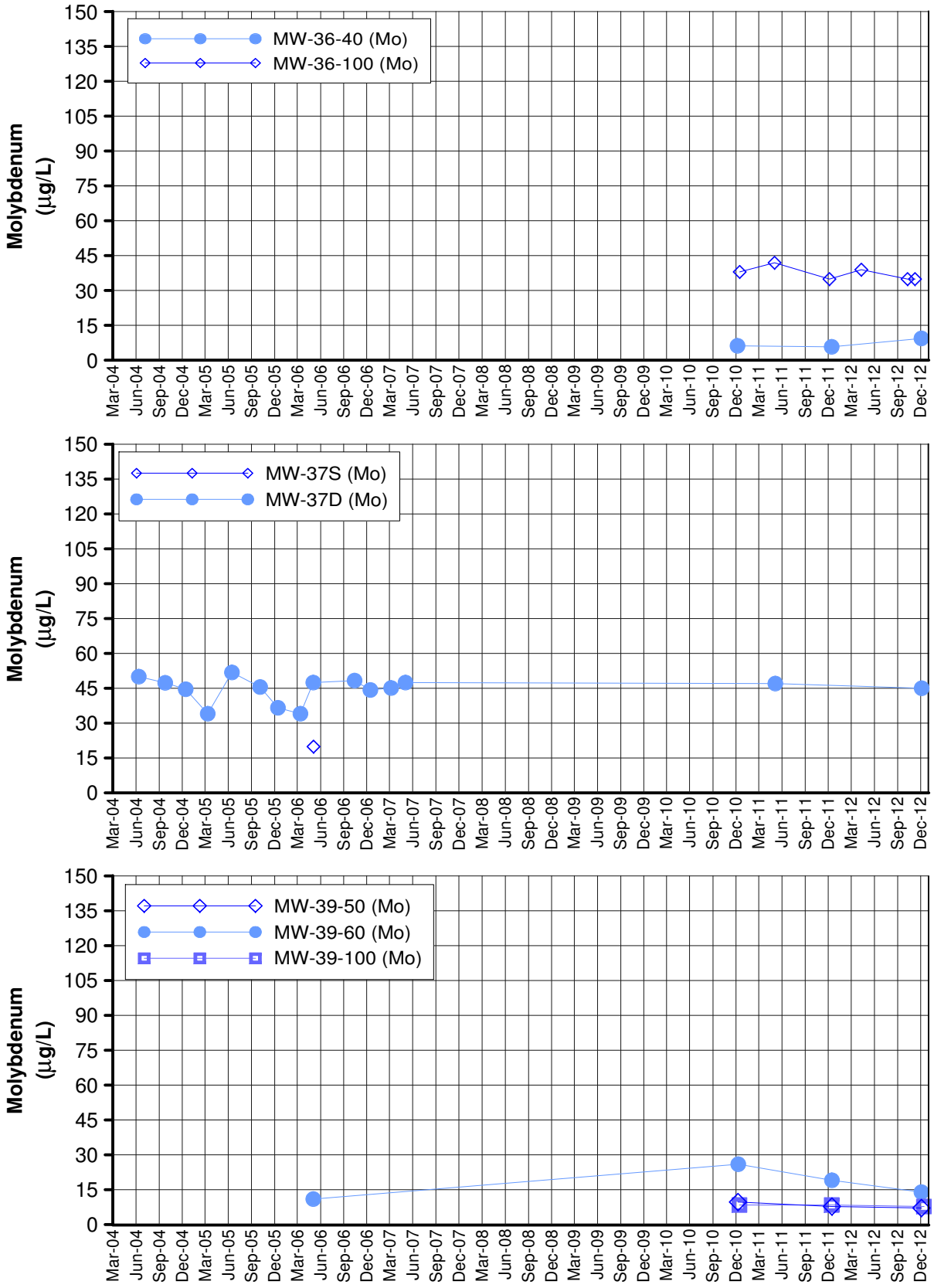


FIGURE C-26
MOLYBDENUM
IN MW-36, MW-37 AND MW-39 CLUSTERS
FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

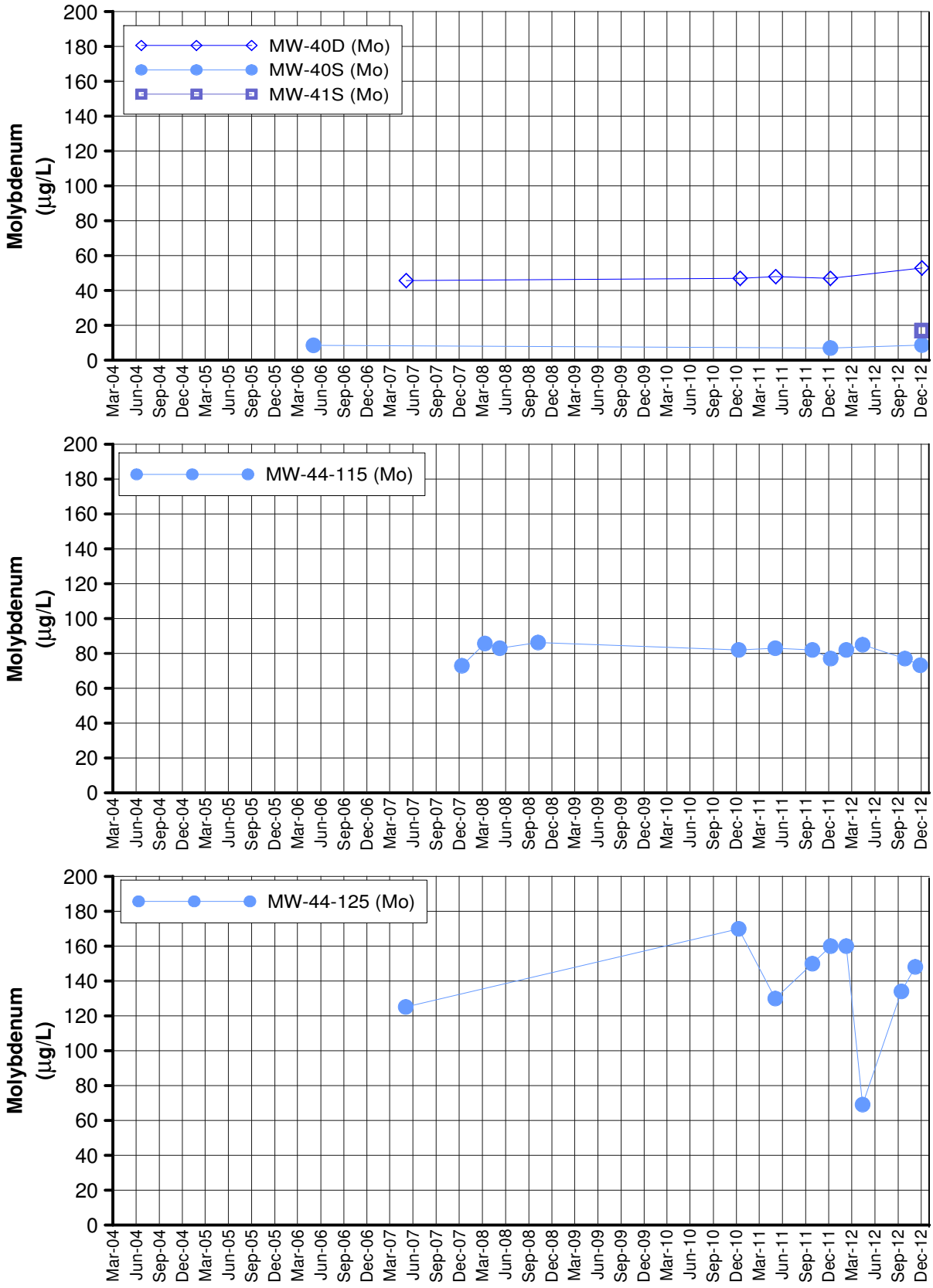


FIGURE C-27
MOLYBDENUM
IN MW-40 CLUSTER, MW-41S, AND MW-44 CLUSTER
FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

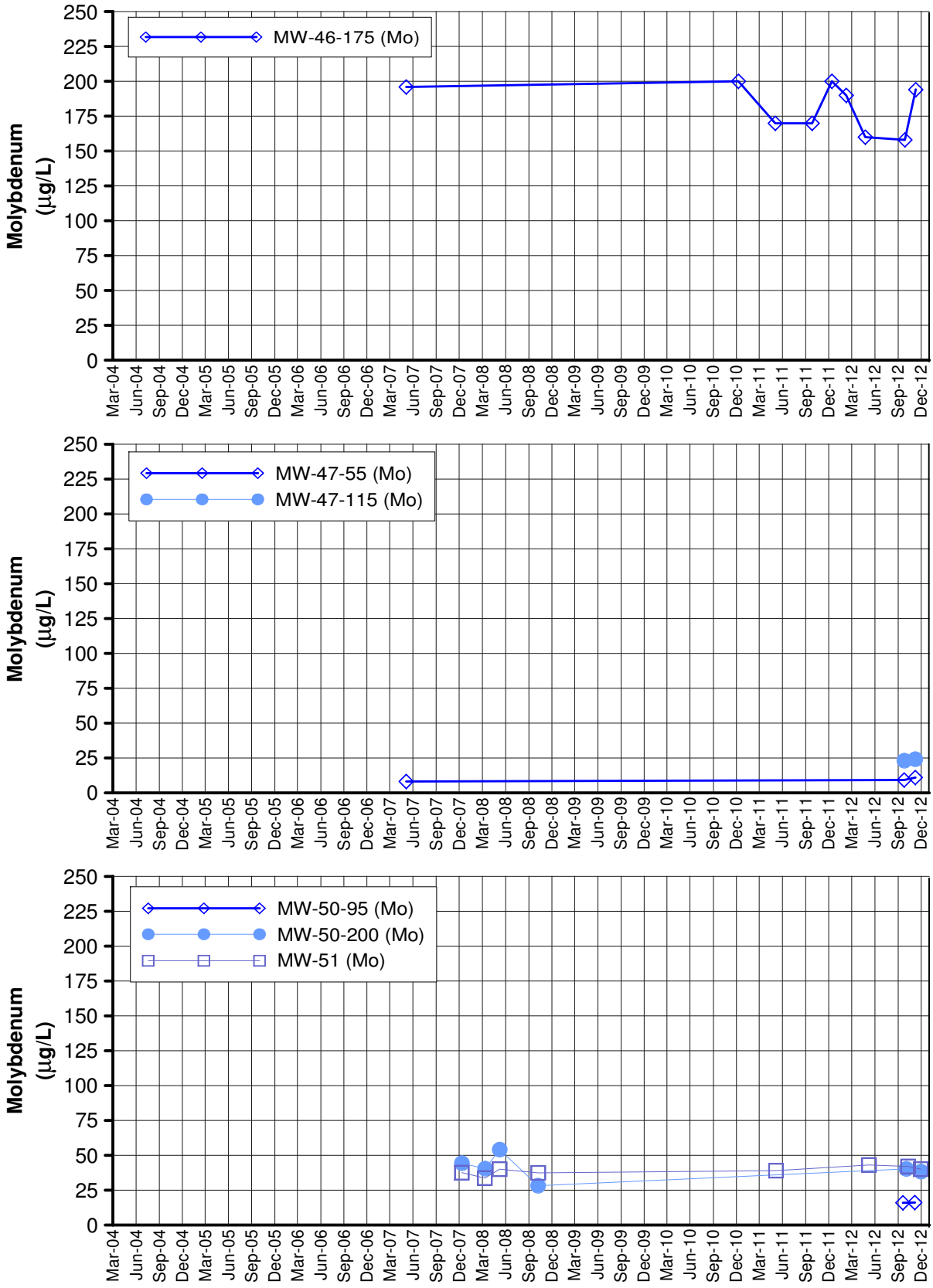
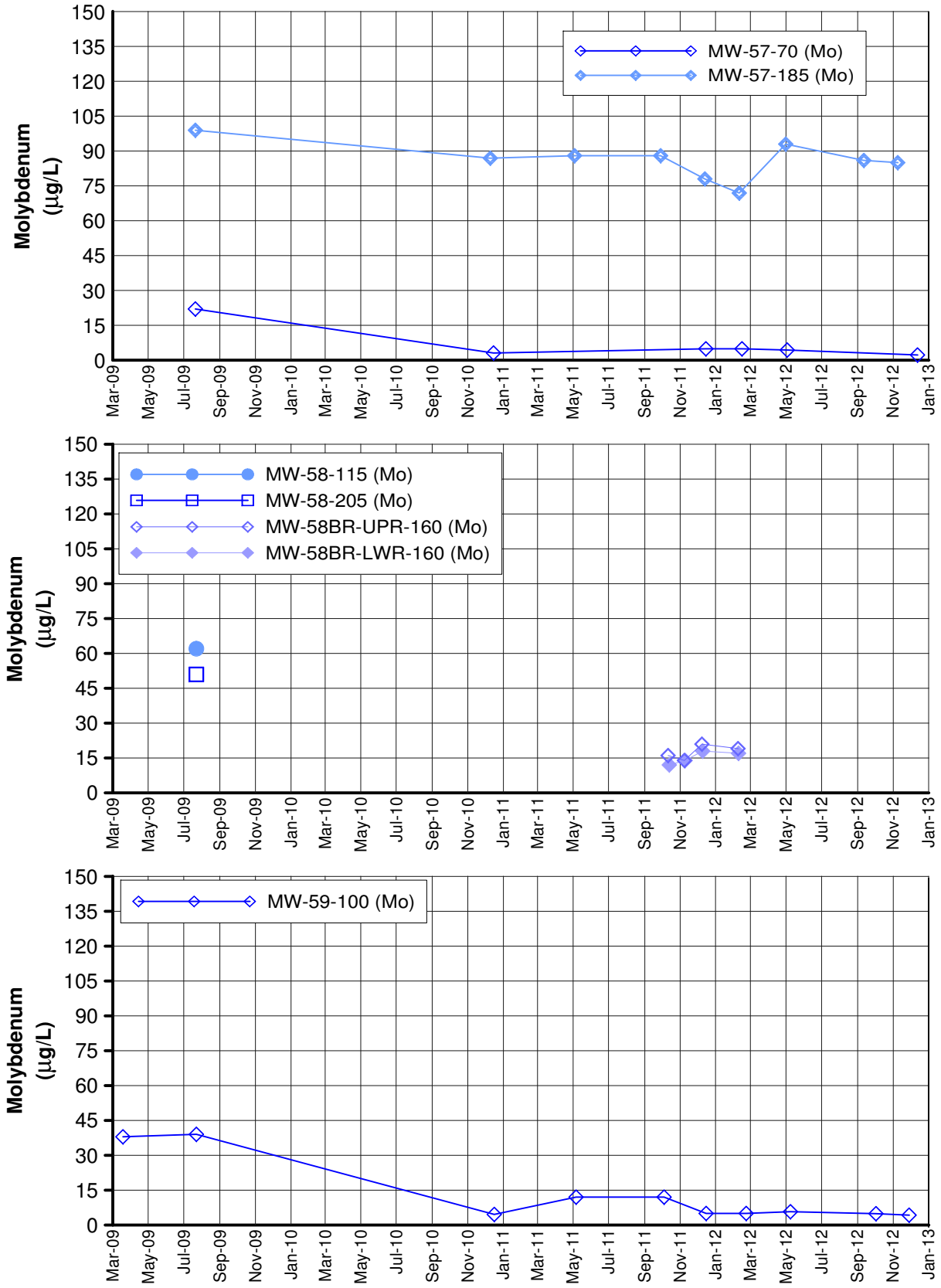


FIGURE C-28
MOLYBDENUM
IN MW-46-175, MW-47 CLUSTER, MW-50 CLUSTER AND MW-51
FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES
PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER
AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

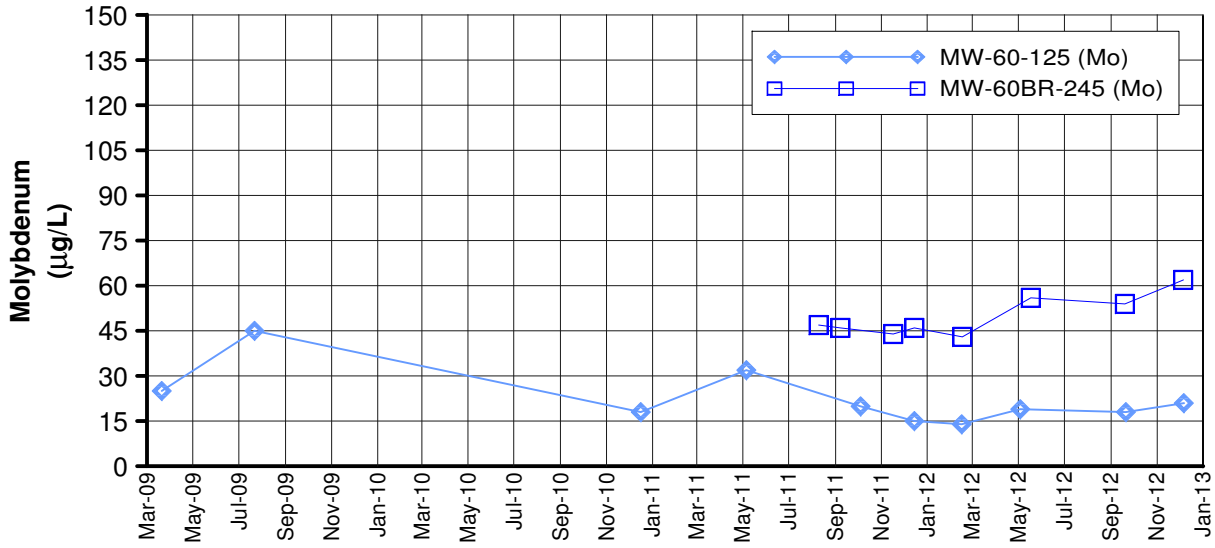


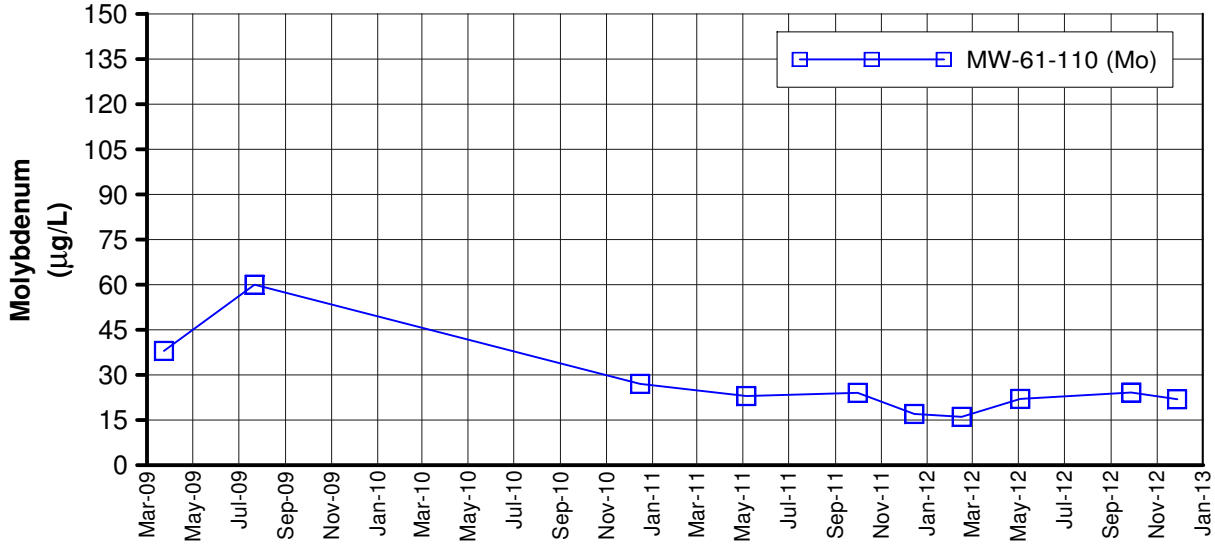
Notes:
MW-58BR upper and lower packer data prior to May 2012 is reported in:

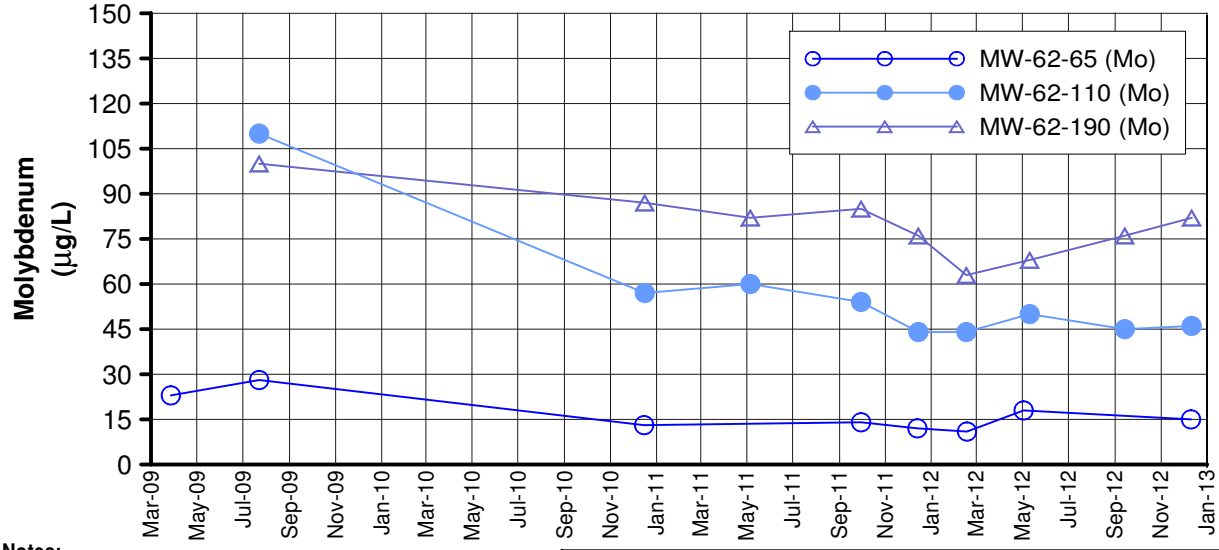
CH2M HILL. 2012d. Technical Memorandum. *Addendum to the Summary of Findings Associated with the East Ravine Groundwater Investigation Report, PG&E Company, Topock Compressor Station, Needles, California*. November 15.

FIGURE C-29
MOLYBDENUM
IN MW-57 CLUSTER, MW-58 CLUSTER AND MW-59-100
FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL





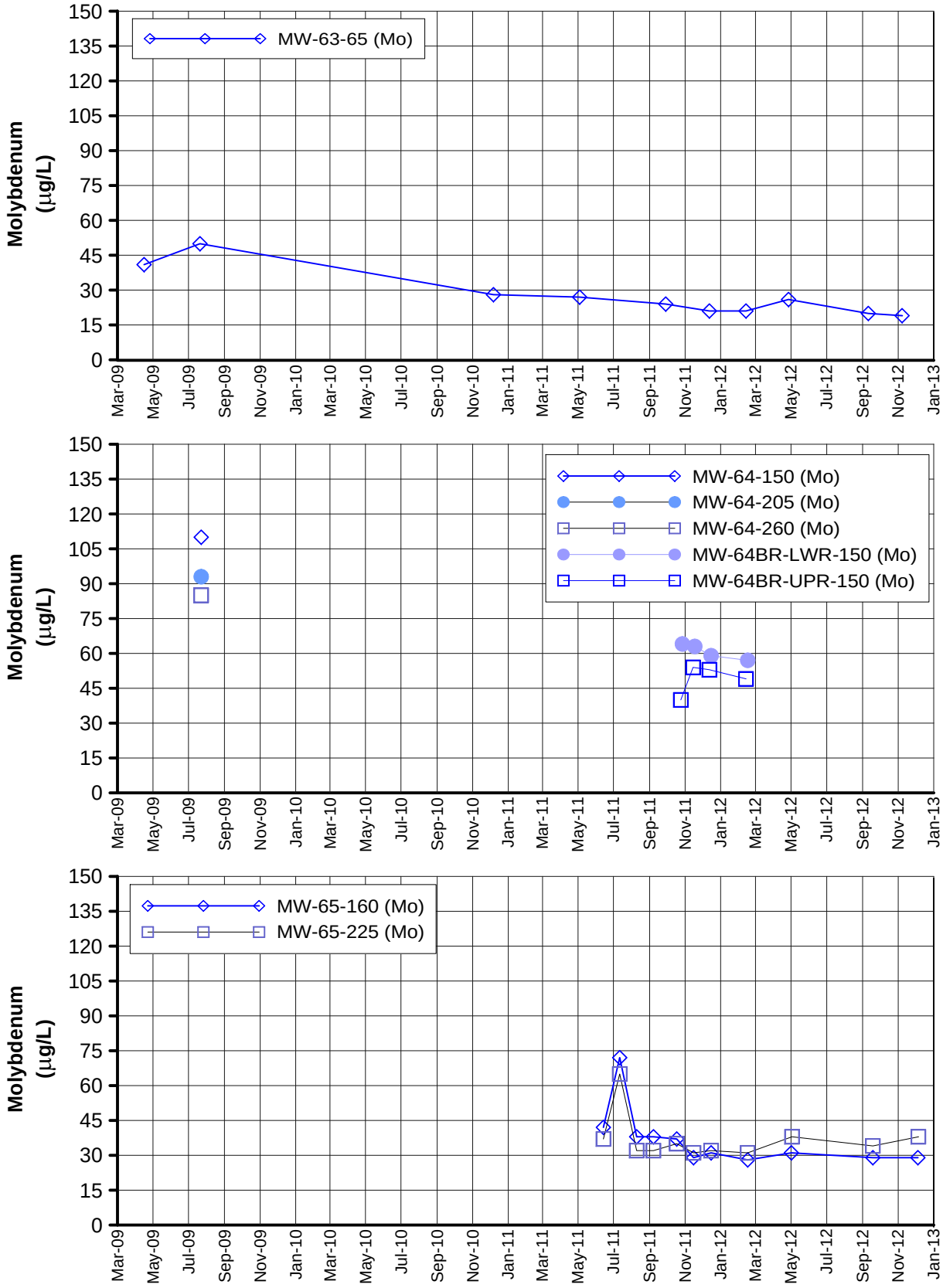


Notes:
MW-60BR-245 data prior to May 2012 is reported in:

CH2M HILL. 2012d. Technical Memorandum. *Addendum to the Summary of Findings Associated with the East Ravine Groundwater Investigation Report, PG&E Company, Topock Compressor Station, Needles, California.* November 15.

FIGURE C-30
MOLYBDENUM
IN THE MW-60 CLUSTER, MW-61-110 AND MW-62 CLUSTER
FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

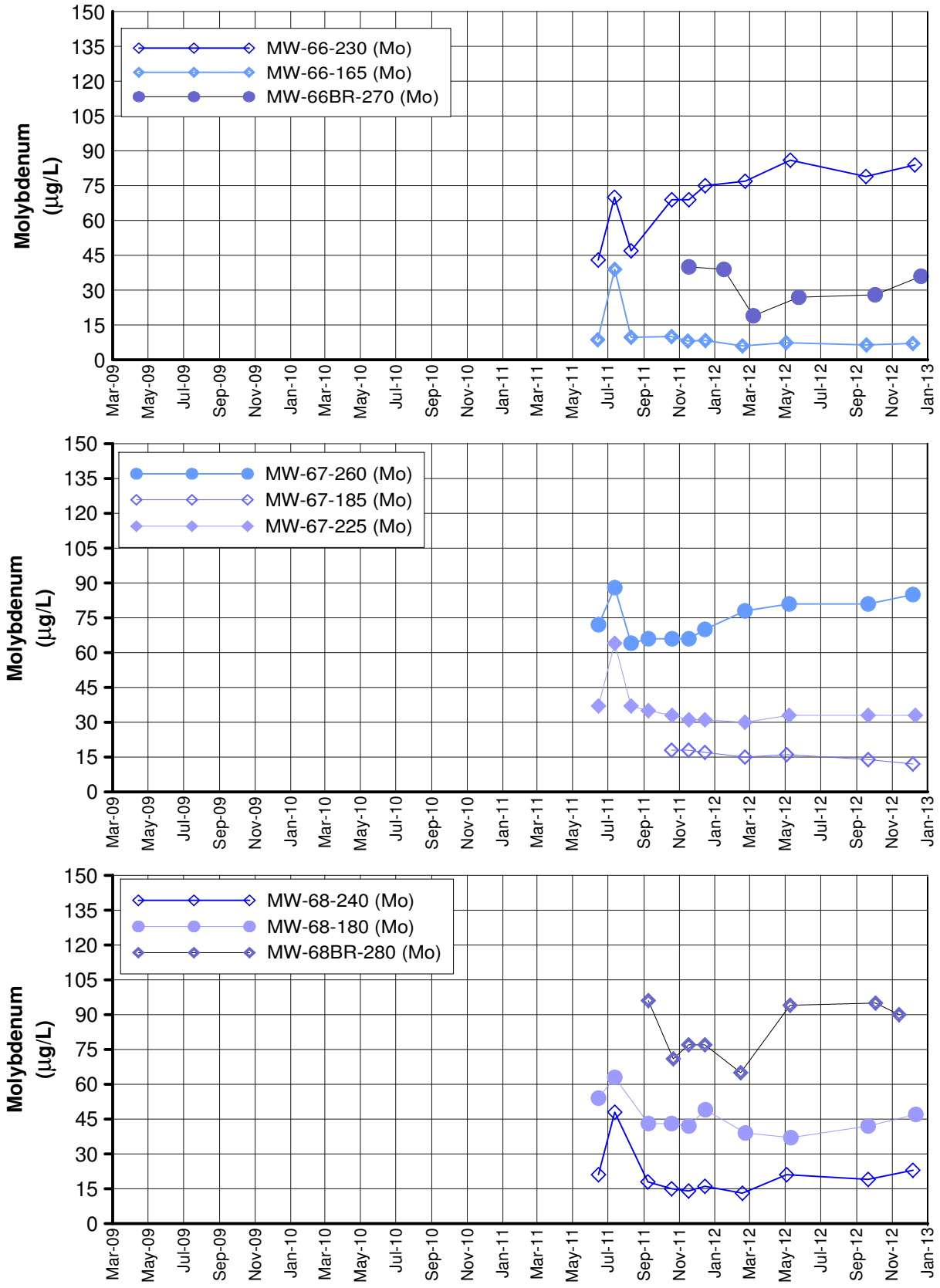


Notes:
MW-64BR upper and lower packer data, MW-65-160, and MW-65-225 data prior to May 2012 is reported in:

CH2M HILL. 2012d. Technical Memorandum. *Addendum to the Summary of Findings Associated with the East Ravine Groundwater Investigation Report, PG&E Company, Topock Compressor Station, Needles, California*. November 15.

FIGURE C-31
MOLYBDENUM
IN MW-63-065, MW-64 CLUSTER AND MW-65 CLUSTER
FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL



Notes:
Data prior to May 2012 is reported in:

CH2M HILL. 2012d. Technical Memorandum. *Addendum to the Summary of Findings Associated with the East Ravine Groundwater Investigation Report, PG&E Company, Topock Compressor Station, Needles, California*. November 15.

FIGURE C-32
MOLYBDENUM
IN MW-66, MW-67 AND MW-68 CLUSTERS
FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

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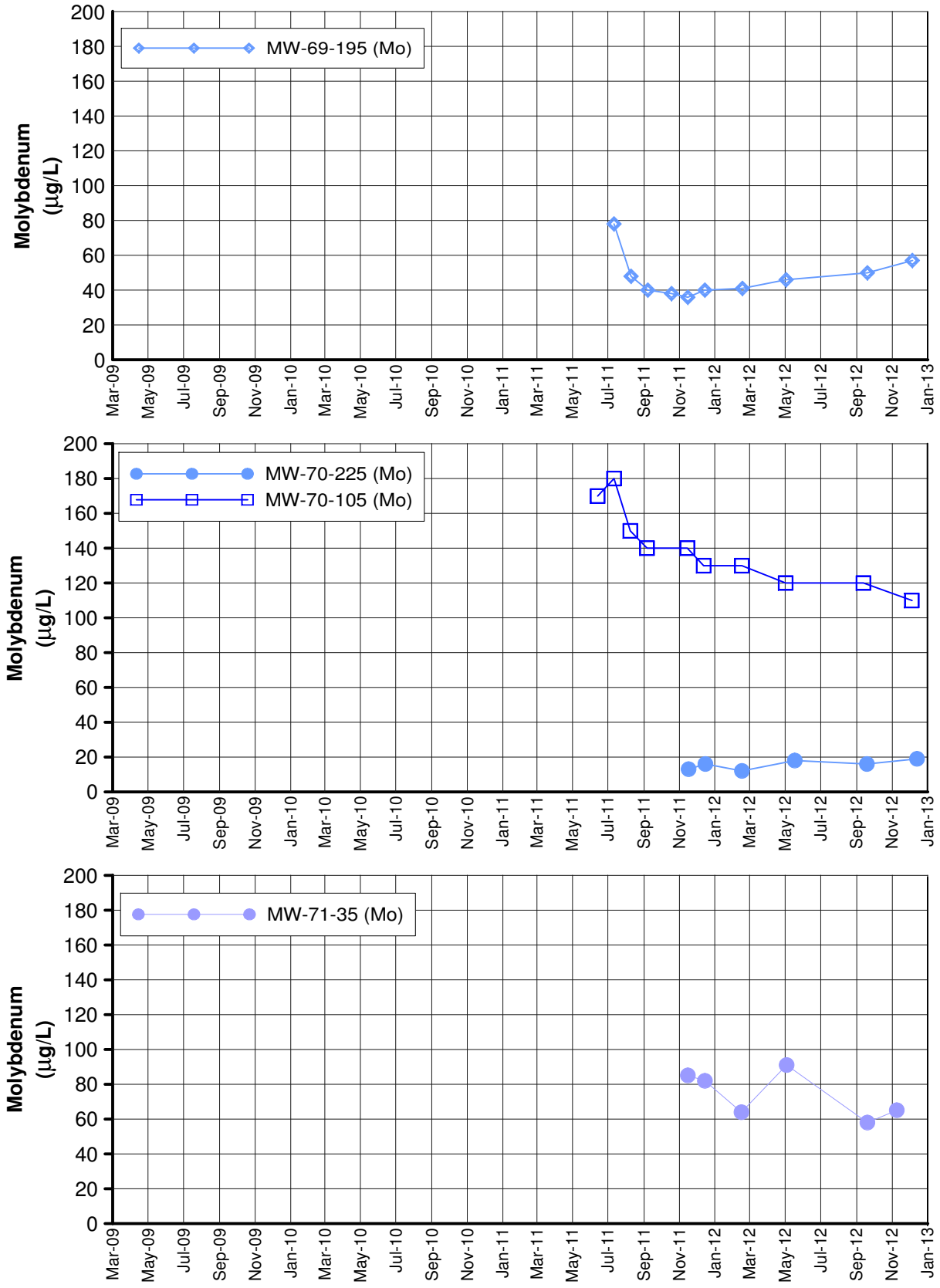

Notes:
Data prior to May 2012 is reported in:

CH2M HILL. 2012d. Technical Memorandum. *Addendum to the Summary of Findings Associated with the East Ravine Groundwater Investigation Report, PG&E Company, Topock Compressor Station, Needles, California*. November 15.

FIGURE C-33
MOLYBDENUM
IN MW-69-195, MW-70 CLUSTER AND MW-71-35
FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

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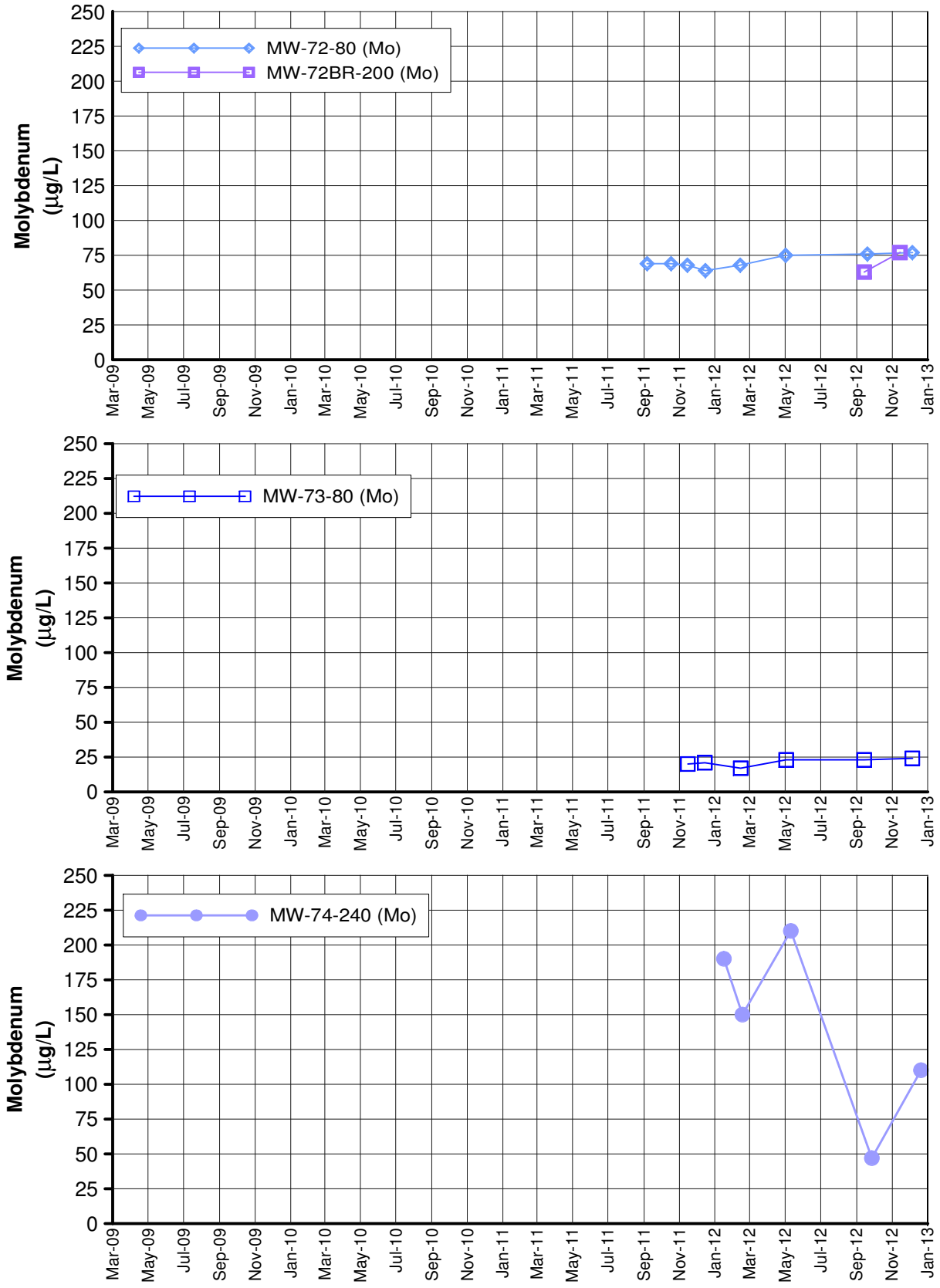
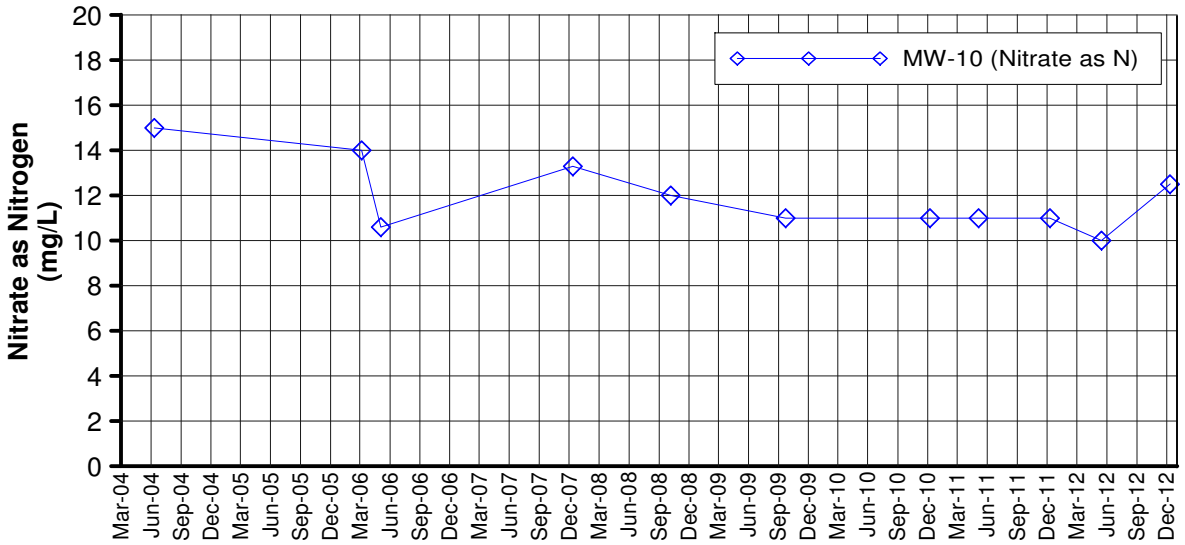


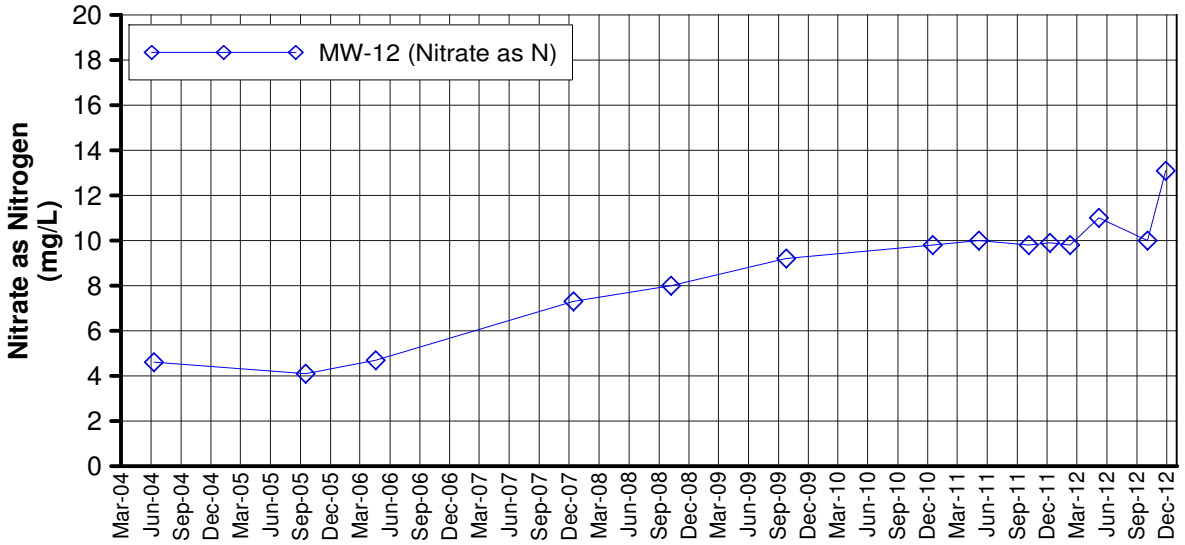
Notes:
Data prior to May 2012 is reported in:

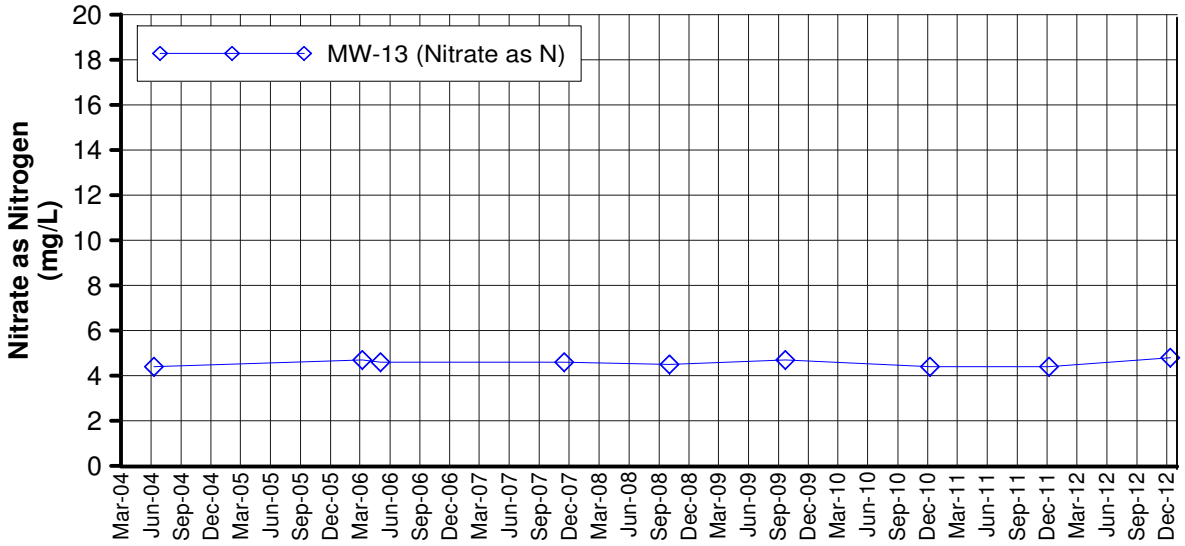
CH2M HILL. 2012d. Technical Memorandum. *Addendum to the Summary of Findings Associated with the East Ravine Groundwater Investigation Report, PG&E Company, Topock Compressor Station, Needles, California*. November 15.

FIGURE C-34
MOLYBDENUM
IN MW-72 CLUSTER, MW-73-80 AND MW-74-240
FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL





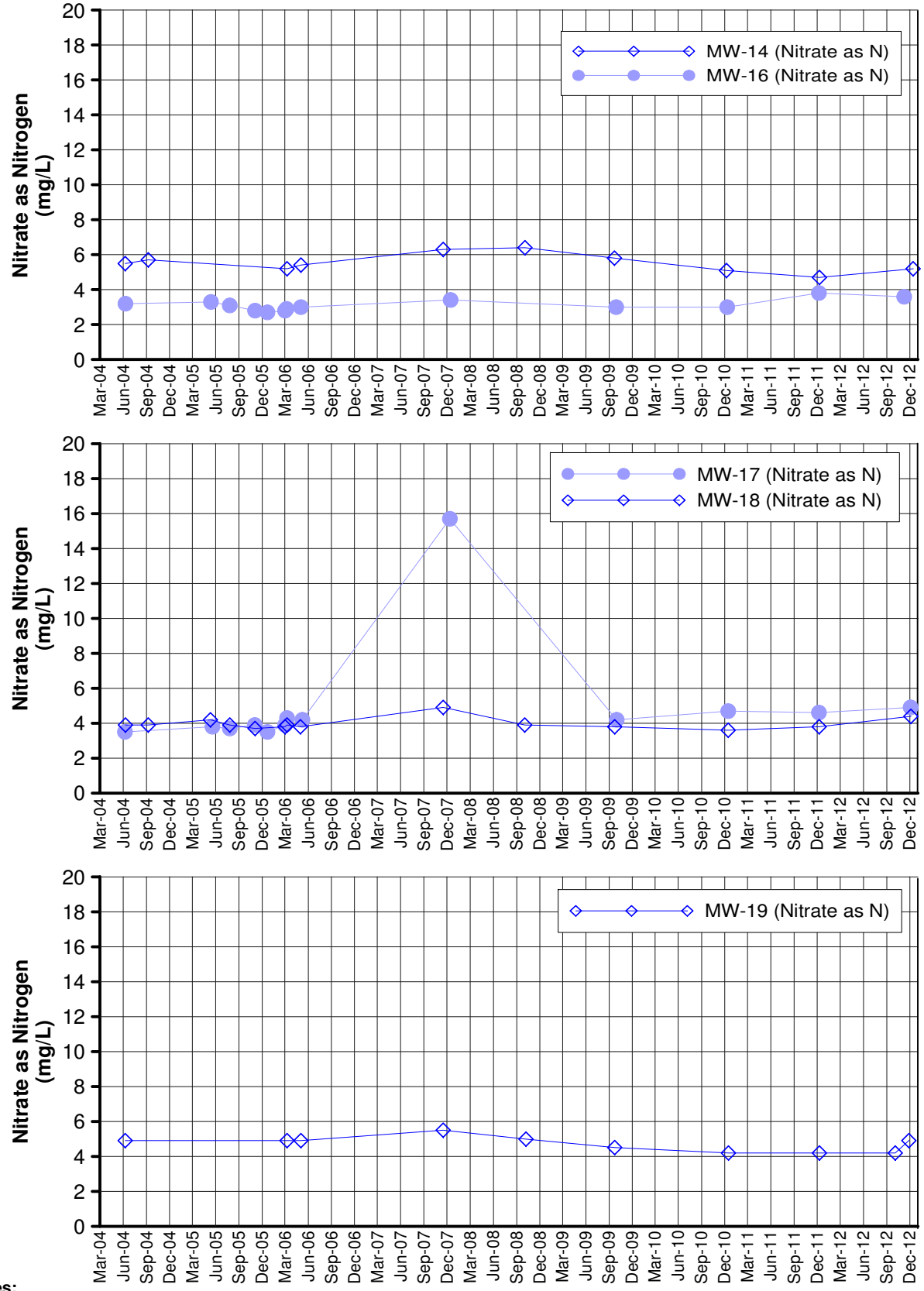


Notes:

Starting in Fourth Quarter 2012 nitrate samples were analyzed using method USEPA 353.2, which reports a combination of nitrate and nitrite. The contribution of nitrite to the reported result of nitrate plus nitrite as nitrogen is expected to be negligible, therefore sample results for method USEPA 353.2 are expected to be essentially the same as previous samples analyzed using method USEPA 300.0 and reported as nitrate as nitrogen.

FIGURE C-35
NITRATE as NITROGEN
IN MW-10, MW-12 AND MW-13
FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

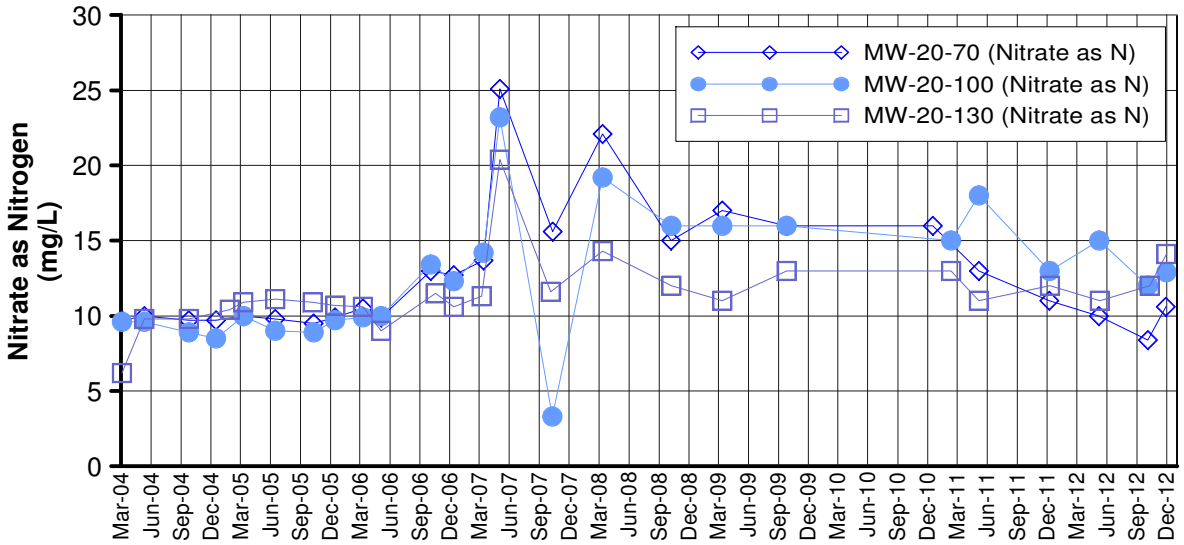


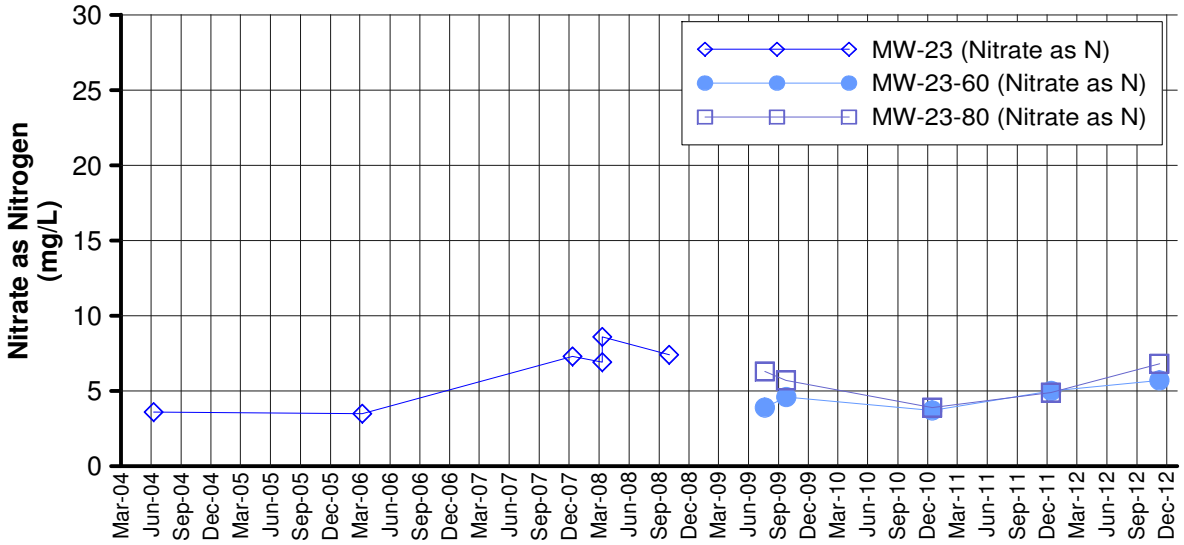
Notes:

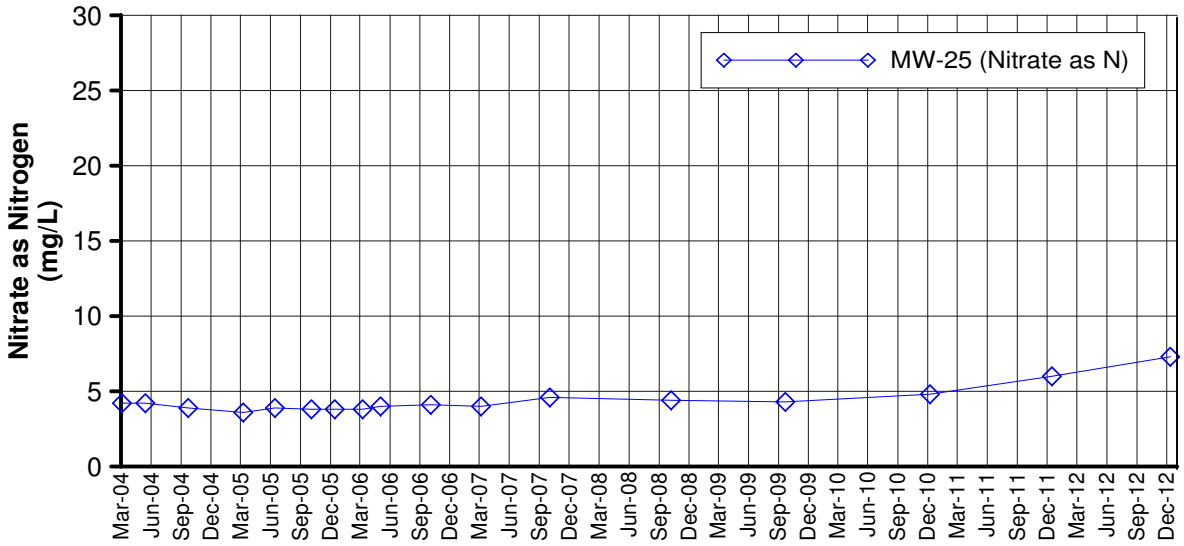
Starting in Fourth Quarter 2012 nitrate samples were analyzed using method USEPA 353.2, which reports a combination of nitrate and nitrite. The contribution of nitrite to the reported result of nitrate plus nitrite as nitrogen is expected to be negligible, therefore sample results for method USEPA 353.2 are expected to be essentially the same as previous samples analyzed using method USEPA 300.0 and reported as nitrate as nitrogen.

FIGURE C-36
NITRATE as NITROGEN
IN MW-14, MW-16, MW-17, MW-18 AND MW-19
FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL





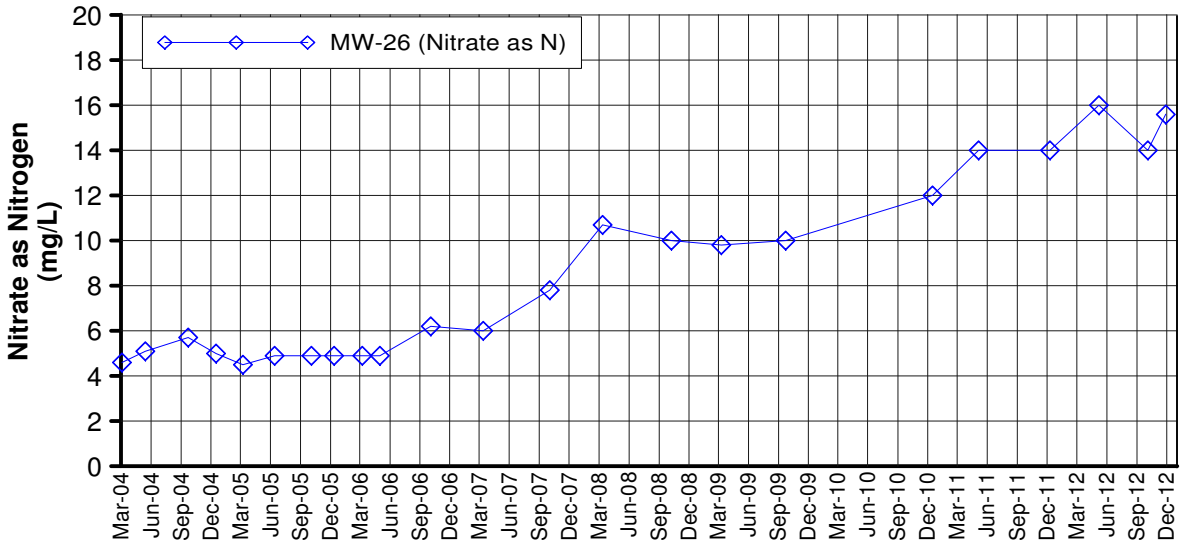


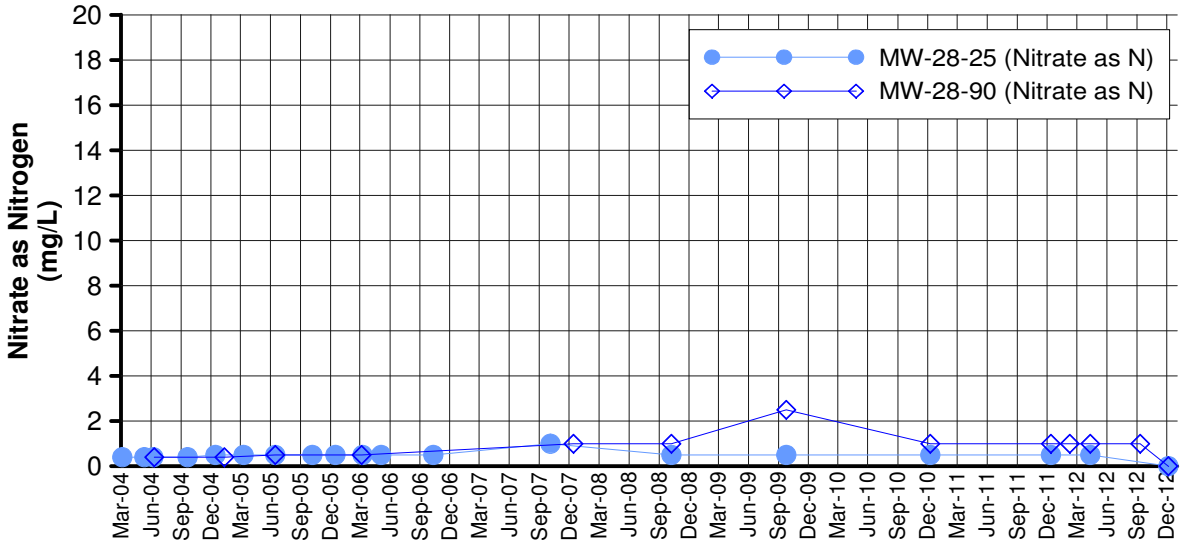
Notes:

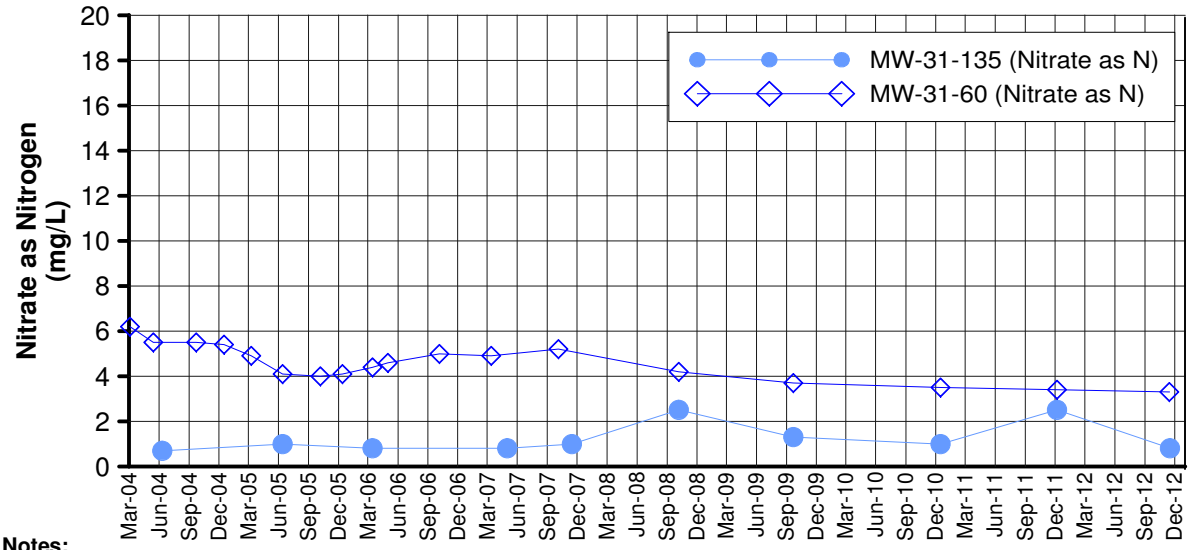
Starting in Fourth Quarter 2012 nitrate samples were analyzed using method USEPA 353.2, which reports a combination of nitrate and nitrite. The contribution of nitrite to the reported result of nitrate plus nitrite as nitrogen is expected to be negligible, therefore sample results for method USEPA 353.2 are expected to be essentially the same as previous samples analyzed using method USEPA 300.0 and reported as nitrate as nitrogen.

FIGURE C-37
NITRATE as NITROGEN
IN MW-20 CLUSTER, MW-23 CLUSTER AND MW-25
FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL





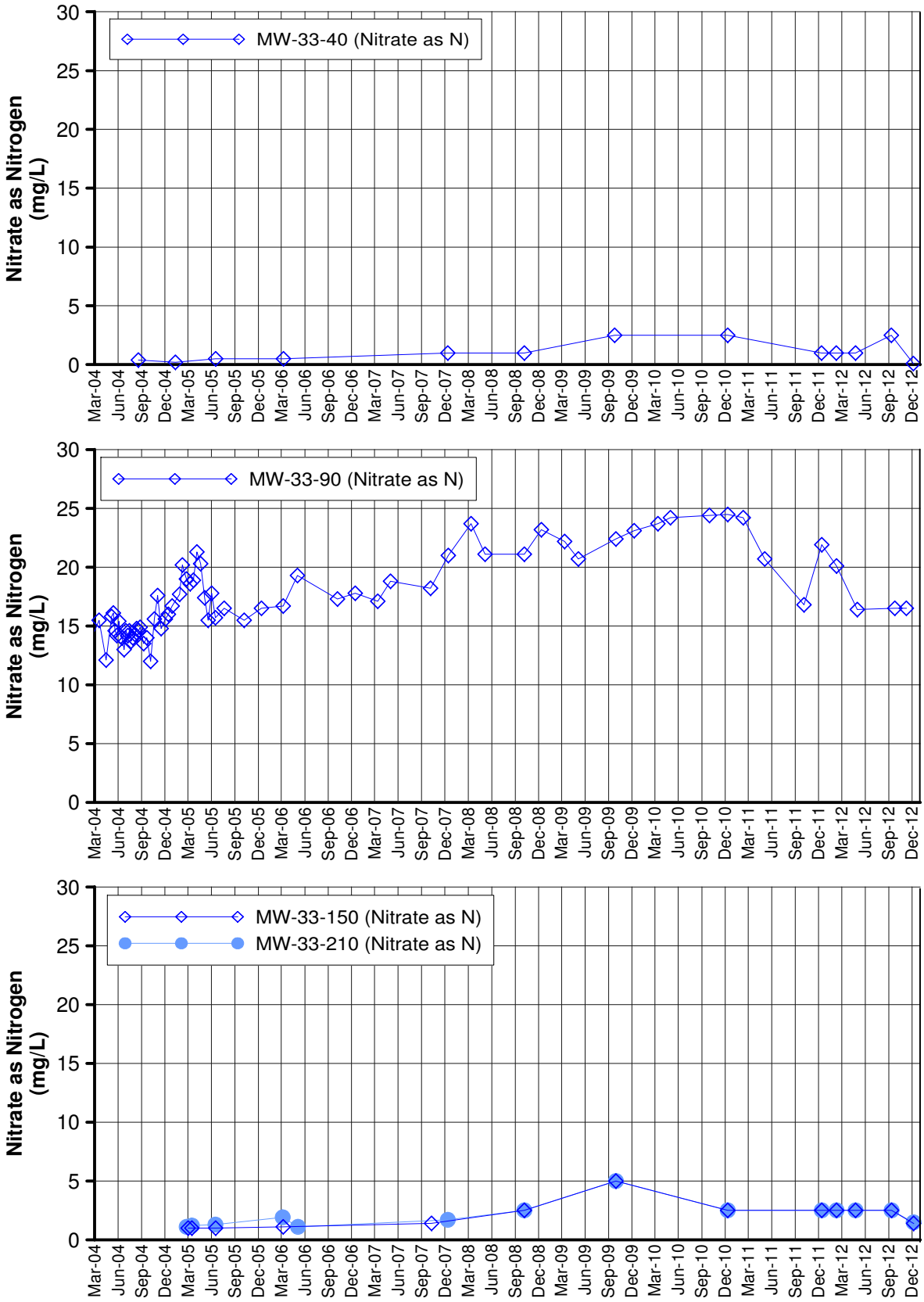


Notes:

Starting in Fourth Quarter 2012 nitrate samples were analyzed using method USEPA 353.2, which reports a combination of nitrate and nitrite. The contribution of nitrite to the reported result of nitrate plus nitrite as nitrogen is expected to be negligible, therefore sample results for method USEPA 353.2 are expected to be essentially the same as previous samples analyzed using method USEPA 300.0 and reported as nitrate as nitrogen.

FIGURE C-38
NITRATE as NITROGEN
IN MW-26, MW-28 CLUSTER AND MW-31 CLUSTER
FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

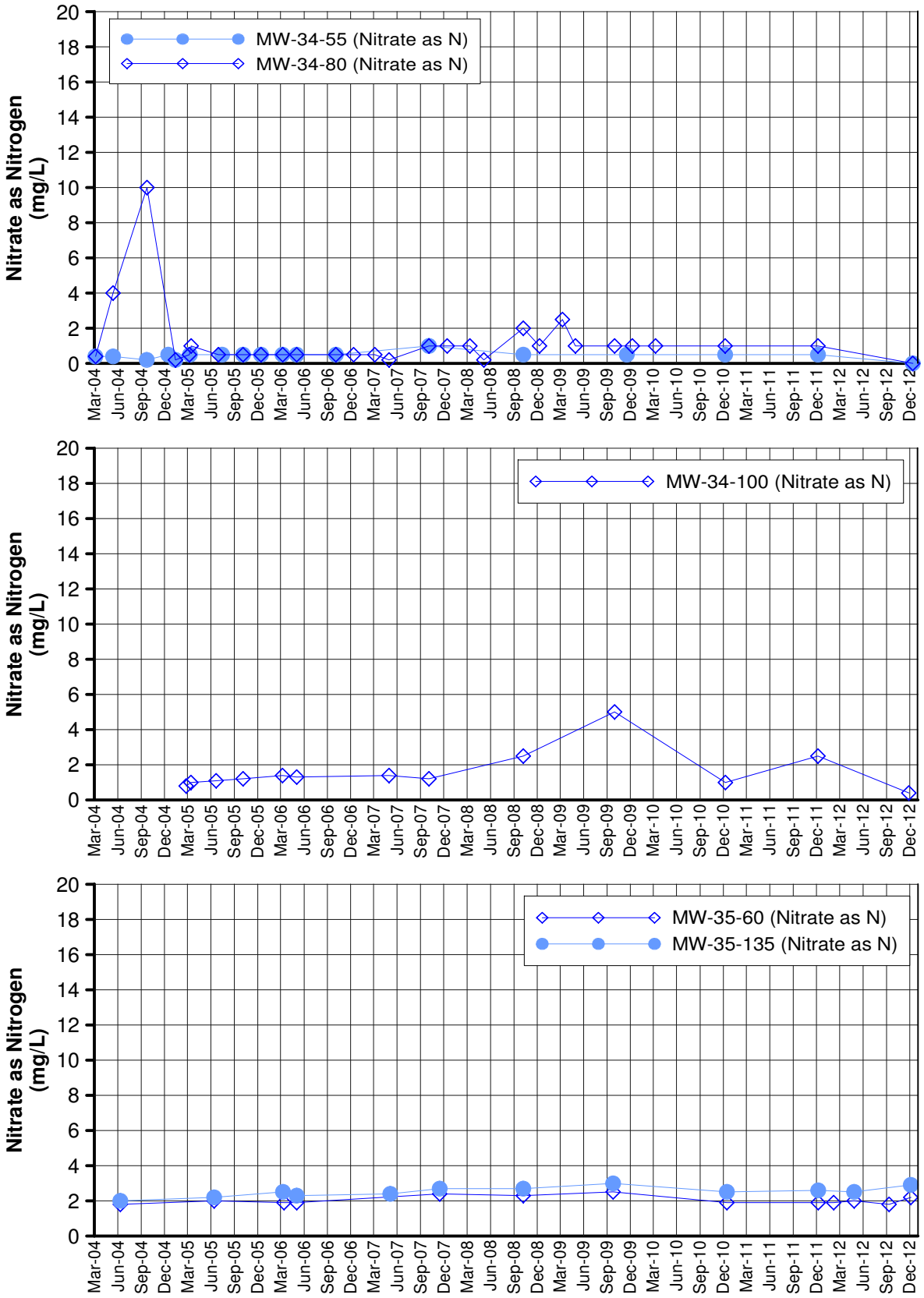


Notes:

Starting in Fourth Quarter 2012 nitrate samples were analyzed using method USEPA 353.2, which reports a combination of nitrate and nitrite. The contribution of nitrite to the reported result of nitrate plus nitrite as nitrogen is expected to be negligible, therefore sample results for method USEPA 353.2 are expected to be essentially the same as previous samples analyzed using method USEPA 300.0 and reported as nitrate as nitrogen.

FIGURE C-39
NITRATE as NITROGEN
IN MW-33 CLUSTER
FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

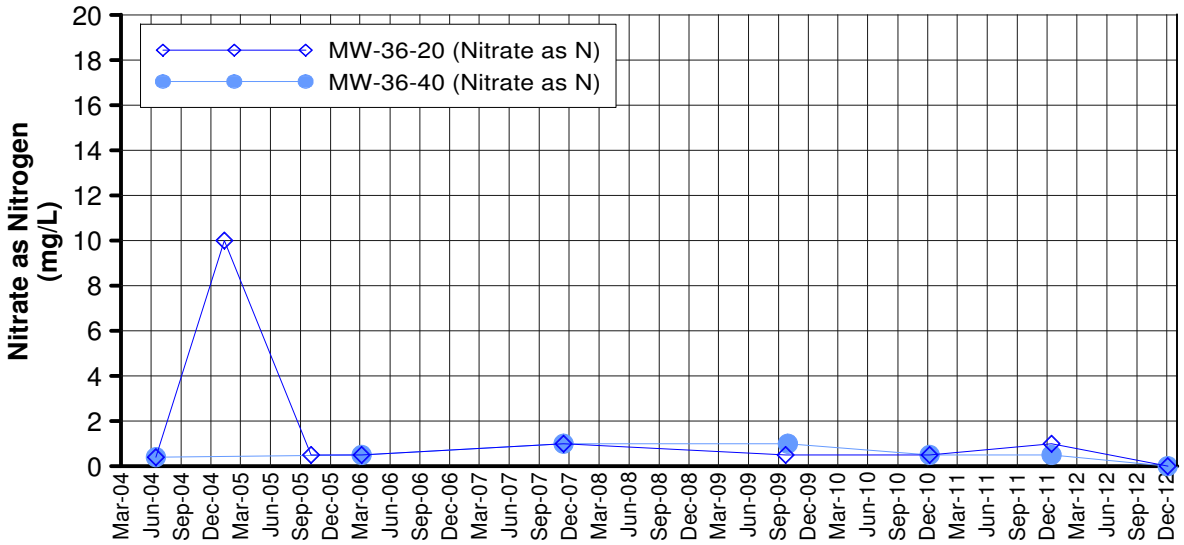


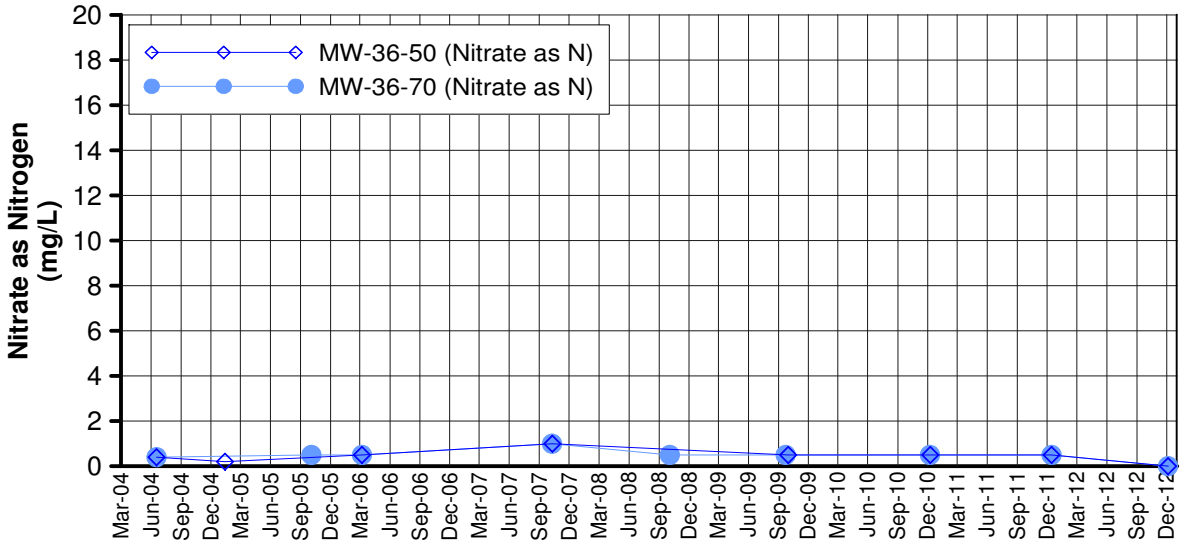
Notes:

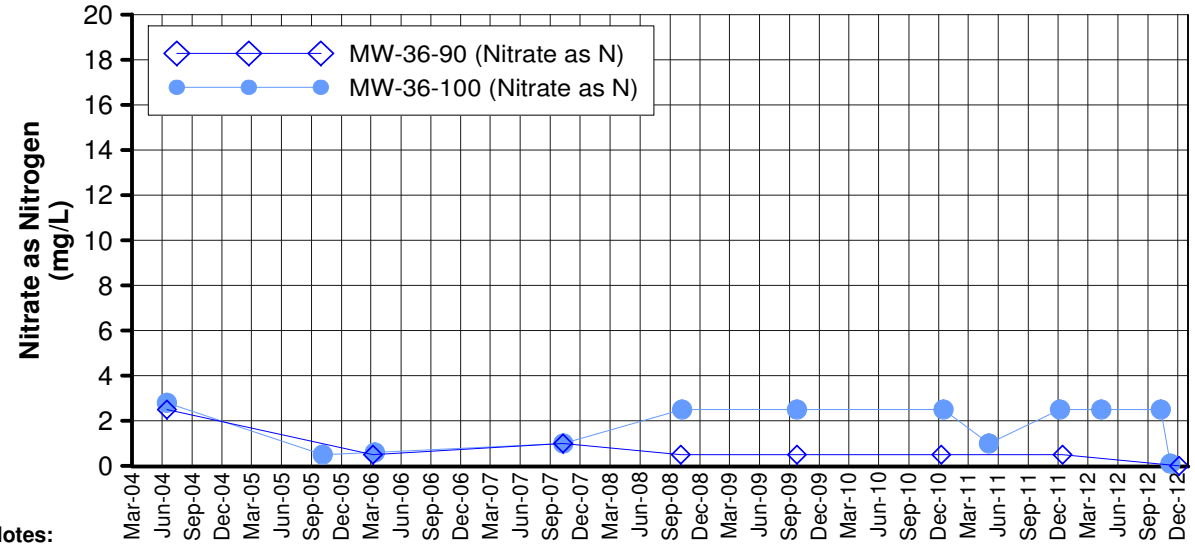
Starting in Fourth Quarter 2012 nitrate samples were analyzed using method USEPA 353.2, which reports a combination of nitrate and nitrite. The contribution of nitrite to the reported result of nitrate plus nitrite as nitrogen is expected to be negligible, therefore sample results for method USEPA 353.2 are expected to be essentially the same as previous samples analyzed using method USEPA 300.0 and reported as nitrate as nitrogen.

FIGURE C-40
NITRATE as NITROGEN
IN MW-34 AND MW-35 CLUSTERS
FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL





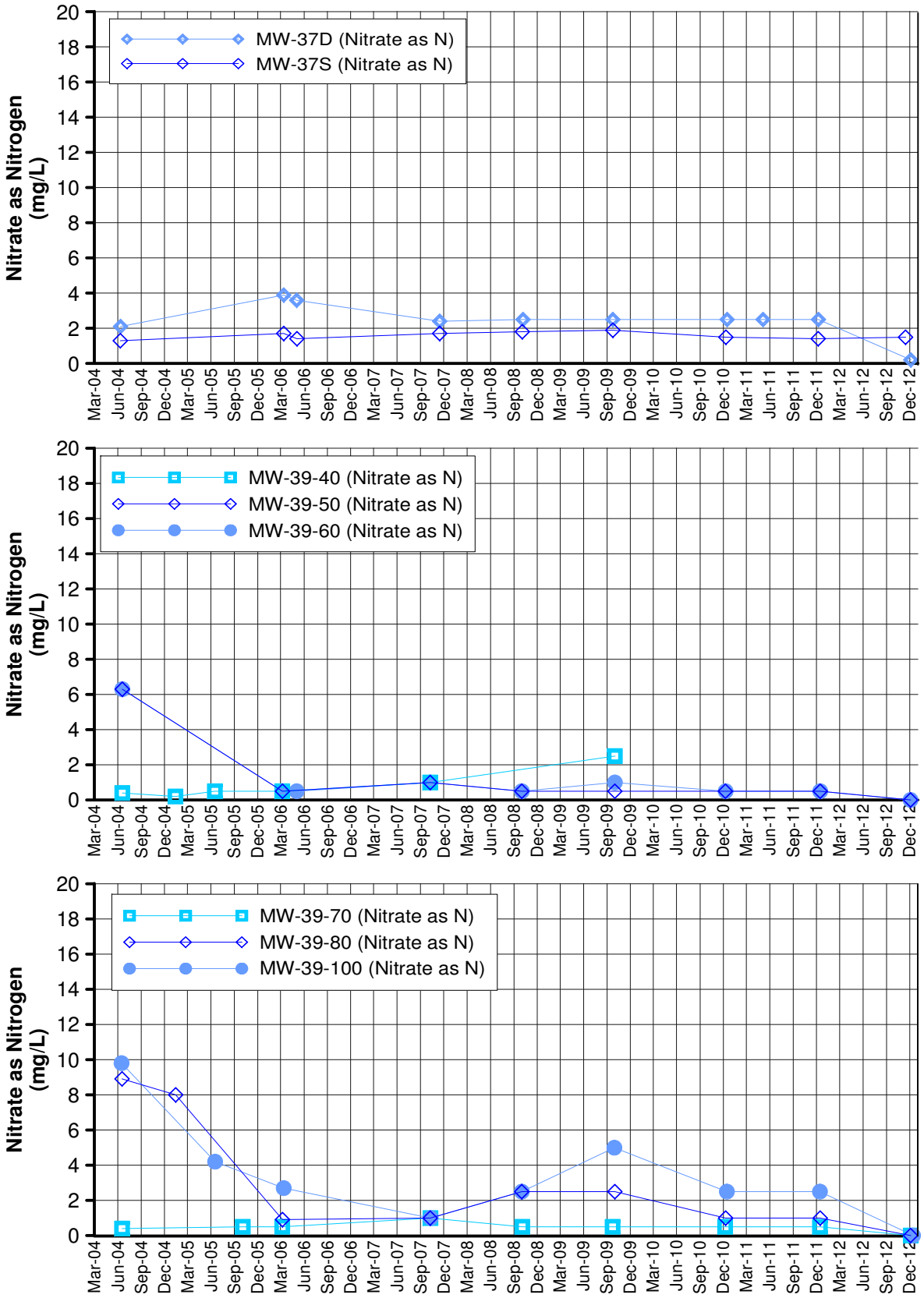


Notes:

Starting in Fourth Quarter 2012 nitrate samples were analyzed using method USEPA 353.2, which reports a combination of nitrate and nitrite. The contribution of nitrite to the reported result of nitrate plus nitrite as nitrogen is expected to be negligible, therefore sample results for method USEPA 353.2 are expected to be essentially the same as previous samples analyzed using method USEPA 300.0 and reported as nitrate as nitrogen.

FIGURE C-41
NITRATE as NITROGEN
IN MW-36 CLUSTER
FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL



Notes:

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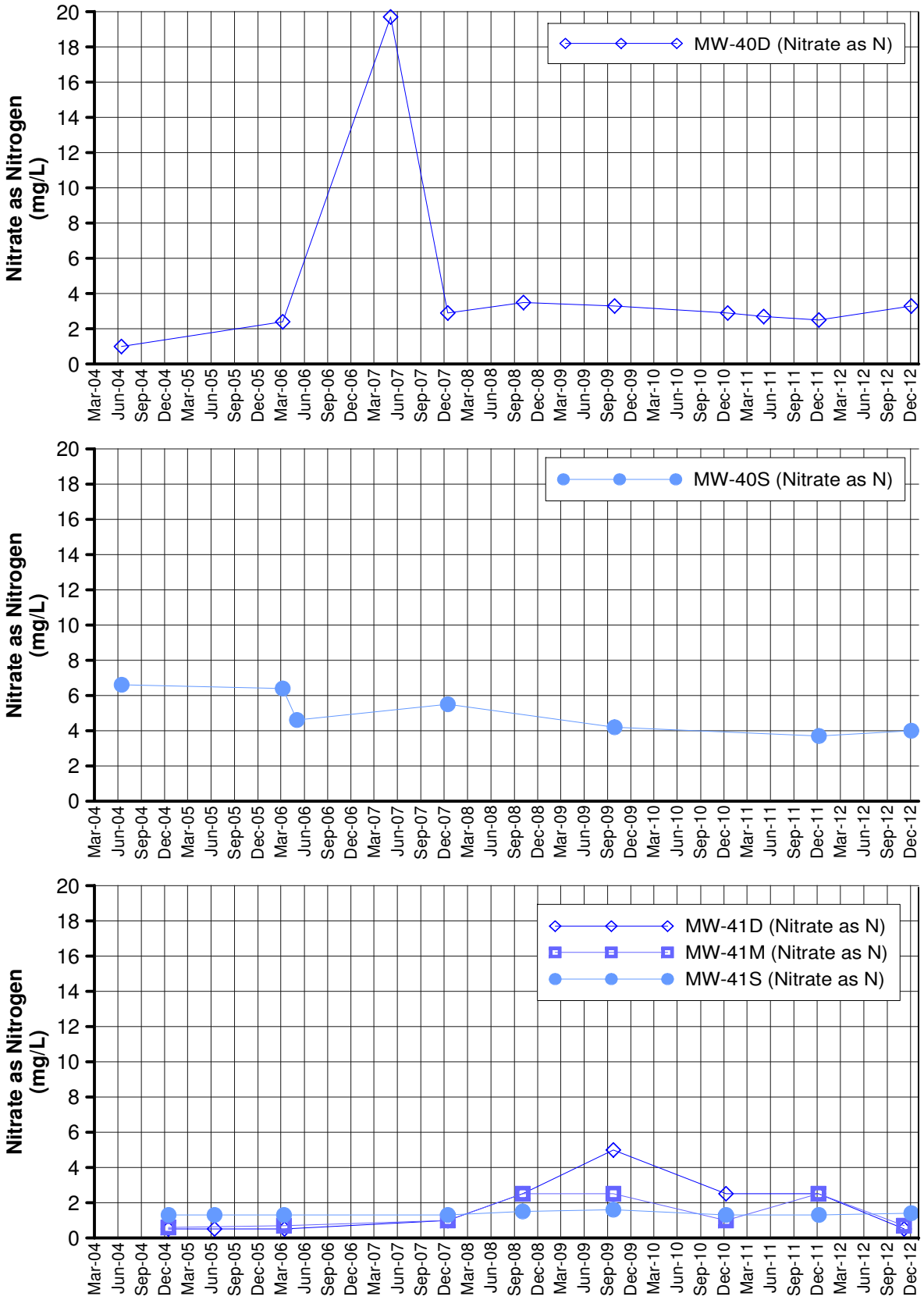
FIGURE C-42
NITRATE as NITROGEN
IN MW-37 AND MW-39 CLUSTERS
FOURTH QUARTER 2012 AND ANNUAL 2012 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL



Notes:

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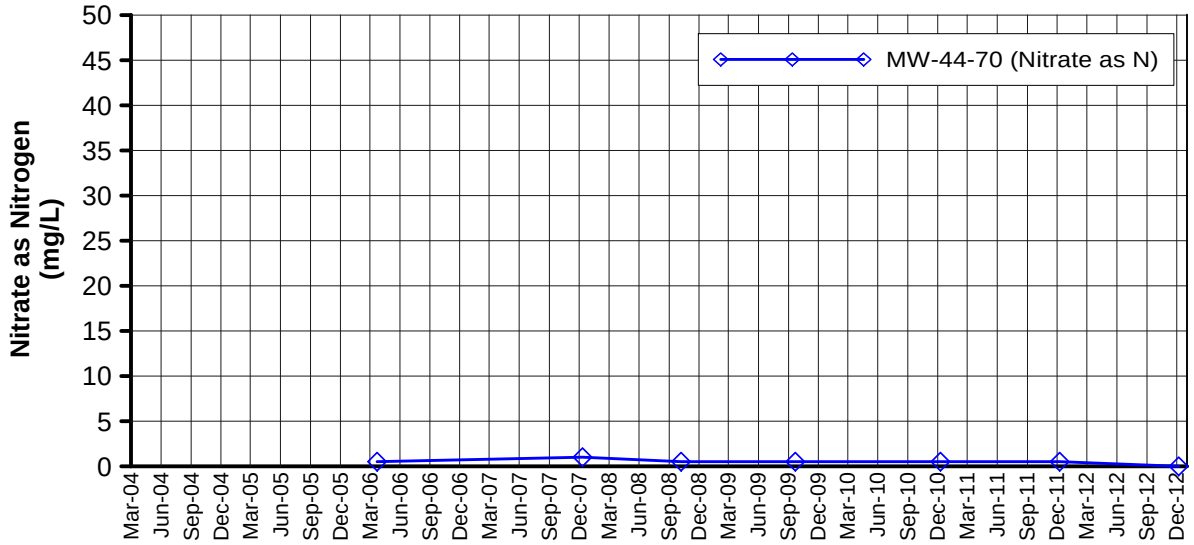
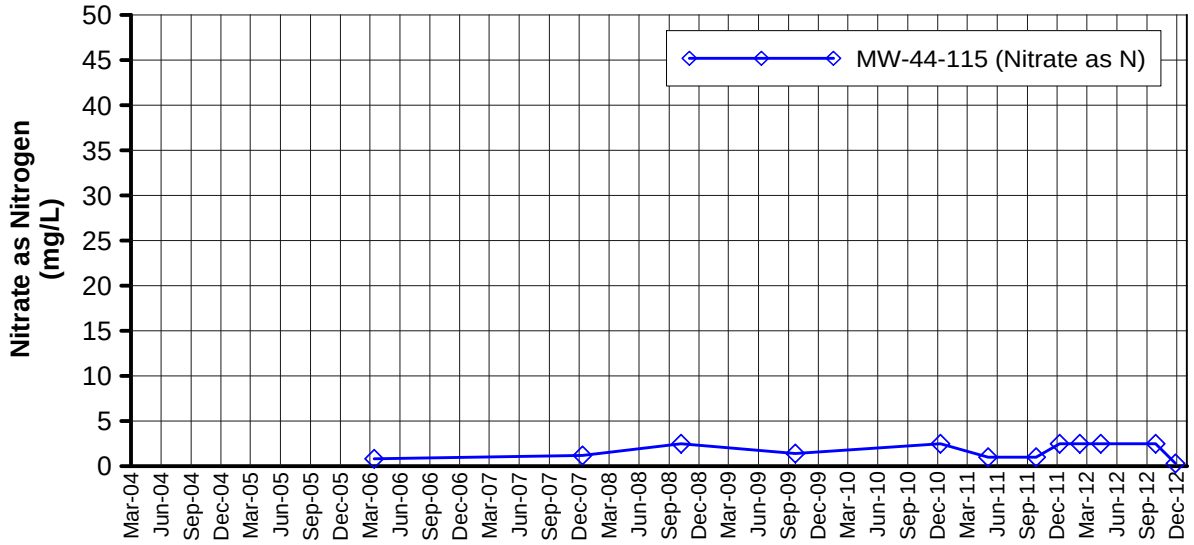
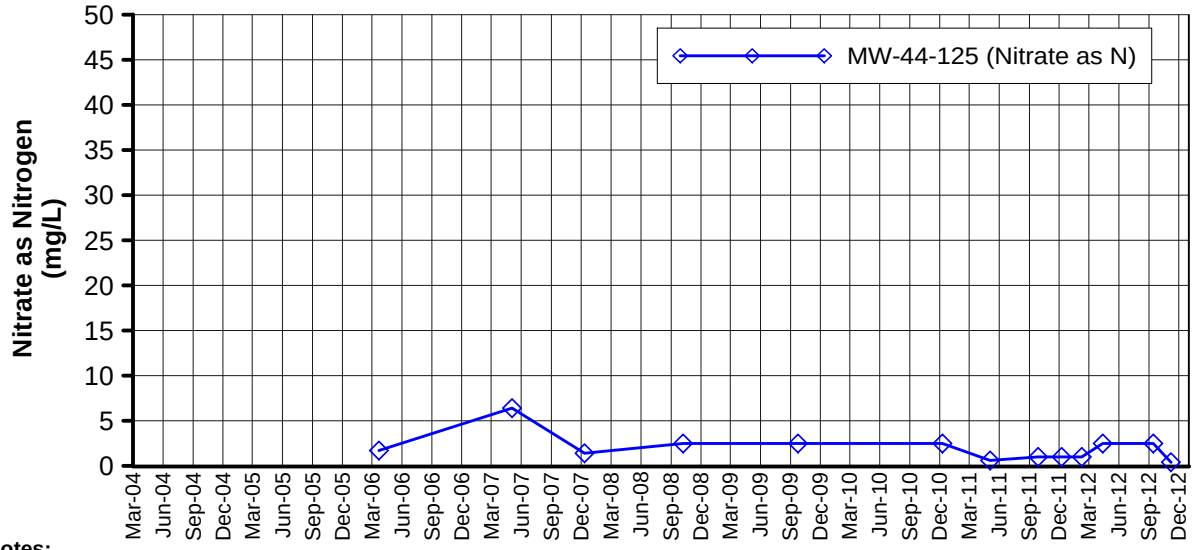
FIGURE C-43
NITRATE as NITROGEN
IN MW-40 AND MW-41 CLUSTERS
FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL





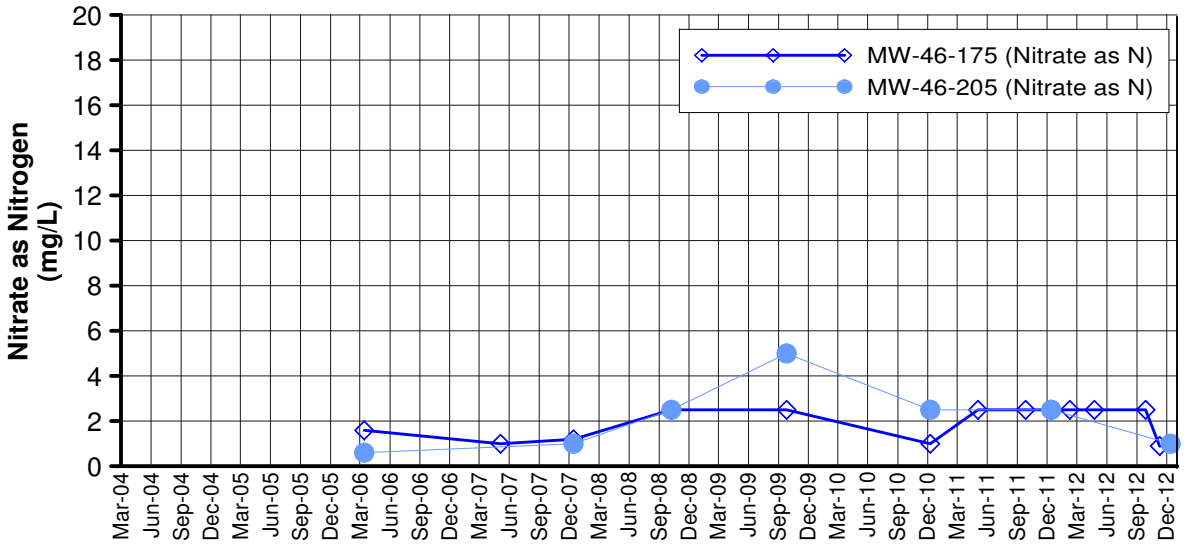


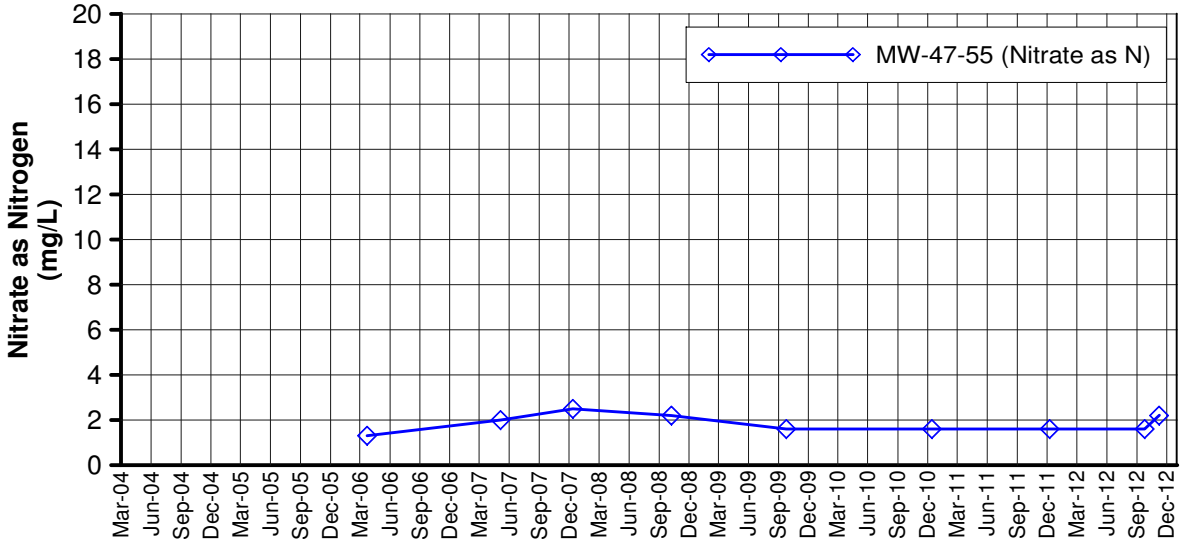
Notes:

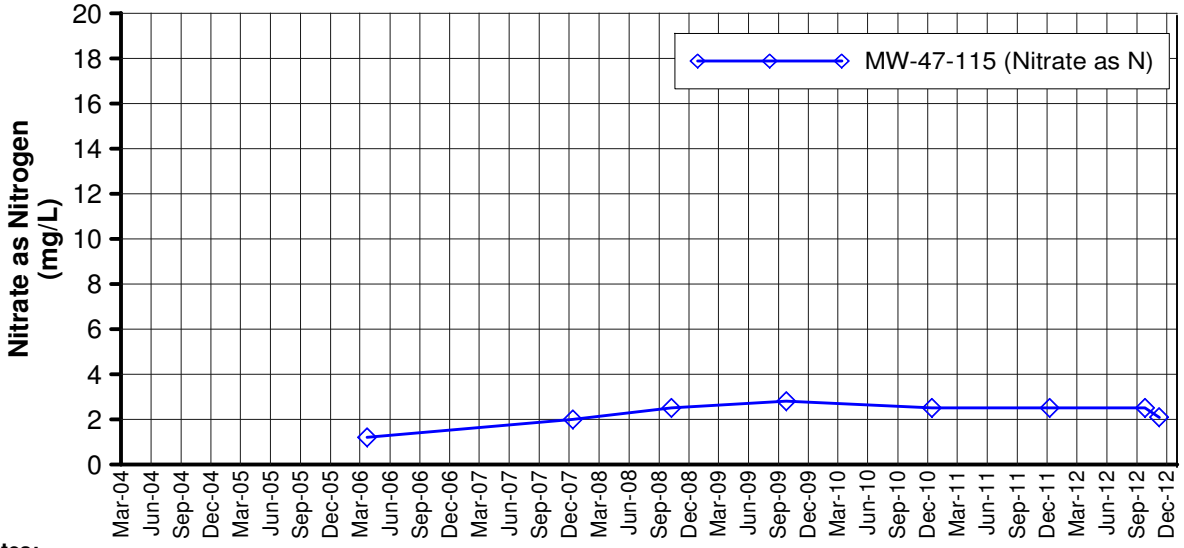
Starting in Fourth Quarter 2012 nitrate samples were analyzed using method USEPA 353.2, which reports a combination of nitrate and nitrite. The contribution of nitrite to the reported result of nitrate plus nitrite as nitrogen is expected to be negligible, therefore sample results for method USEPA 353.2 are expected to be essentially the same as previous samples analyzed using method USEPA 300.0 and reported as nitrate as nitrogen.

FIGURE C-44
NITRATE as NITROGEN
IN MW-44 CLUSTER
FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL







Notes:

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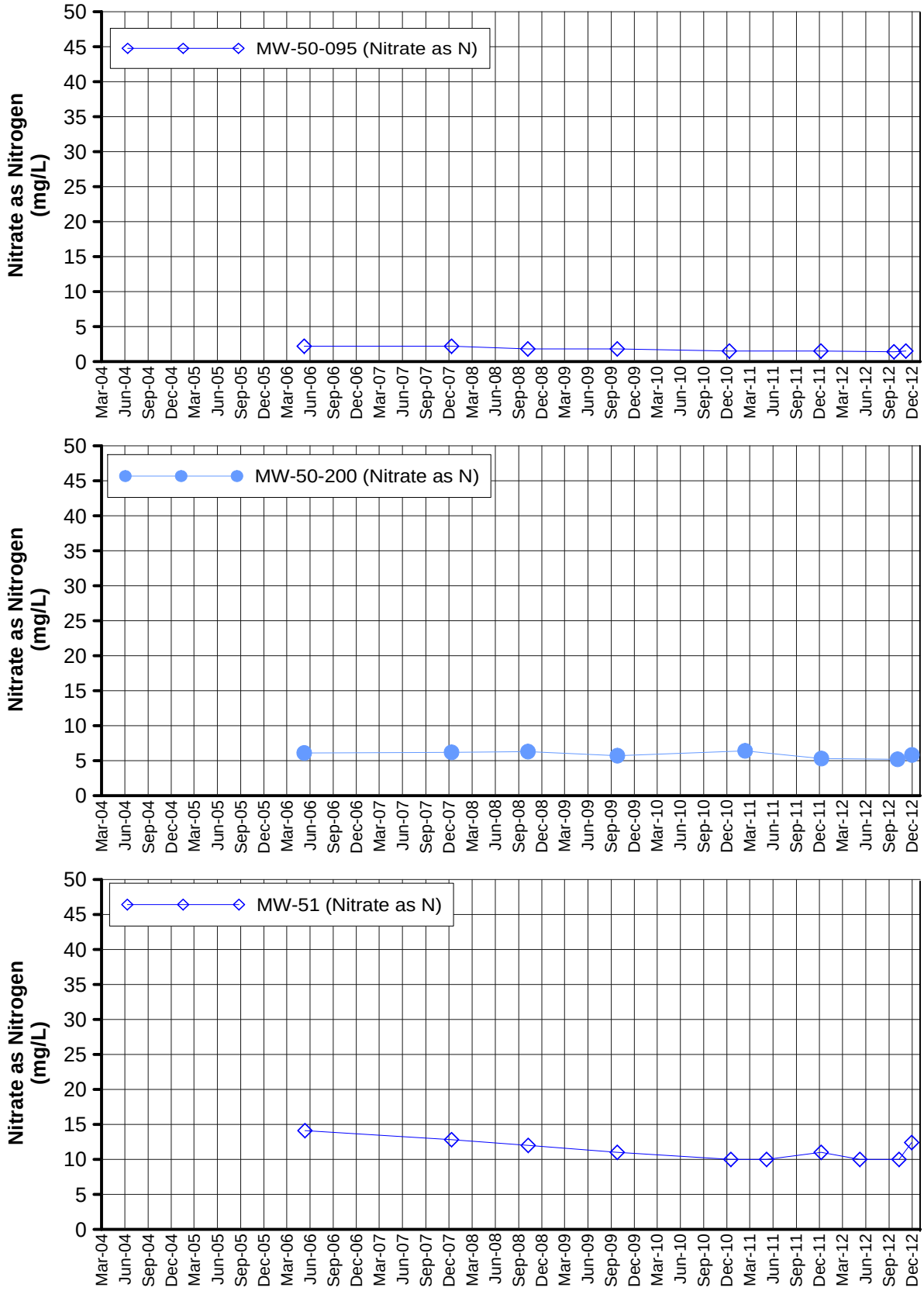
FIGURE C-45
NITRATE as NITROGEN
IN MW-46 AND MW-47 CLUSTERS
FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL



Notes:

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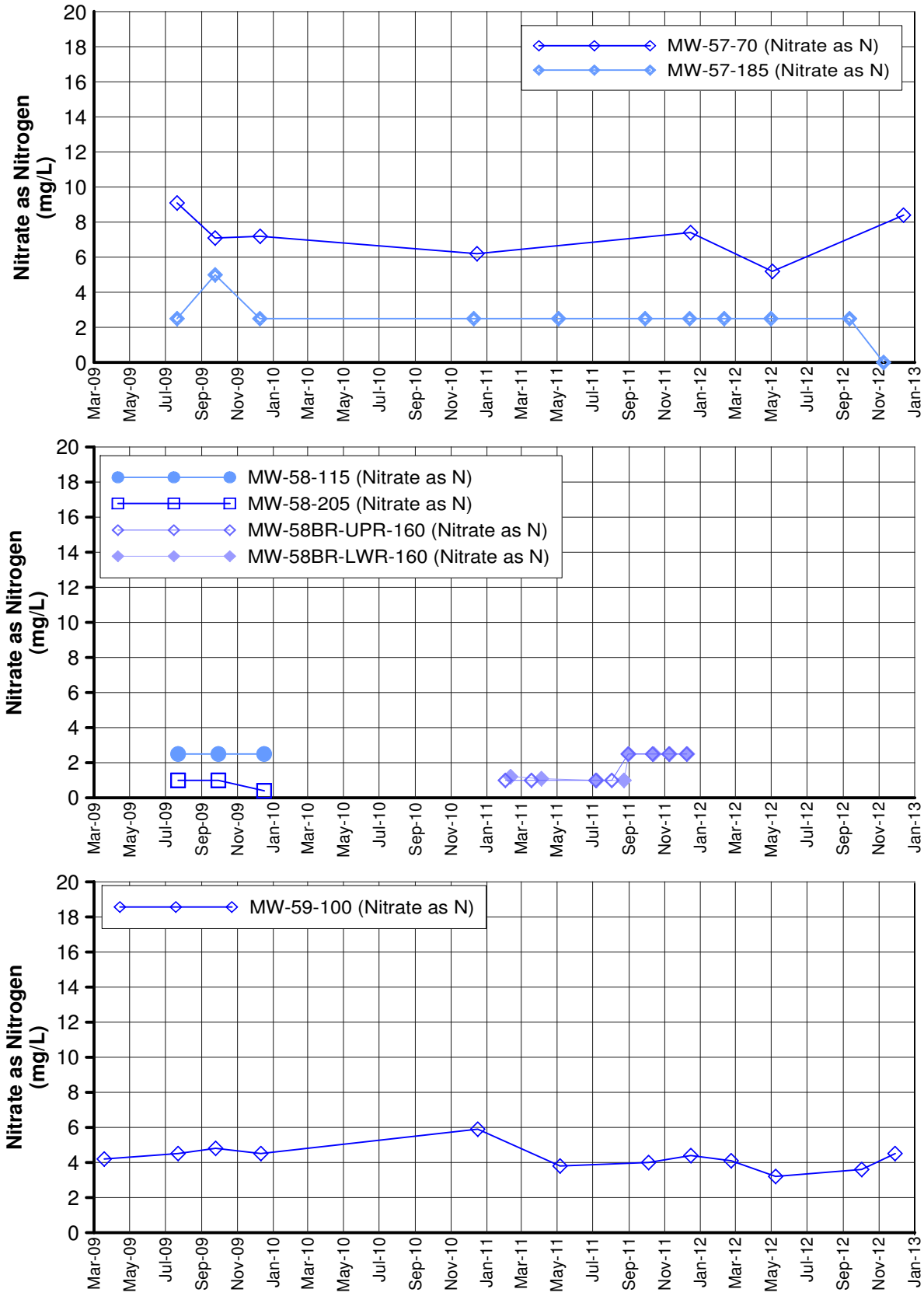
FIGURE C-46
NITRATE as NITROGEN
IN MW-50 AND MW-51 CLUSTERS
FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL



Notes:

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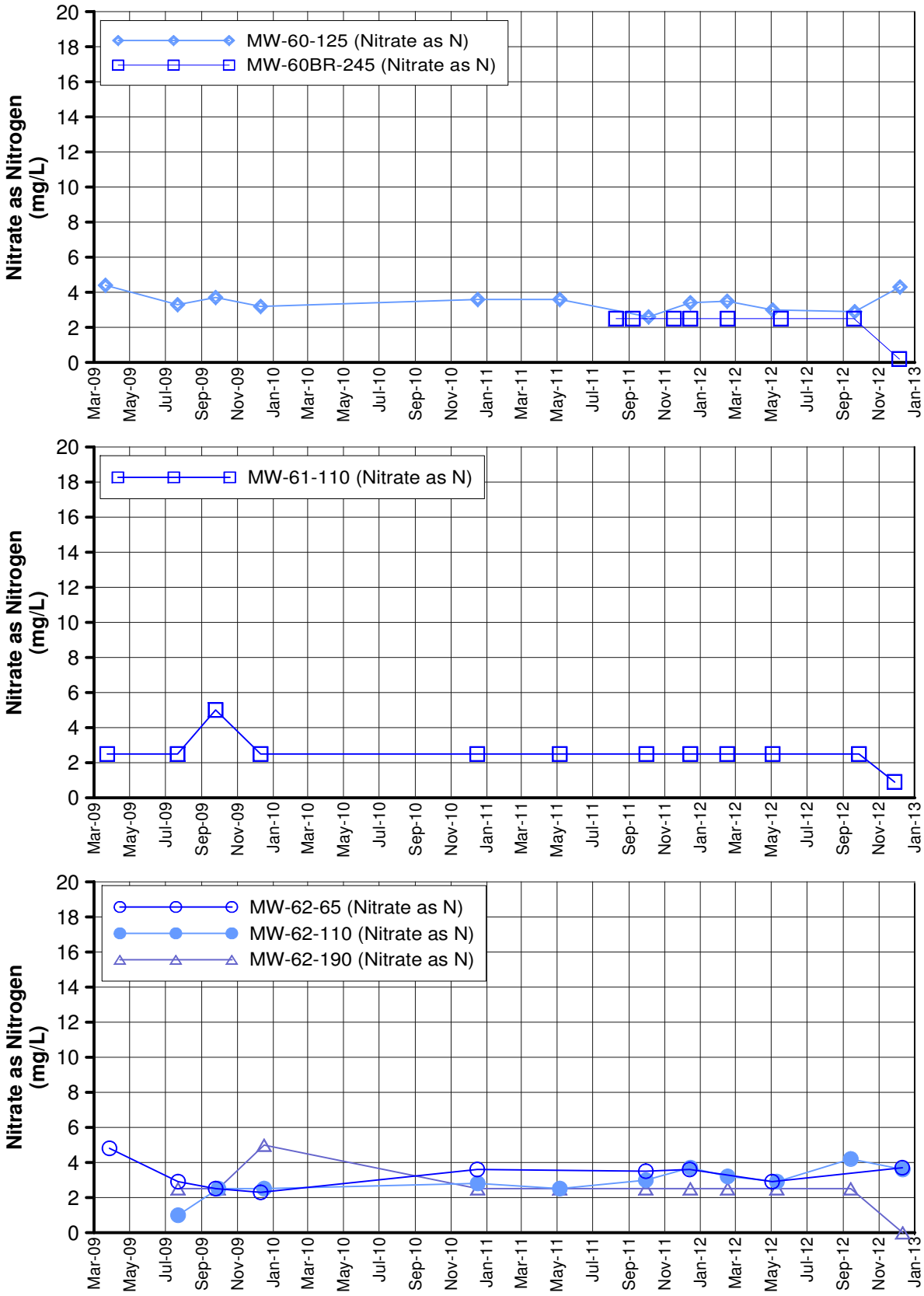
FIGURE C-47
NITRATE as NITROGEN
IN MW-57 CLUSTER, MW-58 CLUSTER AND MW-59-100
FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL



Notes:

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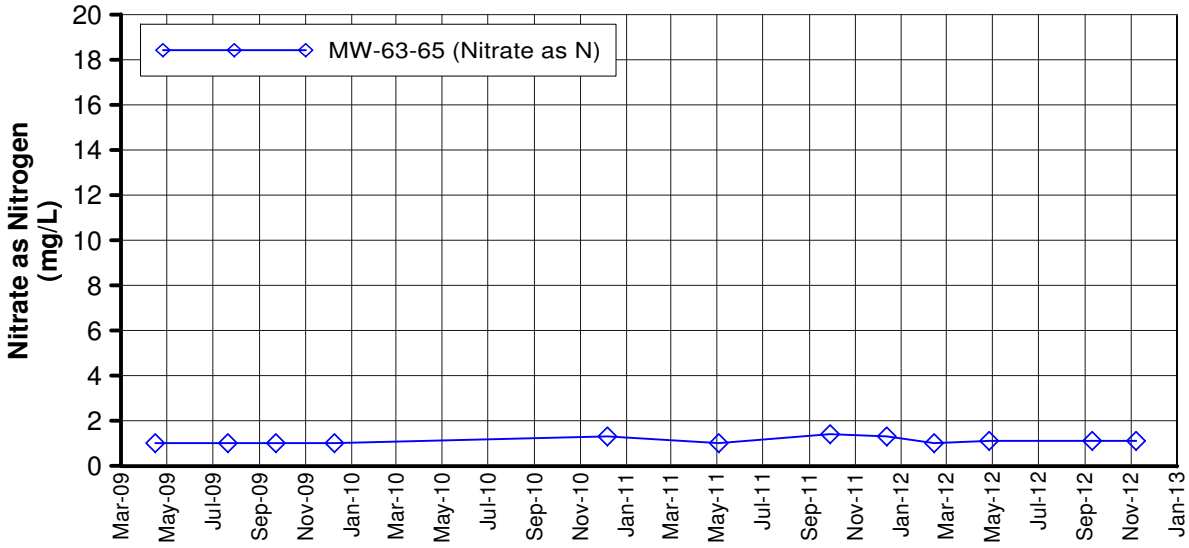
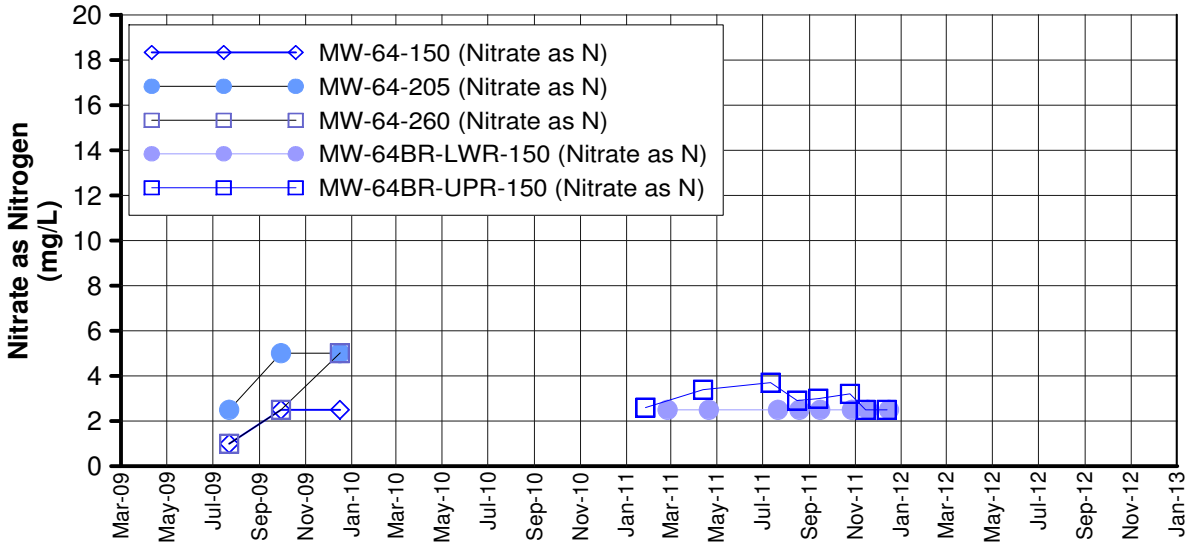
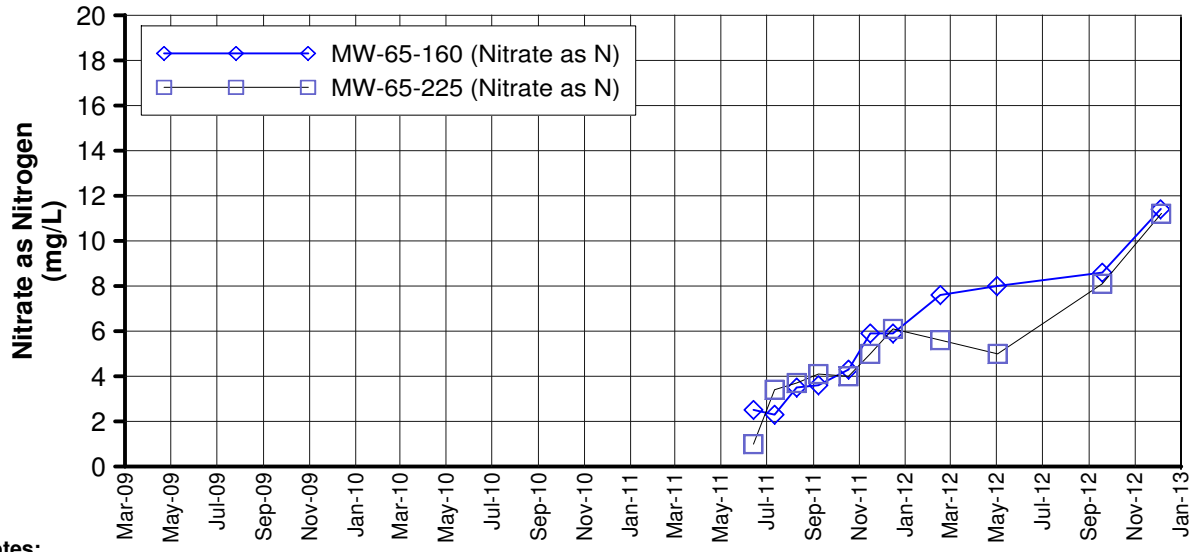
FIGURE C-48
NITRATE as NITROGEN
IN MW-60 CLUSTER, MW-61-110 AND MW-62 CLUSTER
FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL





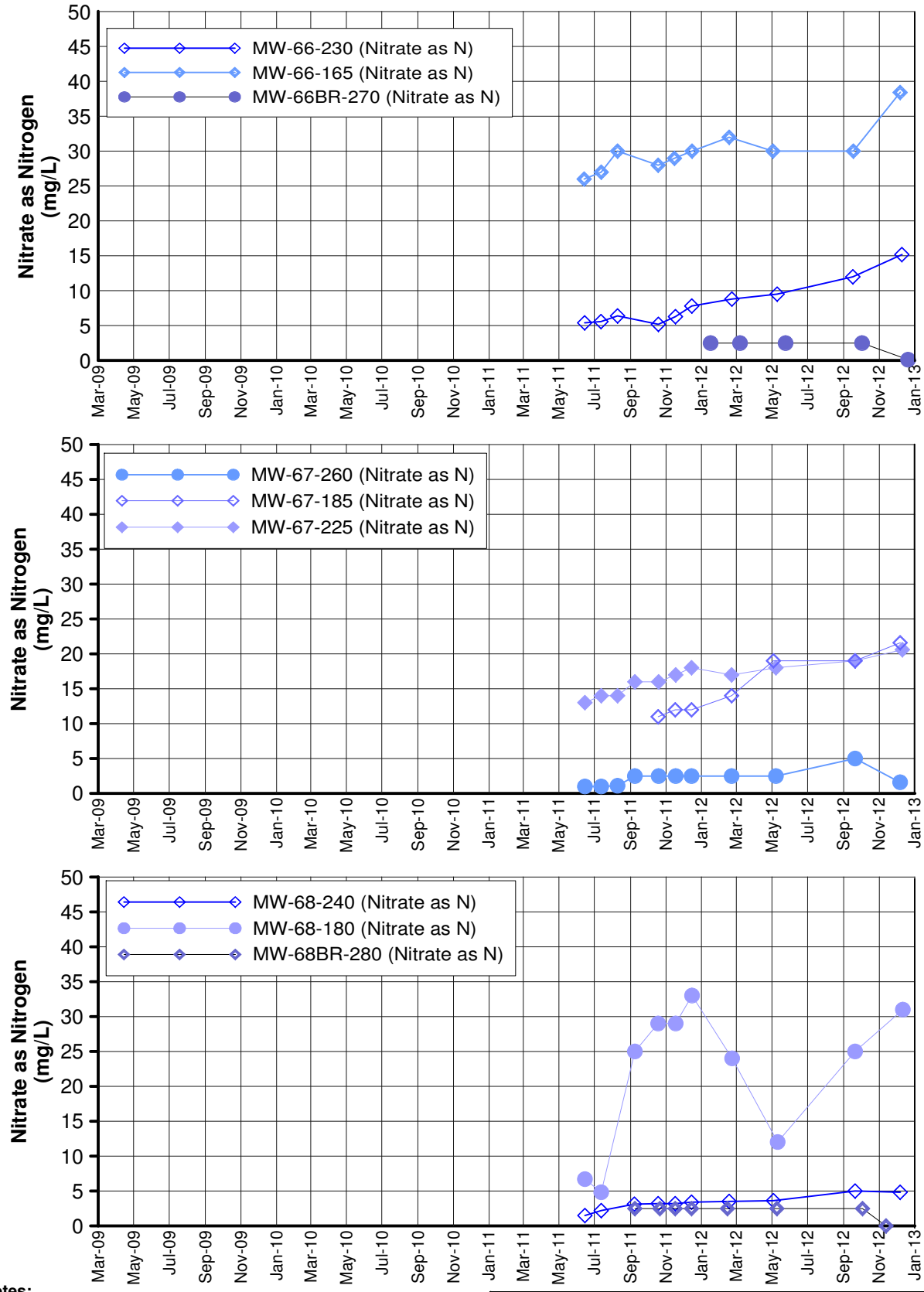


Notes:

Starting in Fourth Quarter 2012 nitrate samples were analyzed using method USEPA 353.2, which reports a combination of nitrate and nitrite. The contribution of nitrite to the reported result of nitrate plus nitrite as nitrogen is expected to be negligible, therefore sample results for method USEPA 353.2 are expected to be essentially the same as previous samples analyzed using method USEPA 300.0 and reported as nitrate as nitrogen.

FIGURE C-49
NITRATE as NITROGEN
IN MW-63-65,MW-64 CLUSTER AND MW-65 CLUSTER
FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL



Notes:

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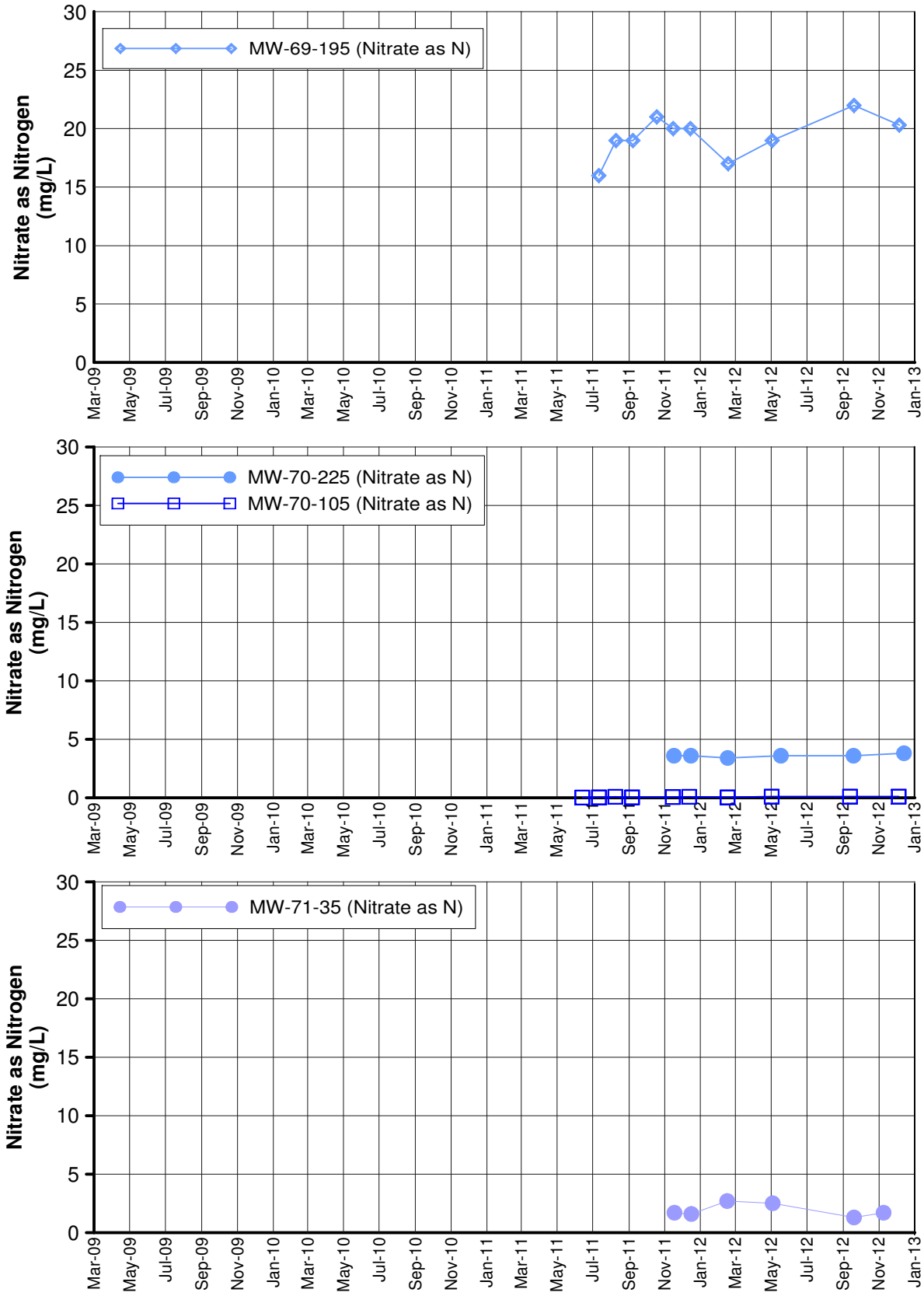
FIGURE C-50
NITRATE as NITROGEN
IN MW-66, MW-67 AND MW-68 CLUSTERS
FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

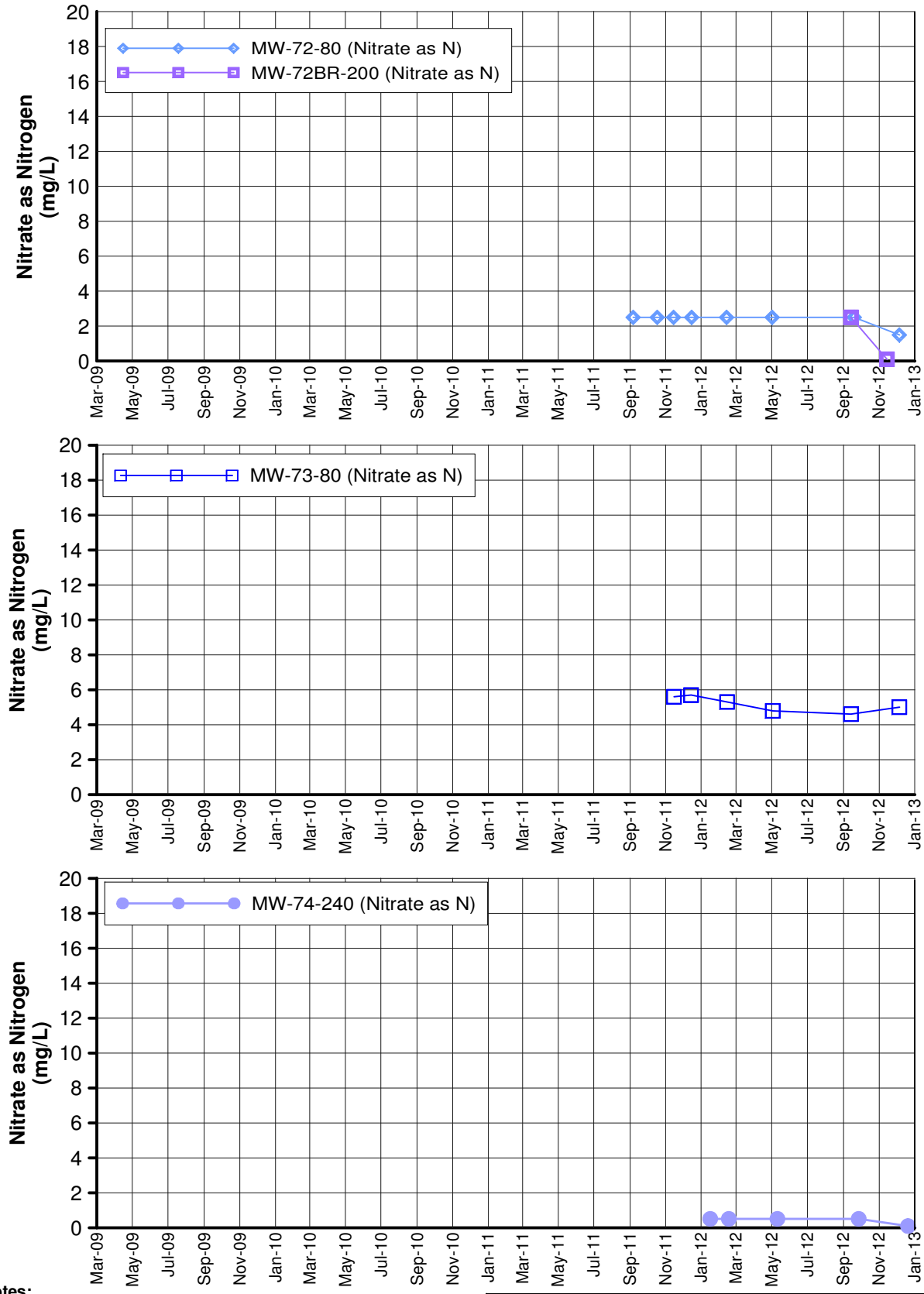


Notes:

Starting in Fourth Quarter 2012 nitrate samples were analyzed using method USEPA 353.2, which reports a combination of nitrate and nitrite. The contribution of nitrite to the reported result of nitrate plus nitrite as nitrogen is expected to be negligible, therefore sample results for method USEPA 353.2 are expected to be essentially the same as previous samples analyzed using method USEPA 300.0 and reported as nitrate as nitrogen.

FIGURE C-51
NITRATE as NITROGEN
IN MW-69-195, MW-70 CLUSTER AND MW-71-35
FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

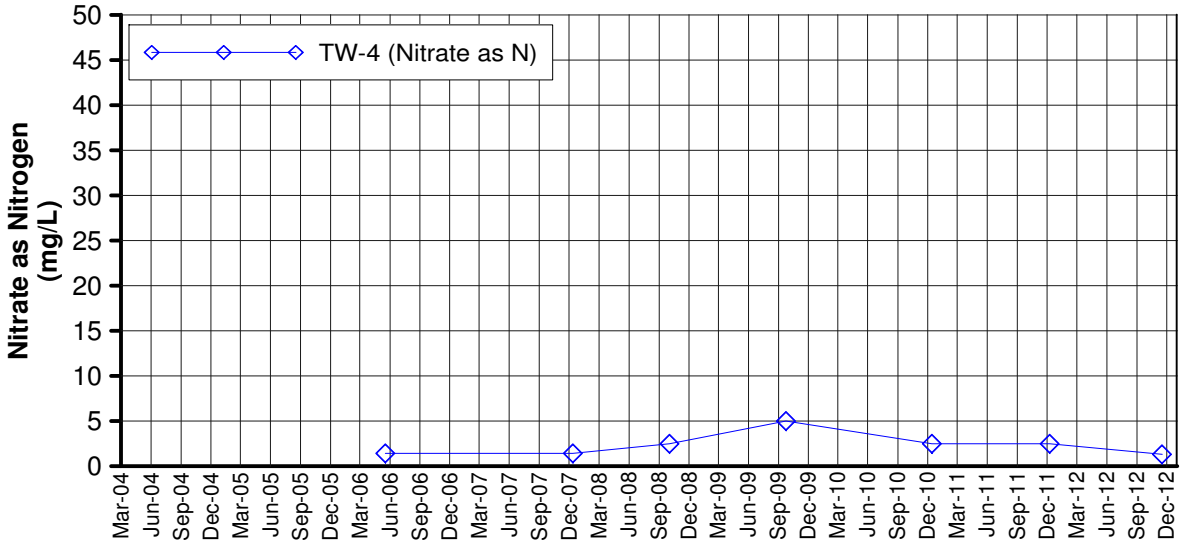


Notes:

Starting in Fourth Quarter 2012 nitrate samples were analyzed using method USEPA 353.2, which reports a combination of nitrate and nitrite. The contribution of nitrite to the reported result of nitrate plus nitrite as nitrogen is expected to be negligible, therefore sample results for method USEPA 353.2 are expected to be essentially the same as previous samples analyzed using method USEPA 300.0 and reported as nitrate as nitrogen.

FIGURE C-52
NITRATE as NITROGEN
IN MW-72 CLUSTER, MW-73-80 AND MW-74-240
FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL



Notes:

Starting in Fourth Quarter 2012 nitrate samples were analyzed using method USEPA 353.2, which reports a combination of nitrate and nitrite. The contribution of nitrite to the reported result of nitrate plus nitrite as nitrogen is expected to be negligible, therefore sample results for method USEPA 353.2 are expected to be essentially the same as previous samples analyzed using method USEPA 300.0 and reported as nitrate as nitrogen.

FIGURE C-53
NITRATE as NITROGEN
IN TW-4
FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

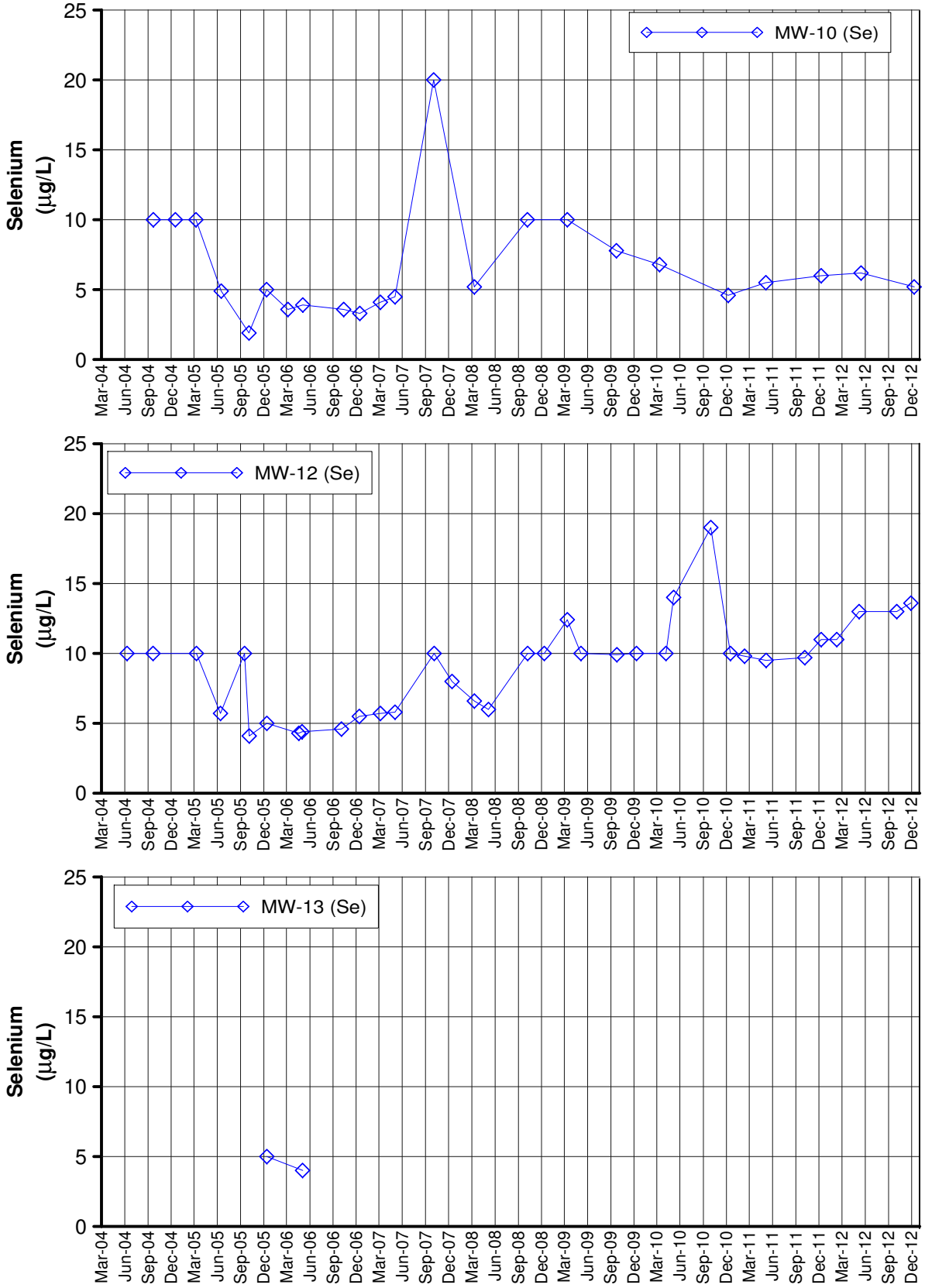


FIGURE C-54
SELENIUM
IN MW-10, MW-12 AND MW-13
FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

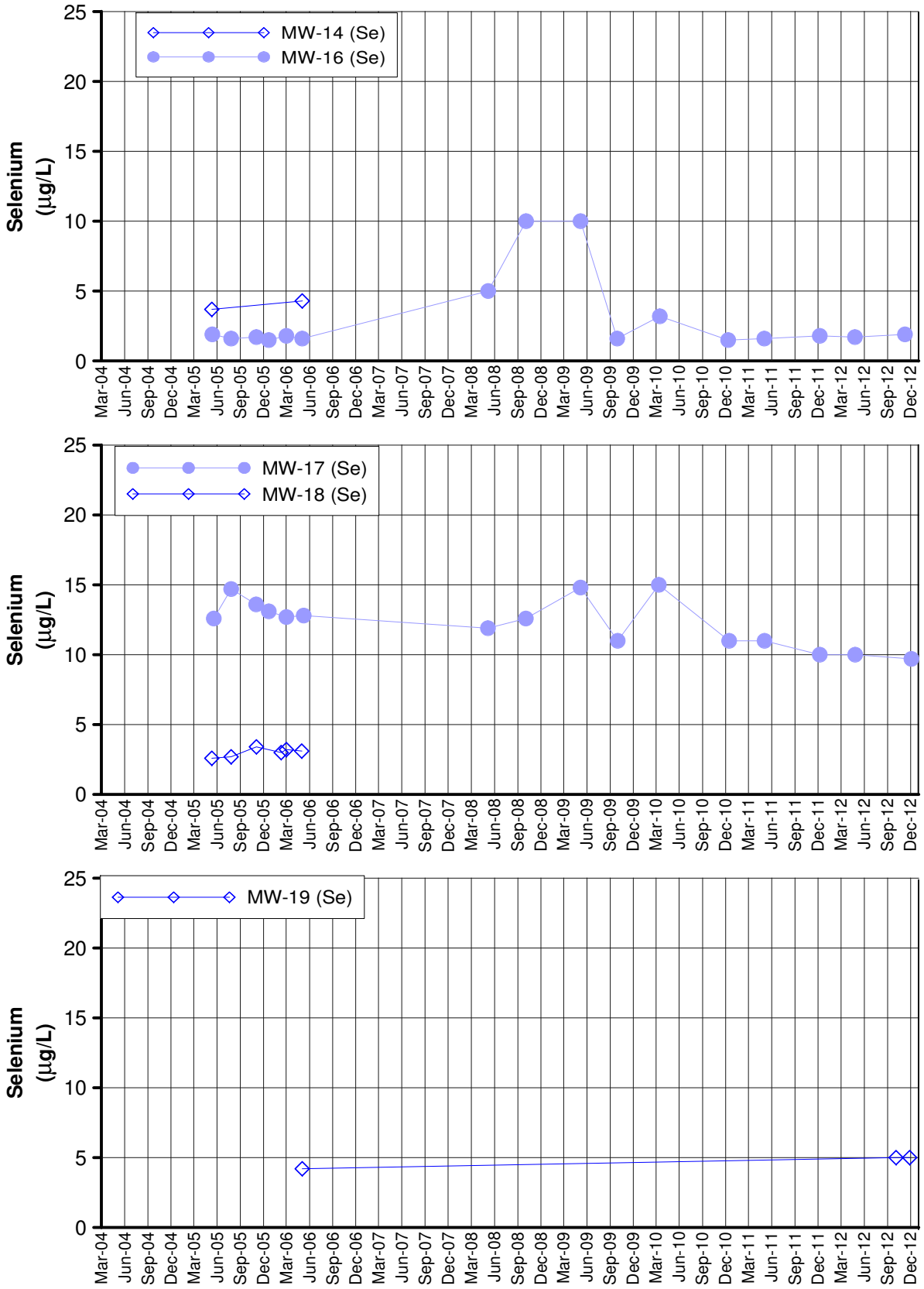


FIGURE C-55
SELENIUM
IN MW-14, MW-16, MW-17, MW-18 AND MW-19
FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

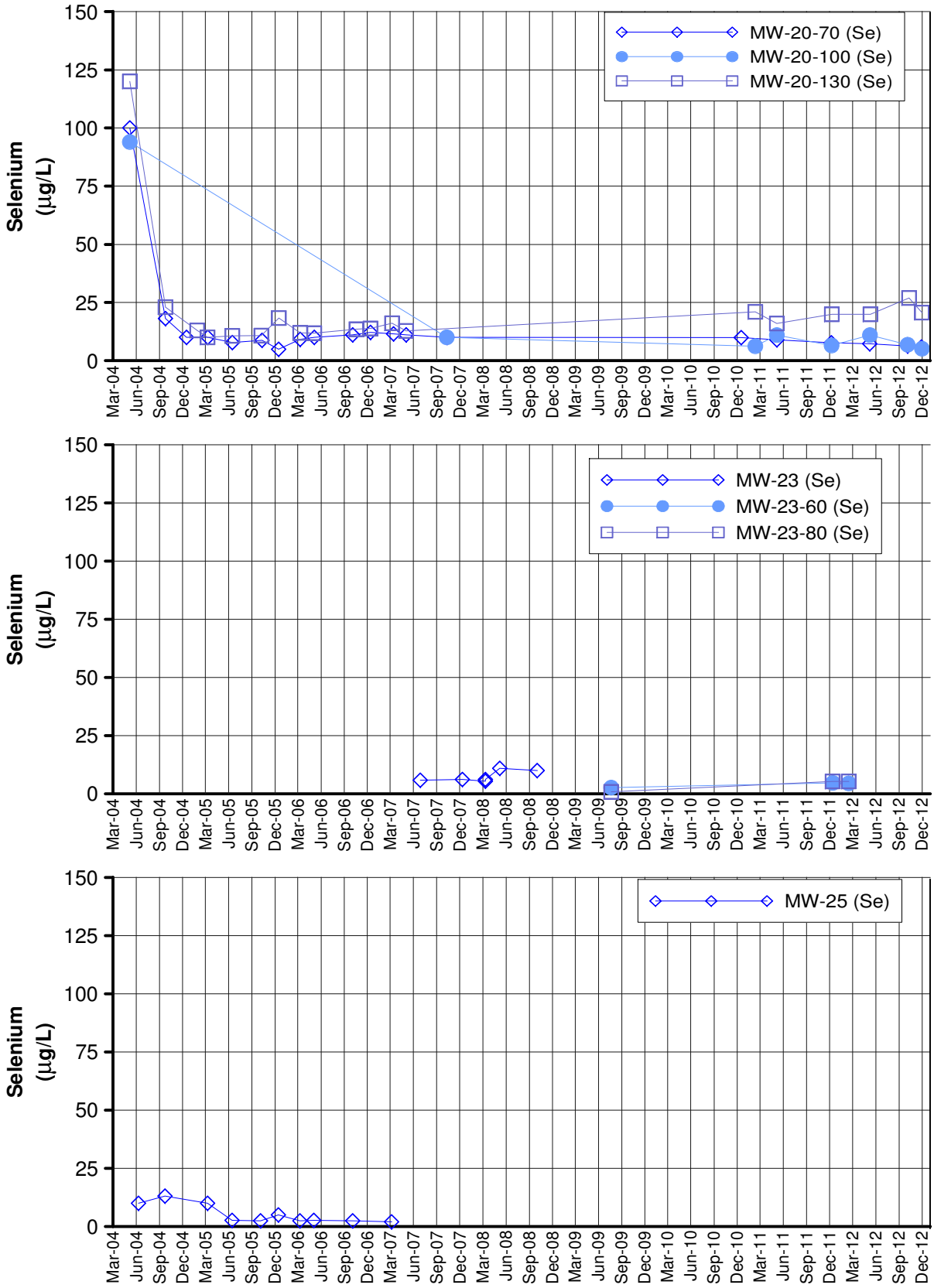


FIGURE C-56
SELENIUM
IN MW-20 CLUSTER, MW-23 CLUSTER AND MW-25
FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

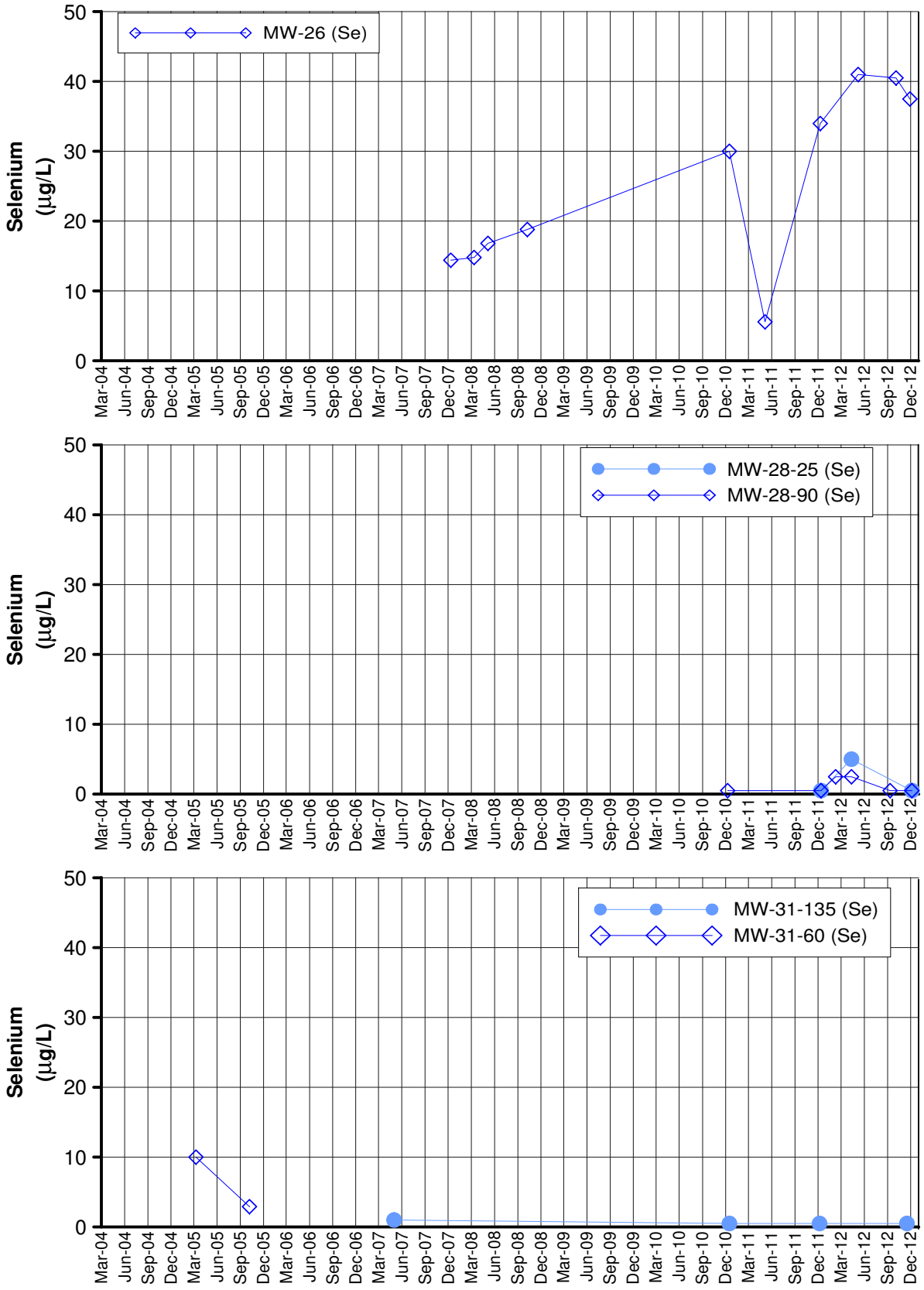


FIGURE C-57
SELENIUM
IN MW-26, MW-28 CLUSTER AND MW-31 CLUSTER
FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

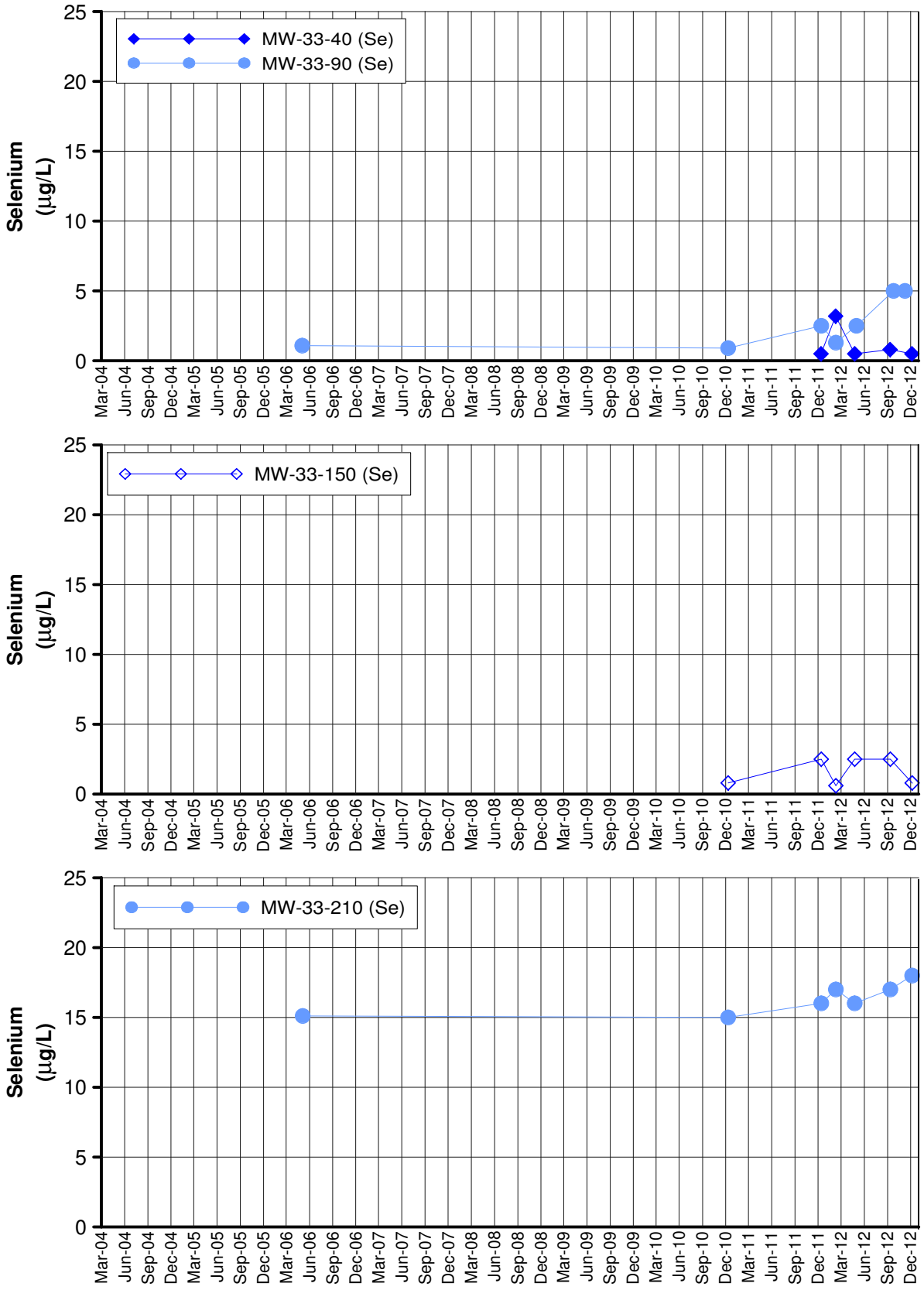


FIGURE C-58
SELENIUM
IN MW-33 CLUSTER
FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

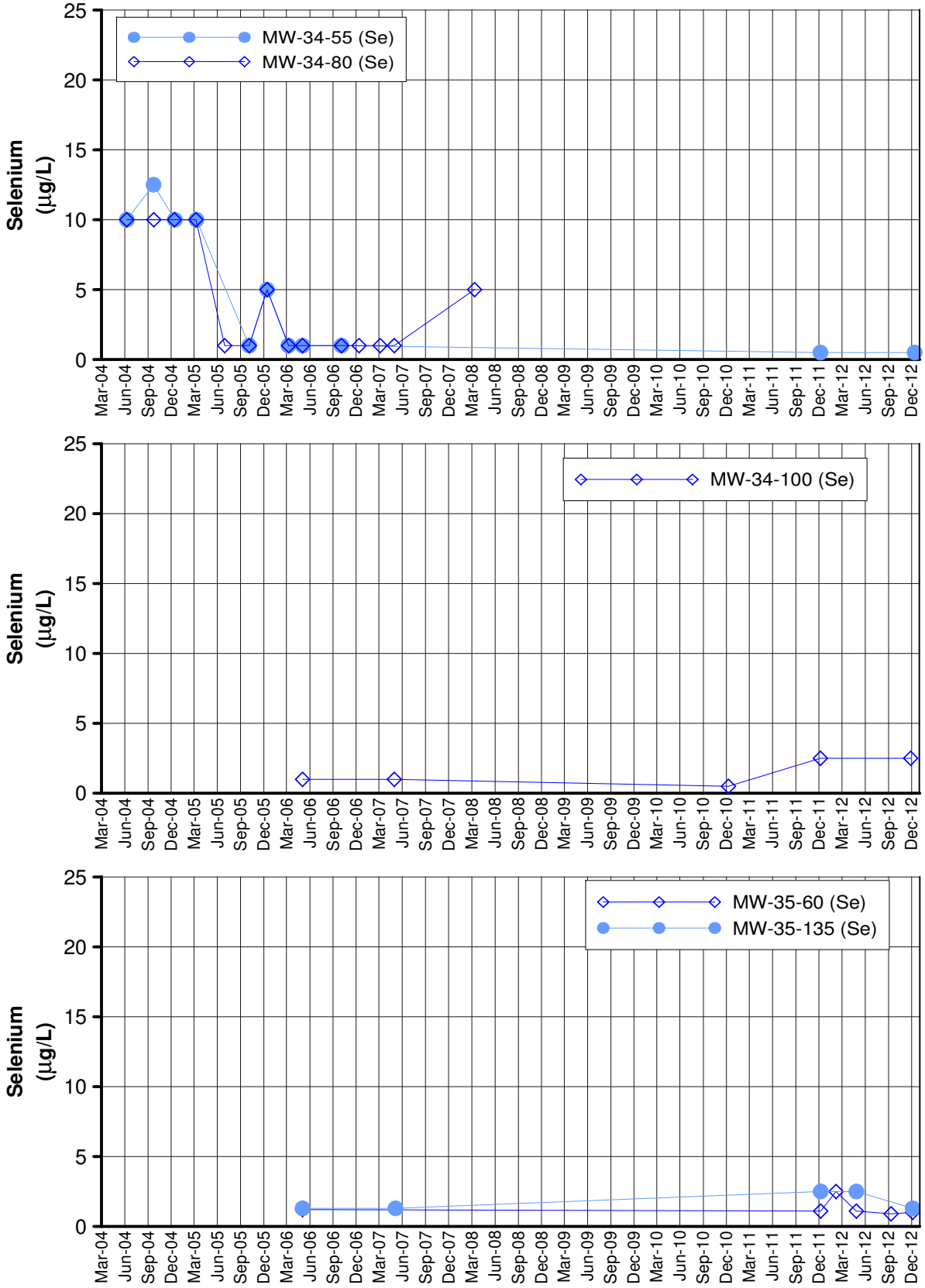


FIGURE C-59
SELENIUM
IN MW-34 AND MW-35 CLUSTERS
FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

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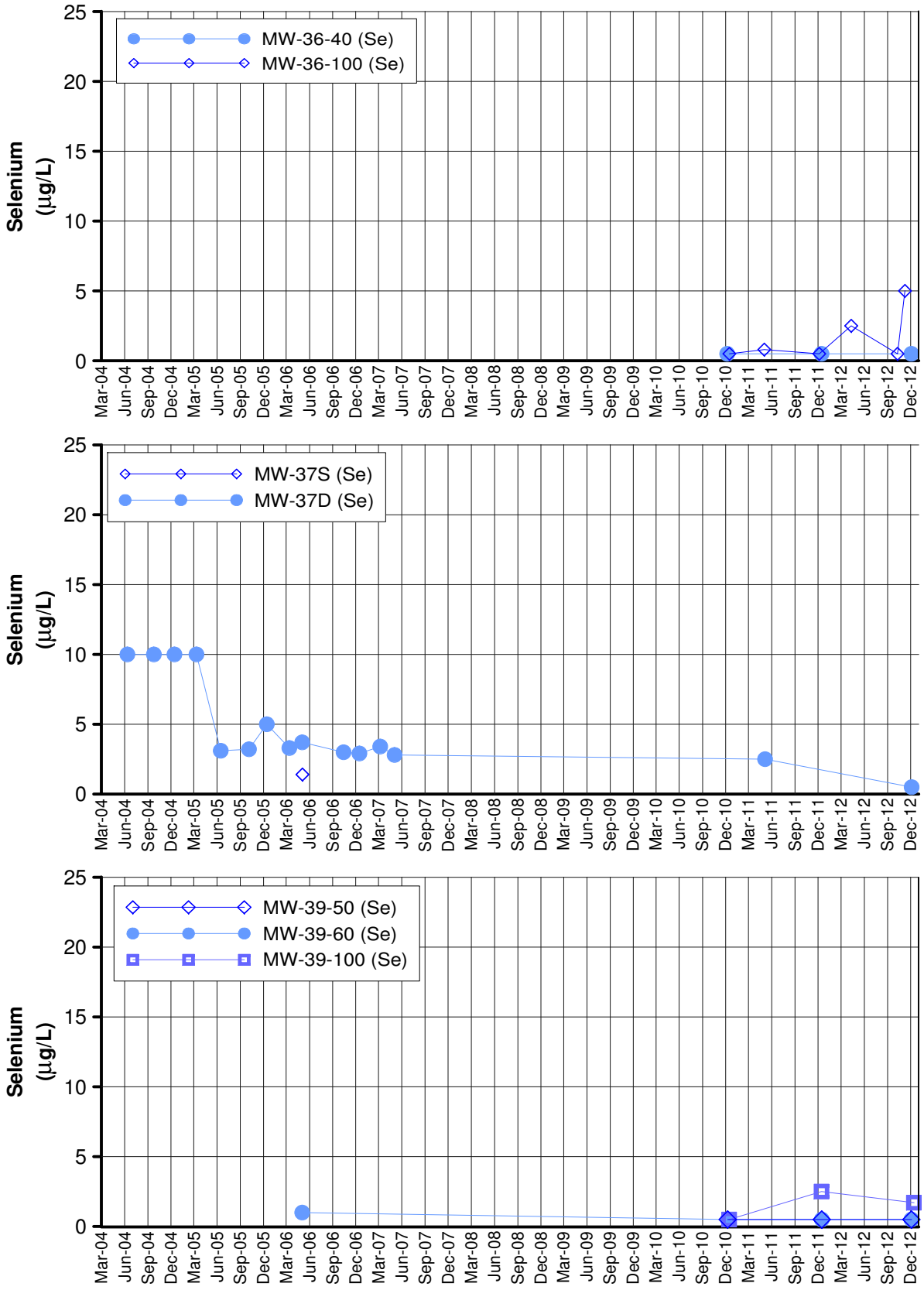

FIGURE C-60
SELENIUM
IN MW-36 CLUSTER, MW-37 CLUSTER AND MW-39 CLUSTER
FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

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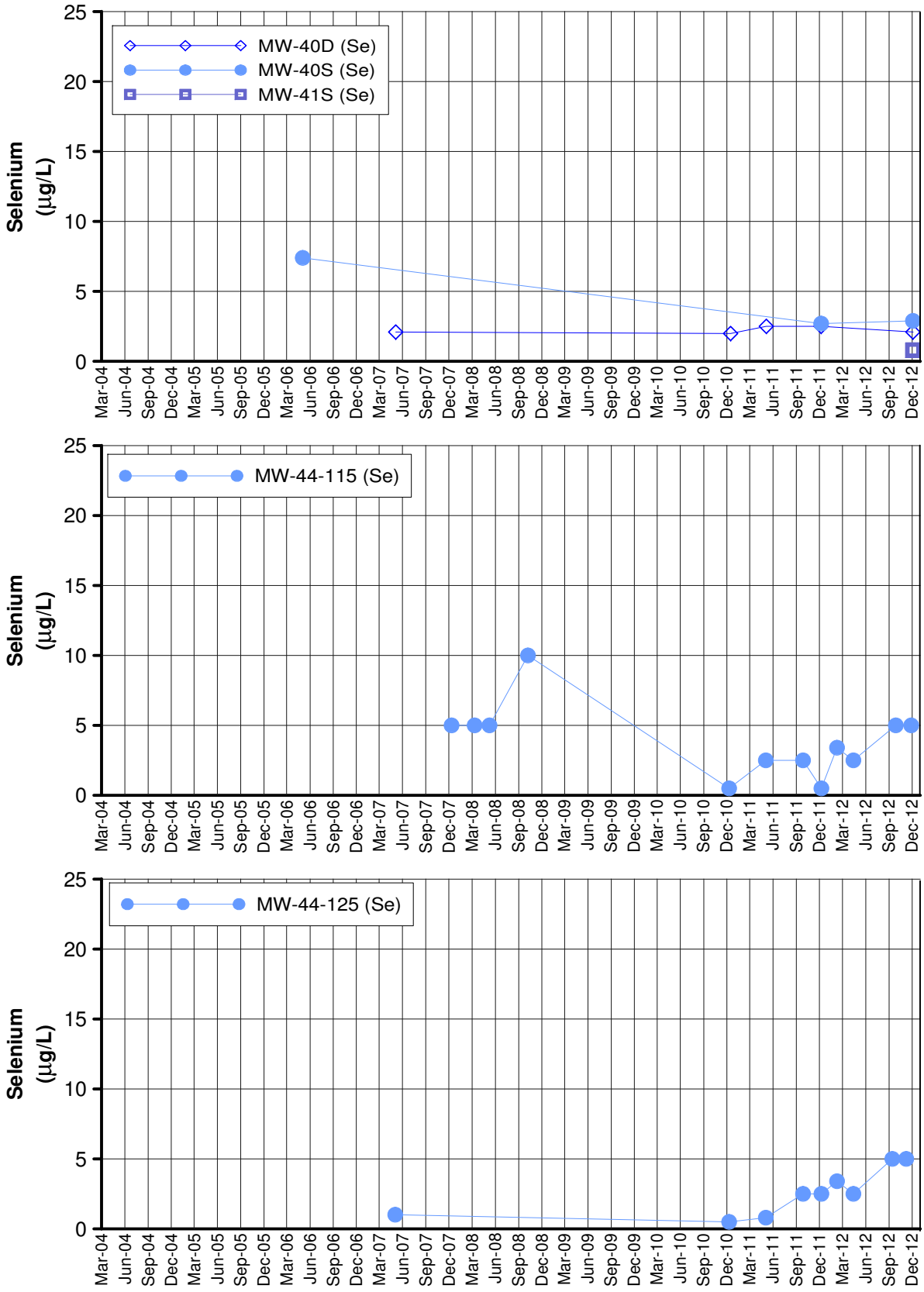

FIGURE C-61
SELENIUM
IN MW-40 CLUSTER, MW-41S AND MW-44 CLUSTER
FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

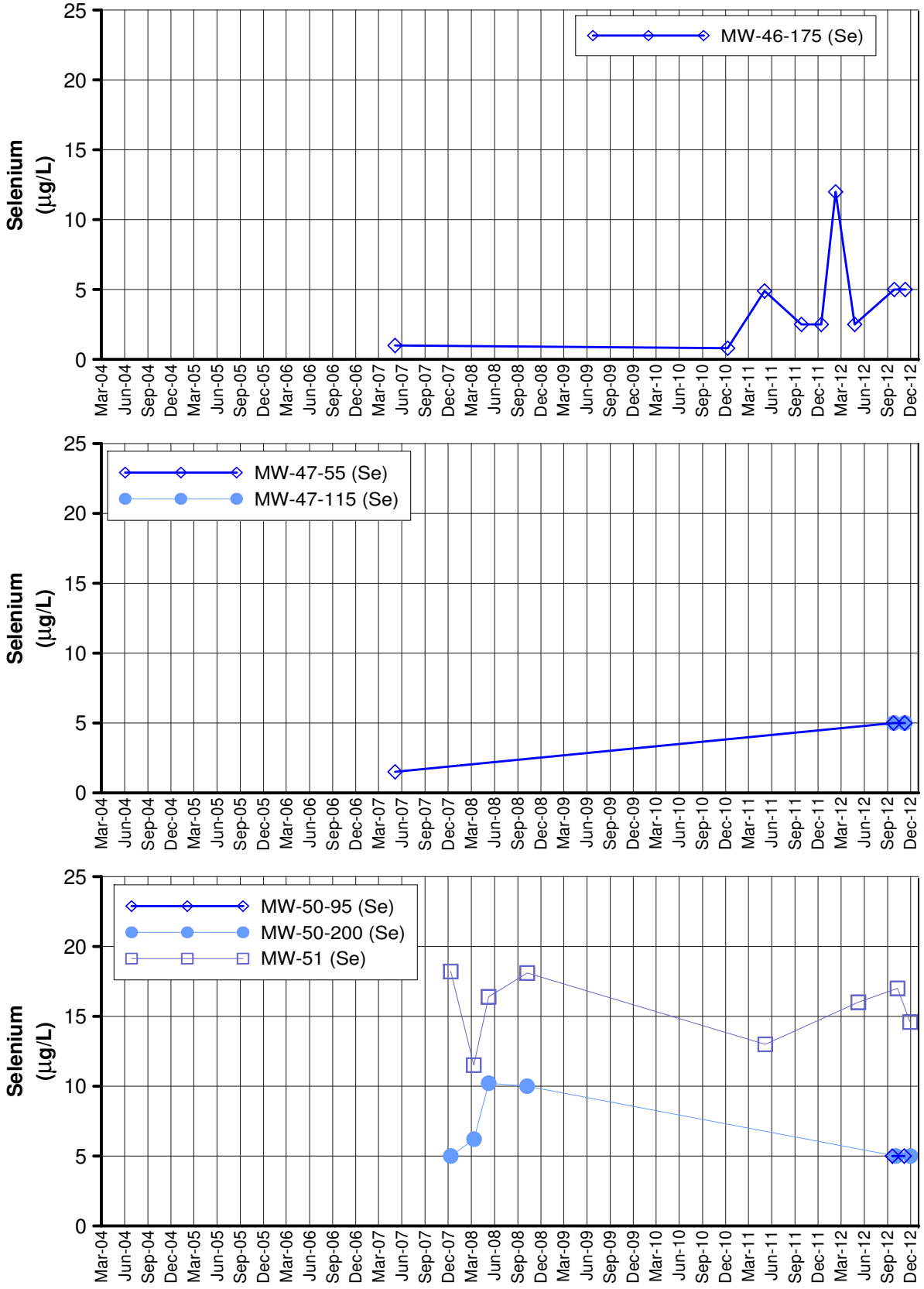

FIGURE C-62
SELENIUM
IN MW-46-175, MW-47 CLUSTER, MW-50 CLUSTER AND MW-51
FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES
PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER
AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

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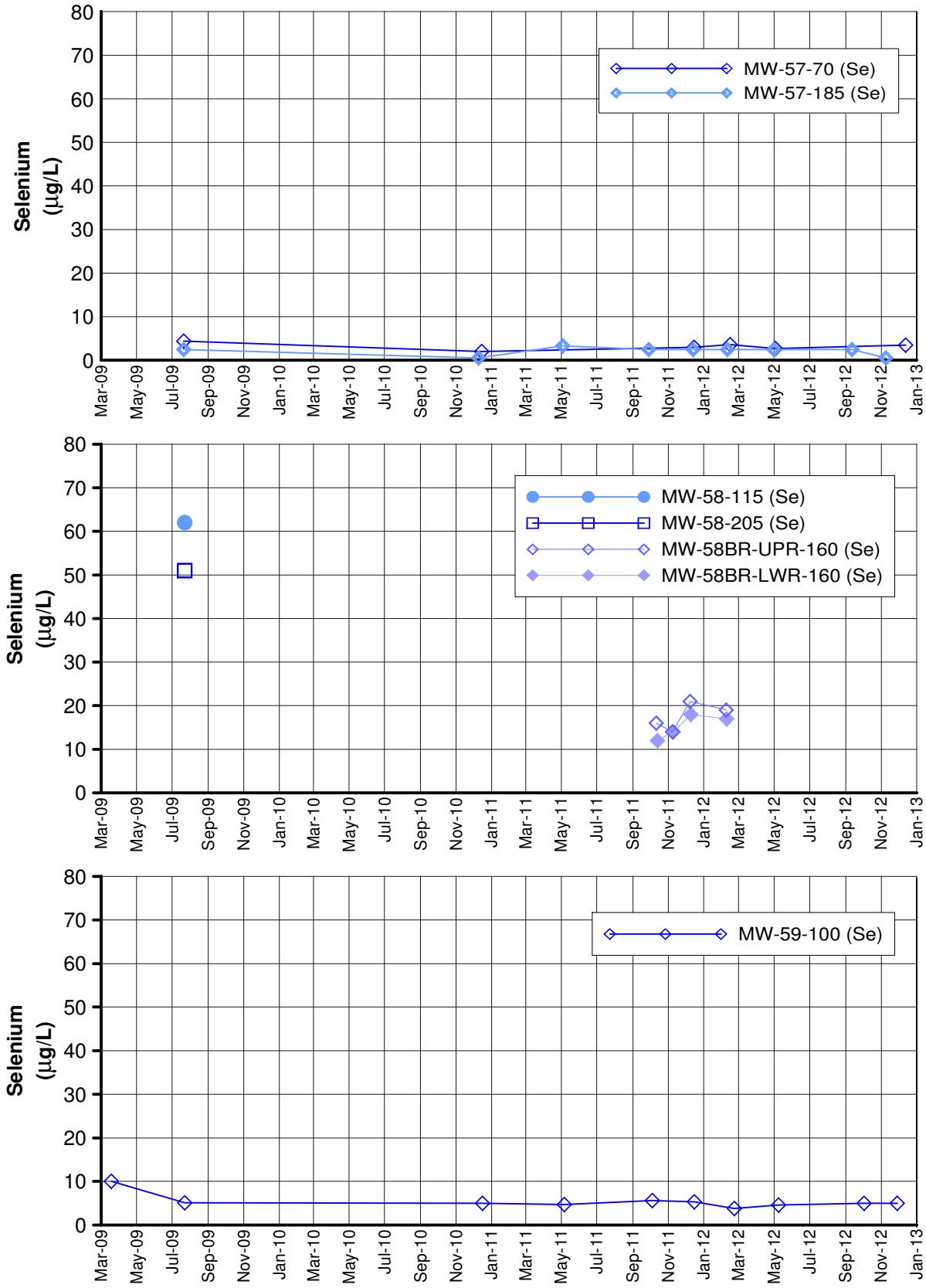

Notes:
MW-58BR upper and lower packer data prior to May 2012 is reported in:

CH2M HILL. 2012d. Technical Memorandum. *Addendum to the Summary of Findings Associated with the East Ravine Groundwater Investigation Report, PG&E Company, Topock Compressor Station, Needles, California*. November 15.

FIGURE C-63
SELENIUM
IN MW-57 CLUSTER, MW-58 CLUSTER AND MW-59-100
FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
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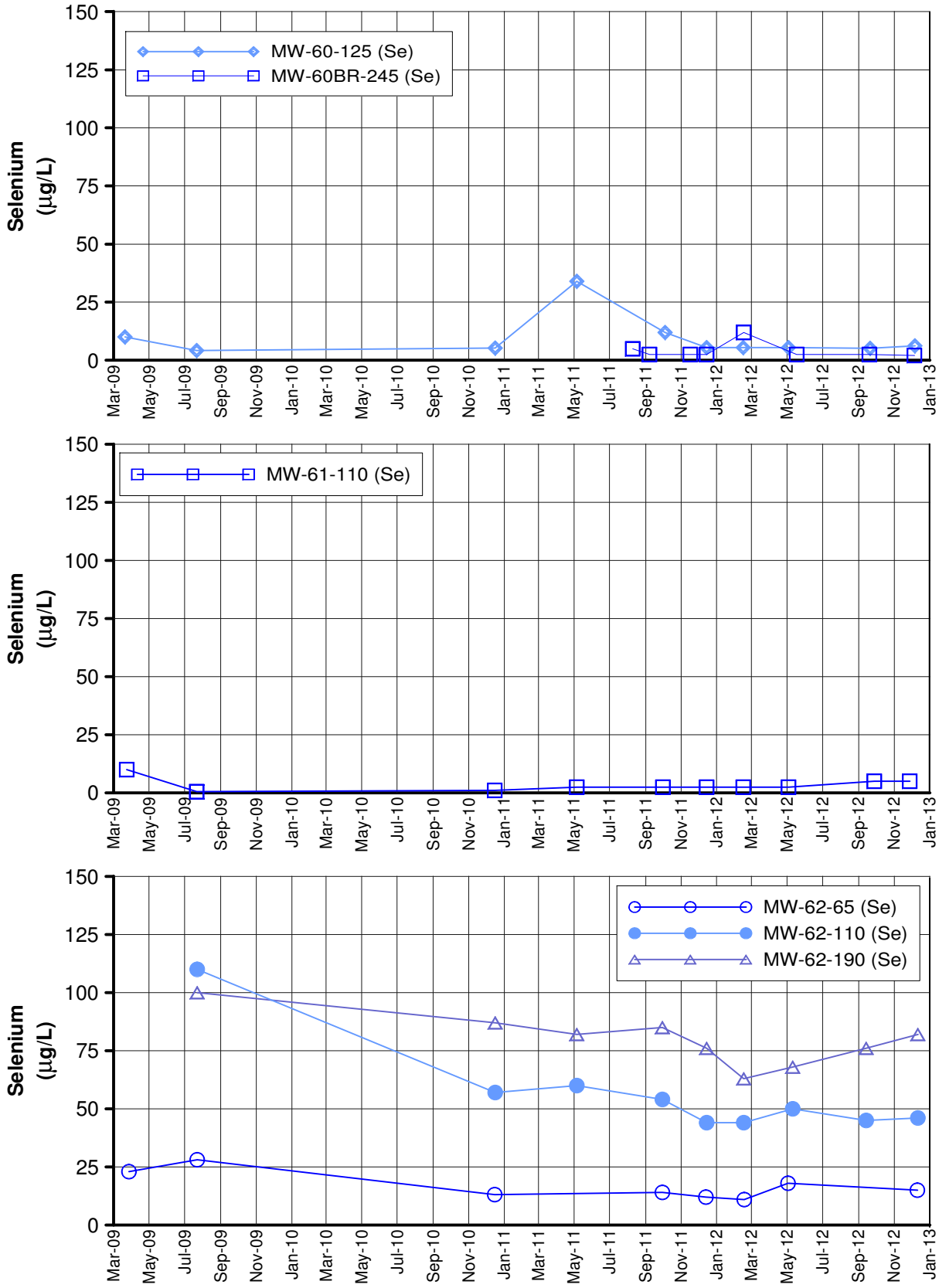

Notes:
MW-60BR-245 data prior to May 2012 is reported in:

CH2M HILL. 2012d. Technical Memorandum. *Addendum to the Summary of Findings Associated with the East Ravine Groundwater Investigation Report, PG&E Company, Topock Compressor Station, Needles, California*. November 15.

FIGURE C-64
SELENIUM
IN MW-60 CLUSTER, MW-61-110 AND MW-62 CLUSTER
FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

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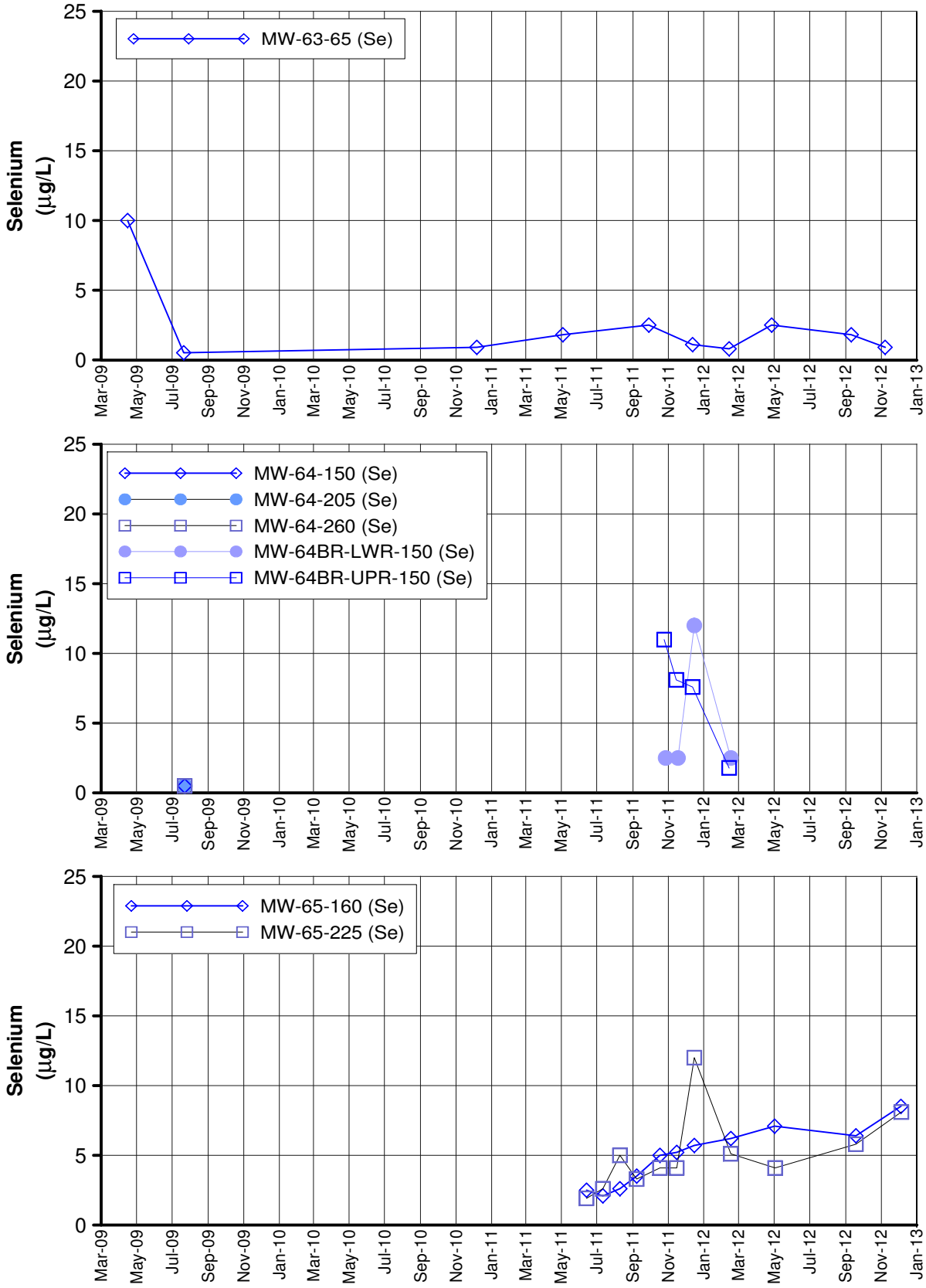

Notes:
MW-64BR upper and lower packer data, MW-65-160, and MW-65-225 data prior to May 2012 is reported in:

CH2M HILL. 2012d. Technical Memorandum. *Addendum to the Summary of Findings Associated with the East Ravine Groundwater Investigation Report, PG&E Company, Topock Compressor Station, Needles, California*. November 15.

FIGURE C-65
SELENIUM
IN MW-63-65, MW-64 CLUSTER AND MW-65 CLUSTER
FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

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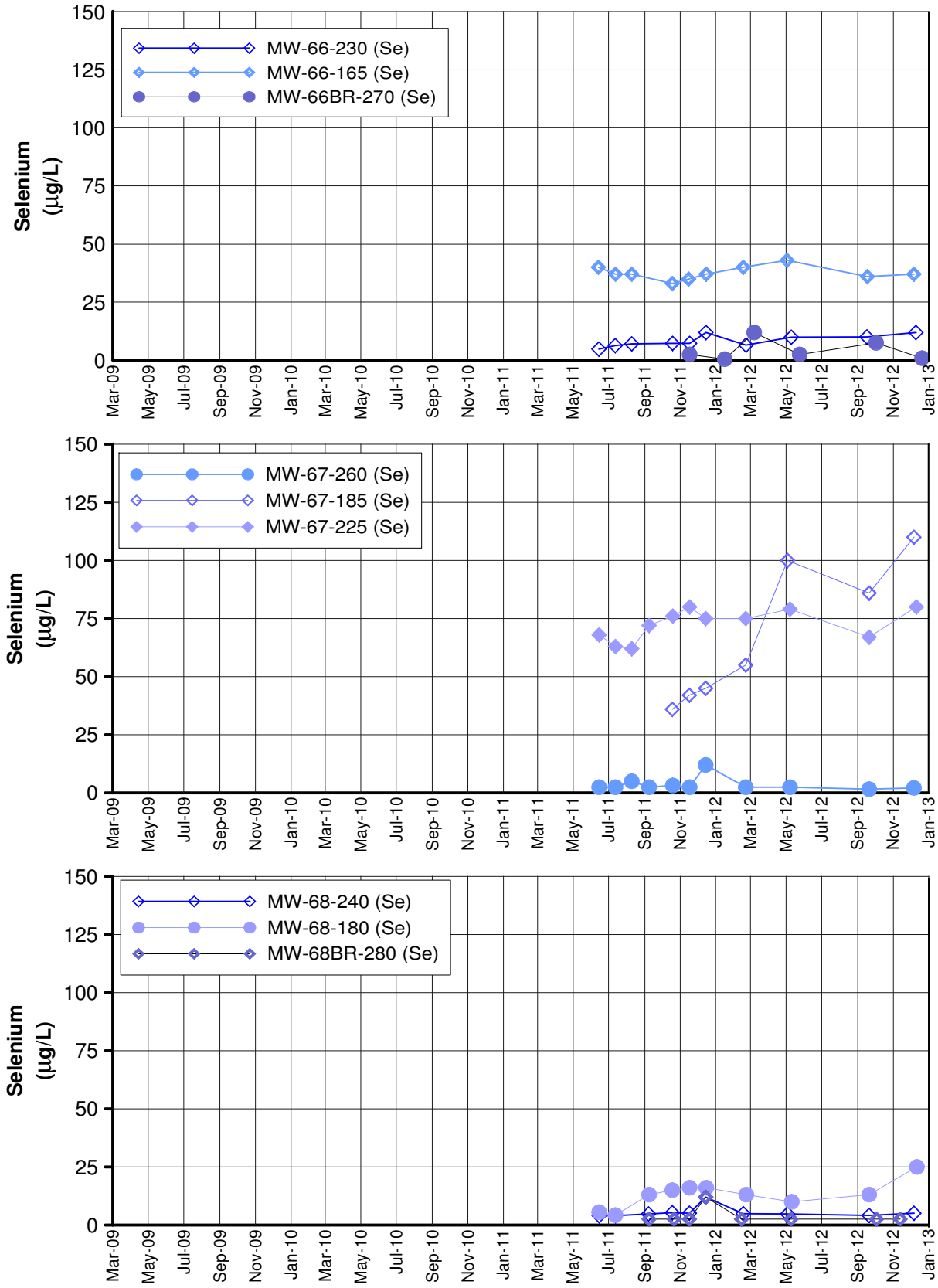

Notes:
Data prior to May 2012 is reported in:

CH2M HILL. 2012d. Technical Memorandum. *Addendum to the Summary of Findings Associated with the East Ravine Groundwater Investigation Report, PG&E Company, Topock Compressor Station, Needles, California*. November 15.

FIGURE C-66
SELENIUM
IN MW-66, MW-67 AND MW-68 CLUSTERS
FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

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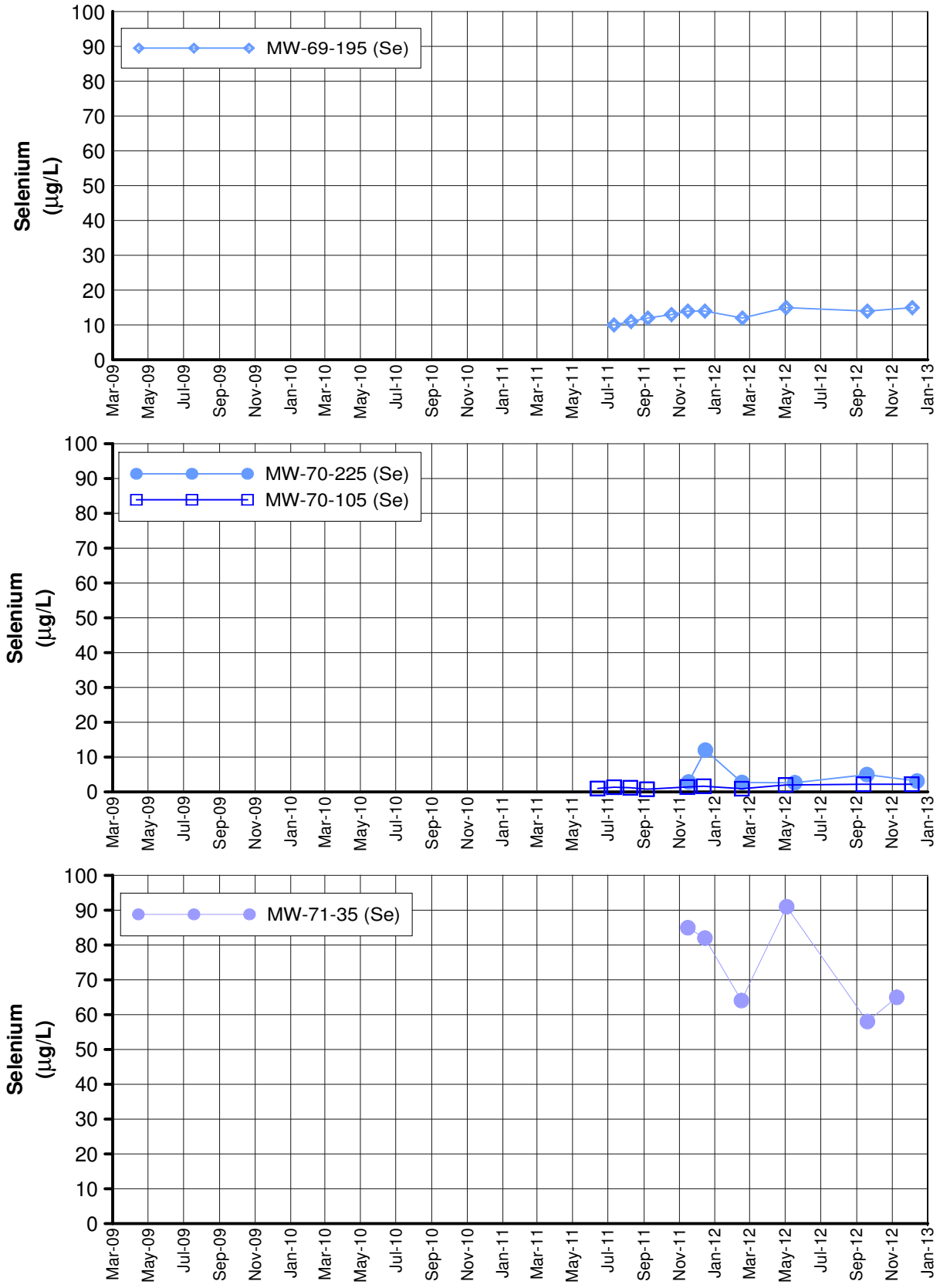

Notes:
Data prior to May 2012 is reported in:

CH2M HILL. 2012d. Technical Memorandum. *Addendum to the Summary of Findings Associated with the East Ravine Groundwater Investigation Report, PG&E Company, Topock Compressor Station, Needles, California*. November 15.

FIGURE C-67
SELENIUM
IN MW-69-195, MW-70 CLUSTER AND MW-71-35
FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

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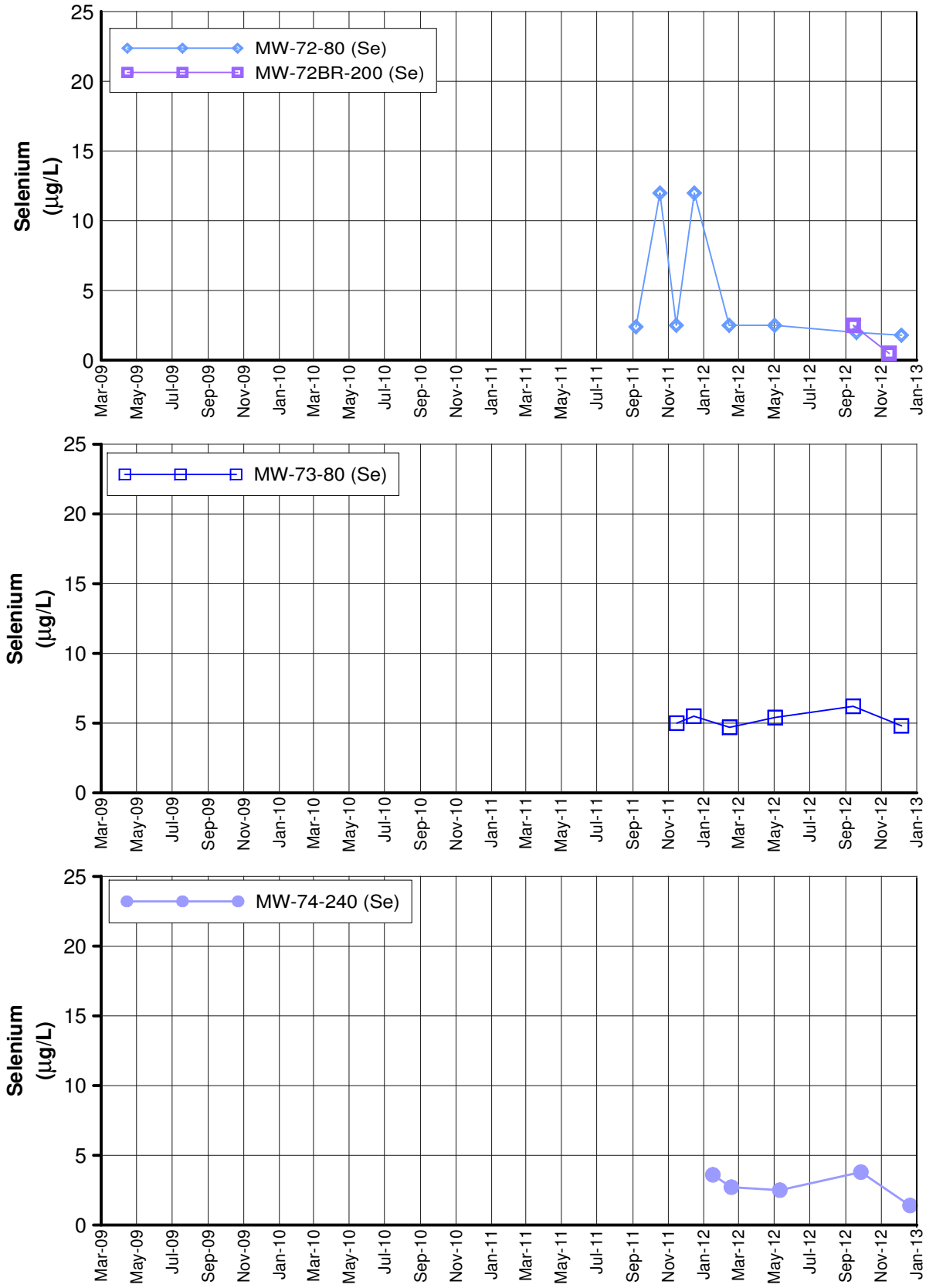

Notes:
Data prior to May 2012 is reported in:

CH2M HILL. 2012d. Technical Memorandum. *Addendum to the Summary of Findings Associated with the East Ravine Groundwater Investigation Report, PG&E Company, Topock Compressor Station, Needles, California*. November 15.

FIGURE C-68
SELENIUM
IN MW-72 CLUSTER, MW-73-80 AND MW-74-240
FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
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Appendix D
Other Groundwater Monitoring Results

Table D-1
In Situ Byproducts and Geochemical Indicator Parameter Analytical Results, Fourth Quarter 2012
Fourth Quarter 2012 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California

Location ID	Sample Date	Arsenic Dissolved (µg/L)	Manganese Dissolved (µg/L)	Iron Dissolved (µg/L)	Ammonia (mg/L)	Nitrate/Nitrite as N (mg/L)	Sulfate (mg/L)	Fluoride (mg/L)	Field ORP (mV)
MW-9	05-Dec-12	---	ND (0.5)	ND (20)	---	11.0	250	---	-24
MW-10	10-Dec-12	5.4	ND (0.5)	ND (20)	---	12.5	290	6.90	12
MW-12	27-Nov-12	38.5	ND (0.5)	ND (20)	---	13.1	460	---	100
MW-13	11-Dec-12	2.0	ND (0.5)	ND (20)	---	4.80	150	---	-8.9
MW-14	13-Dec-12	---	ND (0.5)	27.0	---	5.16	100	---	-18
MW-15	15-Nov-12	---	ND (0.5)	ND (20)	---	4.73	120	---	110
MW-16	08-Nov-12	11.0	ND (0.5)	ND (20)	---	3.56	130	---	-46
MW-17	03-Dec-12	1.4	ND (0.5)	ND (20)	---	4.87	400	---	160
MW-18	04-Dec-12	---	ND (0.5)	ND (20)	---	4.36	85.0	---	130
MW-19	26-Nov-12	1.0	ND (0.5)	ND (20)	---	4.88	170	---	160
MW-20-70	27-Nov-12	1.9	0.55	ND (20)	---	10.6	290	---	110
MW-20-100	29-Nov-12	2.9	ND (0.5)	ND (20)	---	12.9	350	---	150
MW-20-130	29-Nov-12	5.3 J	ND (0.5)	ND (20)	---	14.1	1100	---	170
	29-Nov-12 FD	1.3 J	ND (0.5)	ND (20)	---	14.1	1100	---	FD
MW-21	13-Nov-12	---	120	ND (100)	---	2.18	2400	---	9.0
MW-22	10-Dec-12	16.0	7200	15000	---	0.0257	2800	---	-52
MW-23-060	08-Nov-12	5.3	ND (0.5)	ND (100)	0.10	5.73	670	---	61
MW-23-080	08-Nov-12	2.7	ND (0.5)	ND (100)	0.10	6.82	880	---	-80
MW-24BR	13-Nov-12	---	330	ND (100)	---	0.01	470	---	-160
MW-25	11-Dec-12	1.3	0.63	37.0	---	7.25	140	---	16
MW-26	27-Nov-12	1.7	ND (0.5)	ND (20)	---	15.6	520	---	110
MW-27-20	03-Dec-12	2.4	120	290	ND (0.1)	ND (0.01)	210	---	-33
MW-27-60	03-Dec-12	7.6	140	160	ND (0.1)	ND (0.01)	170	0.71	-61
MW-27-85	03-Dec-12	1.8	92.0	370	ND (0.1)	0.0116	1100	ND (5.0)	28
MW-28-25	05-Dec-12	1.5	21.0	32.0	ND (0.1)	0.0128	240	---	43
MW-28-90	05-Dec-12	2.0	150	700	ND (0.1)	0.0111	620	ND (2.5)	-48
MW-29	05-Dec-12	19.0 J	260	600	1.59	0.0765	310 J	---	-67
	05-Dec-12 FD	14.0 J	260	510	1.57	0.0648	240 J	---	FD
MW-30-30	03-Dec-12	2.0	350	5300	---	0.0269	3400	---	-83
MW-30-50	03-Dec-12	3.8	110	46.0	ND (0.1)	ND (0.01)	200	---	-26

Table D-1
In Situ Byproducts and Geochemical Indicator Parameter Analytical Results, Fourth Quarter 2012
Fourth Quarter 2012 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California

Location ID	Sample Date	Arsenic Dissolved (µg/L)	Manganese Dissolved (µg/L)	Iron Dissolved (µg/L)	Ammonia (mg/L)	Nitrate/Nitrite as N (mg/L)	Sulfate (mg/L)	Fluoride (mg/L)	Field ORP (mV)
MW-31-60	13-Nov-12	1.2	ND (0.5)	ND (20)	ND (0.1)	3.30	200	---	77
MW-31-135	15-Nov-12	3.7	ND (0.5)	ND (40)	ND (0.1)	0.774	490	---	110
MW-32-20	05-Dec-12	3.4	660	12000	7.59 J	1.16	6000	---	-92
MW-32-35	05-Dec-12	28.0	1600	10000	6.48 J	0.0274	1700	---	-130
MW-33-40	05-Dec-12	14.0	8.3 J	120	ND (0.1)	0.115	710	13.0	-100
	05-Dec-12 FD	14.0	6.6 J	110	ND (0.1)	0.123	690	13.0	FD
MW-33-90	08-Nov-12	1.1	2.1	ND (20)	ND (0.1)	1.57	710	5.50	130
MW-33-150	06-Dec-12	2.0	6.0	ND (100)	ND (0.1)	1.43	890	ND (5.0)	20
MW-33-210	06-Dec-12	1.4	3.9	ND (100)	ND (0.1)	1.52	1200	ND (5.0)	21
MW-34-55	12-Dec-12	3.0	77.0	71.0	ND (0.1)	ND (0.01)	210	---	-13
MW-34-80	12-Dec-12	1.4	33.0	54.0	ND (0.1)	ND (0.01)	630	---	19
	12-Dec-12 FD	1.5	32.0	43.0	---	ND (0.01)	630	---	FD
MW-34-100	26-Nov-12	1.8	17.0	ND (100)	ND (0.1)	0.444	1200	---	100
	26-Nov-12 FD	1.9	16.0	ND (100)	ND (0.1)	0.421	1200	---	FD
MW-35-60	04-Dec-12	1.1	ND (0.5)	41.0	ND (0.1)	2.18	330	---	75
MW-35-135	04-Dec-12	1.0	ND (0.5)	55.0	ND (0.1)	2.85	640	---	61
MW-36-20	04-Dec-12	1.9	170	1000	0.273	0.0396 J	1200	---	-170
	04-Dec-12 FD	1.8	170	1000	0.319	ND (0.01) J	1200	---	FD
MW-36-40	04-Dec-12	4.8	170	610	0.239	ND (0.01)	190	---	-170
MW-36-50	04-Dec-12	4.2	220	150	ND (0.1)	ND (0.01)	190	---	-110
MW-36-70	04-Dec-12	5.1	110	ND (20)	ND (0.1)	ND (0.01)	200	---	-110
MW-36-90	04-Dec-12	22.0	7.5	ND (20)	ND (0.1)	ND (0.01)	210	---	-54
MW-36-100	08-Nov-12	6.2	85.3	31.9	0.10	0.0957	810	---	-18
MW-37S	14-Nov-12	1.9	ND (0.5)	ND (20)	---	1.47	260	---	56
MW-37D	04-Dec-12	---	ND (0.5)	ND (40)	---	0.207	630	---	55
MW-39-50	03-Dec-12	7.0	44.0	ND (20)	ND (0.1)	ND (0.01)	210	---	120
MW-39-60	03-Dec-12	7.6	25.0	ND (20)	ND (0.1)	ND (0.01)	220	---	32
MW-39-70	03-Dec-12	---	0.58	ND (20)	ND (0.1)	ND (0.01)	290	---	83
MW-39-80	03-Dec-12	---	4.9	ND (20)	ND (0.1)	ND (0.01)	610	---	44
MW-39-100	13-Dec-12	2.2	17.0	ND (20)	ND (0.1)	ND (0.01)	1500	---	110
MW-40S	03-Dec-12	1.4	ND (0.5)	---	---	3.98	---	---	170

Table D-1
In Situ Byproducts and Geochemical Indicator Parameter Analytical Results, Fourth Quarter 2012
Fourth Quarter 2012 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California

Location ID	Sample Date	Arsenic Dissolved (µg/L)	Manganese Dissolved (µg/L)	Iron Dissolved (µg/L)	Ammonia (mg/L)	Nitrate/Nitrite as N (mg/L)	Sulfate (mg/L)	Fluoride (mg/L)	Field ORP (mV)
MW-40D	03-Dec-12	4.7	5.4	ND (100)	---	3.32	700	---	130
MW-41S	03-Dec-12	2.1	ND (0.5)	ND (20)	---	1.41	270	---	120
MW-41M	05-Nov-12	2.5	ND (0.5)	ND (40)	---	0.72	550	---	-160
MW-41D	05-Nov-12	2.9	70.0	ND (40)	---	0.474	780	---	-180
MW-42-30	06-Dec-12	---	---	---	---	0.0121	---	---	-150
MW-42-55	06-Dec-12	13.0	75.0	110	0.256	ND (0.01)	250	---	-57
MW-42-65	06-Dec-12	2.6	1300	ND (100)	0.97	ND (0.01)	760	---	14
MW-43-25	10-Dec-12	23.0	240	2900	1.88	0.0162	280	---	-120
MW-43-75	10-Dec-12	13.0	490	3300	ND (0.1)	ND (0.01)	1300	---	-81
MW-43-90	10-Dec-12	3.4	930	2500	0.244	ND (0.01)	1800	---	-36
MW-44-70	06-Dec-12	4.5	110	160	ND (0.1)	ND (0.01)	230	---	-69
MW-44-115	26-Nov-12	5.4	4.6	ND (20)	ND (0.1)	0.29	760	---	21
MW-44-125	06-Nov-12	3.6	508	289	0.383 J	0.384	590	---	-170
	06-Nov-12 FD	3.4	493	287	0.10 J	0.363	610	---	FD
MW-45-095a	13-Dec-12	3.7	1.5	ND (20)	ND (0.1)	0.0472	690	---	100
MW-46-175	09-Nov-12	2.0	9.5	ND (20)	ND (0.1)	0.922	760	---	120
MW-46-205	12-Dec-12	---	29.0	ND (40)	ND (0.1)	0.967	870	---	4.1
MW-47-55	07-Nov-12	1.1	ND (0.5)	ND (20)	ND (0.1)	2.19	230	---	160
MW-47-115	07-Nov-12	1.7	2.4	ND (20)	ND (0.1)	2.09	740	---	120
MW-48	07-Nov-12	---	19.0	ND (100)	---	0.0668	560	---	-120
MW-49-135	11-Dec-12	4.6	670	8100	ND (0.1)	1.21	730	---	59
MW-49-275	11-Dec-12	---	390	55.0	ND (0.1)	0.709	1400	---	45
MW-49-365	11-Dec-12	---	150	150	ND (0.1)	0.0129	1200	---	17
MW-50-095	05-Nov-12	2.3	ND (0.5)	ND (20)	ND (0.1)	1.49	260	---	220
MW-50-200	29-Nov-12	3.8	1.7	ND (20)	ND (0.1)	5.80	950	---	80
MW-51	28-Nov-12	4.9	ND (0.5)	ND (20)	ND (0.1)	12.4	680	---	130
MW-52S	05-Dec-12	0.25	790	5600	0.934	0.0198	360	---	-120
MW-52M	05-Dec-12	1.7	150	1100	ND (0.1)	ND (0.01)	690	---	-140
MW-52D	05-Dec-12	3.7	260	510	ND (0.1)	ND (0.01)	870	---	-180
MW-53M	05-Dec-12	1.0	420	340	ND (0.1)	0.0176	800	---	-200

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Location ID	Sample Date	Arsenic Dissolved (µg/L)	Manganese Dissolved (µg/L)	Iron Dissolved (µg/L)	Ammonia (mg/L)	Nitrate/Nitrite as N (mg/L)	Sulfate (mg/L)	Fluoride (mg/L)	Field ORP (mV)
MW-53M	05-Dec-12 FD	1.1	380	340	ND (0.1)	ND (0.01)	820	---	FD
MW-53D	06-Dec-12	3.0	1500	300	ND (0.1)	ND (0.01)	1200	---	-200
MW-54-85	12-Dec-12	3.3	897	512	ND (0.1)	0.23	500	---	-140
MW-54-140	12-Dec-12	2.9	157	ND (20)	ND (0.1)	0.86	505	---	-66
MW-54-195	12-Dec-12	ND (5.0)	657	117	ND (0.1)	ND (0.1)	966	---	-180
MW-55-45	12-Dec-12	---	1080	67.1	---	ND (0.1)	50.0	---	-190
MW-55-120	12-Dec-12	---	ND (10)	ND (20)	---	1.40	307	---	-56
	12-Dec-12 FD	---	ND (10)	ND (20)	---	1.40	317	---	FD
MW-56S	06-Dec-12	---	846	4490	0.217	1.13	593	---	-120
MW-56M	06-Dec-12	---	756	2960	0.365	ND (0.1)	1000	---	-120
MW-56D	06-Dec-12	---	742	685	ND (0.1)	ND (0.1)	1410	---	-150
MW-57-070	13-Dec-12	1.4	5.4	49.0	ND (0.1)	8.35	98.0 J	---	130
	13-Dec-12 FD	1.4	5.8	42.0	ND (0.1)	7.99	120 J	---	FD
MW-57-185	08-Nov-12	13.0	400	ND (100)	---	0.0298	740	---	-130
MW-59-100	28-Nov-12	4.4	0.78	ND (20)	ND (0.1)	4.52	680	---	170
MW-60-125	06-Dec-12	1.8	14.0	ND (20)	ND (0.1)	4.26	460	---	-76
MW-60BR-245	05-Dec-12	8.1	9.6	ND (100)	ND (0.1)	0.231	770	---	-8
MW-61-110	27-Nov-12	3.2	165	ND (20)	0.37 J	0.866	680	---	12
	27-Nov-12 FD	3.1	179	ND (20)	ND (0.1) J	0.899	700	---	FD
MW-62-065	10-Dec-12	1.4	1.1	ND (20)	ND (0.1)	3.70	410	---	46
MW-62-110	11-Dec-12	12.0	130	ND (20)	ND (0.1)	3.61	540	---	130
MW-62-190	11-Dec-12	5.8	710	46.0	ND (0.1) J	0.0304	730	---	100
MW-63-065	07-Nov-12	1.5	140	24.0	ND (0.1)	1.05	640	---	23
MW-65-160	04-Dec-12	0.88	33.0	ND (20)	ND (0.1)	11.4	440	---	-9.7
MW-65-225	05-Dec-12	2.3	49.0	ND (100)	ND (0.1)	11.2	710	---	-16
MW-66-165	06-Dec-12	1.3	ND (0.5)	ND (20)	ND (0.1)	38.4	490	---	46
MW-66-230	10-Dec-12	6.3	18.0	ND (20)	ND (0.1)	15.2	1100	---	-34
MW-66BR-270	20-Dec-12	0.24	41.0	ND (40)	0.309	0.0776	210	---	42
MW-67-185	06-Dec-12	1.8	ND (0.5)	ND (20)	ND (0.1)	21.6	630	---	-56
MW-67-225	10-Dec-12	3.2	32.0	ND (20)	ND (0.1)	20.6	1100	---	-30

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Location ID	Sample Date	Arsenic Dissolved (µg/L)	Manganese Dissolved (µg/L)	Iron Dissolved (µg/L)	Ammonia (mg/L)	Nitrate/Nitrite as N (mg/L)	Sulfate (mg/L)	Fluoride (mg/L)	Field ORP (mV)
MW-67-260	06-Dec-12	12.0	170	ND (100)	0.123	1.56	830	---	-100
MW-68-180	11-Dec-12	2.7	ND (0.5) J	ND (20)	ND (0.1) J	31.0	990	---	45
	11-Dec-12 FD	2.8	41.0 J	ND (20)	ND (0.1) J	30.5	1000	---	FD
MW-68-240	06-Dec-12	2.0	94.0	ND (100)	ND (0.1)	4.82	860	---	-110
MW-68BR-280	12-Nov-12	2.1	300	ND (100)	ND (0.1)	0.01	740	---	-120
MW-69-195	05-Dec-12	2.1	1.8	ND (20)	ND (0.1)	20.3	690	---	-47
MW-70-105	04-Dec-12	5.2	210	32.0	ND (0.1)	2.05	240	---	18
MW-70BR-225	13-Dec-12	1.9	ND (0.5)	ND (20)	ND (0.1)	3.80	770	---	-39
MW-71-035	08-Nov-12	1.4	69.0	ND (20)	0.10	1.66	540	---	190
MW-72-080	05-Dec-12	11.0	100	ND (100)	ND (0.1)	1.47	700	---	89
MW-72BR-200	14-Nov-12	15.0	15.0	ND (40)	0.228	0.0982	680	---	-99
MW-73-080	05-Dec-12	1.5	21.0	ND (100)	ND (0.1)	4.98	420	---	47
MW-74-240	20-Dec-12	15.0	3.3	160	0.535	0.0739 J	96.0	---	-12
	20-Dec-12 FD	16.0	3.3	170	0.476	0.0549 J	94.0	---	FD
OW-3S	13-Nov-12	---	ND (0.5)	ND (20)	---	3.50	74.0	---	65
OW-3M	13-Nov-12	---	ND (0.5)	ND (100)	---	0.974	300	---	17
OW-3D	13-Nov-12	2.6	ND (0.5)	ND (20)	---	0.699	400	---	12
PE-1	04-Dec-12	---	44.2	ND (20)	---	ND (0.5)	424	---	---
PGE-7BR	11-Dec-12	---	400	1700	---	2.14	690	---	-230
PGE-8	07-Nov-12	---	580	160	---	0.0111	1900	---	-300
Park Moabi-3	08-Nov-12	---	ND (0.5)	28.0	ND (0.1)	3.12	61.0	---	-13
Park Moabi-4	08-Nov-12	---	4.6	ND (20)	ND (0.1)	2.52	100	---	430
TW-1	11-Dec-12	---	ND (0.5)	ND (20)	---	23.1	860	---	-15
	11-Dec-12 FD	---	1.5	ND (20)	---	22.7	870	---	FD
TW-2S	13-Dec-12	---	ND (0.5)	ND (20)	---	4.68	170	---	-27
TW-2D	13-Dec-12	---	7.9	79.0	---	1.32	520	---	-33
TW-3D	04-Dec-12	---	5.8	ND (20)	---	4.01	552	---	---
TW-4	15-Nov-12	---	58.0	ND (100)	---	1.25	1100	---	120
TW-5	15-Nov-12	---	ND (0.5)	ND (40)	---	1.26	550	---	160

Notes:

(---) = data not collected, available, rejected, or field instrument malfunction.
FD = field duplicate sample.
J = concentration or RL estimated by laboratory or data validation.
mg/L = milligrams per liter.
mV = millivolts.
ND = not detected at listed reporting limit (RL).
ORP = oxidation-reduction potential.
µg/L = micrograms per liter.

ORP is reported to two significant figures.

Starting in Fourth Quarter 2012, nitrate samples were analyzed using USEPA method 353.2, except for TW-3D and PE-1, which were still analyzed using USEPA method 300.0. USEPA method 353.2 reports a combination of nitrate and nitrite as nitrogen. The contribution of nitrite to the reported result of nitrate plus nitrite as nitrogen is expected to be negligible; therefore, sample results for USEPA method 353.2 are expected to be essentially the same as previous samples analyzed using USEPA method 300.0 and reported as nitrate as nitrogen.

Table D-2
Arsenic Results in Monitoring Wells, January 2012 through December 2012
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Well ID	Aquifer Zone	Sample Date		Dissolved Arsenic (µg/L)
MW-10	SA	10-Dec-12		5.4
MW-12	SA	09-Feb-12		47.0
		07-May-12		47.0
		02-Oct-12		42.4
		27-Nov-12		38.5
MW-13	SA	11-Dec-12		2.0
MW-16	SA	24-Apr-12		11.0
		08-Nov-12		11.0
MW-17	SA	25-Apr-12		1.4
		03-Dec-12		1.4
MW-19	SA	04-Oct-12		0.83
		26-Nov-12		1.0
MW-20-70	SA	04-Oct-12		2.6
		27-Nov-12		1.9
MW-20-100	MA	04-Oct-12		1.7
		29-Nov-12		2.9
MW-20-130	DA	10-May-12		5.8
		09-Oct-12		5.6
		29-Nov-12		5.3 J
		29-Nov-12	FD	1.3 J
MW-22	SA	11-Apr-12		12.0
		10-Dec-12		16.0
MW-23-060	BR	14-Feb-12		3.3
		30-Apr-12		2.6
		30-Apr-12	FD	2.2
		12-Sep-12		5.9
		08-Nov-12		5.3
MW-23-080	BR	14-Feb-12		3.7
		30-Apr-12		4.1
		12-Sep-12		3.3
		12-Sep-12	FD	3.0
		08-Nov-12		2.7
MW-25	SA	11-Dec-12		1.3
MW-26	SA	07-May-12		1.7
		04-Oct-12		1.7
		27-Nov-12		1.7

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Well ID	Aquifer Zone	Sample Date		Dissolved Arsenic (µg/L)
MW-27-20	SA	03-Dec-12		2.4
MW-27-60	MA	07-Feb-12		9.6
		01-Oct-12		7.4
		03-Dec-12		7.6
MW-27-85	DA	07-Feb-12		1.4
		09-Apr-12		1.4
		01-Oct-12		1.5
		03-Dec-12		1.8
MW-28-25	SA	10-Apr-12		2.3
		05-Dec-12		1.5
MW-28-90	DA	07-Feb-12		1.8
		10-Apr-12		2.0 J
		10-Apr-12	FD	2.4 J
		10-Sep-12		2.0
		05-Dec-12		2.0
MW-29	SA	10-Apr-12		7.9
		05-Dec-12		19.0 J
		05-Dec-12	FD	14.0 J
MW-30-30	SA	03-Dec-12		2.0
MW-30-50	MA	03-Dec-12		3.8
MW-31-60	SA	16-May-12		1.2
		13-Nov-12		1.2
MW-31-135	DA	15-Nov-12		3.7
MW-32-20	SA	05-Dec-12		3.4
MW-32-35	SA	09-Apr-12		30.0
		05-Dec-12		28.0
MW-33-40	SA	08-Feb-12		15.0
		23-Apr-12		17.0
		10-Sep-12		13.0
		05-Dec-12		14.0
		05-Dec-12	FD	14.0
MW-33-90	MA	24-Sep-12		1.6
		08-Nov-12		1.1
MW-33-150	DA	09-Feb-12		1.8
		11-Sep-12		2.2
		06-Dec-12		2.0

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Well ID	Aquifer Zone	Sample Date		Dissolved Arsenic (µg/L)
MW-33-210	DA	09-Feb-12		1.2
		11-Sep-12		1.3
		06-Dec-12		1.4
MW-34-55	MA	12-Dec-12		3.0
MW-34-80	DA	07-Feb-12		1.4
		09-Apr-12		1.4
		01-Oct-12		1.7
		12-Dec-12		1.4
		12-Dec-12	FD	1.5
MW-34-100	DA	18-Jan-12		2.2
		07-Feb-12		1.6
		07-Feb-12	FD	1.5
		09-Apr-12		1.6
		09-Apr-12	FD	1.1
		01-Oct-12		1.5
		01-Oct-12	FD	1.6
		26-Nov-12		1.8
		26-Nov-12	FD	1.9
		12-Dec-12		1.5
MW-35-60	SA	06-Feb-12		0.97
		26-Apr-12		1.1
		10-Sep-12		1.1
		04-Dec-12		1.1
MW-35-135	DA	04-Dec-12		1.0
MW-36-20	SA	04-Dec-12		1.9
		04-Dec-12	FD	1.8
MW-36-40	SA	04-Dec-12		4.8
MW-36-50	MA	04-Dec-12		4.2
MW-36-70	MA	04-Dec-12		5.1
MW-36-90	DA	10-Apr-12		19.0
		04-Dec-12		22.0
MW-36-100	DA	10-Apr-12		7.4
		10-Oct-12		7.7
		08-Nov-12		6.2
MW-37S	MA	14-Nov-12		1.9
MW-39-50	MA	03-Dec-12		7.0

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MW-39-60	MA	03-Dec-12		7.6
MW-39-100	DA	13-Dec-12		2.2
MW-40D	DA	03-Dec-12		4.7
MW-40S	SA	03-Dec-12		1.4
MW-41D	DA	26-Apr-12		2.7
		05-Nov-12		2.9
MW-41M	DA	05-Nov-12		2.5
MW-41S	SA	03-Dec-12		2.1
MW-42-55	MA	07-Feb-12		13.0
		09-Apr-12		12.0
		11-Sep-12		12.0
		11-Sep-12	FD	12.0
		06-Dec-12		13.0
MW-42-65	MA	07-Feb-12		2.4
		09-Apr-12		2.8
		11-Sep-12		2.8
		06-Dec-12		2.6
MW-43-25	SA	10-Dec-12		23.0
MW-43-75	DA	10-Dec-12		13.0
MW-43-90	DA	10-Dec-12		3.4
MW-44-70	MA	12-Apr-12		3.9
		06-Dec-12		4.5
MW-44-115	DA	08-Feb-12		5.5
		12-Apr-12		5.8
		12-Apr-12	FD	6.1
		27-Sep-12		3.6
		26-Nov-12		5.4
MW-44-125	DA	08-Feb-12		4.3
		08-Feb-12	FD	4.1
		12-Apr-12		3.7
		13-Sep-12		3.6
		13-Sep-12	FD	3.7
		06-Nov-12		3.6
		06-Nov-12	FD	3.4
MW-45-095a	DA	13-Dec-12		3.7
MW-46-175	DA	26-Sep-12		1.2

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MW-46-175	DA	09-Nov-12		2.0
MW-47-55	SA	25-Apr-12		1.1
		24-Sep-12		1.4
		07-Nov-12		1.1
MW-47-115	DA	25-Sep-12		1.4
		07-Nov-12		1.7
MW-49-135	DA	11-Dec-12		4.6
MW-50-095	MA	19-Sep-12		2.4
		05-Nov-12		2.3
MW-50-200	DA	03-Oct-12		3.8
		03-Oct-12	FD	3.4
		29-Nov-12		3.8
MW-51	MA	08-May-12		4.1
		09-Oct-12		4.3
		28-Nov-12		4.9
MW-52D	DA	11-Apr-12		3.5
		05-Dec-12		3.7
MW-52M	DA	11-Apr-12		1.3
		05-Dec-12		1.7
MW-52S	MA	11-Apr-12		ND (1.0)
		05-Dec-12		0.25
MW-53D	DA	11-Apr-12		3.5
		06-Dec-12		3.0
MW-53M	DA	11-Apr-12		1.1
		05-Dec-12		1.0
		05-Dec-12	FD	1.1
MW-54-85	DA	24-Apr-12		4.9
		12-Dec-12		3.3
MW-54-140	DA	24-Apr-12		ND (5.0)
		12-Dec-12		2.9
MW-54-195	DA	24-Apr-12		ND (5.0)
		24-Apr-12	FD	ND (5.0)
		12-Dec-12		ND (5.0)
MW-55-45	MA	03-Apr-12		4.7
MW-55-120	DA	03-Apr-12		5.2
MW-57-070	BR	15-Feb-12		1.2

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MW-57-070	BR	03-May-12		1.6
		13-Dec-12		1.4
		13-Dec-12	FD	1.4
MW-57-185	BR	10-Feb-12		12.0
		10-Feb-12	FD	13.0
		30-Apr-12		14.0
		11-Sep-12		14.0
		08-Nov-12		13.0
MW-58BR-LWR-160	BR	04-Oct-12		0.71
MW-58BR-UPR-160	BR	03-Oct-12		0.49
MW-59-100	SA	22-Feb-12		2.0
		08-May-12		2.1
		02-Oct-12		2.9
		28-Nov-12		4.4
MW-60-125	BR	15-Feb-12		1.2
		03-May-12		1.7
		20-Sep-12		1.7
		06-Dec-12		1.8
MW-60BR-245	BR	16-Feb-12		4.0
		17-May-12		8.8
		19-Sep-12		8.1
		05-Dec-12		8.1
MW-61-110	BR	15-Feb-12		3.2
		03-May-12		3.2
		27-Sep-12		2.0
		27-Sep-12	FD	2.1
		27-Nov-12		3.2
		27-Nov-12	FD	3.1
MW-62-065	BR	17-Feb-12		1.5
		02-May-12		1.8
		10-Dec-12		1.4
MW-62-110	BR	16-Feb-12		6.3
		10-May-12		8.8
		13-Sep-12		8.5
		11-Dec-12		12.0
MW-62-190	BR	16-Feb-12		6.4
		10-May-12		5.4

Table D-2
Arsenic Results in Monitoring Wells, January 2012 through December 2012
Fourth Quarter 2012 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Well ID	Aquifer Zone	Sample Date		Dissolved Arsenic (µg/L)
MW-62-190	BR	13-Sep-12		5.9
		11-Dec-12		5.8
MW-63-065	BR	13-Feb-12		1.2
		26-Apr-12		1.2
		10-Sep-12		1.7
		07-Nov-12		1.5
MW-64BR-LWR-150	BR	10-Oct-12		1.7
MW-64BR-UPR-150	BR	08-Oct-12		7.4
MW-65-160	SA	16-Feb-12		0.82
		01-May-12		0.96
		18-Sep-12		0.9
		04-Dec-12		0.88
MW-65-225	DA	16-Feb-12		2.0
		02-May-12		2.2
		18-Sep-12		2.3
		05-Dec-12		2.3
MW-66-165	SA	17-Feb-12		1.3
		02-May-12		1.3
		17-Sep-12		1.8
		06-Dec-12		1.3
MW-66-230	DA	22-Feb-12		4.1
		10-May-12		4.8
		10-May-12	FD	5.4
		17-Sep-12		6.9
		10-Dec-12		6.3
MW-66BR-270	BR	16-Jan-12		0.32
		07-Mar-12		ND (0.5)
		24-May-12		ND (0.5)
		02-Oct-12		0.32
		20-Dec-12		0.24
MW-67-185	SA	21-Feb-12		1.8
		03-May-12		1.7
		20-Sep-12		1.7
		06-Dec-12		1.8
MW-67-225	MA	21-Feb-12		2.5
		21-Feb-12	FD	2.8
		07-May-12		2.8

Table D-2
Arsenic Results in Monitoring Wells, January 2012 through December 2012
Fourth Quarter 2012 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Well ID	Aquifer Zone	Sample Date		Dissolved Arsenic (µg/L)
MW-67-225	MA	20-Sep-12		2.8
		10-Dec-12		3.2
MW-67-260	DA	21-Feb-12		8.4
		07-May-12		12.0
		20-Sep-12		11.0
		06-Dec-12		12.0
MW-68-180	SA	22-Feb-12		2.5
		10-May-12		2.9
		20-Sep-12		2.2
		11-Dec-12		2.7
		11-Dec-12	FD	2.8
MW-68-240	DA	17-Feb-12		1.6
		03-May-12		1.9
		20-Sep-12		1.7
		06-Dec-12		2.0
MW-68BR-280	BR	14-Feb-12		1.8
		09-May-12		2.4
		03-Oct-12		2.5
		12-Nov-12		2.1
MW-69-195	BR	17-Feb-12		2.4
		02-May-12		2.1
		19-Sep-12		2.1
		05-Dec-12		2.1
MW-70-105	BR	16-Feb-12		4.5
		01-May-12		5.4
		12-Sep-12		6.2
		04-Dec-12		5.2
MW-70BR-225	BR	16-Feb-12		1.9
		17-May-12		2.0
		17-May-12	FD	2.1
		18-Sep-12		2.1
		13-Dec-12		1.9
MW-71-035	SA	15-Feb-12		1.8
		03-May-12		1.7
		19-Sep-12		1.7
		08-Nov-12		1.4
MW-72-080	BR	13-Feb-12		9.4

Table D-2
Arsenic Results in Monitoring Wells, January 2012 through December 2012
Fourth Quarter 2012 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Well ID	Aquifer Zone	Sample Date		Dissolved Arsenic (µg/L)
MW-72-080	BR	01-May-12		9.7
		19-Sep-12		11.0
		05-Dec-12		11.0
MW-72BR-200	BR	13-Sep-12		15.0
		13-Sep-12	FD	15.0
		14-Nov-12		15.0
MW-73-080	BR	14-Feb-12		1.3
		02-May-12		1.4
		13-Sep-12		1.6
		05-Dec-12		1.5
MW-74-240	BR	16-Jan-12		58.0
		17-Feb-12		15.0
		10-May-12		15.0
		27-Sep-12		9.3
		20-Dec-12		15.0
		20-Dec-12	FD	16.0
OW-3D	DA	13-Nov-12		2.6

Notes:

FD = field duplicate.
J = concentration or reporting limit estimated by laboratory or data validation.
µg/L = micrograms per liter.

The California primary drinking water standard maximum contaminant level (MCL) for arsenic is 10 µg/L.
The Background Study Upper Tolerance Limit for arsenic at the site is 24.3 µg/L.

Wells are assigned to separate Aquifer zones for results reporting:
SA = shallow interval of Alluvial Aquifer.
MA = mid-depth interval of Alluvial Aquifer.
DA = deep interval of Alluvial Aquifer.
BR = well completed in bedrock (Miocene Conglomerate or pre-Tertiary crystalline rock).

For additional information on the East Ravine-Topock Compressor Station wells installed in 2009 through 2012, please see:

CH2M HILL. 2012d. Technical Memorandum. *Addendum to the Summary of Findings Associated with the East Ravine Groundwater Investigation Report, PGE Company, Topock Compressor Station, Needles, California.* November 15.

Table D-3
Background Metals, Fourth Quarter 2012
Fourth Quarter 2012 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

		Metals in µg/L																			General Metals in mg/L			
	California MCL:	6	10	200	1,000	4	5	NE	50	1,000*	15	50*	2	NE	100	50	100*	2	NE	5,000*	NE	NE	0.3*	NE
Well ID	**Sample Date**	**Antimony**	**Arsenic**	**Aluminum**	**Barium**	**Beryllium**	**Cadmium**	**Cobalt**	**Chromium**	**Copper**	**Lead**	**Manganese**	**Mercury**	**Molybdenum**	**Nickel**	**Selenium**	**Silver**	**Thallium**	**Vanadium**	**Zinc**	**Boron**	**Calcium**	**Iron**	**Magnesium**
MW-16	11/08/2012	ND (0.5)	**11.0**	ND (50)	31.0	ND (1.0)	ND (3.0)	ND (3.0)	10.0	ND (5.0)	ND (10)	ND (0.5)	ND (0.2)	13.0	ND (5.0)	1.9	ND (3.0)	ND (0.5)	34.0	ND (10)	0.29	27.0	ND (0.02)	4.9
MW-17	12/03/2012	ND (0.5)	1.4	ND (50)	23.0	ND (1.0)	ND (3.0)	ND (3.0)	14.0	ND (5.0)	ND (10)	ND (0.5)	ND (0.2)	23.0	ND (5.0)	9.7	ND (3.0)	ND (0.5)	5.9	11.0	0.24	68.0	ND (0.02)	9.2

Notes:
* = Secondary USEPA MCL.
FD = field duplicate sample.
MCL = maximum contaminant level
mg/L = milligrams per liter.
ND = not detected at listed reporting limit.
NE =not established.
µg/L = micrograms per liter.

The MCL listed are the California primary drinking water standards, except where noted.

All results are dissolved metals from field-filtered samples.

Metals analyzed by USEPA methods SW6010B or SW6020A or SW7470A.

Table D-4

Manual Water Level Measurements, January 2012 through December 2012

Fourth Quarter 2012 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,

PG&E Topock Compressor Station, Needles, California

Location	Well Depth (feet BMP)	Measuring Point Elevation (feet AMSL)	Monitoring Date & Time		Water Level Measurement (feet BMP)	Salinity (percent)	Groundwater Elevation Adjusted for Salinity (feet AMSL)
Monitoring Wells							
MW-9	89	536.56	11/05/12	9:09 AM	80.33	0.20	456.21
			12/05/12	1:28 PM	80.45	0.20	456.09
MW-10	97	530.65	05/15/12	12:51 PM	73.45	0.20	457.14
			11/05/12	9:01 AM	75.05	0.20	455.54
			12/10/12	11:35 AM	75.05	0.20	455.54
MW-11	86	522.61	11/05/12	9:17 AM	66.80	0.16	455.75
MW-12	50	484.01	02/09/12	1:43 PM	29.45	0.40	454.54
			05/07/12	11:44 AM	27.57	0.40	456.42
			10/02/12	7:16 AM	28.31	0.40	455.68
			11/05/12	9:37 AM	28.85	0.40	455.14
			11/27/12	12:05 PM	29.15	0.40	454.84
MW-13	52	488.64	11/05/12	8:56 AM	33.26	0.12	455.32
			12/11/12	12:19 PM	33.95	0.12	454.64
MW-14	134	570.99	11/05/12	9:11 AM	115.09	0.10	455.84
			12/13/12	11:36 AM	115.56	0.10	455.37
MW-15	203	641.52	11/05/12	9:00 AM	184.84	0.10	456.62
			11/15/12	2:10 PM	184.95	0.10	456.51
MW-16	218	657.31	04/24/12	2:09 PM	200.00	0.10	457.24
			11/05/12	9:56 AM	200.05	0.10	457.20
			11/08/12	3:05 PM	199.83	0.10	457.41
MW-17	154	589.96	04/25/12	7:52 AM	132.59	0.11	457.29
			11/05/12	10:07 AM	132.97	0.11	456.91
			12/03/12	2:58 PM	133.02	0.11	456.86
MW-18	107	545.32	11/05/12	9:28 AM	88.78	0.08	456.48
			12/04/12	8:37 AM	89.15	0.08	456.11
MW-19	66	499.92	05/01/12	12:47 PM	42.22	0.15	457.63
			10/03/12	1:48 PM	48.60	0.15	451.27
			10/04/12	6:21 AM	44.44	0.15	455.42
			11/05/12	9:49 AM	45.50	0.15	454.36
			11/26/12	1:48 PM	45.62	0.15	454.24
MW-20-70	70	500.15	05/07/12	1:01 PM	44.44	0.21	455.65
			10/04/12	9:52 AM	46.00	0.21	454.09
			11/27/12	1:47 PM	47.19	0.21	452.90
MW-20-100	101	500.58	05/08/12	8:06 AM	45.72	0.22	454.74
			10/04/12	12:42 PM	46.97	0.22	453.47
			11/28/12	2:51 PM	49.13	0.22	451.31
MW-20-130	132	500.66	05/10/12	10:18 AM	46.52	0.80	454.29
			10/09/12	11:05 AM	48.58	0.80	452.20
			11/29/12	1:28 PM	49.03	0.80	451.75
MW-21	58	505.55	02/06/12	1:04 PM	51.38	0.71	454.18
			04/26/12	6:59 AM	49.51	0.71	456.04

Table D-4

Manual Water Level Measurements, January 2012 through December 2012

Fourth Quarter 2012 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Location	Well Depth (feet BMP)	Measuring Point Elevation (feet AMSL)	Monitoring Date & Time		Water Level Measurement (feet BMP)	Salinity (percent)	Groundwater Elevation Adjusted for Salinity (feet AMSL)
Monitoring Wells							
MW-21	58	505.55	09/12/12	9:23 AM	49.81	0.71	455.75
			11/05/12	10:00 AM	50.45	0.71	455.11
			11/13/12	10:50 AM	50.61	0.71	454.95
MW-22	12	460.72	04/11/12	1:14 PM	4.95	1.80	455.85
			12/10/12	12:57 PM	7.15	1.80	453.62
MW-23-060	60	504.08	02/14/12	8:48 AM	49.49	1.09	454.64
			04/30/12	1:14 PM	47.80	1.09	456.33
			09/12/12	7:56 AM	48.61	1.09	455.50
			11/08/12	8:42 AM	49.03	1.09	455.10
			11/08/12	8:19 AM	49.03	1.09	455.08
MW-23-080	81	504.13	02/14/12	9:58 AM	53.08	1.10	451.17
			04/30/12	2:25 PM	49.40	1.10	454.86
			09/12/12	10:11 AM	51.91	1.10	452.30
			11/08/12	9:27 AM	53.00	1.10	451.21
			11/08/12	9:34 AM	53.00	1.10	451.25
MW-24A	127	567.16	11/05/12	8:43 AM	111.35	0.68	455.82
MW-24BR	441	563.95	02/09/12	12:01 PM	108.42	1.03	456.33
			05/15/12	2:18 PM	106.60	1.03	458.16
			09/26/12	7:54 AM	107.11	1.03	324.33
			11/13/12	8:25 AM	107.93	1.03	456.82
MW-25	107	542.90	11/05/12	8:41 AM	87.87	0.08	454.97
			12/11/12	11:07 AM	88.45	0.08	454.39
MW-26	70	502.22	05/07/12	6:45 AM	46.02	0.26	456.15
			10/04/12	7:13 AM	46.91	0.26	455.26
			11/27/12	10:07 AM	47.88	0.26	454.29
MW-27-20	14	460.56	12/03/12	9:10 AM	6.91	0.07	453.64
MW-27-60	59	461.38	02/07/12	11:56 AM	6.48	0.20	454.89
			10/01/12	7:41 AM	5.88	0.20	455.45
			12/03/12	10:47 AM	7.90	0.20	453.43
MW-27-85	80	460.99	02/07/12	10:45 AM	6.50	0.85	454.86
			04/09/12	6:40 AM	4.25	0.85	457.03
			10/01/12	6:35 AM	5.68	0.72	455.56
			12/03/12	12:08 PM	7.96	0.72	453.27
MW-28-25	21	466.77	04/10/12	7:32 AM	10.14	0.08	456.61
			12/05/12	8:27 AM	13.87	0.08	452.88
MW-28-90	98	467.53	02/07/12	3:51 PM	12.72	0.50	454.98
			04/10/12	6:34 AM	11.13	0.50	456.58
			09/10/12	1:38 PM	12.26	0.50	455.39
			12/05/12	9:26 AM	14.82	0.50	452.89
MW-29	42	485.21	04/10/12	9:04 AM	28.55	0.18	456.64
			12/05/12	10:35 AM	31.22	0.18	453.97

Table D-4
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PG&E Topock Compressor Station, Needles, California

Location	Well Depth (feet BMP)	Measuring Point Elevation (feet AMSL)	Monitoring Date & Time		Water Level Measurement (feet BMP)	Salinity (percent)	Groundwater Elevation Adjusted for Salinity (feet AMSL)
Monitoring Wells							
MW-30-30	27	468.12	04/10/12	12:20 PM	12.69	2.50	455.63
			12/03/12	2:47 PM	14.83	2.50	453.46
MW-30-50	53	468.81	12/03/12	1:52 PM	15.83	0.40	453.00
MW-31-60	64	496.81	05/16/12	7:50 AM	40.47	0.21	456.28
			11/13/12	3:08 PM	43.13	0.21	453.63
MW-31-135	135	498.11	11/15/12	12:51 PM	45.15	0.67	453.06
MW-32-20	20	461.51	12/05/12	11:58 AM	8.32	3.00	453.39
MW-32-35	37	461.63	04/09/12	12:35 PM	5.53	1.20	456.29
			12/05/12	12:18 PM	8.73	1.20	453.05
MW-33-40	42	487.38	02/08/12	2:21 PM	32.54	0.51	454.84
			04/23/12	7:11 AM	30.20	0.51	457.18
			09/10/12	2:30 PM	31.98	0.51	455.40
			12/05/12	2:00 PM	34.05	0.51	453.33
MW-33-90	88	487.55	02/09/12	9:52 AM	32.75	0.69	454.89
			04/30/12	6:37 AM	30.42	0.69	457.24
			09/24/12	7:54 AM	32.55	0.69	455.11
			11/07/12	3:28 PM	34.21	0.69	453.41
			11/08/12	8:01 AM	34.20	0.69	453.42
MW-33-150	155	487.77	02/09/12	7:39 AM	33.31	0.97	454.96
			04/23/12	8:47 AM	31.15	0.97	457.10
			09/11/12	12:53 PM	32.78	1.08	455.54
			12/06/12	9:39 AM	34.68	1.08	453.57
MW-33-210	223	487.25	02/09/12	8:44 AM	33.18	1.20	454.97
			04/23/12	12:45 PM	31.38	1.20	456.78
			09/11/12	11:13 AM	32.40	1.20	455.75
			12/06/12	9:50 AM	34.40	1.20	453.75
MW-34-55	57	460.95	12/12/12	7:44 AM	8.05	0.08	452.81
MW-34-80	84	461.20	02/07/12	8:10 AM	6.26	0.50	455.10
			04/09/12	8:25 AM	4.62	0.50	456.74
			10/01/12	9:25 AM	6.11	0.50	455.19
			12/12/12	9:02 AM	8.51	0.50	452.78
MW-34-100	117	460.96	01/18/12	11:52 AM	7.87	1.20	453.86
			02/07/12	9:35 AM	7.11	1.20	454.64
			04/09/12	10:45 AM	5.48	1.20	456.27
			10/01/12	11:15 AM	6.92	1.15	454.75
			11/26/12	12:14 PM	8.23	1.15	453.43
			12/12/12	11:13 AM	8.63	1.15	453.04
MW-35-60	57	484.33	02/06/12	2:43 PM	29.10	0.45	455.22
			04/26/12	10:19 PM	27.02	0.45	457.31
			09/10/12	2:00 PM	28.35	0.45	455.96
			12/04/12	7:58 AM	30.57	0.45	453.76

Table D-4
Manual Water Level Measurements, January 2012 through December 2012
Fourth Quarter 2012 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Location	Well Depth (feet BMP)	Measuring Point Elevation (feet AMSL)	Monitoring Date & Time		Water Level Measurement (feet BMP)	Salinity (percent)	Groundwater Elevation Adjusted for Salinity (feet AMSL)
Monitoring Wells							
MW-35-135	159	484.24	04/26/12	11:50 AM	27.17	0.64	457.26
			12/04/12	9:16 AM	30.01	0.64	454.42
MW-36-20	20	469.33	12/04/12	12:45 PM	16.39	1.30	452.97
MW-36-40	40	469.59	12/04/12	8:10 AM	16.57	0.40	453.04
MW-36-50	108	469.62	12/04/12	11:33 AM	16.76	0.23	452.93
MW-36-70	70	469.27	12/04/12	2:40 PM	16.62	0.10	452.57
MW-36-90	90	469.64	04/10/12	10:07 AM	14.55	0.10	454.99
			12/04/12	9:32 AM	17.37	0.10	452.17
MW-36-100	108	469.65	04/10/12	11:09 AM	14.72	0.80	455.28
			10/10/12	8:25 AM	16.92	0.80	452.97
			11/08/12	10:56 AM	17.63	0.80	452.26
MW-37D	227	486.19	12/04/12	12:31 PM	31.53	1.05	455.25
			12/14/12	12:28 PM	31.53	1.05	455.25
MW-37S	85	485.97	11/14/12	2:20 PM	31.44	0.32	454.43
MW-39-50	55	467.93	12/03/12	9:53 AM	14.82	0.16	453.06
MW-39-60	66	468.00	12/03/12	3:17 PM	15.41	0.21	452.55
MW-39-70	72	468.02	12/03/12	2:06 PM	15.65	0.29	452.36
MW-39-80	83	467.92	12/03/12	12:03 PM	15.43	0.74	452.69
MW-39-100	118	468.12	12/13/12	9:12 AM	15.88	1.31	452.98
MW-40D	266	566.08	12/03/12	12:51 PM	111.21	1.11	455.34
MW-40S	134	566.04	11/05/12	9:50 AM	110.29	0.13	455.66
			12/03/12	11:59 AM	110.62	0.13	455.33
MW-41D	312	479.42	04/26/12	8:03 AM	23.10	1.38	457.85
			11/05/12	2:13 PM	24.46	1.38	456.48
MW-41M	190	479.83	11/05/12	4:00 PM	24.25	1.03	456.10
MW-41S	60	480.07	11/05/12	9:01 AM	24.82	0.32	455.19
			12/03/12	10:14 AM	25.25	0.32	454.76
MW-42-30	30	463.74	12/06/12	11:14 AM	11.09	1.10	452.75
MW-42-55	53	463.85	02/07/12	1:49 PM	9.40	0.90	454.61
			04/09/12	2:17 PM	7.77	0.90	456.25
			09/11/12	7:50 AM	8.19	0.90	455.83
			12/06/12	12:52 PM	11.15	0.90	452.86
MW-42-65	80	463.37	02/07/12	2:40 PM	9.03	1.10	454.74
			04/09/12	2:37 PM	7.71	1.10	456.08
			09/11/12	9:18 AM	8.02	1.10	455.71
			12/06/12	1:26 PM	10.79	1.10	452.97
MW-43-25	25	462.54	12/10/12	9:20 AM	9.50	0.09	453.02
MW-43-75	75	462.71	12/10/12	10:40 AM	9.80	0.90	453.17
MW-43-90	97	462.76	12/10/12	11:28 AM	10.20	1.20	450.98
MW-44-70	70	471.90	04/12/12	10:30 AM	14.91	0.20	456.96

Table D-4

Manual Water Level Measurements, January 2012 through December 2012

Fourth Quarter 2012 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Location	Well Depth (feet BMP)	Measuring Point Elevation (feet AMSL)	Monitoring Date & Time		Water Level Measurement (feet BMP)	Salinity (percent)	Groundwater Elevation Adjusted for Salinity (feet AMSL)
Monitoring Wells							
MW-44-70	70	471.90	12/06/12	2:24 PM	19.42	0.20	452.46
MW-44-115	114	472.01	02/08/12	11:49 AM	18.11	0.80	454.25
			04/12/12	12:53 PM	16.51	0.80	455.87
			09/27/12	7:21 AM	17.59	0.80	454.75
			11/26/12	8:28 AM	18.84	0.80	453.46
MW-44-125	129	472.04	02/08/12	7:49 AM	17.70	0.89	454.81
			04/12/12	6:31 AM	15.49	0.89	457.05
			09/13/12	7:55 AM	17.09	0.89	455.25
			11/05/12	3:08 PM	19.12	0.89	453.31
			11/06/12	11:35 AM	19.01	0.89	453.42
MW-45-095a	97	470.03	12/13/12	9:59 AM	18.16	0.35	451.94
MW-46-175	176	482.16	01/18/12	2:30 PM	29.16	1.09	453.83
			02/08/12	12:53 PM	28.24	1.09	457.78
			04/23/12	10:55 AM	26.35	1.09	456.67
			09/26/12	10:08 AM	28.22	1.09	454.65
			11/09/12	7:51 AM	29.75	1.09	453.12
			12/12/12	12:33 PM	29.63	1.09	453.37
MW-46-205	207	482.23	04/12/12	1:48 PM	27.14	1.30	456.19
			12/12/12	2:05 PM	29.73	1.30	453.59
MW-47-55	55	484.04	04/25/12	12:12 PM	26.92	0.28	457.08
			09/24/12	10:11 AM	28.59	0.28	455.40
			11/07/12	7:50 AM	29.97	0.28	454.03
MW-47-115	115	484.17	04/25/12	8:45 AM	27.38	0.83	456.97
			09/25/12	12:58 PM	28.95	0.83	455.39
			11/07/12	10:25 AM	28.40	0.83	455.94
MW-48	138	486.22	02/08/12	3:56 PM	32.04	1.14	402.74
			04/25/12	2:26 PM	30.38	1.14	456.35
			09/13/12	7:29 AM	25.60	1.14	461.00
			11/05/12	12:12 PM	31.31	1.14	455.27
MW-49-135	135	484.02	12/11/12	8:23 AM	30.88	0.81	453.50
MW-49-275	275	483.95	12/11/12	10:00 AM	31.39	1.52	454.29
MW-49-365	367	484.01	12/11/12	12:15 PM	32.83	2.50	455.82
MW-50-095	95	496.49	04/25/12	1:26 PM	39.94	0.33	456.47
			09/19/12	8:40 AM	41.21	0.33	455.18
			11/05/12	12:00 PM	42.19	0.33	454.20
MW-50-200	205	496.35	02/09/12	3:00 PM	42.40	1.30	454.73
			05/10/12	9:10 AM	40.69	1.30	456.45
			10/03/12	10:20 AM	41.63	1.30	455.51
			11/29/12	7:49 AM	42.82	1.30	454.32
MW-51	113	501.56	05/08/12	12:16 PM	45.44	0.73	456.21
			10/08/12	7:00 AM	46.73	0.73	454.88

Table D-4
Manual Water Level Measurements, January 2012 through December 2012
Fourth Quarter 2012 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Location	Well Depth (feet BMP)	Measuring Point Elevation (feet AMSL)	Monitoring Date & Time		Water Level Measurement (feet BMP)	Salinity (percent)	Groundwater Elevation Adjusted for Salinity (feet AMSL)
Monitoring Wells							
MW-51	113	501.56	11/28/12	9:50 AM	47.35	0.73	454.26
MW-54-85	93	466.10	04/24/12	12:13 PM	8.88	0.68	457.35
			12/12/12	11:59 AM	13.13	0.68	453.09
MW-54-140	138	465.98	04/24/12	9:35 AM	8.70	0.85	457.65
			12/12/12	12:55 PM	12.70	0.85	453.63
MW-54-195	195	466.32	04/24/12	8:59 AM	9.83	1.29	457.53
			12/12/12	2:02 PM	13.42	1.29	454.01
MW-55-45	52	463.41	04/03/12	7:26 AM	5.91	0.10	457.36
			12/12/12	7:51 AM	8.38	0.10	454.91
MW-55-120	118	463.21	04/03/12	8:37 AM	5.95	0.60	457.30
			12/12/12	9:11 AM	8.02	0.60	455.25
MW-57-070	70	509.37	02/15/12	7:32 AM	53.73	0.12	455.58
			05/03/12	6:20 AM	52.35	0.12	456.95
			09/12/12	8:45 AM	52.43	0.12	456.87
			12/13/12	10:33 AM	53.23	0.12	456.07
MW-57-185	185	508.97	02/10/12	11:01 AM	53.30	1.20	456.22
			04/30/12	9:44 AM	51.74	1.20	457.79
			09/11/12	11:10 AM	52.10	1.20	457.43
			11/08/12	11:30 AM	52.85	1.20	456.68
			11/08/12	11:42 AM	52.85	1.20	456.68
MW-59-100	101	541.61	02/22/12	8:20 AM	86.18	0.70	455.44
			05/08/12	10:00 AM	84.75	0.70	456.87
			10/02/12	10:09 AM	85.05	0.70	456.57
			11/05/12	10:09 AM	85.51	0.70	456.11
			11/28/12	7:25 AM	85.84	0.70	455.78
MW-60-125	123	555.47	02/15/12	12:33 PM	99.72	0.60	455.74
			05/03/12	9:00 AM	98.30	0.60	457.16
			09/20/12	10:24 AM	98.83	0.60	456.63
			12/06/12	9:18 AM	99.80	0.60	455.66
MW-60BR-245	244	554.95	02/15/12	10:45 AM	99.20	1.09	456.24
			05/16/12	1:10 AM	98.39	1.09	457.76
			09/18/12	2:12 PM	98.33	1.09	457.12
			12/04/12	1:13 PM	97.20	1.09	458.25
MW-61-110	113	544.03	02/15/12	8:47 AM	88.32	1.06	455.79
			05/03/12	7:57 AM	86.85	1.06	457.26
			09/27/12	12:08 PM	87.55	1.06	456.56
			11/27/12	7:26 AM	88.44	1.06	455.67
MW-62-065	67	503.56	02/17/12	10:04 AM	48.56	0.40	454.97
			05/02/12	1:00 PM	46.45	0.40	457.08
			09/12/12	10:57 AM	47.58	0.40	455.95
			12/10/12	2:08 PM	49.25	0.40	444.28

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Fourth Quarter 2012 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Location	Well Depth (feet BMP)	Measuring Point Elevation (feet AMSL)	Monitoring Date & Time		Water Level Measurement (feet BMP)	Salinity (percent)	Groundwater Elevation Adjusted for Salinity (feet AMSL)
Monitoring Wells							
MW-62-110	110	504.05	02/15/12	9:59 AM	36.37	0.57	467.70
			12/11/12	8:29 AM	37.46	0.57	466.61
MW-62-190	190	504.05	02/15/12	10:20 AM	36.45	1.26	468.40
MW-63-065	66	504.47	02/13/12	1:51 PM	49.08	0.47	455.38
			04/26/12	1:05 PM	47.63	0.47	456.83
			09/10/12	11:39 AM	48.51	0.47	455.95
			11/07/12	1:53 PM	51.41	0.47	453.05
MW-65-160	160	596.59	02/16/12	11:30 AM	141.04	0.25	455.49
			05/01/12	9:50 AM	139.59	0.27	456.94
			09/18/12	11:59 AM	139.80	0.27	456.73
			12/04/12	2:53 PM	140.71	0.27	455.82
MW-65-225	225	596.58	02/16/12	4:03 PM	141.10	0.72	455.52
			05/02/12	5:54 AM	139.72	0.81	456.96
			09/18/12	12:48 PM	139.85	0.81	456.83
			12/05/12	12:11 PM	140.65	0.81	456.03
MW-66-165	162	586.16	02/17/12	9:06 AM	130.95	0.27	455.13
			05/02/12	11:36 AM	129.39	0.28	456.69
			09/17/12	11:35 AM	129.66	0.28	456.42
			12/06/12	8:04 AM	130.60	0.28	455.48
MW-66-230	228	586.22	02/22/12	9:45 AM	130.11	1.15	456.45
			05/10/12	7:00 AM	129.65	1.20	456.96
			09/17/12	12:44 PM	129.95	1.20	456.65
			12/10/12	12:54 PM	123.27	1.20	463.36
MW-66BR-270	271	586.15	02/16/12	9:10 AM	165.59	1.19	420.97
			10/02/12	9:54 AM	153.00	1.19	433.61
MW-67-185	187	625.91	02/21/12	10:03 AM	170.60	0.25	455.26
			05/03/12	1:01 PM	169.09	0.28	456.77
			09/20/12	12:48 PM	169.30	0.28	456.56
			11/05/12	10:24 AM	170.00	0.28	455.86
			12/06/12	2:34 PM	169.15	0.28	456.71
MW-67-225	225	625.83	02/21/12	2:33 PM	170.59	0.47	455.16
			05/07/12	9:40 AM	169.17	0.50	456.59
			09/20/12	11:10 AM	169.61	0.50	456.15
			12/10/12	2:35 PM	170.46	0.50	455.30
MW-67-260	260	625.81	02/21/12	11:27 AM	170.88	1.08	455.18
			05/07/12	8:48 AM	169.38	1.13	456.73
			09/20/12	3:03 PM	169.60	1.13	456.51
			12/06/12	1:28 PM	170.60	1.13	455.51
MW-68-180	180	621.17	02/22/12	11:54 AM	165.69	0.23	455.43
			05/10/12	1:07 PM	164.12	0.25	457.00
			09/20/12	1:45 PM	164.50	0.25	456.62
			12/11/12	9:15 AM	165.61	0.25	455.51

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PG&E Topock Compressor Station, Needles, California

Location	Well Depth (feet BMP)	Measuring Point Elevation (feet AMSL)	Monitoring Date & Time		Water Level Measurement (feet BMP)	Salinity (percent)	Groundwater Elevation Adjusted for Salinity (feet AMSL)
Monitoring Wells							
MW-68-240	240	621.17	02/17/12	11:15 AM	166.03	0.99	455.31
			05/03/12	11:40 AM	164.55	0.99	456.80
			09/20/12	8:26 AM	164.85	0.99	456.49
			12/06/12	11:36 AM	165.60	0.99	455.74
MW-68BR-280	278	620.64	02/14/12	7:31 AM	164.02	1.34	457.25
			05/09/12	9:20 AM	162.88	1.34	458.38
			10/03/12	6:20 AM	163.15	1.34	458.10
		586.15	11/12/12	11:50 AM	168.50	1.34	418.23
MW-69-195	196	631.36	02/17/12	8:01 AM	175.49	0.22	455.80
			05/02/12	8:01 AM	174.50	0.25	456.79
			09/19/12	1:19 PM	174.15	0.25	457.14
			09/19/12	12:19 PM	174.15	0.25	457.14
			12/05/12	3:24 PM	175.03	0.25	456.27
MW-70-105	108	541.47	02/16/12	12:38 PM	85.18	0.17	456.22
			05/01/12	6:20 AM	83.90	0.17	457.49
			09/12/12	2:47 PM	83.93	0.17	457.46
			12/04/12	2:17 PM	84.88	0.17	456.52
MW-70BR-225	229	539.84	02/16/12	1:35 PM	83.65	0.88	456.47
			05/17/12	11:01 AM	82.13	0.88	458.00
			09/18/12	8:51 AM	82.49	0.88	457.64
			12/13/12	8:43 AM	83.44	0.88	456.68
MW-71-035	36	483.69	02/13/12	10:36 AM	29.22	0.51	454.47
			05/01/12	2:37 PM	27.61	0.53	456.08
			09/19/12	6:22 AM	29.80	0.53	453.89
			11/07/12	10:25 AM	28.40	0.53	455.29
MW-72-080	80	513.32	02/13/12	11:05 AM	57.73	0.97	455.66
			05/01/12	11:20 AM	56.10	1.04	457.31
			09/19/12	11:47 AM	57.88	1.04	458.52
			12/05/12	10:33 AM	60.04	1.04	453.35
MW-72BR-200	200	513.79	09/13/12	9:15 AM	53.39	0.97	460.86
			11/14/12	7:40 AM	59.14	0.97	455.09
MW-73-080	80	505.84	02/13/12	12:27 PM	50.19	2.28	456.02
			05/01/12	8:25 AM	48.31	0.67	457.56
			09/13/12	1:52 PM	49.85	0.67	456.02
			12/04/12	10:32 AM	52.58	0.67	453.29
MW-74-240	240	672.34	02/15/12	2:45 PM	216.04	0.80	456.35
			05/09/12	6:33 AM	214.71	0.80	457.68
			09/27/12	9:07 AM	214.95	0.80	457.44
			12/18/12	2:43 PM	215.70	0.80	456.69
OW-3D	273	558.63	11/13/12	11:16 AM	102.45	0.51	456.02
OW-3M	200	558.90	11/13/12	12:20 PM	102.44	0.32	456.25

Table D-4

Manual Water Level Measurements, January 2012 through December 2012

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PG&E Topock Compressor Station, Needles, California

Location	Well Depth (feet BMP)	Measuring Point Elevation (feet AMSL)	Monitoring Date & Time		Water Level Measurement (feet BMP)	Salinity (percent)	Groundwater Elevation Adjusted for Salinity (feet AMSL)
Monitoring Wells							
OW-3S	116	558.58	11/05/12	9:36 AM	102.07	0.08	456.46
			11/13/12	12:47 PM	102.11	0.08	456.42
PGE-7BR	300	---	12/10/12	10:04 AM	110.24	---	---
PGE-8	564	596.01	11/06/12	9:01 AM	140.00	1.21	457.63
			11/06/12	9:06 AM	140.00	1.21	457.63
TW-1	271	620.55	02/10/12	9:05 AM	165.41	0.44	455.03
			05/16/12	9:30 AM	163.59	0.44	456.54
			10/01/12	1:36 PM	164.01	0.44	456.43
			12/11/12	1:52 PM	165.00	0.44	455.44
TW-4	255	484.11	11/15/12	9:35 AM	30.21	1.27	454.96
TW-5	155	496.30	11/15/12	7:30 AM	42.12	0.95	454.44

Notes:

(---) = data not collected or available.
AMSL = above mean sea level.
BMP = below well measure point.

Well depths rounded off to whole foot.

Salinity used to adjust water level to freshwater equivalent. Salinity values have been averaged in accordance with the Performance Monitoring Program.

Table D-5
Field Water Quality Measurements, January 2012 through December 2012
Fourth Quarter 2012 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Location	Sampling Date	Specific Conductance (µS/cm)	Temperature (°C)	pH	ORP (mV)	Dissolved Oxygen (mg/L)
Monitoring Wells						
MW-9	12/05/2012	3,100	29.42	7.44	-24	3.09
MW-10	05/15/2012	3,193	28.10	7.45	39	4.10
	12/10/2012	2,810	29.10	7.67	12	4.23
MW-12	02/09/2012	6,573	29.41	7.62	121	5.61
	05/07/2012	6,950	26.96	8.17	95	5.60
	10/02/2012	7,246	28.18	7.79	204	5.36
	11/27/2012	6,906	28.10	8.03	100	5.55
MW-13	12/11/2012	2,080	28.17	7.56	-9	3.93
MW-14	12/13/2012	1,710	28.86	7.56	-18	5.51
MW-15	11/15/2012	1,606	31.25	7.67	114	8.73
MW-16	04/24/2012	1,031	30.01	8.09	32	9.05
	11/08/2012	1,090	30.15	8.12	-46	8.30
MW-17	04/25/2012	1,445	30.84	8.29	29	---
	12/03/2012	1,240	30.04	8.02	162	7.88
MW-18	12/04/2012	1,430	28.80	7.52	132	9.81
MW-19	05/01/2012	2,190	28.27	7.41	33	7.18
	10/04/2012	2,247	28.69	7.11	222	7.07
	11/26/2012	2,250	28.63	7.35	159	6.92
MW-20-70	05/07/2012	2,390	27.50	7.68	113	7.87
	10/04/2012	2,287	29.06	7.40	205	8.32
	11/27/2012	2,344	28.79	7.53	114	8.27
MW-20-100	05/08/2012	3,120	27.88	7.31	103	2.95
	10/04/2012	2,880	29.55	7.02	217	4.45
	11/29/2012	2,813	29.29	7.25	145	5.29
MW-20-130	05/10/2012	12,100	27.98	7.49	66	1.91
	10/09/2012	11,610	29.60	7.14	249	1.63
	11/29/2012	11,850	29.52	7.23	171	1.70
MW-21	02/07/2012	10,510	25.60	7.14	77	3.38
	04/26/2012	11,100	28.16	7.53	33	1.73
	09/12/2012	13,650	28.33	---	58	0.48
	11/13/2012	10,180	28.91	7.04	9	2.59
MW-22	04/11/2012	13,530	22.76	6.96	-91	0.20
	12/10/2012	33,930	24.45	6.62	-52	0.12
MW-23-060	02/14/2012	18,940	30.74	---	67	5.24
	04/30/2012	16,760	31.35	---	-76	3.61
	09/12/2012	17,130	32.19	---	-46	3.84
	11/08/2012	16,570	30.19	---	61	4.98
MW-23-080	02/14/2012	19,310	31.17	7.60	-139	0.38

Table D-5
Field Water Quality Measurements, January 2012 through December 2012
Fourth Quarter 2012 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Location	Sampling Date	Specific Conductance (µS/cm)	Temperature (°C)	pH	ORP (mV)	Dissolved Oxygen (mg/L)
Monitoring Wells						
MW-23-080	04/30/2012	16,910	31.95	---	-129	0.25
	09/12/2012	17,060	29.93	---	-113	1.44
	11/08/2012	16,560	29.87	---	-80	3.05
MW-24BR	02/10/2012	14,520	30.93	7.96	-240	0.01
	05/16/2012	14,390	30.86	8.15	-110	0.48
	09/26/2012	14,670	31.78	7.70	-137	0.04
	11/13/2012	14,410	34.30	8.00	-159	0.09
MW-25	12/11/2012	1,660	29.84	7.27	16	4.68
MW-26	05/07/2012	4,240	28.02	7.41	129	84.60
	10/04/2012	4,197	29.69	7.01	185	7.49
	11/27/2012	4,215	29.41	7.20	114	7.63
MW-27-20	12/03/2012	876	20.31	7.31	-33	0.05
MW-27-60	02/07/2012	1,110	18.92	8.12	-155	-0.02
	10/01/2012	1,050	18.99	7.81	-136	0.00
	12/03/2012	942	18.72	7.80	-61	0.04
MW-27-85	02/07/2012	12,400	20.00	7.30	-53	-0.06
	04/09/2012	12,760	19.53	7.45	-22	0.25
	10/01/2012	11,400	19.92	7.27	-51	0.01
	12/03/2012	10,485	19.74	7.43	28	0.06
MW-28-25	04/10/2012	923	20.43	7.61	-5	0.12
	12/05/2012	1,176	22.03	7.34	43	0.37
MW-28-90	02/07/2012	7,469	19.45	7.25	-101	0.00
	04/10/2012	6,517	19.15	7.42	-89	0.23
	09/10/2012	7,088	19.33	7.02	-209	0.02
	12/05/2012	8,221	19.33	7.18	-48	0.37
MW-29	04/10/2012	2,647	24.82	7.37	-125	0.25
	12/05/2012	2,759	24.24	7.25	-67	1.84
MW-30-30	04/10/2012	9,400	22.60	7.77	-180	0.01
	12/03/2012	26,730	23.60	7.45	-83	0.09
MW-30-50	12/03/2012	992	21.01	7.82	-26	1.40
MW-31-60	05/16/2012	3,852	27.15	7.50	35	4.29
	11/13/2012	3,304	28.65	7.34	77	5.04
MW-31-135	11/15/2012	11,900	28.84	7.61	112	0.34
MW-32-20	12/05/2012	49,740	26.58	6.69	-92	0.11
MW-32-35	04/09/2012	16,900	24.87	7.26	-150	0.28
	12/05/2012	16,370	24.91	7.01	-132	0.04
MW-33-40	02/08/2012	6,816	28.50	8.07	-45	0.13
	04/23/2012	5,651	27.71	8.38	-54	0.29

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Location	Sampling Date	Specific Conductance (µS/cm)	Temperature (°C)	pH	ORP (mV)	Dissolved Oxygen (mg/L)
Monitoring Wells						
MW-33-40	09/10/2012	9,991	29.29	7.55	-3	0.18
	12/05/2012	9,314	26.89	7.98	-101	0.41
MW-33-90	02/09/2012	10,170	26.75	7.42	83	-0.03
	04/30/2012	9,890	26.31	7.68	25	0.01
	09/24/2012	10,330	27.03	7.13	165	0.02
	11/08/2012	10,380	26.56	7.17	129	0.01
MW-33-150	02/09/2012	16,560	27.05	7.45	106	0.01
	04/23/2012	15,480	26.94	7.70	20	0.14
	09/11/2012	15,300	27.14	7.42	-61	0.07
	12/06/2012	19,580	26.88	7.37	20	0.10
MW-33-210	02/09/2012	19,080	27.59	7.34	98	-0.03
	04/23/2012	17,960	27.40	7.53	2	0.07
	09/11/2012	17,660	27.39	7.28	-74	0.01
	12/06/2012	21,710	27.37	7.26	21	0.09
MW-34-55	12/12/2012	989	17.93	7.64	-13	0.03
MW-34-80	02/07/2012	7,661	19.08	7.31	-27	-0.06
	04/09/2012	7,860	18.66	7.55	-34	0.18
	10/01/2012	7,836	19.07	7.42	-31	0.00
	12/12/2012	7,497	18.85	7.32	19	0.02
MW-34-100	01/18/2012	18,080	20.22	7.67	87	-0.05
	02/07/2012	17,990	19.99	7.50	33	0.00
	04/09/2012	16,999	20.01	7.61	-22	0.12
	10/01/2012	18,080	20.24	7.50	85	0.00
	11/26/2012	18,150	20.57	7.54	102	0.50
	12/12/2012	18,410	19.90	7.68	61	0.06
MW-35-60	02/06/2012	6,673	26.99	7.30	114	1.19
	04/26/2012	6,319	26.72	7.67	42	1.32
	09/10/2012	6,660	26.98	8.14	80	0.88
	12/04/2012	7,872	26.45	7.06	75	1.21
MW-35-135	04/26/2012	10,670	26.68	7.88	26	0.55
	12/04/2012	10,820	26.73	7.59	61	0.54
MW-36-20	12/04/2012	6,365	22.44	7.58	-166	0.02
MW-36-40	12/04/2012	1,463	20.40	7.65	-167	0.07
MW-36-50	12/04/2012	1,149	20.47	7.60	-107	0.05
MW-36-70	12/04/2012	1,071	20.09	7.94	-110	0.05
MW-36-90	04/10/2012	1,138	21.50	8.49	-70	0.45
	12/04/2012	1,178	21.24	8.27	-54	0.07
MW-36-100	04/10/2012	8,391	21.53	7.37	-130	0.12

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Location	Sampling Date	Specific Conductance (µS/cm)	Temperature (°C)	pH	ORP (mV)	Dissolved Oxygen (mg/L)
Monitoring Wells						
MW-36-100	10/10/2012	8,827	21.80	7.13	-48	0.01
	11/08/2012	9,280	21.86	7.09	-18	0.00
MW-37D	12/04/2012	16,670	29.75	7.68	55	0.12
MW-37S	11/14/2012	5,333	28.87	7.59	56	1.69
MW-39-50	12/03/2012	1,317	22.07	7.88	115	0.02
MW-39-60	12/03/2012	1,530	21.98	7.98	32	0.02
MW-39-70	12/03/2012	2,514	22.51	7.69	83	0.02
MW-39-80	12/03/2012	6,745	22.98	7.23	44	0.01
MW-39-100	12/13/2012	17,460	23.98	6.47	113	0.10
MW-40D	12/03/2012	13,930	31.19	7.57	129	1.24
MW-40S	12/03/2012	1,960	30.85	7.68	170	6.17
MW-41D	04/26/2012	21,700	30.27	7.91	-66	0.09
	11/05/2012	20,770	30.48	7.75	-181	0.10
MW-41M	11/05/2012	14,720	29.55	7.69	-161	0.20
MW-41S	12/03/2012	4,450	28.54	7.82	122	1.25
MW-42-30	12/06/2012	5,239	23.51	7.85	-149	0.06
MW-42-55	02/07/2012	5,350	22.35	7.57	-126	0.55
	04/09/2012	4,756	22.04	7.77	-123	0.10
	09/11/2012	2,398	21.83	7.77	-131	0.03
	12/06/2012	2,675	21.70	7.92	-57	0.09
MW-42-65	02/07/2012	10,070	22.58	7.18	-40	-0.04
	04/09/2012	8,640	22.34	7.45	-45	0.12
	09/11/2012	7,350	22.30	7.24	-106	0.04
	12/06/2012	9,758	21.64	7.17	14	0.26
MW-43-25	12/10/2012	1,245	21.75	7.42	-116	0.10
MW-43-75	12/10/2012	12,140	21.01	7.26	-81	0.12
MW-43-90	12/10/2012	17,970	21.22	6.94	-36	0.08
MW-44-70	04/12/2012	2,246	19.41	7.72	-238	0.16
	12/06/2012	2,460	19.44	7.58	-69	0.05
MW-44-115	02/08/2012	11,580	21.36	7.95	-93	-0.06
	04/12/2012	10,310	20.94	8.09	-168	0.23
	09/27/2012	10,700	21.43	7.78	-85	0.01
	11/26/2012	11,330	21.48	7.80	21	0.04
MW-44-125	02/08/2012	12,310	21.83	7.84	-196	-0.06
	04/12/2012	10,370	21.68	7.87	-264	0.35
	09/13/2012	9,973	24.77	7.92	-188	0.40
	11/06/2012	12,290	21.21	7.91	-170	0.01
MW-45-095a	12/13/2012	9,383	19.64	7.33	100	0.05

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Location	Sampling Date	Specific Conductance (µS/cm)	Temperature (°C)	pH	ORP (mV)	Dissolved Oxygen (mg/L)
Monitoring Wells						
MW-46-175	01/18/2012	18,200	23.66	7.59	-91	-0.05
	02/08/2012	18,070	23.44	8.34	-93	-0.06
	04/23/2012	16,610	23.22	8.55	-103	0.04
	09/26/2012	17,980	23.36	8.08	-35	0.01
	11/09/2012	17,690	23.21	8.24	123	0.02
	12/12/2012	18,640	22.91	8.51	36	0.02
MW-46-205	04/12/2012	19,430	24.21	8.45	-136	0.06
	12/12/2012	22,570	24.31	8.40	4	0.02
MW-47-55	04/25/2012	4,669	27.79	7.84	35	2.24
	09/24/2012	4,890	28.11	7.50	346	2.22
	11/07/2012	4,326	27.72	7.31	156	2.88
MW-47-115	04/25/2012	12,940	28.18	7.95	10	0.17
	09/25/2012	13,480	28.48	7.36	93	0.07
	11/07/2012	14,060	28.38	7.40	123	0.06
MW-48	02/08/2012	18,170	27.76	7.20	154	4.14
	04/25/2012	16,850	31.25	7.60	-24	1.97
	09/13/2012	17,900	30.92	---	81	2.75
	11/07/2012	17,500	31.24	7.55	-123	2.23
MW-49-135	12/11/2012	13,800	24.56	7.88	59	0.17
MW-49-275	12/11/2012	25,440	26.13	8.22	45	0.04
MW-49-365	12/11/2012	37,800	26.85	8.11	17	0.07
MW-50-095	04/25/2012	5,110	28.75	8.15	0	1.88
	09/19/2012	5,310	29.10	7.65	60	1.68
	11/05/2012	5,080	29.08	7.60	215	1.80
MW-50-200	02/09/2012	20,910	30.35	7.67	246	2.89
	05/10/2012	20,910	28.48	7.65	45	2.45
	10/03/2012	20,950	30.21	7.39	151	2.60
	11/29/2012	20,830	29.66	7.42	80	2.23
MW-51	05/08/2012	10,620	28.25	7.45	99	1.77
	10/08/2012	10,880	29.80	7.09	225	1.99
	11/28/2012	10,830	29.66	7.29	132	2.03
MW-52D	04/11/2012	18,110	20.83	7.89	-146	0.24
	12/05/2012	21,530	20.18	7.88	-175	0.04
MW-52M	04/11/2012	13,580	19.77	7.61	-130	0.09
	12/05/2012	16,230	21.11	7.49	-136	0.34
MW-52S	04/11/2012	8,235	19.07	7.18	-114	0.42
	12/05/2012	9,295	20.48	6.94	-121	0.14
MW-53D	04/11/2012	21,490	20.72	8.43	-187	0.11

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Location	Sampling Date	Specific Conductance (µS/cm)	Temperature (°C)	pH	ORP (mV)	Dissolved Oxygen (mg/L)
Monitoring Wells						
MW-53D	12/06/2012	25,230	18.70	8.22	-200	0.05
MW-53M	04/11/2012	16,480	19.18	8.27	-162	0.09
	12/05/2012	19,830	20.47	8.17	-199	0.04
MW-54-85	04/24/2012	9,210	26.49	7.80	-167	0.10
	12/12/2012	10,560	26.64	7.53	-137	0.14
MW-54-140	04/24/2012	11,730	25.54	7.97	-43	0.11
	12/12/2012	13,120	25.58	7.74	-66	0.11
MW-54-195	04/24/2012	17,840	26.84	8.26	-168	0.29
	12/12/2012	19,860	25.37	8.15	-182	0.07
MW-55-45	04/03/2012	1,532	27.88	7.35	-155	0.01
	12/12/2012	1,560	27.60	7.62	-186	0.19
MW-55-120	04/03/2012	8,749	28.45	7.87	28	0.72
	12/12/2012	9,160	28.54	7.89	-56	1.33
MW-56D	05/17/2012	20,740	24.60	8.15	-111	
	12/06/2012	21,090	22.41	7.53	-147	0.14
MW-56M	05/17/2012	14,340	22.30	7.98	-115	
	12/06/2012	14,320	22.13	7.12	-124	0.06
MW-56S	05/17/2012	5,872	22.20	8.04	-116	
	12/06/2012	5,361	22.69	7.05	-124	0.02
MW-57-070	02/15/2012	3,157	31.73	6.42	92	5.10
	05/03/2012	2,715	32.06	7.10	120	4.91
	09/12/2012	2,228	29.90	7.11	9	3.74
	12/13/2012	1,976	31.20	6.98	125	4.82
MW-57-185	02/10/2012	20,500	30.04	8.15	-173	-0.03
	04/30/2012	18,510	29.45	8.86	-59	0.06
	09/11/2012	16,580	29.79	---	-50	0.09
	11/08/2012	18,310	29.76	8.65	-133	0.44
MW-59-100	02/22/2012	10,080	29.84	6.95	180	6.51
	05/08/2012	11,200	29.22	6.95	134	5.61
	10/02/2012	9,930	29.99	6.63	306	6.59
	11/28/2012	10,440	29.69	6.78	171	6.70
MW-60-125	02/15/2012	9,784	33.18	7.36	106	3.41
	05/03/2012	8,991	30.70	7.40	98	3.80
	09/20/2012	9,030	32.25	7.55	63	---
	12/06/2012	10,120	31.81	7.53	-76	2.81
MW-60BR-245	02/16/2012	19,140	29.39	9.39	11	0.80
	05/17/2012	17,380	28.13	8.59	-126	0.29
	09/19/2012	18,480	29.76	8.64	-144	0.23

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Location	Sampling Date	Specific Conductance (µS/cm)	Temperature (°C)	pH	ORP (mV)	Dissolved Oxygen (mg/L)
Monitoring Wells						
MW-60BR-245	12/05/2012	18,580	30.50	8.65	-8	2.29
MW-61-110	02/15/2012	17,710	30.37	7.34	-29	0.21
	05/03/2012	16,550	28.66	7.36	55	0.29
	09/27/2012	15,980	30.79	7.13	5	0.31
	11/27/2012	16,260	29.10	7.21	12	0.34
MW-62-065	02/17/2012	7,009	30.21	---	---	3.80
	05/02/2012	6,167	29.83	7.57	34	3.72
	09/12/2012	6,075	30.63	7.28	-28	---
	12/10/2012	6,563	28.18	7.37	46	2.65
MW-62-110	02/16/2012	9,514	27.23	7.61	155	0.34
	05/10/2012	9,030	26.49	7.51	177	0.45
	09/13/2012	7,716	28.13	7.44	127	0.04
	12/11/2012	8,708	27.17	6.61	126	0.37
MW-62-190	02/16/2012	18,469	27.34	7.76	-131	0.21
	05/10/2012	18,230	26.58	7.69	-207	0.13
	09/13/2012	15,370	28.15	7.80	-277	0.01
	12/11/2012	17,590	27.48	7.54	103	0.11
MW-63-065	02/13/2012	7,406	27.09	7.12	28	0.62
	04/26/2012	7,317	26.82	7.33	26	1.48
	09/10/2012	6,850	27.12	8.04	96	2.17
	11/07/2012	7,400	27.36	7.32	23	6.29
MW-65-160	02/16/2012	4,852	32.27	7.23	12	0.25
	05/01/2012	4,085	31.14	7.31	-2	---
	09/18/2012	4,380	31.94	7.16	-76	0.45
	12/04/2012	4,400	30.94	7.34	-10	1.00
MW-65-225	02/16/2012	14,140	31.15	7.23	95	0.78
	05/02/2012	12,750	30.15	7.68	109	0.67
	09/18/2012	12,290	30.86	6.95	-69	0.90
	12/05/2012	10,480	30.29	7.35	-16	1.40
MW-66-165	02/17/2012	5,213	31.04	7.13	101	4.43
	05/02/2012	4,498	30.20	7.67	48	4.70
	09/17/2012	3,940	30.53	7.16	11	5.05
	12/06/2012	5,100	30.37	7.32	46	3.82
MW-66-230	02/22/2012	21,110	30.79	7.86	141	0.14
	05/10/2012	18,990	29.20	7.83	26	0.21
	09/17/2012	18,920	30.70	7.95	-89	0.29
	12/10/2012	19,840	30.58	8.02	-34	0.38
MW-66BR-270	02/16/2012	20,020	31.05	9.92	-330	-0.04
	10/02/2012	16,900	31.59	10.57	-97	0.08

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Location	Sampling Date	Specific Conductance (µS/cm)	Temperature (°C)	pH	ORP (mV)	Dissolved Oxygen (mg/L)
Monitoring Wells						
MW-66BR-270	12/20/2012	18,960	32.93	9.75	42	0.26
MW-67-185	02/21/2012	4,730	33.30	7.12	150	3.74
	05/03/2012	4,688	31.33	7.34	104	4.82
	09/20/2012	4,470	32.48	7.42	40	4.01
	12/06/2012	5,190	32.79	7.39	-56	2.11
MW-67-225	02/21/2012	8,610	31.08	7.01	161	1.66
	05/07/2012	7,800	29.97	7.54	100	1.44
	09/20/2012	8,009	31.76	7.21	306	1.86
	12/10/2012	7,860	31.08	7.51	-30	1.89
MW-67-260	02/21/2012	20,070	31.60	8.15	-37	0.04
	05/07/2012	17,840	29.60	8.19	65	0.23
	09/20/2012	17,690	31.10	8.50	-139	0.03
	12/06/2012	20,180	30.89	8.31	-104	0.11
MW-68-180	02/22/2012	4,470	31.72	7.46	175	5.85
	05/10/2012	3,200	30.63	7.37	76	5.56
	09/20/2012	4,082	33.09	7.33	370	5.31
	12/11/2012	4,470	32.24	7.44	45	3.98
MW-68-240	02/17/2012	18,420	31.67	7.29	50	0.00
	05/03/2012	16,850	29.48	7.34	87	0.11
	09/20/2012	16,640	30.88	7.48	---	0.05
	12/06/2012	18,730	30.83	7.45	-106	0.14
MW-68BR-280	02/14/2012	22,010	26.52	8.28	-110	1.84
	05/09/2012	20,810	31.13	8.52	-127	1.63
	10/03/2012	20,610	31.52	8.24	-138	1.80
	11/12/2012	20,460	28.73	8.29	-120	1.68
MW-69-195	02/17/2012	4,080	31.51	7.09	128	4.54
	05/02/2012	3,677	31.27	7.65	71	4.29
	09/19/2012	3,910	32.62	7.07	76	3.68
	12/05/2012	4,170	31.80	7.32	-47	2.36
MW-70-105	02/16/2012	3,477	30.55	7.85	-177	0.08
	05/01/2012	3,111	30.12	7.92	-30	---
	09/12/2012	3,340	31.00	7.92	-150	0.23
	12/04/2012	3,744	29.47	7.97	18	0.30
MW-70BR-225	02/16/2012	15,090	29.95	7.33	81	-0.01
	05/17/2012	14,100	29.22	7.44	42	0.08
	09/18/2012	14,860	30.45	7.18	42	0.05
	12/13/2012	14,210	29.92	7.43	-39	0.05
MW-71-035	02/15/2012	7,941	27.56	7.65	114	5.76
	05/03/2012	8,237	28.08	7.51	21	---

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Location	Sampling Date	Specific Conductance (µS/cm)	Temperature (°C)	pH	ORP (mV)	Dissolved Oxygen (mg/L)
Monitoring Wells						
MW-71-035	09/19/2012	8,510	27.80	7.11	116	
	11/08/2012	8,598	28.68	7.42	186	---
MW-72-080	02/13/2012	16,940	28.80	7.76	-25	0.66
	05/01/2012	16,050	27.61	7.68	-26	0.21
	09/19/2012	15,530	28.22	7.74	37	0.94
	12/05/2012	17,350	28.10	7.82	89	0.98
MW-72BR-200	09/13/2012	14,540	28.02	8.66	-202	0.01
	11/14/2012	15,680	27.73	8.26	-99	0.02
MW-73-080	02/14/2012	10,760	28.23	7.28	-18	1.05
	05/02/2012	10,140	26.72	7.23	15	---
	09/13/2012	10,120	27.90	7.27	-15	2.78
	12/05/2012	11,470	26.22	7.23	47	3.86
MW-74-240	02/17/2012	1,386	27.43	---	-247	---
	05/10/2012	1,250	27.53	9.71	-240	0.08
	09/27/2012	1,196	31.21	9.57	-208	0.10
	12/20/2012	850	24.20	8.96	-12	0.15
OW-3D	11/13/2012	8,825	30.71	7.71	12	0.36
OW-3M	11/13/2012	5,691	28.41	7.84	17	0.92
OW-3S	11/13/2012	1,473	29.49	7.62	65	7.28
PGE-7BR	12/11/2012	18,080	31.37	7.67	-234	0.08
PGE-8	11/07/2012	19,740	32.20	8.43	-300	0.06
Park Moabi-3	11/08/2012	1,318	29.60	7.81	-13	3.70
Park Moabi-4	11/08/2012	1,848	27.50	7.79	432	2.50
TW-1	02/10/2012	7,345	29.99	7.22	130	1.34
	05/16/2012	7,121	28.25	7.32	41	1.04
	10/01/2012	7,397	29.82	7.28	105	1.15
	12/11/2012	7,690	29.78	7.23	-15	0.99
TW-2D	12/13/2012	9,240	24.98	7.09	-33	0.77
TW-2S	12/13/2012	2,430	28.13	7.61	-27	4.31
TW-4	11/15/2012	20,810	29.41	7.48	119	0.01
TW-5	11/15/2012	15,460	29.41	7.38	162	0.34
Shoreline Surface Water Station						
R-19	01/11/2012	928	11.25	8.23	168	11.05
	02/29/2012	694	12.50	8.08	189	10.60
	05/22/2012	891	19.30	8.41	56	8.76
	08/22/2012	873	22.20	8.22	78	8.21
	11/01/2012	881	19.17	8.27	71	8.94
R-28	01/11/2012	928	11.06	8.23	172	11.02

Table D-5
Field Water Quality Measurements, January 2012 through December 2012
Fourth Quarter 2012 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Location	Sampling Date	Specific Conductance (µS/cm)	Temperature (°C)	pH	ORP (mV)	Dissolved Oxygen (mg/L)
Shoreline Surface Water Station						
R-28	02/29/2012	693	12.50	8.00	205	10.50
	05/22/2012	891	19.30	8.45	54	8.55
	08/22/2012	873	22.20	8.20	70	8.27
	11/01/2012	879	19.13	8.26	68	8.82
R63	01/10/2012	928	11.00	8.23	149	11.30
	02/28/2012	692	12.40	8.12	139	10.60
	05/22/2012	892	19.10	8.46	58	8.79
	08/21/2012	875	23.10	8.21	43	8.78
	11/01/2012	875	18.86	8.22	72	72.10
RRB	01/11/2012	939	9.48	8.21	187	10.77
	02/29/2012	928	12.40	8.04	219	10.10
	05/23/2012	901	18.90	8.35	56	8.13
	08/22/2012	883	22.90	8.12	113	8.01
	11/01/2012	886	19.34	8.29	85	7.86
Other Surface Water Monitoring Locations						
SW1	01/10/2012	1,071	8.24	7.80	210	9.80
	02/28/2012	767	14.20	7.62	214	8.09
	05/22/2012	936	19.50	7.44	69	3.66
	08/21/2012	895	23.40	7.68	27	5.03
	11/02/2012	924	17.87	7.58	45	63.30
SW2	01/10/2012	948	8.70	7.99	199	9.27
	02/28/2012	746	13.00	7.58	196	7.98
	05/22/2012	919	19.40	7.76	63	5.53
	08/21/2012	895	24.30	7.73	64	6.06
	11/02/2012	888	16.20	7.77	72	6.66
In-Channel Surface Water Station						
C-BNS-D	01/10/2012	932	11.35	8.23	152	11.01
	02/28/2012	687	12.20	8.12	154	10.50
	05/22/2012	890	18.90	8.38	56	7.97
	08/21/2012	878	22.90	8.04	51	7.21
	11/01/2012	876	19.02	8.26	68	8.07
C-CON-D	01/11/2012	930	11.29	8.24	166	10.83
C-CON-S	01/11/2012	929	11.20	8.23	165	10.97
C-CON-D	02/29/2012	909	12.50	8.10	197	10.30
C-CON-S	02/29/2012	908	12.50	8.10	190	10.50
C-CON-D	05/23/2012	895	17.90	8.39	45	8.42
C-CON-S	05/23/2012	892	17.80	8.38	46	8.24
C-CON-D	08/22/2012	881	22.00	8.16	126	7.29

Table D-5
Field Water Quality Measurements, January 2012 through December 2012
Fourth Quarter 2012 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Location	Sampling Date	Specific Conductance (µS/cm)	Temperature (°C)	pH	ORP (mV)	Dissolved Oxygen (mg/L)
In-Channel Surface Water Station						
C-CON-S	08/22/2012	874	22.10	8.17	104	7.33
C-CON-D	11/02/2012	860	19.37	8.08	83	7.63
C-CON-S	11/02/2012	867	19.32	8.30	82	7.82
C-I-3-D	01/10/2012	928	10.85	8.22	160	11.10
C-I-3-S	01/10/2012	928	10.85	8.24	159	11.10
C-I-3-D	02/28/2012	681	11.90	8.08	207	10.50
C-I-3-S	02/28/2012	681	11.90	8.12	202	10.50
C-I-3-D	05/22/2012	898	18.70	8.38	64	8.54
C-I-3-S	05/22/2012	894	18.70	8.32	64	7.81
C-I-3-D	08/21/2012	879	22.60	8.05	46	7.11
C-I-3-S	08/21/2012	877	22.50	8.06	39	8.20
C-I-3-D	11/01/2012	879	19.03	8.14	70	8.03
C-I-3-S	11/01/2012	875	18.90	8.22	69	8.20
C-MAR-D	01/11/2012	930	10.80	8.08	198	10.73
C-MAR-S	01/11/2012	932	10.76	8.13	186	10.71
C-MAR-D	02/28/2012	762	12.90	7.77	161	9.70
C-MAR-S	02/28/2012	771	13.10	7.76	160	9.60
C-MAR-D	05/23/2012	905	19.10	7.92	38	6.99
C-MAR-S	05/23/2012	908	19.30	7.92	42	7.02
C-MAR-D	08/21/2012	928	26.30	7.84	45	6.10
C-MAR-S	08/21/2012	929	26.50	7.82	47	6.22
C-MAR-D	11/01/2012	946	17.81	7.84	73	6.84
C-MAR-S	11/01/2012	952	17.99	7.82	75	6.91
C-NR1-D	01/11/2012	929	11.36	8.23	161	10.96
C-NR1-S	01/11/2012	928	11.43	8.23	160	10.74
C-NR1-D	02/29/2012	908	12.60	8.11	174	10.40
C-NR1-S	02/29/2012	909	12.60	8.12	169	10.40
C-NR1-D	05/23/2012	893	18.00	8.39	45	8.00
C-NR1-S	05/23/2012	892	18.10	8.38	45	7.95
C-NR1-D	08/22/2012	884	22.50	8.19	85	7.27
C-NR1-S	08/22/2012	877	22.70	8.16	69	7.32
C-NR1-D	11/02/2012	864	19.69	8.34	83	7.37
C-NR1-S	11/02/2012	867	19.55	8.34	84	7.78
C-NR3-D	01/10/2012	929	11.65	8.22	153	10.91
C-NR3-S	01/10/2012	929	11.55	8.22	153	10.64
C-NR3-D	02/29/2012	909	12.80	8.11	165	10.30
C-NR3-S	02/29/2012	909	12.70	8.12	161	10.30
C-NR3-D	05/23/2012	889	18.50	8.37	44	7.56

Table D-5
Field Water Quality Measurements, January 2012 through December 2012
Fourth Quarter 2012 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Location	Sampling Date	Specific Conductance (µS/cm)	Temperature (°C)	pH	ORP (mV)	Dissolved Oxygen (mg/L)
In-Channel Surface Water Station						
C-NR3-S	05/23/2012	894	18.40	8.37	44	8.00
C-NR3-D	08/22/2012	883	22.60	8.19	65	7.12
C-NR3-S	08/22/2012	880	22.50	8.16	53	6.94
C-NR3-D	11/02/2012	868	19.75	8.31	82	7.71
C-NR3-S	11/02/2012	868	19.63	8.37	80	7.67
C-NR4-D	01/11/2012	929	11.52	8.22	158	10.69
C-NR4-S	01/11/2012	928	11.42	8.22	158	10.87
C-NR4-D	02/29/2012	913	13.20	8.10	161	10.20
C-NR4-S	02/29/2012	910	12.90	8.11	158	10.40
C-NR4-D	05/23/2012	894	18.20	8.35	41	8.00
C-NR4-S	05/23/2012	895	18.10	8.35	42	7.75
C-NR4-D	08/22/2012	882	22.50	8.14	48	6.74
C-NR4-S	08/22/2012	880	22.20	8.13	47	7.13
C-NR4-D	11/02/2012	869	19.64	8.29	81	7.91
C-NR4-S	11/02/2012	867	19.56	8.36	80	7.69
C-R22A-D	01/10/2012	943	11.30	8.23	151	11.08
C-R22A-S	01/10/2012	945	11.30	8.23	152	11.13
C-R22A-D	02/28/2012	691	12.20	8.10	136	10.50
C-R22A-S	02/28/2012	691	12.30	8.13	145	10.50
C-R22A-D	05/22/2012	894	19.50	8.40	67	8.35
C-R22A-S	05/22/2012	892	19.20	8.41	58	8.17
C-R22A-D	08/21/2012	882	23.40	8.07	49	7.94
C-R22A-S	08/21/2012	880	23.30	8.13	39	7.64
C-R22A-D	11/01/2012	876	18.93	8.20	71	8.63
C-R22A-S	11/01/2012	877	18.97	8.30	67	8.45
C-R27-D	01/10/2012	936	11.40	8.23	152	10.90
C-R27-S	01/10/2012	936	11.50	8.23	151	10.86
C-R27-D	02/28/2012	691	12.40	8.12	157	10.42
C-R27-S	02/28/2012	692	12.50	8.12	157	10.40
C-R27-D	05/22/2012	890	19.00	8.39	55	7.96
C-R27-S	05/22/2012	891	19.10	8.38	57	7.99
C-R27-D	08/21/2012	878	23.30	8.06	44	7.14
C-R27-S	08/21/2012	870	23.30	8.06	48	7.18
C-R27-D	11/01/2012	876	19.09	8.25	68	8.40
C-R27-S	11/01/2012	877	19.27	8.25	68	8.06
C-TAZ-D	01/10/2012	930	10.90	8.05	183	11.03
C-TAZ-S	01/10/2012	928	10.90	8.20	169	11.12
C-TAZ-D	02/28/2012	682	12.00	8.07	212	10.50

Table D-5
Field Water Quality Measurements, January 2012 through December 2012
Fourth Quarter 2012 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Location	Sampling Date	Specific Conductance (µS/cm)	Temperature (°C)	pH	ORP (mV)	Dissolved Oxygen (mg/L)
In-Channel Surface Water Station						
C-TAZ-S	02/28/2012	682	11.90	8.08	214	10.50
C-TAZ-D	05/22/2012	919	19.20	8.40	97	8.70
C-TAZ-S	05/22/2012	900	19.00	8.37	63	7.96
C-TAZ-D	08/21/2012	895	22.90	8.04	-8	7.38
C-TAZ-S	08/21/2012	877	22.50	8.06	19	7.18
C-TAZ-D	11/01/2012	882	19.10	7.71	68	8.51
C-TAZ-S	11/01/2012	876	18.98	8.08	70	8.59

Notes:

(---) = data not collected, not available, or rejected.
°C = degree Celsius.
ORP = oxidation reduction potential, results rounded off to whole point.
mV = millivolts.
mg/L = milligrams per liter.
ORP = oxidation reduction potential, results rounded off to whole point.
µS/cm = microSiemens per centimeter.

All field measurements were collected during groundwater and surface water sampling using a YSI multi-parameter water quality meter, or an In-Situ multi-parameter water quality meter.

Table D-6

Additional Water Quality Characterization, December 2011 through December 2012

Fourth Quarter 2012 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,

PG&E Topock Compressor Station, Needles, California

Location	Sample Date	Oxygen-18	Deuterium	Chloride	Bromide	Sulfate	Alkalinity (total)	Total Dissolved Solids	Dissolved Metals				
									Calcium	Magnesium	Potassium	Sodium	Boron
MW-9	09-Dec-11	---	---	690	---	250	110	---	160	40.0	---	430	---
	05-Dec-12	---	---	690	---	250	130	---	120	29.0	---	380	---
MW-10	09-Dec-11	---	---	530	---	280	160	---	84.0	12.0	---	490	---
	10-Dec-12	---	---	600	---	290	150	---	81.0	12.0	---	450	---
MW-12	09-Dec-11	---	---	1700	---	450	110	---	38.0	6.7	---	1400	---
	02-Oct-12	---	---	1900	---	480	120	---	32.8	6.9	---	1640	---
	27-Nov-12	---	---	1800	---	460	120	---	30.0	6.8	---	1310	---
MW-13	06-Dec-11	---	---	480	---	150	73.0	---	100	14.0	---	280	---
	11-Dec-12	---	---	510	---	150	73.0	---	90.0	12.0	---	280	---
MW-14	09-Dec-11	---	---	350	---	100	79.0	---	77.0	10.0	---	230	---
	13-Dec-12	---	---	360	---	100	83.0	---	72.0	11.0	---	220	---
MW-15	07-Dec-11	---	---	340 J	---	110	82.0	---	90.0	20.0	---	180	---
	15-Nov-12	---	---	360	---	120	82.0	---	79.0	19.0	---	190	---
MW-16	07-Dec-11	---	---	170	---	160	91.0	---	28.0	4.9	---	200	0.34
	24-Apr-12	---	---	---	---	---	---	---	30.0	5.1	---	---	0.32
	08-Nov-12	---	---	190	---	130	100	---	27.0	4.9	3.9	200	0.29
MW-17	07-Dec-11	---	---	120	---	450	59.0	---	76.0	9.8	---	210	0.28
	25-Apr-12	---	---	---	---	---	---	---	78.0	11.0	---	---	0.23
	03-Dec-12	---	---	130	---	400	56.0	---	68.0	9.2	7.2	220	0.24
MW-18	08-Dec-11	---	---	280	---	82.0	86.0	---	77.0	12.0	---	150	---
	04-Dec-12	---	---	300	---	85.0	84.0	---	72.0	11.0	---	160	---
MW-19	09-Dec-11	---	---	520	---	170	67.0	---	110	16.0	---	330	---
	04-Oct-12	---	---	510	---	170	92.0	---	96.4	14.6	---	304	---
	26-Nov-12	---	---	510	---	170	93.0	---	97.3	16.1	---	283	---
MW-20-70	07-Dec-11	-7.9	-61.9	540	ND (0.5)	330	71.0	1400	100	25.0	---	380	---

Table D-6

Additional Water Quality Characterization, December 2011 through December 2012

Fourth Quarter 2012 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,

PG&E Topock Compressor Station, Needles, California

Location	Sample Date	Oxygen-18	Deuterium	Chloride	Bromide	Sulfate	Alkalinity (total)	Total Dissolved Solids	Dissolved Metals				
									Calcium	Magnesium	Potassium	Sodium	Boron
MW-20-70	04-Oct-12	---	---	430	---	290	---	---	76.2	22.9	---	346	---
	27-Nov-12	-7.8	-62.6	450	ND (0.5)	290	89.0	1400	79.2	22.2	8.1	350	0.48
MW-20-100	08-Dec-11	-6.7	-55.6	580	ND (0.5)	380	120	1700	170	25.0	---	390	---
	04-Oct-12	---	---	570	---	390	---	---	157	27.8	---	400	---
	29-Nov-12	-7	-56.6	570	ND (0.5)	350	110	1700	149	30.6	9.6	376	0.95
MW-20-130	09-Dec-11	-6.6	-57.2	3300	ND (2.5)	1200	74.0	6200	340	22.0	33.0	2400	2.4
	09-Oct-12	---	---	3200	---	1100	79.0	---	283	19.1	---	2140	---
	29-Nov-12 FD	-6.6	-60.4	3400	ND (2.5)	1100	79.0	7400	284	24.2	32.9	2410	2.1
	29-Nov-12	-6.6	-59.5	3300	ND (2.5)	1100	80.0	7400	286	24.0	32.7	2310	2.1
MW-21	06-Dec-11	---	---	2400	---	2400	510	---	260	72.0	---	2500	---
	13-Nov-12	---	---	2300	---	2400	580	---	200	60.0	---	2300	---
MW-22	16-Dec-11	---	---	11000	---	2200	120	---	990	220	---	5400	---
	10-Dec-12	---	---	13000	---	2800	640	---	1100	280	---	7100	---
MW-23-060	13-Dec-11	-8.3	-71.0	5700	ND (2.5)	640	36.0	10000	830	28.0	57.0	2900	---
	08-Nov-12	---	---	6000	---	670	34.0	---	860	7.9	---	3200	---
MW-23-080	12-Dec-11 FD	-8.4	-71.8	5600	ND (2.5)	960	50.0	10000	780	1.8	52.0 J	3100	---
	12-Dec-11	-8.4	-71.8	5700	ND (2.5)	940	41.0	9900	760	1.5	51.0 J	3100 J	---
	08-Nov-12	---	---	5900	---	880	49.0	---	780	15.0	---	3200	---
MW-24BR	09-Dec-11 FD	---	---	4800	---	480	47.0	---	150	4.1	---	3100 J	---
	09-Dec-11	---	---	4600	---	470	48.0	---	130	3.6	---	3100	---
	13-Nov-12	---	---	4800	---	470	48.0	---	120	3.4	---	3200	---
MW-25	15-Dec-11 FD	-8.9	-66.7	280	ND (0.5)	120	170	890	91.0	19.0	8.0	220	0.5
	15-Dec-11	-9.2	-68.6	270	ND (1.0)	120	170	860	89.0	19.0	8.5	210	0.49
	11-Dec-12	-9.1	-67.6	340	ND (0.5)	140	160	970	90.0	19.0	7.9	200	0.38
MW-26	09-Dec-11	-8.1	-65.2	930	1.2	530	94.0	2300	210	47.0	15.0	690	0.89

Table D-6

Additional Water Quality Characterization, December 2011 through December 2012

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Location	Sample Date	Oxygen-18	Deuterium	Chloride	Bromide	Sulfate	Alkalinity (total)	Total Dissolved Solids	Dissolved Metals				
									Calcium	Magnesium	Potassium	Sodium	Boron
MW-26	04-Oct-12	---	---	920	---	520	---	---	178	46.2	---	637	---
	27-Nov-12	---	---	930	---	520	100	---	168	45.0	---	564	---
MW-27-20	05-Dec-11	---	---	83.0	---	220	150	---	83.0	25.0	---	83.0	---
	03-Dec-12	---	---	76.0	---	210	150	---	76.0	24.0	---	76.0	---
MW-27-60	05-Dec-11	---	---	88.0	---	170	230	---	15.0	2.8	---	230	---
	03-Dec-12	---	---	87.0	---	170	210	---	51.0	12.0	---	150	---
MW-27-85	05-Dec-11	---	---	3700	---	1200	200	---	330	61.0	---	2500	---
	03-Dec-12	---	---	3200	---	1100	210	---	250	49.0	---	2300	---
MW-28-25	12-Dec-11	---	---	97.0	---	260	200	---	110	33.0	---	96.0	---
	05-Dec-12	---	---	87.0	---	240	200	---	93.0	29.0	---	86.0	---
MW-28-90	12-Dec-11	---	---	2100	---	630	220	---	250	45.0	---	1400	---
	05-Dec-12	---	---	2100	---	620	230	---	220	41.0	---	1400	---
MW-29	07-Dec-11	---	---	280	---	450	430	---	150	56.0	---	280	---
	05-Dec-12 FD	---	---	380 J	---	240 J	500	---	95.0	44.0	---	420	---
	05-Dec-12	---	---	470 J	---	310 J	570	---	86.0	41.0	---	460	---
MW-30-30	07-Dec-11	---	---	10000	---	3200	910	---	340	290	---	6300	---
	03-Dec-12	---	---	8700	---	3400	1500	---	300	260	---	7000	---
MW-30-50	08-Dec-11	-12	-98.2	130	---	210	200	---	34.0	9.4	---	240	---
	03-Dec-12	-13	-103	110	---	200	190	---	46.0	13.0	---	170	---
MW-31-60	06-Dec-11	-8.8	-67.9	790	ND (1.0)	200	76.0	1800	150	24.0	7.6	450	0.54
	13-Nov-12	-9.2	-71.8	890	ND (0.5)	200	78.0	1900	150	24.0	7.1	470	0.44
MW-31-135	06-Dec-11	-10	-76.7	3700	---	490	35.0	---	340	20.0	---	2200	---
	15-Nov-12	-10	-78.5	3800	---	490	34.0	---	310	21.0	---	2200	---
MW-32-20	08-Dec-11	---	---	17000	---	4400	1000	---	1400	670	---	11000	---
	05-Dec-12	---	---	15000	---	6000	---	---	900	500	---	9800	---

Table D-6

Additional Water Quality Characterization, December 2011 through December 2012

Fourth Quarter 2012 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,

PG&E Topock Compressor Station, Needles, California

Location	Sample Date	Oxygen-18	Deuterium	Chloride	Bromide	Sulfate	Alkalinity (total)	Total Dissolved Solids	Dissolved Metals				
									Calcium	Magnesium	Potassium	Sodium	Boron
MW-32-35	09-Dec-11	-11	-84.2	5000	ND (2.5)	1700	640	8500	680	310	34.0	3100	1.7
	05-Dec-12	-11	-89.0	4300	ND (5.0)	1700	630	10000	460	240	31.0	2700	1.3
MW-33-40	12-Dec-11	---	---	2700	---	940	370	---	33.0	41.0	---	2100	---
	05-Dec-12 FD	---	---	2200	---	690	290	---	23.0	31.0	---	1700	---
	05-Dec-12	---	---	2200	---	710	300	---	22.0	29.0	---	1800	---
MW-33-90	13-Dec-11	-10	-77.1	3100	---	700	67.0	---	360	33.0	---	2000	---
	24-Sep-12	---	---	3000	---	700	74.0	---	296	28.6	---	1810	---
	08-Nov-12	-10	-79.9	3000	---	710	71.0	---	297	29.3	---	1900	---
MW-33-150	13-Dec-11	-10	-78.9	6000	---	890	50.0	---	510	54.0	---	3400	---
	06-Dec-12	-11	-82.1	6400	---	890	48.0	---	470	55.0	---	3400	---
MW-33-210	13-Dec-11	-11	-80.8	6600	---	1200	58.0	---	600	72.0	---	3900	---
	06-Dec-12	-11	-84.9	6900	---	1200	54.0	---	510	64.0	---	3900	---
MW-34-55	06-Dec-11	-12	-101	83.0	ND (0.5)	220	160	630	81.0	19.0	4.6	100	0.19
	12-Dec-12	-13	-105.0	78.0	ND (0.5)	210	140	630	75.0	20.0	3.7	100	0.15
MW-34-80	06-Dec-11	-11	-88.1	1900	ND (1.0)	640	230	3900	220	43.0	16.0	1300	1.1
	12-Dec-12 FD	-11	-89.3	1800	---	630	250	---	210	48.0	---	1300	---
	12-Dec-12	-11	-90.2	1800	ND (1.0)	630	250	4300	220	51.0	17.0	1300	1.0
MW-34-100	06-Dec-11 FD	-10	-79.5	5600	ND (2.5)	1200	120	9400	160	7.4	43.0 J	3900	2.7
	06-Dec-11	-10	-79.2	5700	ND (2.5)	1300	120	10000	170	7.6	43.0	4000	2.7
	26-Nov-12 FD	-10	-80.9	5900	ND (2.5)	1200	130	11000	150	8.2	47.0	3200	2.6
	26-Nov-12	-10	-80.5	5900	ND (2.5)	1200	120	11000	150	8.6	47.0	3100	2.6
MW-35-60	07-Dec-11	-9.4	-72.5	2100	---	340	72.0	---	290	31.0	---	1200	---
	04-Dec-12	-9.8	-77.7	2100	---	330	73.0	---	270	31.0	---	1200	---
MW-35-135	07-Dec-11	-11	-80.4	3000	---	660	49.0	---	250	25.0	---	1800	---
	04-Dec-12	-11	-81.9	3100	---	640	47.0	---	240	26.0	---	2000	---

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Additional Water Quality Characterization, December 2011 through December 2012

Fourth Quarter 2012 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,

PG&E Topock Compressor Station, Needles, California

Location	Sample Date	Oxygen-18	Deuterium	Chloride	Bromide	Sulfate	Alkalinity (total)	Total Dissolved Solids	Dissolved Metals				
									Calcium	Magnesium	Potassium	Sodium	Boron
MW-36-20	14-Dec-11	---	---	1500	---	1800	930	---	89.0	92.0	---	2700	---
	04-Dec-12 FD	---	---	900	---	1200	700	---	58.0	46.0	---	1200	---
	04-Dec-12	---	---	890	---	1200	700	---	57.0	45.0	---	1300	---
MW-36-40	14-Dec-11	---	---	160	---	170	280	---	73.0	18.0	---	330	---
	04-Dec-12	---	---	170	---	190	270	---	71.0	15.0	---	210	---
MW-36-50	14-Dec-11	---	---	200	---	210	200	---	83.0	17.0	---	210	---
	04-Dec-12	---	---	130	---	190	200	---	79.0	16.0	---	130	---
MW-36-70	14-Dec-11	---	---	100	---	210	190	---	33.0	5.9	---	220	---
	04-Dec-12	---	---	95.0	---	200	180	---	46.0	9.2	---	170	---
MW-36-90	14-Dec-11	-12	-97.8	110	---	220	200	---	8.2	0.77	---	300	---
	04-Dec-12	-12	-99.7	100	---	210	190	---	6.9	0.69	---	240	---
MW-36-100	06-Dec-11	-11	-84.8	2900	---	900	240	---	290	35.0	---	1900	---
	10-Oct-12	---	---	2400	---	770	250	---	211	30.4	---	1630	---
	08-Nov-12	-11	-90.3	2500	---	810	250	---	215	32.2	---	1820	---
MW-37D	08-Dec-11	---	---	5100	---	630	31.0	---	480	25.0	---	3000	---
	04-Dec-12	---	---	5300	---	630	31.0	---	390	22.0	---	3300	---
MW-37S	07-Dec-11	---	---	1400	---	260	54.0	---	160	18.0	---	830	---
	14-Nov-12	---	---	1500	---	260	55.0	---	140	19.0	---	900	---
MW-39-50	15-Dec-11	---	---	170	---	220	220	---	16.0	5.5	---	310	---
	03-Dec-12	---	---	140	---	210	200	---	21.0	7.1	---	250	---
MW-39-60	15-Dec-11	---	---	220	---	230	240	---	20.0	5.7	---	350	---
	03-Dec-12	---	---	190	---	220	220	---	19.0	5.4	---	310	---
MW-39-70	15-Dec-11	-12	-94.1	660	---	340	290	---	57.0	12.0	---	750	---
	03-Dec-12	-12	-95.8	440	---	290	270	---	33.0	6.9	---	490	---
MW-39-80	15-Dec-11	-11	-89.2	2200	---	710	340	---	240	54.0	---	1700	---

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PG&E Topock Compressor Station, Needles, California

Location	Sample Date	Oxygen-18	Deuterium	Chloride	Bromide	Sulfate	Alkalinity (total)	Total Dissolved Solids	Dissolved Metals				
									Calcium	Magnesium	Potassium	Sodium	Boron
MW-39-80	03-Dec-12	-12	-94.7	1700	---	610	340	---	160	35.0	---	1300	---
MW-39-100	14-Dec-11	-9.9	-78.2	5800	---	1500	300	---	660	100	---	3600	---
	13-Dec-12	-10	-82.9	5100	---	1500	300	---	580	86.0	---	3300	---
MW-40D	07-Dec-11	---	---	5300	---	730	---	---	410	40.0	---	3000	---
	03-Dec-12	---	---	5300	---	700	47.0	---	380	37.0	---	3100	---
MW-41D	05-Dec-11	---	---	7300	---	760	79.0	---	450	30.0	---	4400	---
	05-Nov-12	---	---	7700	---	780	39.0	---	410	31.0	---	2100	---
MW-41M	05-Dec-11	---	---	5000	---	530	36.0	---	430	31.0	---	2800	---
	05-Nov-12	---	---	5200	---	550	35.0	---	410	34.0	---	3300	---
MW-41S	07-Dec-11 FD	---	---	1400	---	270	57.0	---	110	13.0	---	860	---
	07-Dec-11	---	---	1400	---	250	56.0	---	110	13.0	---	890	---
	03-Dec-12	---	---	1400	---	270	57.0	---	100	13.0	---	840	---
MW-42-30	06-Dec-11	-12	-96.1	---	---	---	---	---	---	---	---	---	---
	06-Dec-12	-12	-97.8	---	---	---	---	---	---	---	---	---	---
MW-42-55	06-Dec-11	-12	-92.5	1300	---	440	370	---	100	29.0	---	1100	---
	06-Dec-12	-12	-99.4	370	---	250	380	---	20.0	6.3	---	510	---
MW-42-65	06-Dec-11	-12	-90.6	2800	---	880	260	---	250	60.0	---	2000	---
	06-Dec-12	-12	-96.5	2400	---	760	350	---	190	49.0	---	1800	---
MW-43-25	09-Dec-11	---	---	92.0	---	250	210	---	84.0	41.0	---	110	---
	10-Dec-12	---	---	110	---	280	220	---	85.0	40.0	---	110	---
MW-43-75	09-Dec-11	---	---	2900	---	1500	58.0	---	270	27.0	---	2600	---
	10-Dec-12	---	---	3400	---	1300	490	---	410	58.0	---	2400	---
MW-43-90	09-Dec-11	---	---	5200	---	2000	420	---	670	240	---	3500	---
	10-Dec-12	---	---	5600	---	1800	370	---	520	190	---	3100	---

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Fourth Quarter 2012 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,

PG&E Topock Compressor Station, Needles, California

Location	Sample Date	Oxygen-18	Deuterium	Chloride	Bromide	Sulfate	Alkalinity (total)	Total Dissolved Solids	Dissolved Metals				
									Calcium	Magnesium	Potassium	Sodium	Boron
MW-44-70	08-Dec-11	-12	-97.2	370	---	240	300	---	48.0	7.5	---	490	---
	06-Dec-12	-12	-99.5	360	---	230	300	---	37.0	6.5	---	440	---
MW-44-115	08-Dec-11 FD	-10	-79.0	3300	---	730	74.0	---	130	7.3	---	2500	---
	08-Dec-11	-10	-80.0	3300	---	720	80.0	---	130	6.9	---	2400	---
	27-Sep-12	---	---	3200	---	770	78.0	---	105	7.0	---	2270	---
	26-Nov-12	-10	-82.7	3300	---	760	76.0	---	105	6.9	---	2260	---
MW-44-125	08-Dec-11 FD	-10	-79.1	2500 J	---	490 J	130 J	---	120	6.9	---	2900	---
	08-Dec-11	-10	-79.5	4000 J	---	660 J	100 J	---	120	6.8	---	2700	---
	13-Sep-12 FD	---	---	3600	---	650	98.0	---	102	8.9	---	2750	---
	13-Sep-12	---	---	3400	---	620	110	---	104	9.3	---	2480	---
	06-Nov-12 FD	-11	-83.4	3500	---	610	130	---	101	6.5	---	2470	---
	06-Nov-12	-11	-82.5	3200	---	590	100	---	99.3	6.2	---	2440	---
MW-45-095a	14-Dec-11 FD	---	---	2600	---	700	160	---	160	21.0	---	1900	---
	14-Dec-11	---	---	2600	---	690	160	---	160	21.0	---	1900	---
	13-Dec-12	-11	-89.0	2500	---	690	150	---	160	22.0	---	1800	---
MW-46-175	13-Dec-11	-10	-79.5	6100	---	760	48.0	---	95.0	2.6	---	4100	---
	26-Sep-12	---	---	5900	---	770	38.0	---	94.5	3.1	---	4130	---
	09-Nov-12	-10	-81.3	6000	---	760	43.0	---	94.6	2.5	---	4490	---
MW-46-205	13-Dec-11	---	---	7700	---	900	47.0	---	110	2.9	---	4700	---
	12-Dec-12	---	---	7400	---	870	45.0	---	110	2.9	---	4800	---
MW-47-55	08-Dec-11	-9.2	-71.0	1300	---	250	70.0	---	200	28.0	---	770	---
	24-Sep-12	---	---	1400	---	240	63.0	---	182	28.3	---	709	---
	07-Nov-12	-9.3	-71.4	1200	---	230	67.0	---	157	26.0	---	638	---
MW-47-115	08-Dec-11	-10	-79.5	4500	---	720	50.0	---	410	34.0	---	2800	---
	25-Sep-12	---	---	4300	---	710	49.0	---	331	33.2	---	2520	---

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Fourth Quarter 2012 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,

PG&E Topock Compressor Station, Needles, California

Location	Sample Date	Oxygen-18	Deuterium	Chloride	Bromide	Sulfate	Alkalinity (total)	Total Dissolved Solids	Dissolved Metals				
									Calcium	Magnesium	Potassium	Sodium	Boron
MW-47-115	07-Nov-12	-10	-81.0	4500	---	740	50.0	---	344	32.6	---	2760	---
MW-48	07-Dec-11	---	---	6300	---	570	29.0	---	410	37.0	---	4000	---
	07-Nov-12	---	---	6400	---	560	28.0	---	380	35.0	---	3900	---
MW-49-135	07-Dec-11	-10	-79.3	4500	---	730	80.0	---	350	30.0	---	2500	---
	11-Dec-12	-10	-80.1	4600	---	730	69.0	---	290	29.0	---	2200	---
MW-49-275	07-Dec-11	-11	-82.1	9000	---	1400	40.0	---	230	6.2	---	4700	---
	11-Dec-12	-10	-82.1	9200	---	1400	35.0	---	210	5.7	---	5600	---
MW-49-365	07-Dec-11	-11	-81.2	15000	---	1100	33.0	---	390	9.5	---	8300	---
	11-Dec-12	-11	-82.6	14000	---	1200	32.0	---	340	8.9	---	8900	---
MW-50-095	06-Dec-11	---	---	1400	---	270	56.0	---	120	11.0	---	930	---
	19-Sep-12	---	---	1400	---	260	55.0	---	125	13.8	---	962	---
	05-Nov-12	---	---	1500	---	260	55.0	---	116	12.8	---	902	---
MW-50-200	08-Dec-11	---	---	7100	---	1000	40.0	---	600	33.0	---	4500	---
	03-Oct-12 FD	---	---	7300	---	1000	37.0	---	498	32.4	---	5260	---
	03-Oct-12	---	---	7300	---	1000	36.0	---	501	34.8	---	5080	---
	29-Nov-12	---	---	7400	---	950	38.0	---	536	36.8	---	4750	---
MW-51	07-Dec-11	---	---	3100	---	720	100	---	250	15.0	---	2000	---
	09-Oct-12	---	---	3100	---	680	98.0	---	235	17.1	---	2010	---
	28-Nov-12	---	---	3200	---	680	100	---	235	20.2	---	2140	---
MW-52D	15-Dec-11	---	---	7400	---	830	34.0	---	290	20.0	---	5000	---
	05-Dec-12	---	---	7600	---	870	45.0	---	290	19.0	---	4900	---
MW-52M	15-Dec-11	---	---	5600	---	640	80.0	---	370	52.0	---	3200	---
	05-Dec-12	---	---	5500	---	690	83.0	---	350	45.0	---	3200	---
MW-52S	15-Dec-11	---	---	2600	---	570	930	---	360	180	---	1800	---
	05-Dec-12	---	---	2500	---	360	---	---	330	130	---	1600	---

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Location	Sample Date	Oxygen-18	Deuterium	Chloride	Bromide	Sulfate	Alkalinity (total)	Total Dissolved Solids	Dissolved Metals				
									Calcium	Magnesium	Potassium	Sodium	Boron
MW-53D	16-Dec-11 FD	---	---	9600	---	1200	39.0	---	290	14.0	---	5700	---
	16-Dec-11	---	---	9500	---	1200	46.0	---	300	14.0	---	4900	---
	06-Dec-12	---	---	9300	---	1200	37.0	---	320	15.0	---	6000	---
MW-53M	16-Dec-11	---	---	7100	---	820	41.0	---	410	33.0	---	4300	---
	05-Dec-12 FD	---	---	7100	---	820	41.0	---	360	28.0	---	2200 J	---
	05-Dec-12	---	---	7300	---	800	41.0	---	380	29.0	---	4500 J	---
MW-54-85	06-Dec-11	---	---	3630	---	589	172	---	182	97.1	---	1890	---
	12-Dec-12	---	---	3200	---	500	149	---	171	89.2	---	1850	---
MW-54-140	06-Dec-11	---	---	4670	---	518	102	---	145	10.9	---	2560	---
	12-Dec-12	---	---	4070	---	505	99.5	---	147	11.8	---	2650	---
MW-54-195	06-Dec-11	---	---	7040	---	994	60.7	---	126	4.5	---	4310	---
	12-Dec-12	---	---	6420	---	966	58.1	---	128	4.4	---	4360	---
MW-55-45	06-Dec-11	---	---	364	---	55.1	195	---	41.5	9.3	---	245	---
	12-Dec-12	---	---	324	---	50.0	195	---	41.8	9.3	---	238	---
MW-55-120	06-Dec-11 FD	---	---	3120	---	336	58.5	---	116	2.7	---	1760	---
	06-Dec-11	---	---	3150	---	341	59.3	---	115	2.6	---	1740	---
	12-Dec-12 FD	---	---	2820	---	317	59.5	---	110	2.1	---	1730	---
	12-Dec-12	---	---	2840	---	307	59.9	---	110	2.0	---	1980	---
MW-56D	13-Dec-11	---	---	7740	---	1230	116	---	376	75.4	---	4030	---
	06-Dec-12	---	---	7190	---	1410	134	---	404	86.5	---	4460	---
MW-56M	13-Dec-11	---	---	4730	---	1020	502	---	371	102	---	2700	---
	06-Dec-12	---	---	4450	---	1000	509	---	385	111	---	2760	---
MW-56S	13-Dec-11	---	---	1570	---	444	494	---	70.2	24.2	---	1140	---
	06-Dec-12	---	---	1180	---	593	534	---	131	42.1	---	1010	---
MW-57-070	15-Dec-11	-8.5	-62.7	700	ND (0.5)	98.0	59.0	2200	370	26.0	10.0	100	---

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Location	Sample Date	Oxygen-18	Deuterium	Chloride	Bromide	Sulfate	Alkalinity (total)	Total Dissolved Solids	Dissolved Metals				
									Calcium	Magnesium	Potassium	Sodium	Boron
MW-57-070	13-Dec-12 FD	---	---	500	---	120 J	100	---	270	19.0	---	86.0	---
	13-Dec-12	---	---	510	---	98.0 J	120	---	280	19.0	---	86.0	---
MW-57-185	13-Dec-11	-10	-75.6	6400	ND (2.5)	730	110	11000	330	3.6	56.0	3800	---
	08-Nov-12	---	---	6600	---	740	21.0	---	350	4.0	---	4300	---
MW-59-100	15-Dec-11 FD	-7.6	-60.0	2700	ND (2.5)	700	110 J	5800	690	23.0	31.0	1400	---
	15-Dec-11	-7.9	-59.8	2800	ND (2.5)	700	56.0 J	5800	690	23.0	33.0	1300	---
	02-Oct-12	---	---	2900	---	660	120	---	628	22.7	---	1560	---
	28-Nov-12	---	---	3100	---	680	120	---	691	26.1	---	1440	---
MW-60-125	14-Dec-11	-9	-70.2	2600	ND (1.0)	440	80.0	5200	480	25.0	26.0	1300	---
	06-Dec-12	---	---	2800	---	460	46.0	---	410	25.0	---	1400	---
MW-61-110	14-Dec-11	-9.4	-72.2	5300	ND (2.5)	700	27.0	8700	690 J	22.0	53.0	4200	---
	27-Sep-12 FD	---	---	5300	---	700	46.0	---	624	22.9	---	2790	---
	27-Sep-12	---	---	5400	---	690	45.0	---	637	23.4	---	2840	---
	27-Nov-12 FD	---	---	5500	---	700	43.0	---	637	21.8	---	2860	---
	27-Nov-12	---	---	5500	---	680	46.0	---	604	21.6	---	2750	---
MW-62-065	13-Dec-11	-8.8	-66.6	1800	ND (1.0)	400	100	2900	230	27.0	25.0	1100	---
	10-Dec-12	---	---	1900	---	410	110	---	210	24.0	---	1100	---
MW-62-110	14-Dec-11	-8.1	-63.8	2500	ND (1.0)	520	45.0	4900	180	8.7	24.0	1700	---
	11-Dec-12	---	---	2700	---	540	82.0	---	170	8.2	---	1600	---
MW-62-190	14-Dec-11	-10	-75.8	5900	ND (2.5)	700	46.0	9000	310	13.0	42.0	3500	---
	11-Dec-12	---	---	6300	---	730	44.0	---	320	12.0	---	4200	---
MW-63-065	12-Dec-11	-13	-97.6	1800	ND (1.0)	580	210	4000	180	20.0	17.0	1100	---
	07-Nov-12	---	---	2100	---	640	200	---	230	23.0	---	1400	---
OW-3D	06-Dec-11	---	---	2600	---	400	39.0	---	170	13.0	---	1600	---
	13-Nov-12	---	---	2700	---	400	35.0	---	160	12.0	---	1800	---

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PG&E Topock Compressor Station, Needles, California

Location	Sample Date	Oxygen-18	Deuterium	Chloride	Bromide	Sulfate	Alkalinity (total)	Total Dissolved Solids	Dissolved Metals				
									Calcium	Magnesium	Potassium	Sodium	Boron
OW-3M	05-Dec-11	---	---	1500	---	290	51.0	---	89.0	7.3	---	1100	---
	13-Nov-12	---	---	1600	---	300	54.0	---	81.0	6.9	---	1000	---
OW-3S	05-Dec-11	---	---	340	---	73.0	70.0	---	78.0	11.0	---	180	---
	13-Nov-12	---	---	350	---	74.0	72.0	---	70.0	9.9	---	190	---
PE-1	06-Dec-11	---	---	---	---	---	---	2930	---	---	---	---	---
	03-Jan-12	---	---	---	---	---	---	2960	---	---	---	---	---
	07-Feb-12	---	---	---	---	---	---	2840	---	---	---	---	---
	06-Mar-12	---	---	---	---	---	---	2960	---	---	---	---	---
	03-Apr-12	---	---	---	---	---	---	2800	---	---	---	---	---
	01-May-12	---	---	---	---	---	---	2960	---	---	---	---	---
	05-Jun-12	---	---	---	---	---	---	2840	---	---	---	---	---
	02-Jul-12	---	---	---	---	---	---	2840	---	---	---	---	---
	07-Aug-12	---	---	---	---	---	---	2870	---	---	---	---	---
	04-Sep-12	---	---	---	---	---	---	2800	---	---	---	---	---
	02-Oct-12	---	---	---	---	---	---	2720	---	---	---	---	---
	06-Nov-12	---	---	---	---	---	---	2710	---	---	---	---	---
	04-Dec-12	---	---	1170	---	424	195	2780	114	26.2	---	874	---
PGE-7BR	07-Dec-11	---	---	6600	---	740	10.0	---	390	12.0	---	3800	---
	11-Dec-12	---	---	6700	---	690	ND (5.0)	---	330	13.0	---	4200	---
PGE-8	08-Dec-11	---	---	6400	---	1900	50.0	---	870	20.0	---	3900	---
	07-Nov-12	---	---	6900	---	1900	47.0	---	870	22.0	---	4600	---
Park Moabi-3	12-Dec-11	---	---	340	---	59.0	89.0	---	90.0	17.0	---	160	---
	08-Nov-12	---	---	330	---	61.0	84.0	---	84.0	16.0	---	160	---
Park Moabi-4	12-Dec-11	---	---	490	---	91.0	58.0	---	91.0	15.0	---	260	---
	08-Nov-12	---	---	490	---	100	61.0	---	91.0	16.0	---	260	---

Table D-6

Additional Water Quality Characterization, December 2011 through December 2012

Fourth Quarter 2012 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,

PG&E Topock Compressor Station, Needles, California

Location	Sample Date	Oxygen-18	Deuterium	Chloride	Bromide	Sulfate	Alkalinity (total)	Total Dissolved Solids	Dissolved Metals				
									Calcium	Magnesium	Potassium	Sodium	Boron
R-28	11-Jan-12	---	---	80.5	ND (0.5)	218	127	---	70.2	27.4	4.8	83.7	ND (0.2)
	29-Feb-12	---	---	---	---	---	123	---	---	---	---	---	---
	22-May-12	---	---	---	---	---	124	---	---	---	---	---	---
	22-Aug-12	---	---	---	---	---	126	---	---	---	---	---	---
	01-Nov-12	-13	-102	75.4	ND (0.5)	212	132	499	71.3	27.5	4.1	79.3	ND (0.2)
TW-1	15-Dec-11	---	---	1700	---	860	95.0	---	300	23.0	---	1300	---
	11-Dec-12 FD	---	---	2000	---	870	110	---	300	21.0	---	1300	---
	11-Dec-12	---	---	1900	---	860	110	---	300	21.0	---	1300	---
TW-2D	12-Dec-11	---	---	2800	---	560	160	---	260	38.0	---	1700	---
	13-Dec-12	---	---	2600	---	520	160	---	250	37.0	---	1700	---
TW-2S	12-Dec-11 FD	---	---	560	---	190	81.0 J	---	88.0	21.0	---	360	---
	12-Dec-11	---	---	570	---	180	160 J	---	88.0	21.0	---	360	---
	13-Dec-12	---	---	540	---	170	82.0	---	85.0	20.0	---	340	---
TW-3D	06-Dec-11	---	---	---	---	---	---	4650	---	---	---	---	---
	03-Jan-12	---	---	---	---	---	---	5040	---	---	---	---	---
	07-Feb-12	---	---	---	---	---	---	5240	---	---	---	---	---
	06-Mar-12	---	---	---	---	---	---	5300	---	---	---	---	---
	03-Apr-12	---	---	---	---	---	---	5300	---	---	---	---	---
	01-May-12	---	---	---	---	---	---	5230	---	---	---	---	---
	05-Jun-12	---	---	---	---	---	---	4760	---	---	---	---	---
	02-Jul-12	---	---	---	---	---	---	5020	---	---	---	---	---
	07-Aug-12	---	---	---	---	---	---	5570	---	---	---	---	---
	04-Sep-12	---	---	---	---	---	---	5040	---	---	---	---	---
	02-Oct-12	---	---	---	---	---	---	4890	---	---	---	---	---
	06-Nov-12	---	---	---	---	---	---	5020	---	---	---	---	---

Table D-6

Additional Water Quality Characterization, December 2011 through December 2012

Fourth Quarter 2012 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Location	Sample Date	Oxygen-18	Deuterium	Chloride	Bromide	Sulfate	Alkalinity (total)	Total Dissolved Solids	Dissolved Metals				
									Calcium	Magnesium	Potassium	Sodium	Boron
TW-3D	04-Dec-12	---	---	2460	---	552	120	5060	264	41.8	---	1570	---
TW-4	08-Dec-11	---	---	7100	---	1000	50.0	---	420	41.0	---	4900	---
	15-Nov-12	---	---	7300	---	1100	50.0	---	340	39.0	---	4400	---
TW-5	06-Dec-11	---	---	5200	---	540	36.0	---	420	24.0	---	2900	---
	15-Nov-12	---	---	5100	---	550	34.0	---	380	26.0	---	2900	---

Notes:

(---) = data not collected or available.
FD = field duplicate sample.
J = concentration or reporting limit estimated by laboratory or data validation.
ND = not detected at the listed reporting limit.

General chemistry results in milligrams per liter (mg/L), except Oxygen-18 and Deuterium, which are expressed as differences from global standards in parts per thousand.

Alkalinity (total) reported as calcium carbonate.

Appendix E
Hydraulic Data for Interim Measures Reporting Period

Table E-1

Average Monthly and Quarterly Groundwater Elevations, Fourth Quarter 2012

Fourth Quarter 2012 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California

Well ID	Aquifer Zone	November 2012	December 2012	Quarter Average	Days in Quarter Average
I-3	River Station	INC	452.17	INC	12
MW-20-070	Shallow Zone	452.86	452.23	452.54	61
MW-20-100	Middle Zone	452.42	451.72	452.06	61
MW-20-130	Deep Zone	451.98	451.26	451.62	61
MW-22	Shallow Zone	454.08	453.55	453.81	61
MW-25	Shallow Zone	454.76	454.23	454.49	61
MW-27-020	Shallow Zone	453.65	452.60	453.12	61
MW-27-060	Middle Zone	453.64	452.60	453.11	61
MW-27-085	Deep Zone	453.61	452.52	453.06	61
MW-28-025	Shallow Zone	453.59	452.53	453.05	61
MW-28-090	Deep Zone	453.75	452.71	453.22	61
MW-30-050	Middle Zone	453.45	452.49	452.97	61
MW-31-060	Shallow Zone	453.73	452.94	453.33	61
MW-31-135	Deep Zone	453.03	452.28	452.65	61
MW-32-035	Shallow Zone	453.61	452.73	453.16	61
MW-33-040	Shallow Zone	453.90	453.03	453.46	61
MW-33-090	Middle Zone	453.96	453.13	453.54	61
MW-33-150	Deep Zone	453.96	453.15	453.55	61
MW-34-055	Middle Zone	453.51	452.51	453.00	61
MW-34-080	Deep Zone	453.66	452.61	453.13	61
MW-34-100	Deep Zone	453.43	452.61	453.07	52
MW-35-060	Shallow Zone	454.21	453.31	453.75	61
MW-35-135	Deep Zone	454.78	453.96	454.36	61
MW-36-020	Shallow Zone	453.63	452.69	453.15	61
MW-36-040	Shallow Zone	453.51	452.53	453.01	61
MW-36-050	Middle Zone	453.49	452.48	452.97	61
MW-36-070	Middle Zone	453.41	452.42	452.91	61
MW-36-090	Deep Zone	452.71	451.76	452.23	61
MW-36-100	Deep Zone	452.99	452.11	452.54	61
MW-39-040	Shallow Zone	453.41	452.46	452.93	61
MW-39-050	Middle Zone	453.21	452.34	452.77	61
MW-39-060	Middle Zone	453.10	452.21	452.65	61
MW-39-070	Middle Zone	452.74	451.91	452.32	61
MW-39-080	Deep Zone	452.95	452.07	452.50	61
MW-39-100	Deep Zone	453.49	452.74	453.11	61
MW-42-030	Shallow Zone	453.40	452.47	452.93	61
MW-42-065	Middle Zone	453.69	452.79	453.23	61
MW-43-025	Shallow Zone	453.60	452.52	453.05	61
MW-43-090	Deep Zone	454.00	452.84	453.51	50
MW-44-070	Middle Zone	453.54	452.56	453.04	61
MW-44-115	Deep Zone	453.31	452.39	452.84	61
MW-44-125	Deep Zone	453.39	452.81	453.09	61
MW-45-095a	Deep Zone	452.64	451.51	452.07	61
MW-46-175	Deep Zone	453.85	452.99	453.41	61
MW-47-055	Shallow Zone	454.28	453.45	453.86	61
MW-47-115	Deep Zone	454.32	453.52	453.91	61
MW-49-135	Deep Zone	454.26	453.38	453.81	61
MW-50-095	Middle Zone	454.05	453.33	453.68	61

Table E-1

Average Monthly and Quarterly Groundwater Elevations, Fourth Quarter 2012

Fourth Quarter 2012 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California

Well ID	Aquifer Zone	November 2012	December 2012	Quarter Average	Days in Quarter Average
MW-51	Middle Zone	454.46	453.92	454.19	61
MW-54-085	Deep Zone	453.79	452.89	453.33	60
MW-54-140	Deep Zone	454.30	453.49	453.88	60
MW-54-195	Deep Zone	454.64	453.88	454.25	60
MW-55-045	Middle Zone	455.36	454.88	455.12	61
MW-55-120	Deep Zone	455.71	474.33	INC	45
PT2D	Deep Zone	452.47	451.62	452.04	61
PT5D	Deep Zone	452.94	452.27	452.69	47
PT6D	Deep Zone	453.00	452.13	452.56	61
RRB	River Station	453.97	453.91	INC	33

Notes:

Averages reported in ft AMSL (feet above mean sea level).

Quarterly Average = average of daily averages over reporting period.

INC = Data incomplete, less than 75% of data available over reporting period due to rejection or field equipment malfunction.

Table E-2

Average, Minimum, and Maximum Groundwater Elevations, January 2012 through December 2012

Fourth Quarter 2012 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,

PG&E Topock Compressor Station, Needles, California

Well ID	Aquifer Zone	Minimum[a] (ft AMSL)	Maximum[a] (ft AMSL)	Average[a] (ft AMSL)	Number of Days Reporting Data
I-3	River Station	451.87	457.81	455.47	317
MW-20-070	Shallow Zone	451.78	456.37	453.99	366
MW-20-100	Middle Zone	451.24	456.50	453.48	366
MW-20-130	Deep Zone	450.78	456.71	453.09	366
MW-22	Shallow Zone	453.07	457.37	454.93	366
MW-25	Shallow Zone	453.78	456.64	455.49	366
MW-26	Shallow Zone	453.47	456.30	INC	228
MW-27-020	Shallow Zone	452.09	457.66	455.06	366
MW-27-060	Middle Zone	451.96	457.54	454.95	341
MW-27-085	Deep Zone	452.04	457.62	454.95	358
MW-28-025	Shallow Zone	452.04	457.56	455.06	366
MW-28-090	Deep Zone	452.17	457.61	455.11	366
MW-30-050	Middle Zone	451.95	457.32	454.75	365
MW-31-060	Shallow Zone	452.57	456.75	454.82	366
MW-31-135	Deep Zone	451.82	456.74	454.12	357
MW-32-035	Shallow Zone	452.19	457.21	454.87	366
MW-33-040	Shallow Zone	452.45	457.11	455.03	366
MW-33-090	Middle Zone	452.63	457.26	455.23	366
MW-33-150	Deep Zone	452.67	457.23	455.13	366
MW-34-055	Middle Zone	452.05	457.67	455.01	366
MW-34-080	Deep Zone	452.11	457.76	455.05	366
MW-34-100	Deep Zone	451.97	457.72	454.89	358
MW-35-060	Shallow Zone	452.80	457.76	455.51	366
MW-35-135	Deep Zone	453.51	457.55	455.83	366
MW-36-020	Shallow Zone	452.21	457.20	454.92	366
MW-36-040	Shallow Zone	452.02	457.39	454.85	366
MW-36-050	Middle Zone	451.91	457.34	454.72	302
MW-36-070	Middle Zone	451.90	457.34	454.76	366
MW-36-090	Deep Zone	451.28	457.06	453.97	366
MW-36-100	Deep Zone	451.54	457.25	454.27	366
MW-39-040	Shallow Zone	451.97	457.25	454.69	366
MW-39-050	Middle Zone	451.83	457.13	454.51	366
MW-39-060	Middle Zone	451.68	457.05	454.33	366
MW-39-070	Middle Zone	451.40	456.91	453.93	366
MW-39-080	Deep Zone	451.58	457.11	454.12	366
MW-39-100	Deep Zone	451.76	457.40	454.53	366
MW-42-030	Shallow Zone	451.96	457.05	454.67	366
MW-42-065	Middle Zone	452.16	457.28	454.90	366
MW-43-025	Shallow Zone	452.03	457.64	455.05	366
MW-43-090	Deep Zone	452.32	457.97	455.45	357
MW-44-070	Middle Zone	452.06	457.49	454.95	366
MW-44-115	Deep Zone	451.87	457.25	454.55	366
MW-44-125	Deep Zone	448.86	457.50	454.74	326
MW-45-095a	Deep Zone	450.85	458.91	453.97	366
MW-46-175	Deep Zone	452.50	457.21	454.97	366
MW-47-055	Shallow Zone	453.00	457.30	455.42	366
MW-47-115	Deep Zone	453.00	457.12	455.37	366
MW-49-135	Deep Zone	452.91	457.50	455.47	366

Table E-2

Average, Minimum, and Maximum Groundwater Elevations, January 2012 through December 2012

Fourth Quarter 2012 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,

PG&E Topock Compressor Station, Needles, California

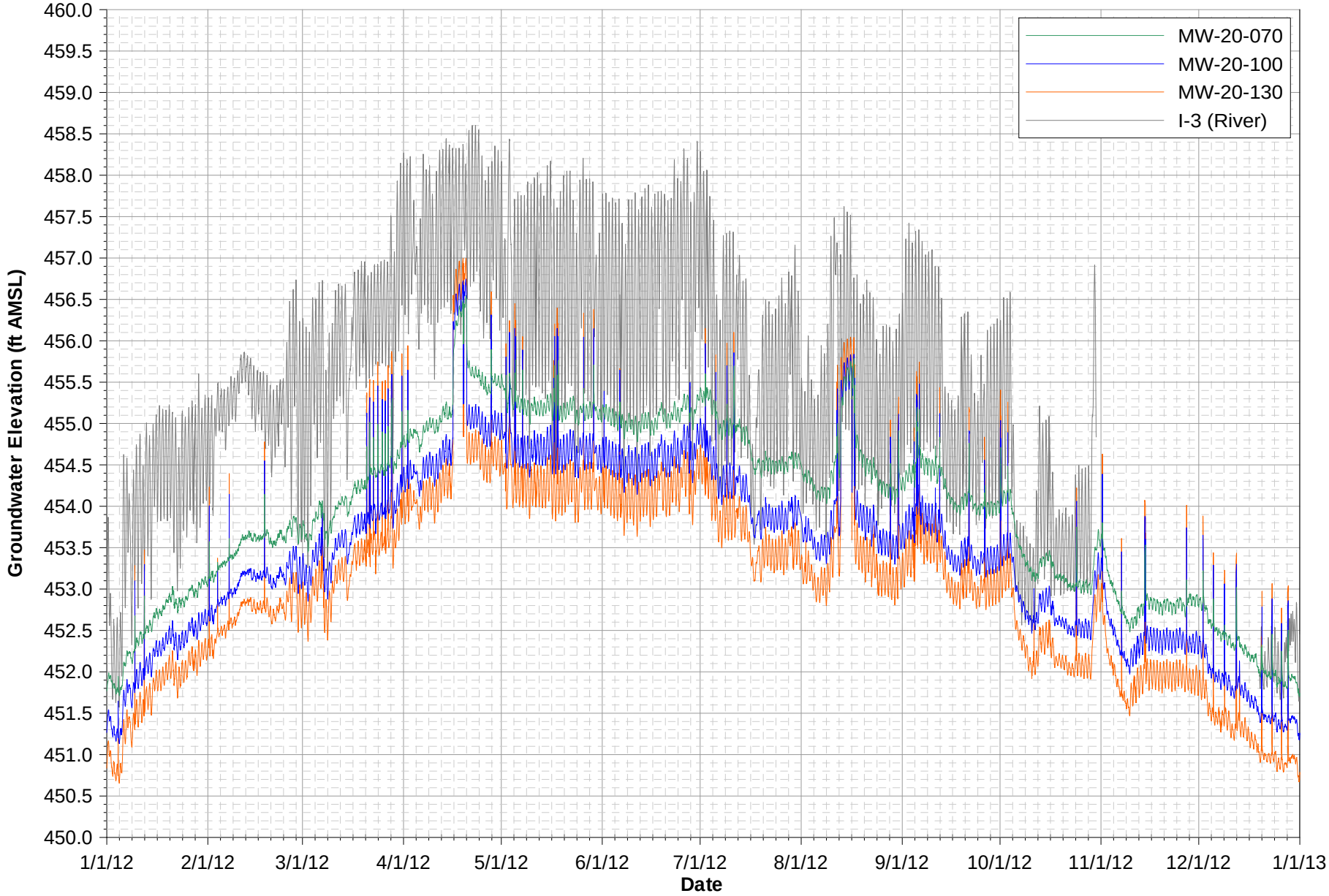
Well ID	Aquifer Zone	Minimum[a] (ft AMSL)	Maximum[a] (ft AMSL)	Average[a] (ft AMSL)	Number of Days Reporting Data
MW-50-095	Middle Zone	452.84	456.66	455.04	366
MW-51	Middle Zone	453.45	456.28	455.13	334
MW-54-085	Deep Zone	452.45	457.91	455.49	324
MW-54-140	Deep Zone	453.09	457.81	455.70	329
MW-54-195	Deep Zone	453.48	457.86	455.91	329
MW-55-045	Middle Zone	454.57	457.82	456.23	366
MW-55-120	Deep Zone	454.89	565.09	INC	226
PT2D	Deep Zone	451.10	456.88	453.67	366
PT5D	Deep Zone	451.44	455.97	453.96	303
PT6D	Deep Zone	451.67	457.28	454.23	366
RRB	River Station	453.20	458.20	455.80	328

Notes:

[a] minimium, maximum and average of daily groundwater elevation averages.

Averages include data collected from 1/1/2012 through 12/31/2012.

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.



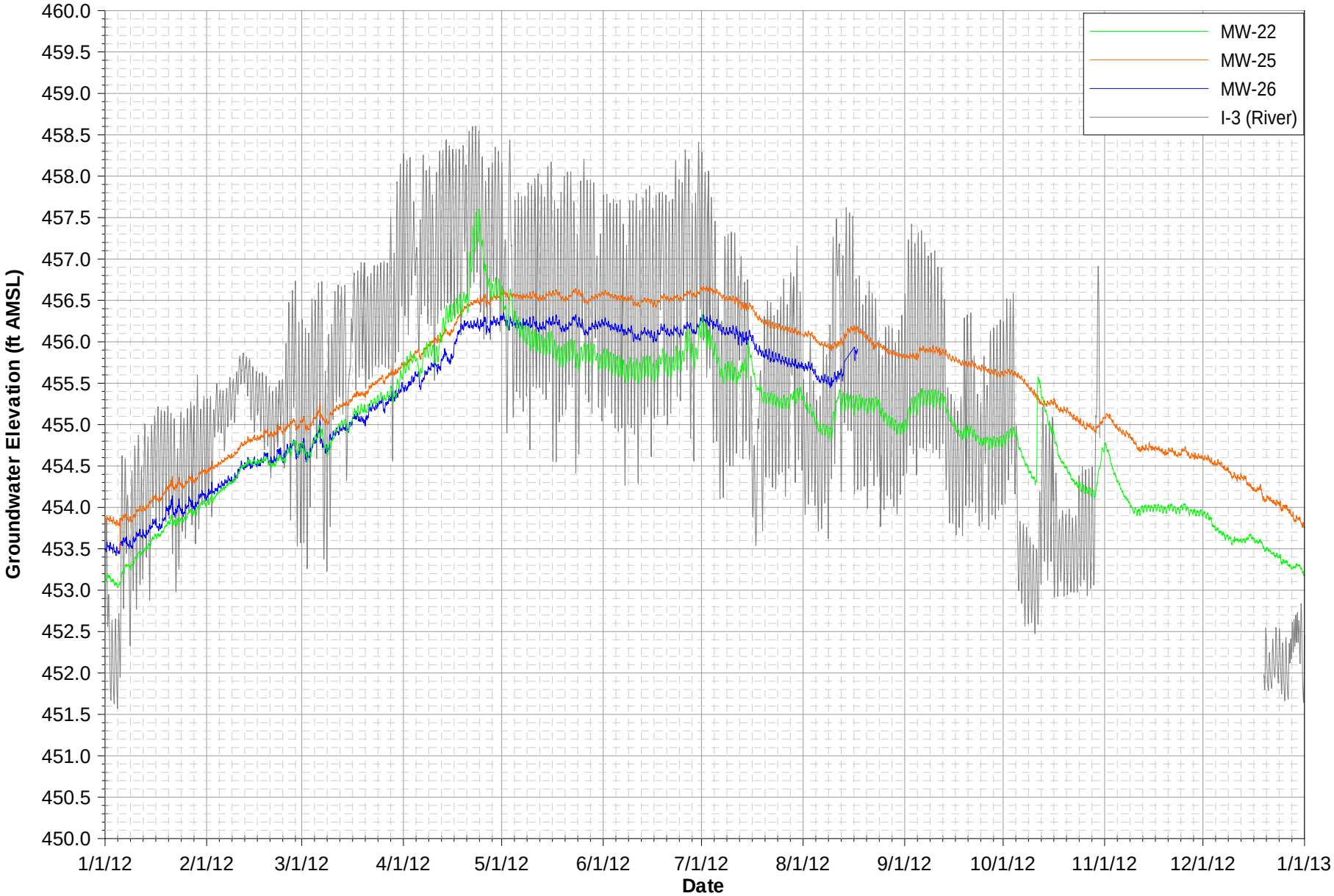
Notes:
Data subject to review.
I-3 data unavailable from October 30, 2012 through December 19, 2012 due to equipment malfunction.

FIGURE E-1A

MW-20 CLUSTER HYDROGRAPHS

FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

CH2MHILL



Notes:
Data subject to review.
MW-26 data unavailable from August 13, 2012 until August 16, 2012, and then from August 17, 2012 through December 31, 2012 due to equipment malfunction.

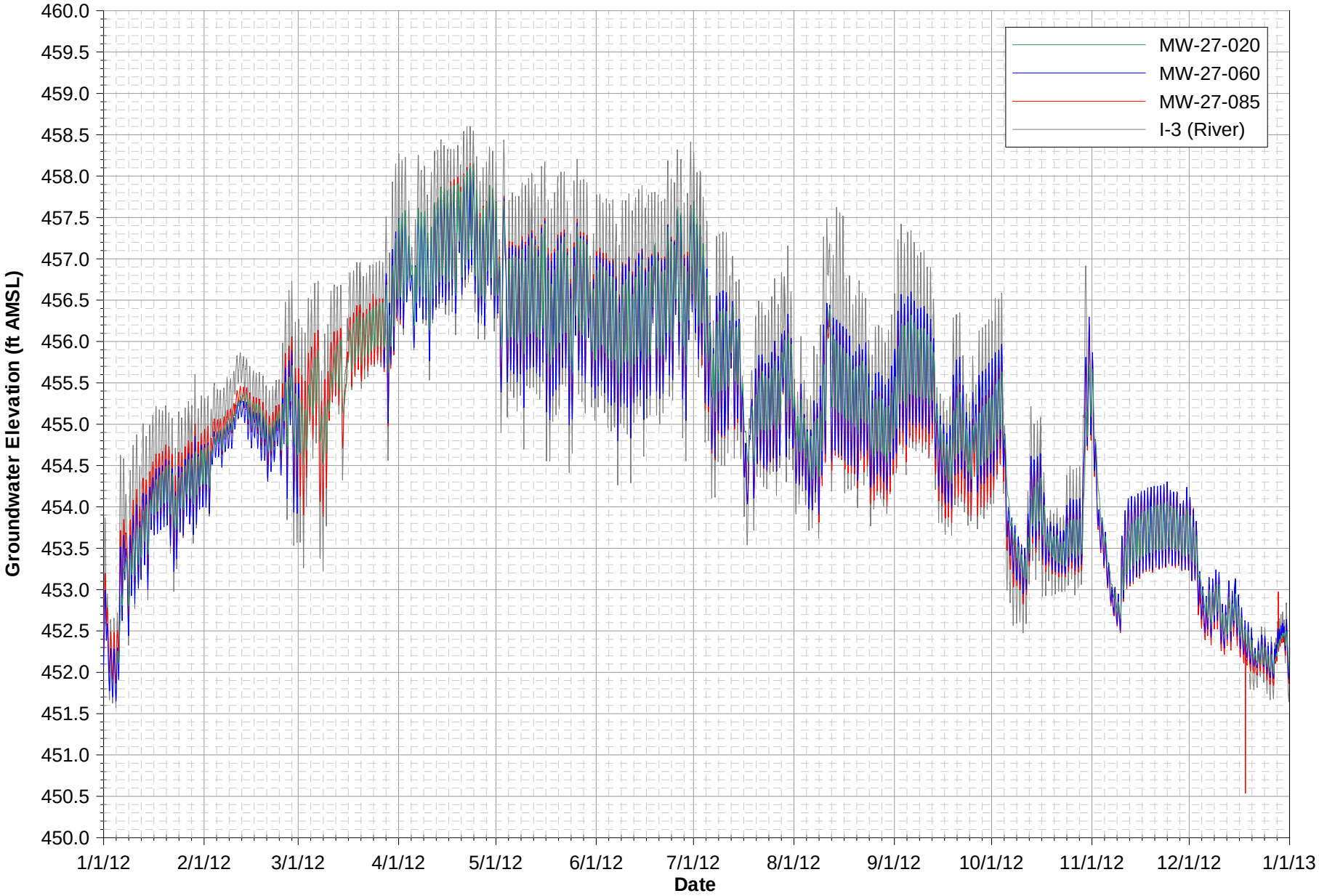
I-3 data unavailable from October 30, 2012 through December 19, 2012 due to equipment malfunction.

FIGURE E-1B

MW-22, MW-25, AND MW-26 HYDROGRAPHS

FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

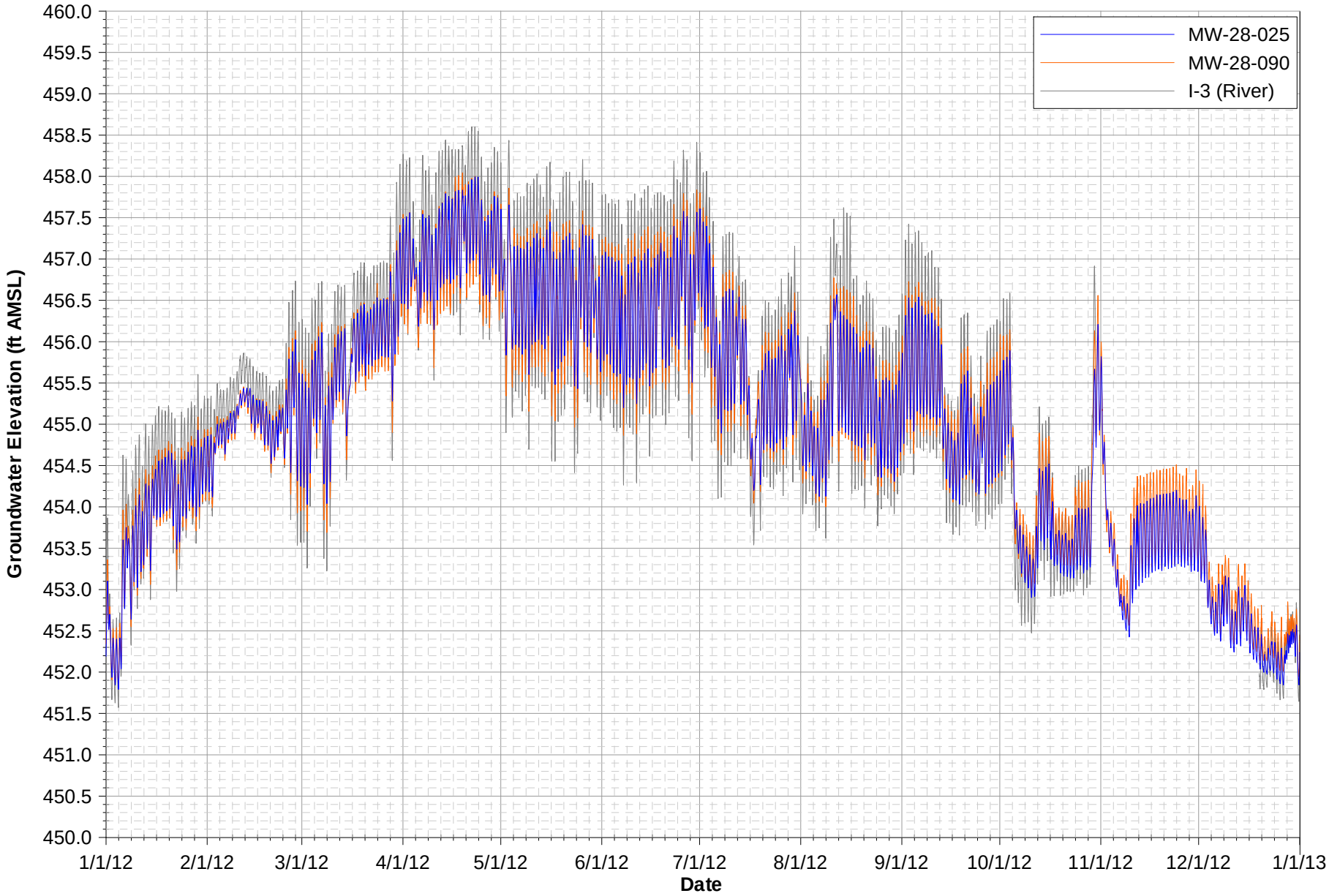
CH2MHILL



Notes:
Data subject to review.
MW-27-060 data unavailable from March 1, 2012 through March 27, 2012 due to equipment malfunction.
MW-27-085 data unavailable from April 2, 2012 through April 11, 2012 due to equipment malfunction.
I-3 data unavailable from October 30, 2012 through December 19, 2012 due to equipment malfunction.

FIGURE E-1C
MW-27 CLUSTER HYDROGRAPHS
FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

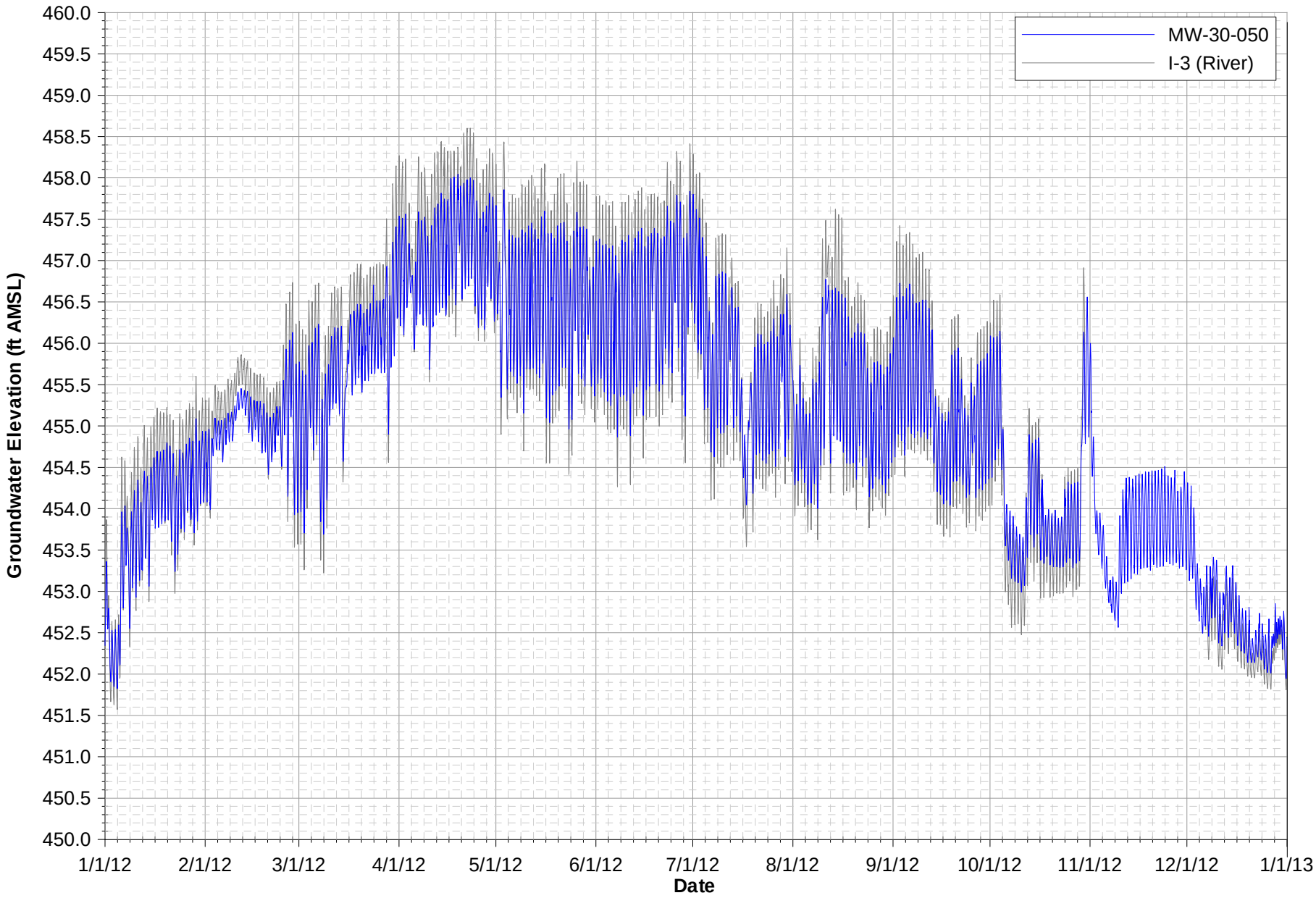
CH2MHILL



Notes:
Data subject to review.
I-3 data unavailable from October 30, 2012 through December 19, 2012 due to equipment malfunction.

FIGURE E-1D
MW-28 CLUSTER HYDROGRAPHS
FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

CH2MHILL



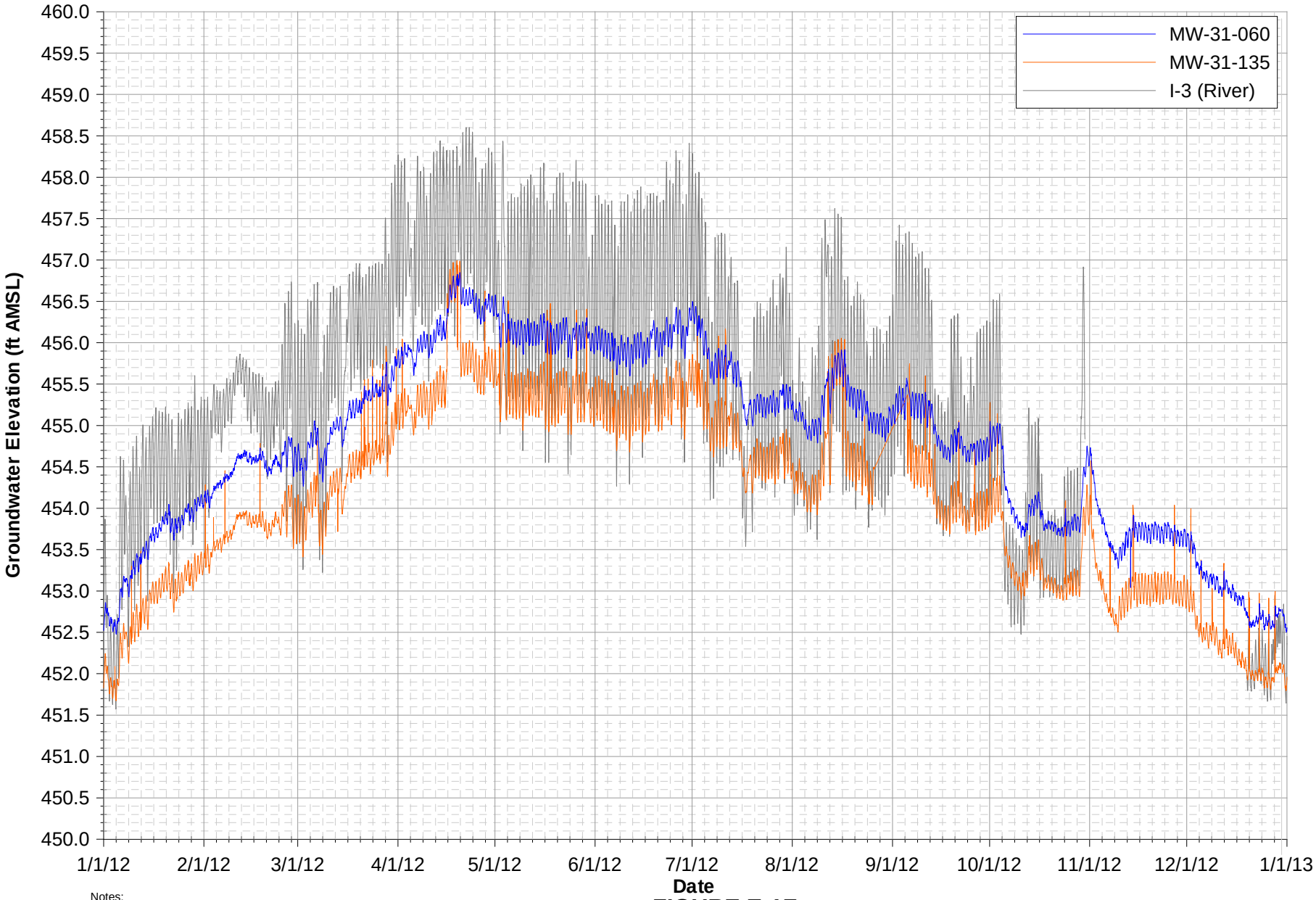
Notes:
Data subject to review.
I-3 data unavailable from October 30, 2012 through December 19, 2012 due to equipment malfunction.

FIGURE E-1E

MW-30-50 HYDROGRAPH

FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

CH2MHILL



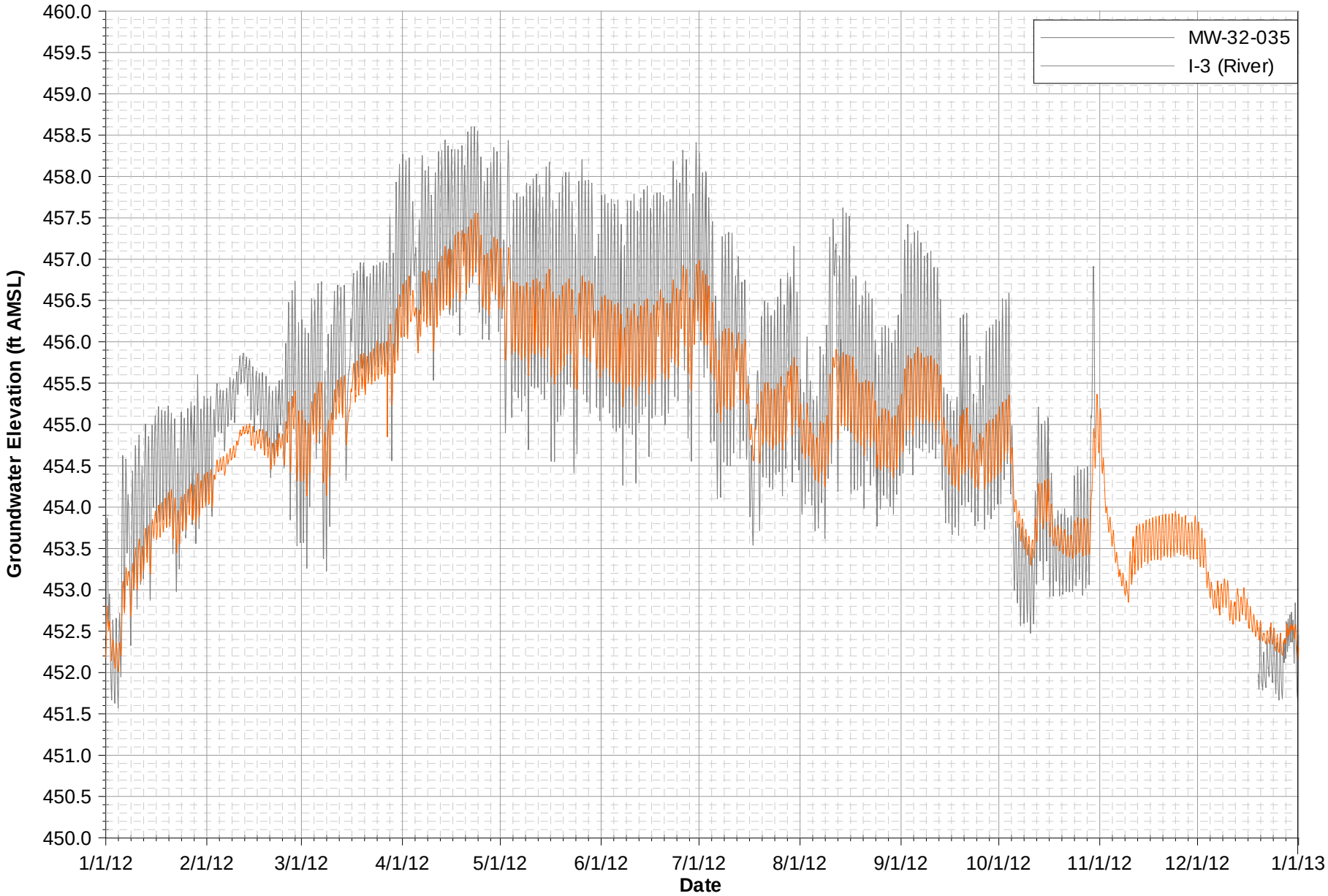
Notes:
Data subject to review.
I-3 data unavailable from October 30, 2012 through December 19, 2012 due to equipment malfunction.

FIGURE E-1F

MW-31 CLUSTER HYDROGRAPHS

FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

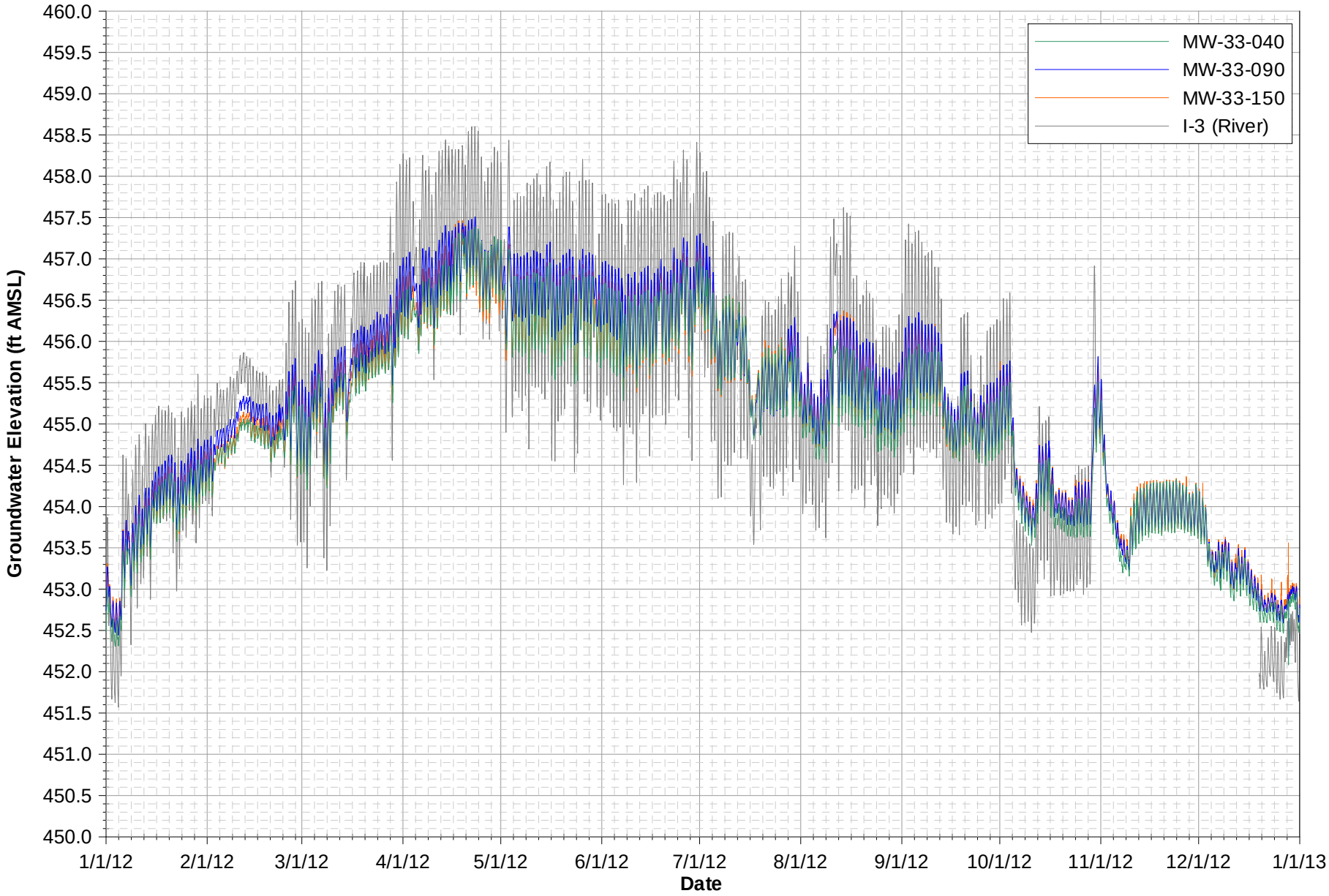
CH2MHILL



Notes:
Data subject to review.
I-3 data unavailable from October 30, 2012 through December 19, 2012 due to equipment malfunction.

FIGURE E-1G
MW-32 HYDROGRAPH
FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

CH2MHILL



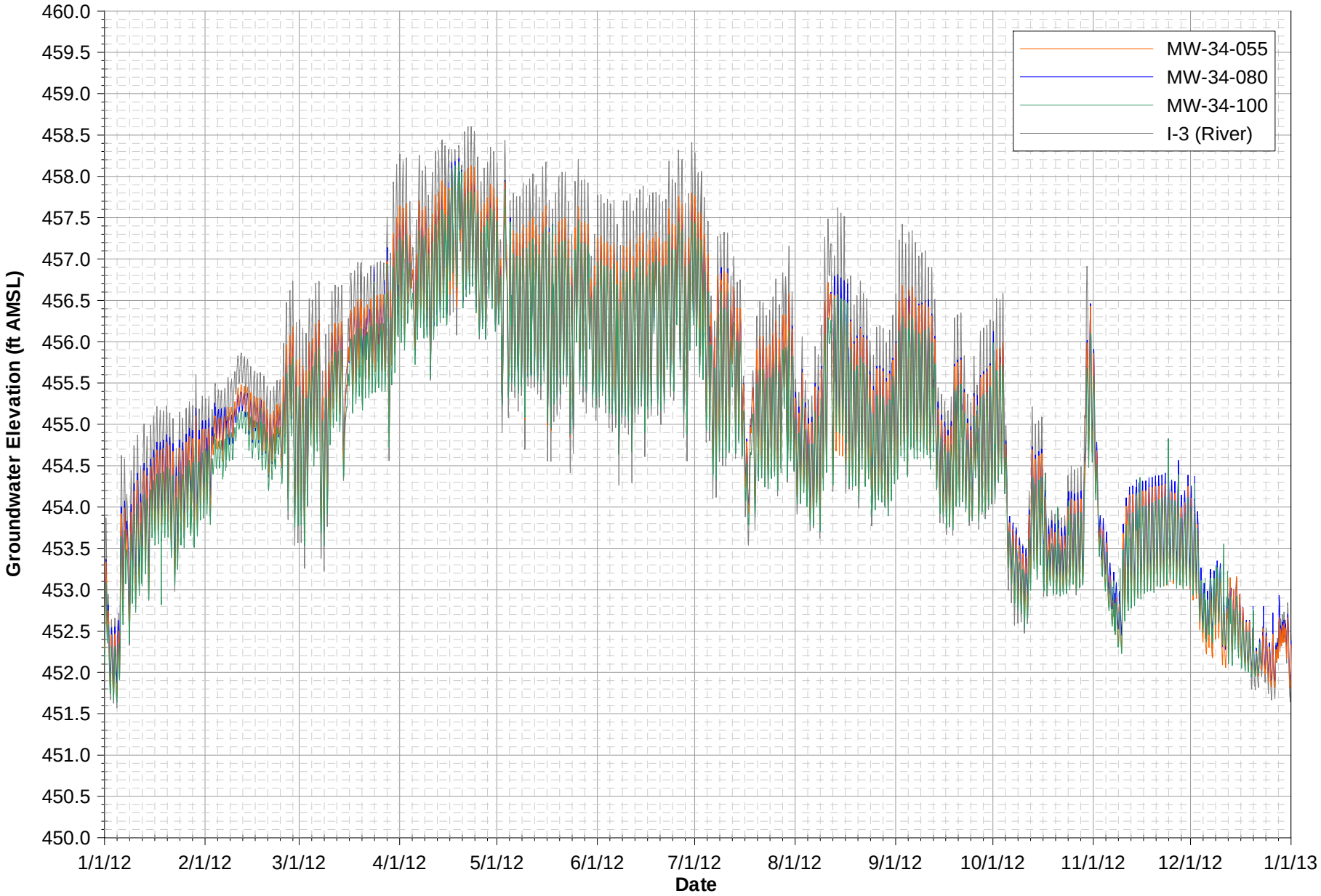
Notes:
Data subject to review.
I-3 data unavailable from October 30, 2012 through December 19, 2012 due to equipment malfunction.

FIGURE E-1H

MW-33 CLUSTER HYDROGRAPHS

FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

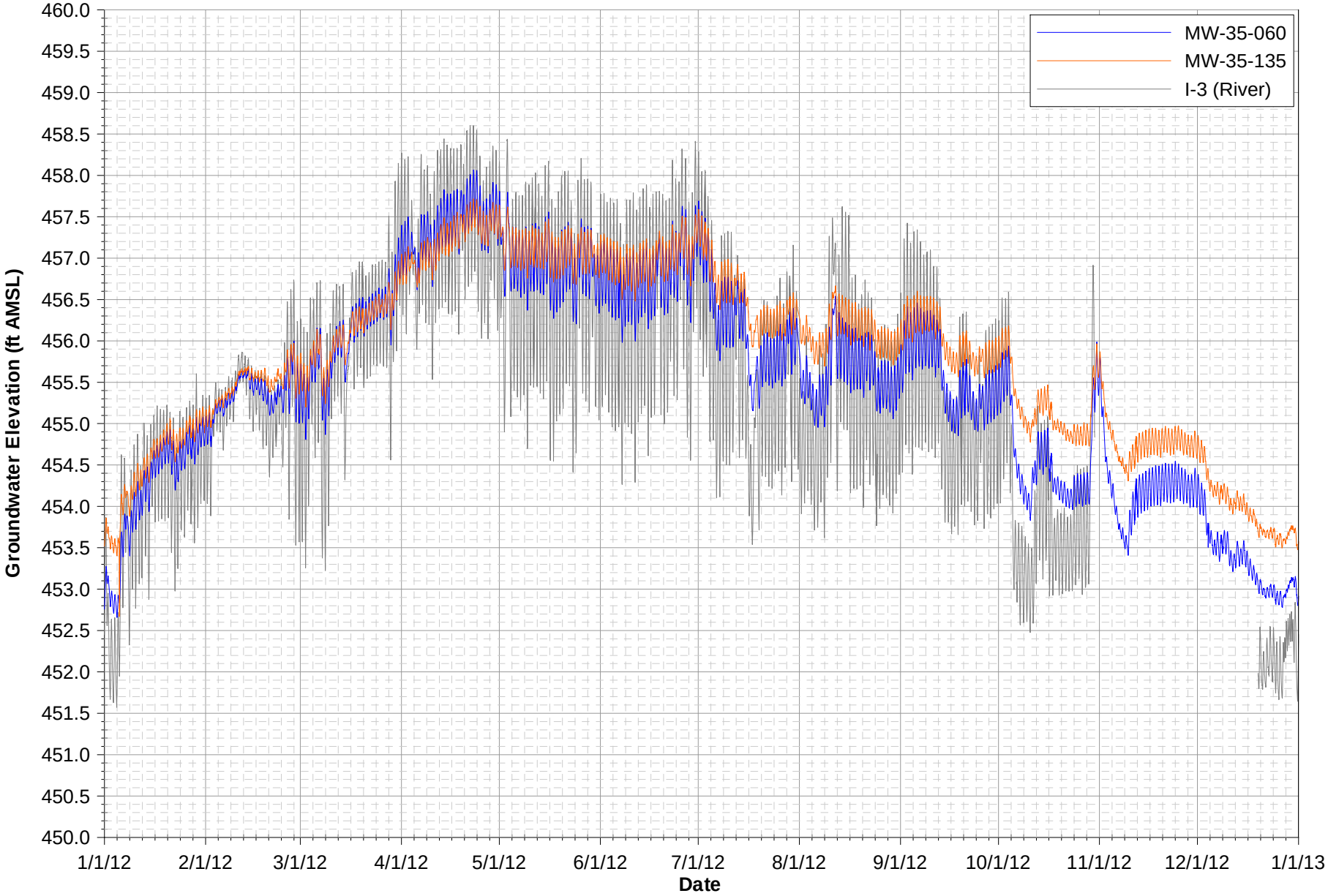
CH2MHILL



Notes:
Data subject to review.
MW-34-100 data unavailable from December 23, 2012 through December 31, 2012 due to equipment malfunction.
I-3 data unavailable from October 30, 2012 through December 19, 2012 due to equipment malfunction.

FIGURE E-1I
MW-34 CLUSTER HYDROGRAPHS
FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

CH2MHILL



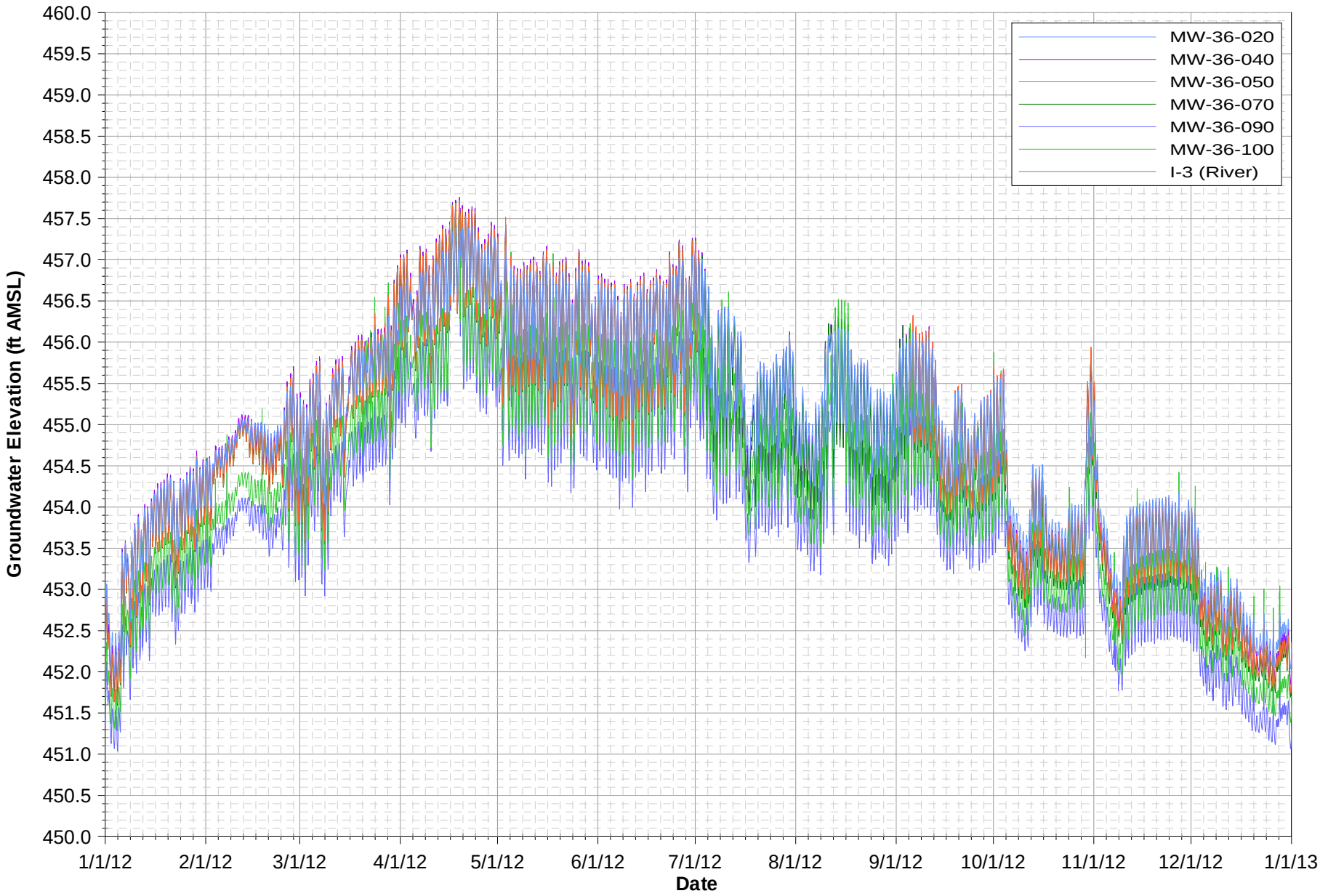
Notes:
Data subject to review.
I-3 data unavailable from October 30, 2012 through December 19, 2012 due to equipment malfunction.

FIGURE E-1J

MW-35 CLUSTER HYDROGRAPHS

FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

CH2MHILL



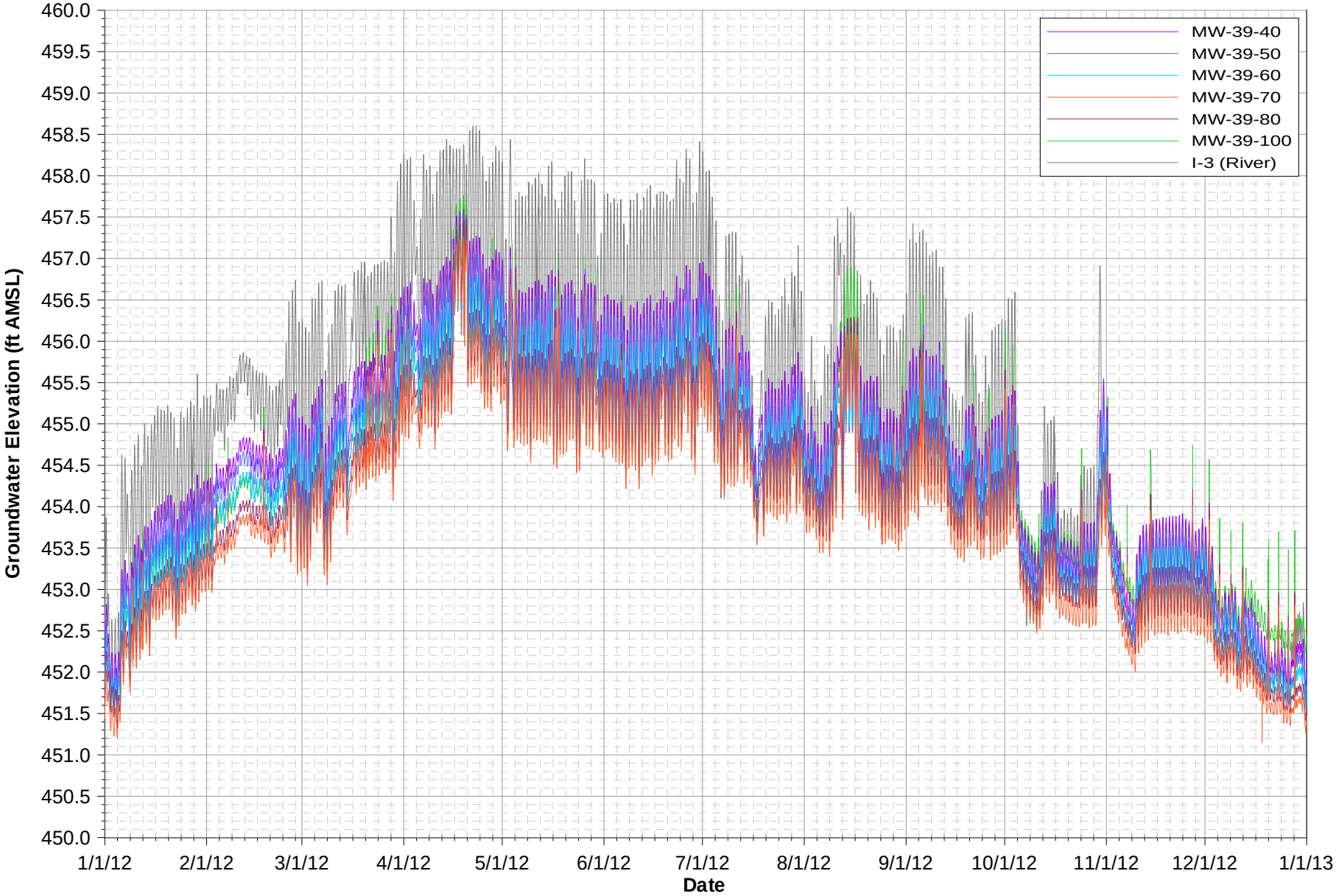
Notes:
Data subject to review.
MW-36-50 data unavailable from July 2, 2012 through August 5, 2012 due to equipment malfunction.
I-3 data unavailable from October 30, 2012 through December 19, 2012 due to equipment malfunction.

FIGURE E-1K

MW-36 CLUSTER HYDROGRAPHS

FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

CH2MHILL



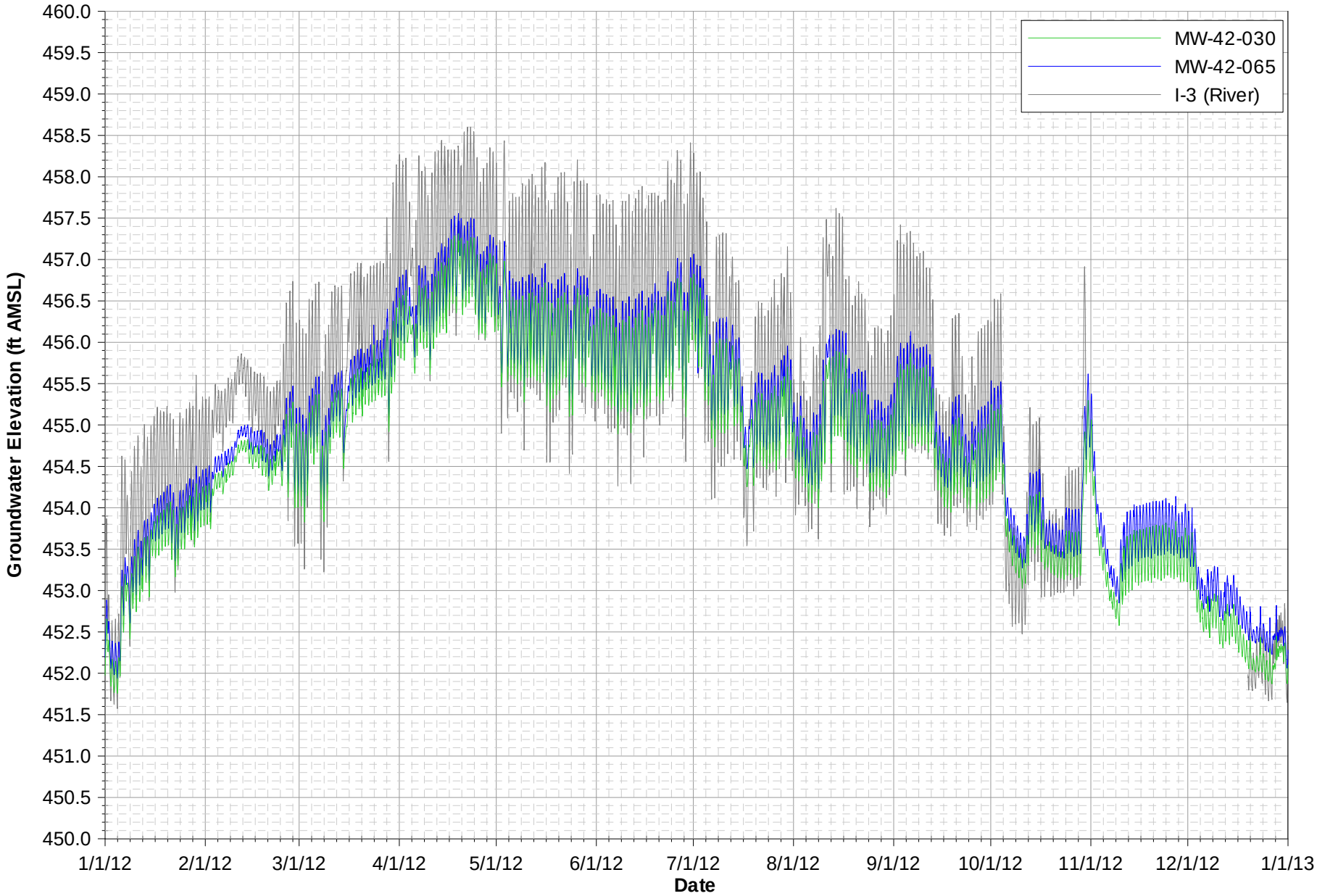
Notes:
Data subject to review.
I-3 data unavailable from October 30, 2012 through December 19, 2012 due to equipment malfunction.

FIGURE E-1L

MW-39 CLUSTER HYDROGRAPHS

FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

CH2MHILL



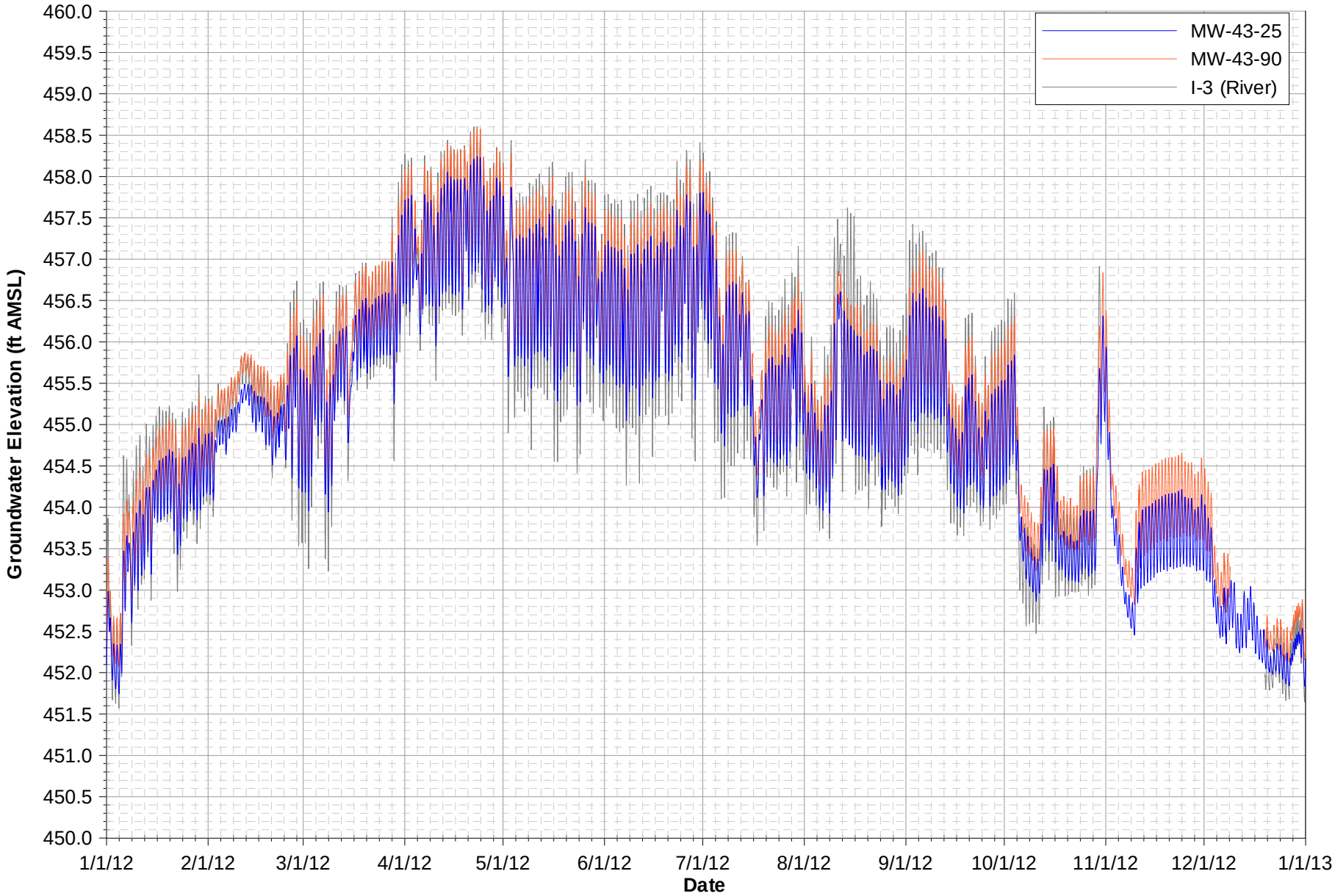
Notes:
Data subject to review.
I-3 data unavailable from October 30, 2012 through December 19, 2012 due to equipment malfunction.

FIGURE E-1M

MW-42 CLUSTER HYDROGRAPHS

FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

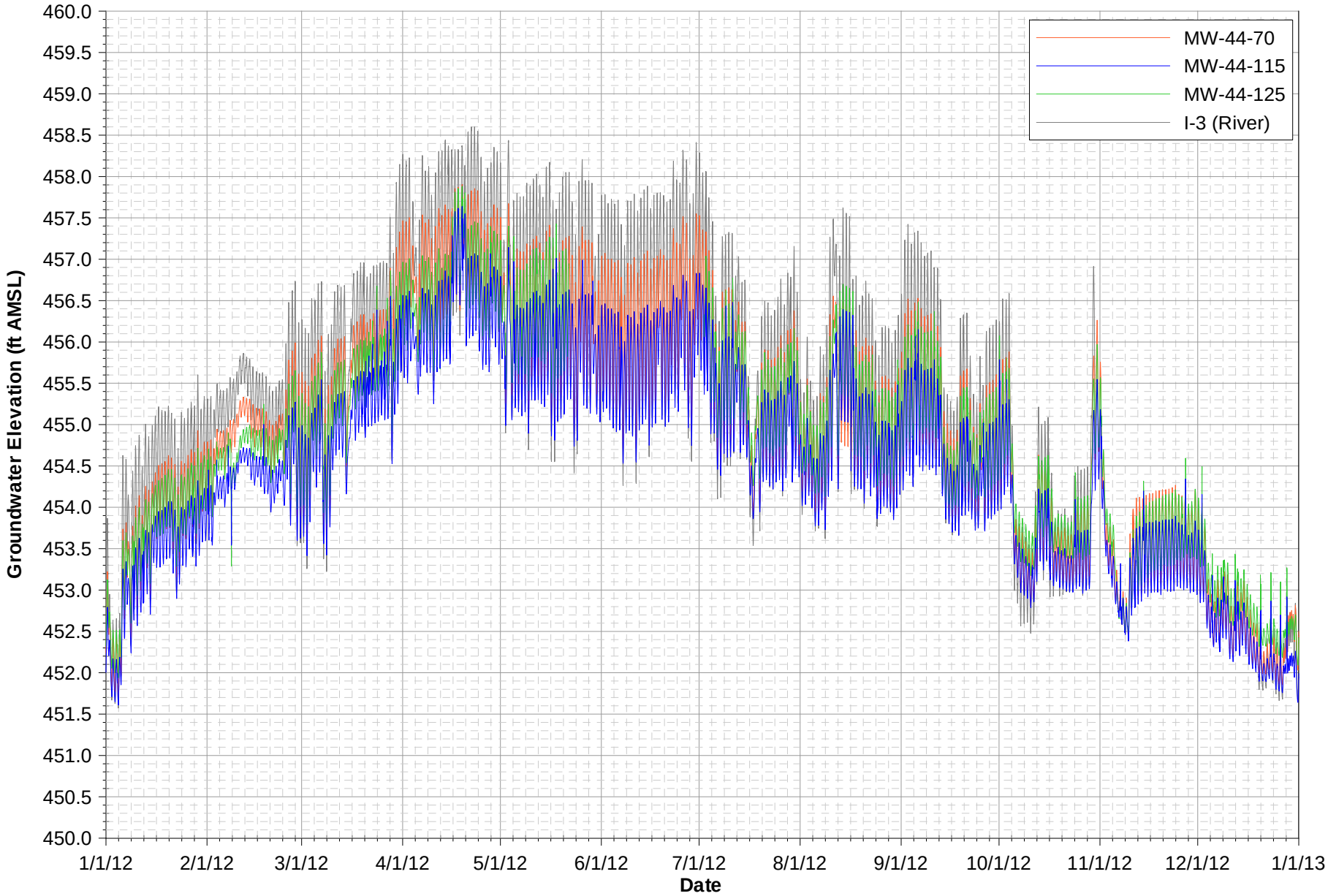
CH2MHILL



Notes:
Data subject to review.
MW-43-90 data unavailable from December 9, 2012 through December 19, 2012 due to equipment malfunction.
I-3 data unavailable from October 30, 2012 through December 19, 2012 due to equipment malfunction.

FIGURE E-1N
MW-43 CLUSTER HYDROGRAPHS
FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

CH2MHILL



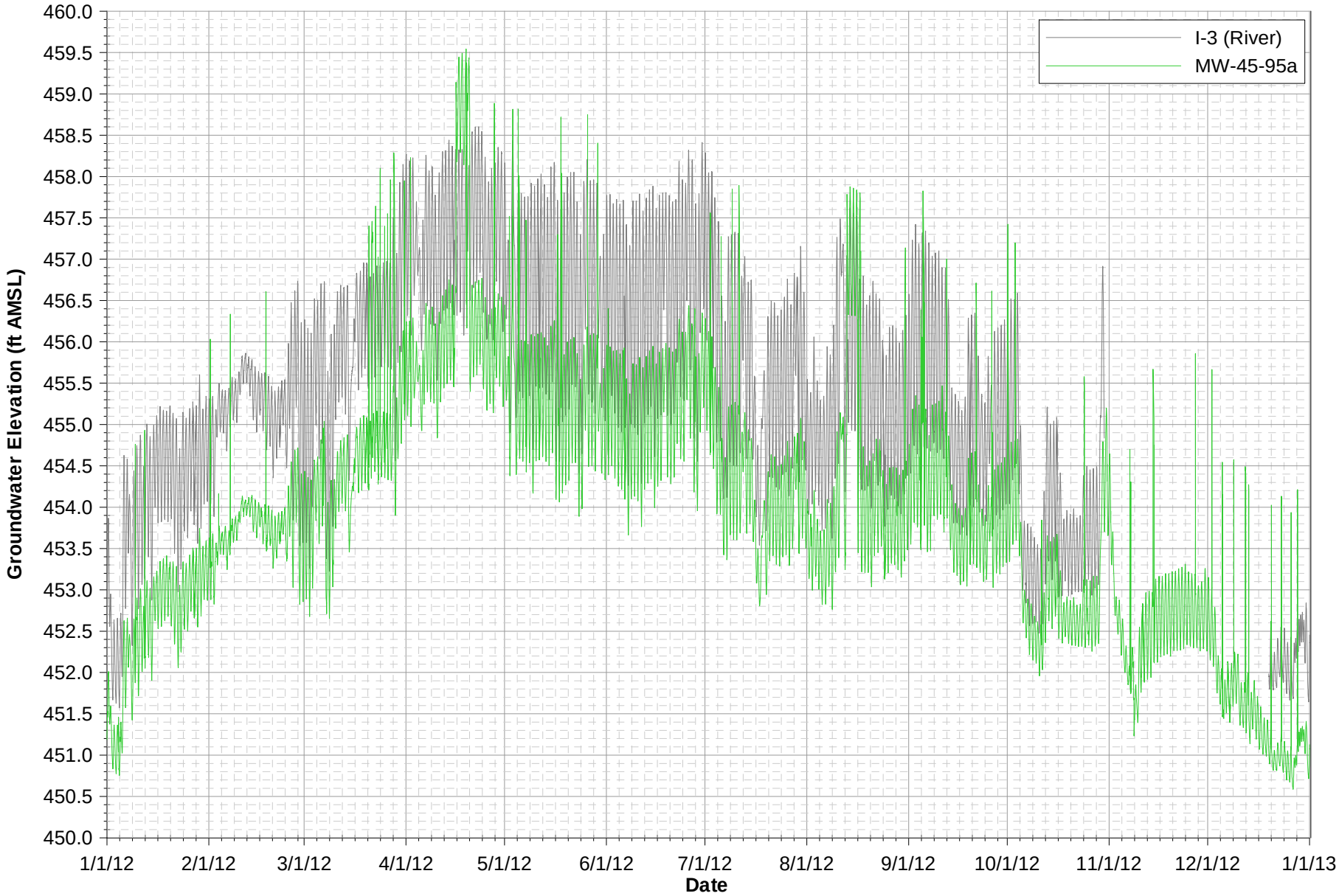
Notes:
Data subject to review.
MW-44-125 data unavailable from May 22, 2012 through July 2, 2012 due to equipment malfunction.
I-3 data unavailable from October 30, 2012 through December 19, 2012 due to equipment malfunction.

FIGURE E-1O

MW-44 CLUSTER HYDROGRAPHS

FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

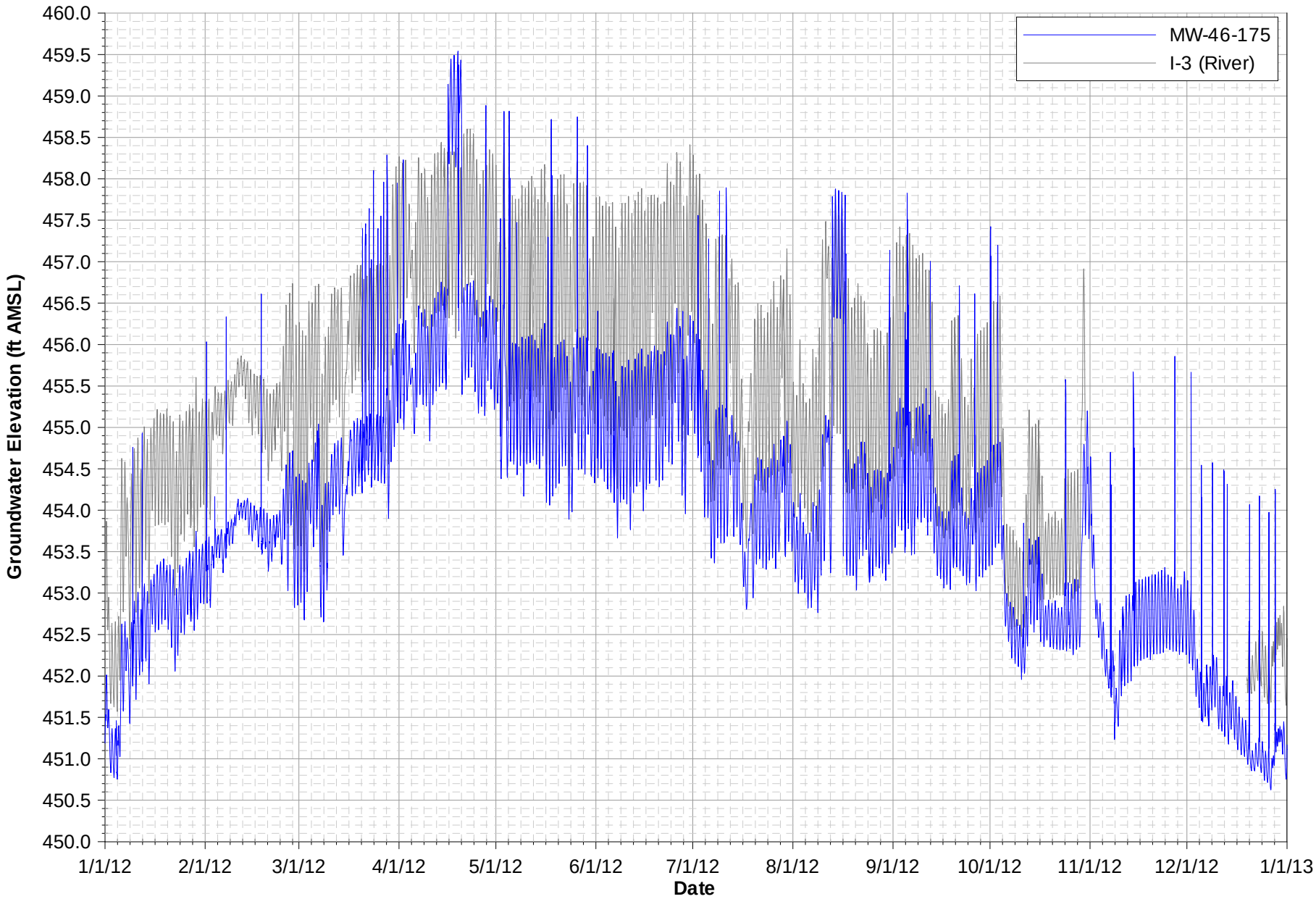
CH2MHILL



Notes:
Data subject to review.
I-3 data unavailable from October 30, 2012 through December 19, 2012 due to equipment malfunction.

FIGURE E-1P
MW-45-95a HYDROGRAPH
FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

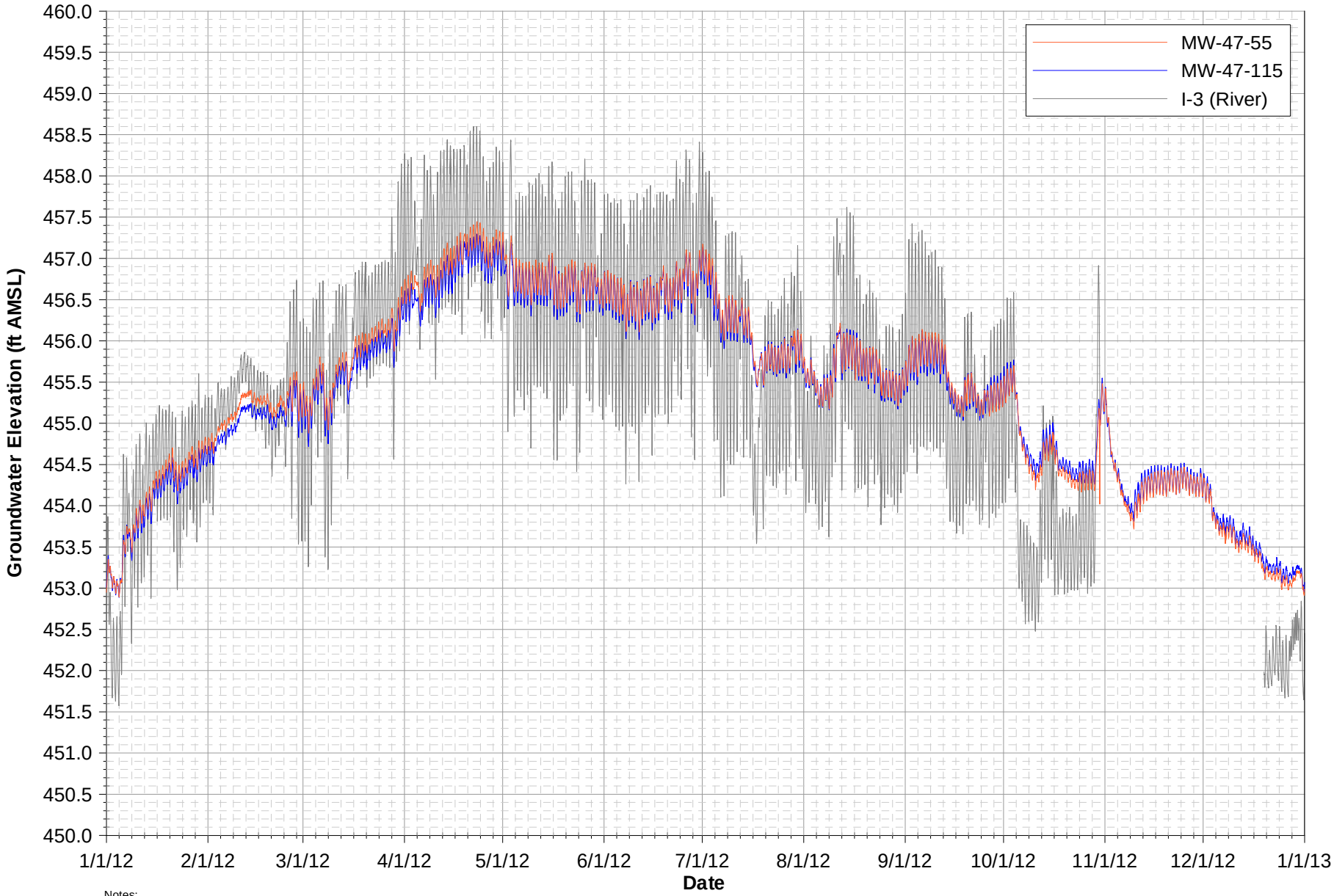
CH2MHILL



Notes:
Data subject to review.
I-3 data unavailable from October 30, 2012 through December 19, 2012 due to equipment malfunction.

FIGURE E-1Q
MW-46 HYDROGRAPH
FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

CH2MHILL



Notes:
Data subject to review.
I-3 data unavailable from October 30, 2012 through December 19, 2012 due to equipment malfunction.

FIGURE E-1R

MW-47 CLUSTER HYDROGRAPHS

FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

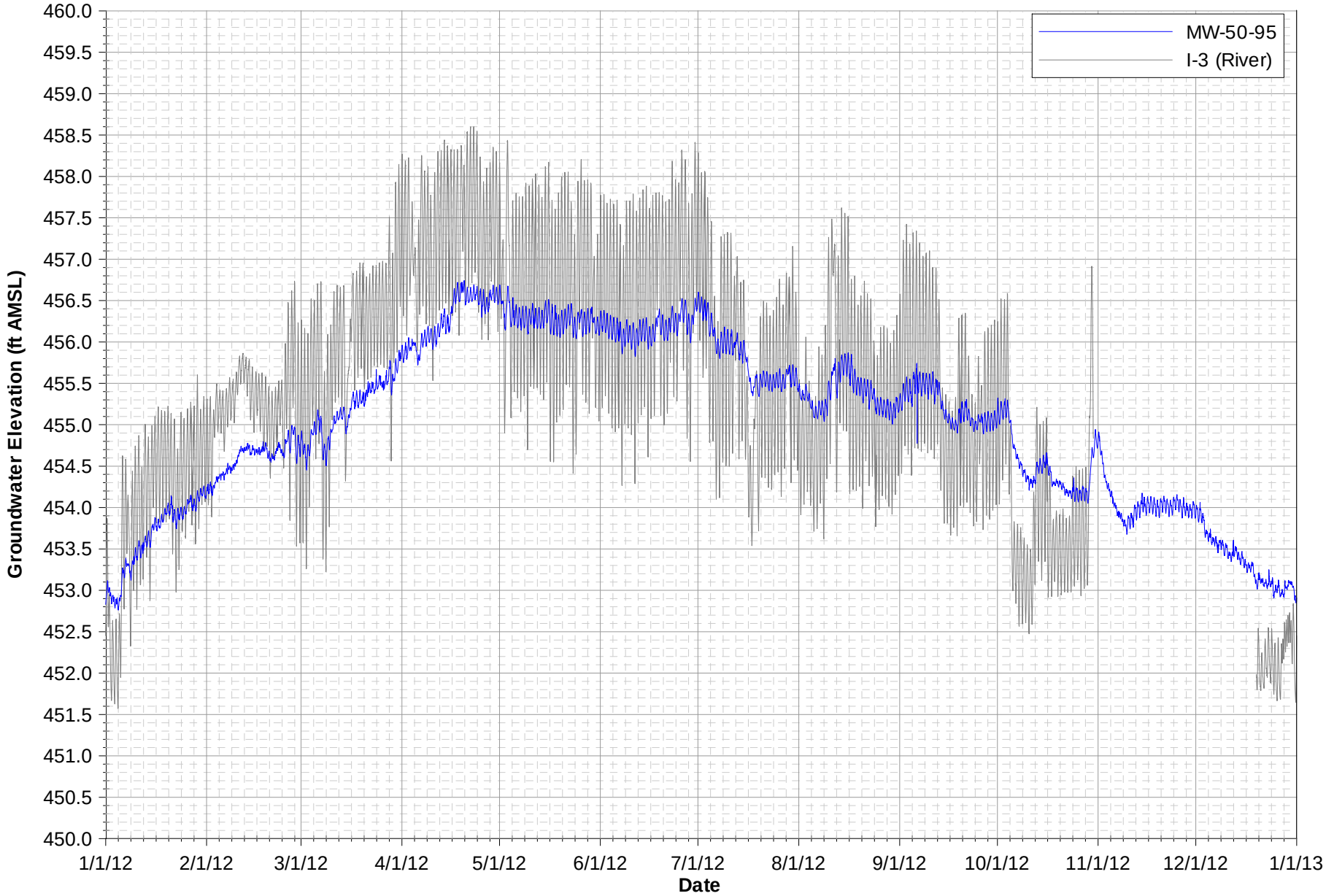
CH2MHILL

Notes:
Data subject to review.
I-3 data unavailable from October 30, 2012 through December 19, 2012 due to equipment malfunction.

FIGURE E-1S
MW-49 HYDROGRAPH

FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

CH2MHILL

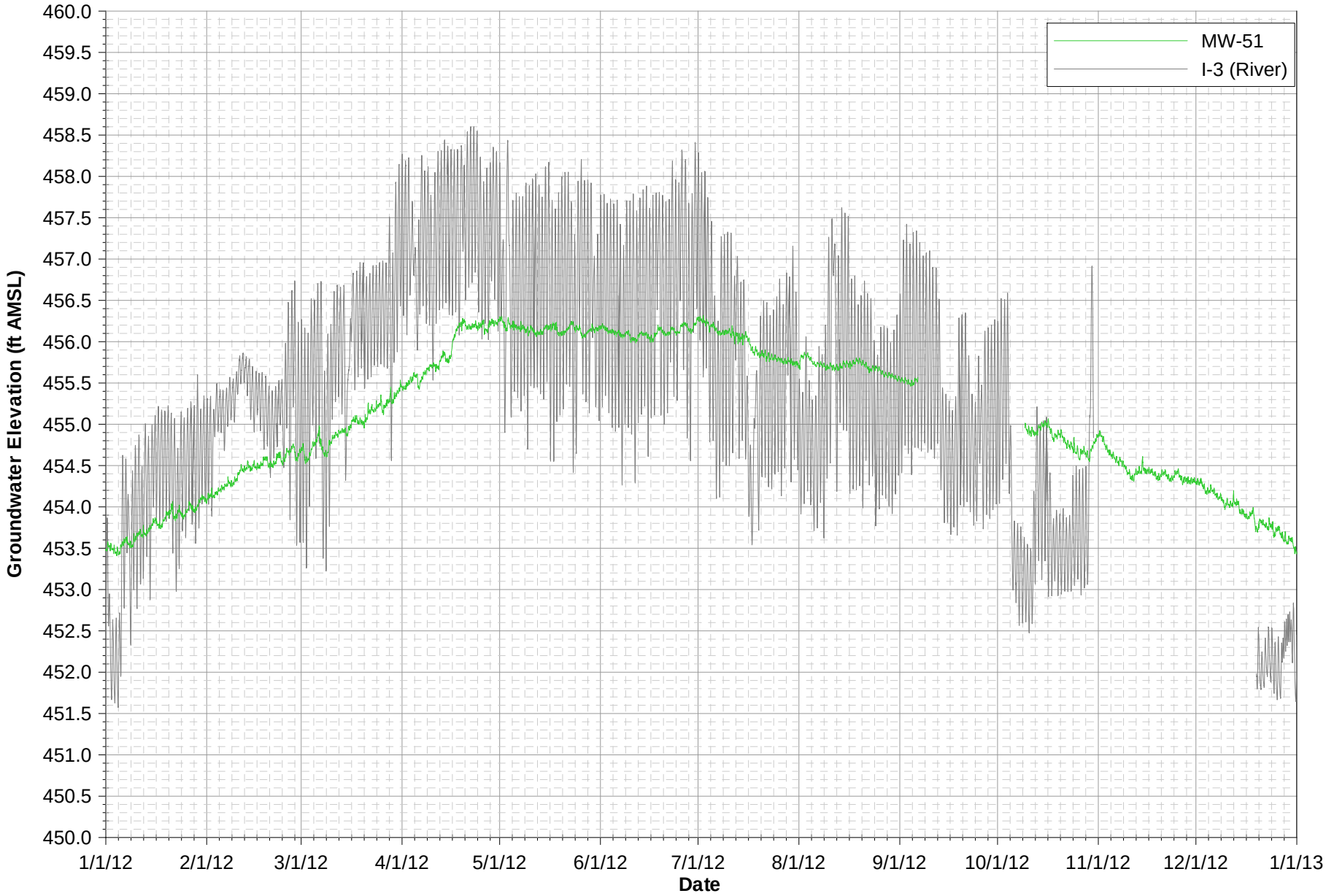


Notes:
Data subject to review.
I-3 data unavailable from October 30, 2012 through December 19, 2012 due to equipment malfunction.

FIGURE E-1T
MW-50 HYDROGRAPH

FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

CH2MHILL



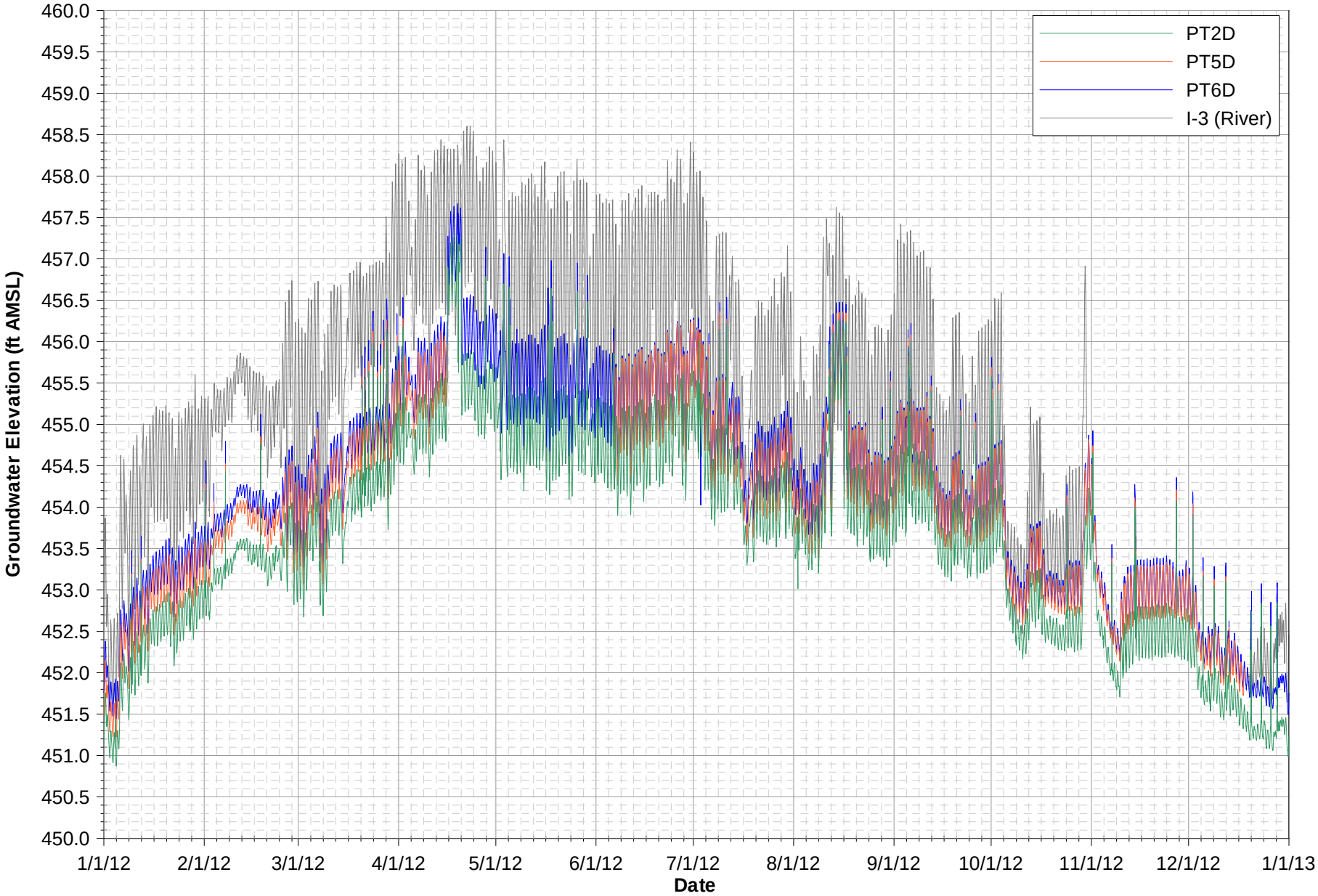
Notes:
Data subject to review.
MW-51 data unavailable from September 6, 2012 through October 9, 2012 due to equipment malfunction.
I-3 data unavailable from October 30, 2012 through December 19, 2012 due to equipment malfunction.

FIGURE E-1U

MW-26 & MW-51 HYDROGRAPHS

FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

CH2MHILL



Note:
Data subject to review.
PT5D data unavailable from April 16, 2012 through June 6, 2012 due to equipment malfunction.
I-3 data unavailable from October 30, 2012 through December 19, 2012 due to equipment malfunction.

FIGURE E-1V

IN SITU PILOT STUDY WELL HYDROGRAPHS

FOURTH QUARTER 2012 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

CH2MHILL

Appendix F
Groundwater Monitoring Data for Groundwater Monitoring Plan and Performance Monitoring Program

Table F-1

Chemical Performance Monitoring Analytical Results, March 2005 through December 2012

Fourth Quarter 2012 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,

PG&E Topock Compressor Station, Needles, California

Location	Sample Date	Total Dissolved Solids	Oxygen-18	Deuterium	Chloride	Sulfate	Nitrate	Bromide	Alkalinity (total)	Dissolved Metals				
										Calcium	Magnesium	Potassium	Sodium	Boron
Monitoring Wells														
MW-20-70	10-Mar-05	1940	-7.1	-59.0	740	378	9.98	ND (1.0)	81.7	198	55.4	9.89	431	0.412
	15-Jun-05	1980	-7.0	-60.0	749	388	9.79	ND (1.0)	73.8	189	55.4	10.5	433	0.414
	15-Jun-05 FD	2050	-8.3	-57.0	760	392	9.81	ND (1.0)	71.3	204	60.7	11.4	468	0.445
	11-Oct-05	1950	-7.2	-57.0	737	359	9.48	0.641	69.9	198	49.9	14.6	323	0.402
	15-Dec-05	1830	-7.1	-49.0	645	326	9.90	ND (1.0)	77.8	138	42.3	14.5	267	0.441
	10-Mar-06	1940	-7.2	-54.0	679	358	10.5	ND (0.5)	82.2	161	48.6	9.22	424	0.427
	05-May-06	1750	-8.2	-55.9	696	376	9.86	0.574	74.5	162	49.2	9.55	461	0.476
	03-Oct-06	1890	-8.1	-60.4	677	357	13.0	ND (5.0)	85.0	158	47.6	9.82	472	0.535
	03-Oct-06 FD	1840	-8.1	-60.5	669	352	12.9	ND (5.0)	80.0	154	45.9	9.51	466	0.515
	13-Dec-06	1910	-7.6	-61.2	678	352	12.7	0.699	77.5	149	44.3	9.09	458	0.459
	14-Mar-07	1740	-8.5	-64.3	689	358	13.7	0.641	80.0	139	42.2	8.83	451	0.503
	03-May-07	1750	-8.4	-66.7	697	344	25.1	ND (1.0)	77.5	139	41.2	8.65	390	0.477
	11-Oct-07	1820	-8.2	-63.9	699	367	15.6	ND (1.0)	80.0	130	39.1	11.0	600	0.54
	12-Mar-08	1790	-7.6	-65.2	695	360	22.1	ND (1.0)	77.0	139	41.2	10.7	403	0.51
	07-Oct-08	1900	-8.5	-64.4	650	360	15.0	0.61	83.0	136	37.9	10.5	400	0.608
	12-Mar-09	1900	-7.74	-60.8	670	330	17.0	ND (1.0)	79.0	128	40.2	9.95	496	0.549
	25-Sep-09	1700	-8.7	-66.4	700	310	16.0	ND (2.5)	74.0	130	33.0	9.70	390	0.42
	16-Dec-10	1700	-7.5	-62.3	680	320	16.0	0.51	79.0	130	33.0	12.0	400	0.51
	07-Dec-11	1400	-7.9	-61.9	540	330	11.0	ND (0.5)	71.0	100	25.0	---	380	---
	04-Oct-12	---	---	---	430	290	8.40	---	---	76.2	22.9	---	346	---
	27-Nov-12	1400	-7.8	-62.6	450	290	10.6 *	ND (0.5)	89.0	79.2	22.2	8.07	350	0.484
MW-20-100 [a]	10-Mar-05	2490	-5.2	-49.0	466	511	9.98	ND (1.0)	84.2	133	19.8	8.98	712	0.859
	15-Jun-05	2500	-4.7	-46.0	921	506	9.02	ND (1.0)	84.0	137	21.3	9.06	592	0.713
	11-Oct-05	2400	-5.3	-48.0	887	484	8.87	0.731	82.3	170	23.7	15.2	500	0.718
	15-Dec-05	2340	-5.4	-40.0	813	404	9.65	ND (1.0)	82.7	136	21.4	14.8	406	0.709

Table F-1

Chemical Performance Monitoring Analytical Results, March 2005 through December 2012

Fourth Quarter 2012 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,

PG&E Topock Compressor Station, Needles, California

Location	Sample Date	Total Dissolved Solids	Oxygen-18	Deuterium	Chloride	Sulfate	Nitrate	Bromide	Alkalinity (total)	Dissolved Metals				
										Calcium	Magnesium	Potassium	Sodium	Boron
Monitoring Wells														
MW-20-100 [a]	10-Mar-06	2500	-5.6	-50.3	861	475	9.94	ND (0.5)	92.5	171	27.0	7.75	597	0.803
	05-May-06	2260	-5.1	-46.4	927	522	9.99	ND (1.0)	82.5	193	32.0	10.8	577	0.716
	03-Oct-06	2320	-5.8	-51.5	863	456	13.4	ND (5.0)	90.0	202	34.4	10.9 J	568	0.874
	13-Dec-06	1960	-6.2	-54.4	861	459	12.3	0.83	97.5	205	32.2	11.4	579	0.889
	13-Dec-06 FD	2200	-6.2	-54.5	874	457	12.2	0.851	92.5	205	32.2	9.55	575	0.881
	14-Mar-07	2180	-6.8	-57.8	847	477	14.2	0.785	87.5	194	31.7	9.90	521	0.715
	03-May-07	2300	-7.3	-59.2	879	493	23.2	ND (1.0)	87.5	209	36.0	12.0 J	559	0.699
	03-May-07 FD	2330	-6.7	-59.3	888	484	19.7	ND (1.0)	87.5	208	34.6	9.63 J	532	0.686
	10-Oct-07	2160	-7.2	-57.2	858	468	3.25	ND (1.0)	92.0	190	32.0	15.0	560	0.81
	12-Mar-08	2470	-6.9	-58.3	827	442	19.2	ND (1.0)	870	218	35.4	11.9	469	0.702
	08-Oct-08	2200	-7.9	-60.2	760	420	16.0	ND (1.0)	90.0	215	36.8	10.3	453	0.669
	13-Mar-09	2200	-7.08	-58.2	770	420	16.0	ND (1.0)	97.0	213	36.4	11.6	543	0.89
	25-Sep-09	2000	-7.67	-62.8	750	400	16.0	ND (2.5)	89.0	200	30.0	12.0	430	0.70
	10-Feb-11	1800	-7.0	-58.8	610	380	15.0	0.57	120	180	28.0	14.0	400	0.81
	08-Dec-11	1700	-6.7	-55.6	580	380	13.0	ND (0.5)	120	170	25.0	---	390	---
	04-Oct-12	---	---	---	570	390	12.0	---	---	157	27.8	---	400	---
	29-Nov-12	1700	-7.0	-56.6	570	350	12.9 *	ND (0.5)	110	149	30.6	9.64	376	0.952
MW-20-130 [a]	09-Mar-05	5520	-5.8	-56.0	3120	1080	10.9	ND (1.0)	68.9	219	12.1	24.7	2250	1.90
	09-Mar-05 FD	6200	-5.4	-51.0	3080	1080	10.9	ND (1.0)	68.9	231	12.8	25.4	2390	1.99
	15-Jun-05	7790	-5.0	-48.0	3410	1230	11.1	ND (1.0)	68.7	352	23.2	31.3	2980	2.75
	07-Oct-05	7330	-5.0	-47.0	3010	1210	10.9	1.04 J	72.4	349	13.9	38.4	2070	2.41
	16-Dec-05	7860	-5.8	-43.0	3260	1000	10.7	ND (2.5)	63.2	324	16.3	44.4	1780	1.98
	10-Mar-06	8610	-5.5	-48.8	3370	1250	10.6	ND (0.5)	74.5	312	18.9	27.7	2730	2.03
	05-May-06	7700	-5.3	-47.2	3900	1280	8.95	ND (1.0)	69.2	349	20.3	27.7	2810	2.40
	18-Oct-06	8450	-6.3	-51.4	3680	1100	11.5	ND (5.0)	70.0	358	20.9	28.0	2870	2.28

Table F-1

Chemical Performance Monitoring Analytical Results, March 2005 through December 2012

Fourth Quarter 2012 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,

PG&E Topock Compressor Station, Needles, California

Location	Sample Date	Total Dissolved Solids	Oxygen-18	Deuterium	Chloride	Sulfate	Nitrate	Bromide	Alkalinity (total)	Dissolved Metals				
										Calcium	Magnesium	Potassium	Sodium	Boron
Monitoring Wells														
MW-20-130 [a]	13-Dec-06	7890	-6.0	-54.9	3970	1250	10.6	0.896	72.5	335	19.7	27.6	2900	2.31
	13-Dec-06 FD	8250	-5.9	-54.4	3950	1260	10.5	1.09	72.5	328	19.1	27.3	2830	2.24
	08-Mar-07	8450	-6.5	-57.7	3930	1240	11.3	1.08	70.0	353	21.3	27.0	2760	2.24
	08-Mar-07 FD	8510	-6.6	-57.4	3900	1210	11.3	1.06	72.5	351	21.3	26.8	2750	2.19
	03-May-07	8150	-7.7	-60.0	4020	1310	9.80 J	ND (1.0)	75.0	338	22.5	27.8	2550	2.49
	03-May-07 FD	8100	-6.9	-60.1	3950	1290	20.4 J	ND (1.0)	72.5	338	21.9	27.3	2550	2.47
	05-Oct-07	7980	-7.0	-57.5	3670	1070	11.6	ND (1.0)	77.0	310	19.0	31.0	2900	2.40
	12-Mar-08	8460	-6.2	-58.7	3690	1220	14.3	ND (1.0)	75.0	342	23.4	47.0	2260	2.07
	08-Oct-08	7800	-7.3	-59.6	3500	1200	12.0	ND (2.5)	81.0	329	22.0	40.1	1990	2.23
	13-Mar-09	8100	-6.58	-56.4	3600	1100	11.0	ND (2.5)	79.0	350	22.7	41.4	2550	2.16
	25-Sep-09	6500	-7.59	-61.7	3500	1100	13.0	ND (2.5)	76.0	280	17.0	33.0	2400	2.00
	10-Feb-11	5900	-6.6	-59.0	3100	1100	13.0	1.00	80.0	310	18.0	50.0	2100	2.20
	09-Dec-11	6200	-6.6	-57.2	3300	1200	12.0	ND (2.5)	74.0	340	22.0	33.0	2400	2.40
	09-Oct-12	---	---	---	3200	1100	12.0	---	79.0	283	19.1	---	2140	---
	29-Nov-12	7400	-6.6	-59.5	3300	1100	14.1 *	ND (2.5)	80.0	286	24.0	32.7	2310	2.13
	29-Nov-12 FD	7400	-6.6	-60.4	3400	1100	14.1 *	ND (2.5)	79.0	284	24.2	32.9	2410	2.06
MW-25	09-Mar-05	877	-8.4	-62.0	247	169	3.64	ND (0.5)	158	77.6	16.1	6.24	211	0.441
	14-Jun-05	942	-8.6	-61.0	289	183	3.89	ND (0.5)	137	93.5	20.0	8.91	253	0.464
	14-Jun-05 FD	980	-7.2	-59.0	294	185	3.94	ND (0.5)	137	100	20.9	9.06	268	0.475
	04-Oct-05	950	-8.2	-68.0	252	171	3.77	ND (0.5)	141	83.3	14.9	9.93	164	0.362
	04-Oct-05 FD	910	-8.3	-60.0	251	171	3.75	ND (0.5)	146	94.6	15.3	10.2	185	0.371
	14-Dec-05	838	-8.4	-55.0	224	158	3.74	ND (0.5)	153	75.5	14.5	9.80	143	0.396
	14-Dec-05 FD	896	-8.4	-50.0	219	155	3.75	ND (0.5)	156	73.0	14.1	9.71	151	0.382
	09-Mar-06	910	-8.4	-64.1	245	164	3.83	ND (0.5)	170	76.4	15.6	6.97	210	0.39
	03-May-06	907	-9.0	-59.4	272	172	3.95	ND (0.5)	150	78.0	17.3	7.38	222	0.418

Table F-1

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Location	Sample Date	Total Dissolved Solids	Oxygen-18	Deuterium	Chloride	Sulfate	Nitrate	Bromide	Alkalinity (total)	Dissolved Metals				
										Calcium	Magnesium	Potassium	Sodium	Boron
Monitoring Wells														
MW-25	03-May-06 FD	924	-9.0	-61.0	274	173	3.94	ND (0.5)	155	79.7	17.8	7.53	245	0.431
	03-Oct-06	892	-8.9	-62.7	222	158	4.09	ND (0.5)	163	73.3	15.0	7.25	206	0.466
	06-Mar-07	843	-9.0	-66.9	221	164	3.95	ND (0.5)	160	72.9	14.4	6.85	203	0.459
	02-Oct-07	796	-9.0	-65.8	189	155	4.58	ND (1.0)	180	66.0	14.0	7.90	200	0.49
	02-Oct-07 FD	758	-9.0	-65.7	195	157	4.40	ND (1.0)	190	63.0	13.0	7.70	220	0.46
	07-Oct-08	740	-9.9	-68.5	170	150	4.30	ND (0.5)	200	59.2	12.9	9.89	143	0.559
	07-Oct-08 FD	730	-10.1	-69.1	170	150	4.40	ND (0.5)	210	58.4	12.9	10.2	144	0.559
	21-Sep-09	660	-8.91	-69.9	180	130	4.30	ND (0.5)	200	64.0	12.0	7.20	180	0.46
	21-Sep-09 FD	650	-8.87	-69.5	180	130	4.30	ND (0.5)	200	64.0	12.0	7.90	190	0.47
	07-Dec-10	780	-9.4	-68.9	220	120	4.80	ND (1.0)	180	74.0	15.0	10.0	180	0.43
	15-Dec-11	860	-9.2	-68.6	270	120	5.90	ND (1.0)	170	89.0	19.0	8.50	210	0.49
	15-Dec-11 FD	890	-8.9	-66.7	280	120	6.00	ND (0.5)	170	91.0	19.0	8.00	220	0.50
	11-Dec-12	970	-9.1	-67.6	340	140	7.25 *	ND (0.5)	160	90.0	19.0	7.90	200	0.38
MW-26	08-Mar-05	1840	-8.8	-70.0	756	370	4.48	ND (0.5)	98.7	166	41.6	10.7	439	0.557
	08-Mar-05 FD	1800	-8.7	-70.0	708	338	4.45	ND (0.5)	96.1	166	40.9	11.4	438	0.559
	13-Jun-05	2130	-8.2	-65.0	847	371	4.90	ND (0.5)	103	178	44.6	14.0	511	0.663
	04-Oct-05	2120	-7.8	-68.0	779	372	4.88	0.601	109	166	40.4	19.8	352	0.526
	12-Dec-05	2610	-8.5	-55.0	788	372	4.88	0.546	99.7	162	39.9	20.3	349	0.613
	08-Mar-06	2070	-8.6	-60.4	772	324	4.90	ND (0.5)	121	155	38.1	11.7	434 J	0.621
	01-May-06	2130	-8.9	-62.7	927	382	4.87	ND (0.5)	121	165	42.0	12.8	555	0.723
	03-Oct-06	2220	-8.8	-63.0	894	370	6.22	ND (2.5)	105	170	43.9	12.8	510	0.692
	12-Mar-07	2280	-9.0	-67.0	917	387	6.02	0.646	90.0	163	41.6	12.9	621	0.622
	02-Oct-07	2180	-8.6	-66.3	945	391	7.84	ND (1.0)	100	170	42.0	15.0	620	0.66
	12-Mar-08	2500	-8.1	-67.2	908	398	10.7 J	ND (1.0)	103	176	44.1 J	16.2 J	498	0.589
	12-Mar-08 FD	2420	-8.9	-68.2	905	398	7.61 J	ND (1.0)	102	160	32.8 J	12.7 J	462	0.601

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Location	Sample Date	Total Dissolved Solids	Oxygen-18	Deuterium	Chloride	Sulfate	Nitrate	Bromide	Alkalinity (total)	Dissolved Metals				
										Calcium	Magnesium	Potassium	Sodium	Boron
Monitoring Wells														
MW-26	08-Oct-08	2400	-8.7	-66.5	930	440	10.0	ND (1.0)	110	183	45.8	14.6	555	0.591
	10-Mar-09	2300	-8.41	-65.3	870	440 J	9.80	1.40	100	172	47.9	14.8	585	0.604
	10-Mar-09 FD	2300	-8.68	-65.8	860	440 J	9.70	1.50	100	174	46.2	15.6	631	0.65
	22-Sep-09	2200	-9.04	-68.3	870	450	10.0	ND (1.0)	100	170	39.0	14.0	550	0.59
	15-Dec-10	---	---	---	900	480	12.0	---	100	180	40.0	---	560	---
	09-Dec-11	2300	-8.1	-65.2	930	530	14.0	1.20	94.0	210	47.0	15.0	690	0.89
	04-Oct-12	---	---	---	920	520	14.0	---	---	178	46.2	---	637	---
	27-Nov-12	---	---	---	930	520	15.6 *	---	100	168	45.0	---	564	---
MW-27-20	08-Mar-05	1250	-12	-102.0	190	432	ND (0.5)	ND (0.5)	215	137	56.6	4.89	195	ND (0.2)
	18-Jul-05	---	-11.9	-98.0	81.9	228	ND (0.5)	ND (0.5)	160	96.1	30.1	4.27	94.8	ND (0.2)
	05-Oct-05	742	-11.8	-102.0	91.1	252	ND (0.5)	ND (0.5)	175	88.6	31.4	5.48	81.0	ND (0.2)
	14-Dec-05	1020	-11.7	-91.0	118	347	ND (0.5)	ND (0.5)	216	116	41.8	6.96	116	ND (0.2)
	06-Mar-06	664	-12.1	-90.9	89.7	231	ND (0.2)	ND (0.2)	385	89.1	28.8	4.90	103	ND (0.2)
	14-Jun-06	730	-12	-89.8	98.3	272	ND (0.5)	ND (0.5)	195	91.1	28.5	2.79 J	96.9	ND (0.2)
	03-Oct-06	600	-13.1	-96.6	90.8	261	ND (0.5)	ND (0.5)	160	102	34.5	6.45	113	ND (0.2)
	02-Oct-07	802	-12.5	-96.3	102	320	ND (1.0)	ND (1.0)	170	97.0	34.0	5.30	150	0.22
	03-Oct-08	---	---	---	94.0	240	ND (0.5)	---	---	87.9	29.5	---	110	---
	01-Oct-09	---	---	---	88.0	230	ND (0.5)	---	130	84.0	25.0	---	87.0	---
	07-Dec-10	---	---	---	86.0	220	ND (0.5)	---	200	87.0	29.0	---	93.0	---
	05-Dec-11	---	---	---	83.0	220	ND (0.5)	---	150	83.0	25.0	---	83.0	---
	03-Dec-12	---	---	---	76.0	210	ND (0.01) *	---	150	76.0	24.0	---	76.0	---
MW-28-25	10-Mar-05	880	-12.2	-95.0	112	302	ND (0.5)	ND (0.5)	204	129	36.3	3.50	122	ND (0.2)
	15-Jun-05	974	-11.6	-91.0	108	359	ND (0.5)	ND (0.5)	221	133	38.9	6.54	117	ND (0.2)
	06-Oct-05	884	-11.7	-95.0	99.8	300	ND (0.5)	ND (0.5)	197	123	37.0	6.61	88.7	ND (0.2)
	16-Dec-05	1010	-11.4	-90.0	128	348	ND (0.5)	ND (0.5)	212	134	41.5	6.46	107	ND (0.2)

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Location	Sample Date	Total Dissolved Solids	Oxygen-18	Deuterium	Chloride	Sulfate	Nitrate	Bromide	Alkalinity (total)	Dissolved Metals				
										Calcium	Magnesium	Potassium	Sodium	Boron
Monitoring Wells														
MW-28-25	09-Mar-06	746	-11.5	-93.9	84.4	225	ND (0.5)	ND (0.5)	244	98.5	27.5	4.15 J	88.5	ND (0.2)
	05-May-06	741	-11.4	-90.3	110	302	ND (0.5)	ND (0.5)	216	117	35.7	5.77	118	ND (0.2)
	11-Oct-06	1050	-12.2	-95.0	86.3	247	ND (0.5)	ND (0.5)	225	133	40.8	5.47	132	ND (0.2)
	04-Oct-07	812	-12.1	-98.7	110	307	ND (1.0)	ND (1.0)	230	120	37.0 J	4.80	150	0.26 J
	08-Oct-08	---	---	---	100	280	ND (0.5)	---	220	109	34.7	---	102	---
	24-Sep-09	---	---	---	94.0	240	ND (0.5)	---	200	100	27.0	---	100 J	---
	08-Dec-10	---	---	---	90.0	230	ND (0.5)	---	190	110	31.0	---	95.0	---
	12-Dec-11	---	---	---	97.0	260	ND (0.5)	---	200	110	33.0	---	96.0	---
	05-Dec-12	---	---	---	87.0	240	0.0128 *	---	200	93.0	29.0	---	86.0	---
MW-30-30	10-Mar-05	38800	-9.8	-79.0	16000	4270	ND (5.0)	7.91	421	1590	1600	95.4	13600	4.97
	07-Oct-05	36400	-8.5	-75.0	17600	4000	ND (0.5)	ND (10)	521	1020	842	93.6	7650	5.20
	15-Dec-05	35700	-8.7	-59.0	19700	4070	ND (1.0)	3.13	504	1060	894	110	8540	6.14
	13-Mar-06	39700 J	-8.8	-70.5	18600	4530	ND (0.5)	ND (50)	650	1050	892	77.2	11300	4.62
	02-May-06	32400	-10.3	-70.7	15400	3300	ND (0.5)	ND (5.0)	756	882	828	59.4	10300	3.95
	10-Oct-06	29400	-9.4	-68.7	17800	4400	ND (2.5)	ND (2.5)	550	729	653	55.0	10200	4.32
	08-Oct-07	27400	-9.0	-73.9	13700	3370	ND (1.0)	3.88	800	650	540	56.0	9600	4.50
	24-Sep-09	---	---	---	5800	1700	ND (5.0)	---	550	280	220	---	3800	---
	07-Dec-10	---	---	---	7200	1900	ND (1.0)	---	790	390	290	---	4800	---
	07-Dec-11	---	---	---	10000	3200	ND (5.0)	---	910	340	290	---	6300	---
	03-Dec-12	---	---	---	8700	3400	0.0269 *	---	1500	300	260	---	7000	---
MW-30-50	10-Mar-05	6470 J	-8.3	-68.0	4660	672	ND (0.5)	1.03	324	335	107	16.5	2040	1.15
	07-Oct-05	6860	-9.4	-79.0	3060	857	ND (0.5)	0.899 J	252	438	101	37.0	1780	1.27
	16-Dec-05	5850	-10.5	-65.0	2360	578	ND (0.5)	0.645	212	265	77.9	32.9	1260	1.19
	09-Mar-06	5380	-9.8	-83.5	2420	651	ND (0.5)	ND (0.5)	275	226	66.2	14.6	1640	1.18
	02-May-06	5420	-10.4	-73.6	2380	612	ND (0.5)	3.41	261	243	70.3	16.4	1750	1.22

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Location	Sample Date	Total Dissolved Solids	Oxygen-18	Deuterium	Chloride	Sulfate	Nitrate	Bromide	Alkalinity (total)	Dissolved Metals				
										Calcium	Magnesium	Potassium	Sodium	Boron
Monitoring Wells														
MW-30-50	11-Oct-06	4170	-10.7	-82.2	1980	468	ND (0.5)	ND (0.5)	290	171	48.5	14.0	1370	1.11
	11-Oct-06 FD	3930	-11	-82.6	1810	462	ND (0.5)	ND (0.5)	298	163	46.1	14.1	1340	1.08
	24-Sep-09	---	---	---	---	---	---	---	220	19.0	4.80	---	270	---
	07-Dec-10	---	-12.2	-97.5	140	220	ND (0.5)	---	200	15.0	4.20	---	260	---
	08-Dec-11	---	-12.3	-98.2	130	210	ND (0.5)	---	200	34.0	9.40	---	240	---
	03-Dec-12	---	-12.5	-103.0	110	200	ND (0.01) *	---	190	46.0	13.0	---	170	---
MW-31-60	09-Mar-05	1540	-8.6	-63.0	649	210	4.94	ND (0.5)	76.6	108	17.3	5.97	424	0.401
	13-Jun-05	1660	-8.2	-65.0	745	207	4.12	ND (0.5)	70.0	121	18.9	6.57	403	0.388
	06-Oct-05	1660	-8.6	-65.0	691	206	4.01	ND (0.5)	77.3	109	16.5	9.75	308	0.462
	13-Dec-05	1620	-8.7	-54.0	669	199	4.14	ND (0.5)	73.0	87.0	15.4	9.32	275	0.359
	15-Mar-06	1560 J	-8.6	-65.6	661	191	4.37	ND (0.5)	89.3	106	17.5	7.30	403	0.393
	15-Mar-06 FD	1640 J	-8.6	-64.9	662	192	4.34	ND (0.5)	81.9	101	16.8	6.94	391	0.383
	01-May-06	1630	-9.6	-63.2	691	209	4.58	ND (0.5)	79.6	118	20.1	7.78	467	0.449
	05-Oct-06	1620	-9.4	-66.3	687	205	5.00	ND (0.5)	80.0	113	20.6	9.60 J	325	0.464
	12-Mar-07	1750	-9.3	-69.0	757	222	4.93	ND (0.5)	72.5	116	20.3	6.05	454	0.402 J
	04-Oct-07	1720	-9.4	-69.6	799	208	5.15	ND (1.0)	80.0	150	26.0	7.30	580	0.64
	06-Oct-08	2000	-10.2	-72.2	810	240	4.20	ND (1.0)	81.0	150	26.0	9.39	460	0.399
	21-Sep-09	1800	-9.23	-72.1	870	220	3.70	ND (1.0)	75.0	160	26.0	9.60	480	0.43
	15-Dec-10	2000	-9.0	-69.3	840	210	3.50	ND (0.5)	78.0	170	27.0	12.0	440	0.43
	06-Dec-11	1800	-8.8	-67.9	790	200	3.40	ND (1.0)	76.0	150	24.0	7.60	450	0.54
	13-Nov-12	1900	-9.2	-71.8	890	200	3.30 *	ND (0.5)	78.0	150	24.0	7.10	470	0.44
MW-32-20	09-Mar-05	12500	-7.2	-65.0	6930	1660	ND (0.5)	3.51	123	838	302	36.9	4000	2.76
	17-Jun-05	10200	-9.0	-67.0	4810	690	ND (0.5)	ND (2.5)	676	566	231	23.3	2620	1.75
	04-Oct-05	28800	-7.8	-65.0	14200	2420	ND (5.0)	6.19	733	1380 J	613 J	91.1 J	5400 J	4.75 J
	16-Dec-05	24600	-7.8	-61.0	12200	2140	ND (1.0)	3.48	861	1470	552	90.4	4950	4.16

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Location	Sample Date	Total Dissolved Solids	Oxygen-18	Deuterium	Chloride	Sulfate	Nitrate	Bromide	Alkalinity (total)	Dissolved Metals				
										Calcium	Magnesium	Potassium	Sodium	Boron
Monitoring Wells														
MW-32-20	10-Mar-06	20900	-8.3	-65.5	10600	1970	ND (0.5)	ND (0.5)	432	1350	530	56.1	6440	3.54
	04-May-06	16900	-8.1	-64.9	9430	1380	ND (0.5)	2.35	218	937	445	46.0	4780	2.87
	02-Oct-06	46200 J	-8.6	-67.1	20200	3190	ND (2.5)	7.30	660	1870	1070	87.0	11300	6.34
	11-Dec-06	37900	-8.0	-67.0	17900	3020	ND (5.0)	7.67	825	1530	785	81.7	8420	4.98
	06-Mar-07	27600	-8.7	-72.7	16200	2210	0.925	5.93	765	1460	635	64.4	7110	3.92
	30-Apr-07	17700	-9.6	-78.1	9820	1310	ND (0.2)	3.78	770	965	484	51.4	5520	3.02
	01-Oct-07	37200	-8.3	-70.1	20600	3160	ND (1.0)	6.44	700	1800	1100	93.0	9900	5.70
	10-Mar-08	26000	-9.4	-72.6	15800	2280	ND (1.0)	5.66	800	1190	710	67.4	11600	2.31
	03-Oct-08	---	---	---	21000	3500	ND (5.0)	---	640	1700	1080	---	9550	---
	10-Mar-09	29000	-8.91	-70.5	15000	2100 J	ND (5.0)	15.0	750	1620	970	96.6	7020	3.53
	22-Sep-09	---	---	---	20000	3600	ND (5.0)	---	730	1800	740	---	9300	---
	08-Dec-10	---	---	---	17000	4100	ND (5.0)	---	830	1600	720	---	11000	---
	08-Dec-11	---	---	---	17000	4400	ND (5.0)	---	1000	1400	670	---	11000	---
	05-Dec-12	---	---	---	15000	6000	1.16 *	---	---	900	500	---	9800	---
MW-32-35	09-Mar-05	3560	-8.2	-68.0	1770	465	ND (0.5)	0.845	260	312	85.5	13.0	944	1.07
	17-Jun-05	7550	-9.5	-72.0	3520	787	ND (0.5)	ND (2.5)	223	506	120	14.8	2110	1.18
	04-Oct-05	8340	-8.3	-70.0	3840	765	ND (0.5)	ND (5.0)	208	567	134	29.3	1530	1.26
	16-Dec-05	7660	-8.8	-63.0	3510	710	ND (1.0)	1.02	219	606	128	30.0	1580	1.25
	10-Mar-06	9230	-8.6	-74.0	4210	1010	ND (0.5)	ND (0.5)	234	654	129	19.2	2360	1.13
	04-May-06	9840	-9.1	-67.8	4960	1130	ND (0.5)	ND (0.5)	218	693	148	19.5	2800	1.38
	02-Oct-06	11200	-9.4	-71.4	5430	1050	ND (2.5)	ND (2.5)	290	839	165	23.9	3260	1.48
	11-Dec-06	10400	-9.0	-70.4	5090	1000	ND (0.5)	1.90	338	845	173	22.5	2620	1.43
	06-Mar-07	12600	-10.2	-75.4	6070	1200	ND (0.5)	2.65	360	1080	209	23.5	2910	1.35
	30-Apr-07	12100	-9.9	-78.7	6610	1280	ND (0.2)	2.60	475	1250	273	26.2	3280	1.35
	01-Oct-07	13700	-8.9	-72.7	6830	1120	ND (1.0)	2.62	490	1000	390	29.0	4000	1.70

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										Calcium	Magnesium	Potassium	Sodium	Boron
Monitoring Wells														
MW-32-35	03-Oct-08	15000	-9.8	-73.1	7600	1300	ND (2.5)	3.10	550	829	150	52.3	3490	1.49
	22-Sep-09	13000	-9.32	-75.2	6900	1400	ND (2.5)	2.80	530	880	400	53.0	3100	1.70
	09-Dec-10	11000	-10.2	-84.2	5500	1600	ND (2.5)	ND (2.5)	590	750	390 J	51.0 J	3000	1.70 J
	09-Dec-11	8500	-10.8	-84.2	5000	1700	ND (2.5)	ND (2.5)	640	680	310	34.0	3100	1.70
	05-Dec-12	10000	-11	-89.0	4300	1700	0.0274 *	ND (5.0)	630	460	240	31.0	2700	1.30
MW-34-55	10-Mar-05	6230	-10.8	-82.0	2620	739	ND (0.5)	0.654	240	366	71.3	29.1	1900	1.19
	15-Jul-05	---	-10.3	-84.0	2250	607	ND (0.5)	ND (0.5)	242	247	52.0	16.5	1420	1.02
	05-Oct-05	5150	-10.6	-88.0	2170	619	ND (0.5)	ND (0.5)	232	272	59.1	25.8	1230	1.20
	14-Dec-05	5100	-10.8	-74.0	2150	552	ND (0.5)	0.588	236	217	45.0	27.2	965	0.937
	08-Mar-06	4850	-10.8	-86.8	2080	593	ND (0.5)	ND (0.5)	272	256	54.2	13.5	1640	0.956
	03-May-06	4320	-11.5	-84.3	2070	500	ND (0.5)	ND (0.5)	302	198	44.8	11.1	1360	0.846
	04-Oct-06	1680 J	-12.2	-94.8	443	230	ND (0.5)	ND (0.5)	368	37.6	8.08	4.59	536	0.54
	03-Oct-07	730	-11.3	-96.6	109	266	ND (1.0)	ND (1.0)	190	15.0	3.30	3.30	290	0.26
	07-Oct-08	700	-13	-100.0	100	250	ND (0.5)	---	170	72.4	16.9	5.26	192	0.248
	30-Sep-09	700	-12.3	-101.0	---	---	---	---	160	77.0	17.0	4.40	120	0.15
	07-Dec-10	590	-12.1	-98.8	87.0	230	ND (0.5)	ND (0.5)	140	81.0	19.0	5.10	100	0.10
	06-Dec-11	630	-12.3	-101.0	83.0	220	ND (0.5)	ND (0.5)	160	81.0	19.0	4.60	100	0.19
	12-Dec-12	630	-12.7	-105.0	78.0	210	ND (0.01) *	ND (0.5)	140	75.0	20.0	3.70	100	0.15
MW-34-80	08-Mar-05	6940	-10.4	-83.0	4180	1040	ND (0.5)	1.01	304	439	68.1	28.0	2750	1.65
	15-Mar-05	8980	---	---	3920	ND (5.0)	ND (1.0)	---	288	445	65.7	29.7	2990	---
	30-Jun-05	7840	-8.4	-82.0	3910	979	ND (0.5)	ND (0.5)	302	497	76.5	27.7	2670	1.66
	05-Oct-05	10200	-10.1	-85.0	3880	1060	ND (0.5)	ND (0.5)	302	429	72.5	47.4	1660	1.57
	14-Dec-05	8800	-10.2	-71.0	3700	880	ND (0.5)	0.854	297	432	68.3	54.9	1710	1.54
	09-Mar-06	7830	-9.9	-86.8	3520	986	ND (0.5)	ND (0.5)	313	383	65.8	24.0	2420	1.49
	03-May-06	7950	-11.7	-77.6	3700	921	ND (0.5)	ND (0.5)	297	425	70.3	23.9	2480	1.38

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Location	Sample Date	Total Dissolved Solids	Oxygen-18	Deuterium	Chloride	Sulfate	Nitrate	Bromide	Alkalinity (total)	Dissolved Metals				
										Calcium	Magnesium	Potassium	Sodium	Boron
Monitoring Wells														
MW-34-80	04-Oct-06	7080	-11.3	-81.8	3210	786	ND (0.5)	0.737	268	341	65.4	21.1	2170	1.31
	12-Dec-06	6510	-10.5	-80.9	3190	789	ND (0.5)	0.742	288	298	62.9	18.9	2040	1.26
	05-Mar-07	6360 J	-11.5	-85.8	3300	783	ND (0.5)	0.72	205	315	68.3	19.4	2020	1.29
	30-Apr-07	6390	-11.5	-88.9	3320 J	889 J	ND (0.2)	ND (1.0)	245	282	57.0	18.6	2080	1.33
	03-Oct-07	5490	-11.3	-87.8	2630	696	ND (1.0)	ND (1.0)	240	220	53.0	21.0	2000	1.20
	13-Dec-07	5420	-10.9	-88.6	2380	698	ND (1.0)	ND (1.0)	264	193	49.1	25.4	1450	1.09
	12-Mar-08	5500	-11.4	-87.3	2510	739	ND (1.0)	ND (1.0)	238	237	52.6	19.2	2030	1.14
	06-May-08	5820	-11.4	-87.3	2460	753	ND (0.2)	0.525	216	230	49.0	30.0	1600	1.20
	07-Oct-08	5300	-11.8	-87.6	2400	720	ND (2.0)	ND (2.0)	250	223	46.3	22.0	1220	0.765
	10-Dec-08	5300	-11	-93.1	2190	698	ND (1.0)	ND (1.0)	253	147	45.2	20.6	3880	1.11
	10-Mar-09	5100	-10.9	-84.8	2300	700 J	ND (2.5)	ND (2.5)	240	219	46.3	22.2	1480	1.08
	30-Apr-09	5830	-11.5	-85.8	2340	768	ND (1.0)	ND (1.0)	237	219	50.0	24.6	1510	1.11
	30-Sep-09	4000	-10.8	-88.9	2300	710	ND (1.0)	ND (1.0)	230	240	46.0	22.0	1500	0.98
	10-Mar-10	4900	-12.1	-91.6	2100	660	ND (1.0)	ND (1.0)	240	220 J	41.0	28.0	1400 J	0.93
	07-Dec-10	4600	-11.1	-87.3	2300	700	ND (1.0)	ND (1.0)	220	240	47.0	24.0	1300	1.00
	06-Dec-11	3900	-11.1	-88.1	1900	640	ND (1.0)	ND (1.0)	230	220	43.0	16.0	1300	1.10
	12-Dec-12	4300	-11.2	-90.2	1800	630	ND (0.01) *	ND (1.0)	250	220	51.0	17.0	1300	1.00
	12-Dec-12 FD	---	-11.1	-89.3	1800	630	ND (0.01) *	---	250	210	48.0	---	1300	---
MW-34-100	14-Mar-05	10800	---	---	5010	1210	ND (1.0)	---	175	221	17.4	34.1	3600	---
	21-Jun-05	11300	-9.7	-75.0	5350	1270	1.05	ND (0.5)	179	229	17.4	27.1	3510	2.22
	21-Jun-05 FD	10900 J	-9.5	-77.0	4920	1180	1.03	ND (0.5)	179	243	18.2	32.1	3740	2.36
	05-Oct-05	10400	-9.9	-83.0	4530	1150	1.20	ND (0.5)	172	171	13.8	55.2	2450	2.57
	05-Oct-05 FD	10400	-9.9	-83.0	4680	1200	1.21	ND (0.5)	172	228	14.1	50.9	2730	2.57
	14-Dec-05	---	---	---	---	---	---	---	---	226	14.9	62.9	2530	2.32
	14-Dec-05 FD	---	---	---	---	---	---	---	---	220	15.1	64.2	2530	2.40

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Location	Sample Date	Total Dissolved Solids	Oxygen-18	Deuterium	Chloride	Sulfate	Nitrate	Bromide	Alkalinity (total)	Dissolved Metals				
										Calcium	Magnesium	Potassium	Sodium	Boron
Monitoring Wells														
MW-34-100	08-Mar-06	10000	-11.4	-75.5 J	4720	1180	1.39	---	152	179	12.1	32.5	3580	2.41
	08-Mar-06 FD	10100	-10.1	-102 J	4920	1220	1.39	---	159	182	11.9	36.5	3530	2.46
	30-Apr-07	10600	-10.9	-80.7	5920	1040	1.38	---	123	186	12.0	31.5	3840	2.39
	30-Apr-07 FD	11900	-11.2	-82.1	5880	1050	1.37	---	123	189	12.0	32.1	3920	2.40
	03-Oct-07	10700	-10.2	-78.2	5350	970	1.19	ND (1.0)	120	170	11.0	44.0	4300	2.50
	03-Oct-07 FD	10500	-10.6	-78.4	5360	953	1.03	ND (1.0)	120	160	10.0	43.0	4300	2.40
	07-Oct-08	11000	-10.9	-80.8	5400	1200	ND (2.5)	ND (2.5)	140	158	10.6	54.5	2970 J	2.35
	07-Oct-08 FD	11000	-11	-81.3	5600	1200	ND (2.5)	ND (2.5)	140	184	11.5	56.7	3880 J	2.59
	30-Sep-09	---	---	---	5500	1300	ND (5.0)	---	170	200	11.0	73.0	3800	2.30
	08-Dec-10	10000	-9.8	-79.5	5800	1300	ND (2.5)	ND (2.5)	140 J	190	9.60	52.0 J	4100	2.60
	08-Dec-10 FD	9900	-10	-80.4	5700	1200	ND (1.0)	ND (1.0)	89.0 J	180	9.80	60.0 J	4000	2.50
	06-Dec-11	10000	-10.1	-79.2	5700	1300	ND (2.5)	ND (2.5)	120	170	7.60	43.0	4000	2.70
	06-Dec-11 FD	9400	-10	-79.5	5600	1200	ND (2.5)	ND (2.5)	120	160	7.40	43.0 J	3900	2.70
	26-Nov-12	11000	-10.1	-80.5	5900	1200	0.444 *	ND (2.5)	120	150	8.60	47.0	3100	2.60
	26-Nov-12 FD	11000	-10.2	-80.9	5900	1200	0.421 *	ND (2.5)	130	150	8.20	47.0	3200	2.60
Surface Water Stations														
R-27	07-Mar-05	669	-12.3	-102.0	92.7	244	ND (0.5)	ND (0.5)	136	82.8	31.3	4.72	108	ND (0.2)
	14-Jun-05	686	-11.4	-92.0	90.9	266	ND (0.5)	ND (0.5)	127	81.9	29.8	6.04	98.9	ND (0.2)
	05-Oct-05	678	-11.6	-94.0	85.1	255	ND (0.5)	ND (0.5)	130	101	36.2	6.56	91.2	ND (0.2)
	16-Dec-05	718	-11.7	-87.0	87.9	253	ND (0.5)	ND (0.5)	126	85.5	29.5	5.99	75.6	ND (0.2)
	06-Mar-06	656	-11.8	-92.1	90.6	268	ND (0.5)	ND (0.5)	144	83.5	29.4	5.44 J	101	ND (0.2)
	03-May-06	567	-12.8	-93.9	93.1	267	ND (0.5)	ND (0.5)	139	87.0	31.1	3.12 J	106	ND (0.2)
	04-Oct-06	752 J	-12.2	-94.9	91.5	261	ND (0.5)	ND (0.5)	128	82.9	31.5	6.24 J	98.1	ND (0.2)
	20-Dec-06	680	-12.7	-98.1	94.5	266	ND (0.5)	ND (0.5)	138	83.2	30.9	3.64	106	ND (0.2)
	13-Mar-07	750 J	-13	-99.5	96.5	267	0.537	ND (0.5)	130	86.9	31.3	4.73	106	ND (0.2)

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										Calcium	Magnesium	Potassium	Sodium	Boron
Surface Water Stations														
R-27	08-May-07	715 J	-12.9	-104.0	92.6	269	ND (0.5)	ND (0.5)	143	84.3	29.8	5.55	100	ND (0.2)
	11-Sep-07	650	-12.5	-101.0	89.4	253	0.336	ND (0.2)	132	74.2	28.9	5.47	86.5	ND (0.2)
	05-Dec-07	---	-11.7	-99.0	94.7	256	ND (1.0)	ND (0.2)	137	89.8	31.7	6.60	93.4	0.157
	02-Apr-08	---	---	---	93.0	267	ND (1.0)	ND (1.0)	136	80.2	30.7	5.50	106	0.432
	17-Jun-08	682	-13	-101.0	91.6	254	ND (1.0)	ND (1.0)	134	76.2	31.8	6.69	89.7	ND (0.2)
R-28	08-Mar-05	651	-12.5	-102.0	90.4	231	ND (13)	ND (0.5)	132	83.7	31.4	5.02	107	ND (0.2)
	14-Jun-05	680	-11.6	-95.0	91.2	268	ND (0.5)	ND (0.5)	127	78.5	28.5	5.08	94.5	ND (0.2)
	05-Oct-05	672	-11.6	-94.0	85.5	255	ND (0.5)	ND (0.5)	122	85.7	30.4	6.30	77.0	ND (0.2)
	16-Dec-05	710	-11.5	-83.0	88.1	254	ND (0.5)	ND (0.5)	126	87.2	29.8	6.11	76.8	ND (0.2)
	06-Mar-06	675	-12.3	-93.4	91.0	270	ND (0.5)	ND (0.5)	146	76.6	26.6	5.22 J	91.5	ND (0.2)
	03-May-06	586	-13	-92.1	93.4	270	ND (0.5)	ND (0.5)	136	88.1	31.4	4.04 J	107	ND (0.2)
	04-Oct-06	644 J	-12.6	-95.3	90.9	259	ND (0.5)	ND (0.5)	133	84.2	32.1	6.17 J	96.5	ND (0.2)
	20-Dec-06	615	-12.4	-99.6	93.3	262	ND (0.5)	ND (0.5)	143	85.7	32.0	4.66	108	ND (0.2)
	14-Mar-07	710	-12.8	-100.0	96.7	268	0.534	ND (0.5)	133	87.9	31.0	5.71	105	ND (0.2)
	09-May-07	690	-13	-102.0	95.8	271	ND (0.5)	ND (0.5)	143	86.1	30.5	5.92	103	ND (0.2)
	12-Sep-07	682	-12.4	-99.4	106	296	0.372	ND (0.2)	122	73.8	29.9	6.36	89.2	ND (0.2)
	06-Dec-07	---	-11.7	-98.6	96.5	258	0.345	ND (0.2)	139	75.7	30.4	6.62	79.4	ND (0.2)
	02-Apr-08	---	---	---	92.5	309	ND (1.0)	ND (1.0)	137	84.7	31.4	5.58	108	0.467
	18-Jun-08	672	-13.2	-102.0	89.4	248	ND (1.0)	ND (1.0)	132	43.3	31.1	6.95	93.9	ND (0.2)
	17-Sep-08	640	---	---	91.4	256	ND (0.5)	ND (0.5)	132	83.4	31.2	6.48	78.0	ND (0.2)
	04-Dec-08	649	-11.9	-97.0	97.4	260	ND (1.0)	ND (1.0)	135	81.7	30.0	5.95	114	0.262
	21-Jan-09	652	-12	-96.7	91.5	253	ND (0.5)	ND (0.5)	134	79.2	27.8	6.01	91.7	ND (0.2)
	09-Apr-09	643	-12.4	-97.8	92.7	250	ND (1.0)	ND (0.5)	138	79.6	28.8	5.44	97.0	ND (0.2)
	08-Jul-09	632	-12.8	-98.6	84.5	239	ND (0.5)	ND (0.5)	131	79.6	27.3	6.17	86.9	ND (0.2)
	09-Sep-09	640	-12.5	-99.1	86.0	236	ND (1.0)	ND (1.0)	131	74.8	26.2	6.01	78.7	ND (0.2)

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Location	Sample Date	Total Dissolved Solids	Oxygen-18	Deuterium	Chloride	Sulfate	Nitrate	Bromide	Alkalinity (total)	Dissolved Metals				
										Calcium	Magnesium	Potassium	Sodium	Boron
Surface Water Stations														
R-28	14-Dec-09	612	-13	-98.3	89.7	244	ND (1.0)	ND (1.0)	131	73.5	26.7	4.98	88.2	ND (0.2)
	21-Dec-10	602	-12.1	-102.0	91.0	223	ND (0.5)	ND (0.5)	133	69.1	24.8	4.75	87.8	ND (0.2)
	11-Jan-12	---	---	---	80.5	218	ND (0.5)	ND (0.5)	127	70.2	27.4	4.76	83.7	ND (0.2)
	01-Nov-12	499	-12.6	-102.0	75.4	212	ND (0.5)	ND (0.5)	132	71.3	27.5	4.12	79.3	ND (0.2)

Notes:

(---) = data not collected or available.
FD = field duplicate sample.
J = concentration or reporting limit estimated by laboratory or data validation.
ND =parameter not detected at the listed reporting limit.

General chemistry results in milligrams per liter (mg/L), except Oxygen-18 and Deuterium, which are expressed as differences from global standards in parts per thousand.

Alkalinity (total) reported as calcium carbonate. Nitrate reported as nitrogen (N).

[*] Nitrate as nitrogen was not requested. Nitrate/nitrite as nitrogen is shown.

[a] Data collected February 2011 due to field logistical issues.

Appendix G
Interim Measure Extraction System Operations Log, November 2012 through December 2012

APPENDIX G

Interim Measures Extraction System Operations Log, Fourth Quarter 2012, PG&E Topock Performance Monitoring Program

During fourth quarter 2012 (November and December), 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-2D ran for a short period on December 13, 2012, for the fourth quarter Groundwater Monitoring Program (GMP) sampling event. Extraction well TW-2S was not operated during fourth quarter 2012. The operational run time for the Interim Measures (IM) groundwater extraction system (combined or individual pumping) was approximately 98.3 percent during fourth quarter 2012.

The IM 3 (IM-3) facility treated approximately 11,535,683 gallons of extracted groundwater during fourth quarter 2012. The IM-3 facility also treated approximately 6,540 gallons of water generated from the GMP and 3,600 gallons of water from IM-3 well backwashing. Four containers of solids from the IM-3 facility were transported offsite during the reporting period.

Periods of planned and unplanned extraction system downtime (that together resulted in approximately 1.7 percent of downtime during fourth quarter 2012) are summarized below. Hours are shown in Pacific Standard Time to be consistent with other data collected (for example, water level data) at the site.

G.1 November 2012

- **November 3, 2012 (unplanned):** The extraction well system was offline from 5:20 p.m. to 5:30 p.m. due to a loss of power from Needles Power. Extraction system downtime was 10 minutes.
- **November 4, 2012 (unplanned):** The extraction well system was offline from 1:40 p.m. to 1:44 p.m. due to a loss of power from Needles Power. Extraction system downtime was 4 minutes.
- **November 7, 2012 (planned):** The extraction well system was offline from 8:06 a.m. to 8:30 a.m. and 8:36 a.m. to 8:40 a.m. due to testing of critical alarms and leak detection system. Extraction system downtime was 28 minutes.
- **November 14, 2012 (planned):** The extraction well system was offline from 8:26 a.m. to 4:06 p.m. and 4:46 p.m. to 5:06 p.m. due to scheduled plant maintenance activities. Extraction system downtime was 8 hours.
- **November 27, 2012 (unplanned):** The extraction well system was offline from 6:24 a.m. to 7:10 a.m. and 7:24 a.m. to 7:30 a.m. due to a loss of power from Needles Power. Extraction system downtime was 52 minutes.

G.2 December 2012

- **December 2, 2012 (unplanned):** The extraction well system was offline from 7:04 a.m. to 7:54 a.m. due to the need to clean a buildup of solids in the pipe between Iron Oxidation Tank T-301A and the next iron oxidation tank in series. Extraction system downtime was 50 minutes.
- **December 5, 2012 (planned):** The extraction well system was offline from 10:26 a.m. to 10:28 a.m., 10:32 a.m. to 10:34 a.m., 10:58 a.m. to 11:42 a.m., and 12:10 a.m. to 12:12 a.m. due to testing of critical alarms and leak detection system. Extraction system downtime was 50 minutes.

- **December 8, 2012 (unplanned):** The extraction well system was offline from 10:44 p.m. to 11:10 p.m. due to solids buildup on the flow switch located in the chemical injection loop. Extraction system downtime was 26 minutes.
- **December 12, 2012 (unplanned):** The extraction well system was offline from 9:46 a.m. to 2:36 p.m. for clarifier feed pump, P-400, maintenance. Extraction system downtime was 4 hours, 50 minutes.
- **December 12, 2012 (unplanned):** The extraction well system was offline from 10:32 p.m. to 10:36 p.m. due to a loss of power from Needles Power. Extraction system downtime was 4 minutes.
- **December 13, 2012 (unplanned):** The extraction well system was offline from 11:08 a.m. to 11:10 a.m. due to a loss of power from Needles Power. Extraction system downtime was 2 minutes.
- **December 19, 2012 (unplanned):** The extraction well system was offline from 6:32 p.m. to 6:46 p.m. due to a loss of power from Needles Power. Extraction system downtime was 14 minutes.
- **December 20, 2012 (unplanned):** The extraction well system was offline from 5:54 a.m. to 6:24 a.m. and 10:00 a.m. to 10:26 a.m. due to maintenance on the reverse osmosis system. Extraction system downtime was 56 minutes.
- **December 20, 2012 (unplanned):** The extraction well system was offline from 7:10 p.m. to 7:12 p.m. due to a loss of power from Needles Power. Extraction system downtime was 2 minutes.
- **December 23, 2012 (unplanned):** The extraction well system was offline from 10:48 a.m. to 12:10 p.m. due to reduced clarifier feed pump, P-400, performance. Extraction system downtime was 1 hour, 22 minutes.
- **December 26, 2012 (unplanned):** The extraction well system was offline from 9:44 a.m. to 10:24 a.m. to replace clarifier feed pump, P-400, with a new pump in kind. Extraction system downtime was 40 minutes.
- **December 28, 2012 (unplanned):** The extraction well system was offline from 6:26 a.m. to 6:38 a.m. and 6:56 a.m. to 11:04 a.m. due to reduced chemical mixing loop pump performance. Extraction system downtime was 4 hours, 20 minutes.

Appendix H
First Quarter 2013
Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report

Draft Report

First Quarter 2013 Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,

PG&E Topock Compressor Station, Needles, California

Document ID: PGE20130515A

Prepared for

California Department of Toxic Substances Control

on behalf of

Pacific Gas and Electric Company

May 15, 2013

CH2MHILL®

155 Grand Avenue Suite 800
Oakland, CA 94612

First Quarter 2013 Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,

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May 15, 2013

This report was prepared under the supervision of a
California Professional Geologist.

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Acronyms and Abbreviations

µg/L	micrograms per liter
ARAR	applicable, relevant, and appropriate requirements
BOR	United States Bureau of Reclamation
COPC	chemical of potential concern
Cr(VI)	hexavalent chromium
DTSC	California Environmental Protection Agency, Department of Toxic Substances Control
ft/ft	feet per foot
GMP	Groundwater Monitoring Program
gpm	gallons per minute
IM	Interim Measure
IM-3	Interim Measure No. 3
IMCP	Interim Measures Contingency Plan
IM-3	Interim Measure Number 3
PG&E	Pacific Gas and Electric Company
PMP	Performance Monitoring Program
RCRA	Resource Conservation and Recovery Act
RMP	Surface Water Monitoring Program
TDS	total dissolved solids
USEPA	U.S. Environmental Protection Agency

SECTION 1

Introduction

Pacific Gas and Electric Company (PG&E) is implementing Interim Measures (IMs) to address chromium concentrations in groundwater at the Topock Compressor Station near Needles, California. The Topock Compressor Station is located in eastern San Bernardino County, 15 miles southeast of the city of Needles, California, as shown on Figure 1-1 (figures are located at the end of this report). This report presents the monitoring data from the following three key PG&E monitoring programs:

- Site-wide Groundwater Monitoring Program (GMP) (see Figure 1-2).
- Site-wide Surface Water Monitoring Program (RMP) (see Figure 1-3).
- Interim Measure Number 3 (IM-3) Performance Monitoring Program (PMP) (data and evaluations) (see Figure 1-4).

This report presents the monitoring data from PG&E's GMP, RMP, and PMP collected from July 1, 2012, through October 31, 2012 (hereafter referred to as the reporting period). The data collected as part of the GMP and RMP are presented in Section 3.0. The data collected as part of the PMP are presented in Section 4.0. This combined PMP and GMP (including RMP) reporting format was approved by the California Environmental Protection Agency, Department of Toxic Substances Control (DTSC) in May 2009 (DTSC, 2009). On July 23, 2010, DTSC approved a new sampling event timing and reporting schedule for the PMP, GMP, and RMP programs (DTSC, 2010a). Table 1-1 shows the current reporting schedule (tables are located at the end of this report).

SECTION 2

First Quarter 2013 Monitoring Activities

Exhibit 2-1 summarizes the monitoring and sampling activities completed during the reporting period.

Exhibit 2-1

First Quarter 2013 Monitoring Activities

First Quarter 2013 Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California

Program	Date Event Occurred	Description
GMP	Monthly at PE-1 and TW-3D: January, February, March Quarterly: Conducted from February 1 through March 15, 2013.	Sampled monthly for Cr6, Cr, and TDS. Selected wells sampled for Cr(VI), chromium, COPCs (molybdenum, nitrate, and selenium), in situ byproducts (manganese, iron, and arsenic), California Code of Regulations Title 22, and/or Arsenic.
RMP	March 5-6, 2013	Samples were analyzed for Cr(VI), chromium, specific conductance, and pH. Samples were also analyzed for COPCs (molybdenum, nitrate, and selenium), in situ byproducts (manganese, iron, and arsenic), and geochemical indicator parameters to develop baseline concentrations for future remedy performance evaluation.
PMP	Monthly: January, February, March	PMP pressure transducers are downloaded in the first week of every month (January, February, and March). The transducers in the key monitoring wells (MW-27-085, MW-31-125, MW-33-150, MW-34-100, and MW-45-095a; see Figure 1-4) and those wells at the MW-33 cluster are downloaded daily via a cellular telemetry system.

Notes:
COPC = contaminant of potential concern
TDS = total dissolved solids

SECTION 3

Results for Site-wide Groundwater Monitoring and Surface Water Sampling

3.1 Groundwater Results for Cr(VI) and Chromium

Table 3-1 presents the results for Cr(VI), chromium, field oxidation-reduction potential, laboratory specific conductance, and field pH in groundwater samples collected from the reporting period. During First Quarter 2013, the maximum detected Cr(VI) concentration was 16,400 micrograms per liter (µg/L) at well MW-68-180. The laboratory reports for results from First Quarter 2013 are presented in Appendix A.

Figures 3-1a through 3-1c present the Cr(VI) results for wells monitoring the shallow (upper depth interval), mid-depth (middle depth interval), and deep (lower depth interval) wells of the Alluvial Aquifer and bedrock, respectively, from First Quarter 2013. Figures 3-1a through 3-1c also show the approximate outlines of Cr(VI) concentration contours greater than 32 µg/L for the Alluvial Aquifer and bedrock based on results from groundwater sampling events conducted in First Quarter 2013. 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, 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 East Ravine bedrock wells are generally similar to the previous quarterly monitoring events (CH2M HILL, 2009c-e, 2010a-c, 2011a-d, and 2012a-c).

3.2 Other Groundwater Monitoring Results

Appendix D, Table D-1 presents the results for Groundwater COPCs and In Situ Byproducts Sampling Results for First Quarter 2013. Table D-2 presents results for California Code of Regulations Title 22 metal for select wells for First Quarter 2013.

3.3 Surface Water Sampling Results

Table 3-2 presents results of Cr(VI), chromium, specific conductance, and lab pH from the surface water sampling event conducted during this reporting period. Cr(VI) was not detected above the reporting limit at any in-channel, shoreline, or other surface water monitoring locations.

Table D-3 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. Nitrate and selenium results were below laboratory reporting limits, while low arsenic (less than 3 µg/L) concentrations were detected at most sample locations. Dissolved iron and manganese results were also generally very low and near laboratory reporting limits, with the exception of the samples collected at C-MAR-S and C-MAR-D samples, where moderate values were reported.

3.4 Data Validation and Completeness

Laboratory analytical data from First Quarter 2013 GMP sampling events were reviewed by project chemists to assess data quality and to identify deviations from analytical requirements.

The following bullets summarize the notable analytical qualifications in the data reported this quarter:

- Ten U.S. Environmental Protection Agency (USEPA) method 218.6 (Cr(VI)) results exhibited a matrix interference issue that required a dilution to achieve satisfactory matrix spike recovery; this resulted in an elevated reporting limit for these samples. The sample results were qualified, but no flags were added.

- Based on the March 2007 USEPA ruling, pH has a 15-minute holding time. As a result, method SM4500-HB (pH) samples analyzed in a certified lab require qualification; therefore, all of the pH results for the River Monitoring Program samples were qualified as estimated and flagged “J.”
- Two samples had fluoride (USEPA 300.0) results that were recovered slightly outside the retention time window; the detect results were qualified as estimated and flagged “J.”

No other significant analytical deficiencies were identified in First Quarter 2013 data. Additional details are provided in the data validation reports, which are kept in the project file and are available upon request.

SECTION 4

Interim Measures Performance Monitoring Program Evaluation

4.1 Cr(VI) Distribution and Trends in Performance Monitoring Program Wells

The First Quarter 2013 distribution of Cr(VI) in the upper (shallow wells), middle (mid-depth wells), and lower (deep wells) intervals of the Alluvial Aquifer is shown in plan view and cross-section on Figure 4-1[1]. The Cr(VI) concentration contours shown for the Alluvial Aquifer on these figures are based on results for groundwater samples collected in First Quarter 2013.

Appendix C includes Cr(VI) concentration trend graphs for selected monitoring well clusters through March 2013

4.2 Performance Monitoring Program Contingency Plan Cr(VI) Monitoring

The Topock Interim Measures Contingency Plan (IMCP) was developed to detect and control any possible migration of the Cr(VI) plume toward the Colorado River. Currently, the IMCP consists of 24 wells (CH2M HILL, 2005, 2006; PG&E, 2007, 2008). Appendix C includes Cr(VI) concentration trend graphs for the IMCP wells. The IMCP well Cr(VI) results in First Quarter 2013 were all below their assigned trigger levels.

4.3 Extraction Systems Operations

Pumping data for the IM-3 groundwater extraction system for the reporting period of January 1 through March 31, 2013, are presented in Table 4-1. From January 1 through March 31, 2013, the volume of groundwater extracted and treated by the IM-3 system was 22,624,712 gallons; this resulted in the removal of an estimated 142.6 pounds (64.7 kilograms) of chromium from the aquifer during the period from January 1 through March 31, 2013[2].

During First Quarter 2013, extraction wells TW-3D and PE-1 operated at a combined pumping rate of 127.8 gallons per minute (gpm), including periods of planned and unplanned downtime. The average monthly pumping rates during the reporting period were 133.4 gpm (January 2013), 114.2 gpm (February 2013), and 131.4 gpm (March 2013). Extraction wells TW-2S and TW-2D were not operated during First Quarter 2013. The operational run-time percentage for the IM extraction system was 95.4 percent during this reporting period. The operations log for the extraction system during First Quarter 2013, including planned and unplanned down time, is included in Appendix D.

The concentrate (i.e., saline water) from the reverse osmosis system was shipped offsite as a non-hazardous waste and was transported to Liquid Environmental Solutions in Phoenix, Arizona, for treatment and disposal. Eleven containers of solids from the IM-3 facility were disposed of at the U.S. Ecology Chemical Waste Management facility in Beatty, Nevada, during First Quarter 2013. Daily IM-3 inspections included general facility inspections, flow measurements, and site security monitoring. Daily logs with documentation of inspections are maintained onsite.

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[1] In 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 in Figures 4-1 and 4-2 are shown in accordance with DTSC's 2005 IM directive and are not based on the background Cr(VI) concentration for groundwater.

[2] Chromium removed this reporting period includes the period of January 1 through March 31, 2013. On XX, 2013, DTSC approved a revised reporting schedule for this report that included a revised IM-3 sample collection period from January 1 through March 31, 2013.

During the reporting period, Cr(VI) concentrations in TW-3D remained stable, ranging from a maximum value of 1,000 μg/L in October 2012 to a minimum value of 788 μg/L in September 2012, as shown in Table 3-1. TDS trends will be discussed in the next annual report.

The Cr(VI) concentrations in the extracted groundwater at well PE-1, located on the floodplain, ranged from to 6.2 to 6.8 μg/L during the reporting period, as shown in Table 3-1. TDS trends will be discussed in the next annual report.

4.4 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 E-1. 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 E. The elevation of the Colorado River measured at the I-3 gauge station (location shown on Figure 1-4) is also shown on the hydrographs in Appendix E.

Average First Quarter 2013 groundwater elevations for the deep wells are presented and contoured in plan view on Figure 4-2. Average 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.

The quarterly average groundwater elevations for wells MW-55-120, MW-54-85, MW-54-140, and MW-54-195 are presented on Figure 4-2 and used for contouring, where appropriate. With the exception of well MW-55-45, all of the wells in the MW-54 and MW-55 clusters are screened in the deep interval of the Alluvial Aquifer. Well MW-55-45 is screened over the boundary between the shallow and middle intervals.

Deep zone water levels shown on Figure 4-2 indicate that potentiometric levels in monitoring wells in Arizona are higher than those in wells across the river on the California floodplain. This means that the hydraulic gradient on the Arizona side of the river is directed to the west and, as a result, groundwater flow would also be toward the west in that area. This is consistent with the site conceptual model and with the current numerical groundwater flow model (CH2M HILL, 2009a, 2009f).

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 4-2 presents the average monthly hydraulic gradients that were measured between the gradient well pairs in First Quarter 2013. Strong landward gradients were measured each month. The overall average gradients for all well pairs ranged from 0.0032 to 0.0051 feet per foot (ft/ft). This is 3.2 to 5.1 times greater than the required gradient of 0.001 ft/ft. The gradient for the northern well pair ranged from 1.7 to 2.3 times the target gradient of 0.001 ft/ft. For the central well pair, the average landward gradient ranged from 5.8 to 9.4 times the target gradient. The southern well pair gradients averaged 2.2 to 3.7 times the target gradient for the reporting period.

4.5 Projected River Levels during Next Quarter

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 (BOR). Total releases from Davis Dam follow a predictable annual cycle, with largest monthly releases typically in spring and early summer and smallest monthly releases in late fall/ winter (November and December). Superimposed on this annual cycle is a diurnal cycle determined primarily by daily fluctuations in electric power demand. Releases within a given 24-hour period often fluctuate over a wider range of flows than that of monthly average flows over an entire year.

Current BOR projections, presented in Table 4-3, show that the average projected Davis Dam release for April 2013 (8,500 cubic feet per second) will be less than the actual release in March 2013 (9,037 cubic feet per second). Based on April 2013 BOR predictions, it is anticipated that the Colorado River level at the I-3 gage location in April 2013 will be approximately 6.25 feet lower compared to the actual levels in October 2012. Current projections show that the water levels will decrease during the next quarterly reporting period (November through December 2012), as shown on Figure 4-7.

4.6 Quarterly Performance Monitoring Program Evaluation Summary

The groundwater elevation and hydraulic gradient data from July 2012 through October 2012 performance monitoring indicate that the minimum landward gradient target of 0.001 ft/ft was exceeded each month during the quarterly reporting period. The overall average landward gradients during First Quarter 2013 were 3.2 to 5.1 times the required minimum magnitude. The current gradient well pairs are adequate to define the capture of the Cr(VI) plume while pumping from extraction wells TW-3D and PE-1. Based on the hydraulic and monitoring data and evaluation presented in this report, the IM performance standard has been met for the First Quarter 2013 reporting period.

A total of 22,624,712 gallons of groundwater were extracted between July and October 2012 by the IM-3 treatment facility. The average pumping rate for the IM extraction system during First Quarter 2013, including system down time, was 127.8 gpm. An estimated 142.6 pounds (64.7 kilograms) of chromium were removed and treated between June 1 and September 30, 2012.

A review of the groundwater gradient maps for First Quarter 2013 (Figures 4-4a to 4-4c) shows that floodplain PMP monitoring wells where Cr(VI) was detected at greater than 20 µg/L are within the IM capture zone of the pumping well(s) during the reporting period; that is, the inferred groundwater flow lines from floodplain PMP wells with Cr(VI) greater than 20 µg/L are generally oriented toward the TW-3D and PE-1 extraction wells.

Presentation and evaluation of the Cr(VI) trends observed in the performance monitoring area during First Quarter 2013 are discussed in Section 4.2. Wells showing marked decreases in concentration are generally in the floodplain area where IM pumping is removing chromium in groundwater. Wells with detections near or at reporting limits remained at these levels during First Quarter 2013.

SECTION 5

Upcoming Operation and Monitoring Events

Reporting of the IM extraction and monitoring activities will continue as described in the PMP and under direction from DTSC. All monitoring results, operations, and performance monitoring data will be reported in the Second Quarter 2013 monitoring report, which will be submitted by XX, 2013.

Exhibit 5-1

Upcoming 2013 Monitoring Activities

First Quarter 2013 Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California

Program	Date Event Scheduled to Occur	Notes
GMP	Monthly at PE-1 and TW-3D: April, May, June	Will be reported in Second Quarter 2013 monitoring report.
	Quarterly: April XX to May XX, 2013	Will be reported in Second Quarter 2013 monitoring report.
RMP	XX to XX, 2013	Will be reported in Second Quarter 2013 monitoring report.
PMP	Monthly: April, May, June	Per DTSC direction, PG&E will continue to operate wells TW-3D and PE-1 at a target combined pumping rate of 135 gpm during Second Quarter 2013, except for periods when planned and unplanned down time occurs. Extracted groundwater treated at the IM-3 facility will be discharged into the IM-3 injection wells in accordance with compliance requirements of the waste discharge ARARs. 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.

Note:
ARAR = applicable, relevant, and appropriate requirements

SECTION 6

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Tables

Figures

Appendix A
Lab Reports, First Quarter 2013
(Provided on CD-ROM with hardcopy submittal)

Appendix B
Other Groundwater Monitoring Results

Appendix C
Groundwater Monitoring Data for GMP and Interim Measures Monitoring Wells

Appendix D
Interim Measures Extraction System Operations Log, First Quarter 2013

Appendix E
Hydraulic Data for Interim Measures Reporting Period