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November 30, 2012

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

Subject: *Third Quarter 2012 Interim Measures Performance and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California* (Document ID: PGE20121130A)

Dear Mr. Yue:

Enclosed is the *Third Quarter 2012 Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California* for Pacific Gas and Electric Company's interim measures performance monitoring program, the groundwater monitoring program, and surface water monitoring program for the Topock project. This report presents Third Quarter 2012 (July 2012 through October 2012) performance monitoring results for the Interim Measures (IM) hydraulic containment system and summarizes the operations and performance evaluation for the reporting period. This report also presents groundwater and surface water monitoring activities, results, and analyses related to the groundwater and surface water monitoring programs during Third Quarter 2012.

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 (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

Third Quarter 2012 Interim Measures Performance and Site-wide Groundwater and Surface Water Monitoring Report

cc: Chris Guerre/DTSC
Karen Baker/DTSC
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Susan Young/CA-SLC
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Topock Project Executive Abstract

Document Title: Third Quarter 2012 Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California

Submitting Agency: DTSC

Final Document? ☒ Yes ☐ No

Date of Document: 11/30/2012

Who Created this Document?: (i.e. PG&E, DTSC, DOI, Other)

PG&E

Priority Status: ☐ HIGH ☐ MED ☒ LOW
Is this time critical? ☐ Yes ☒ No

Type of Document:
☐ Draft ☒ Report ☐ Letter ☐ Memo
☐ Other/Explain:

Action Required:
☒ Information Only ☐ Review & Comment
Return to: _____
By Date: _____
☐ Other/Explain:

What does this information pertain to?
☐ Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA)/Preliminary Assessment (PA)
☐ RCRA Facility Investigation (RFI)/Remedial Investigation (RI) (including Risk Assessment)
☐ Corrective Measures Study (CMS)/Feasibility Study (FS)
☐ Corrective Measures Implementation (CMI)/Remedial Action
☐ California Environmental Quality Act (CEQA)/Environmental Impact Report (EIR)
☒ Interim Measures
☐ Other/Explain:

Is this a Regulatory Requirement?
☒ Yes
☐ No
If no, why is the document needed?

What is the consequence of NOT doing this item? What is the consequence of DOING this item?
Report is required to be in compliance with DTSC requirements.

Other Justification/s:
☐ Permit ☐ Other / Explain:

Brief Summary of attached document:

This quarterly report documents the monitoring activities and performance evaluation of the Interim Measure (IM) hydraulic containment system under the IM Performance Monitoring Program, the Groundwater Monitoring Program, and 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 towards the pumping centers onsite; (2) hexavalent chromium data for monitoring wells; (3) pumping rates and volumes from the IM extraction system; and (4) Groundwater Monitoring Program and Surface Water Monitoring Program activities and results.

Based on the data and evaluation presented in this report, the IM performance standard has been met for Third Quarter 2012, which includes the months of July, August, September, and October 2012. The average pumping rate for the IM extraction system during Third Quarter 2012 was 127.8 gallons per minute. Through the September 2012 end of the IM3 reporting quarter, the interim measures have removed over 509,497,600 gallons of contaminated groundwater and 7,280 pounds of chromium from the floodplain at the Topock site.

Written by: Pacific Gas and Electric Company

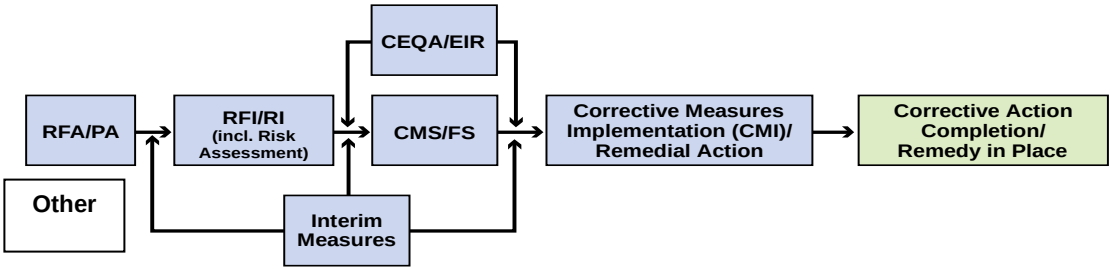
Recommendations:
This report is for information only.

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

Other requirements of this information?
None.

Related Reports and Documents:

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



Legend

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

Version 9

Final Report

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

PG&E Topock Compressor Station, Needles, California

Document ID: PGE20121130A

Prepared for
California Environmental Protection Agency
Department of Toxic Substances Control

on behalf of
Pacific Gas and Electric Company

November 30, 2012

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

Interim Measures Performance Monitoring Program and Groundwater Monitoring Program, PG&E Topock Compressor Station, Needles, California

Prepared for

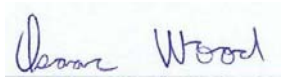
California Environmental Protection Agency, Department of Toxic Substances Control

On behalf of

Pacific Gas and Electric Company

November 30, 2012

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



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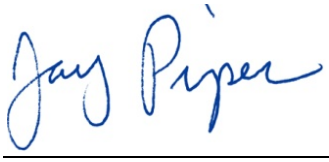

Jay Piper
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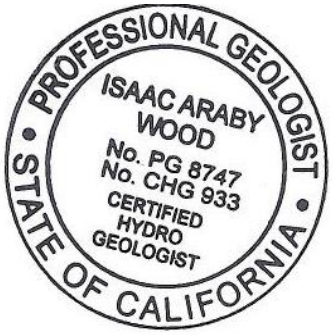

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Acronyms and Abbreviations

µg/L	micrograms per liter
BOR	United States Bureau of Reclamation
CA MCL	California maximum contaminant level
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
IMCP	interim measures contingency plan
IM-3	Interim Measure Number 3
mg/L	milligrams per liter
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	United States Environmental Protection Agency

SECTION 1

Introduction

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

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

This report presents the monitoring data from PG&E's GMP, RMP, and PMP collected from July 1, 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. The data collected as part of the PMP are presented in Section 4. This combined PMP and GMP (including RMP) reporting format was approved by the California Environmental Protection Agency, Department of Toxic Substances Control (DTSC) in May 2009 (DTSC, 2009). On July 23, 2010, DTSC approved a new sampling event timing and reporting schedule for the PMP, GMP, and RMP programs (DTSC, 2010a). Table 1-1 shows the current reporting schedule.

1.1 Site-wide Groundwater and Surface Water Monitoring Program

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

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

Background (including well construction details) and descriptions of the current groundwater and surface water sampling, analyses, and monitoring programs are discussed in PG&E's *Fourth Quarter 2011 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California*, dated March 15, 2012 (CH2M HILL, 2012a).

In compliance with the requirements for groundwater and surface water monitoring program directive of April 2005 (DTSC, 2005a), this document presents the Third Quarter 2012 GMP and RMP report for the IM monitoring activities from July 1, 2012 through October 31, 2012.

1.1.1 GMP and RMP Monitoring Networks

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

- One hundred fifteen monitoring wells in California (including bedrock wells equipped with packers and newly installed East Ravine/Topock Compressor Station Wells; excluding two dry wells and five wells currently sampled by ARCADIS under the pilot test program).
- Eight monitoring wells in Arizona.
- Two water supply wells.
- Two active extraction wells.
- Five test wells.

Sampling frequencies for the GMP wells were updated beginning in First Quarter 2010 following the DTSC directive dated March 3, 2010 (DTSC, 2010b). 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 (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:

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

1.2 Interim Measure Performance Monitoring Program

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

The Topock project IM consists of groundwater extraction for hydraulic control of the plume boundaries in the Colorado River floodplain and management of extracted groundwater. The groundwater extraction, treatment, and injection systems are collectively referred to as IM-3. The IM only monitors the Alluvial Aquifer. Currently, the IM-3 facilities include a groundwater extraction system (four extraction wells: TW-2D, TW-3D, TW-2S, and PE-1), conveyance piping, a groundwater treatment plant, and an injection well field for the discharge of the treated groundwater. At this time, extraction wells PE-1 and TW-3D operate full time. Figure 1-1 shows the 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, 2005b). A draft *Performance Monitoring Plan for Interim Measures in the Floodplain Area, Pacific Gas and Electric Company, Topock Compressor Station, Needles, California* (CH2M HILL, 2005) was submitted to DTSC on April 15, 2005 (herein referred to as the Performance Monitoring Plan).

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

1.2.1 PMP Monitoring Networks

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

- **Floodplain Wells** (monitoring wells on the Colorado River floodplain).
- **Intermediate Wells** (monitoring wells located immediately north, west, and southwest of the floodplain).
- **Interior Wells** (monitoring wells located upgradient of IM pumping).
- **Extraction Wells** (TW-2D, TW-3D, TW-2S, and PE-01).

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

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

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

SECTION 2

Third Quarter 2012 Monitoring Activities

This section provides a summary of the monitoring and sampling activities completed during the reporting period.

2.1 Groundwater Monitoring Program

2.1.1 Monthly

Cr(VI) and chromium samples were collected from the active IM extraction wells (PE-1 and TW-3D) in July, August, September, and October 2012.

2.1.2 Quarterly

Following the July 23, 2010 sampling schedule approval (DTSC, 2010a), the Third Quarter 2012 GMP quarterly groundwater monitoring event was conducted from September 10 through October 10, 2012. Select field parameters recorded during well purging included oxidation-reduction potential and pH. Groundwater samples were analyzed for Cr(VI), chromium, and specific conductance.

Groundwater samples were submitted for laboratory analysis of the following constituents (in addition to Cr(VI)) at selected GMP wells during the Third Quarter 2012 sampling event, including:

- California Code of Regulations Title 22 metals, which includes arsenic, at MW-12.
- Samples were also analyzed from a subset of wells for chemicals of potential concern (COPCs), including molybdenum, nitrate as nitrogen (referred to as nitrate hereafter), selenium, potential in situ byproducts (manganese and arsenic), and other analytes. In an email dated March 3, 2010, DTSC directed monitoring of these COPCs, potential in situ byproducts, and other analytes (DTSC, 2010d, 2011).
- Arsenic at 28 GMP wells screened in alluvial and fluvial sediments and 18 bedrock monitoring wells.

2.2 Surface Water Monitoring Program

Quarterly surface water sampling was conducted August 21 through August 22, 2012 from the complete RMP monitoring network. Samples were analyzed for Cr(VI), chromium, specific conductance, and pH. Samples were also analyzed for COPCs (molybdenum, nitrate, and selenium), in situ byproducts (manganese, iron, and arsenic), and geochemical indicator parameters to develop baseline concentrations for future remedy performance evaluation.

2.3 Performance Monitoring Program

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

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 Third Quarter 2012, the maximum detected Cr(VI) concentration was 16,400 µg/L at well MW-68-180. The laboratory reports for results from Third Quarter 2012 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 Third Quarter 2012. 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 Third Quarter 2012. The value of 32 µg/L is based on the calculated natural background upper tolerance limit for Cr(VI) in groundwater from the background study (CH2M HILL, 2008, 2009a).

The areas where Cr(VI) concentrations are greater than 32 µg/L in the shallow, mid-depth, and deep intervals of the Alluvial Aquifer and 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

3.2.1 COPCs, In Situ Byproducts, and Other Analytes

Table 3-2 presents the COPCs, in situ byproducts , and other analytes results for groundwater monitoring wells sampled in Third Quarter 2012. The wells where maximum concentrations of these analytes were reported are summarized below:

- MW-33-40 with a molybdenum concentration of 250 µg/L
- MW-66-165 with a nitrate concentration of 30.0 milligrams per liter (mg/L)
- MW-67-185 with a selenium concentration of 86.0 µg/L
- MW-42-65 with a manganese concentration of 1,000 µg/L
- MW-12 with an arsenic concentration of 42.4 (arsenic results are discussed in Section 3.2.3)
- MW-33-40 with a fluoride concentration of 12.0 J mg/L

3.2.2 Title 22 Metals

Table 3-3 presents the Title 22 metals results for the GMP monitoring well MW-12 sampled during Third Quarter 2012. The trace metals detected in MW-12, in addition to chromium, were antimony, arsenic, barium, molybdenum, selenium, and vanadium. The dissolved concentrations of the trace metals—other than chromium, arsenic, and antimony—are below the respective California maximum contaminant level (CA MCL) drinking water standards.

3.2.3 Arsenic Sampling in Monitoring Wells

Twenty-seven Alluvial Aquifer wells were sampled for arsenic in the Third Quarter 2012 event. These results are presented in Table B-1 in Appendix B. Four of these monitoring well samples had arsenic concentrations greater than the CA MCL of 10 µg/L (MW-12, MW-33-40, MW-42-55, and MW-67-260). The maximum concentration (42.4 µg/L) was reported at MW-12. The arsenic concentrations are within the previously observed ranges for each well.

Twenty-one bedrock wells were sampled for arsenic in the Third Quarter 2012 event. These results are presented in Table B-1 in Appendix B. Two bedrock monitoring wells samples had an arsenic concentration greater than the CA MCL of 10 µg/L (MW-57-185 at 14.0 µg/L, and MW-72-80 at 11.0 µg/L).

3.3 Surface Water Sampling Results

Table 3-4 presents results of Cr(VI), chromium, specific conductance, and lab pH from the surface water sampling event conducted during this reporting period. Cr(VI) was not detected above the reporting limit at any in-channel, shoreline, or other surface water monitoring locations.

Table 3-5 presents results for the COPCs (molybdenum, nitrate, and selenium), in situ byproducts (manganese, iron, and arsenic), and other geochemical indicator parameters for surface water samples. 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, where moderate values were reported. The C-MAR-S and C-MAR-D sample locations are in the inlet to the Topock marsh area where naturally reducing geochemical conditions are present. Elevated iron and manganese concentrations are typical of reduced geochemical environments. These compounds may also be elevated due to colloids that pass through the filters. Water discharging from the marsh is more turbid than water in the river and therefore may results in more colloid breakthrough.

3.4 Data Validation and Completeness

Laboratory analytical data from the Third 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 notable analytical qualifications in the data reported this quarter:

- Ten USEPA Method 218.6 (hexavalent chromium) 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 the Third Quarter 2012 data. Additional details are provided in the data validation reports, which are kept in the project file and are available upon request.

SECTION 4

IM Performance Monitoring Program Evaluation

4.1 Water Quality Results for PMP Floodplain Wells

Table C-1 in Appendix C presents the results of the general chemistry and stable isotope analyses for 15 PMP monitoring wells and two river stations during sampling events from March 2005 through October 2012. In July 2008, DTSC approved modifications to the PMP IM chemical performance monitoring program (DTSC, 2008b). With those modifications, there are now 10 monitoring wells and one river station sampled for IM chemical performance monitoring. These wells are sampled annually during the fourth quarter sampling events. Figure 1-4 shows the locations of the monitoring wells sampled for the performance monitoring parameters. Water samples from the selected performance monitoring locations are analyzed for general chemistry parameters, including total dissolved solids (TDS), chloride, sulfate, nitrate, bromide, calcium, potassium, magnesium, sodium, boron, alkalinity, deuterium, and oxygen-18 to monitor the effects of IM pumping on groundwater chemistry.

4.2 Cr(VI) Distribution and Trends in PMP Wells

The Third 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 Third 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. The Cr(VI) concentration contours shown for the Alluvial Aquifer on these figures are based on results for groundwater samples collected in Third Quarter 2012.

Figure 4-3 presents Cr(VI) concentration trend graphs for selected deep monitoring wells in the floodplain area through October 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 October 2012.

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 Third Quarter 2012. A review of Figure 4-3 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) and chromium trends for PMP groundwater monitoring wells (see Figure 1-4) sampled during Third Quarter 2012 include:

- Cr(VI) concentrations at MW-34-100 have been variable, but generally declining, since June 2006, as shown on Figure 4-3 and Figure C-6 in Appendix C. In addition to this primary overall downward trend in Cr(VI) concentration, MW-34-100 also shows a secondary seasonal effect in concentration related to high (spring/summer) and low (winter) Colorado River levels. The transitions between high and low river stages are believed to result in relatively small changes in the direction of the flow paths around MW-34-100 (both horizontally and/or vertically). Such changes in flowpaths could result in seasonal variations in the concentrations observed in MW-34-100 as groundwater is pulled from areas of higher concentrations and/or lower oxidation-reduction potential.

[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.

- The secondary trend of seasonal fluctuation in Cr(VI) is also seen in other monitoring wells; specifically, a stable Cr(VI) seasonal trend is seen at MW-35-60 (Figure C-6 in Appendix C) and MW-46-175 (Figure 4-3 and Appendix C, Figure C-11). River levels are discussed in Section 4.6.
- Cr(VI) concentrations at MW-44-115 have shown a steady declining trend since the well was constructed in 2006 (Figure 4-3 and Appendix C, Figure C-10).

4.3 PMP 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 Third Quarter 2012 were all below their trigger levels.

4.4 Extraction Systems Operations

Pumping data for the IM-3 groundwater extraction system for the reporting period of July 1 through October 31, 2012 are presented in Table 4-1. From July 1 through October 31, 2012, the volume of groundwater extracted and treated by the IM-3 system was 22,624,712 gallons. This resulted in removal of an estimated 143 pounds (64.7 kilograms) of chromium from the aquifer during the period from June 1, 2012 through September 30, 2012.[2] To date, the interim measures have removed over 509,497,600 gallons of contaminated groundwater and 7,280 pounds of chromium from the floodplain at the Topock site through September 2012.

During Third Quarter 2012, 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 (July 2012), 114.2 gpm (August 2012), 131.4 gpm (September 2012) and 132.1 gpm (October 2012). Extraction wells TW-2S and TW-2D were not operated during Third Quarter 2012. 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 Third Quarter 2012, including planned and unplanned down time, is included in Appendix D.

The concentrate (that is, saline water) from the reverse osmosis system was shipped offsite as a RCRA nonhazardous 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 Kettleman Hills Chemical Waste Management facility during Third 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.

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 4-2. TDS concentrations in TW-3D for this reporting period have also remained stable, as shown in Table 4-2.

The Cr(VI) concentrations in the extracted groundwater at well PE-1 on the floodplain ranged from to 6.2 to 6.8 μg/L during the reporting period, as shown in Table 4-2. TDS concentrations in PE-1 for this reporting period have also remained relatively stable.

[2] Chromium removed this reporting period includes the period of June 1 through September 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 June 1 through September 30, 2012.

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 over 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 in Appendix E. 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 Third Quarter 2012 groundwater elevations for the shallow, mid-depth, and deep wells are presented and contoured in plan view on Figures 4-4a through 4-4c. Average groundwater elevations for wells on floodplain cross-section A are presented and contoured on Figure 4-5. Several monitoring wells are significantly deeper than other wells in the lower depth interval. Due to vertical gradients present at the Topock site, water levels in deeper wells tend to be higher than water levels in shallower wells.

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

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

Table 4-3 presents the average monthly hydraulic gradients that were measured between the gradient well pairs in Third Quarter 2012. Figure 4-6 presents graphs of the hydraulic gradients, monthly average pumping rates, and river levels for the quarterly period. Strong landward gradients were measured each month. The overall average gradients for all well pairs ranged from 0.0032 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.

4.6 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.

Figure 4-7 shows river stage measured at I-3 superimposed on the projected I-3 river levels. Projected river levels for future months are based on the BOR projections of Davis Dam discharge and Lake Havasu levels from the month preceding. For example, the projected river level for November 2012 is based on the October 2012 BOR data of Davis Dam release and Lake Havasu level, not the actual release and level values. The variability between measured and projected river levels is due to the difference between measured and actual Davis Dam release and Lake Havasu levels. The more recent data plotted on Figure 4-7 are summarized in Table 4-4. The future projections shown on Figure 4-7 are based on BOR long-range projections of Davis Dam releases and Lake Havasu

levels from October 2012. There is more uncertainty in these projections at longer times in the future since water demand is based on various elements including climatic factors.

Current BOR projections, presented in Table 4-4, show that the average projected Davis Dam release for November 2012 (8,500 cubic feet per second) will be less than the actual release in October 2012 (9,037 cubic feet per second). Based on November 2012 BOR predictions, it is anticipated that the Colorado River level at the I-3 gage location in November 2012 will be approximately 0.35 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.

4.7 Quarterly PMP 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 Third Quarter 2012 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 Third Quarter 2012 reporting period.

A total of 22,624,712 gallons of groundwater was extracted between July and October 2012 by the IM-3 treatment facility. The average pumping rate for the IM extraction system during Third Quarter 2012, including system down time, was 127.8 gpm. An estimated 143 pounds (64.7 kilograms) of chromium were removed and treated between June 1 and September 30, 2012. To date, the interim measures have removed over 509,497,600 gallons of contaminated groundwater and 7,280 pounds of chromium from the floodplain at the Topock site through September 2012.

A review of the groundwater gradient maps for Third Quarter 2012 (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 towards the TW-3D and PE-1 extraction wells.

Presentation and evaluation of the Cr(VI) trends observed in the performance monitoring area during Third Quarter 2012 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 Third Quarter 2012.

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 Fourth Quarter and Annual 2012 monitoring report, which will be submitted by March 15, 2013.

5.1 Groundwater Monitoring Program

5.1.1 Quarterly Monitoring

As described in the July 23, 2010 DTSC sampling schedule approval (DTSC, 2010a), the fourth monitoring event will occur November through mid-December 2012.

5.1.2 Monthly Monitoring

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

5.2 Surface Water Monitoring Program

The Fourth Quarter 2012 surface water monitoring event was conducted at locations in the RMP monitoring network and occurred on November 1 and 2, 2012. Results will be reported in the fourth quarter and annual 2012 monitoring report.

5.3 Performance Monitoring Program

5.3.1 Extraction

Per DTSC direction, PG&E will continue to operate wells TW-3D and PE-1 at a target combined pumping rate of 135 gpm during Fourth Quarter 2012, 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.

5.3.2 Transducer Download

Downloads of the transducers in the key gradient control wells (MW-27-085, MW-31-135, MW-33-150, MW-34-100, and MW-45-095) 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 Fourth Quarter 2012.

SECTION 6

References

ARCADIS. 2012. *2012 Annual Monitoring Report for the Upland Reductive Zone In-Situ Pilot Test*. November 6.

Arizona Department of Environmental Quality. 2010. Email. "Re: Reminder – sampling frequency modification for Arizona wells proposed with 4Q2009 data submittal." April 23.

California Environmental Protection Agency, Department of Toxic Substances Control (DTSC). 2005a. Letter to PG&E. "Requirements for Groundwater and Surface Water Monitoring Program, Pacific Gas & Electric Company, Topock Compressor Station, Needles, California (EPA ID No. CAT080011729)." April 26.

_____. 2005b. Letter. "Criteria for Evaluating Interim Measures Performance Requirements to Hydraulically Contain Chromium Plume in Floodplain Area, Pacific Gas & Electric Company, Topock Compressor Station." February 14.

_____. 2005c. Letter. "Contingency Plan for Sentry Well Groundwater Monitoring." February 14.

_____. 2007a. Letter. "Approval of Updates and Modifications to the Interim Measures Performance Monitoring Program. Pacific Gas & Electric Company, Topock Compressor Station." October 12.

_____. 2007b. Letter. "Updates and Modifications to the PG&E's Topock Interim Measures Performance Monitoring Program. PG&E Topock Compressor Station, Needles, California." July 27.

_____. 2007c. Letter. "Conditional Approval of Updates and Modifications to the Groundwater and Surface Water Monitoring Program, Pacific Gas & Electric Company, Topock Compressor Station." September 28.

_____. 2008a. Letter. "Modifications to Hydraulic Data Collection for the Interim Measures Performance Monitoring Program at Pacific Gas and Electric Company (PG&E), Topock Compressor Station, Needles, California." July 14.

_____. 2008b. Letter. "Modifications to Chemical Performance Monitoring and Contingency Plan for the Floodplain Interim Measures Performance Monitoring Program at Pacific Gas and Electric Company (PG&E), Topock Compressor Station, Needles, California." July 17.

_____. 2009. Email. "Re: Request for Combined Reporting of Topock GMP and PMP." May 26.

_____. 2010a. Email. "RE: Topock GMP sampling event timing and reporting schedule." July 23.

_____. 2010b. Email. "Re: Topock GMP Monitoring Frequency Modification." March 3.

_____. 2010c. Letter. "Arizona Monitoring Well Sampling Frequency Modification. Pacific Gas and Electric Company (PG&E), Topock Compressor Station, Needles, California." April 28.

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

_____. 2011. Email. "RE: Topock GMP COPC sampling plan: topic for weekly tech calls." November 18.

CH2M HILL. 2005. *Draft Performance Monitoring Plan for Interim Measures in the Floodplain Area, Pacific Gas and Electric Company, Topock Compressor Station, Needles, California*. April 15.

_____. 2006. *Contingency Plan for IM Performance Monitoring, Revision 1*, dated August 2006. Submitted to DTSC via e-mail. August 28

_____. 2008. *Groundwater Background Study, Steps 3 and 4: Final Report of Results, PG&E Topock Compressor Station, Needles, California*. July 23.

_____. 2009a. *Revised Final RCRA Facility Investigation/Remedial Investigation Report, Volume 2—Hydrogeologic Characterization and Results of Groundwater and Surface Water Investigation, Pacific Gas and Electric Company, Topock Compressor Station, Needles, California*. February 11.

_____. 2009b. *Final RCRA Facility Investigation/Remedial Investigation Report, Volume 2 Addendum—Hydrogeologic Characterization and Results of Groundwater and Surface Water Investigation, Pacific Gas and Electric Company, Topock Compressor Station, Needles, California*. June 29.

_____. 2009c. *Quarterly Performance Monitoring Report and Evaluation, February through April 2009*, *PG&E Topock Compressor Station, Needles, California*. May 29.

_____. 2009d. *Second Quarter 2009 Interim Measures Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California*. August 28.

_____. 2009e. *Third Quarter 2009 Interim Measures Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California*. November 30.

_____. 2010a. *First Quarter 2010 Interim Measures Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California*. May 28.

_____. 2010b. *Second Quarter 2010 Interim Measures Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California*. August 30.

_____. 2010c. *Third Quarter 2010 Interim Measures Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California*. November 30.

_____. 2011a. *Fourth Quarter 2010 and Annual Interim Measures Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California*. March 15.

_____. 2011b. *First Quarter 2011 Interim Measures Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California*. April 29.

_____. 2011c. *Second Quarter 2011 Interim Measures Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California*. August 15.

_____. 2011d. *Third Quarter 2011 Interim Measures Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California*. November 30.

_____. 2012a. *Fourth Quarter 2011 and Annual Interim Measures Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California*. March 15.

_____. 2012b. *First Quarter 2012 Interim Measures Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California*. April 30.

_____. 2012c. *Second Quarter 2012 Interim Measures Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California*. August 15.

_____. 2012d. Technical Memorandum. *Addendum to the Summary of Findings Associated with the East Ravine Groundwater Investigation, Pacific Gas and Electronic Company, Topock Compressor Station, Needles, California*. November 15.

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

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

Tables

Table 1-1

Topock Monitoring Reporting Schedule
Third Quarter 2012 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, July 2011 through October 2012
Third Quarter 2012 Interim Measure 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)	Selected Field Parameters		
					ORP (mV)	Specific Conductance (µS/cm)	Field pH
MW-9	SA	09-Dec-11	299	290	130	2,800	7.3
MW-10	SA	09-Dec-11	621	622	62	2,600	7.6
		15-May-12	269	278	39	3,000	7.5
MW-12	SA	06-Oct-11	2,840	3,200	73	6,700	8.3
		09-Dec-11	2,240	2,830	47	6,400	8.2
		09-Feb-12	2,730	3,100	120	7,000	7.6
		07-May-12	3,330	2,880	95	6,400	8.2
		02-Oct-12	2,740	2,970	200	7,100	7.8
MW-13	SA	06-Dec-11	21.2	22.6	67	1,900	7.7
MW-14	SA	09-Dec-11	20.1	22.8	7.0	1,500	7.6
MW-15	SA	07-Dec-11	11.5	12.6	54	1,500	7.8
MW-16	SA	07-Dec-11	11.8	11.3	54	1,100	8.0
		24-Apr-12	10.0	10.6	32	980	8.1
MW-17	SA	07-Dec-11	15.8	14.5	60	1,400	8.0
		25-Apr-12	13.3	13.3	29	1,300	8.3
MW-18	SA	08-Dec-11	21.4	21.6	80	1,300	7.6
MW-19	SA	09-Dec-11	289	295	110	2,000	7.5
		01-May-12	363	353	33	2,100	7.4
		01-May-12 FD	368	364	FD	2,100	FD
MW-20-70	SA	07-Dec-11	3,570	3,560	130	2,600	7.6
		07-May-12	3,330	3,410	110	2,300	7.7
MW-20-100	MA	08-Dec-11	3,770	3,930	80	2,800	7.3
		08-May-12	4,740	5,030	100	3,000	7.3
MW-20-130	DA	09-Dec-11	11,100	11,500	82	11,000	7.4
		10-May-12	10,900	10,800	66	12,000	7.5
MW-21	SA	29-Sep-11	ND (1.0)	ND (1.0)	23	13,000	7.1
		06-Dec-11	2.1	2.7	200	11,000	7.0
		07-Feb-12	2.1	4.8	77	10,000	7.1
		26-Apr-12	0.56	1.8	33	9,700	7.5
		12-Sep-12	ND (1.0)	2.0	58	12,000	R
MW-22	SA	16-Dec-11	ND (2.1)	1.0	-120	32,000	6.7
		11-Apr-12	ND (1.0)	ND (1.0)	-91	16,000	7.0

Refer to table footnotes for data qualifier explanation.

Table 3-1
Groundwater Sampling Results, July 2011 through October 2012
Third Quarter 2012 Interim Measure 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)	Selected Field Parameters		
					ORP (mV)	Specific Conductance (µS/cm)	Field pH
MW-23-060	BR	29-Sep-11	26.8	29.8	-29	16,000	R
		13-Dec-11	29.9	30.6	110	16,000	R
		14-Feb-12	30.2	32.1	67	16,000	R
		30-Apr-12	29.7	32.4	-76	14,000	R
		30-Apr-12 FD	29.9	33.4	FD	14,000	FD
		12-Sep-12	32.8	35.2	-46	16,000	R
MW-23-080	BR	29-Sep-11	5.6	5.6	-66	16,000	R
		12-Dec-11	8.7	8.8	-43	16,000	R
		12-Dec-11 FD	8.2	8.6	FD	16,000	FD
		14-Feb-12	9.5	10.8	-140	16,000	7.6
		30-Apr-12	6.0	8.2	-130	15,000	R
		12-Sep-12	12.8	15.9	-110	16,000	R
		12-Sep-12 FD	14.2	15.2	FD	16,000	FD
MW-24BR	BR	30-Sep-11	ND (1.0)	8.2 J	-130	14,000	8.3
		09-Dec-11	ND (1.0)	ND (1.0)	-150	14,000	8.2
		09-Dec-11 FD	ND (1.0)	ND (1.0)	FD	14,000	FD
		10-Feb-12	ND (1.0)	ND (1.0)	-240	14,000	8.0
		16-May-12	ND (1.0)	ND (1.0)	-110	15,000	8.2
		26-Sep-12	ND (1.0)	ND (1.0)	-140	14,000	7.7
MW-25	SA	15-Dec-11	249	265	130	1,600	7.2
		15-Dec-11 FD	269 J	259	FD	1,500	FD
MW-26	SA	09-Dec-11	1,840	1,750	5.5	4,000	7.4
		07-May-12	1,810	1,890	130	4,000	7.4
MW-27-20	SA	05-Dec-11	ND (0.2)	ND (1.0)	-160	1,000	7.5
MW-27-60	MA	05-Dec-11	ND (0.2)	ND (1.0)	-200	1,100	8.1
		07-Feb-12	ND (0.2)	ND (1.0)	-160	1,100	8.1
		01-Oct-12	ND (0.2)	ND (1.0)	-140	1,100	7.8
MW-27-85	DA	03-Oct-11	ND (1.0)	ND (1.0)	-83	12,000	7.2
		03-Oct-11 FD	ND (1.0)	ND (1.0)	FD	12,000	FD
		05-Dec-11	ND (1.0)	ND (1.0)	-87	13,000	7.1
		07-Feb-12	ND (1.0)	ND (1.0)	-53	12,000	7.3
		09-Apr-12	ND (1.0)	ND (1.0)	-22	13,000	7.5
		01-Oct-12	ND (1.0)	ND (1.0)	-51	12,000	7.3
MW-28-25	SA	12-Dec-11	ND (0.2)	ND (1.0)	-29	1,200	7.1

Refer to table footnotes for data qualifier explanation.

Table 3-1
Groundwater Sampling Results, July 2011 through October 2012
Third Quarter 2012 Interim Measure 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)	Selected Field Parameters		
					ORP (mV)	Specific Conductance (µS/cm)	Field pH
MW-28-25	SA	10-Apr-12	ND (0.2)	ND (1.0)	-5.3	1,100	7.6
MW-28-90	DA	26-Sep-11	ND (0.2)	ND (1.0)	-140	7,200	7.3
		12-Dec-11	ND (1.0)	ND (1.0)	-120	7,400	7.0
		07-Feb-12	ND (0.2)	ND (1.0)	-100	7,200	7.3
		10-Apr-12	ND (0.2)	ND (1.0)	-89	7,500	7.4
		10-Apr-12 FD	ND (1.0)	ND (1.0)	FD	7,600	FD
		10-Sep-12	ND (0.2)	ND (1.0)	-210	7,400	7.0
MW-29	SA	07-Dec-11	ND (0.2)	ND (1.0)	-110	2,400	7.2
		10-Apr-12	ND (0.2)	1.3	-130	3,000	7.4
MW-30-30	SA	07-Dec-11	ND (2.1)	ND (1.0)	-190	33,000	7.3
		10-Apr-12	ND (1.0)	ND (1.0)	-180	10,000	7.8
MW-30-50	MA	08-Dec-11	ND (0.2)	ND (1.0)	-190	1,200	7.7
MW-31-60	SA	06-Dec-11	489	500	55	3,200	7.7
		16-May-12	304	272	35	4,000	7.5
MW-31-135	DA	06-Dec-11	14.4	15.1	1.9	11,000	7.9
MW-32-20	SA	08-Dec-11	ND (2.1)	ND (2.0)	-160	52,000	6.5
MW-32-35	SA	09-Dec-11	ND (1.0)	ND (1.0)	-170	16,000	6.9
		09-Apr-12	ND (1.0)	ND (1.0)	-150	17,000	7.3
MW-33-40	SA	27-Sep-11	ND (1.0)	1.0	-66	12,000	7.8
		12-Dec-11	ND (1.0)	2.6	-45	9,900	7.7
		08-Feb-12	ND (0.2)	1.6	-45	7,000	8.1
		23-Apr-12	ND (0.2)	ND (1.0)	-54	6,100	8.4
		10-Sep-12	ND (0.2)	ND (1.0)	-2.5	10,000	7.6
MW-33-90	MA	04-Oct-11	16.8	20.2	63	10,000	7.3
		13-Dec-11	21.9	19.8	8.0	10,000	7.3
		09-Feb-12	20.1	23.0	83	10,000	7.4
		30-Apr-12	16.4	17.2	25	8,500	7.7
		24-Sep-12	16.5	17.2	170	10,000	7.1
MW-33-150	DA	04-Oct-11	10.4	10.1	110	16,000	7.4
		13-Dec-11	12.7	12.4	42	17,000	7.3
		09-Feb-12	10.6	11.8	110	16,000	7.5
		23-Apr-12	11.3	12.0	20	15,000	7.7
		23-Apr-12 FD	11.5	12.1	FD	15,000	FD

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Table 3-1
Groundwater Sampling Results, July 2011 through October 2012
Third Quarter 2012 Interim Measure 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)	Selected Field Parameters		
					ORP (mV)	Specific Conductance (µS/cm)	Field pH
MW-33-150	DA	11-Sep-12	10.9	11.9	-61	16,000	7.4
MW-33-210	DA	27-Sep-11	12.7	12.9	-84	18,000	7.3
		13-Dec-11	14.5	14.5	9.9	18,000	7.2
		09-Feb-12	12.7	14.4	98	18,000	7.3
		23-Apr-12	10.5	11.0	1.6	17,000	7.5
		11-Sep-12	12.6	13.2	-74	19,000	7.3
MW-34-55	MA	06-Dec-11	ND (0.2)	ND (1.0)	-160	990	7.7
MW-34-80	DA	03-Oct-11	ND (1.0)	ND (1.0)	-92	7,800	7.3
		06-Dec-11	ND (1.0)	ND (1.0)	-83	7,300	7.4
		07-Feb-12	ND (0.2)	ND (1.0)	-27	7,800	7.3
		09-Apr-12	ND (1.0)	ND (1.0)	-34	8,300	7.6
		01-Oct-12	ND (0.2)	ND (1.0)	-31	8,000	7.4
MW-34-100	DA	03-Oct-11	55.8	56.9	5.7	17,000	7.4
		03-Oct-11 FD	57.0	61.7	FD	17,000	FD
		09-Nov-11	144	147	74	---	7.6
		06-Dec-11	210	209	-1	17,000	7.6
		06-Dec-11 FD	202	210	FD	17,000	FD
		18-Jan-12	208	217	87	---	7.7
		07-Feb-12	76.6	84.9	33	17,000	7.5
		07-Feb-12 FD	77.8	89.9	FD	17,000	FD
		09-Apr-12	11.5	12.4	-22	17,000	7.6
		09-Apr-12 FD	11.6	11.3	FD	17,000	FD
		01-Oct-12	70.0	71.9	85	19,000	7.5
		01-Oct-12 FD	70.0	75.1	FD	18,000	FD
MW-35-60	SA	07-Dec-11	26.2	25.9	100	6,700	7.3
		06-Feb-12	24.6	27.7	110	6,900	7.3
		26-Apr-12	32.6	32.1	42	5,800	7.7
		10-Sep-12	22.7	24.5	80	7,600	8.1
MW-35-135	DA	07-Dec-11	35.3	36.9	97	9,600	7.6
		26-Apr-12	28.6	30.2	26	9,900	7.9
MW-36-20	SA	14-Dec-11	ND (1.0)	1.1	-140	8,100	7.5
MW-36-40	SA	14-Dec-11	ND (0.2)	ND (1.0)	-150	1,300	7.7
MW-36-50	MA	14-Dec-11	ND (0.2)	ND (1.0)	-100	1,400	7.5
MW-36-70	MA	14-Dec-11	ND (0.2)	ND (1.0)	-77	1,100	7.9

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Table 3-1
Groundwater Sampling Results, July 2011 through October 2012
Third Quarter 2012 Interim Measure 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)	Selected Field Parameters		
					ORP (mV)	Specific Conductance (µS/cm)	Field pH
MW-36-90	DA	14-Dec-11	ND (0.2)	ND (1.0)	-100	1,200	8.3
		10-Apr-12	ND (0.2)	ND (1.0)	-70	1,300	8.5
MW-36-100	DA	06-Dec-11	73.3	76.4	-100	10,000	7.1
		10-Apr-12	59.8	70.8	-130	9,500	7.4
MW-37S	MA	07-Dec-11	10.1	9.9	-16	5,000	7.7
MW-37D	DA	08-Dec-11	62.5	70.8	-88	15,000	7.7
MW-39-40	SA	15-Dec-11	ND (0.2)	ND (1.0)	-160	2,000	7.9
		15-Dec-11 FD	ND (0.2)	ND (1.0)	FD	2,000	FD
MW-39-50	MA	15-Dec-11	ND (0.2)	ND (1.0)	-97	1,500	8.1
MW-39-60	MA	15-Dec-11	ND (0.2)	ND (1.0)	-60	1,700	7.9
MW-39-70	MA	15-Dec-11	ND (0.2)	ND (1.0)	-4.2	3,500	7.5
MW-39-80	DA	15-Dec-11	ND (1.0)	ND (1.0)	-4.5	1,100	7.0
MW-39-100	DA	14-Dec-11	130	138	18	17,000	6.5
MW-40S	SA	07-Dec-11	7.6	7.8	93	2,300	7.5
MW-40D	DA	07-Dec-11	169	172	9.0	15,000	7.4
MW-41S	SA	07-Dec-11	19.0	19.1	-22	5,000	7.9
		07-Dec-11 FD	19.0	18.5	FD	5,000	FD
MW-41M	DA	05-Dec-11	10.6	12.2	160	15,000	7.6
MW-41D	DA	05-Dec-11	3.4	4.5	-56	18,000	7.6
		26-Apr-12	2.2	3.0	-66	20,000	7.9
MW-42-30	SA	06-Dec-11	0.2	1.3	-240	---	7.9
MW-42-55	MA	26-Sep-11	ND (0.2)	ND (1.0)	-120	6,300	7.4
		06-Dec-11	ND (0.2)	ND (1.0)	-170	5,700	7.5
		07-Feb-12	ND (0.2)	ND (1.0)	-130	5,400	7.6
		09-Apr-12	ND (0.2)	ND (1.0)	-120	5,000	7.8
		11-Sep-12	ND (0.2)	1.7	-130	2,600	7.8
		11-Sep-12 FD	ND (0.2)	1.6	FD	2,600	FD
MW-42-65	MA	26-Sep-11	ND (1.0)	ND (1.0)	-41	9,100	7.2
		06-Dec-11	ND (1.0)	ND (1.0)	-99	9,800	7.2
		07-Feb-12	ND (1.0)	ND (1.0)	-40	9,400	7.2
		09-Apr-12	ND (1.0)	ND (1.0)	-45	9,000	7.5

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Table 3-1
Groundwater Sampling Results, July 2011 through October 2012
Third Quarter 2012 Interim Measure 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)	Selected Field Parameters		
					ORP (mV)	Specific Conductance (µS/cm)	Field pH
MW-42-65	MA	11-Sep-12	ND (0.2)	ND (1.0)	-110	7,900	7.2
MW-43-25	SA	09-Dec-11	ND (0.2)	ND (1.0)	-180	1,200	7.4
MW-43-75	DA	09-Dec-11	ND (1.0)	ND (1.0)	-170	12,000 J	7.3
MW-43-90	DA	09-Dec-11	ND (1.0)	ND (1.0)	-100	17,000	6.6
MW-44-70	MA	08-Dec-11	ND (0.2)	ND (1.0)	-160	2,200	7.4
		12-Apr-12	ND (0.2)	ND (1.0)	-240	2,300	7.7
MW-44-115	DA	27-Sep-11	144	150	-150	11,000	7.9
		08-Dec-11	129	132	-160	11,000	7.8
		08-Dec-11 FD	128	130	FD	11,000	FD
		08-Feb-12	134	120	-93	12,000	8.0
		12-Apr-12	122	134	-170	11,000	8.1
		12-Apr-12 FD	124	125	FD	11,000	FD
		27-Sep-12	88.2	98.2	-85	11,000	7.8
MW-44-125	DA	27-Sep-11	ND (1.0)	6.0	-170	11,000	7.8
		27-Sep-11 FD	ND (1.0)	7.1	FD	12,000	FD
		08-Dec-11	21.5	26.8	-190	11,000	7.7
		08-Dec-11 FD	20.6	27.2	FD	9,800	FD
		08-Feb-12	ND (1.0)	13.5	-200	13,000 J	7.8
		08-Feb-12 FD	ND (1.0)	13.2	FD	7,700 J	FD
		12-Apr-12	ND (0.2)	17.9	-260	11,000	7.9
		13-Sep-12	ND (1.0)	5.3	-190	12,000	7.9
		13-Sep-12 FD	ND (1.0)	4.0	FD	12,000	FD
MW-45-095a	DA	14-Dec-11	29.6	30.0	65	9,000	7.5
		14-Dec-11 FD	29.8	30.2	FD	9,400	FD
MW-46-175	DA	26-Sep-11	69.4	70.6	-180	17,000	8.3
		09-Nov-11	110	106	-80	---	8.4
		13-Dec-11	121	129	-130	17,000	8.3
		18-Jan-12	93.8	101	-91	---	7.6
		08-Feb-12	76.2	84.1	-93	15,000	8.3
		23-Apr-12	34.4	40.5	-100	16,000	8.6
		26-Sep-12	46.7	52.6	-35	18,000	8.1
MW-46-205	DA	13-Dec-11	4.4	6.5	-67	19,000	8.2
		12-Apr-12	5.1	5.9	-140	19,000	8.5
MW-47-55	SA	08-Dec-11	24.8	23.8	55	4,600	7.6

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Table 3-1
Groundwater Sampling Results, July 2011 through October 2012
Third Quarter 2012 Interim Measure 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)	Selected Field Parameters		
					ORP (mV)	Specific Conductance (µS/cm)	Field pH
MW-47-55	SA	25-Apr-12	16.5	16.6	35	4,400	7.8
MW-47-115	DA	08-Dec-11	16.9	18.0	18	14,000	7.6
		25-Apr-12	22.7	23.6	10	12,000	8.0
MW-48	BR	30-Sep-11	ND (0.2)	ND (1.0)	31	17,000	7.2
		07-Dec-11	ND (1.0)	1.0	---	17,000	6.8
		08-Feb-12	ND (1.0)	1.6	150	17,000	7.2
		25-Apr-12	ND (1.0)	ND (1.0)	-24	17,000	7.6
		13-Sep-12	ND (1.0)	ND (1.0)	81	18,000	R
MW-49-135	DA	07-Dec-11	ND (1.0)	ND (1.0)	1.1	13,000 J	7.9
MW-49-275	DA	07-Dec-11	ND (1.0)	1.8	-200	28,000	8.1
MW-49-365	DA	07-Dec-11	ND (2.1)	ND (1.0)	-230	42,000	8.0
MW-50-095	MA	06-Dec-11	14.1	15.6	42	5,100	8.0
		25-Apr-12	14.7	15.4	0.2	4,800	8.2
		25-Apr-12 FD	14.6	15.5	FD	4,800	FD
MW-50-200	DA	04-Oct-11	7,860	7,350	70	19,000	7.7
		08-Dec-11	8,740	8,730	76	19,000	7.7
		09-Feb-12	9,080	9,530	250	19,000	7.7
		10-May-12	9,370	9,190	45	21,000	7.7
		03-Oct-12	8,290	8,720	150	22,000	7.4
		03-Oct-12 FD	8,000	8,520	FD	22,000	FD
MW-51	MA	07-Dec-11	4,810	4,710	140	10,000	7.3
		08-May-12	4,740	5,140	99	10,000	7.5
MW-52S	MA	15-Dec-11	ND (1.0)	ND (1.0)	-120	7,500	6.9
		11-Apr-12	ND (0.2)	ND (1.0)	-110	10,000	7.2
MW-52M	DA	15-Dec-11	ND (1.0)	ND (1.0)	-140	11,000	7.8
		11-Apr-12	ND (1.0)	ND (1.0)	-130	16,000	7.6
MW-52D	DA	15-Dec-11	ND (1.0)	ND (1.0)	-180	16,000	7.9
		11-Apr-12	ND (1.0)	ND (1.0)	-150	19,000	7.9
MW-53M	DA	16-Dec-11	ND (1.0)	ND (1.0)	-180	18,000	7.9
		11-Apr-12	ND (1.0)	ND (1.0)	-160	18,000	8.3
MW-53D	DA	03-Oct-11	ND (2.1)	ND (1.0)	-220	33,000	8.3
		03-Oct-11 FD	ND (2.1)	ND (1.0)	FD	33,000	FD
		16-Dec-11	ND (2.1)	ND (1.0)	-220	28,000	8.3

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Table 3-1
Groundwater Sampling Results, July 2011 through October 2012
Third Quarter 2012 Interim Measure 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)	Selected Field Parameters		
					ORP (mV)	Specific Conductance (µS/cm)	Field pH
MW-53D	DA	16-Dec-11 FD	ND (2.1)	1.0	FD	28,000	FD
		11-Apr-12	ND (1.0)	ND (1.0)	-190	30,000	8.4
MW-54-85	DA	06-Dec-11	ND (1.0)	ND (1.0)	-180	10,100	7.5
		24-Apr-12	ND (0.2)	ND (1.0)	-170	10,000	7.8
MW-54-140	DA	06-Dec-11	ND (1.0)	ND (1.0)	46	12,300	7.7
		24-Apr-12	ND (1.0)	ND (1.0)	-43	12,600	8.0
MW-54-195	DA	06-Dec-11	ND (1.0)	ND (5.0)	-220	18,800	8.1
		24-Apr-12	ND (1.0)	ND (5.0)	-170	19,400	8.3
		24-Apr-12 FD	ND (1.0)	ND (5.0)	FD	19,100	FD
MW-55-45	MA	06-Dec-11	ND (0.2)	ND (1.0)	-150	1,450	7.6
		03-Apr-12	ND (0.2)	ND (1.0)	-160	---	7.4
MW-55-120	DA	06-Dec-11	6.9	7.0	5.0	8,520	7.9
		06-Dec-11 FD	6.8	6.9	FD	8,580	FD
		03-Apr-12	6.7	6.5	28	---	7.9
MW-56S	SA	13-Dec-11	ND (1.0)	ND (1.0)	-160	5,980	7.2
		17-May-12	ND (0.2)	ND (1.0)	-120	6,160	8.0
MW-56M	DA	13-Dec-11	ND (1.0)	ND (1.0)	-150	14,600	7.2
		17-May-12	ND (1.0)	ND (1.0)	-120	14,900	8.0
MW-56D	DA	13-Dec-11	ND (1.0)	ND (5.0)	-170	21,000	7.7
		17-May-12	ND (1.0)	ND (1.0)	-110	21,800	8.2
MW-57-070	BR	29-Sep-11	309	352	56	2,400	6.9
		15-Dec-11	291	296	-21	2,500	7.1
		15-Feb-12	454	520	92	2,800	6.4
		03-May-12	288	314	120	2,600	7.1
		12-Sep-12	609	614	9.2	2,300	7.1
MW-57-185	BR	28-Sep-11	7.0	8.5	-130	17,000	8.5
		13-Dec-11	7.4	7.3	-130	18,000	8.3
		10-Feb-12	7.2	8.5	-170	17,000	8.2
		10-Feb-12 FD	7.3	8.9	FD	17,000	FD
		30-Apr-12	7.1	8.6	-59	16,000	8.9
		11-Sep-12	7.8	9.1	-50	18,000	R
MW-58BR-LWR-160	BR	16-May-12	2.4	7.4	-88	11,000	8.4
		04-Oct-12	2.3	10.2	-91	9,400	8.0

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Table 3-1
Groundwater Sampling Results, July 2011 through October 2012
Third Quarter 2012 Interim Measure 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)	Selected Field Parameters		
					ORP (mV)	Specific Conductance (µS/cm)	Field pH
MW-58BR-UPR-160	BR	15-May-12	ND (1.0)	1.4	-120	11,000	7.5
		03-Oct-12	ND (1.0)	ND (1.0)	-120	10,000	7.0
MW-59-100	SA	04-Oct-11	4,330	4,850	120	10,000	6.8
		15-Dec-11	4,600	4,950	1.8	9,000	6.9
		15-Dec-11 FD	4,990	4,890	FD	9,100	FD
		22-Feb-12	4,070	4,690	180	9,100	7.0
		08-May-12	4,610	4,690	130	11,000	7.0
		02-Oct-12	4,510	4,640	310	9,700	7.8
MW-60-125	BR	04-Oct-11	715	760	-27	8,200	7.3
		14-Dec-11	901	915	-53	8,100	7.4
		15-Feb-12	918	1,100	110	19,000	7.4
		03-May-12	882	936	98	8,400	7.4
		20-Sep-12	848	846	63	9,600	7.6
MW-60BR-245	BR	17-May-12	74.2	77.0	-130	17,000	8.6
		19-Sep-12	89.7	97.2	-140	18,000	8.6
MW-61-110	BR	30-Sep-11	611	698	-30	15,000	7.3
		14-Dec-11	682	722	-46	15,000	7.3
		15-Feb-12	634	680	-29	29,000	7.3
		03-May-12	486	578	55	16,000	7.4
		27-Sep-12	656	714	-99	17,000	7.3
		27-Sep-12 FD	661	738	FD	17,000	FD
MW-62-065	BR	29-Sep-11	457	500	44	6,300	7.4
		13-Dec-11	532	500	30	3,900	7.3
		17-Feb-12	452	530	R	6,500	R
		02-May-12	443	433	34	6,600	7.6
		12-Sep-12	588	627	-28	6,400	7.3
MW-62-110	BR	29-Sep-11	598	739	-60	8,700	7.7
		14-Dec-11	1,140	1,300 [a]	-87	8,400	7.9
		16-Feb-12	842	880	160	8,700	7.6
		10-May-12	828	941	180	8,900	7.5
		13-Sep-12	894	923	130	9,200	7.4
MW-62-190	BR	29-Sep-11	ND (1.0)	ND (1.0)	-88	17,000	7.7
		14-Dec-11	ND (1.0)	ND (1.0)	-110	16,000	7.7
		16-Feb-12	ND (1.0)	ND (1.0)	-130	16,000	7.8
		10-May-12	ND (1.0)	ND (1.0)	-210	19,000	7.7

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Table 3-1
Groundwater Sampling Results, July 2011 through October 2012
Third Quarter 2012 Interim Measure 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)	Selected Field Parameters		
					ORP (mV)	Specific Conductance (µS/cm)	Field pH
MW-62-190	BR	13-Sep-12	ND (1.0)	ND (1.0)	-280	19,000	7.8
MW-63-065	BR	28-Sep-11	1.6	2.8	4.5	7,500	7.1
		12-Dec-11	1.2	2.1	57	4,600	7.1
		13-Feb-12	ND (0.2)	1.4	28	7,200	7.1
		26-Apr-12	0.76	1.5	26	6,900	7.3
		10-Sep-12	1.5	2.3	96	7,600	8.0
MW-64BR-LWR-150	BR	19-Apr-12	21.9	23.2	-34	13,000	7.9
		10-Oct-12	ND (1.0)	1.0	-180	14,000	7.9
MW-64BR-UPR-150	BR	16-Apr-12	ND (1.0)	2.1	-140	12,000	8.0
		08-Oct-12	ND (1.0)	ND (1.0)	-140	12,000	8.0
MW-65-160	SA	01-May-12	51.0	54.6	-2.2	3,900	7.3
		18-Sep-12	75.7	79.6	-76	4,300	7.2
MW-65-225	DA	02-May-12	365	387	110	13,000	7.7
		18-Sep-12	528	570	-69	12,000	7.0
MW-66-165	SA	02-May-12	651	682	48	4,600	7.7
		17-Sep-12	653	665	11	4,500	7.2
MW-66-230	DA	10-May-12	5,880	5,900	26	19,000	7.8
		10-May-12 FD	5,560	5,720	FD	19,000	FD
		17-Sep-12	6,200	6,040	-89	19,000	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)	-97	18,000	10.6
MW-67-185	SA	03-May-12	2,180	2,230	100	4,400	7.3
		20-Sep-12	2,370	2,320	40	4,700	7.4
MW-67-225	MA	07-May-12	3,180	3,260	100	7,400	7.5
		20-Sep-12	3,200	3,420	310	8,000	7.2
MW-67-260	DA	07-May-12	2,130	2,090	65	18,000	8.2
		20-Sep-12	2,130	2,160	-140	18,000	8.5
MW-68-180	SA	10-May-12	5,970	5,990	76	3,200	7.4
		20-Sep-12	16,400	16,900	370	4,100	7.3
MW-68-240	DA	03-May-12	1,820	1,900	87	16,000	7.3
		20-Sep-12	2,000	1,980	R	17,000	7.5
MW-68BR-280	BR	09-May-12	ND (1.0)	ND (1.0)	-130	21,000	8.5
		03-Oct-12	ND (1.0)	ND (1.0)	-140	22,000	8.2

Refer to table footnotes for data qualifier explanation.

Table 3-1
Groundwater Sampling Results, July 2011 through October 2012
Third Quarter 2012 Interim Measure 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)	Selected Field Parameters		
					ORP (mV)	Specific Conductance (µS/cm)	Field pH
MW-69-195	BR	02-May-12	446	488	71	3,800	7.7
		19-Sep-12	789	840	76	3,900	7.1
MW-70-105	BR	01-May-12	76.3	77.9	-30	3,000	7.9
		12-Sep-12	80.8	85.6	-150	3,300	7.9
MW-70BR-225	BR	17-May-12	2,460	2,460	42	14,000	7.4
		17-May-12 FD	2,380	2,550	FD	14,000	FD
		18-Sep-12	2,410	2,500	42	14,000	7.2
MW-71-035	SA	03-May-12	ND (1.0)	ND (1.0)	21	7,100	7.5
		19-Sep-12	ND (0.2)	ND (1.0)	120	7,500	7.1
MW-72-080	BR	01-May-12	87.6	89.0	-26	16,000	7.7
		19-Sep-12	151	158	37	15,000	7.7
MW-73-080	BR	02-May-12	32.9	38.0	15	11,000	7.2
		13-Sep-12	37.3	39.3	-15	11,000	7.3
MW-74-240	BR	10-May-12	ND (0.2)	ND (1.0)	-240	1,300	9.7
		27-Sep-12	0.28	ND (1.0)	-210	1,200	9.6
OW-3S	SA	05-Dec-11	27.9	29.1	67	1,500	7.7
OW-3M	MA	05-Dec-11	17.8	18.7	15	5,600	8.0
OW-3D	DA	06-Dec-11	9.5	11.0	40	8,900	8.1
PE-1	DA	05-Jul-11	10.2 J	7.6 J	---	5,140	---
		02-Aug-11	9.0	8.8	---	5,090	---
		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	---
		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	---

Refer to table footnotes for data qualifier explanation.

Table 3-1
Groundwater Sampling Results, July 2011 through October 2012
Third Quarter 2012 Interim Measure 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)	Selected Field Parameters		
					ORP (mV)	Specific Conductance (µS/cm)	Field pH
PE-1	DA	02-Oct-12	6.3	7.0	---	4,700	---
PGE-7BR	BR	07-Dec-11	ND (1.0)	ND (1.0)	-310	18,000	7.3
PGE-8	BR	08-Dec-11	ND (1.0)	2.1	-320	18,000	8.1
Park Moabi-3	MA	12-Dec-11	6.6	7.0 UF	13	1,400	7.5
Park Moabi-4	MA	12-Dec-11	18.9	18.2 UF	---	1,800	7.7
TW-1	SA-MA-DA	28-Sep-11	3,200	3,040	170	7,000	7.3
		15-Dec-11	3,610	3,510	130	7,400	7.2
		10-Feb-12	3,460	3,680	130	7,200	7.2
		16-May-12	3,090	3,400	41	7,100	7.3
		01-Oct-12	3,190	3,190	110	7,400	7.3
TW-2S	SA-MA	12-Dec-11	619	662	140	2,400	7.7
		12-Dec-11 FD	511	680	FD	2,300	FD
TW-2D	DA	12-Dec-11	339	362	190	9,000	7.3
TW-3D	DA	05-Jul-11	1,130	953	---	8,460	---
		02-Aug-11	991	948	---	8,440	---
		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	---
		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	---
TW-4	DA	08-Dec-11	9.0	9.9	29	19,000	7.7
TW-5	DA	06-Dec-11	14.0	14.6	49	15,000	7.9

Refer to table footnotes for data qualifier explanation.

NOTES:

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

[a] Higher result than originally reported in the Fourth Quarter 2011 GMP/PMP Report; new value provided by secondary lab.

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, Third Quarter 2012
Third Quarter 2012 Interim Measure 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)	Molydenum Dissolved (µg/L)	Selenium Dissolved (µg/L)	Manganese Dissolved (µg/L)	Nitrate as N (mg/L)
MW-12	SA	02-Oct-12	42.4	---	10.3	13.0	ND (0.5)	10.0
MW-23-060	BR	12-Sep-12	5.9	---	---	---	ND (0.5)	---
MW-23-080	BR	12-Sep-12	3.3	---	---	---	ND (0.5)	---
		12-Sep-12 FD	3.0	---	---	---	ND (2.5)	---
MW-27-60	MA	01-Oct-12	7.4	0.69	3.5	ND (0.5)	120	ND (0.5)
MW-27-85	DA	01-Oct-12	1.5	ND (5.0)	22.0	ND (0.5)	77.0	ND (2.5)
MW-28-90	DA	10-Sep-12	2.0	3.10 J	20.0	ND (0.5)	160	ND (1.0)
MW-33-40	SA	10-Sep-12	13.0	12.0 J	250	0.82	3.5	ND (2.5)
MW-33-90	MA	24-Sep-12	1.6	ND (5.0)	17.8	ND (5.0)	2.2	ND (2.5)
MW-33-150	DA	11-Sep-12	2.2	ND (10)	39.0	ND (2.5)	ND (2.5)	ND (2.5)
MW-33-210	DA	11-Sep-12	1.3	ND (10)	17.0	ND (2.5)	5.5	ND (2.5)
MW-34-80	DA	01-Oct-12	1.7	---	---	---	---	---
MW-34-100	DA	01-Oct-12	1.5	---	---	---	---	---
		01-Oct-12 FD	1.6	---	---	---	---	---
MW-35-60	SA	10-Sep-12	1.1	---	8.3	0.86	ND (0.5)	1.80
MW-42-55	MA	11-Sep-12	12.0	---	---	---	---	---
		11-Sep-12 FD	12.0	---	---	---	---	---
MW-42-65	MA	11-Sep-12	2.8	---	---	---	1000	---
MW-44-115	DA	27-Sep-12	3.6	---	77.0	ND (5.0)	5.0	ND (2.5)
MW-44-125	DA	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)
MW-46-175	DA	26-Sep-12	1.2	---	158	ND (5.0)	9.9	ND (2.5)
MW-50-200	DA	03-Oct-12	3.8	---	39.3	ND (5.0)	0.56	5.20
		03-Oct-12 FD	3.4	---	40.2	ND (5.0)	0.83	5.20
MW-57-185	BR	11-Sep-12	14.0	---	86.0	ND (2.5)	400	ND (2.5)
MW-58BR-LWR-160	BR	04-Oct-12	0.71	---	---	---	---	---
MW-58BR-UPR-160	BR	03-Oct-12	0.49	---	---	---	---	---
MW-59-100	SA	02-Oct-12	2.9	---	4.9	ND (5.0)	1.3	3.60
MW-60-125	BR	20-Sep-12	1.7	---	18.0	5.2	10.0	2.90
MW-60BR-245	BR	19-Sep-12	8.1	---	54.0	ND (2.5)	5.9	ND (2.5)
MW-61-110	BR	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)
MW-62-110	BR	13-Sep-12	8.5	---	45.0	3.6	140	4.20
MW-62-190	BR	13-Sep-12	5.9	---	76.0	ND (2.5)	790	ND (2.5)
MW-63-065	BR	10-Sep-12	1.7	---	20.0	1.8	11.0	1.10

Table 3-2
Groundwater COPCs, In Situ Byproducts, and Other Analytes Sampling Results, Third Quarter 2012
Third Quarter 2012 Interim Measure 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)	Molydenum Dissolved (µg/L)	Selenium Dissolved (µg/L)	Manganese Dissolved (µg/L)	Nitrate as N (mg/L)
MW-64BR-LWR-150	BR	10-Oct-12	1.7	---	---	---	---	---
MW-64BR-UPR-150	BR	08-Oct-12	7.4	---	---	---	---	---
MW-65-160	SA	18-Sep-12	0.9	---	29.0	6.4	68.0	8.60
MW-65-225	DA	18-Sep-12	2.3	---	34.0	5.8	91.0	8.10
MW-66-165	SA	17-Sep-12	1.8	---	6.4	36.0	ND (2.5)	30.0
MW-66-230	DA	17-Sep-12	6.9	---	79.0	10.0	26.0	12.0
MW-66BR-270	BR	02-Oct-12	0.32	---	28.0	7.5	ND (0.5)	ND (2.5)
MW-67-185	SA	20-Sep-12	1.7	---	14.0	86.0	5.6	19.0
MW-67-225	MA	20-Sep-12	2.8	---	33.0	67.0	42.0	19.0
MW-67-260	DA	20-Sep-12	11.0	---	81.0	1.6	190	ND (5.0)
MW-68-180	SA	20-Sep-12	2.2	---	42.0	13.0	ND (0.5)	25.0
MW-68-240	DA	20-Sep-12	1.7	---	19.0	4.1	100	ND (5.0)
MW-68BR-280	BR	03-Oct-12	2.5	---	95.0	ND (2.5)	220	ND (2.5)
MW-69-195	BR	19-Sep-12	2.1	---	50.0	14.0	3.9	22.0
MW-70-105	BR	12-Sep-12	6.2	---	120	2.2	220	2.00
MW-70BR-225	BR	18-Sep-12	2.1	---	16.0	ND (5.0)	ND (0.5)	3.60
MW-71-035	SA	19-Sep-12	1.7	---	58.0	2.5	190	1.30
MW-72-080	BR	19-Sep-12	11.0	---	76.0	2.0	120	ND (2.5)
MW-73-080	BR	13-Sep-12	1.6	---	23.0	6.2	22.0	4.60
MW-74-240	BR	27-Sep-12	9.3	---	47.0	3.8	4.9	ND (0.5)
TW-1	SA-MA-DA	01-Oct-12	---	---	14.0	20.0	---	22.0

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

NOTES:

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

The Background Study Upper Tolerance Limit (UTL) for Arsenic is 24.3 µg/L.
The U.S. EPA 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 U.S. EPA or California MCL for Molybdenum.
The Background Study UTL for Selenium is 10.3 µg/L.
The U.S. EPA and California MCL for Selenium is 50.0 µg/L.
The secondary U.S. EPA and California MCL for Manganese is 50 ug/L.
The Background Study UTL for Nitrate as N is 5.03 mg/L.
The U.S. EPA and California MCL for Nitrate as N is 10 mg/L.
The Background Study UTL for Fluoride is 7.1 mg/L.
The U.S. EPA 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, Third Quarter 2012
Third Quarter 2012 Interim Measure Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

	California MCL:	6	10	1,000	4	5	NE	50	1,000*	15	2	NE	100	50	100*	2	NE	5,000*
Well ID	**Sample Date**	**Antimony**	**Arsenic**	**Barium**	**Beryllium**	**Cadmium**	**Cobalt**	**Chromium**	**Copper**	**Lead**	**Mercury**	**Molybdenum**	**Nickel**	**Selenium**	**Silver**	**Thallium**	**Vanadium**	**Zinc**
MW-12	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)

Notes:

ND not detected at listed reporting limit.
FD field duplicate sample.
NE not established.
* Secondary USEPA MCL.

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, Third Quarter 2012
Third Quarter 2012 Interim Measure 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	08/21/2012	ND (0.2)	ND (1.0)	897	7.9 J
C-CON-S	08/22/2012	ND (0.2)	ND (1.0)	894	8.1 J
C-CON-D	08/22/2012	ND (0.2)	ND (1.0)	893	8.1 J
C-I-3-S	08/21/2012	ND (0.2)	ND (1.0)	897	8.0 J
C-I-3-D	08/21/2012	ND (0.2)	ND (1.0)	898	8.0 J
C-MAR-S	08/21/2012	ND (0.2)	ND (1.0)	947	7.8 J
C-MAR-D	08/21/2012	ND (0.2)	ND (1.0)	935	7.8 J
C-NR1-S	08/22/2012	ND (0.2)	ND (1.0)	898	8.1 J
C-NR1-D	08/22/2012	ND (0.2)	ND (1.0)	893	8.1 J
C-NR3-S	08/22/2012	ND (0.2)	ND (1.0)	900	8.1 J
C-NR3-D	08/22/2012	ND (0.2)	ND (1.0)	899	8.1 J
C-NR4-S	08/22/2012	ND (0.2)	ND (1.0)	897	8.1 J
C-NR4-D	08/22/2012	ND (0.2)	ND (1.0)	896	8.1 J
C-R22a-S	08/21/2012	ND (0.2)	ND (1.0)	890	8.1 J
C-R22a-D	08/21/2012	ND (0.2)	ND (1.0)	899	8.1 J
C-R27-S	08/21/2012	ND (0.2)	ND (1.0)	894	8.1 J
C-R27-D	08/21/2012	ND (0.2)	ND (1.0)	890	8.1 J
C-TAZ-S	08/21/2012	ND (0.2)	ND (1.0)	896	8.1 J
C-TAZ-D	08/21/2012	ND (0.2)	ND (1.0)	899	8.1 J
Shoreline Samples					
R-19	08/22/2012	ND (0.2)	ND (1.0)	896	8.2 J
R-28	08/22/2012	ND (0.2)	ND (1.0)	895	8.2 J
R63	08/21/2012	ND (0.2)	ND (1.0)	891	8.1 J
RRB	08/22/2012	ND (0.2)	ND (1.0)	898	7.9 J
Other Surface Water Monitoring Locations					
SW1	08/21/2012	ND (0.2)	ND (1.0)	916	7.7 J
SW2	08/21/2012	ND (0.2)	ND (1.0)	912	7.7 J

Table 3-4
Surface Water Sampling Results, Third Quarter 2012
Third Quarter 2012 Interim Measure Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California

Notes:

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

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, Third Quarter 2012
Third Quarter 2012 Interim Measure 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 (TSS) mg/L
In-channel Locations												
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-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-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-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-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-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-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-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-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-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-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-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-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-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-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-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-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)
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-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)
Shoreline Samples												
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-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)
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)
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)

Notes:

µg/L micrograms per liter.
mg/L milligrams per liter.
ND not detected at listed reporting limit.
J concentration or reporting limit estimated by laboratory or data validation.
COPC Chemical of Potential Concern (Molybdenum, Selenium, and Nitrate).

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

Extraction Well ID	July 2012		August 2012		September 2012		October 2012		Third Quarter 2012	
	Average [a] Pumping Rate (gpm)	Volume Pumped (gal)	Average [a] Pumping Rate (gpm)	Volume Pumped (gal)	Average [a] Pumping Rate (gpm)	Volume Pumped (gal)	Average [a] Pumping Rate (gpm)	Volume Pumped (gal)	Average [a] Pumping Rate (gpm)	Volume Pumped (gal)
TW-02S	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
TW-02D	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
TW-03D	108.09	4,825,040	92.29	4,119,794	106.52	4,601,500	107.82	4,813,068	103.68	18,359,402
PE-01	25.32	1,130,244	21.87	976,201	24.92	1,076,633	24.24	1,082,232	24.09	4,265,310
TOTAL	**133.4**	**5,955,284**	**114.2**	**5,095,995**	**131.4**	**5,678,133**	**132.1**	**5,895,301**	**127.8**	**22,624,712**

Chromium Removed This Quarter (kg)	64.7
Chromium Removed Project to Date (kg)	3300
Chromium Removed This Quarter (lb)	143
Chromium Removed Project to Date (lb)	7280

NOTES:

gpm gallons per minute.
gal gallons.
ac-ft acre-feet.
kg kilograms.
lb pounds.

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

Chromium removed includes the period of June 1, 2012 through September 30, 2012. On July 23, 2010 DTSC approved a revised reporting schedule for this report that included a revised IM-3 sample collection period from June 1, 2012 through September 30, 2012.

Chromium removed includes all Cr treatment, including IM-3 and previous IM-2 operation.

Table 4-2

Analytical Results for Extraction Wells, July 2011 through October 2012
Third Quarter 2012 Interim Measure 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	05-Jul-11	953 LF	1,130	5,020
	02-Aug-11	948 LF	991	5,120
	06-Sep-11	992 LF	1,000	5,140
	04-Oct-11	1,010 LF	991	5,040
	01-Nov-11	1,070 LF	1,060	4,880
	06-Dec-11	1,150 LF	1,080	4,650
	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
PE-1	05-Jul-11	7.60 J LF	10.2 J	3,120
	02-Aug-11	8.80 LF	9.00	3,060
	06-Sep-11	9.00 LF	9.50	2,860
	04-Oct-11	10.1 LF	11.1	2,900
	01-Nov-11	10.3 LF	10.3	2,790
	06-Dec-11	10.8 LF	10.9	2,930
	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

NOTES:

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

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 4-3
Average Hydraulic Gradients Measured at Well Pairs, Third Quarter 2012
Third Quarter 2012 Interim Measure Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Well Pair [a]	Reporting Period	Mean landward Hydraulic Gradient (feet/foot) [b]	Days in Monthly Average [c]
Overall Average	July	0.0051	NA
	August	0.0032	NA
	September	0.0040	NA
	October	0.0036	NA
Northern Gradient Pair MW-31-135 / MW-33-150	July	0.0020	31 / 31
	August	0.0017	25 / 31
	September	0.0023	25 / 30
	October	0.0020	31 / 31
Central Gradient Pair MW-45-95 / MW-34-100	July	0.0094	31 / 31
	August	0.0058	31 / 31
	September	0.0071	30 / 30
	October	0.0062	31 / 31
Southern Gradient Pair MW-45-95 / MW-27-85	July	0.0037	31 / 31
	August	0.0022	31 / 31
	September	0.0027	30 / 30
	October	0.0026	31 / 31

NOTES:

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

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

TABLE 4-4
Predicted and Actual Monthly Average Davis Dam Discharge and Colorado River Elevation at I-3
Third Quarter 2012 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			453.6		

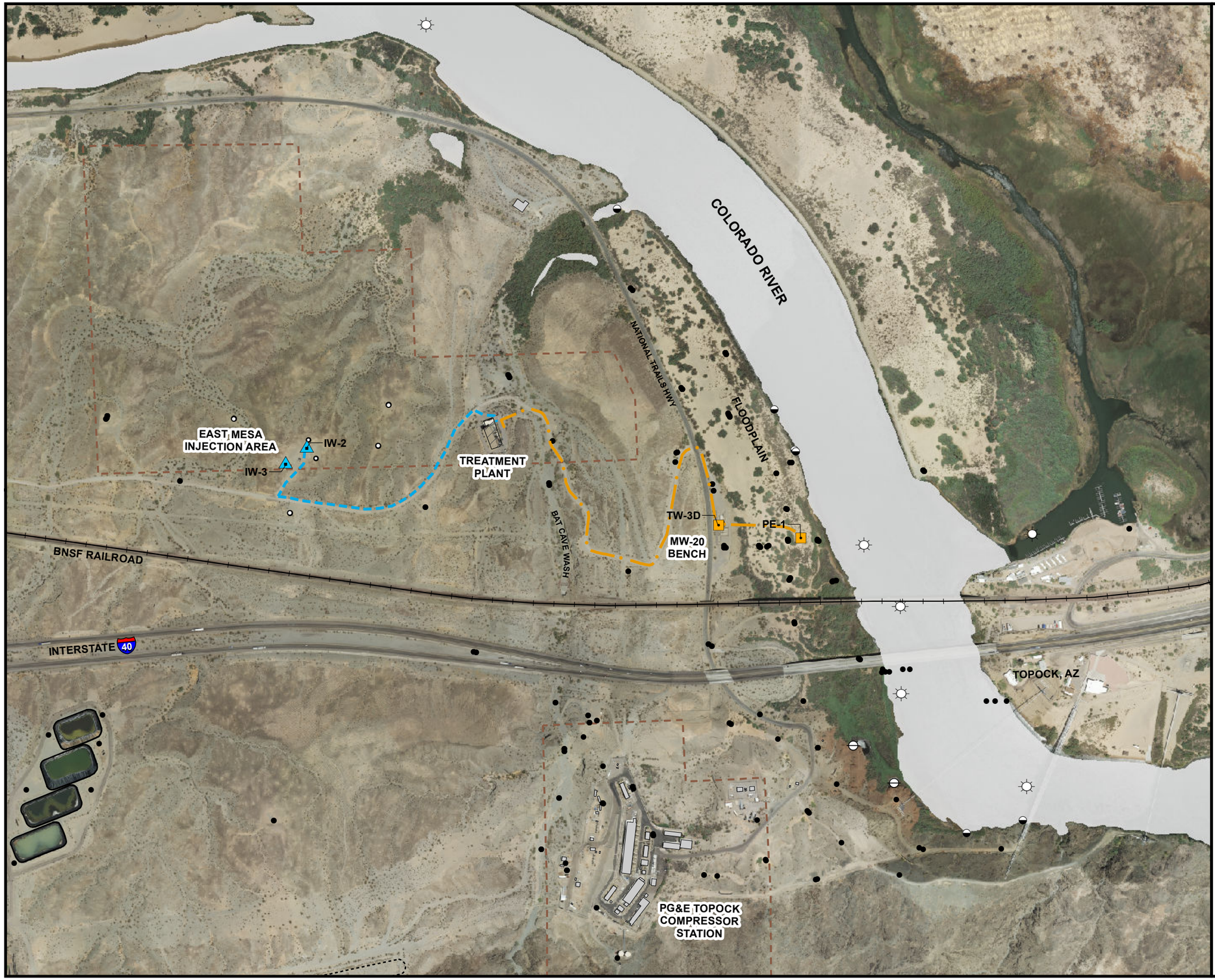
NOTES:
cfs = cubic feet per second; ft amsl = feet above mean sea level.

Projected river level for each month in the past is calculated based on the preceding months USBR projections of Davis Dam release and stage in Lake Havasu. Future projections of river level at I-3 are based upon October 2012 USBR projections. These data are reported monthly by the US Department of Interior, at http://www.usbr.gov/lc/region/g4000/24mo.pdf.

The difference in I-3 elevation is the difference between the I-3 elevation predicted and the actual elevation measured at I-3. The source of this difference is differences between BOR projections and actual dam releases/Havasu reservoir levels, rather than the multiple regression error.

For data prior to 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)

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

Note: 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

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

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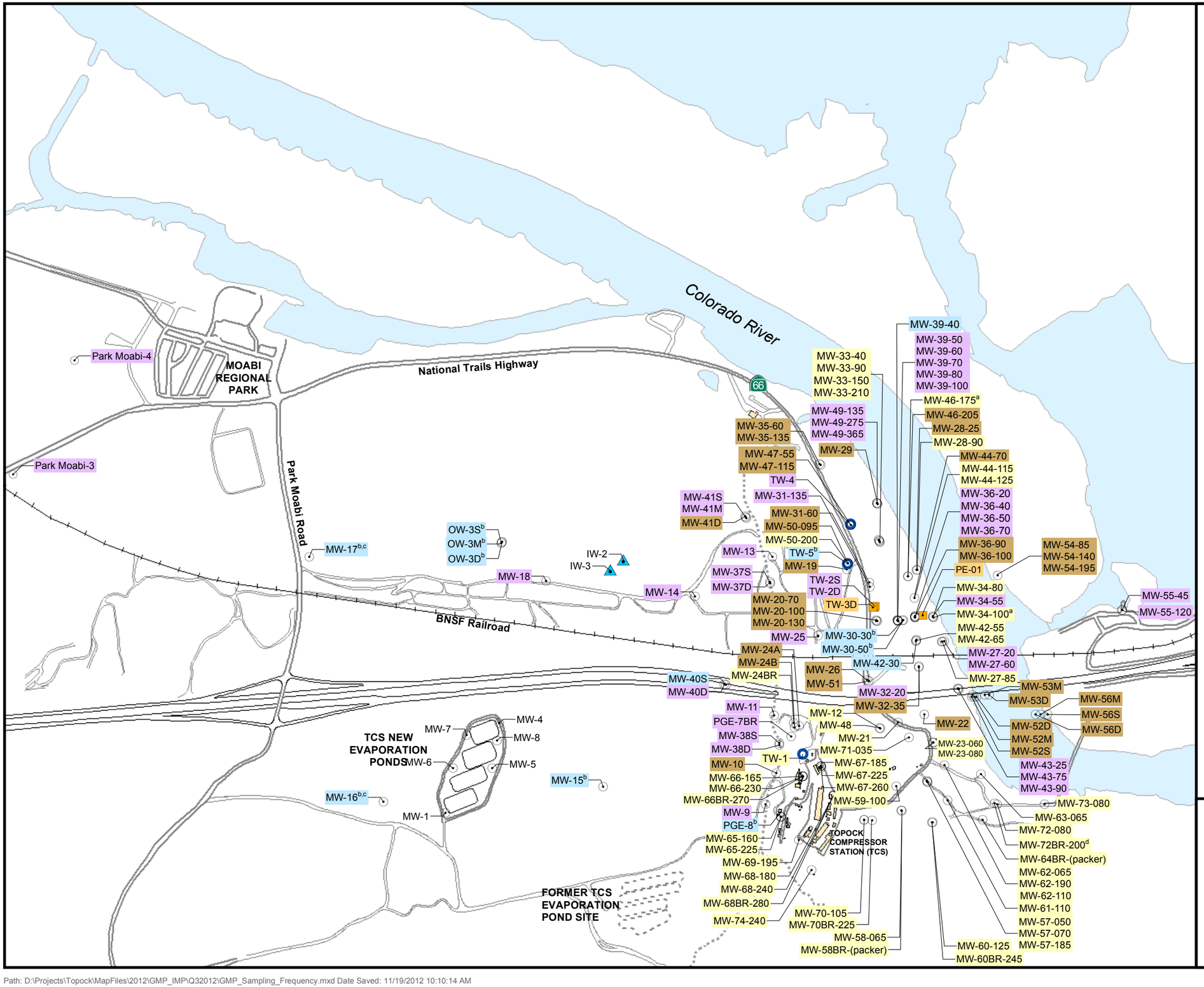

LEGEND

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

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.

[d] Planned to be incorporated into GMP in Fourth Quarter 2012.

N

0 500 1,000 Feet

California State Plane NAD83 Zone 5 US Feet

FIGURE 1-2
MONITORING LOCATIONS AND SAMPLING FREQUENCY FOR GMP

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

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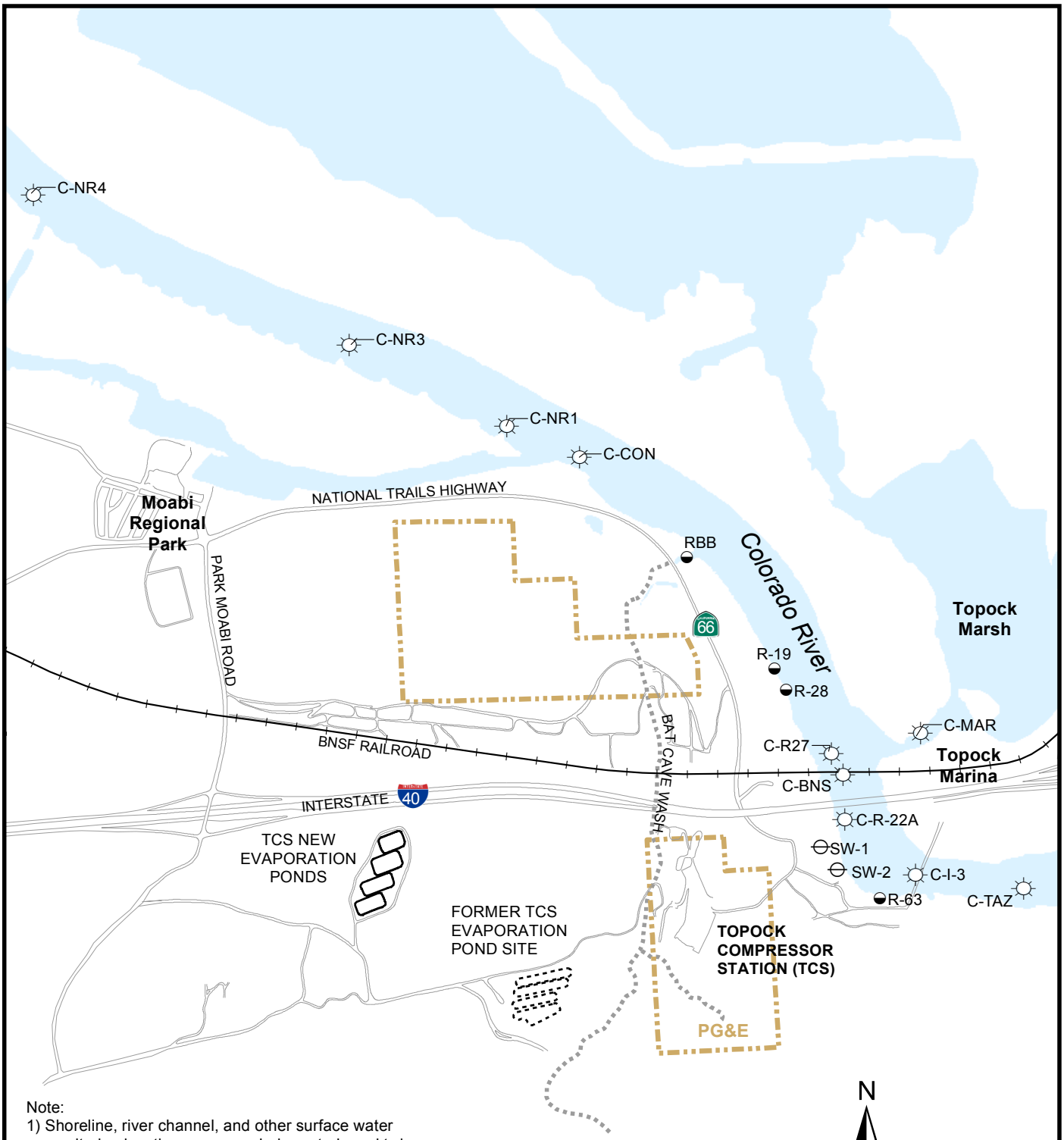

Note:
1) Shoreline, river channel, and other surface water monitoring locations are sampled quarterly and twice during periods of low river stage (typically November - January).
2) Location for SW-2 is approximate. GPS Coverage was not available.
3) RMP = River Monitoring Program

LEGEND

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

FIGURE 1-3
MONITORING LOCATIONS AND SAMPLING FREQUENCY FOR RMP

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

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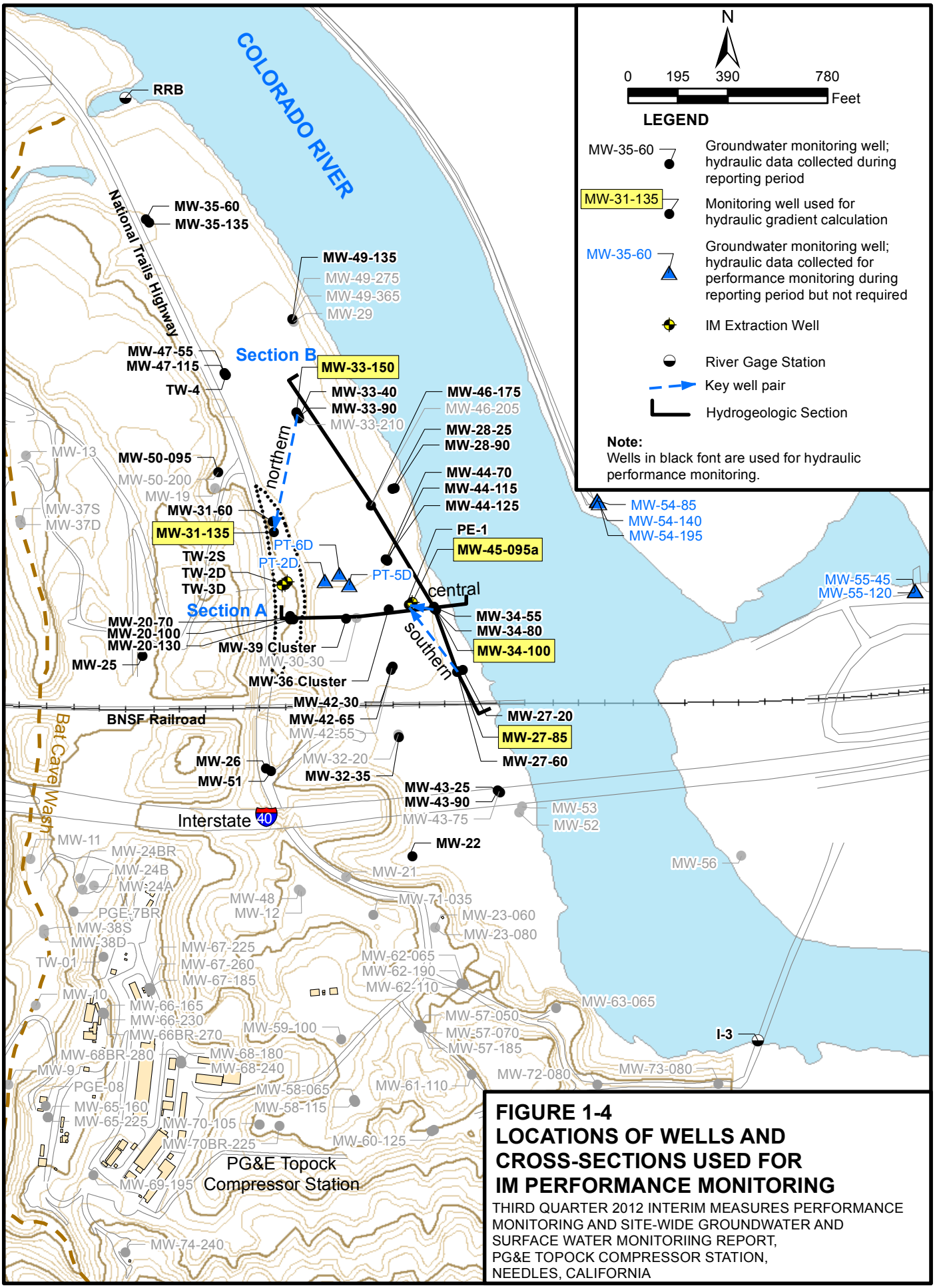

FIGURE 1-4
LOCATIONS OF WELLS AND CROSS-SECTIONS USED FOR IM PERFORMANCE MONITORING

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

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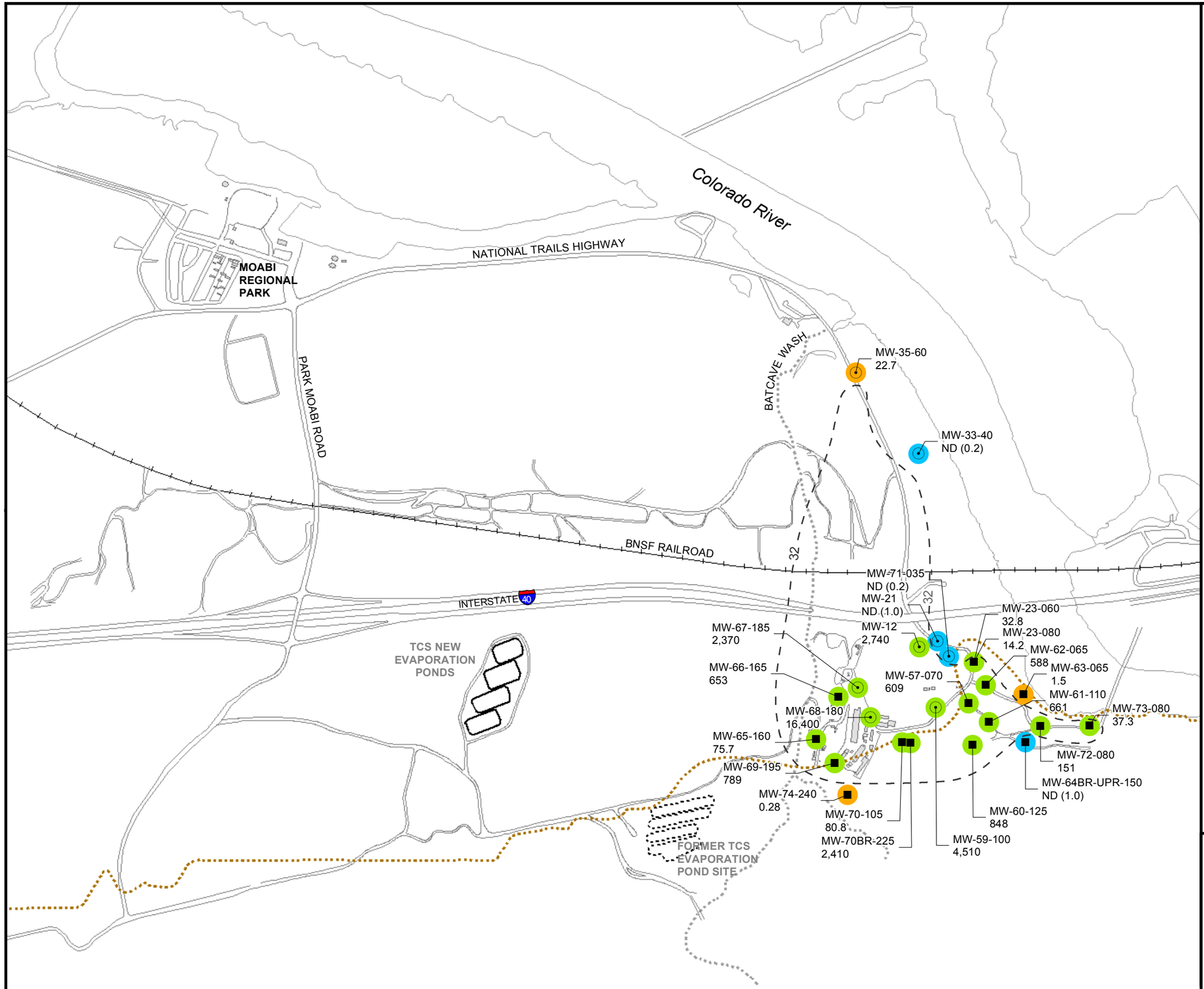

LEGEND

- 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 - Third 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 Third Quarter 2012 groundwater sampling results. Because a limited number of wells were sampled in Third Quarter 2012, data from a larger sampling event, Second Quarter 2012, were also used to develop contours.

Approximate bedrock contact at 455 feet above mean sea level.

Notes:

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

N

0 500 1,000

Feet

FIGURE 3-1a
Cr(VI) SAMPLING RESULTS, SHALLOW WELLS IN ALLUVIAL AQUIFER AND BEDROCK, THIRD QUARTER 2012

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

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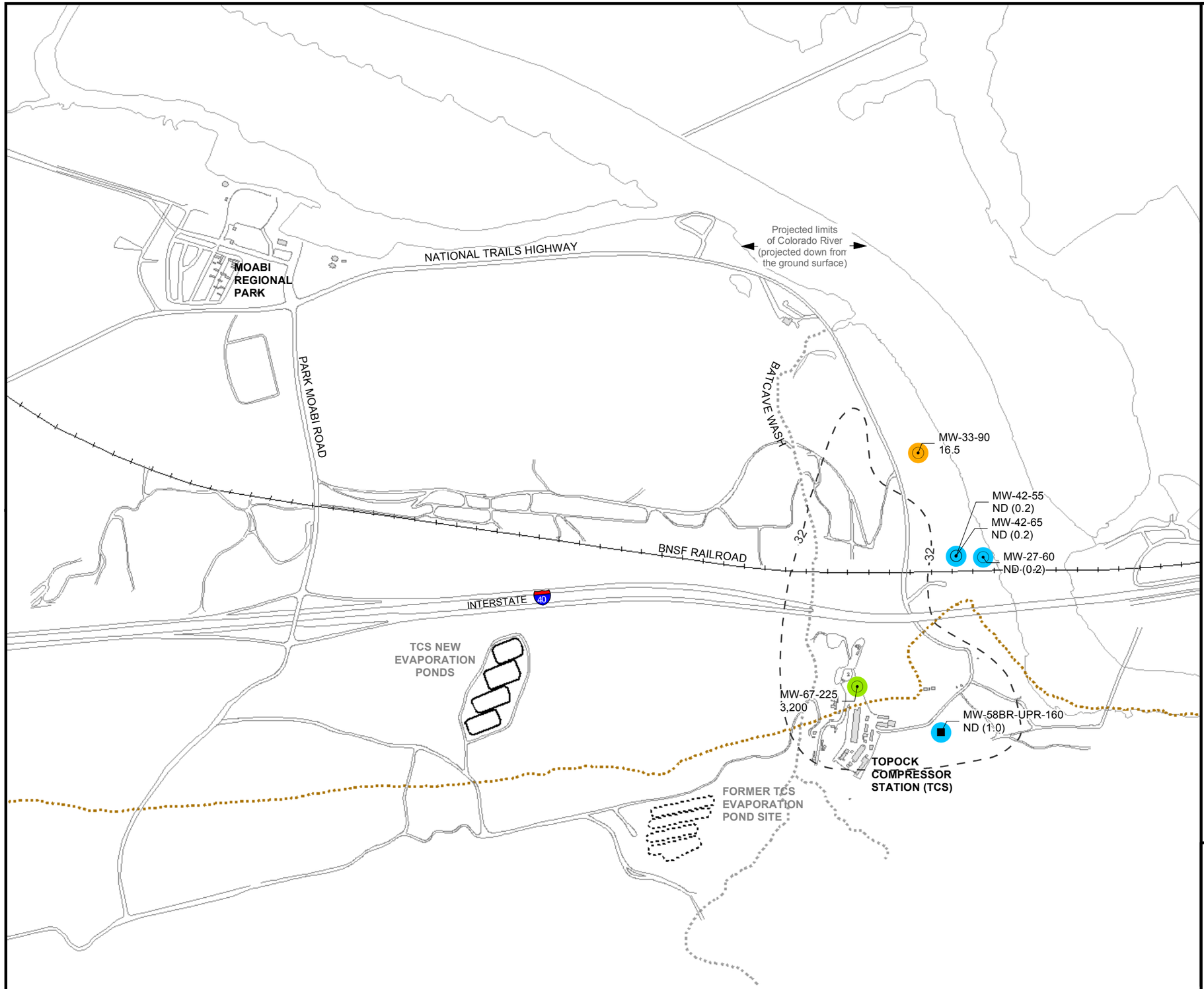

LEGEND

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

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

Cr(VI) Concentrations - Third Quarter 2012

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

32 Approximate outline of monitoring wells in Alluvial Aquifer and Bedrock with Cr(VI) concentrations ≥ 32 µg/L based on Second Quarter 2012 groundwater sampling results, where a larger number of wells were sampled.

Approximate bedrock contact at 425 feet above mean sea level.

Note:
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, THIRD QUARTER 2012

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

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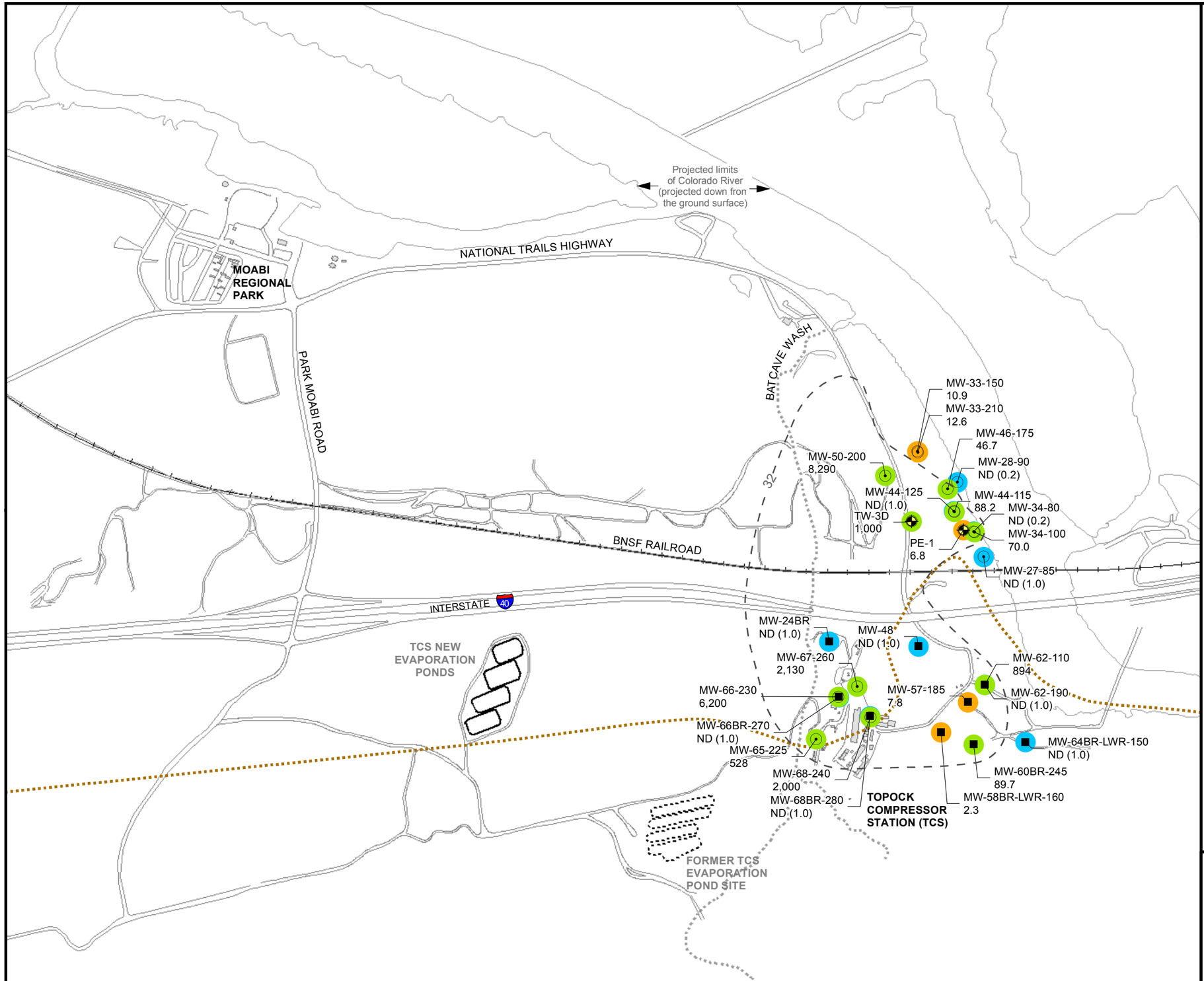

LEGEND

- 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 - Third Quarter 2012

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

32 Approximate outline of monitoring wells in Alluvial Aquifer and Bedrock with Cr(VI) concentrations ≥ 32 µg/L based on Third Quarter 2012 groundwater sampling results. Because a limited number of wells were sampled in Third Quarter 2012, data from a larger sampling event, Second Quarter 2012 were used to develop contours.

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.

N

0 500 1,000 Feet

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

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

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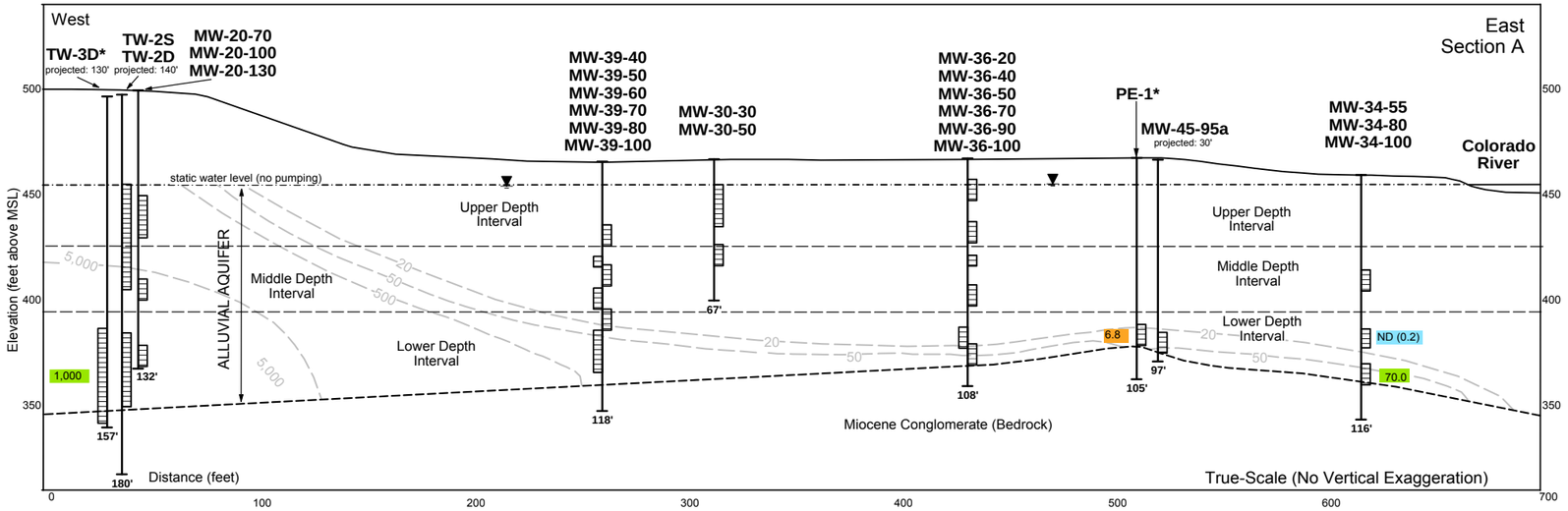

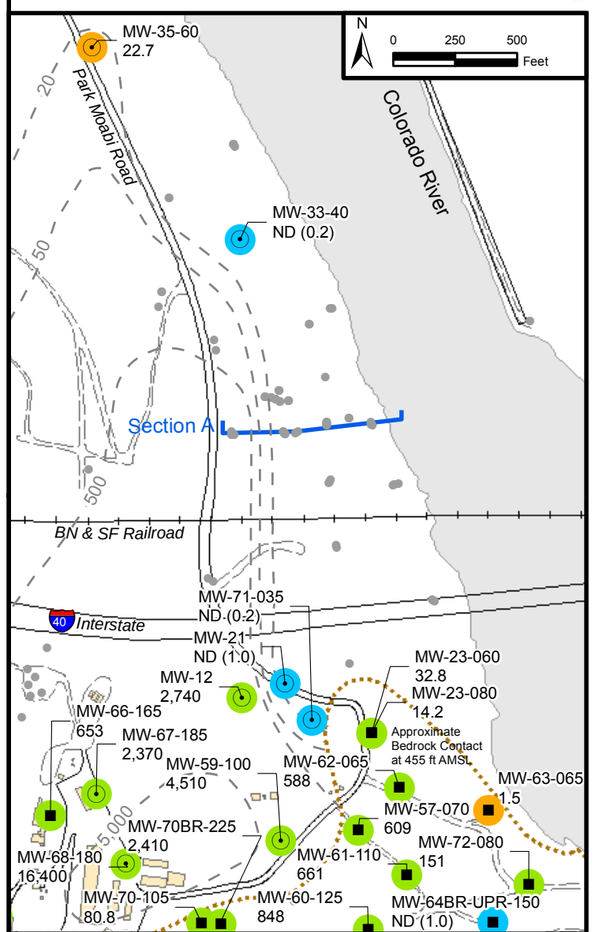

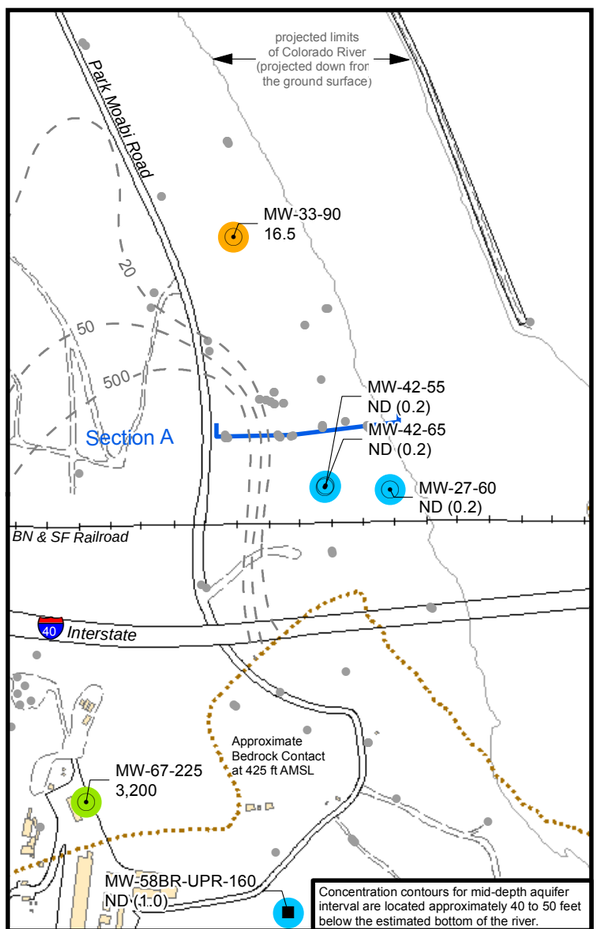

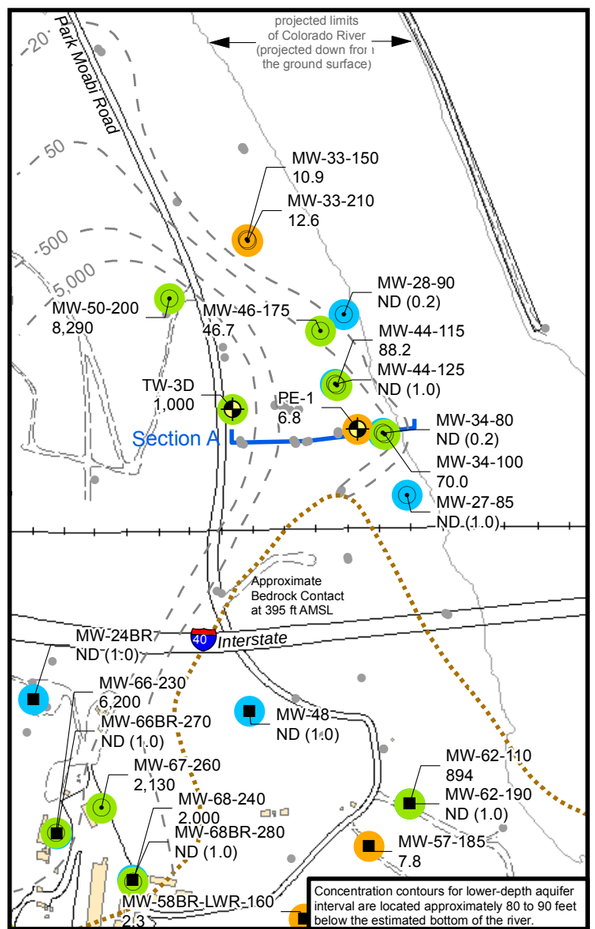

LEGEND

- Alluvial Aquifer well sampled during sampling event
- Bedrock well sampled during sampling event
- 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 - Third 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 Third Quarter 2012 groundwater sampling results. Because a limited number of wells were sampled in the Third Quarter 2012, data from a larger sampling event, Second Quarter 2012, were also used to develop contours.

- Hydrogeologic Section A
- Approximate bedrock contact

NOTES ON CONTOUR MAPS

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-1, TW-2D and TW-3D are not included in contouring. These wells draw water from a larger area and do not represent Cr(VI) concentrations at their specific locations.
3. Long screened wells and wells screened across more than one depth interval are generally not posted on this map. See Table 3-1 for complete results.

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

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

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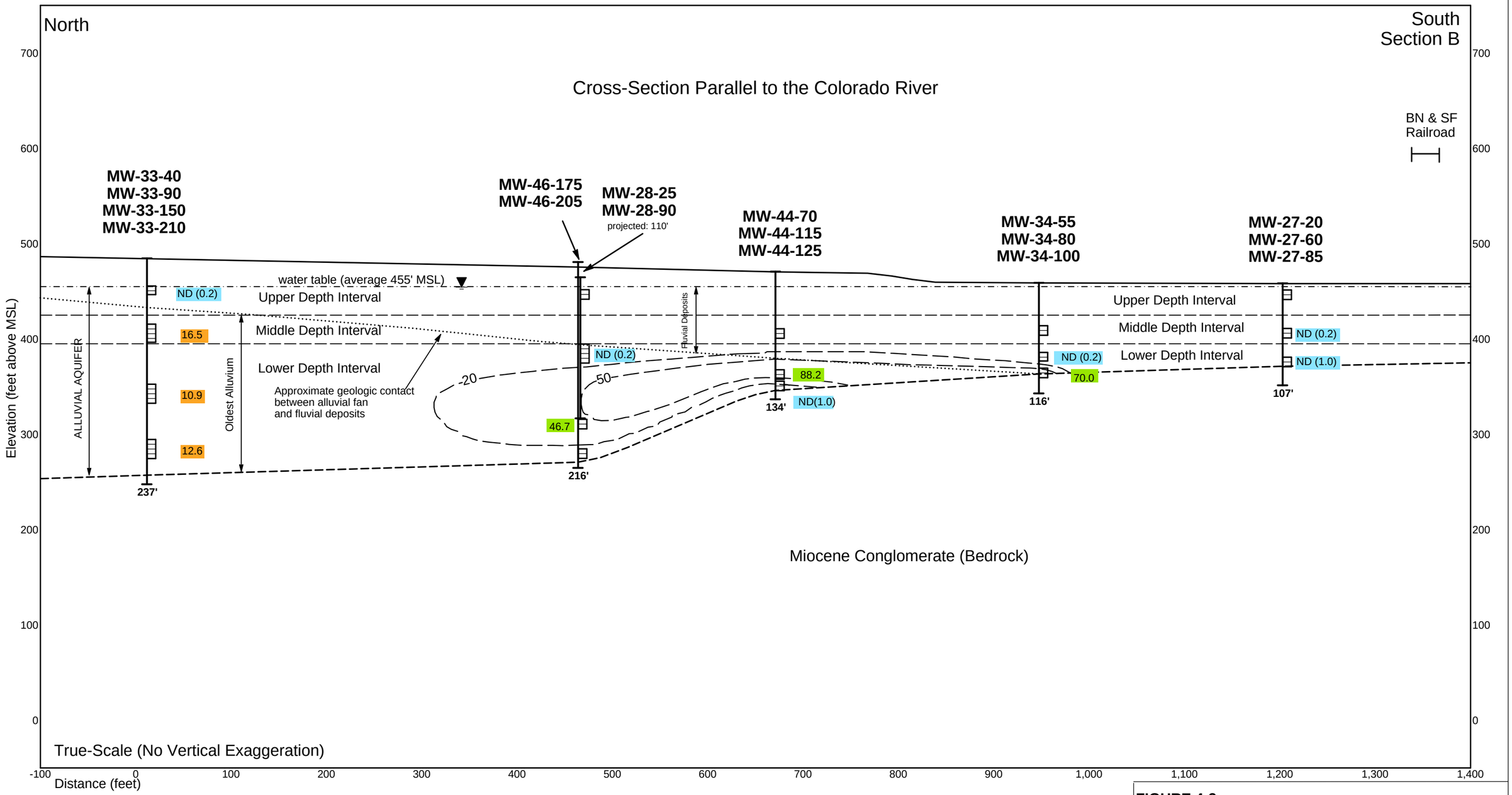


Notes:
ND = Not detected at listed reporting limit.

See Table 3-1 for additional sampling data and prior results for wells on this figure.

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 (ppb) in Alluvial Aquifer from Third Quarter 2012. Because a limited number of wells were sampled in Third Quarter 2012, data from a larger sampling event, Second Quarter 2012, were also used to develop contours.

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

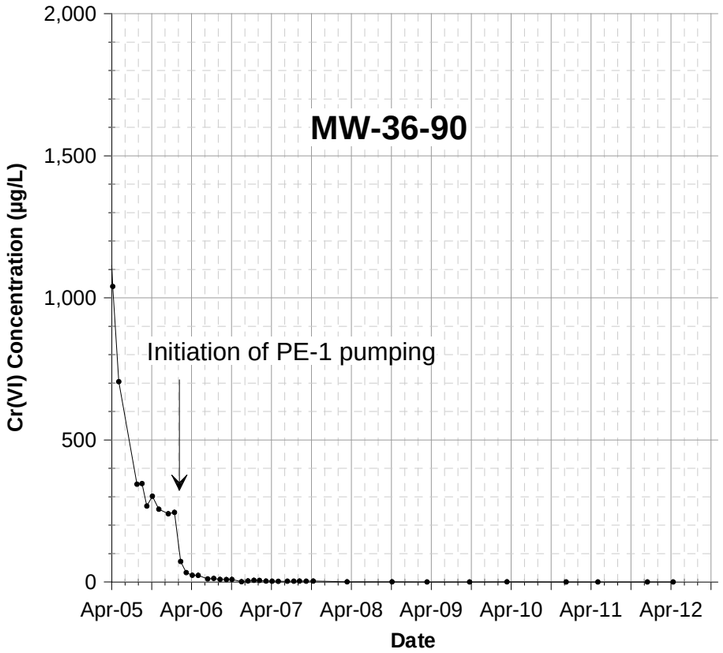
ND (0.2)	Not detected at listed reporting limit (ppb)
24.2	Less than 32 µg/L
203	Greater than 32 µg/L

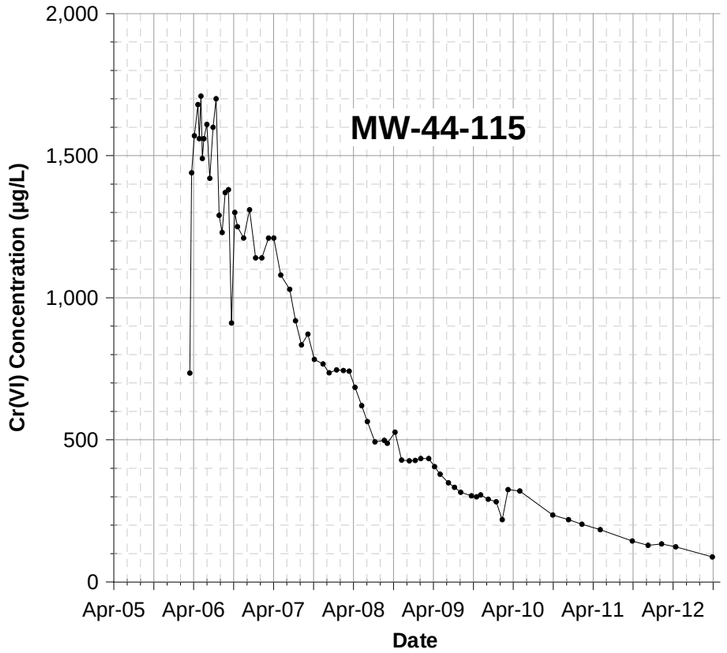
FIGURE 4-2
Cr(VI) CONCENTRATIONS
FLOODPLAIN CROSS-SECTION B,
THIRD QUARTER 2012

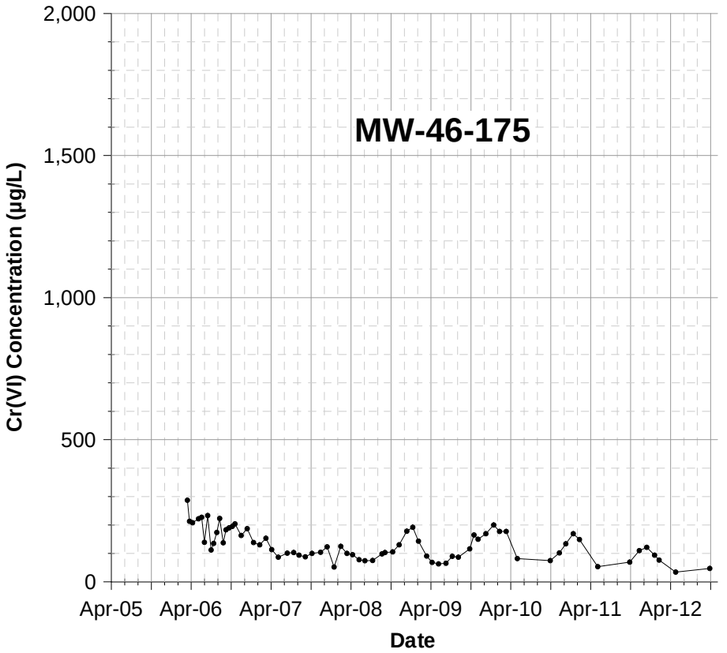
THIRD QUARTER 2012 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

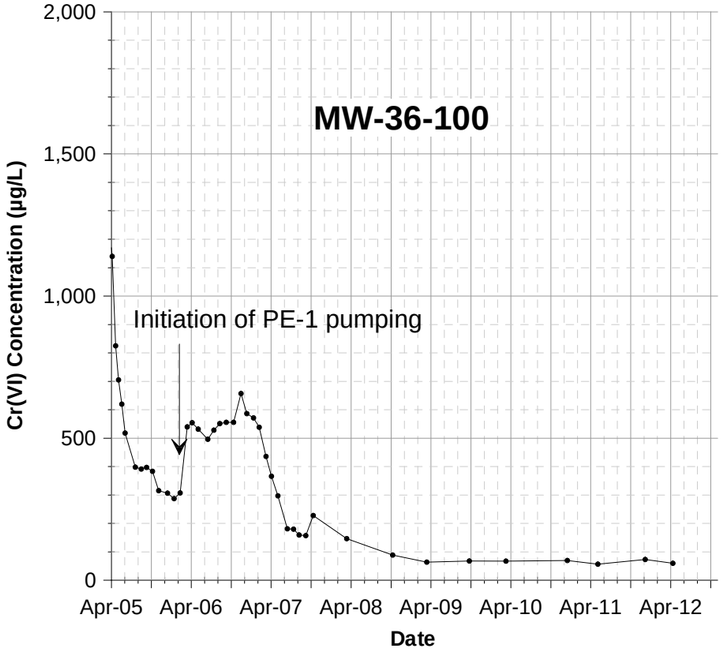
CH2MHILL

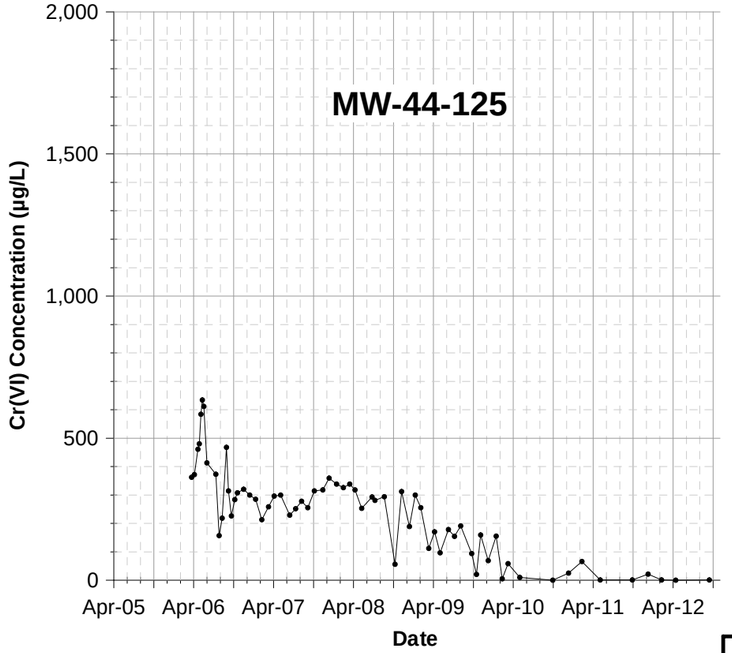
C:\USERS\E2USER\DOCUMENTS\TOPOCK\GINT\2012_3Q\FIGURE_4-2_XSECB_CR.GDW;

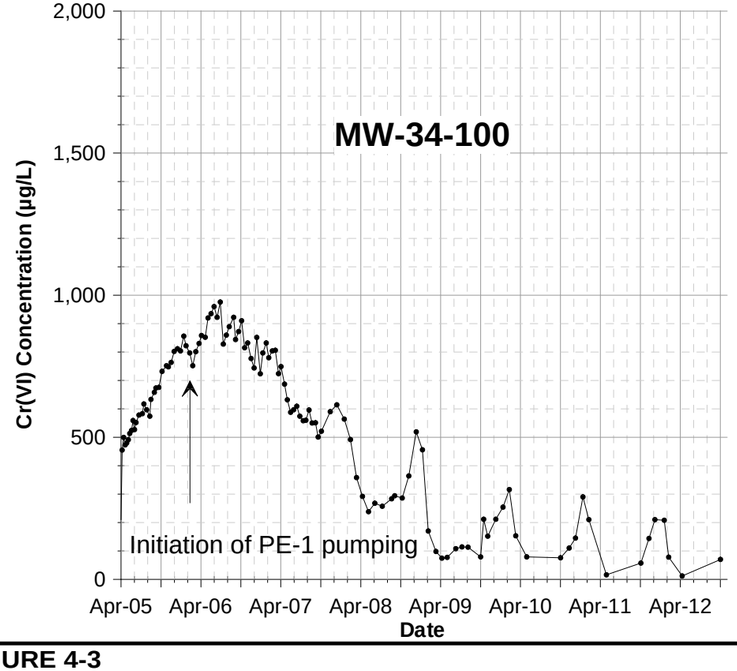












Notes

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

FIGURE 4-3
Cr(VI) CONCENTRATION TRENDS IN SELECTED PERFORMANCE MONITORING WELLS, APRIL 2005 THROUGH OCTOBER 2012
THIRD QUARTER 2012 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

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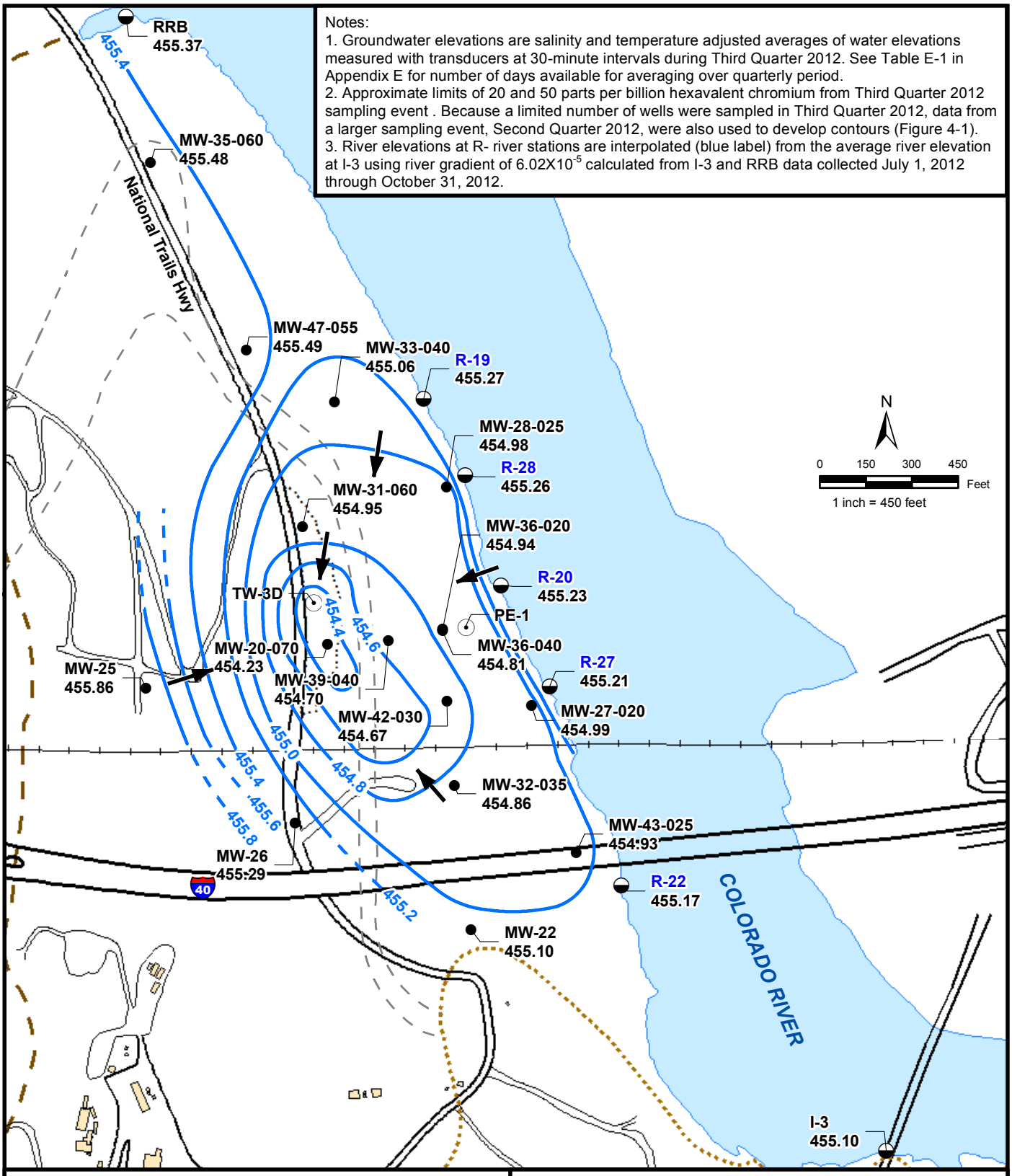

FIGURE 4-4a
AVERAGE GROUNDWATER ELEVATIONS IN SHALLOW WELLS AND RIVER ELEVATIONS, THIRD QUARTER 2012

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

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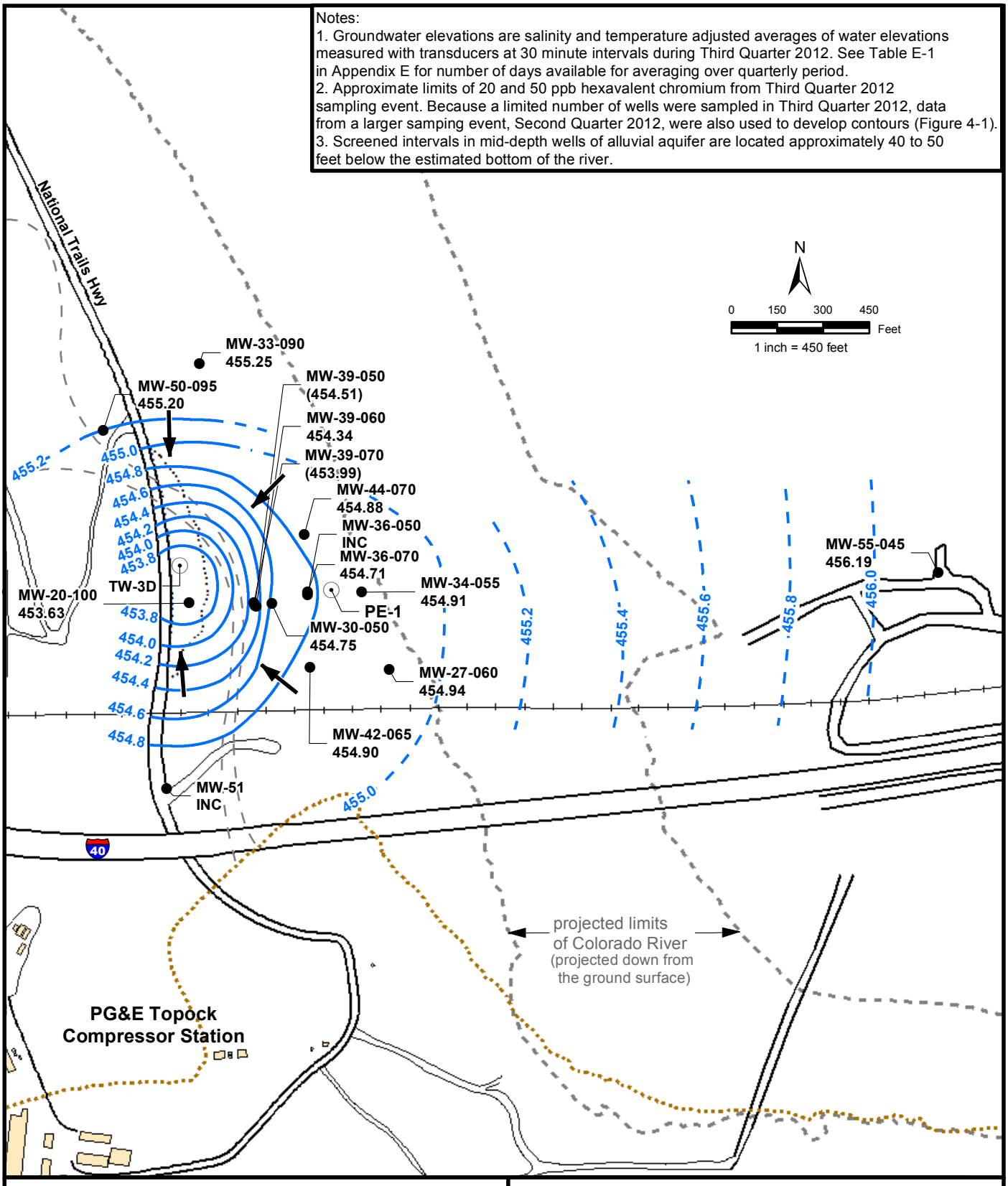

FIGURE 4-4b
AVERAGE GROUNDWATER ELEVATIONS IN MID-DEPTH WELLS, THIRD QUARTER 2012

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

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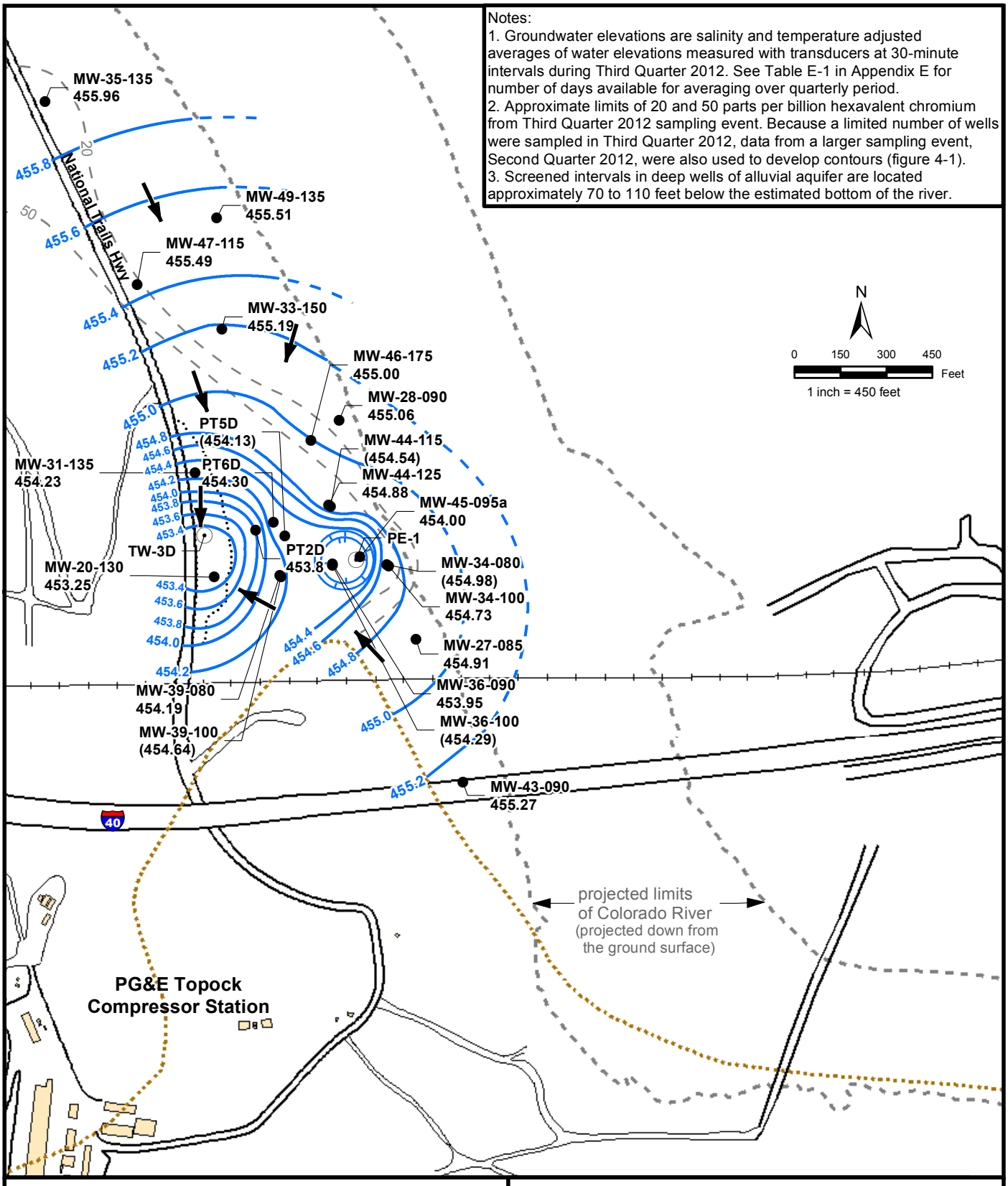

FIGURE 4-4c
AVERAGE GROUNDWATER ELEVATIONS IN DEEP WELLS, THIRD QUARTER 2012

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

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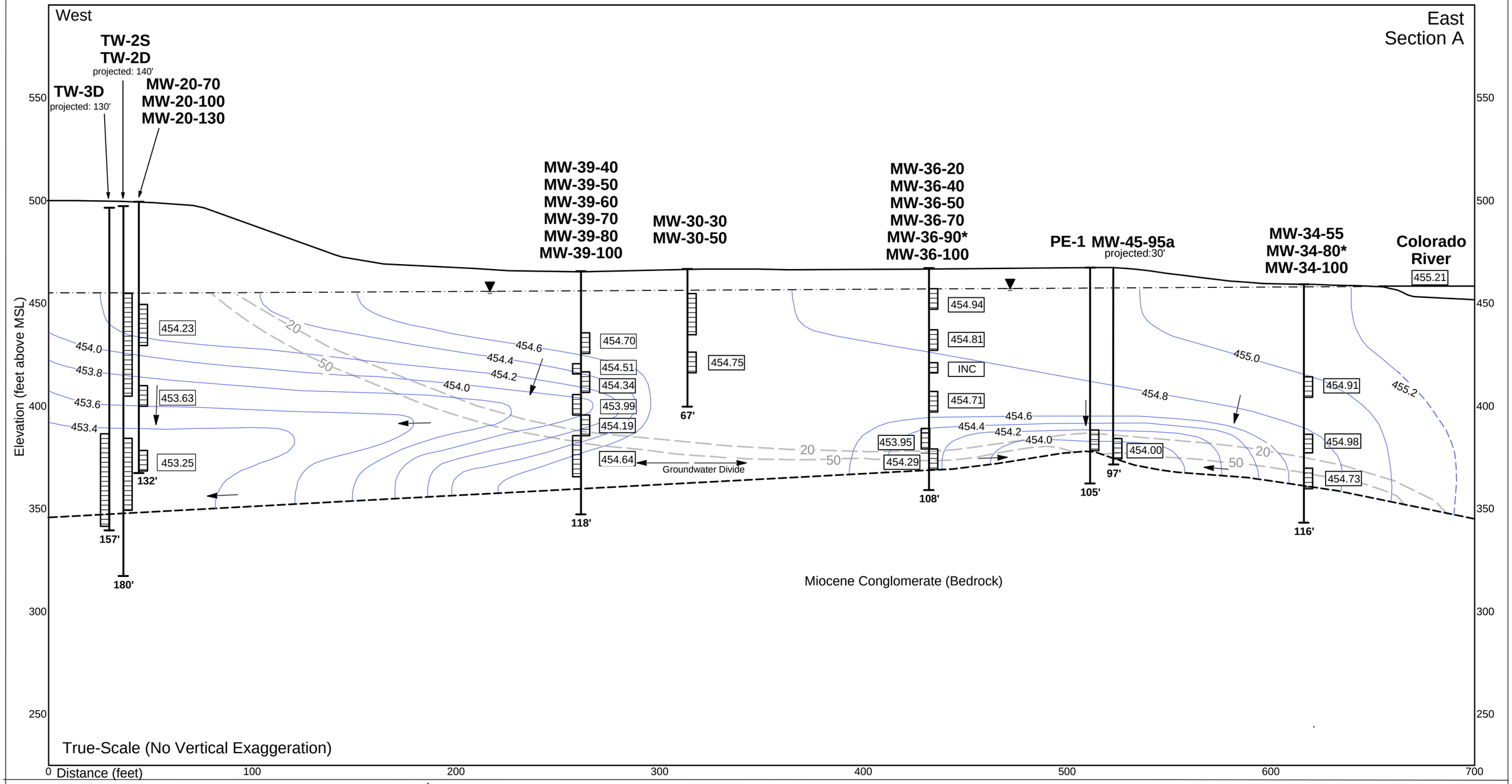

Notes:
Results show average groundwater elevations for July 1, 2012 through October 31, 2012 measured with transducers at 30 minute intervals.

Groundwater elevations adjusted for salinity and temperature.
Wells MW-36-90* and MW-34-80* are excluded from contouring.
River elevation (R-27) is the calculated average river level based upon the river gradient between RRB and I-3.

INC = Data incomplete for reporting period.

Legend:

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

20
Inferred hexavalent chromium contours (ppb) in Alluvial Aquifer from Third Quarter 2012. Because a limited number of wells were sampled in Third Quarter 2012, data from a larger sampling event, Second Quarter 2012, were also used to develop contours.

Average groundwater head (ft AMSL)

453.5
Groundwater head contour

453.5
Inferred groundwater head contour

Interpreted groundwater flow direction

FIGURE 4-5
AVERAGE GROUNDWATER ELEVATIONS FOR WELLS IN FLOODPLAIN CROSS-SECTION A, THIRD QUARTER 2012

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

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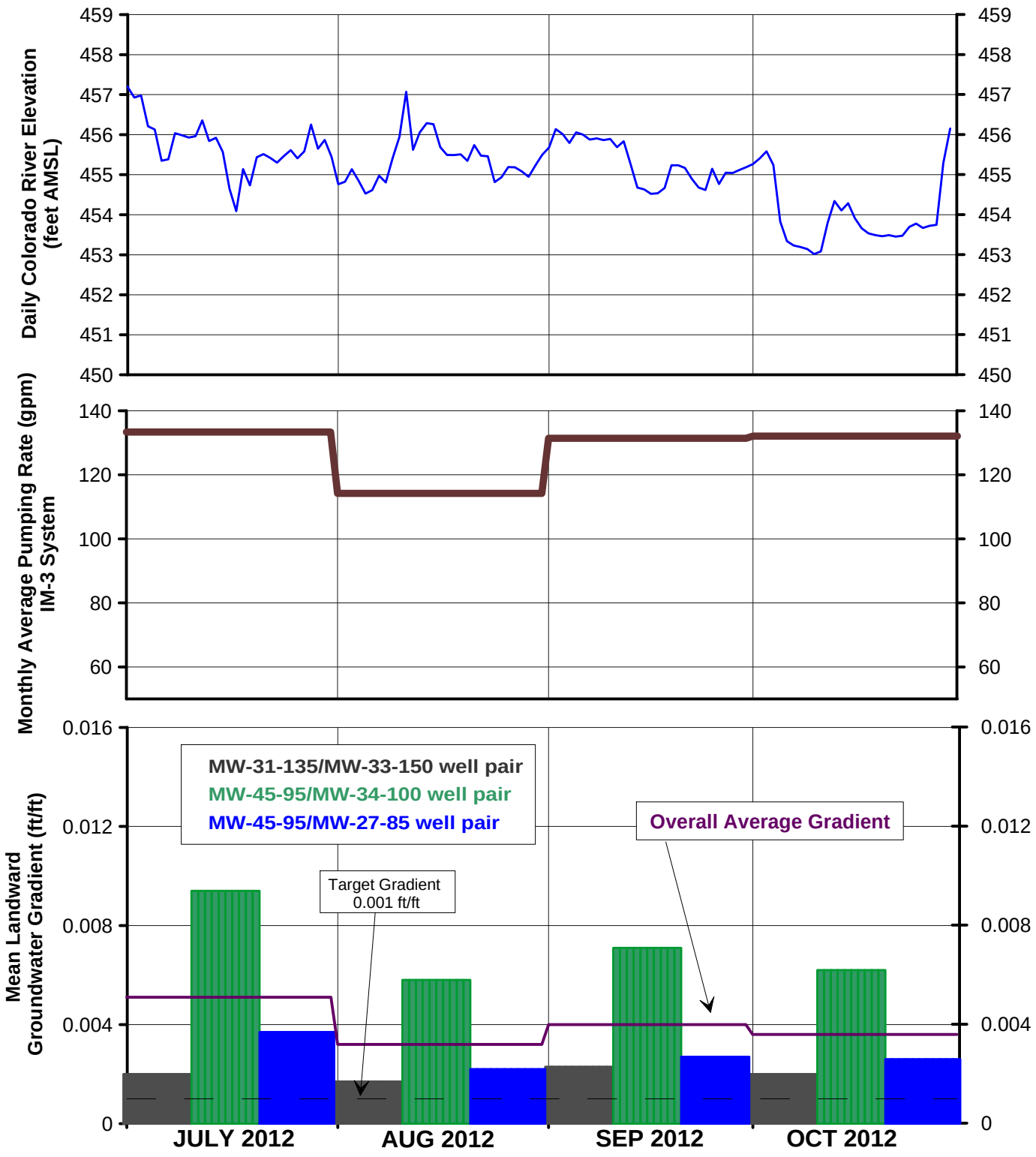
C:\USERS\E2USER\DOCUMENTS\TOPOCK\GINT\2012_3Q\FIGURE_4-5_XSECA_GW.GDW;



Notes:

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

FIGURE 4-6
MEASURED HYDRAULIC GRADIENTS, RIVER ELEVATIONS, AND PUMPING RATE, THIRD QUARTER 2012

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

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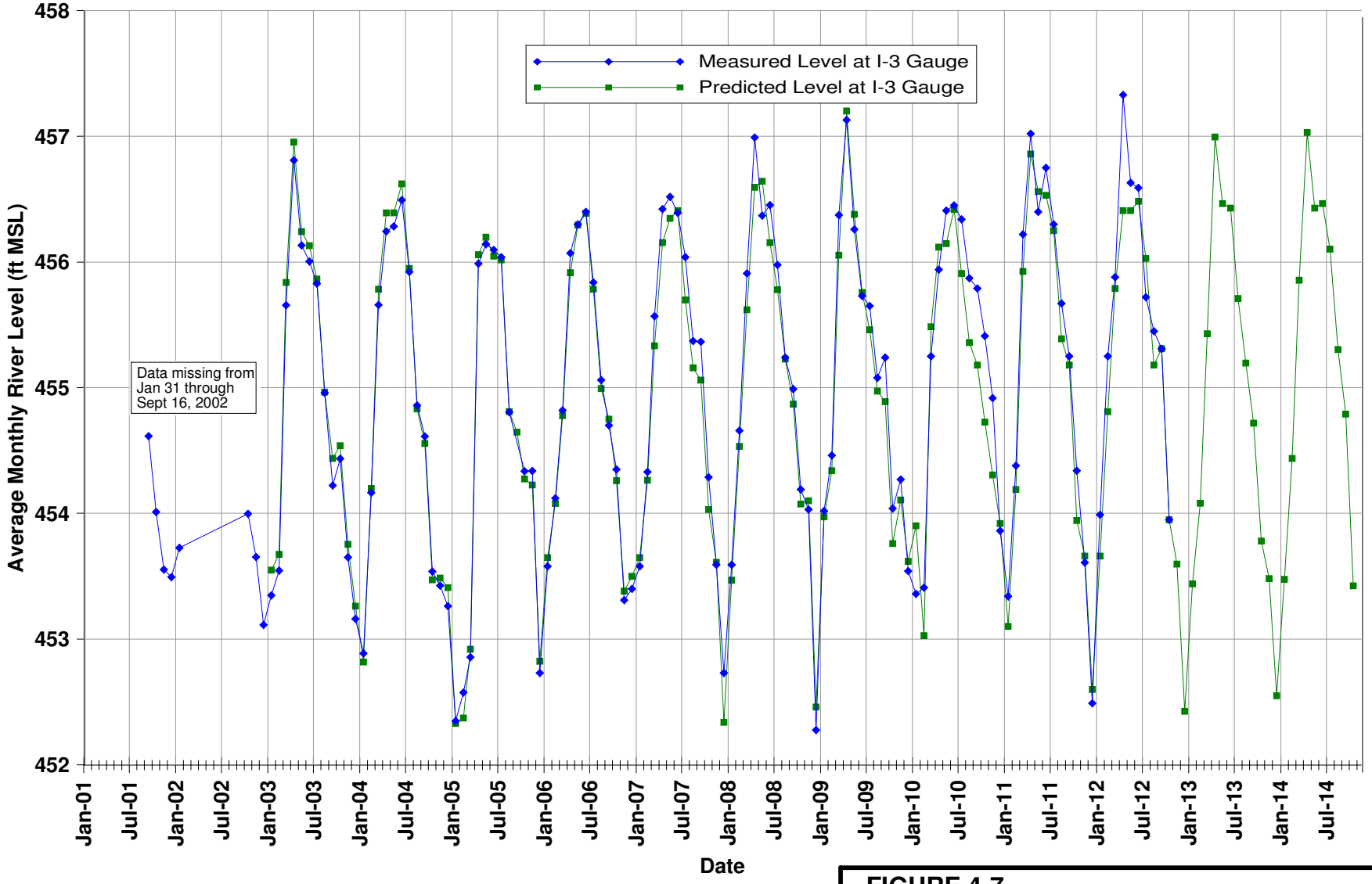

Note:
Projected river level for each month in the past is calculated based on the preceding months USBR projections of Davis Dam release and stage in Lake Havasu. Future projections of river level at I-3 are based upon November 2012 USBR projections. These data are reported monthly by the US Department of Interior, at http://www.usbr.gov/lc/region/g4000/24mo.pdf

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

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

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Appendix A
Lab Reports, Third Quarter 2012
(Provided on CD-ROM only with hardcopy submittal)

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

July 16, 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-196, GROUNDWATER MONITORING PROJECT, TLI NO.: 802392

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-EW-196 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 July 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 Total Dissolved Chromium were analyzed by method EPA 200.8 with the approval of Mr. Shawn Duffy.

Due to the discrepancy between the Total Dissolved Chromium (9.0 ug/L) and Hexavalent Chromium (6.6 ug/L) results for sample PE-01-196, sample from the Total Dissolved Chromium and Hexavalent Chromium sample containers were digested and analyzed for Total Dissolved Chromium. The results were 6.9 and 6.3 ug/L, respectively. The original digestate was re-analyzed for confirmation and yielded a result of 8.3 ug/L. The result from the re-digested Total Dissolved Chromium was reported as it more closely matched the Hexavalent Chromium result.

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

Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy
Sample: Two (2) Groundwater Samples
Project Name: PG&E Topock Project
Project No.: 424973.01.DM

Laboratory No.: 802392
Date: July 16, 2012
Collected: July 2, 2012
Received: July 2, 2012

ANALYST LIST

METHOD	PARAMETER	ANALYST
EPA 120.1	Specific Conductivity	Gautam Savani
SM 4500-H B	pH	Gautam Savani / Melissa Scharfe
SM 2540C	Total Dissolved Solids	Jenny Tankunakorn
EPA 200.8	Total Dissolved Chromium	Katia Kiarashpoor
EPA 218.6	Hexavalent Chromium	Maksim Gorbunov, Himani Vaishnav
SM 3500-CrB	Hexavalent Chromium	Jenny Tankunakorn

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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.: 802392
Date Received: July 2, 2012

Project Name: PG&E Topock Project
Project No.: 424973.01.DM
P.O. No.: 424973.01.DM

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
802392-001	PE-01-196	E120.1	NONE	7/2/2012	13:40	EC	4870	umhos/cm	2.00
802392-001	PE-01-196	E200.8	LABFLT	7/2/2012	13:40	Chromium	6.9	ug/L	1.0
802392-001	PE-01-196	E218.6	LABFLT	7/2/2012	13:40	Chromium, hexavalent	6.6	ug/L	0.20
802392-001	PE-01-196	SM2540C	NONE	7/2/2012	13:40	Total Dissolved Solids	2840	mg/L	125
802392-001	PE-01-196	SM4500HB	NONE	7/2/2012	13:40	PH	7.54	pH	4.00
802392-002	TW-03D-196	E120.1	NONE	7/2/2012	13:40	EC	8290	umhos/cm	2.00
802392-002	TW-03D-196	E200.8	LABFLT	7/2/2012	13:40	Chromium	878	ug/L	1.0
802392-002	TW-03D-196	SM2540C	NONE	7/2/2012	13:40	Total Dissolved Solids	5020	mg/L	250
802392-002	TW-03D-196	SM3500-CrB	LABFLT	7/2/2012	13:40	Chromium, hexavalent	922	ug/L	262
802392-002	TW-03D-196	SM4500HB	NONE	7/2/2012	13:40	PH	7.18	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.

005

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

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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: 424973.01.DM
P.O. Number: 424973.01.DM
Release Number:

Laboratory No. 802392

Printed 7/17/2012

Samples Received on 7/2/2012 8:45:00 PM

Field ID	Lab ID	Collected	Matrix
PE-01-196	802392-001	07/02/2012 13:40	Water
TW-03D-196	802392-002	07/02/2012 13:40	Water

Specific Conductivity - EPA 120.1

Batch 07EC12H

Parameter	Unit	Analyzed	DF	MDL	RL	Result
802392-001 Specific Conductivity	umhos/cm	07/03/2012	1.00	0.116	2.00	4870
802392-002 Specific Conductivity	umhos/cm	07/03/2012	1.00	0.116	2.00	8290

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate — Lab ID = 802394-003

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	48200	48200	0.00	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	699	706	99.0	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	701	706	99.3	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	980.	998	98.2	90 - 110

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

Chrome VI by EPA 218.6

Batch 07CrH12B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
802392-001 Chromium, Hexavalent	ug/L	07/03/2012 13:19	1.00	0.0250	0.20	6.6

Method Blank

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

Duplicate — Lab ID = 802392-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	6.88	6.58	4.44	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	5.13	5.00	103.	90 - 110

Matrix Spike — Lab ID = 802392-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	16.8	16.6(10.0)	102.	90 - 110

Matrix Spike — Lab ID = 802394-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.05	1.11(1.00)	93.4	90 - 110

Matrix Spike — Lab ID = 802394-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	1840	1800(1000)	104.	90 - 110

Matrix Spike — Lab ID = 802394-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.00	1.00(1.00)	0.00	90 - 110

Matrix Spike — Lab ID = 802394-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	10.0	11.0	11.2(10.0)	98.7	90 - 110

Matrix Spike — Lab ID = 802394-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.64	6.21(5.00)	88.5	90 - 110

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MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.00	5.00	100.	90 - 110

MRCVS - Primary

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

MRCVS - Primary

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

Chromium, Hexavalent by SM 3500-Cr B Batch 07CrH12A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
802392-002 Chromium, Hexavalent	ug/L	07/06/2012 12:08	26.2	39.3	262	922.

Method Blank

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

Duplicate — Lab ID = 802392-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	26.2	922.	922	0.00	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	99.1	100.	99.1	90 - 110

Matrix Spike — Lab ID = 802392-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	26.2	3550	3540(2620)	100.	85 - 115

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	60.7	60.0	101.	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	60.7	60.0	101.	90 - 110

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pH by SM 4500-H B

Batch 07PH12B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
802392-001 pH	pH	07/03/2012 09:40	1.00	0.0784	4.00	7.54
802392-002 pH	pH	07/03/2012 09:45	1.00	0.0784	4.00	7.18

Duplicate — Lab ID = 802392-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
pH	pH	1.00	7.18	7.18	0.00	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	7.04	7.00	100.	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
pH	pH	1.00	7.05	7.00	101.	90 - 110

Total Dissolved Solids by SM 2540 C

Batch 07TDS12A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
802392-001 Total Dissolved Solids	mg/L	07/03/2012	1.00	0.757	125	2840
802392-002 Total Dissolved Solids	mg/L	07/03/2012	1.00	0.757	250.	5020

Method Blank

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

Duplicate — Lab ID = 802395-003

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	4410	4340	1.60	0 - 5

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Dissolved Solids	mg/L	1.00	498	500.	99.6	90 - 110

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Metals by EPA 200.8, Dissolved

Batch 070312A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
802392-002 Chromium	ug/L	07/03/2012 17:48	5.00	0.195	1.0	878.

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	0.196	0.200	97.8	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	5.00	103.	100.	103.	85 - 115

Matrix Spike — Lab ID = 801751-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	5.00	253	259.(250.)	97.7	75 - 125

Matrix Spike Duplicate — Lab ID = 801751-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	5.00	262.	259.(250.)	101.	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	10.1	10.0	101.	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	10.2	10.0	102.	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	9.63	10.0	96.3	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	9.88	10.0	98.8	90 - 110

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	ND	0.00		

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Metals by EPA 200.8, Dissolved

Batch 071012A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
802392-001 Chromium	ug/L	07/10/2012 11:18	5.00	0.195	1.0	6.9

Method Blank

Parameter	Unit	DF	Result
Chromium	ug/L	1.00	ND

Duplicate — Lab ID = 802392-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	5.00	6.79	6.93	2.08	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.212	0.200	106.	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	5.00	96.7	100.	96.7	85 - 115

Matrix Spike — Lab ID = 802392-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	5.00	101	107.(100.)	94.1	75 - 125

Matrix Spike Duplicate — Lab ID = 802392-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	5.00	99.4	107.(100.)	92.5	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	10.2	10.0	102.	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	9.40	10.0	94.0	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	9.32	10.0	93.2	90 - 110

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	ND	0.00		

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Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	ND	0.00		

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	9.87	10.0	98.7	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	10.0	10.0	100.	80 - 120

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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E2 SC

Truesdail Laboratories, Inc.

Total Dissolved Solids by SM 2540 C

Calculations

Batch: 07TDS12A
Date Analyzed: 7/3/12

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	110.7304	110.7307	110.7306	0.0001	No	0.0002	2.0	25.0	ND	1
802384-2	100	73.5955	73.6079	73.6078	0.0001	No	0.0123	123.0	25.0	123.0	1
802384-4	100	68.1954	68.2091	68.2089	0.0002	No	0.0135	135.0	25.0	135.0	1
802392-1	20	50.9562	51.0132	51.013	0.0002	No	0.0568	2840.0	125.0	2840.0	1
802392-2	10	50.9924	51.0430	51.0426	0.0004	No	0.0502	5020.0	250.0	5020.0	1
802394-1	10	47.9635	48.0041	48.0037	0.0004	No	0.0402	4020.0	250.0	4020.0	1
802394-2	10	51.0747	51.1202	51.12	0.0002	No	0.0453	4530.0	250.0	4530.0	1
802394-3	2	48.1385	48.2064	48.2064	0.0000	No	0.0679	33950.0	1250.0	33950.0	1
802395-1	10	49.3544	49.3977	49.3976	0.0001	No	0.0432	4320.0	250.0	4320.0	1
802395-2	10	49.0097	49.0504	49.0503	0.0001	No	0.0406	4060.0	250.0	4060.0	1
802395-3	10	51.4329	51.4767	51.4763	0.0004	No	0.0434	4340.0	250.0	4340.0	1
802395-3D	10	51.0540	51.0983	51.0981	0.0002	No	0.0441	4410.0	250.0	4410.0	1
LCS	100	110.3321	110.3823	110.3819	0.0004	No	0.0498	498.0	25.0	498.0	1
802400-17	50	74.7313	74.7719	74.7719	0.0000	No	0.0406	812.0	50.0	812.0	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	498	500	99.6%	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?
802395-3	0.0434	0.0441	0.8%	≤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

Total Dissolved Solids by SM 2540 C

TDS/EC CHECK

Batch: 07TDS12A
Date Analyzed: 7/3/12

Laboratory Number	EC	TDS/EC Ratio: 0.55-.9	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
802384-2	219	0.56	142.35	0.86
802384-4	239	0.56	155.35	0.87
802392-1	4920	0.58	3198	0.89
802392-2	8390	0.60	5453.5	0.92
802394-1	7340	0.55	4771	0.84
802394-2	7670	0.59	4985.5	0.91
802394-3	48500	0.70	31525	1.08
802395-1	7300	0.59	4745	0.91
802395-2	7310	0.56	4751.5	0.85
802395-3	7770	0.56	5050.5	0.86
802395-3D	7770	0.57	5050.5	0.87
LCS				
802400-17	1409	0.58	915.85	0.89

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-196] 802392

COC Number

TURNAROUND TIME 10 Days

DATE 07/02/12 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 424973.01.DM

SAMPLERS (SIGNATURE

Rec'd 07/02/12
Sloc 802392

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-01-196	07/02/12	13:40	Ground water	X		X	X	X	4	pH=6 } 200.7
-2 TW-03D-196	07/02/12	13:40	Ground water	X	X	X	X		4	pH=6 }

TOTAL NUMBER OF CONTAINERS

ALERT !!
Level III QC

For Sample Conditions
See Form Attached

CHAIN OF CUSTODY SIGNATURE RECORD

	Signature	Printed Name	Company/ Agency	Date/ Time
Relinquished		CHRIS LEGH	CH2MHill	7-2-12 1520
Received	B. Dayag	B. DAYAG	TLI	7-2-12 1530
Relinquished	B. Dayag	B. DAYAG	TLI	7-2-12 2045
Received	Linda	Shakeena	TLI	7/2/12 2045
Relinquished				
Received				

SAMPLE CONDITIONS

RECEIVED COOL ☑ WARM ☐ 4.3 °C

CUSTODY SEALED YES ☐ NO ☑

SPECIAL REQUIREMENTS:

045

Hexavalent Chromium

Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
6/1/12	801867-1	9.5	N/A	N/A	N/A	MG
6/20/12	802226	7	2 ml	9.5	10:45 AM	HAV
6/20/12	802228-1	9.5	N/A	9.5	N/A	HAV
↓	↓ -2	9.5	↓	↓	↓	↓
↓	↓ -3	9.5	↓	↓	↓	↓
6/28/12	802335	9.5	N/A	9.5	N/A	HAV
6/29/12	802355-1	9.5	N/A	N/A	N/A	HAV
↓	↓ -2	↓	↓	↓	↓	↓
6/29/12	802357	9.5	N/A	N/A	N/A	HAV
7/02/12	802392-1	7	2 ml	9.5	9:00 AM	HAV
↓	802394-1	↓	↓	↓	9:15 AM	↓
7/02/12	-2	↓	↓	↓	9:30 AM	↓
↓	-3	↓	↓	↓	09:45 AM	↓

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	Adjusted to pH<2 (Y/N)
80 2320	<1	>2	6-27-12	BE	yes	30 1A yes 8:30 AM
80 2319 (1-11)	<1	>2	↓	↓	No	yes 10:00 AM
80 2323	>1	<2	↓	↓	yes	30 1A
80 2329 (10-12)	<1	>2	6-28-12	BE	No	yes 8:00 AM
80 2331 (5-6)	↓	↓	↓	↓	↓	↓
80 2335	↓	<2	↓	↓	yes	30 1A
80 2345	>1	>2	↓	↓	↓	↓ yes 14:30
80 2355 (1,2)	<1	<2	6-29-12	BE	yes	30 1A
80 2356 (1,2)	↓	↓	↓	↓	↓	↓
80 2357	↓	↓	↓	↓	↓	↓
80 2361 (1-18)	↓	↓	↓	↓	No	No
80 2362 ($\frac{1}{2}$-$\frac{6}{10}$)	↓	↓	↓	↓	↓	↓
80 2362-7	↓	>2	↓	↓	↓	↓
80 2363 (1-3)	↓	↓	↓	↓	↓	↓
80 2364 (1-30)	↓	↓	↓	↓	↓	↓
80 2374	>1	<2	7-2-12	BE	yes	30 1A
80 2384 ($\frac{1}{4}$,2,3)	<1	>2	↓	↓	No	yes 15:00
80 2388	>1	<2	7-3-12	BE	yes	30 1A
80 2389	↓	↓	↓	↓	↓	↓
80 2392 (1,2)	<1	>2	↓	↓	↓	↓ after Filt
80 2393	Solid	—	↓	↓	yes	TTLC
80 2394-2	<1	>2	↓	↓	yes	30 1A yes
80 2398-1,3	↓	<2	↓	↓	↓	↓
T.D 80 2395 (1-3)	↓	>2	↓	↓	↓	↓ after Filt.
80 2403	>1	<2	↓	↓	yes	30 1A
80 2404	↓	↓	↓	↓	↓	↓
80 2405	↓	↓	↓	↓	↓	↓
80 2406	↓	↓	↓	↓	↓	↓
80 2407	↓	↓	↓	↓	↓	↓
80 2410 (17,24)	<1	>2	↓	↓	No	yes 15:00
80 2411 (1-15)	<1	>2	7/4/12	KK	NO	YES @ 4:30 pm
80 2409	>1	<2	7-5-12	BE	yes	30 1A
80 2413	↓	↓	↓	↓	↓	↓
80 2411	↓	↓	↓	↓	↓	↓
80 2412	↓	↓	↓	↓	↓	↓
80 2423 (1-4)	<1	>2	↓	↓	No	yes 10:15 AM
80 2324 (1-31	↓	↓	↓	↓	↓	↓
80 2426 (6-7)	↓	↓	↓	↓	↓	↓
80 2454 (1-5)	>1	↓	↓	↓	yes	30 1A yes 15:00
80 2455	>1	<2	7-6-12	BE	yes	30 1A
80 2456	↓	↓	↓	↓	↓	↓
80 2465 (10-12)	<1	>2	↓	↓	No	yes 14:45
80 2468	>1	<2	↓	↓	yes	30 1A
80 2472	>1	<2	7-9-12	BE	yes	30 1A
80 2474	↓	↓	↓	↓	↓	↓
80 2479 (1-4)	↓	↓	↓	↓	↓	↓
80 2480	↓	↓	↓	↓	↓	↓
80 2481	↓	↓	↓	↓	↓	↓
80 2482	↓	↓	↓	↓	↓	↓

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: E2 **Lab #** 802392

Date Delivered: 07/02/12 **Time:** 20:45 **By:** ☐Mail ☒Field Service ☐Client

1.	Was a Chain of Custody received and signed?	☒Yes	☐No	☐N/A
2.	Does Customer require an acknowledgement of the COC?	☐Yes	☐No	☒N/A
3.	Are there any special requirements or notes on the COC?	☐Yes	☐No	☒N/A
4.	If a letter was sent with the COC, does it match the COC?	☐Yes	☐No	☒N/A
5.	Were all requested analyses understood and acceptable?	☒Yes	☐No	☐N/A
6.	Were samples received in a chilled condition? Temperature (if yes)? 4.3° C	☒Yes	☐No	☐N/A
7.	Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)?	☒Yes	☐No	☐N/A
8.	Were sample custody seals intact?	☐Yes	☐No	☒N/A
9.	Does the number of samples received agree with COC?	☒Yes	☐No	☐N/A
10.	Did sample labels correspond with the client ID's?	☒Yes	☐No	☐N/A
11.	Did sample labels indicate proper preservation? Preserved (if yes) by: ☐**Truesdail** ☐Client	☐Yes	☐No	☒N/A
12.	Were samples pH checked? pH = See C.O.C.	☒Yes	☐No	☐N/A
13.	Were all analyses within holding time at time of receipt? If not, notify Project Manager.	☒Yes	☐No	☐N/A
14.	Have Project due dates been checked and accepted? Turn Around Time (TAT): ☐ **RUSH** ☒ Std	☒Yes	☐No	☐N/A

ALERT !! Level III QC

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

16. Comments: _____

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

TRUESDAIL LABORATORIES, INC.

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Established 1931

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July 24, 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-197, GROUNDWATER MONITORING PROJECT, TLI NO.: 803083

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-EW-197 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 August 7, 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.

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

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

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy
Sample: Two (2) Groundwater Samples
Project Name: PG&E Topock Project
Project No.: 456827.01.DM

Laboratory No.: 803083
Date: August 24, 2012
Collected: August 7, 2012
Received: August 7, 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	Katia Kiarashpoor
EPA 218.6	Hexavalent Chromium	George Wahba / Maksim Gorbunov
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

Project Name: PG&E Topock Project
Project No.: 456827.01.DM
P.O. No.: 456827.01.DM

Laboratory No.: 803083
Date Received: August 7, 2012

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
803083-001	PE-01-197	E120.1	NONE	8/7/2012	10:30	EC	4830	umhos/cm	2.00
803083-001	PE-01-197	E200.8	LABFLT	8/7/2012	10:30	Chromium	7.3	ug/L	1.0
803083-001	PE-01-197	E218.6	LABFLT	8/7/2012	10:30	Chromium, Hexavalent	6.2	ug/L	0.20
803083-001	PE-01-197	SM2540C	NONE	8/7/2012	10:30	Total Dissolved Solids	2870	mg/L	125
803083-001	PE-01-197	SM4500HB	NONE	8/7/2012	10:30	PH	7.48	pH	4.00
803083-002	TW-03D-197	E120.1	NONE	8/7/2012	10:30	EC	8200	umhos/cm	2.00
803083-002	TW-03D-197	E200.8	LABFLT	8/7/2012	10:30	Chromium	946	ug/L	1.0
803083-002	TW-03D-197	SM2540C	NONE	8/7/2012	10:30	Total Dissolved Solids	5570	mg/L	250
803083-002	TW-03D-197	SM3500-CrB	LABFLT	8/7/2012	10:30	Chromium, Hexavalent	885	ug/L	250
803083-002	TW-03D-197	SM4500HB	NONE	8/7/2012	10:30	PH	7.28	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 Projec
Project Number: 424973.01.DM
P.O. Number: 424973.01.DM
Release Number:

Laboratory No. 803083

Printed 8/24/2012

Samples Received on 8/7/2012 9:30:00 PM

Field ID	Lab ID	Collected	Matrix
PE-01-197	803083-001	08/07/2012 10:30	Water
TW-03D-197	803083-002	08/07/2012 10:30	Water

Specific Conductivity - EPA 120.1 Batch 08EC12B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
803083-001 Specific Conductivity	umhos/cm	08/10/2012	1.00	0.116	2.00	4830
803083-002 Specific Conductivity	umhos/cm	08/10/2012	1.00	0.116	2.00	8200

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate — Lab ID = 803084-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	7650	7650	0.00	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	710.	706	100.	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	700.	706	99.2	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	983	998	98.5	90 - 110

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Chrome VI by EPA 218.6 Batch 08CrH12M

Parameter	Unit	Analyzed	DF	MDL	RL	Result
803083-001 Chromium, Hexavalent	ug/L	08/10/2012 16:23	1.00	0.0260	0.20	6.2

Method Blank

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

Duplicate Lab ID = 802944-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	2.49	2.53	1.68	0 - 20

Low Level Calibration Verification

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

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.71	5.00	94.3	90 - 110

Matrix Spike Lab ID = 802944-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	7.99	7.53(5.00)	109.	90 - 110

Matrix Spike Lab ID = 802944-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.12	9.45(5.00)	93.4	90 - 110

Matrix Spike Lab ID = 802944-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.924	1.00(1.00)	92.4	90 - 110

Matrix Spike Lab ID = 802944-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.69	1.75(1.00)	94.4	90 - 110

Matrix Spike Lab ID = 802944-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	6.36	6.56(5.00)	96.0	90 - 110

Matrix Spike Lab ID = 802944-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.81	1.87(1.00)	93.7	90 - 110

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Matrix Spike — Lab ID = 803005-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.51	1.57(1.00)	93.6	90 - 110

Matrix Spike — Lab ID = 803025-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.86	1.96(1.00)	90.2	90 - 110

Matrix Spike — Lab ID = 803025-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.78	1.85(1.00)	93.9	90 - 110

Matrix Spike — Lab ID = 803047-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.27	1.35(1.00)	91.6	90 - 110

Matrix Spike — Lab ID = 803047-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.56	1.63(1.00)	92.6	90 - 110

Matrix Spike — Lab ID = 803083-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	15.5	16.2(10.0)	93.1	90 - 110

Matrix Spike — Lab ID = 803084-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.08	1.18(1.00)	90.9	90 - 110

Matrix Spike — Lab ID = 803084-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	1440	1480(750.)	95.4	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.71	5.00	94.2	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.83	10.0	98.3	95 - 105

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	9.83	10.0	98.3	95 - 105

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MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.84	10.0	98.4	95 - 105

Chromium, Hexavalent by SM 3500-Cr B Batch 08CrH12A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
803083-002 Chromium, Hexavalent	ug/L	08/13/2012 16:43	25.0	37.5	250.	885.

Method Blank

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

Duplicate — Lab ID = 803083-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	885.	885	0.0113	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	95.0	100.	95.0	90 - 110

Matrix Spike — Lab ID = 803083-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	3590	3380(2500)	108.	85 - 115

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	54.6	60.0	91.0	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	60.7	60.0	101.	90 - 110

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pH by SM 4500-H B

Batch 08PH12F

Parameter	Unit	Analyzed	DF	MDL	RL	Result
803083-001 pH	pH	08/08/2012 10:10	1.00	0.0784	4.00	7.48
803083-002 pH	pH	08/08/2012 10:15	1.00	0.0784	4.00	7.28

Duplicate — Lab ID = 803083-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
pH	pH	1.00	7.49	7.48	0.134	0 - 20

Duplicate — Lab ID = 803083-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
pH	pH	1.00	7.29	7.28	0.137	0 - 20

Lab Control Sample

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

Lab Control Sample Duplicate

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

MRCVS - Primary

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

Total Dissolved Solids by SM 2540 C

Batch 08TDS12B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
803083-001 Total Dissolved Solids	mg/L	08/08/2012	1.00	0.757	125	2870
803083-002 Total Dissolved Solids	mg/L	08/08/2012	1.00	0.757	250.	5570

Method Blank

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

Duplicate — Lab ID = 803047-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	306	301	1.65	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Dissolved Solids	mg/L	1.00	502	500.	100.	90 - 110

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Metals by EPA 200.8, Dissolved Batch 081912B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
803083-001 Chromium	ug/L	08/20/2012 03:56	5.00	0.195	1.0	7.3
803083-002 Chromium	ug/L	08/20/2012 04:03	5.00	0.195	1.0	946

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	0.210	0.200	105.	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	5.00	93.5	100.	93.5	85 - 115

Matrix Spike Lab ID = 803025-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	5.00	100.	101.(100.)	98.9	75 - 125

Matrix Spike Duplicate Lab ID = 803025-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	5.00	102.	101.(100.)	101.	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	9.37	10.0	93.7	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	10.1	10.0	101.	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	9.66	10.0	96.6	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	9.96	10.0	99.6	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	9.59	10.0	95.9	90 - 110

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Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	ND	0.00		

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	ND	0.00		

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	9.94	10.0	99.4	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	9.52	10.0	95.2	80 - 120

Serial Dilution Lab ID = 803084-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	25.0	777.	756	2.70	0 - 10

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

Mona Nassimi
Manager, Analytical Services

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B2 SL

Truesdail Laboratories, Inc.

Total Dissolved Solids by SM 2540 C

Calculations

Batch: 08TDS12B
Date Analyzed: 8/7/12

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	69.5608	69.5608	69.5608	0.0000	No	0.0000	0.0	25.0	ND	1
803041-17	50	74.7315	74.7677	74.7675	0.0002	No	0.0360	720.0	50.0	720.0	1
803047-1	100	67.7734	67.8077	67.8075	0.0002	No	0.0341	341.0	25.0	341.0	1
803047-2	100	72.3899	72.4202	72.42	0.0002	No	0.0301	301.0	25.0	301.0	1
803062-14	100	68.8713	68.9302	68.9301	0.0001	No	0.0588	588.0	25.0	588.0	1
803063	20	51.4702	51.5676	51.5676	0.0000	No	0.0974	4870.0	125.0	4870.0	1
803064	20	50.9443	51.0435	51.0435	0.0000	No	0.0992	4960.0	125.0	4960.0	1
803065	10	47.5288	47.5875	47.5874	0.0001	No	0.0586	5860.0	250.0	5860.0	1
803066	10	47.7639	47.8229	47.8228	0.0001	No	0.0589	5890.0	250.0	5890.0	1
803067	10	48.0074	48.0756	48.0752	0.0004	No	0.0678	6780.0	250.0	6780.0	1
803068	10	49.2718	49.3842	49.384	0.0002	No	0.1122	11220.0	250.0	11220.0	1
803047-2D	100	108.5218	108.5525	108.5524	0.0001	No	0.0306	306.0	25.0	306.0	1
LCS	100	76.1937	76.2443	76.2439	0.0004	No	0.0502	502.0	25.0	502.0	1
803069	20	49.5165	49.6104	49.6099	0.0005	No	0.0934	4670.0	125.0	4670.0	1
803070	20	51.4242	51.5215	51.5215	0.0000	No	0.0973	4865.0	125.0	4865.0	1
803083-1	20	49.2865	49.3443	49.3439	0.0004	No	0.0574	2870.0	125.0	2870.0	1
803083-2	10	51.5073	51.5631	51.563	0.0001	No	0.0557	5570.0	250.0	5570.0	1
803084-1	10	48.5862	48.6306	48.6304	0.0002	No	0.0442	4420.0	250.0	4420.0	1
803084-2	10	49.2010	49.2476	49.2476	0.0000	No	0.0466	4660.0	250.0	4660.0	1
803092-1	50	71.3279	71.4014	71.401	0.0004	No	0.0731	1462.0	50.0	1462.0	1
803116	100	74.6790	74.737	74.7369	0.0001	No	0.0579	579.0	25.0	579.0	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	502	500	100.4%	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?
803047-2	0.0301	0.0306	0.8%	≤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

Total Dissolved Solids by SM 2540 C

TDS/EC CHECK

Batch: 08TDS12B
Date Analyzed: 8/7/12

Laboratory Number	EC	TDS/EC Ratio: 0.55-.9	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
803041-17	1296	0.56	842.4	0.85
803047-1	530	0.64	344.5	0.99
803047-2	482	0.62	313.3	0.96
803062-14	935	0.63	607.75	0.97
803063	6730	0.72	4374.5	1.11
803064	6490	0.76	4218.5	1.18
803065	7850	0.75	5102.5	1.15
803066	8240	0.71	5356	1.10
803067	8090	0.84	5258.5	1.29
803068	17000	0.66	11050	1.02
803047-2D	482	0.63	313.3	0.98
LCS				
803069	6190	0.75	4023.5	1.16
803070	6330	0.77	4114.5	1.18
803083-1	4840	0.59	3146	0.91
803083-2	8340	0.67	5421	1.03
803084-1	7190	0.61	4673.5	0.95
803084-2	7650	0.61	4972.5	0.94
803092-1	2330	0.63	1514.5	0.97
803116	920	0.63	598	0.97

Rec'd 08/07/12
S 803083

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CHAIN OF CUSTODY RECORD

[IM3Plant-EW-197] 803083

TURNAROUND TIME 10 Days
DATE 08/07/12 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

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-01-197	08/07/12	10:30	Ground water	X		X	X	X	4	pH=6 } 200.7
-2 TW-03D-197	08/07/12	10:30	Ground water	X	X	X	X		4	pH=6 }
									8	TOTAL NUMBER OF CONTAINERS

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See Sample Conditions
See Form Attached

CHAIN OF CUSTODY SIGNATURE RECORD

	Signature	Printed Name	Company/ Agency	Date/ Time
Relinquished		THOMPKINS	OMI	8-7-12 1530
Received	Rafael Davila	Rafael	T-L-I	8-7-12 3:30
Relinquished	Rafael Davila	Rafael	T-L-I	8-7-12 21:30
Received	Linda	Shadburne	TLI	8/7/12 21:30
Relinquished				
Received				

SAMPLE CONDITIONS
RECEIVED COOL ☑ WARM ☐ 3.1° C
CUSTODY SEALED YES ☐ NO ☑
SPECIAL REQUIREMENTS:

043

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
8/1/12	802944-4	9.5	N/A	N/A	N/A	MG
	-5					
	-6					
	802945-1					
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
08/01/12	802963	7	2 ml	9.5	9:00 AM	HAV
8/1/12	802964-1	7	2mL	9.5	18:00	MG
8/2/12	802964-2	7	1 mL	9.5	8:00	MG
	-3				8:10	
	-4				8:20	
8/2/12	802970	9.5	N/A	N/A	N/A	QW
	802971-1					
	-2					
8/2/12	~~802979~~					
8/2/12	802972-1	9.5	N/A	N/A	N/A	QW
	-2					
	-3					
8/3/12	803025-1	9.5	N/A	N/A	N/A	HAV
	-2					
8/7/12	803047-1	9.5	N/A	N/A	N/A	HAV
	-2					
8/7/12	803082-1	7	1mL	9.5	20:30	MG
	-2				20:35	
08/08/12	803083-1	7	2 ml	9.5	9:00 AM	HAV

HAV ~~08/08/12~~ 08/14/12

8/14/12 MG

TRUESDAIL LABORATORIES, INC.

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
803047 (1,2)	<1	<2	8-7-12	BE	30 1 A			
803048 (1-3)	<1	>2			NO	14:00		
803055 (1-6)	>1	>2		BE	30 1A CTTC	13:00	BE	Acidified apart sample
803059	>1	<2	8-8-12	BE	30 1 A			
803083 (1-2)	<1	>2				1:1:00	BE	After Lab Filter Acidified
803084 (1-2)	<1	<2				BE		
803084 (2)	↓	>2				14:00	BE	Acidified after Lab filter
803063	>1	<2						
803064								
803065								
803066								
803067								
803068								
803069								
803070								
803092 (1,2)								
803060	↓	BE >2 <2			↓	~~15:00~~ BE		
803078 (1-2)	<1	>2			NO	15:00		
803080 (1-3)	↓	↓			↓	↓		
803081								
803088 (1-7)	↓	↓	↓	↓	↓	↓		
803114	>1	<2	8-9-12	BE	30 1 A			
803103	>1	↓	↓	↓	↓			
803105 (10-12)	<1	>2	8/9/12	ES	NO	9:00 am		
803111 (1-15)	<1	<2				—		
803117 (1-15)	↓	↓	↓	↓	↓	—		
803117	>1	<2	8-9-12	BE	30 1 A			
1 sample 803143-~~1-9~~ BE	<1	<2	8-10-12	BE	30 1 A			
803142 (1-6)	↓							
803134	>1							
803135								
803136								
803137								
803139								
803140								
803140	↓	↓	↓	↓	↓			
803159	>1	<2	8-13-12	BE	30 1 A			
803160								
803161								
803162								
803163								
803164								
803165								
803166	↓	↓	↓	↓	↓			

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 #** 803083

Date Delivered: 08/07/12 **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? Temperature (if yes)? 3.1°C	☑Yes	☐No	☐N/A
7.	Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)?	☑Yes	☐No	☐N/A
8.	Were sample custody seals intact?	☐Yes	☐No	☑N/A
9.	Does the number of samples received agree with COC?	☑Yes	☐No	☐N/A
10.	Did sample labels correspond with the client ID's?	☑Yes	☐No	☐N/A
11.	Did sample labels indicate proper preservation? Preserved (if yes) by: ☐Truesdail ☐Client	☐Yes	☐No	☑N/A
12.	Were samples pH checked? pH = see c.o.c.	☑Yes	☐No	☐N/A
13.	Were all analyses within holding time at time of receipt? If not, notify Project Manager.	☑Yes	☐No	☐N/A
14.	Have Project due dates been checked and accepted? Turn Around Time (TAT): ☐ RUSH ☑Std	☑Yes	☐No	☐N/A

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

16. Comments: _____

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

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14201 FRANKLIN AVENUE
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September 20, 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-RMP-187, SURFACEWATER MONITORING PROJECT, TLI NO.: 803348

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2012-RMP-187 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 August 21, 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 early sampling time and late arrival of the samples, samples 803348-10, 803348-11, 803348-13, and 803348-14 for pH analysis by SM 4500-H B were analyzed past the holding time. Mr. Shawn Duffy approved the analysis.

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-187 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-187	2.00	No			
C-I-3-D-187	2.00	No			
C-I-3-S-187	2.00	No			
C-MAR-D-187	2.00	No			
C-MAR-S-187	2.00	No			
C-R22A-D-187	2.00	No			
C-R22A-S-187	2.00	No			
C-R27-D-187	2.00	No			
C-R27-S-187	2.00	No			
C-TAZ-D-187	2.00	No			
C-TAZ-S-187	2.00	No			
R63-187	2.00	No			
SW1-187	2.00	No			
SW2-187	2.00	No			

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Event 2012-RMP-187 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-187	9.50	No			
C-I-3-D-187	9.50	No			
C-I-3-S-187	9.50	No			
C-MAR-D-187	9.50	No			
C-MAR-S-187	9.50	No			
C-R22A-D-187	9.50	No			
C-R22A-S-187	9.50	No			
C-R27-D-187	9.50	No			
C-R27-S-187	9.50	No			
C-TAZ-D-187	9.50	No			
C-TAZ-S-187	9.50	No			
R63-187	9.50	No			
SW1-187	9.50	No			
SW2-187	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.: 803348
Date Received: August 21, 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
803348-001	C-BNS-D-187	E120.1	NONE	8/21/2012	12:33	EC	897	umhos/cm	2.00
803348-001	C-BNS-D-187	E218.6	FLDFLT	8/21/2012	12:33	Chromium, Hexavalent	ND	ug/L	0.20
803348-001	C-BNS-D-187	E300	NONE	8/21/2012	12:33	Nitrate as N	ND	mg/L	0.500
803348-001	C-BNS-D-187	SM2320B	NONE	8/21/2012	12:33	Alkalinity	130	mg/L	5.00
803348-001	C-BNS-D-187	SM2320B	NONE	8/21/2012	12:33	Alkalinity, Bicarbonate (As CaCO3)	130	mg/L	5.00
803348-001	C-BNS-D-187	SM2320B	NONE	8/21/2012	12:33	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
803348-001	C-BNS-D-187	SM2540D	NONE	8/21/2012	12:33	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
803348-001	C-BNS-D-187	SM4500HB	NONE	8/21/2012	12:33	PH	7.94	pH	4.00
803348-001	C-BNS-D-187	SW6010B	FLDFLT	8/21/2012	12:33	Iron	ND	ug/L	20.0
803348-001	C-BNS-D-187	SW6010B	NONE	8/21/2012	12:33	Iron	36.5	ug/L	20.0
803348-001	C-BNS-D-187	SW6020	FLDFLT	8/21/2012	12:33	Arsenic	2.6	ug/L	0.50
803348-001	C-BNS-D-187	SW6020	FLDFLT	8/21/2012	12:33	Chromium	ND	ug/L	1.0
803348-001	C-BNS-D-187	SW6020	FLDFLT	8/21/2012	12:33	Manganese	0.94	ug/L	0.50
803348-001	C-BNS-D-187	SW6020	FLDFLT	8/21/2012	12:33	Molybdenum	5.3	ug/L	2.0
803348-001	C-BNS-D-187	SW6020	FLDFLT	8/21/2012	12:33	Selenium	ND	ug/L	5.0
803348-002	C-I-3-D-187	E120.1	NONE	8/21/2012	10:52	EC	898	umhos/cm	2.00
803348-002	C-I-3-D-187	E218.6	FLDFLT	8/21/2012	10:52	Chromium, Hexavalent	ND	ug/L	0.20
803348-002	C-I-3-D-187	E300	NONE	8/21/2012	10:52	Nitrate as N	ND	mg/L	0.500
803348-002	C-I-3-D-187	SM2320B	NONE	8/21/2012	10:52	Alkalinity	126	mg/L	5.00
803348-002	C-I-3-D-187	SM2320B	NONE	8/21/2012	10:52	Alkalinity, Bicarbonate (As CaCO3)	126	mg/L	5.00
803348-002	C-I-3-D-187	SM2320B	NONE	8/21/2012	10:52	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
803348-002	C-I-3-D-187	SM2540D	NONE	8/21/2012	10:52	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
803348-002	C-I-3-D-187	SM4500HB	NONE	8/21/2012	10:52	PH	8.01	pH	4.00
803348-002	C-I-3-D-187	SW6010B	FLDFLT	8/21/2012	10:52	Iron	ND	ug/L	20.0
803348-002	C-I-3-D-187	SW6010B	NONE	8/21/2012	10:52	Iron	62.4	ug/L	20.0
803348-002	C-I-3-D-187	SW6020	FLDFLT	8/21/2012	10:52	Arsenic	2.7	ug/L	0.50
803348-002	C-I-3-D-187	SW6020	FLDFLT	8/21/2012	10:52	Chromium	ND	ug/L	1.0
803348-002	C-I-3-D-187	SW6020	FLDFLT	8/21/2012	10:52	Manganese	0.71	ug/L	0.50
803348-002	C-I-3-D-187	SW6020	FLDFLT	8/21/2012	10:52	Molybdenum	4.5	ug/L	2.0
803348-002	C-I-3-D-187	SW6020	FLDFLT	8/21/2012	10:52	Selenium	ND	ug/L	5.0

900

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
803348-003	C-I-3-S-187	E120.1	NONE	8/21/2012	11:06	EC	897	umhos/cm	2.00
803348-003	C-I-3-S-187	E218.6	FLDFLT	8/21/2012	11:06	Chromium, Hexavalent	ND	ug/L	0.20
803348-003	C-I-3-S-187	E300	NONE	8/21/2012	11:06	Nitrate as N	ND	mg/L	0.500
803348-003	C-I-3-S-187	SM2320B	NONE	8/21/2012	11:06	Alkalinity	129	mg/L	5.00
803348-003	C-I-3-S-187	SM2320B	NONE	8/21/2012	11:06	Alkalinity, Bicarbonate (As CaCO3)	129	mg/L	5.00
803348-003	C-I-3-S-187	SM2320B	NONE	8/21/2012	11:06	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
803348-003	C-I-3-S-187	SM2540D	NONE	8/21/2012	11:06	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
803348-003	C-I-3-S-187	SM4500HB	NONE	8/21/2012	11:06	PH	8.02	pH	4.00
803348-003	C-I-3-S-187	SW6010B	FLDFLT	8/21/2012	11:06	Iron	ND	ug/L	20.0
803348-003	C-I-3-S-187	SW6010B	NONE	8/21/2012	11:06	Iron	ND	ug/L	20.0
803348-003	C-I-3-S-187	SW6020	FLDFLT	8/21/2012	11:06	Arsenic	2.5	ug/L	0.50
803348-003	C-I-3-S-187	SW6020	FLDFLT	8/21/2012	11:06	Chromium	ND	ug/L	1.0
803348-003	C-I-3-S-187	SW6020	FLDFLT	8/21/2012	11:06	Manganese	0.72	ug/L	0.50
803348-003	C-I-3-S-187	SW6020	FLDFLT	8/21/2012	11:06	Molybdenum	5.1	ug/L	2.0
803348-003	C-I-3-S-187	SW6020	FLDFLT	8/21/2012	11:06	Selenium	ND	ug/L	5.0
803348-004	C-MAR-D-187	E120.1	NONE	8/21/2012	13:50	EC	935	umhos/cm	2.00
803348-004	C-MAR-D-187	E218.6	FLDFLT	8/21/2012	13:50	Chromium, Hexavalent	ND	ug/L	0.20
803348-004	C-MAR-D-187	E300	NONE	8/21/2012	13:50	Nitrate as N	ND	mg/L	0.500
803348-004	C-MAR-D-187	SM2320B	NONE	8/21/2012	13:50	Alkalinity	137	mg/L	5.00
803348-004	C-MAR-D-187	SM2320B	NONE	8/21/2012	13:50	Alkalinity, Bicarbonate (As CaCO3)	137	mg/L	5.00
803348-004	C-MAR-D-187	SM2320B	NONE	8/21/2012	13:50	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
803348-004	C-MAR-D-187	SM2540D	NONE	8/21/2012	13:50	Suspended Solids (Residue, Non-Filterable)	77.6	mg/L	10.0
803348-004	C-MAR-D-187	SM4500HB	NONE	8/21/2012	13:50	PH	7.81	pH	4.00
803348-004	C-MAR-D-187	SW6010B	FLDFLT	8/21/2012	13:50	Iron	25.5	ug/L	20.0
803348-004	C-MAR-D-187	SW6010B	NONE	8/21/2012	13:50	Iron	2540	ug/L	20.0
803348-004	C-MAR-D-187	SW6020	FLDFLT	8/21/2012	13:50	Arsenic	2.8	ug/L	0.50
803348-004	C-MAR-D-187	SW6020	FLDFLT	8/21/2012	13:50	Chromium	ND	ug/L	1.0
803348-004	C-MAR-D-187	SW6020	FLDFLT	8/21/2012	13:50	Manganese	44.9	ug/L	1.0
803348-004	C-MAR-D-187	SW6020	FLDFLT	8/21/2012	13:50	Molybdenum	5.2	ug/L	2.0
803348-004	C-MAR-D-187	SW6020	FLDFLT	8/21/2012	13:50	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
803348-005	C-MAR-S-187	E120.1	NONE	8/21/2012	13:50	EC	947	umhos/cm	2.00
803348-005	C-MAR-S-187	E218.6	FLDFLT	8/21/2012	13:50	Chromium, Hexavalent	ND	ug/L	0.20
803348-005	C-MAR-S-187	E300	NONE	8/21/2012	13:50	Nitrate as N	ND	mg/L	0.500
803348-005	C-MAR-S-187	SM2320B	NONE	8/21/2012	13:50	Alkalinity	123	mg/L	5.00
803348-005	C-MAR-S-187	SM2320B	NONE	8/21/2012	13:50	Alkalinity, Bicarbonate (As CaCO3)	123	mg/L	5.00
803348-005	C-MAR-S-187	SM2320B	NONE	8/21/2012	13:50	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
803348-005	C-MAR-S-187	SM2540D	NONE	8/21/2012	13:50	Suspended Solids (Residue, Non-Filterable)	74.8	mg/L	10.0
803348-005	C-MAR-S-187	SM4500HB	NONE	8/21/2012	13:50	PH	7.82	pH	4.00
803348-005	C-MAR-S-187	SW6010B	FLDFLT	8/21/2012	13:50	Iron	395	ug/L	20.0
803348-005	C-MAR-S-187	SW6010B	NONE	8/21/2012	13:50	Iron	2410	ug/L	20.0
803348-005	C-MAR-S-187	SW6020	FLDFLT	8/21/2012	13:50	Arsenic	2.8	ug/L	0.50
803348-005	C-MAR-S-187	SW6020	FLDFLT	8/21/2012	13:50	Chromium	ND	ug/L	1.0
803348-005	C-MAR-S-187	SW6020	FLDFLT	8/21/2012	13:50	Manganese	50.6	ug/L	1.0
803348-005	C-MAR-S-187	SW6020	FLDFLT	8/21/2012	13:50	Molybdenum	5.2	ug/L	2.0
803348-005	C-MAR-S-187	SW6020	FLDFLT	8/21/2012	13:50	Selenium	ND	ug/L	5.0
803348-006	C-R22A-D-187	E120.1	NONE	8/21/2012	11:56	EC	899	umhos/cm	2.00
803348-006	C-R22A-D-187	E218.6	FLDFLT	8/21/2012	11:56	Chromium, Hexavalent	ND	ug/L	0.20
803348-006	C-R22A-D-187	E300	NONE	8/21/2012	11:56	Nitrate as N	ND	mg/L	0.500
803348-006	C-R22A-D-187	SM2320B	NONE	8/21/2012	11:56	Alkalinity	123	mg/L	5.00
803348-006	C-R22A-D-187	SM2320B	NONE	8/21/2012	11:56	Alkalinity, Bicarbonate (As CaCO3)	123	mg/L	5.00
803348-006	C-R22A-D-187	SM2320B	NONE	8/21/2012	11:56	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
803348-006	C-R22A-D-187	SM2540D	NONE	8/21/2012	11:56	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
803348-006	C-R22A-D-187	SM4500HB	NONE	8/21/2012	11:56	PH	8.11	pH	4.00
803348-006	C-R22A-D-187	SW6010B	FLDFLT	8/21/2012	11:56	Iron	ND	ug/L	20.0
803348-006	C-R22A-D-187	SW6010B	NONE	8/21/2012	11:56	Iron	31.5	ug/L	20.0
803348-006	C-R22A-D-187	SW6020	FLDFLT	8/21/2012	11:56	Arsenic	2.5	ug/L	0.50
803348-006	C-R22A-D-187	SW6020	FLDFLT	8/21/2012	11:56	Chromium	ND	ug/L	1.0
803348-006	C-R22A-D-187	SW6020	FLDFLT	8/21/2012	11:56	Manganese	1.5	ug/L	0.50
803348-006	C-R22A-D-187	SW6020	FLDFLT	8/21/2012	11:56	Molybdenum	4.5	ug/L	2.0
803348-006	C-R22A-D-187	SW6020	FLDFLT	8/21/2012	11:56	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
803348-007	C-R22A-S-187	E120.1	NONE	8/21/2012	12:09	EC	890	umhos/cm	2.00
803348-007	C-R22A-S-187	E218.6	FLDFLT	8/21/2012	12:09	Chromium, Hexavalent	ND	ug/L	0.20
803348-007	C-R22A-S-187	E300	NONE	8/21/2012	12:09	Nitrate as N	ND	mg/L	0.500
803348-007	C-R22A-S-187	SM2320B	NONE	8/21/2012	12:09	Alkalinity	131	mg/L	5.00
803348-007	C-R22A-S-187	SM2320B	NONE	8/21/2012	12:09	Alkalinity, Bicarbonate (As CaCO3)	131	mg/L	5.00
803348-007	C-R22A-S-187	SM2320B	NONE	8/21/2012	12:09	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
803348-007	C-R22A-S-187	SM2540D	NONE	8/21/2012	12:09	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
803348-007	C-R22A-S-187	SM4500HB	NONE	8/21/2012	12:09	PH	8.13	pH	4.00
803348-007	C-R22A-S-187	SW6010B	FLDFLT	8/21/2012	12:09	Iron	ND	ug/L	20.0
803348-007	C-R22A-S-187	SW6010B	NONE	8/21/2012	12:09	Iron	35.3	ug/L	20.0
803348-007	C-R22A-S-187	SW6020	FLDFLT	8/21/2012	12:09	Arsenic	2.7	ug/L	0.50
803348-007	C-R22A-S-187	SW6020	FLDFLT	8/21/2012	12:09	Chromium	ND	ug/L	1.0
803348-007	C-R22A-S-187	SW6020	FLDFLT	8/21/2012	12:09	Manganese	1.3	ug/L	0.50
803348-007	C-R22A-S-187	SW6020	FLDFLT	8/21/2012	12:09	Molybdenum	5.0	ug/L	2.0
803348-007	C-R22A-S-187	SW6020	FLDFLT	8/21/2012	12:09	Selenium	ND	ug/L	5.0
803348-008	C-R27-D-187	E120.1	NONE	8/21/2012	12:58	EC	890	umhos/cm	2.00
803348-008	C-R27-D-187	E218.6	FLDFLT	8/21/2012	12:58	Chromium, Hexavalent	ND	ug/L	0.20
803348-008	C-R27-D-187	E300	NONE	8/21/2012	12:58	Nitrate as N	ND	mg/L	0.500
803348-008	C-R27-D-187	SM2320B	NONE	8/21/2012	12:58	Alkalinity	132	mg/L	5.00
803348-008	C-R27-D-187	SM2320B	NONE	8/21/2012	12:58	Alkalinity, Bicarbonate (As CaCO3)	132	mg/L	5.00
803348-008	C-R27-D-187	SM2320B	NONE	8/21/2012	12:58	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
803348-008	C-R27-D-187	SM2540D	NONE	8/21/2012	12:58	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
803348-008	C-R27-D-187	SM4500HB	NONE	8/21/2012	12:58	PH	8.08	pH	4.00
803348-008	C-R27-D-187	SW6010B	FLDFLT	8/21/2012	12:58	Iron	ND	ug/L	20.0
803348-008	C-R27-D-187	SW6010B	NONE	8/21/2012	12:58	Iron	35.2	ug/L	20.0
803348-008	C-R27-D-187	SW6020	FLDFLT	8/21/2012	12:58	Arsenic	2.7	ug/L	0.50
803348-008	C-R27-D-187	SW6020	FLDFLT	8/21/2012	12:58	Chromium	ND	ug/L	1.0
803348-008	C-R27-D-187	SW6020	FLDFLT	8/21/2012	12:58	Manganese	1.1	ug/L	0.50
803348-008	C-R27-D-187	SW6020	FLDFLT	8/21/2012	12:58	Molybdenum	5.5	ug/L	2.0
803348-008	C-R27-D-187	SW6020	FLDFLT	8/21/2012	12:58	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
803348-009	C-R27-S-187	E120.1	NONE	8/21/2012	13:11	EC	894	umhos/cm	2.00
803348-009	C-R27-S-187	E218.6	FLDFLT	8/21/2012	13:11	Chromium, Hexavalent	ND	ug/L	0.20
803348-009	C-R27-S-187	E300	NONE	8/21/2012	13:11	Nitrate as N	ND	mg/L	0.500
803348-009	C-R27-S-187	SM2320B	NONE	8/21/2012	13:11	Alkalinity	125	mg/L	5.00
803348-009	C-R27-S-187	SM2320B	NONE	8/21/2012	13:11	Alkalinity, Bicarbonate (As CaCO3)	125	mg/L	5.00
803348-009	C-R27-S-187	SM2320B	NONE	8/21/2012	13:11	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
803348-009	C-R27-S-187	SM2540D	NONE	8/21/2012	13:11	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
803348-009	C-R27-S-187	SM4500HB	NONE	8/21/2012	13:11	PH	8.08	pH	4.00
803348-009	C-R27-S-187	SW6010B	FLDFLT	8/21/2012	13:11	Iron	ND	ug/L	20.0
803348-009	C-R27-S-187	SW6010B	NONE	8/21/2012	13:11	Iron	ND	ug/L	20.0
803348-009	C-R27-S-187	SW6020	FLDFLT	8/21/2012	13:11	Arsenic	2.3	ug/L	0.50
803348-009	C-R27-S-187	SW6020	FLDFLT	8/21/2012	13:11	Chromium	ND	ug/L	1.0
803348-009	C-R27-S-187	SW6020	FLDFLT	8/21/2012	13:11	Manganese	1.1	ug/L	0.50
803348-009	C-R27-S-187	SW6020	FLDFLT	8/21/2012	13:11	Molybdenum	4.4	ug/L	2.0
803348-009	C-R27-S-187	SW6020	FLDFLT	8/21/2012	13:11	Selenium	ND	ug/L	5.0
803348-010	C-TAZ-D-187	E120.1	NONE	8/21/2012	9:58	EC	899	umhos/cm	2.00
803348-010	C-TAZ-D-187	E218.6	FLDFLT	8/21/2012	9:58	Chromium, Hexavalent	ND	ug/L	0.20
803348-010	C-TAZ-D-187	E300	NONE	8/21/2012	9:58	Nitrate as N	ND	mg/L	0.500
803348-010	C-TAZ-D-187	SM2320B	NONE	8/21/2012	9:58	Alkalinity	137	mg/L	5.00
803348-010	C-TAZ-D-187	SM2320B	NONE	8/21/2012	9:58	Alkalinity, Bicarbonate (As CaCO3)	137	mg/L	5.00
803348-010	C-TAZ-D-187	SM2320B	NONE	8/21/2012	9:58	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
803348-010	C-TAZ-D-187	SM2540D	NONE	8/21/2012	9:58	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
803348-010	C-TAZ-D-187	SM4500HB	NONE	8/21/2012	9:58	PH	8.10 J	pH	4.00
803348-010	C-TAZ-D-187	SW6010B	FLDFLT	8/21/2012	9:58	Iron	ND	ug/L	20.0
803348-010	C-TAZ-D-187	SW6010B	NONE	8/21/2012	9:58	Iron	42.7	ug/L	20.0
803348-010	C-TAZ-D-187	SW6020	FLDFLT	8/21/2012	9:58	Arsenic	2.6	ug/L	0.50
803348-010	C-TAZ-D-187	SW6020	FLDFLT	8/21/2012	9:58	Chromium	ND	ug/L	1.0
803348-010	C-TAZ-D-187	SW6020	FLDFLT	8/21/2012	9:58	Manganese	0.90	ug/L	0.50
803348-010	C-TAZ-D-187	SW6020	FLDFLT	8/21/2012	9:58	Molybdenum	4.7	ug/L	2.0
803348-010	C-TAZ-D-187	SW6020	FLDFLT	8/21/2012	9:58	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
803348-011	C-TAZ-S-187	E120.1	NONE	8/21/2012	10:15	EC	896	umhos/cm	2.00
803348-011	C-TAZ-S-187	E218.6	FLDFLT	8/21/2012	10:15	Chromium, Hexavalent	ND	ug/L	0.20
803348-011	C-TAZ-S-187	E300	NONE	8/21/2012	10:15	Nitrate as N	ND	mg/L	0.500
803348-011	C-TAZ-S-187	SM2320B	NONE	8/21/2012	10:15	Alkalinity	133	mg/L	5.00
803348-011	C-TAZ-S-187	SM2320B	NONE	8/21/2012	10:15	Alkalinity, Bicarbonate (As CaCO3)	133	mg/L	5.00
803348-011	C-TAZ-S-187	SM2320B	NONE	8/21/2012	10:15	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
803348-011	C-TAZ-S-187	SM2540D	NONE	8/21/2012	10:15	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
803348-011	C-TAZ-S-187	SM4500HB	NONE	8/21/2012	10:15	PH	8.09 J	pH	4.00
803348-011	C-TAZ-S-187	SW6010B	FLDFLT	8/21/2012	10:15	Iron	ND	ug/L	20.0
803348-011	C-TAZ-S-187	SW6010B	NONE	8/21/2012	10:15	Iron	ND	ug/L	20.0
803348-011	C-TAZ-S-187	SW6020	FLDFLT	8/21/2012	10:15	Arsenic	2.4	ug/L	0.50
803348-011	C-TAZ-S-187	SW6020	FLDFLT	8/21/2012	10:15	Chromium	ND	ug/L	1.0
803348-011	C-TAZ-S-187	SW6020	FLDFLT	8/21/2012	10:15	Manganese	0.80	ug/L	0.50
803348-011	C-TAZ-S-187	SW6020	FLDFLT	8/21/2012	10:15	Molybdenum	5.3	ug/L	2.0
803348-011	C-TAZ-S-187	SW6020	FLDFLT	8/21/2012	10:15	Selenium	ND	ug/L	5.0
803348-012	R63-187	E120.1	NONE	8/21/2012	11:30	EC	891	umhos/cm	2.00
803348-012	R63-187	E218.6	FLDFLT	8/21/2012	11:30	Chromium, Hexavalent	ND	ug/L	0.20
803348-012	R63-187	E300	NONE	8/21/2012	11:30	Nitrate as N	ND	mg/L	0.500
803348-012	R63-187	SM2320B	NONE	8/21/2012	11:30	Alkalinity	125	mg/L	5.00
803348-012	R63-187	SM2320B	NONE	8/21/2012	11:30	Alkalinity, Bicarbonate (As CaCO3)	125	mg/L	5.00
803348-012	R63-187	SM2320B	NONE	8/21/2012	11:30	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
803348-012	R63-187	SM2540D	NONE	8/21/2012	11:30	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
803348-012	R63-187	SM4500HB	NONE	8/21/2012	11:30	PH	8.12	pH	4.00
803348-012	R63-187	SW6010B	FLDFLT	8/21/2012	11:30	Iron	ND	ug/L	20.0
803348-012	R63-187	SW6010B	NONE	8/21/2012	11:30	Iron	31.3	ug/L	20.0
803348-012	R63-187	SW6020	FLDFLT	8/21/2012	11:30	Arsenic	2.5	ug/L	0.50
803348-012	R63-187	SW6020	FLDFLT	8/21/2012	11:30	Chromium	ND	ug/L	1.0
803348-012	R63-187	SW6020	FLDFLT	8/21/2012	11:30	Manganese	4.3	ug/L	0.50
803348-012	R63-187	SW6020	FLDFLT	8/21/2012	11:30	Molybdenum	4.7	ug/L	2.0
803348-012	R63-187	SW6020	FLDFLT	8/21/2012	11:30	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
803348-013	SW1-187	E120.1	NONE	8/21/2012	7:20	EC	916	umhos/cm	2.00
803348-013	SW1-187	E218.6	FLDFLT	8/21/2012	7:20	Chromium, Hexavalent	ND	ug/L	0.20
803348-013	SW1-187	SM4500HB	NONE	8/21/2012	7:20	PH	7.70 J	pH	4.00
803348-013	SW1-187	SW6020	FLDFLT	8/21/2012	7:20	Chromium	ND	ug/L	1.0
803348-014	SW2-187	E120.1	NONE	8/21/2012	7:40	EC	912	umhos/cm	2.00
803348-014	SW2-187	E218.6	FLDFLT	8/21/2012	7:40	Chromium, Hexavalent	ND	ug/L	0.20
803348-014	SW2-187	SM4500HB	NONE	8/21/2012	7:40	PH	7.73 J	pH	4.00
803348-014	SW2-187	SW6020	FLDFLT	8/21/2012	7:40	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.RM
P.O. Number: 423575.MP.02.RM
Release Number:

Laboratory No. 803348

Printed 9/20/2012

Samples Received on 8/21/2012 9:30:00 PM

Field ID	Lab ID	Collected	Matrix
C-BNS-D-187	803348-001	08/21/2012 12:33	Water
C-I-3-D-187	803348-002	08/21/2012 10:52	Water
C-I-3-S-187	803348-003	08/21/2012 11:06	Water
C-MAR-D-187	803348-004	08/21/2012 13:50	Water
C-MAR-S-187	803348-005	08/21/2012 13:50	Water
C-R22A-D-187	803348-006	08/21/2012 11:56	Water
C-R22A-S-187	803348-007	08/21/2012 12:09	Water
C-R27-D-187	803348-008	08/21/2012 12:58	Water
C-R27-S-187	803348-009	08/21/2012 13:11	Water
C-TAZ-D-187	803348-010	08/21/2012 09:58	Water
C-TAZ-S-187	803348-011	08/21/2012 10:15	Water
R63-187	803348-012	08/21/2012 11:30	Water
SW1-187	803348-013	08/21/2012 07:20	Water
SW2-187	803348-014	08/21/2012 07:40	Water

Anions By I.C. - EPA 300.0 Batch 08AN12Q

Parameter	Unit	Analyzed	DF	MDL	RL	Result
803348-001 Nitrate as Nitrogen	mg/L	08/22/2012 11:56	1.00	0.0270	0.500	ND
803348-002 Nitrate as Nitrogen	mg/L	08/22/2012 13:05	1.00	0.0270	0.500	ND
803348-003 Nitrate as Nitrogen	mg/L	08/22/2012 13:39	1.00	0.0270	0.500	ND
803348-004 Nitrate as Nitrogen	mg/L	08/22/2012 13:50	1.00	0.0270	0.500	ND
803348-005 Nitrate as Nitrogen	mg/L	08/22/2012 14:02	1.00	0.0270	0.500	ND
803348-006 Nitrate as Nitrogen	mg/L	08/22/2012 14:13	1.00	0.0270	0.500	ND
803348-007 Nitrate as Nitrogen	mg/L	08/22/2012 14:24	1.00	0.0270	0.500	ND
803348-008 Nitrate as Nitrogen	mg/L	08/22/2012 14:36	1.00	0.0270	0.500	ND
803348-009 Nitrate as Nitrogen	mg/L	08/22/2012 14:47	1.00	0.0270	0.500	ND
803348-010 Nitrate as Nitrogen	mg/L	08/22/2012 14:59	1.00	0.0270	0.500	ND
803348-011 Nitrate as Nitrogen	mg/L	08/22/2012 15:10	1.00	0.0270	0.500	ND

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803348-012 Nitrate as Nitrogen	mg/L	08/22/2012 15:22	1.00	0.0270	0.500	ND	

Method Blank

Parameter	Unit	DF	Result
Fluoride	mg/L	1.00	ND
Nitrate as Nitrogen	mg/L	1.00	ND

Duplicate Lab ID = 803318-005

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Fluoride	mg/L	1.00	ND	0.218	0	0 - 20

Duplicate Lab ID = 803348-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Nitrate as Nitrogen	mg/L	1.00	ND	0.337	0	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Fluoride	mg/L	1.00	4.13	4.00	103.	90 - 110
Nitrate as Nitrogen	mg/L	1.00	4.04	4.00	101.	90 - 110

Matrix Spike Lab ID = 803318-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Fluoride	mg/L	1.00	2.30	2.22(2.00)	104.	85 - 115

Matrix Spike Lab ID = 803348-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Nitrate as Nitrogen	mg/L	1.00	2.42	2.34(2.00)	104.	85 - 115

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Fluoride	mg/L	1.00	4.14	4.00	103.	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
Fluoride	mg/L	1.00	3.14	3.00	105.	90 - 110

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrate as Nitrogen	mg/L	1.00	3.00	3.00	100.	90 - 110

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Alkalinity by SM 2320B Batch 08ALK12G

Parameter	Unit	Analyzed	DF	MDL	RL	Result
803348-001 Alkalinity as CaCO3	mg/L	08/22/2012	1.00	0.555	5.00	130.
Bicarbonate (Calculated)	mg/L	08/22/2012	1.00	0.555	5.00	130.
Carbonate (Calculated)	mg/L	08/22/2012	1.00	0.555	5.00	ND
803348-002 Alkalinity as CaCO3	mg/L	08/22/2012	1.00	0.555	5.00	126
Bicarbonate (Calculated)	mg/L	08/22/2012	1.00	0.555	5.00	126
Carbonate (Calculated)	mg/L	08/22/2012	1.00	0.555	5.00	ND
803348-003 Alkalinity as CaCO3	mg/L	08/22/2012	1.00	0.555	5.00	129
Bicarbonate (Calculated)	mg/L	08/22/2012	1.00	0.555	5.00	129
Carbonate (Calculated)	mg/L	08/22/2012	1.00	0.555	5.00	ND
803348-004 Alkalinity as CaCO3	mg/L	08/22/2012	1.00	0.555	5.00	137
Bicarbonate (Calculated)	mg/L	08/22/2012	1.00	0.555	5.00	137
Carbonate (Calculated)	mg/L	08/22/2012	1.00	0.555	5.00	ND
803348-005 Alkalinity as CaCO3	mg/L	08/22/2012	1.00	0.555	5.00	123
Bicarbonate (Calculated)	mg/L	08/22/2012	1.00	0.555	5.00	123
Carbonate (Calculated)	mg/L	08/22/2012	1.00	0.555	5.00	ND
803348-006 Alkalinity as CaCO3	mg/L	08/22/2012	1.00	0.555	5.00	123
Bicarbonate (Calculated)	mg/L	08/22/2012	1.00	0.555	5.00	123
Carbonate (Calculated)	mg/L	08/22/2012	1.00	0.555	5.00	ND
803348-007 Alkalinity as CaCO3	mg/L	08/22/2012	1.00	0.555	5.00	131
Bicarbonate (Calculated)	mg/L	08/22/2012	1.00	0.555	5.00	131
Carbonate (Calculated)	mg/L	08/22/2012	1.00	0.555	5.00	ND
803348-008 Alkalinity as CaCO3	mg/L	08/22/2012	1.00	0.555	5.00	132
Bicarbonate (Calculated)	mg/L	08/22/2012	1.00	0.555	5.00	132
Carbonate (Calculated)	mg/L	08/22/2012	1.00	0.555	5.00	ND
803348-009 Alkalinity as CaCO3	mg/L	08/22/2012	1.00	0.555	5.00	125
Bicarbonate (Calculated)	mg/L	08/22/2012	1.00	0.555	5.00	125
Carbonate (Calculated)	mg/L	08/22/2012	1.00	0.555	5.00	ND
803348-010 Alkalinity as CaCO3	mg/L	08/22/2012	1.00	0.555	5.00	137
Bicarbonate (Calculated)	mg/L	08/22/2012	1.00	0.555	5.00	137
Carbonate (Calculated)	mg/L	08/22/2012	1.00	0.555	5.00	ND
803348-011 Alkalinity as CaCO3	mg/L	08/22/2012	1.00	0.555	5.00	133
Bicarbonate (Calculated)	mg/L	08/22/2012	1.00	0.555	5.00	133
Carbonate (Calculated)	mg/L	08/22/2012	1.00	0.555	5.00	ND
803348-012 Alkalinity as CaCO3	mg/L	08/22/2012	1.00	0.555	5.00	125

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803348-012	Bicarbonate (Calculated)	mg/L	08/22/2012		1.00	0.555	5.00	125
	Carbonate (Calculated)	mg/L	08/22/2012		1.00	0.555	5.00	ND

Method Blank

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

Duplicate Lab ID = 803348-012

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Alkalinity as CaCO3	mg/L	1.00	124	125	0.803	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Alkalinity as CaCO3	mg/L	1.00	105	100.	105	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Alkalinity as CaCO3	mg/L	1.00	101	100.	101	90 - 110

Matrix Spike Lab ID = 803348-012

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Alkalinity as CaCO3	mg/L	1.00	221	225(100.)	96.0	75 - 125

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Specific Conductivity - EPA 120.1 Batch 08EC12F

Parameter	Unit	Analyzed	DF	MDL	RL	Result
803348-001 Specific Conductivity	umhos/cm	08/24/2012	1.00	0.116	2.00	897
803348-002 Specific Conductivity	umhos/cm	08/24/2012	1.00	0.116	2.00	898
803348-003 Specific Conductivity	umhos/cm	08/24/2012	1.00	0.116	2.00	897
803348-004 Specific Conductivity	umhos/cm	08/24/2012	1.00	0.116	2.00	935
803348-005 Specific Conductivity	umhos/cm	08/24/2012	1.00	0.116	2.00	947
803348-006 Specific Conductivity	umhos/cm	08/24/2012	1.00	0.116	2.00	899
803348-007 Specific Conductivity	umhos/cm	08/24/2012	1.00	0.116	2.00	890.
803348-008 Specific Conductivity	umhos/cm	08/24/2012	1.00	0.116	2.00	890.
803348-009 Specific Conductivity	umhos/cm	08/24/2012	1.00	0.116	2.00	894
803348-010 Specific Conductivity	umhos/cm	08/24/2012	1.00	0.116	2.00	899
803348-011 Specific Conductivity	umhos/cm	08/24/2012	1.00	0.116	2.00	896
803348-012 Specific Conductivity	umhos/cm	08/24/2012	1.00	0.116	2.00	891
803348-013 Specific Conductivity	umhos/cm	08/24/2012	1.00	0.116	2.00	916
803348-014 Specific Conductivity	umhos/cm	08/24/2012	1.00	0.116	2.00	912

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate — Lab ID = 803348-007

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	891	890.	0.112	0 - 10

Duplicate — Lab ID = 803349-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	43800	43800	0.00	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	709	706	100.	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	712	706	101.	90 - 110

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Metals by EPA 6010B, Total Batch 082412B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
803348-001 Iron	ug/L	08/24/2012 15:18	1.00	5.10	20.0	36.5
803348-002 Iron	ug/L	08/24/2012 16:16	1.00	5.10	20.0	62.4
803348-003 Iron	ug/L	08/24/2012 16:22	1.00	5.10	20.0	ND
803348-004 Iron	ug/L	08/24/2012 16:27	1.00	5.10	20.0	2540
803348-005 Iron	ug/L	08/24/2012 16:33	1.00	5.10	20.0	2410
803348-006 Iron	ug/L	08/24/2012 16:38	1.00	5.10	20.0	31.5
803348-007 Iron	ug/L	08/24/2012 16:44	1.00	5.10	20.0	35.3
803348-008 Iron	ug/L	08/24/2012 16:49	1.00	5.10	20.0	35.2
803348-009 Iron	ug/L	08/24/2012 16:55	1.00	5.10	20.0	ND
803348-010 Iron	ug/L	08/24/2012 17:00	1.00	5.10	20.0	42.7
803348-011 Iron	ug/L	08/24/2012 17:36	1.00	5.10	20.0	ND
803348-012 Iron	ug/L	08/24/2012 17:41	1.00	5.10	20.0	31.3

Method Blank

Parameter	Unit	DF	Result
Iron	ug/L	1.00	ND

Duplicate — Lab ID = 803348-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Iron	ug/L	1.00	37.3	36.5	2.17	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2200	2000	110.	85 - 115

Matrix Spike — Lab ID = 803348-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	2160	2040(2000)	106.	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5320	5000	106.	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	4920	5000	98.5	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	4940	5000	98.7	90 - 110

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Chrome VI by EPA 218.6 Batch 08CrH12P

Parameter	Unit	Analyzed	DF	MDL	RL	Result
803348-001 Chromium, Hexavalent	ug/L	08/23/2012 13:05	1.00	0.0260	0.20	ND
803348-002 Chromium, Hexavalent	ug/L	08/23/2012 13:15	1.00	0.0260	0.20	ND
803348-003 Chromium, Hexavalent	ug/L	08/23/2012 13:46	1.00	0.0260	0.20	ND
803348-004 Chromium, Hexavalent	ug/L	08/23/2012 13:57	1.00	0.0260	0.20	ND
803348-005 Chromium, Hexavalent	ug/L	08/23/2012 14:49	1.00	0.0260	0.20	ND
803348-006 Chromium, Hexavalent	ug/L	08/23/2012 14:59	1.00	0.0260	0.20	ND
803348-007 Chromium, Hexavalent	ug/L	08/23/2012 15:10	1.00	0.0260	0.20	ND
803348-008 Chromium, Hexavalent	ug/L	08/23/2012 15:51	1.00	0.0260	0.20	ND
803348-009 Chromium, Hexavalent	ug/L	08/23/2012 16:02	1.00	0.0260	0.20	ND

Method Blank

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

Duplicate — Lab ID = 803369-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.284	0.294	3.35	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.186	0.200	92.8	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.86	5.00	97.1	90 - 110

Matrix Spike — Lab ID = 803304-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	25.7	26.1(25.0)	98.2	90 - 110

Matrix Spike — Lab ID = 803304-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	6.06	6.18(5.00)	97.5	90 - 110

Matrix Spike — Lab ID = 803348-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.956	1.04(1.00)	91.8	90 - 110

Matrix Spike — Lab ID = 803348-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.951	1.03(1.00)	92.3	90 - 110

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Matrix Spike — Lab ID = 803348-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.986	1.03(1.00)	95.7	90 - 110

Matrix Spike — Lab ID = 803348-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.960	1.02(1.00)	94.3	90 - 110

Matrix Spike — Lab ID = 803348-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.982	1.02(1.00)	96.5	90 - 110

Matrix Spike — Lab ID = 803348-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.00	1.03(1.00)	97.2	90 - 110

Matrix Spike — Lab ID = 803348-007

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.970	1.03(1.00)	93.9	90 - 110

Matrix Spike — Lab ID = 803348-008

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.01	1.04(1.00)	96.8	90 - 110

Matrix Spike — Lab ID = 803348-009

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.986	1.02(1.00)	96.3	90 - 110

Matrix Spike — Lab ID = 803369-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.26	1.29(1.00)	97.1	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.88	5.00	97.5	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.91	10.0	99.1	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.74	10.0	97.4	95 - 105

MRCVS - Primary

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

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Chrome VI by EPA 218.6

Batch 08CrH12Q

Parameter	Unit	Analyzed	DF	MDL	RL	Result
803348-010 Chromium, Hexavalent	ug/L	08/24/2012 10:36	1.00	0.0260	0.20	ND
803348-011 Chromium, Hexavalent	ug/L	08/24/2012 10:46	1.00	0.0260	0.20	ND
803348-012 Chromium, Hexavalent	ug/L	08/24/2012 10:57	1.00	0.0260	0.20	ND
803348-013 Chromium, Hexavalent	ug/L	08/24/2012 11:07	1.00	0.0260	0.20	ND
803348-014 Chromium, Hexavalent	ug/L	08/24/2012 11:17	1.00	0.0260	0.20	ND

Method Blank

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

Duplicate — Lab ID = 803348-010

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.0352	0.0352	0.00	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.191	0.200	95.5	70 - 130

Lab Control Sample

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

Matrix Spike — Lab ID = 803348-010

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.00	1.04(1.00)	96.5	90 - 110

Matrix Spike — Lab ID = 803348-011

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.994	1.04(1.00)	95.8	90 - 110

Matrix Spike — Lab ID = 803348-012

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.962	1.02(1.00)	93.8	90 - 110

Matrix Spike — Lab ID = 803348-013

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.980	1.02(1.00)	95.5	90 - 110

Matrix Spike — Lab ID = 803348-014

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.981	1.02(1.00)	95.7	90 - 110

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Metals by EPA 6020A, Dissolved Batch 083112B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
803348-001 Chromium	ug/L	09/01/2012 00:19	5.00	0.195	1.0	ND
Manganese	ug/L	09/01/2012 00:19	5.00	0.270	0.50	0.94
803348-002 Chromium	ug/L	09/01/2012 00:54	5.00	0.195	1.0	ND
Manganese	ug/L	09/01/2012 00:54	5.00	0.270	0.50	0.71
803348-003 Chromium	ug/L	09/01/2012 01:01	5.00	0.195	1.0	ND
Manganese	ug/L	09/01/2012 01:01	5.00	0.270	0.50	0.72
803348-004 Chromium	ug/L	09/01/2012 01:37	5.00	0.195	1.0	ND
803348-005 Chromium	ug/L	09/01/2012 01:44	5.00	0.195	1.0	ND
803348-006 Chromium	ug/L	09/01/2012 01:51	5.00	0.195	1.0	ND
Manganese	ug/L	09/01/2012 01:51	5.00	0.270	0.50	1.5
803348-007 Chromium	ug/L	09/01/2012 01:59	5.00	0.195	1.0	ND
Manganese	ug/L	09/01/2012 01:59	5.00	0.270	0.50	1.3
803348-008 Chromium	ug/L	09/01/2012 02:06	5.00	0.195	1.0	ND
Manganese	ug/L	09/01/2012 02:06	5.00	0.270	0.50	1.1
803348-009 Chromium	ug/L	09/01/2012 02:13	5.00	0.195	1.0	ND
Manganese	ug/L	09/01/2012 02:13	5.00	0.270	0.50	1.1
803348-010 Chromium	ug/L	09/01/2012 02:20	5.00	0.195	1.0	ND
Manganese	ug/L	09/01/2012 02:20	5.00	0.270	0.50	0.90
803348-011 Chromium	ug/L	09/01/2012 02:27	5.00	0.195	1.0	ND
Manganese	ug/L	09/01/2012 02:27	5.00	0.270	0.50	0.80
803348-012 Chromium	ug/L	09/01/2012 02:34	5.00	0.195	1.0	ND
Manganese	ug/L	09/01/2012 02:34	5.00	0.270	0.50	4.3
803348-013 Chromium	ug/L	09/01/2012 02:41	5.00	0.195	1.0	ND
803348-014 Chromium	ug/L	09/01/2012 03:17	5.00	0.195	1.0	ND

Method Blank

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

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.146	0.200	72.8	70 - 130
Manganese	ug/L	1.00	0.0751	0.100	75.1	70 - 130

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Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	5.00	108.	100.	108.	85 - 115
Manganese	ug/L	5.00	98.7	100.	98.7	85 - 115

Matrix Spike — Lab ID = 803348-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	5.00	96.0	100.(100.)	96.0	75 - 125
Manganese	ug/L	5.00	90.8	101.(100.)	89.8	75 - 125

Matrix Spike Duplicate — Lab ID = 803348-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	5.00	101.	100.(100.)	101.	75 - 125
Manganese	ug/L	5.00	95.4	101.(100.)	94.5	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	9.98	10.0	99.8	90 - 110
Manganese	ug/L	1.00	9.57	10.0	95.7	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	9.68	10.0	96.8	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	9.86	10.0	98.6	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	9.67	10.0	96.7	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	9.95	10.0	99.5	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	9.43	10.0	94.3	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	9.51	10.0	95.1	90 - 110

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Metals by EPA 6020A, Dissolved Batch 090512C

Parameter	Unit	Analyzed	DF	MDL	RL	Result
803348-001 Arsenic	ug/L	09/06/2012 03:11	5.00	0.265	0.50	2.6
Selenium	ug/L	09/06/2012 03:11	5.00	0.355	5.0	ND
803348-002 Arsenic	ug/L	09/06/2012 04:16	5.00	0.265	0.50	2.7
Selenium	ug/L	09/06/2012 04:16	5.00	0.355	5.0	ND
803348-003 Arsenic	ug/L	09/06/2012 04:23	5.00	0.265	0.50	2.5
Selenium	ug/L	09/06/2012 04:23	5.00	0.355	5.0	ND
803348-004 Arsenic	ug/L	09/06/2012 04:30	5.00	0.265	0.50	2.8
Selenium	ug/L	09/06/2012 04:30	5.00	0.355	5.0	ND
803348-005 Arsenic	ug/L	09/06/2012 04:44	5.00	0.265	0.50	2.8
Selenium	ug/L	09/06/2012 04:44	5.00	0.355	5.0	ND
803348-006 Arsenic	ug/L	09/06/2012 04:58	5.00	0.265	0.50	2.5
Selenium	ug/L	09/06/2012 04:58	5.00	0.355	5.0	ND
803348-007 Arsenic	ug/L	09/06/2012 05:34	5.00	0.265	0.50	2.7
Selenium	ug/L	09/06/2012 05:34	5.00	0.355	5.0	ND
803348-008 Arsenic	ug/L	09/06/2012 05:41	5.00	0.265	0.50	2.7
Selenium	ug/L	09/06/2012 05:41	5.00	0.355	5.0	ND
803348-009 Arsenic	ug/L	09/06/2012 05:48	5.00	0.265	0.50	2.3
Selenium	ug/L	09/06/2012 05:48	5.00	0.355	5.0	ND
803348-010 Arsenic	ug/L	09/06/2012 05:55	5.00	0.265	0.50	2.6
Selenium	ug/L	09/06/2012 05:55	5.00	0.355	5.0	ND
803348-011 Arsenic	ug/L	09/06/2012 06:03	5.00	0.265	0.50	2.4
Selenium	ug/L	09/06/2012 06:03	5.00	0.355	5.0	ND
803348-012 Arsenic	ug/L	09/06/2012 06:10	5.00	0.265	0.50	2.5
Selenium	ug/L	09/06/2012 06:10	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

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	0.127	0.100	127.	70 - 130
Selenium	ug/L	1.00	1.02	1.00	102.	70 - 130

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Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	5.00	105.	100.	105.	85 - 115
Selenium	ug/L	5.00	109.	100.	109.	85 - 115

Matrix Spike — Lab ID = 803348-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	5.00	101.	102.(100.)	98.6	75 - 125
Selenium	ug/L	5.00	104.	100.(100.)	104.	75 - 125

Matrix Spike Duplicate — Lab ID = 803348-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	5.00	108.	102.(100.)	106.	75 - 125
Selenium	ug/L	5.00	114.	100.(100.)	114.	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	9.89	10.0	98.9	90 - 110
Selenium	ug/L	1.00	9.56	10.0	95.6	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	10.1	10.0	101.	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	10.3	10.0	103.	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	9.78	10.0	97.8	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	10.0	10.0	100.	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	9.65	10.0	96.5	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Selenium	ug/L	1.00	10.4	10.0	104.	90 - 110

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Metals by EPA 6020A, Dissolved Batch 090712A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
803348-004 Manganese	ug/L	09/07/2012 14:50	5.00	0.270	1.0	44.9
803348-005 Manganese	ug/L	09/07/2012 15:04	5.00	0.270	1.0	50.6

Method Blank

Parameter	Unit	DF	Result
Manganese	ug/L	1.00	ND

Duplicate — Lab ID = 803348-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Manganese	ug/L	5.00	1.28	1.27	0.393	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	0.225	0.200	113.	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	5.00	104	100.	104	85 - 115

Matrix Spike — Lab ID = 803348-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Manganese	ug/L	5.00	98.8	101.(100.)	97.5	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	9.87	10.0	98.7	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	10.2	10.0	102.	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	10.00	10.0	100.0	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	10.0	10.0	100.	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	10.6	10.0	106.	90 - 110

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MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	10.1	10.0	101.	90 - 110

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	ND	0.00		

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	ND	0.00		

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	10.0	10.0	100.	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	9.68	10.0	96.8	80 - 120

Serial Dilution Lab ID = 803348-004

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Manganese	ug/L	25.0	45.8	44.9	2.01	0 - 10

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Metals by EPA 6020A, Dissolved Batch 091812A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
803348-001 Molybdenum	ug/L	09/18/2012 12:11	5.00	0.150	2.0	5.3
803348-002 Molybdenum	ug/L	09/18/2012 14:00	5.00	0.150	2.0	4.5
803348-003 Molybdenum	ug/L	09/18/2012 13:09	5.00	0.150	2.0	5.1
803348-004 Molybdenum	ug/L	09/18/2012 13:16	5.00	0.150	2.0	5.2
803348-005 Molybdenum	ug/L	09/18/2012 13:24	5.00	0.150	2.0	5.2
803348-006 Molybdenum	ug/L	09/18/2012 13:31	5.00	0.150	2.0	4.5
803348-007 Molybdenum	ug/L	09/18/2012 13:38	5.00	0.150	2.0	5.0
803348-008 Molybdenum	ug/L	09/18/2012 13:45	5.00	0.150	2.0	5.5
803348-009 Molybdenum	ug/L	09/18/2012 14:43	5.00	0.150	2.0	4.4
803348-010 Molybdenum	ug/L	09/18/2012 14:07	5.00	0.150	2.0	4.7
803348-011 Molybdenum	ug/L	09/18/2012 14:36	5.00	0.150	2.0	5.3
803348-012 Molybdenum	ug/L	09/18/2012 14:50	5.00	0.150	2.0	4.7

Method Blank

Parameter	Unit	DF	Result
Molybdenum	ug/L	1.00	ND

Duplicate — Lab ID = 803348-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Molybdenum	ug/L	5.00	5.15	5.31	3.14	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Molybdenum	ug/L	1.00	0.520	0.400	130.	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Molybdenum	ug/L	5.00	114.	100.	114.	85 - 115

Matrix Spike — Lab ID = 803348-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Molybdenum	ug/L	5.00	118.	105.(100.)	112.	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Molybdenum	ug/L	1.00	10.8	10.0	108.	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Molybdenum	ug/L	1.00	10.6	10.0	106.	90 - 110

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Metals by EPA 6010B, Dissolved Batch 083012B-Th2

Parameter	Unit	Analyzed	DF	MDL	RL	Result
803348-001 Iron	ug/L	08/30/2012 16:18	1.00	1.70	20.0	ND
803348-002 Iron	ug/L	08/30/2012 16:35	1.00	1.70	20.0	ND
803348-003 Iron	ug/L	08/30/2012 17:02	1.00	1.70	20.0	ND
803348-004 Iron	ug/L	08/30/2012 17:08	1.00	1.70	20.0	25.5
803348-005 Iron	ug/L	08/30/2012 17:14	1.00	1.70	20.0	395.
803348-006 Iron	ug/L	08/30/2012 17:20	1.00	1.70	20.0	ND
803348-007 Iron	ug/L	08/30/2012 17:25	1.00	1.70	20.0	ND
803348-008 Iron	ug/L	08/30/2012 17:31	1.00	1.70	20.0	ND
803348-009 Iron	ug/L	08/30/2012 17:37	1.00	1.70	20.0	ND
803348-010 Iron	ug/L	08/30/2012 17:43	1.00	1.70	20.0	ND
803348-011 Iron	ug/L	08/30/2012 17:49	1.00	1.70	20.0	ND
803348-012 Iron	ug/L	08/30/2012 17:55	1.00	1.70	20.0	ND

Method Blank

Parameter	Unit	DF	Result
Iron	ug/L	1.00	ND

Duplicate — Lab ID = 803348-001

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	98.0	100.	98.0	85 - 115

Matrix Spike — Lab ID = 803348-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	113.	100.(100.)	113.	75 - 125

MRCCS - Secondary

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	5270	5000	105.	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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pH by SM 4500-H B Batch 08PH12Q

Parameter	Unit	Analyzed	DF	MDL	RL	Result	
803348-001 pH	pH	08/22/2012 10:45	1.00	0.0784	4.00	7.94	
803348-002 pH	pH	08/22/2012 10:48	1.00	0.0784	4.00	8.01	
803348-003 pH	pH	08/22/2012 10:50	1.00	0.0784	4.00	8.02	
803348-004 pH	pH	08/22/2012 10:52	1.00	0.0784	4.00	7.81	
803348-005 pH	pH	08/22/2012 10:55	1.00	0.0784	4.00	7.82	
803348-006 pH	pH	08/22/2012 11:17	1.00	0.0784	4.00	8.11	
803348-007 pH	pH	08/22/2012 11:20	1.00	0.0784	4.00	8.13	
803348-008 pH	pH	08/22/2012 11:22	1.00	0.0784	4.00	8.08	
803348-009 pH	pH	08/22/2012 11:24	1.00	0.0784	4.00	8.08	
803348-010 pH	pH	08/22/2012 11:26	1.00	0.0784	4.00	8.10	J
803348-011 pH	pH	08/22/2012 11:28	1.00	0.0784	4.00	8.09	J
803348-012 pH	pH	08/22/2012 11:30	1.00	0.0784	4.00	8.12	
803348-013 pH	pH	08/22/2012 12:10	1.00	0.0784	4.00	7.70	J
803348-014 pH	pH	08/22/2012 12:12	1.00	0.0784	4.00	7.73	J

Duplicate — Lab ID = 803348-014

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
pH	pH	1.00	7.74	7.73	0.129	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	7.05	7.00	101.	90 - 110

MRCVS - Primary

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

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Total Suspended Solids by SM 2540 D Batch 08TSS12H

Parameter	Unit	Analyzed	DF	MDL	RL	Result
803348-001 Total Suspended Solids	mg/L	08/22/2012	1.00	0.349	10.0	ND
803348-002 Total Suspended Solids	mg/L	08/22/2012	1.00	0.349	10.0	ND
803348-003 Total Suspended Solids	mg/L	08/22/2012	1.00	0.349	10.0	ND
803348-004 Total Suspended Solids	mg/L	08/22/2012	1.00	0.349	10.0	77.6
803348-005 Total Suspended Solids	mg/L	08/22/2012	1.00	0.349	10.0	74.8
803348-006 Total Suspended Solids	mg/L	08/22/2012	1.00	0.349	10.0	ND
803348-007 Total Suspended Solids	mg/L	08/22/2012	1.00	0.349	10.0	ND
803348-008 Total Suspended Solids	mg/L	08/22/2012	1.00	0.349	10.0	ND
803348-009 Total Suspended Solids	mg/L	08/22/2012	1.00	0.349	10.0	ND
803348-010 Total Suspended Solids	mg/L	08/22/2012	1.00	0.349	10.0	ND
803348-011 Total Suspended Solids	mg/L	08/22/2012	1.00	0.349	10.0	ND
803348-012 Total Suspended Solids	mg/L	08/22/2012	1.00	0.349	10.0	ND

Method Blank

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

Duplicate — Lab ID = 803348-010

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Suspended Solids	mg/L	1.00	ND	0.00	0	0 - 10

Duplicate — Lab ID = 803348-012

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Suspended Solids	mg/L	1.00	ND	0.00	0	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Suspended Solids	mg/L	1.00	97.0	100.	97.0	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Suspended Solids	mg/L	1.00	98.0	100.	98.0	90 - 110

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Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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TRUESDAIL LABORATORIES INC. E2 SC

Total Suspended Solids by SM 2540 D

Calculations

Batch: 08TSS12H

Date Analyzed: 08/22/12

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
I20	BLK	1000	1.4163	1.4163	1.4163	0.0000	No	0.0000	0.0	2.5	ND
I23	803348-1	250	1.4244	1.4250	1.425	0.0000	No	0.0006	2.4	10.0	ND
I24	803348-2	250	1.4213	1.4228	1.4228	0.0000	No	0.0015	6.0	10.0	ND
I25	803348-3	250	1.4234	1.4241	1.4241	0.0000	No	0.0007	2.8	10.0	ND
I26	803348-4	250	1.4232	1.4426	1.4426	0.0000	No	0.0194	77.6	10.0	77.6
I27	803348-5	250	1.4194	1.4381	1.4381	0.0000	No	0.0187	74.8	10.0	74.8
I28	803348-6	250	1.4179	1.4190	1.419	0.0000	No	0.0011	4.4	10.0	ND
I29	803348-7	250	1.4216	1.4220	1.422	0.0000	No	0.0004	1.6	10.0	ND
I30	803348-8	250	1.4219	1.4223	1.4223	0.0000	No	0.0004	1.6	10.0	ND
I31	803348-9	250	1.4202	1.4204	1.4204	0.0000	No	0.0002	0.8	10.0	ND
I32	803348-10	250	1.4184	1.4191	1.4191	0.0000	No	0.0007	2.8	10.0	ND
I33	803348-10D	250	1.4112	1.4119	1.4119	0.0000	No	0.0007	2.8	10.0	ND
I34	803348-11	250	1.4281	1.4287	1.4287	0.0000	No	0.0006	2.4	10.0	ND
I35	803348-12	250	1.4283	1.4288	1.4288	0.0000	No	0.0005	2.0	10.0	ND
I36	803348-12D	250	1.4217	1.4222	1.4222	0.0000	No	0.0005	2.0	10.0	ND
I21	LCS-1	100	1.4195	1.4292	1.4292	0.0000	No	0.0097	97.0	25.0	97.0
I22	LCS-2	100	1.4132	1.4230	1.423	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	97	100	97.0%	90-110%	Yes
LCSD	98	100	98.0%	90-110%	Yes

Duplicate Determinations Difference Summary

Lab Number	Sample Weight, g	Sample Dup Weight, g	% RPD	Acceptance Limit	QC Within Control?
803348-10	0.0007	0.0007	0.0%	≤5%	Yes
803348-12	0.0005	0.0005	0.0%	5%	Yes

LCS Recovery

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

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

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

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

GAUTAM
Analyst Printed Name

Analyst Signature

Hope T.
Reviewer Printed Name

Reviewer Signature

Tss_2011

TRUESDAIL LABORATORIES, INC.

Alkalinity by SM 2320B

Calculations

E2 SC

Analytical Batch: 08ALK12G
Matrix: Water
Date of Analysis: 8/22/12

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	6.89	50	0.02		0.0	0.00		0.0	5	ND	ND	ND	ND	
803348-1	8.06	50	0.02		0.0	6.50		130.0	5	130.0	130.0	ND	ND	
803348-2	8.08	50	0.02		0.0	6.30		126.0	5	126.0	126.0	ND	ND	
803348-3	8.08	50	0.02		0.0	6.45		129.0	5	129.0	129.0	ND	ND	
803348-4	7.88	50	0.02		0.0	6.85		137.0	5	137.0	137.0	ND	ND	
803348-5	7.89	50	0.02		0.0	6.15		123.0	5	123.0	123.0	ND	ND	
803348-6	8.13	50	0.02		0.0	6.15		123.0	5	123.0	123.0	ND	ND	
803348-7	8.14	50	0.02		0.0	6.55		131.0	5	131.0	131.0	ND	ND	
803348-8	8.08	50	0.02		0.0	6.60		132.0	5	132.0	132.0	ND	ND	
803348-9	8.08	50	0.02		0.0	6.25		125.0	5	125.0	125.0	ND	ND	
803348-10	8.10	50	0.02		0.0	6.85		137.0	5	137.0	137.0	ND	ND	
803348-11	8.09	50	0.02		0.0	6.65		133.0	5	133.0	133.0	ND	ND	
803348-12	8.14	50	0.02		0.0	6.25		125.0	5	125.0	125.0	ND	ND	
803348-12 DUP	8.14	50	0.02		0.0	6.20		124.0	5	124.0	124.0	ND	ND	
803348-12 MS	9.49	50	0.02	2.4	48.0	11.05		221.0	5	221.0	125.0	96	ND	
LCS	10.50	50	0.02	2.5	50.0	5.25		105.0	5	105.0	5.0	100	ND	
LCSD	10.54	50	0.02	2.4	47.0	5.05		101.0	5	101.0	7.0	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: = $\frac{(2 \times B - C) \times N \times 50000}{mL\ sample}$ as mg/L CaCO3

Where:
B = mL titrant to first recorded pH
C = Total mL titrant to reach pH 0.3 unit lower
N = Normality of standard acid

LCS = Laboratory Control Standard/Duplicate
MS/MSD = Matrix Spike/Duplicate
ND = Not Detected (below the reporting limit)

Blank Summary

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

Laboratory Control Sample (LCS/LCSD) Summary

QC Std I.D.	Measured Value, ppm	Theoretical Value, ppm	%Recovery	Accetance Limit	QC Within Control?
LCS	105	100	105.0%	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?
803348-12	125	124	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?
803348-12	125	1	100	100	221	225.00	96%	75-125	Yes			
		1	100	100								

Melissa S.
Analyst Printed Name

Analyst Signature

Hope T.
Reviewer Printed Name

Reviewer Signature

082212g

057

Rec'd 8/21/12
S 803348

803348

CH2MHILL **CHAIN OF CUSTODY RECORD**

8/21/2012 2:43:06 PM Page 1 OF 2

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.RM
Task Order
Project 2012-RMP-187
Turnaround Time 10 Days
Shipping Date: 8/21/2012
COC Number: 1

	DATE	TIME	Matrix	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	Number of Containers	COMMENTS
				Preservatives:	(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	4°C	4°C	4°C	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		
					Cr6 (E218.6 - river) Field Filtered	Field QC Cr6 (E218.6-river)	Metals (6010B) Total Fe	Metals (6020AFF) Field Filtered Chromium	Metals (SW6010B/SW6020Adis) Field Filtered As,Mn,Fe,Se,Mo	Specific Conductance (E120.1)	Anions (E300.0) Nitrate	PH (SM4500HB)	Alkalinity (SM2320B)	TSS (SM2540)		
-1	C-BNS-D-187	8/21/2012	12:33	Water	X		X	X	X	X	X	X	X	X	9	
-2	C-I-3-D-187	8/21/2012	10:52	Water	X		X	X	X	X	X	X	X	X	9	
3	C-I-3-S-187	8/21/2012	11:06	Water	X		X	X	X	X	X	X	X	X	9	
-4	C-MAR-D-187	8/21/2012	13:50	Water	X		X	X	X	X	X	X	X	X	9	
-5	C-MAR-S-187	8/21/2012	13:50	Water	X		X	X	X	X	X	X	X	X	9	
	C-MW-80-187	8/21/2012	12:24	Water		X									1	Hold
	C-MW-81-187	8/21/2012	12:48	Water		X									1	Hold
-6	C-R22A-D-187	8/21/2012	11:56	Water	X		X	X	X	X	X	X	X	X	9	
-7	C-R22A-S-187	8/21/2012	12:09	Water	X		X	X	X	X	X	X	X	X	9	
-8	C-R27-D-187	8/21/2012	12:58	Water	X		X	X	X	X	X	X	X	X	9	
-9	C-R27-S-187	8/21/2012	13:11	Water	X		X	X	X	X	X	X	X	X	9	
-10	C-TAZ-D-187	8/21/2012	9:58	Water	X		X	X	X	X	X	X	X	X	9	
-11	C-TAZ-S-187	8/21/2012	10:15	Water	X		X	X	X	X	X	X	X	X	9	
-12	R63-187	8/21/2012	11:30	Water	X		X	X	X	X	X	X	X	X	9	

* Where provided with multiple bottles for Cr^6 + CrT - please analyze 1 + hold 2

pH for 6020A, 6010B

pH=2

pH=2

ALERT !!
Level III QC

For Sample Conditions
See Form Attached

	Signatures	Date/Time
Approved by		
Sampled by		
Relinquished by		8-21-12 1510
Received by	Hipolito TU	8-21-12 1510
Relinquished by	Hipolito TU	8-21-12 2130
Received by	Linda, TU	8/21/12 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:
Aug 21-23, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

Rec'd 8/21/12

S 803348

803348

CH2MHILL **CHAIN OF CUSTODY RECORD** 8/21/2012 2:43:07 PM Page 2 OF 2

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.RM
Task Order
Project 2012-RMP-187
Turnaround Time 10 Days
Shipping Date: 8/21/2012
COC Number: 1

	DATE	TIME	Matrix	Container:	Preservatives:	Filtered:	Holding Time:	Cr6 (E218.6 – river) Field Filtered	Field QC Cr6 (E218.6–river)	Metals (6010B) Total Fe	Metals (6020AFF) Field Filtered Chromium	Metals (SW6010B/SW6020Adis) Field Filtered As,Mn,Fe,Se,Mo	Specific Conductance (E120.1)	Anions (E300.0) Nitrate	PH (SM4500HB)	Alkalinity (SM2320B)	TSS (SM2540)	Number of Containers	COMMENTS
				3X250 ml Poly	250 Poly	500 ml Poly	3x500 ml Poly	3x500 ml Poly	2x1 Liter	2x1 Liter	2x1 Liter	2x1 Liter	2x1 Liter						
				(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						
				Field	NA	NA	Field	Field	NA	NA	NA	NA	NA						
				28	28	180	180	180	2	2	2	2	2						
RMP-AB1-187	8/21/2012	13:55	Water		X													1	Hold
-13 SW1-187	8/21/2012	7:20	Water	X			X		X		X							5	}
-14 SW2-187	8/21/2012	7:40	Water	X			X		X		X							5	} PM=2
																	TOTAL NUMBER OF CONTAINERS	121	60204

* Where provided with multiple Cr6 bottles please analyze 1 + hold 2

ALERT !!
Level III QC

	Signatures	Date/Time
Approved by		8-21-12
Sampled by		1510
Relinquished by		
Received by	Hipolito TLI	8-21-12 1510
Relinquished by	Hipolito TLI	8-21-12 2130
Received by	Linda, TLI	8/21/12 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:
Aug 21-23, 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
08/08/12	803084-1	7	2 ml	9.5	9:00 AM	HAV
↓	↓ -2	↓	↓	↓	↓	↓
08/09/12	803005	9.5	N/A	N/A	N/A	HAV
08/09/12	803114	9.5	N/A	N/A	N/A	HAV
08/10/12	803142-1	9.5	N/A	N/A	N/A	HAV
	-2					
	-3					
	-4					
	-5					
	-6					
8/14/12	803191-1	7	1 mL	9.5	17:30	MG
↓	↓ -2	↓	↓	↓	17:40	↓
8/15/12	803238	7	1 mL	9.5	18:00	MG
8/17/12	803304	7	5 ml / 250 ml	9.5	8 pm	H.L
08/22/12	803347-1	7	2 ml	9.5	8:40 AM	HAV
	-2				8:50 AM	
	-3				8:55 AM	
	-4				9:05 AM	
	-5				9:10 AM	
	-6				9:20 AM	
	-7				9:25 AM	
	-8				9:30 AM	
	-9				9:40 AM	
	-10				9:50 AM	
	-11				10:00 AM	
08/22/12	803348-1	9.5	N/A	N/A	N/A	HAV
	-2					
	-3					
	-4					
	-5					
	-6					

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
08/22/12	803348-7	9.5	N/A	N/A	N/A	HAV
↓	-8	↓	↓	↓	↓	↓
	-9					
	-10					
	-11					
	-12					
	-13					
↓	-14	↓	↓	↓	↓	↓
HAV 8/22/12 ~~803347~~						
08/22/12	803349-1	7	2 ml	9.5	10:15 AM	HAV
↓	↓ -2	↓	↓	↓	↓	↓
08/23/12	803366-1	~~9.5~~	N/A	N/A	N/A	HAV
↓	-2	↓	↓	↓	↓	↓
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
↓	-11	↓	↓	↓	↓	↓
08/23/12	803369	9.5	N/A	N/A	N/A	HAV

8/27/12

HAV 08/24/12

TRUESDAIL LABORATORIES, INC.

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
803156	>1	>2	8-13-12	BE	TCLP	8:00AM		after filt.
803179	<1	<2	8-14-12	BE	3010A			
803181	↓	>2				10:00AM		
803188	>1	<2						
803215	<1	72	8/15/12	ES	ND	10:00 am	8/16/12	pH<2
803194	>1	<2	8-15-12	BE	3010A			
803195								
803196								
803197								
803198								
803199								
803207(1-4	<1	>2			NO	11:00 AM		
803204	71	<2			3010A			
803229	↓	↓						
803230(1-6)	<1	>2			NO	13:00		
803235(1-2)	>1	<2			3010A			
803249	↓	↓	8-16-12	BE	↓			
803232(4,8-9)	<1	72			NO	10:30		
803227(1-3)								
803237								
803238								
803242								
803250	>1				3010A			
803256	↓	↓	↓	↓	↓	11:00		
803269(1-2	<1	72	8-17-12	BE	NO	7:30 AM		
BE ~~803227~~ 803272	>1	<2			3010A			
803275								
803280								
803281								
803283								
803297	<1	>2			NO	12:30		
803304	<1	>2	8-20-12	BE	3010A	9:30 AM		
803315	<1	<2	8-20-12	ES	3010A	—		
803316(1-15)	<1	<2	↓	↓	—			
803321	<1	72	8/21/12	ES	—	11:00am		
803326	>1	<2	8-21-12	BE	3010A			
803327								
803328								
803329								
803330								
803348(1,2)	<1	<2	8-22-12	BE	3010A			
803348(1-5)	<1	<2						
803347(1-9,11)	<1	>2				10:00 AM	Acidified after lab filt.	
803358	>1	<2	8/22/12	ES	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: E 2 **Lab #** 803348

Date Delivered: 08/21/12 **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 °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!! 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

September 20, 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-RMP-187, SURFACEWATER MONITORING PROJECT, TLI NO.: 803366

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2012-RMP-187 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 August 22, 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 early sampling time and late arrival of the samples, samples 803366-1, 803366-2, 803366-3, 803366-9, 803366-10, and 803366-11 for pH analysis by SM 4500-H B were analyzed past the holding time. Mr. Shawn Duffy approved the analysis.

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

Event 2012-RMP-187 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-187	2.00	No			
C-CON-S-187	2.00	No			
C-NR1-D-187	2.00	No			
C-NR1-S-187	2.00	No			
C-NR3-D-187	2.00	No			
C-NR3-S-187	2.00	No			
C-NR4-D-187	2.00	No			
C-NR4-S-187	2.00	No			
R-19-187	2.00	No			
R-28-187	2.00	No			
RRB-187	2.00	No			

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Event 2012-RMP-187 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-187	9.50	No			
C-CON-S-187	9.50	No			
C-NR1-D-187	9.50	No			
C-NR1-S-187	9.50	No			
C-NR3-D-187	9.50	No			
C-NR3-S-187	9.50	No			
C-NR4-D-187	9.50	No			
C-NR4-S-187	9.50	No			
R-19-187	9.50	No			
R-28-187	9.50	No			
RRB-187	9.50	No			

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

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

Laboratory No.: 803366
Date Received: August 22, 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
803366-001	C-CON-D-187	E120.1	NONE	8/22/2012	8:44	EC	893	umhos/cm	2.00
803366-001	C-CON-D-187	E218.6	FLDFLT	8/22/2012	8:44	Chromium, Hexavalent	ND	ug/L	0.20
803366-001	C-CON-D-187	E300	NONE	8/22/2012	8:44	Nitrate as N	ND	mg/L	0.500
803366-001	C-CON-D-187	SM2320B	NONE	8/22/2012	8:44	Alkalinity	132	mg/L	5.00
803366-001	C-CON-D-187	SM2320B	NONE	8/22/2012	8:44	Alkalinity, Bicarbonate (As CaCO3)	132	mg/L	5.00
803366-001	C-CON-D-187	SM2320B	NONE	8/22/2012	8:44	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
803366-001	C-CON-D-187	SM2540D	NONE	8/22/2012	8:44	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
803366-001	C-CON-D-187	SM4500HB	NONE	8/22/2012	8:44	PH	8.09 J	pH	4.00
803366-001	C-CON-D-187	SW6010B	NONE	8/22/2012	8:44	Iron	39.6	ug/L	20.0
803366-001	C-CON-D-187	SW6010B	FLDFLT	8/22/2012	8:44	Iron	ND	ug/L	20.0
803366-001	C-CON-D-187	SW6020	FLDFLT	8/22/2012	8:44	Arsenic	2.6	ug/L	1.0
803366-001	C-CON-D-187	SW6020	FLDFLT	8/22/2012	8:44	Chromium	ND	ug/L	1.0
803366-001	C-CON-D-187	SW6020	FLDFLT	8/22/2012	8:44	Manganese	0.96	ug/L	0.50
803366-001	C-CON-D-187	SW6020	FLDFLT	8/22/2012	8:44	Molybdenum	5.0	ug/L	2.0
803366-001	C-CON-D-187	SW6020	FLDFLT	8/22/2012	8:44	Selenium	ND	ug/L	5.0
803366-002	C-CON-S-187	E120.1	NONE	8/22/2012	9:01	EC	894	umhos/cm	2.00
803366-002	C-CON-S-187	E218.6	FLDFLT	8/22/2012	9:01	Chromium, Hexavalent	ND	ug/L	0.20
803366-002	C-CON-S-187	E300	NONE	8/22/2012	9:01	Nitrate as N	ND	mg/L	0.500
803366-002	C-CON-S-187	SM2320B	NONE	8/22/2012	9:01	Alkalinity	128	mg/L	5.00
803366-002	C-CON-S-187	SM2320B	NONE	8/22/2012	9:01	Alkalinity, Bicarbonate (As CaCO3)	128	mg/L	5.00
803366-002	C-CON-S-187	SM2320B	NONE	8/22/2012	9:01	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
803366-002	C-CON-S-187	SM2540D	NONE	8/22/2012	9:01	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
803366-002	C-CON-S-187	SM4500HB	NONE	8/22/2012	9:01	PH	8.08 J	pH	4.00
803366-002	C-CON-S-187	SW6010B	NONE	8/22/2012	9:01	Iron	32.0	ug/L	20.0
803366-002	C-CON-S-187	SW6010B	FLDFLT	8/22/2012	9:01	Iron	ND	ug/L	20.0
803366-002	C-CON-S-187	SW6020	FLDFLT	8/22/2012	9:01	Arsenic	2.4	ug/L	1.0
803366-002	C-CON-S-187	SW6020	FLDFLT	8/22/2012	9:01	Chromium	ND	ug/L	1.0
803366-002	C-CON-S-187	SW6020	FLDFLT	8/22/2012	9:01	Manganese	1.0	ug/L	0.50
803366-002	C-CON-S-187	SW6020	FLDFLT	8/22/2012	9:01	Molybdenum	4.3	ug/L	2.0
803366-002	C-CON-S-187	SW6020	FLDFLT	8/22/2012	9:01	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
803366-003	C-NR1-D-187	E120.1	NONE	8/22/2012	9:30	EC	893	umhos/cm	2.00
803366-003	C-NR1-D-187	E218.6	FLDFLT	8/22/2012	9:30	Chromium, Hexavalent	ND	ug/L	0.20
803366-003	C-NR1-D-187	E300	NONE	8/22/2012	9:30	Nitrate as N	ND	mg/L	0.500
803366-003	C-NR1-D-187	SM2320B	NONE	8/22/2012	9:30	Alkalinity	123	mg/L	5.00
803366-003	C-NR1-D-187	SM2320B	NONE	8/22/2012	9:30	Alkalinity, Bicarbonate (As CaCO3)	123	mg/L	5.00
803366-003	C-NR1-D-187	SM2320B	NONE	8/22/2012	9:30	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
803366-003	C-NR1-D-187	SM2540D	NONE	8/22/2012	9:30	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
803366-003	C-NR1-D-187	SM4500HB	NONE	8/22/2012	9:30	PH	8.11 J	pH	4.00
803366-003	C-NR1-D-187	SW6010B	NONE	8/22/2012	9:30	Iron	23.6	ug/L	20.0
803366-003	C-NR1-D-187	SW6010B	FLDFLT	8/22/2012	9:30	Iron	ND	ug/L	20.0
803366-003	C-NR1-D-187	SW6020	FLDFLT	8/22/2012	9:30	Arsenic	2.4	ug/L	1.0
803366-003	C-NR1-D-187	SW6020	FLDFLT	8/22/2012	9:30	Chromium	ND	ug/L	1.0
803366-003	C-NR1-D-187	SW6020	FLDFLT	8/22/2012	9:30	Manganese	1.1	ug/L	0.50
803366-003	C-NR1-D-187	SW6020	FLDFLT	8/22/2012	9:30	Molybdenum	4.8	ug/L	2.0
803366-003	C-NR1-D-187	SW6020	FLDFLT	8/22/2012	9:30	Selenium	ND	ug/L	5.0
803366-004	C-NR1-S-187	E120.1	NONE	8/22/2012	9:45	EC	898	umhos/cm	2.00
803366-004	C-NR1-S-187	E218.6	FLDFLT	8/22/2012	9:45	Chromium, Hexavalent	ND	ug/L	0.20
803366-004	C-NR1-S-187	E300	NONE	8/22/2012	9:45	Nitrate as N	ND	mg/L	0.500
803366-004	C-NR1-S-187	SM2320B	NONE	8/22/2012	9:45	Alkalinity	130	mg/L	5.00
803366-004	C-NR1-S-187	SM2320B	NONE	8/22/2012	9:45	Alkalinity, Bicarbonate (As CaCO3)	130	mg/L	5.00
803366-004	C-NR1-S-187	SM2320B	NONE	8/22/2012	9:45	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
803366-004	C-NR1-S-187	SM2540D	NONE	8/22/2012	9:45	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
803366-004	C-NR1-S-187	SM4500HB	NONE	8/22/2012	9:45	PH	8.12	pH	4.00
803366-004	C-NR1-S-187	SW6010B	NONE	8/22/2012	9:45	Iron	27.6	ug/L	20.0
803366-004	C-NR1-S-187	SW6010B	FLDFLT	8/22/2012	9:45	Iron	25.7	ug/L	20.0
803366-004	C-NR1-S-187	SW6020	FLDFLT	8/22/2012	9:45	Arsenic	2.4	ug/L	1.0
803366-004	C-NR1-S-187	SW6020	FLDFLT	8/22/2012	9:45	Chromium	ND	ug/L	1.0
803366-004	C-NR1-S-187	SW6020	FLDFLT	8/22/2012	9:45	Manganese	1.2	ug/L	0.50
803366-004	C-NR1-S-187	SW6020	FLDFLT	8/22/2012	9:45	Molybdenum	4.5	ug/L	2.0
803366-004	C-NR1-S-187	SW6020	FLDFLT	8/22/2012	9:45	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
803366-005	C-NR3-D-187	E120.1	NONE	8/22/2012	10:18	EC	899	umhos/cm	2.00
803366-005	C-NR3-D-187	E218.6	FLDFLT	8/22/2012	10:18	Chromium, Hexavalent	ND	ug/L	0.20
803366-005	C-NR3-D-187	E300	NONE	8/22/2012	10:18	Nitrate as N	ND	mg/L	0.500
803366-005	C-NR3-D-187	SM2320B	NONE	8/22/2012	10:18	Alkalinity	118	mg/L	5.00
803366-005	C-NR3-D-187	SM2320B	NONE	8/22/2012	10:18	Alkalinity, Bicarbonate (As CaCO3)	118	mg/L	5.00
803366-005	C-NR3-D-187	SM2320B	NONE	8/22/2012	10:18	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
803366-005	C-NR3-D-187	SM2540D	NONE	8/22/2012	10:18	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
803366-005	C-NR3-D-187	SM4500HB	NONE	8/22/2012	10:18	PH	8.12	pH	4.00
803366-005	C-NR3-D-187	SW6010B	NONE	8/22/2012	10:18	Iron	45.0	ug/L	20.0
803366-005	C-NR3-D-187	SW6010B	FLDFLT	8/22/2012	10:18	Iron	ND	ug/L	20.0
803366-005	C-NR3-D-187	SW6020	FLDFLT	8/22/2012	10:18	Arsenic	2.4	ug/L	1.0
803366-005	C-NR3-D-187	SW6020	FLDFLT	8/22/2012	10:18	Chromium	ND	ug/L	1.0
803366-005	C-NR3-D-187	SW6020	FLDFLT	8/22/2012	10:18	Manganese	1.0	ug/L	0.50
803366-005	C-NR3-D-187	SW6020	FLDFLT	8/22/2012	10:18	Molybdenum	4.6	ug/L	2.0
803366-005	C-NR3-D-187	SW6020	FLDFLT	8/22/2012	10:18	Selenium	ND	ug/L	5.0
803366-006	C-NR3-S-187	E120.1	NONE	8/22/2012	10:33	EC	900	umhos/cm	2.00
803366-006	C-NR3-S-187	E218.6	FLDFLT	8/22/2012	10:33	Chromium, Hexavalent	ND	ug/L	0.20
803366-006	C-NR3-S-187	E300	NONE	8/22/2012	10:33	Nitrate as N	ND	mg/L	0.500
803366-006	C-NR3-S-187	SM2320B	NONE	8/22/2012	10:33	Alkalinity	121	mg/L	5.00
803366-006	C-NR3-S-187	SM2320B	NONE	8/22/2012	10:33	Alkalinity, Bicarbonate (As CaCO3)	121	mg/L	5.00
803366-006	C-NR3-S-187	SM2320B	NONE	8/22/2012	10:33	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
803366-006	C-NR3-S-187	SM2540D	NONE	8/22/2012	10:33	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
803366-006	C-NR3-S-187	SM4500HB	NONE	8/22/2012	10:33	PH	8.09	pH	4.00
803366-006	C-NR3-S-187	SW6010B	NONE	8/22/2012	10:33	Iron	27.4	ug/L	20.0
803366-006	C-NR3-S-187	SW6010B	FLDFLT	8/22/2012	10:33	Iron	ND	ug/L	20.0
803366-006	C-NR3-S-187	SW6020	FLDFLT	8/22/2012	10:33	Arsenic	2.4	ug/L	0.50
803366-006	C-NR3-S-187	SW6020	FLDFLT	8/22/2012	10:33	Chromium	ND	ug/L	1.0
803366-006	C-NR3-S-187	SW6020	FLDFLT	8/22/2012	10:33	Manganese	1.1	ug/L	0.50
803366-006	C-NR3-S-187	SW6020	FLDFLT	8/22/2012	10:33	Molybdenum	4.6	ug/L	2.0
803366-006	C-NR3-S-187	SW6020	FLDFLT	8/22/2012	10:33	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
803366-007	C-NR4-D-187	E120.1	NONE	8/22/2012	11:00	EC	896	umhos/cm	2.00
803366-007	C-NR4-D-187	E218.6	FLDFLT	8/22/2012	11:00	Chromium, Hexavalent	ND	ug/L	0.20
803366-007	C-NR4-D-187	E300	NONE	8/22/2012	11:00	Nitrate as N	ND	mg/L	0.500
803366-007	C-NR4-D-187	SM2320B	NONE	8/22/2012	11:00	Alkalinity	118	mg/L	5.00
803366-007	C-NR4-D-187	SM2320B	NONE	8/22/2012	11:00	Alkalinity, Bicarbonate (As CaCO3)	118	mg/L	5.00
803366-007	C-NR4-D-187	SM2320B	NONE	8/22/2012	11:00	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.0
803366-007	C-NR4-D-187	SM2540D	NONE	8/22/2012	11:00	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
803366-007	C-NR4-D-187	SM4500HB	NONE	8/22/2012	11:00	PH	8.07	pH	4.00
803366-007	C-NR4-D-187	SW6010B	NONE	8/22/2012	11:00	Iron	28.4	ug/L	20.0
803366-007	C-NR4-D-187	SW6010B	FLDFLT	8/22/2012	11:00	Iron	ND	ug/L	20.0
803366-007	C-NR4-D-187	SW6020	FLDFLT	8/22/2012	11:00	Arsenic	2.4	ug/L	1.0
803366-007	C-NR4-D-187	SW6020	FLDFLT	8/22/2012	11:00	Chromium	ND	ug/L	1.0
803366-007	C-NR4-D-187	SW6020	FLDFLT	8/22/2012	11:00	Manganese	1.0	ug/L	0.50
803366-007	C-NR4-D-187	SW6020	FLDFLT	8/22/2012	11:00	Molybdenum	4.0	ug/L	2.0
803366-007	C-NR4-D-187	SW6020	FLDFLT	8/22/2012	11:00	Selenium	ND	ug/L	5.0
803366-008	C-NR4-S-187	E120.1	NONE	8/22/2012	11:18	EC	897	umhos/cm	2.00
803366-008	C-NR4-S-187	E218.6	FLDFLT	8/22/2012	11:18	Chromium, Hexavalent	ND	ug/L	0.20
803366-008	C-NR4-S-187	E300	NONE	8/22/2012	11:18	Nitrate as N	ND	mg/L	0.500
803366-008	C-NR4-S-187	SM2320B	NONE	8/22/2012	11:18	Alkalinity	127	mg/L	5.00
803366-008	C-NR4-S-187	SM2320B	NONE	8/22/2012	11:18	Alkalinity, Bicarbonate (As CaCO3)	127	mg/L	5.00
803366-008	C-NR4-S-187	SM2320B	NONE	8/22/2012	11:18	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
803366-008	C-NR4-S-187	SM2540D	NONE	8/22/2012	11:18	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
803366-008	C-NR4-S-187	SM4500HB	NONE	8/22/2012	11:18	PH	8.06	pH	4.00
803366-008	C-NR4-S-187	SW6010B	NONE	8/22/2012	11:18	Iron	22.0	ug/L	20.0
803366-008	C-NR4-S-187	SW6010B	FLDFLT	8/22/2012	11:18	Iron	ND	ug/L	20.0
803366-008	C-NR4-S-187	SW6020	FLDFLT	8/22/2012	11:18	Arsenic	2.6	ug/L	1.0
803366-008	C-NR4-S-187	SW6020	FLDFLT	8/22/2012	11:18	Chromium	ND	ug/L	1.0
803366-008	C-NR4-S-187	SW6020	FLDFLT	8/22/2012	11:18	Manganese	0.90	ug/L	0.50
803366-008	C-NR4-S-187	SW6020	FLDFLT	8/22/2012	11:18	Molybdenum	4.2	ug/L	2.0
803366-008	C-NR4-S-187	SW6020	FLDFLT	8/22/2012	11:18	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
803366-009	R-19-187	E120.1	NONE	8/22/2012	7:51	EC	896	umhos/cm	2.00
803366-009	R-19-187	E218.6	FLDFLT	8/22/2012	7:51	Chromium, Hexavalent	ND	ug/L	0.20
803366-009	R-19-187	E300	NONE	8/22/2012	7:51	Nitrate as N	ND	mg/L	0.500
803366-009	R-19-187	SM2320B	NONE	8/22/2012	7:51	Alkalinity	126	mg/L	5.00
803366-009	R-19-187	SM2320B	NONE	8/22/2012	7:51	Alkalinity, Bicarbonate (As CaCO3)	126	mg/L	5.00
803366-009	R-19-187	SM2320B	NONE	8/22/2012	7:51	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
803366-009	R-19-187	SM2540D	NONE	8/22/2012	7:51	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
803366-009	R-19-187	SM4500HB	NONE	8/22/2012	7:51	PH	8.21 J	pH	4.00
803366-009	R-19-187	SW6010B	NONE	8/22/2012	7:51	Iron	41.8	ug/L	20.0
803366-009	R-19-187	SW6010B	FLDFLT	8/22/2012	7:51	Iron	ND	ug/L	20.0
803366-009	R-19-187	SW6020	FLDFLT	8/22/2012	7:51	Arsenic	2.3	ug/L	1.0
803366-009	R-19-187	SW6020	FLDFLT	8/22/2012	7:51	Chromium	ND	ug/L	1.0
803366-009	R-19-187	SW6020	FLDFLT	8/22/2012	7:51	Manganese	1.4	ug/L	0.50
803366-009	R-19-187	SW6020	FLDFLT	8/22/2012	7:51	Molybdenum	4.0	ug/L	2.0
803366-009	R-19-187	SW6020	FLDFLT	8/22/2012	7:51	Selenium	ND	ug/L	5.0
803366-010	R-28-187	E120.1	NONE	8/22/2012	7:31	EC	895	umhos/cm	2.00
803366-010	R-28-187	E218.6	FLDFLT	8/22/2012	7:31	Chromium, Hexavalent	ND	ug/L	0.20
803366-010	R-28-187	E300	NONE	8/22/2012	7:31	Nitrate as N	ND	mg/L	0.500
803366-010	R-28-187	SM2320B	NONE	8/22/2012	7:31	Alkalinity	126	mg/L	5.00
803366-010	R-28-187	SM2320B	NONE	8/22/2012	7:31	Alkalinity, Bicarbonate (As CaCO3)	126	mg/L	5.00
803366-010	R-28-187	SM2320B	NONE	8/22/2012	7:31	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
803366-010	R-28-187	SM2540D	NONE	8/22/2012	7:31	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
803366-010	R-28-187	SM4500HB	NONE	8/22/2012	7:31	PH	8.18 J	pH	4.00
803366-010	R-28-187	SW6010B	NONE	8/22/2012	7:31	Iron	48.9	ug/L	20.0
803366-010	R-28-187	SW6010B	FLDFLT	8/22/2012	7:31	Iron	ND	ug/L	20.0
803366-010	R-28-187	SW6020	FLDFLT	8/22/2012	7:31	Arsenic	2.7	ug/L	1.0
803366-010	R-28-187	SW6020	FLDFLT	8/22/2012	7:31	Chromium	ND	ug/L	1.0
803366-010	R-28-187	SW6020	FLDFLT	8/22/2012	7:31	Manganese	1.4	ug/L	0.50
803366-010	R-28-187	SW6020	FLDFLT	8/22/2012	7:31	Molybdenum	4.8	ug/L	2.0
803366-010	R-28-187	SW6020	FLDFLT	8/22/2012	7:31	Selenium	ND	ug/L	5.0

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803366-011	RRB-187	E120.1	NONE	8/22/2012	8:09	EC	898	umhos/cm	2.00
803366-011	RRB-187	E218.6	FLDFLT	8/22/2012	8:09	Chromium, Hexavalent	ND	ug/L	0.20
803366-011	RRB-187	E300	NONE	8/22/2012	8:09	Nitrate as N	ND	mg/L	0.500
803366-011	RRB-187	SM2320B	NONE	8/22/2012	8:09	Alkalinity	121	mg/L	5.00
803366-011	RRB-187	SM2320B	NONE	8/22/2012	8:09	Alkalinity, Bicarbonate (As CaCO3)	121	mg/L	5.00
803366-011	RRB-187	SM2320B	NONE	8/22/2012	8:09	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
803366-011	RRB-187	SM2540D	NONE	8/22/2012	8:09	Suspended Solids (Residue, Non-Filterable)	ND	mg/L	10.0
803366-011	RRB-187	SM4500HB	NONE	8/22/2012	8:09	PH	7.94 J	pH	4.00
803366-011	RRB-187	SW6010B	NONE	8/22/2012	8:09	Iron	65.8	ug/L	20.0
803366-011	RRB-187	SW6010B	FLDFLT	8/22/2012	8:09	Iron	ND	ug/L	20.0
803366-011	RRB-187	SW6020	FLDFLT	8/22/2012	8:09	Arsenic	2.3	ug/L	1.0
803366-011	RRB-187	SW6020	FLDFLT	8/22/2012	8:09	Chromium	ND	ug/L	1.0
803366-011	RRB-187	SW6020	FLDFLT	8/22/2012	8:09	Manganese	3.0	ug/L	0.50
803366-011	RRB-187	SW6020	FLDFLT	8/22/2012	8:09	Molybdenum	4.8	ug/L	2.0
803366-011	RRB-187	SW6020	FLDFLT	8/22/2012	8:09	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.RM
P.O. Number: 423575.MP.02.RM
Release Number:

Laboratory No. 803366

Printed 9/20/2012

Samples Received on 8/22/2012 9:30:00 PM

Field ID	Lab ID	Collected	Matrix
C-CON-D-187	803366-001	08/22/2012 08:44	Water
C-CON-S-187	803366-002	08/22/2012 09:01	Water
C-NR1-D-187	803366-003	08/22/2012 09:30	Water
C-NR1-S-187	803366-004	08/22/2012 09:45	Water
C-NR3-D-187	803366-005	08/22/2012 10:18	Water
C-NR3-S-187	803366-006	08/22/2012 10:33	Water
C-NR4-D-187	803366-007	08/22/2012 11:00	Water
C-NR4-S-187	803366-008	08/22/2012 11:18	Water
R-19-187	803366-009	08/22/2012 07:51	Water
R-28-187	803366-010	08/22/2012 07:31	Water
RRB-187	803366-011	08/22/2012 08:09	Water

Anions By I.C. - EPA 300.0 Batch 08AN12S

Parameter	Unit	Analyzed	DF	MDL	RL	Result
803366-001 Nitrate as Nitrogen	mg/L	08/23/2012 18:06	1.00	0.0270	0.500	ND
803366-002 Nitrate as Nitrogen	mg/L	08/23/2012 18:40	1.00	0.0270	0.500	ND
803366-003 Nitrate as Nitrogen	mg/L	08/23/2012 18:51	1.00	0.0270	0.500	ND
803366-004 Nitrate as Nitrogen	mg/L	08/23/2012 19:03	1.00	0.0270	0.500	ND
803366-005 Nitrate as Nitrogen	mg/L	08/23/2012 19:14	1.00	0.0270	0.500	ND
803366-006 Nitrate as Nitrogen	mg/L	08/23/2012 19:25	1.00	0.0270	0.500	ND
803366-007 Nitrate as Nitrogen	mg/L	08/23/2012 20:00	1.00	0.0270	0.500	ND
803366-008 Nitrate as Nitrogen	mg/L	08/23/2012 20:11	1.00	0.0270	0.500	ND
803366-009 Nitrate as Nitrogen	mg/L	08/23/2012 20:22	1.00	0.0270	0.500	ND
803366-010 Nitrate as Nitrogen	mg/L	08/23/2012 20:34	1.00	0.0270	0.500	ND
803366-011 Nitrate as Nitrogen	mg/L	08/23/2012 20:45	1.00	0.0270	0.500	ND

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Method Blank

Parameter	Unit	DF	Result
Nitrate as Nitrogen	mg/L	1.00	ND

Duplicate — Lab ID = 803366-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Nitrate as Nitrogen	mg/L	1.00	ND	0.343	0	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrate as Nitrogen	mg/L	1.00	4.03	4.00	101.	90 - 110

Matrix Spike — Lab ID = 803366-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Nitrate as Nitrogen	mg/L	1.00	2.43	2.34(2.00)	104.	85 - 115

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrate as Nitrogen	mg/L	1.00	4.04	4.00	101.	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrate as Nitrogen	mg/L	1.00	3.01	3.00	100.	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrate as Nitrogen	mg/L	1.00	3.00	3.00	100.	90 - 110

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Alkalinity by SM 2320B Batch 08ALK12H

Parameter	Unit	Analyzed	DF	MDL	RL	Result
803366-001 Alkalinity as CaCO3	mg/L	08/24/2012	1.00	0.555	5.00	132
Bicarbonate (Calculated)	mg/L	08/24/2012	1.00	0.555	5.00	132
Carbonate (Calculated)	mg/L	08/24/2012	1.00	0.555	5.00	ND
803366-002 Alkalinity as CaCO3	mg/L	08/24/2012	1.00	0.555	5.00	128
Bicarbonate (Calculated)	mg/L	08/24/2012	1.00	0.555	5.00	128
Carbonate (Calculated)	mg/L	08/24/2012	1.00	0.555	5.00	ND
803366-003 Alkalinity as CaCO3	mg/L	08/24/2012	1.00	0.555	5.00	123
Bicarbonate (Calculated)	mg/L	08/24/2012	1.00	0.555	5.00	123
Carbonate (Calculated)	mg/L	08/24/2012	1.00	0.555	5.00	ND
803366-004 Alkalinity as CaCO3	mg/L	08/24/2012	1.00	0.555	5.00	130.
Bicarbonate (Calculated)	mg/L	08/24/2012	1.00	0.555	5.00	130.
Carbonate (Calculated)	mg/L	08/24/2012	1.00	0.555	5.00	ND
803366-005 Alkalinity as CaCO3	mg/L	08/24/2012	1.00	0.555	5.00	118
Bicarbonate (Calculated)	mg/L	08/24/2012	1.00	0.555	5.00	118
Carbonate (Calculated)	mg/L	08/24/2012	1.00	0.555	5.00	ND
803366-006 Alkalinity as CaCO3	mg/L	08/24/2012	1.00	0.555	5.00	121
Bicarbonate (Calculated)	mg/L	08/24/2012	1.00	0.555	5.00	121
Carbonate (Calculated)	mg/L	08/24/2012	1.00	0.555	5.00	ND
803366-007 Alkalinity as CaCO3	mg/L	08/24/2012	1.00	0.555	5.00	118
Bicarbonate (Calculated)	mg/L	08/24/2012	1.00	0.555	5.00	118
Carbonate (Calculated)	mg/L	08/24/2012	1.00	0.555	5.00	ND
803366-008 Alkalinity as CaCO3	mg/L	08/24/2012	1.00	0.555	5.00	127
Bicarbonate (Calculated)	mg/L	08/24/2012	1.00	0.555	5.00	127
Carbonate (Calculated)	mg/L	08/24/2012	1.00	0.555	5.00	ND
803366-009 Alkalinity as CaCO3	mg/L	08/24/2012	1.00	0.555	5.00	126
Bicarbonate (Calculated)	mg/L	08/24/2012	1.00	0.555	5.00	126
Carbonate (Calculated)	mg/L	08/24/2012	1.00	0.555	5.00	ND
803366-010 Alkalinity as CaCO3	mg/L	08/24/2012	1.00	0.555	5.00	126
Bicarbonate (Calculated)	mg/L	08/24/2012	1.00	0.555	5.00	126
Carbonate (Calculated)	mg/L	08/24/2012	1.00	0.555	5.00	ND
803366-011 Alkalinity as CaCO3	mg/L	08/24/2012	1.00	0.555	5.00	121
Bicarbonate (Calculated)	mg/L	08/24/2012	1.00	0.555	5.00	121
Carbonate (Calculated)	mg/L	08/24/2012	1.00	0.555	5.00	ND

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Method Blank

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

Duplicate — Lab ID = 803366-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Alkalinity as CaCO3	mg/L	1.00	133	132	0.755	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Alkalinity as CaCO3	mg/L	1.00	98.0	100.	98.0	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Alkalinity as CaCO3	mg/L	1.00	99.0	100.	99.0	90 - 110

Matrix Spike — Lab ID = 803366-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Alkalinity as CaCO3	mg/L	1.00	240.	232(100.)	108	75 - 125

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Specific Conductivity - EPA 120.1

Batch 08EC12G

Parameter	Unit	Analyzed	DF	MDL	RL	Result
803366-001 Specific Conductivity	umhos/cm	08/27/2012	1.00	0.116	2.00	893
803366-002 Specific Conductivity	umhos/cm	08/27/2012	1.00	0.116	2.00	894
803366-003 Specific Conductivity	umhos/cm	08/27/2012	1.00	0.116	2.00	893
803366-004 Specific Conductivity	umhos/cm	08/27/2012	1.00	0.116	2.00	898
803366-005 Specific Conductivity	umhos/cm	08/27/2012	1.00	0.116	2.00	899
803366-006 Specific Conductivity	umhos/cm	08/27/2012	1.00	0.116	2.00	900.
803366-007 Specific Conductivity	umhos/cm	08/27/2012	1.00	0.116	2.00	896

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate

Lab ID = 803347-008

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	4870	4880	0.205	0 - 10

Duplicate

Lab ID = 803366-007

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	896	896	0.00	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	707	706	100.	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	985	998	98.7	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	980.	998	98.2	90 - 110

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Specific Conductivity - EPA 120.1

Batch 08EC12H

Parameter	Unit	Analyzed	DF	MDL	RL	Result
803366-008 Specific Conductivity	umhos/cm	08/27/2012	1.00	0.116	2.00	897
803366-009 Specific Conductivity	umhos/cm	08/27/2012	1.00	0.116	2.00	896
803366-010 Specific Conductivity	umhos/cm	08/27/2012	1.00	0.116	2.00	895
803366-011 Specific Conductivity	umhos/cm	08/27/2012	1.00	0.116	2.00	898

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate

Lab ID = 803367-006

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	3960	3970	0.252	0 - 10

Duplicate

Lab ID = 803367-014

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	4060	4070	0.246	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	702	706	99.4	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	710.	706	100.	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	988	998	99.0	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	990.	998	99.2	90 - 110

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Metals by EPA 6010B, Total Batch 082412A-Th2

Parameter	Unit	Analyzed	DF	MDL	RL	Result
803366-001 Iron	ug/L	08/24/2012 10:50	1.00	0.900	20.0	39.6
803366-002 Iron	ug/L	08/24/2012 12:00	1.00	0.900	20.0	32.0
803366-003 Iron	ug/L	08/24/2012 12:06	1.00	0.900	20.0	23.6
803366-004 Iron	ug/L	08/24/2012 12:12	1.00	0.900	20.0	27.6
803366-005 Iron	ug/L	08/24/2012 12:18	1.00	0.900	20.0	45.0
803366-006 Iron	ug/L	08/24/2012 12:24	1.00	0.900	20.0	27.4
803366-007 Iron	ug/L	08/24/2012 12:29	1.00	0.900	20.0	28.4
803366-008 Iron	ug/L	08/24/2012 12:35	1.00	0.900	20.0	22.0
803366-009 Iron	ug/L	08/24/2012 12:41	1.00	0.900	20.0	41.8
803366-010 Iron	ug/L	08/24/2012 13:25	1.00	0.900	20.0	48.9
803366-011 Iron	ug/L	08/24/2012 13:31	1.00	0.900	20.0	65.8

Method Blank

Parameter	Unit	DF	Result
Iron	ug/L	1.00	ND

Duplicate — Lab ID = 803366-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Iron	ug/L	1.00	36.6	39.6	7.87	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2210	2000	110.	85 - 115

Matrix Spike — Lab ID = 803366-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	2290	2040(2000)	112.	75 - 125

MRCCS - Secondary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5420	5000	108.	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5420	5000	108.	90 - 110

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Chrome VI by EPA 218.6

Batch 08CrH12Q

Parameter	Unit	Analyzed	DF	MDL	RL	Result
803366-001 Chromium, Hexavalent	ug/L	08/24/2012 11:38	1.00	0.0260	0.20	ND
803366-002 Chromium, Hexavalent	ug/L	08/24/2012 11:49	1.00	0.0260	0.20	ND
803366-003 Chromium, Hexavalent	ug/L	08/24/2012 12:20	1.00	0.0260	0.20	ND
803366-004 Chromium, Hexavalent	ug/L	08/24/2012 12:30	1.00	0.0260	0.20	ND
803366-005 Chromium, Hexavalent	ug/L	08/24/2012 12:41	1.00	0.0260	0.20	ND
803366-006 Chromium, Hexavalent	ug/L	08/24/2012 12:51	1.00	0.0260	0.20	ND
803366-007 Chromium, Hexavalent	ug/L	08/24/2012 13:01	1.00	0.0260	0.20	ND
803366-008 Chromium, Hexavalent	ug/L	08/24/2012 13:12	1.00	0.0260	0.20	ND
803366-009 Chromium, Hexavalent	ug/L	08/24/2012 13:22	1.00	0.0260	0.20	ND
803366-010 Chromium, Hexavalent	ug/L	08/24/2012 13:33	1.00	0.0260	0.20	ND
803366-011 Chromium, Hexavalent	ug/L	08/24/2012 13:43	1.00	0.0260	0.20	ND

Method Blank

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

Duplicate

Lab ID = 803348-010

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.0352	0.0352	0.00	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.191	0.200	95.5	70 - 130

Lab Control Sample

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

Matrix Spike

Lab ID = 803348-010

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.00	1.04(1.00)	96.5	90 - 110

Matrix Spike

Lab ID = 803348-011

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.994	1.04(1.00)	95.8	90 - 110

Matrix Spike

Lab ID = 803348-012

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.962	1.02(1.00)	93.8	90 - 110

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Matrix Spike — Lab ID = 803348-013

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.980	1.02(1.00)	95.5	90 - 110

Matrix Spike — Lab ID = 803348-014

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.981	1.02(1.00)	95.7	90 - 110

Matrix Spike — Lab ID = 803366-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.00	1.04(1.00)	96.8	90 - 110

Matrix Spike — Lab ID = 803366-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.991	1.02(1.00)	97.0	90 - 110

Matrix Spike — Lab ID = 803366-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.976	1.03(1.00)	95.0	90 - 110

Matrix Spike — Lab ID = 803366-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.973	1.04(1.00)	93.6	90 - 110

Matrix Spike — Lab ID = 803366-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.993	1.04(1.00)	95.3	90 - 110

Matrix Spike — Lab ID = 803366-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.979	1.04(1.00)	94.0	90 - 110

Matrix Spike — Lab ID = 803366-007

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.998	1.04(1.00)	96.2	90 - 110

Matrix Spike — Lab ID = 803366-008

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.989	1.04(1.00)	94.7	90 - 110

Matrix Spike — Lab ID = 803366-009

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.05	1.04(1.00)	102.	90 - 110

Matrix Spike — Lab ID = 803366-010

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.02	1.03(1.00)	98.6	90 - 110

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Matrix Spike — Lab ID = 803366-011

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.01	1.03(1.00)	97.7	90 - 110

Matrix Spike — Lab ID = 803405-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.65	1.60(1.00)	106.	90 - 110

Matrix Spike — Lab ID = 803405-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.58	1.61(1.00)	97.8	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.90	5.00	97.9	90 - 110

MRCVS - Primary

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

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.94	10.0	99.4	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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Metals by EPA 6020A, Dissolved Batch 091012C

Parameter	Unit	Analyzed	DF	MDL	RL	Result
803366-001 Arsenic	ug/L	09/10/2012 23:19	5.00	0.265	1.0	2.6
Chromium	ug/L	09/10/2012 23:19	5.00	0.195	1.0	ND
Selenium	ug/L	09/10/2012 23:19	5.00	0.355	5.0	ND
803366-002 Arsenic	ug/L	09/11/2012 00:09	5.00	0.265	1.0	2.4
Chromium	ug/L	09/11/2012 00:09	5.00	0.195	1.0	ND
Selenium	ug/L	09/11/2012 00:09	5.00	0.355	5.0	ND
803366-003 Chromium	ug/L	09/11/2012 00:16	5.00	0.195	1.0	ND
Selenium	ug/L	09/11/2012 00:16	5.00	0.355	5.0	ND
803366-004 Arsenic	ug/L	09/11/2012 00:24	5.00	0.265	1.0	2.4
Chromium	ug/L	09/11/2012 00:24	5.00	0.195	1.0	ND
Selenium	ug/L	09/11/2012 00:24	5.00	0.355	5.0	ND
803366-005 Arsenic	ug/L	09/11/2012 00:31	5.00	0.265	1.0	2.4
Chromium	ug/L	09/11/2012 00:31	5.00	0.195	1.0	ND
Selenium	ug/L	09/11/2012 00:31	5.00	0.355	5.0	ND
803366-006 Chromium	ug/L	09/11/2012 00:38	5.00	0.195	1.0	ND
Selenium	ug/L	09/11/2012 00:38	5.00	0.355	5.0	ND
803366-007 Arsenic	ug/L	09/11/2012 00:45	5.00	0.265	1.0	2.4
Chromium	ug/L	09/11/2012 00:45	5.00	0.195	1.0	ND
Selenium	ug/L	09/11/2012 00:45	5.00	0.355	5.0	ND
803366-008 Arsenic	ug/L	09/11/2012 00:52	5.00	0.265	1.0	2.6
Chromium	ug/L	09/11/2012 00:52	5.00	0.195	1.0	ND
Selenium	ug/L	09/11/2012 00:52	5.00	0.355	5.0	ND
803366-009 Arsenic	ug/L	09/11/2012 01:00	5.00	0.265	1.0	2.3
Chromium	ug/L	09/11/2012 01:00	5.00	0.195	1.0	ND
Selenium	ug/L	09/11/2012 01:00	5.00	0.355	5.0	ND
803366-010 Chromium	ug/L	09/11/2012 01:07	5.00	0.195	1.0	ND
Selenium	ug/L	09/11/2012 01:07	5.00	0.355	5.0	ND
803366-011 Arsenic	ug/L	09/11/2012 01:14	5.00	0.265	1.0	2.3
Chromium	ug/L	09/11/2012 01:14	5.00	0.195	1.0	ND
Selenium	ug/L	09/11/2012 01:14	5.00	0.355	5.0	ND

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Method Blank

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

Duplicate — Lab ID = 803366-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Arsenic	ug/L	5.00	2.58	2.58	0.0775	0 - 20
Chromium	ug/L	5.00	ND	0.00	0	0 - 20
Selenium	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	0.249	0.200	125.	70 - 130
Chromium	ug/L	1.00	0.234	0.200	117.	70 - 130
Selenium	ug/L	1.00	1.00	1.00	100.	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	5.00	95.6	100.	95.6	85 - 115
Chromium	ug/L	5.00	98.8	100.	98.8	85 - 115
Selenium	ug/L	5.00	102.	100.	102.	85 - 115

Matrix Spike — Lab ID = 803366-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	5.00	102.	102.(100.)	99.7	75 - 125
Chromium	ug/L	5.00	98.2	100.(100.)	98.2	75 - 125
Selenium	ug/L	5.00	106.	100.(100.)	106.	75 - 125

Matrix Spike Duplicate — Lab ID = 803366-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	5.00	100.	102.(100.)	97.8	75 - 125
Chromium	ug/L	5.00	95.7	100.(100.)	95.7	75 - 125
Selenium	ug/L	5.00	101.	100.(100.)	101.	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	10.2	10.0	102	90 - 110
Chromium	ug/L	1.00	10.2	10.0	102.	90 - 110
Selenium	ug/L	1.00	10.4	10.0	104.	90 - 110

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Metals by EPA 6020A, Dissolved Batch 091212B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
803366-001 Manganese	ug/L	09/13/2012 05:30	5.00	0.270	0.50	0.96
Molybdenum	ug/L	09/13/2012 05:30	5.00	0.150	2.0	5.0
803366-002 Manganese	ug/L	09/13/2012 07:15	5.00	0.270	0.50	1.0
Molybdenum	ug/L	09/13/2012 07:15	5.00	0.150	2.0	4.3
803366-003 Arsenic	ug/L	09/13/2012 06:28	5.00	0.265	1.0	2.4
Manganese	ug/L	09/13/2012 06:28	5.00	0.270	0.50	1.1
Molybdenum	ug/L	09/13/2012 06:28	5.00	0.150	2.0	4.8
803366-004 Manganese	ug/L	09/13/2012 06:35	5.00	0.270	0.50	1.2
Molybdenum	ug/L	09/13/2012 06:35	5.00	0.150	2.0	4.5
803366-005 Manganese	ug/L	09/13/2012 06:42	5.00	0.270	0.50	1.0
Molybdenum	ug/L	09/13/2012 06:42	5.00	0.150	2.0	4.6
803366-006 Arsenic	ug/L	09/13/2012 07:08	1.00	0.0530	0.50	2.4
Manganese	ug/L	09/13/2012 06:49	5.00	0.270	0.50	1.1
Molybdenum	ug/L	09/13/2012 06:49	5.00	0.150	2.0	4.6
803366-007 Manganese	ug/L	09/13/2012 07:01	5.00	0.270	0.50	1.0
Molybdenum	ug/L	09/13/2012 15:05	5.00	0.150	2.0	4.0
803366-008 Manganese	ug/L	09/13/2012 07:44	5.00	0.270	0.50	0.90
Molybdenum	ug/L	09/13/2012 07:44	5.00	0.150	2.0	4.2
803366-009 Manganese	ug/L	09/13/2012 07:29	5.00	0.270	0.50	1.4
Molybdenum	ug/L	09/13/2012 07:29	5.00	0.150	2.0	4.0
803366-010 Arsenic	ug/L	09/13/2012 08:05	5.00	0.265	1.0	2.7
Manganese	ug/L	09/13/2012 08:05	5.00	0.270	0.50	1.4
Molybdenum	ug/L	09/13/2012 08:05	5.00	0.150	2.0	4.8
803366-011 Manganese	ug/L	09/13/2012 08:12	5.00	0.270	0.50	3.0
Molybdenum	ug/L	09/13/2012 08:12	5.00	0.150	2.0	4.8

Method Blank

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

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Duplicate — Lab ID = 803366-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Arsenic	ug/L	5.00	2.54	2.61	2.64	0 - 20
Manganese	ug/L	5.00	1.02	0.955	6.19	0 - 20
Molybdenum	ug/L	5.00	4.52	5.01	10.3	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	0.249	0.200	124.	70 - 130
Manganese	ug/L	1.00	0.0936	0.100	93.6	70 - 130
Molybdenum	ug/L	1.00	0.499	0.400	125.	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	5.00	97.9	100.	97.9	85 - 115
Manganese	ug/L	5.00	97.5	100.	97.5	85 - 115
Molybdenum	ug/L	5.00	109.	100.	109.	85 - 115

Matrix Spike — Lab ID = 803366-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	5.00	100.	103.(100.)	97.5	75 - 125
Manganese	ug/L	5.00	101.	101.(100.)	100.	75 - 125
Molybdenum	ug/L	5.00	110.	105.(100.)	105.	75 - 125

Matrix Spike Duplicate — Lab ID = 803366-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	5.00	102.	103.(100.)	99.1	75 - 125
Manganese	ug/L	5.00	100.0	101.(100.)	99.0	75 - 125
Molybdenum	ug/L	5.00	112.	105.(100.)	107.	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	10.2	10.0	102.	90 - 110
Manganese	ug/L	1.00	9.72	10.0	97.2	90 - 110
Molybdenum	ug/L	1.00	9.59	10.0	95.9	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	9.82	10.0	98.2	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	10.1	10.0	101	90 - 110

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Metals by EPA 6010B, Dissolved Batch 083112A-Th2

Parameter	Unit	Analyzed	DF	MDL	RL	Result
803366-001 Iron	ug/L	08/31/2012 13:04	1.00	0.900	20.0	ND
803366-002 Iron	ug/L	08/31/2012 13:47	1.00	0.900	20.0	ND
803366-003 Iron	ug/L	08/31/2012 13:53	1.00	0.900	20.0	ND
803366-004 Iron	ug/L	08/31/2012 13:59	1.00	0.900	20.0	25.7
803366-005 Iron	ug/L	08/31/2012 14:04	1.00	0.900	20.0	ND
803366-006 Iron	ug/L	08/31/2012 14:10	1.00	0.900	20.0	ND
803366-007 Iron	ug/L	08/31/2012 14:16	1.00	0.900	20.0	ND
803366-008 Iron	ug/L	08/31/2012 14:22	1.00	0.900	20.0	ND
803366-009 Iron	ug/L	08/31/2012 14:28	1.00	0.900	20.0	ND
803366-010 Iron	ug/L	08/31/2012 14:34	1.00	0.900	20.0	ND
803366-011 Iron	ug/L	08/31/2012 14:40	1.00	0.900	20.0	ND

Method Blank

Parameter	Unit	DF	Result
Iron	ug/L	1.00	ND

Duplicate — Lab ID = 803366-001

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	103.	100.	103.	85 - 115

Matrix Spike — Lab ID = 803366-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	108.	100.(100.)	108.	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5340	5000	107.	90 - 110

MRCVS - Primary

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

MRCVS - Primary

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

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pH by SM 4500-H B Batch 08PH12R

Parameter	Unit	Analyzed	DF	MDL	RL	Result	
803366-001 pH	pH	08/23/2012 09:35	1.00	0.0784	4.00	8.09	J
803366-002 pH	pH	08/23/2012 09:40	1.00	0.0784	4.00	8.08	J
803366-003 pH	pH	08/23/2012 09:43	1.00	0.0784	4.00	8.11	J
803366-004 pH	pH	08/23/2012 09:45	1.00	0.0784	4.00	8.12	
803366-005 pH	pH	08/23/2012 09:50	1.00	0.0784	4.00	8.12	
803366-006 pH	pH	08/23/2012 09:53	1.00	0.0784	4.00	8.09	
803366-007 pH	pH	08/23/2012 09:55	1.00	0.0784	4.00	8.07	
803366-008 pH	pH	08/23/2012 09:58	1.00	0.0784	4.00	8.06	
803366-009 pH	pH	08/23/2012 10:02	1.00	0.0784	4.00	8.21	J
803366-010 pH	pH	08/23/2012 10:05	1.00	0.0784	4.00	8.18	J
803366-011 pH	pH	08/23/2012 10:12	1.00	0.0784	4.00	7.94	J

Duplicate — Lab ID = 803366-010

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
pH	pH	1.00	8.19	8.18	0.122	0 - 20

Duplicate — Lab ID = 803366-011

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
pH	pH	1.00	7.95	7.94	0.126	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
pH	pH	1.00	7.01	7.00	100.	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
pH	pH	1.00	7.04	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 Suspended Solids by SM 2540 D Batch 08TSS12J

Parameter	Unit	Analyzed	DF	MDL	RL	Result
803366-001 Total Suspended Solids	mg/L	08/24/2012	1.00	0.349	10.0	ND
803366-002 Total Suspended Solids	mg/L	08/24/2012	1.00	0.349	10.0	ND
803366-003 Total Suspended Solids	mg/L	08/24/2012	1.00	0.349	10.0	ND
803366-004 Total Suspended Solids	mg/L	08/24/2012	1.00	0.349	10.0	ND
803366-005 Total Suspended Solids	mg/L	08/24/2012	1.00	0.349	10.0	ND
803366-006 Total Suspended Solids	mg/L	08/24/2012	1.00	0.349	10.0	ND
803366-007 Total Suspended Solids	mg/L	08/24/2012	1.00	0.349	10.0	ND
803366-008 Total Suspended Solids	mg/L	08/24/2012	1.00	0.349	10.0	ND
803366-009 Total Suspended Solids	mg/L	08/24/2012	1.00	0.349	10.0	ND
803366-010 Total Suspended Solids	mg/L	08/24/2012	1.00	0.349	10.0	ND
803366-011 Total Suspended Solids	mg/L	08/24/2012	1.00	0.349	10.0	ND

Method Blank

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

Duplicate — Lab ID = 803366-010

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Suspended Solids	mg/L	1.00	ND	0.00	0	0 - 10

Duplicate — Lab ID = 803366-011

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Suspended Solids	mg/L	1.00	ND	0.00	0	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Suspended Solids	mg/L	1.00	97.0	100.	97.0	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Suspended Solids	mg/L	1.00	101	100.	101	90 - 110

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Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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TRUESDAIL LABORATORIES INC.

E2 SC

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Total Suspended Solids by SM 2540 D

Calculations

Batch: 08TSS12J

Date Analyzed: 08/24/12

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
I50	BLANK	1000	1.4250	1.4250	1.425	0.0000	No	0.0000	0.0	2.5	ND
I53	803366-1	250	1.4221	1.4229	1.4229	0.0000	No	0.0008	3.2	10.0	ND
I54	803366-2	250	1.4218	1.4219	1.4219	0.0000	No	0.0001	0.4	10.0	ND
I55	803366-3	250	1.4214	1.4222	1.4222	0.0000	No	0.0008	3.2	10.0	ND
I56	803366-4	250	1.4194	1.4195	1.4195	0.0000	No	0.0001	0.4	10.0	ND
I57	803366-5	250	1.4239	1.4243	1.4243	0.0000	No	0.0004	1.6	10.0	ND
I58	803366-6	250	1.4250	1.4252	1.4252	0.0000	No	0.0002	0.8	10.0	ND
I59	803366-7	250	1.4204	1.4205	1.4205	0.0000	No	0.0001	0.4	10.0	ND
I60	803366-8	250	1.4183	1.4185	1.4185	0.0000	No	0.0002	0.8	10.0	ND
I61	803366-9	250	1.4215	1.4218	1.4218	0.0000	No	0.0003	1.2	10.0	ND
I62	803366-10	250	1.4184	1.4186	1.4186	0.0000	No	0.0002	0.8	10.0	ND
I63	803366-10D	250	1.4198	1.4200	1.42	0.0000	No	0.0002	0.8	10.0	ND
I64	803366-11	250	1.4212	1.4215	1.4215	0.0000	No	0.0003	1.2	10.0	ND
I65	803366-11D	250	1.4333	1.4336	1.4336	0.0000	No	0.0003	1.2	10.0	ND
I66	803328	1000	1.4252	1.4252	1.4252	0.0000	No	0.0000	0.0	2.5	ND
I67	803329	1000	1.4232	1.4232	1.4232	0.0000	No	0.0000	0.0	2.5	ND
I68	803333	300	1.4310	1.4640	1.464	0.0000	No	0.0330	110.0	8.3	110.0
I69	803343-1	1000	1.4335	1.4560	1.456	0.0000	No	0.0225	22.5	2.5	22.5
I51	LCS-1	100	1.4184	1.4281	1.4281	0.0000	No	0.0097	97.0	25.0	97.0
I52	LCS-2	100	1.4281	1.4382	1.4382	0.0000	No	0.0101	101.0	25.0	101.0

Calculation as follows:

Non- Filterable residue (TSS), mg/L = $\left(\frac{A-B}{C}\right) x\ 1\ 0^{6}$

Where: **A** = weight of dish + residue in grams.

B = weight of dish in grams.

C = mL of sample filtered.

RL= reporting limit.

ND = not detected (below the reporting limit)

Laboratory Control Sample (LCS) Summary

QC Std I.D.	Measurd Value, ppm	Theoretical Value, ppm	Percent Rec	Acceptance Limit	QC Within Control?
LCS1	97	100	97.0%	90-110%	Yes
LCSD	101	100	101.0%	90-110%	Yes

Duplicate Determinations Difference Summary

Lab Number	Sample Weight, g	Sample Dup Weight, g	% RPD	Acceptance Limit	QC Within Control?
803366-1	0.0002	0.0002	0.0%	≤5%	Yes
803366-11	0.0003	0.0003	0.0%	5%	Yes

LCS Recovery

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

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

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

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

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

C = Average weight in (g).

Gautam S.
Analyst Printed Name

Analyst Signature

Hope T.
Reviewer Printed Name

Reviewer Signature

Tss_2011

TRUESDAIL LABORATORIES, INC.

Alkalinity by SM 2320B
Calculations

EZ SC

2

Analytical Batch: 08ALK12H
Matrix: Water
Date of Analysis: 8/24/12

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	6.02	50	0.02		0.0	0.00		0.0	5	ND	ND	ND	ND	
803366-1	8.09	50	0.02		0.0	6.60		132.0	5	132.0	132.0	ND	ND	
803366-2	8.11	50	0.02		0.0	6.40		128.0	5	128.0	128.0	ND	ND	
803366-3	8.12	50	0.02		0.0	6.15		123.0	5	123.0	123.0	ND	ND	
803366-4	8.09	50	0.02		0.0	6.50		130.0	5	130.0	130.0	ND	ND	
803366-5	8.07	50	0.02		0.0	5.90		118.0	5	118.0	118.0	ND	ND	
803366-6	8.06	50	0.02		0.0	6.05		121.0	5	121.0	121.0	ND	ND	
803366-7	8.06	50	0.02		0.0	5.90		118.0	5	118.0	118.0	ND	ND	
803366-8	8.04	50	0.02		0.0	6.35		127.0	5	127.0	127.0	ND	ND	
803366-9	8.14	50	0.02		0.0	6.30		126.0	5	126.0	126.0	ND	ND	
803366-10	8.16	50	0.02		0.0	6.30		126.0	5	126.0	126.0	ND	ND	
803366-11	7.97	50	0.02		0.0	6.05		121.0	5	121.0	121.0	ND	ND	
803369	8.01	50	0.02		0.0	5.50		110.0	5	110.0	110.0	ND	ND	
803371-1	8.01	50	0.02		0.0	5.30		106.0	5	106.0	106.0	ND	ND	
803371-2	7.84	50	0.02		0.0	6.25		125.0	5	125.0	125.0	ND	ND	
803366-1 DUP	8.08	50	0.02		0.0	6.65		133.0	5	133.0	133.0	ND	ND	
803366-1 MS	9.45	50	0.02	2.4	47.0	12.00		240.0	5	240.0	146.0	94	ND	
LCS	10.46	50	0.02	2.2	44.0	4.90		98.0	5	98.0	10.0	88	ND	
LCSD	10.51	50	0.02	2.2	43.0	4.95		99.0	5	99.0	13.0	86	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	98	100	98.0%	90-110	Yes
LCSD	99	100	99.0%	90-110	Yes

Duplicate Determination Difference Summary

Lab Number I.D.	Measured Value, ppm	Dup Value, ppm	RPD	Accetance Limit	QC Within Control?
803366-1	132	133	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?
803366-1	132	1	100	100	240	232.00	108%	75-125	Yes			
		1	100	100								

051

Melissa S.
Analyst Printed Name

Analyst Signature

Hope T.
Reviewer Printed Name

Reviewer Signature

082412h

RMP-187

803366

CH2MHILL

CHAIN OF CUSTODY RECORD

8/22/2012 12:22:28 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.RM
Task Order
Project 2012-RMP-187
Turnaround Time 10 Days
Shipping Date: 8/22/2012
COC Number: 2

	DATE	TIME	Matrix	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	Number of Containers	COMMENTS
				Preservatives:	(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C	HNO3, 4°C	HNO3, 4°C	4°C	4°C	4°C	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		
					Cr6 (E218.6 – river) Field Filtered	Field QC Cr6 (E218.6-river)	Metals (6010B) Total Fe	Metals (6020AFF) Field Filtered Chromium	Metals (SW6010B/SW6020Adis) Field Filtered As,Mn,Fe,Se,Mo	Specific Conductance (E120.1)	Anions (E300.0) Nitrate	PH (SM4500HB)	Alkalinity (SM2320B)	TSS (SM2540)		
1	C-CON-D-187	8/22/2012	8:44	Water	X		X	X	X	X	X	X	X	X	9	pH=2
2	C-CON-S-187	8/22/2012	9:01	Water	X		X	X	X	X	X	X	X	X	9	pH=2
	C-MW-82-187	8/22/2012	7:20	Water		X									1	Hold
	C-MW-83-187	8/22/2012	8:28	Water		X									1	Hold
3	C-NR1-D-187	8/22/2012	9:30	Water	X		X	X	X	X	X	X	X	X	9	
4	C-NR1-S-187	8/22/2012	9:45	Water	X		X	X	X	X	X	X	X	X	9	
5	C-NR3-D-187	8/22/2012	10:18	Water	X		X	X	X	X	X	X	X	X	9	
6	C-NR3-S-187	8/22/2012	10:33	Water	X		X	X	X	X	X	X	X	X	9	
7	C-NR4-D-187	8/22/2012	11:00	Water	X		X	X	X	X	X	X	X	X	9	pH=2
8	C-NR4-S-187	8/22/2012	11:18	Water	X		X	X	X	X	X	X	X	X	9	
9	R-19-187	8/22/2012	7:51	Water	X		X	X	X	X	X	X	X	X	9	
10	R-28-187	8/22/2012	7:31	Water	X		X	X	X	X	X	X	X	X	9	
	RMP-AB2-187	8/22/2012	7:18	Water		X									1	Hold
11	RRB-187	8/22/2012	8:09	Water	X		X	X	X	X	X	X	X	X	9	pH=2

102

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

pH for 6020A/6010B

ALERT !!
Level III QC

For Sample Conditions
See Form Attached

	Signatures	Date/Time
Approved by		
Sampled by		
Relinquished by		8-22-12 1530
Received by	Rafael Davila	8/22/12 15:30
Relinquished by	Rafael Davila	8/22/12 21:30
Received by	Linda, FedEx	8/22/12 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:
Aug 21-23, 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
08/22/12	803348-7	9.5	N/A	N/A	N/A	HAV
↓	-8	↓	↓	↓	↓	↓
	-9					
	-10					
	-11					
	-12					
	-13					
	-14	↓	↓	↓	↓	↓
HAV 8/22/12 ~~803349~~						
08/22/12	803349-1	7	2 ml	9.5	10:15 AM	HAV
↓	-2	↓	↓	↓	↓	↓
08/23/12	803366-1	~~9.5~~	N/A	N/A	N/A	HAV
↓	-2	↓	↓	↓	↓	↓
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11	↓	↓	↓	↓	↓
08/23/12	803369	9.5	N/A	N/A	N/A	HAV
08/24/12	803405-1	9.5	N/A	N/A	N/A	HAV
↓	-2	↓	↓	↓	↓	↓

HAV 08/27/12

Gw 8/29/12

TRUESDAIL LABORATORIES, INC.

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
803340(1-3)	<1	>2	8-22-12	BE	NO	12:00	8-23-12	PH<2
803342-1	↓	↓	↓	↓	↓			
803357(1,2)	>1	<2	↓	↓	3010A			
TD 803366(1-11)	<1	<2	8-23-12	BE	3010A			
803369	↓	↓	↓	↓	↓			
803368(1-2)	↓	↓	↓	↓	↓			
803364(10-12)	<1	>2	↓	↓	NO			
803365(1-7)	↓	↓	↓	↓	↓	13:00	8-27-12	PH<2
803370	↓	↓	↓	↓	↓	↓	8-27-12 ↓	pH<2 ↓
803371	↓	↓	↓	↓	↓	↓	↓	↓
803374(1-5)	↓	↓	↓	↓	↓	↓	↓	↓
803376(1-2)	↓	↓	↓	↓	↓	↓	↓	↓
803381(1-5)	↓	↓	↓	↓	↓	↓	↓	↓
803382	>1	<2	↓	↓	3010A	↓	↓	↓
803383	↓	↓	↓	↓	↓	↓	↓	↓
803392	<1	↓	↓	↓	↓	15:00	200ml Acidified	8-27-12 PH<2
803402(1-20)	<1	>2	8-27-12	BE	NO	8:00	8-28-12	PH<2
803403(1-5)	↓	<2	↓	↓	3010A	↓	↓	↓
803405(1-2)	↓	↓	↓	↓	↓	↓	↓	↓
803445	>1	<2	8-28-12	BE	3010A	↓	↓	↓
803446	↓	↓	↓	↓	↓	↓	↓	↓
803453	<1	>2	↓	↓	NO	11 AM	TD	↓
803468	↓	<2	↓	↓	3010A	8:00 AM	8-29-12	PH<2
803462	>1	↓	↓	↓	↓	↓	↓	↓
803463	↓	↓	↓	↓	↓	↓	↓	↓
803465	↓	↓	↓	↓	↓	↓	↓	↓
803466	↓	↓	↓	↓	↓	↓	↓	↓
803467	↓	↓	↓	↓	↓	↓	↓	↓
803486	<1	>2	8-29-12	BE	3010A	8:00 AM	↓	↓
803515	>1	>2	↓	↓	↓	14:00	↓	↓
803494(1-2)	↓	<2	↓	↓	↓	↓	↓	↓
803524(1-21)	<1	>2	↓	↓	NO	15:00	8-30 <2	EX-293 10 Bi Digest
803518(1-3)	↓	↓	↓	↓	↓	↓	↓	↓
803519(1-3)	↓	↓	↓	↓	↓	↓	↓	↓
803555(1-3)	<1	>2	8-30-12	BE	NO	14:00	8/31/12 @ 1000	PH<2
803561(1-5)	↓	↓	↓	↓	↓	↓	↓	↓
803578	<1	<2	9/4/12	ES	yes	3010A	↓	↓
803579	↓	↓	↓	↓	↓	↓	↓	↓
803580	↓	↓	↓	↓	↓	↓	↓	↓
803583	↓	↓	↓	↓	↓	↓	↓	↓
803584(1-15)	<1	<2	9/4/12	ES	NO	—	↓	↓
803589	<1	<2	↓	↓	yes	3010A	↓	↓
803590	<1	<2	↓	↓	↓	3010A	↓	↓
803591	<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 #** 403366

Date Delivered: 08/22/12 **Time:** 11:30 **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? Temperature (if yes)? 4 °C	☒Yes	☐No	☐N/A
7.	Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)?	☒Yes	☐No	☐N/A
8.	Were sample custody seals intact?	☐Yes	☐No	☒N/A
9.	Does the number of samples received agree with COC?	☒Yes	☐No	☐N/A
10.	Did sample labels correspond with the client ID's?	☒Yes	☐No	☐N/A
11.	Did sample labels indicate proper preservation? Preserved (if yes) by: ☒Truesdail ☐Client	☒Yes	☐No	☐N/A
12.	Were samples pH checked? pH = See C.O.C.	☒Yes	☐No	☐N/A
13.	Were all analyses within holding time at time of receipt? If not, notify Project Manager.	☒Yes	☐No	☐N/A
14.	Have Project due dates been checked and accepted? Turn Around Time (TAT): ☐ RUSH ☒ Std	☒Yes	☐No	☐N/A

ALERT!! Level II QC

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

16. Comments: _____

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

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

October 1, 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-198, GROUNDWATER MONITORING PROJECT, TLI NO.: 803608

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-EW-198 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 September 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 Chromium were analyzed by method EPA 200.8 with the approval of Mr. Shawn Duffy.

Due to the discrepancy between the Total Dissolved Chromium (8.8 ug/L) and Hexavalent Chromium (6.8 ug/L) results for sample PE-01-198, sample from the Total Dissolved Chromium and Hexavalent Chromium sample containers were digested and analyzed for Total Dissolved Chromium. The results were 6.6 ug/L and 6.8 ug/L, respectively. The original digestate was re-analyzed for confirmation and yielded a result of 8.5 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

TRUESDAIL LABORATORIES, INC.

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

Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy
Sample: Two (2) Groundwater Samples
Project Name: PG&E Topock Project
Project No.: 456827.01.DM

Laboratory No.: 803608
Date: October 1, 2012
Collected: September 4, 2012
Received: September 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
EPA 200.8	Total Dissolved Chromium	Katia Kiarashpoor / Bita Emami
EPA 218.6	Hexavalent Chromium	Himani Vaishnav
SM 3500-CrB	Hexavalent Chromium	Jenny Tankunakorn

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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.: 803608
Date Received: September 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
803608-001	PE-01-198	E120.1	NONE	9/4/2012	11:50	EC	4770	umhos/cm	2.00
803608-001	PE-01-198	E200.8	LABFLT	9/4/2012	11:50	Chromium	8.8	ug/L	1.0
803608-001	PE-01-198	E218.6	LABFLT	9/4/2012	11:50	Chromium, Hexavalent	6.8	ug/L	0.20
803608-001	PE-01-198	SM2540C	NONE	9/4/2012	11:50	Total Dissolved Solids	2800	mg/L	125
803608-001	PE-01-198	SM4500HB	NONE	9/4/2012	11:50	PH	7.55	pH	4.00
803608-002	TW-03D-198	E120.1	NONE	9/4/2012	11:44	EC	8260	umhos/cm	2.00
803608-002	TW-03D-198	E200.8	LABFLT	9/4/2012	11:44	Chromium	931	ug/L	5.0
803608-002	TW-03D-198	SM2540C	NONE	9/4/2012	11:44	Total Dissolved Solids	5040	mg/L	250
803608-002	TW-03D-198	SM3500-CrB	LABFLT	9/4/2012	11:44	Chromium, Hexavalent	788	ug/L	100
803608-002	TW-03D-198	SM4500HB	NONE	9/4/2012	11:44	PH	7.24	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. 803608

Printed 10/1/2012

Samples Received on 9/4/2012 11:00:00 PM

Field ID	Lab ID	Collected	Matrix
PE-01-198	803608-001	09/04/2012 11:50	Water
TW-03D-198	803608-002	09/04/2012 11:44	Water

Specific Conductivity - EPA 120.1

Batch 09EC12B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
803608-001 Specific Conductivity	umhos/cm	09/07/2012	1.00	0.116	2.00	4770
803608-002 Specific Conductivity	umhos/cm	09/07/2012	1.00	0.116	2.00	8260

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate — Lab ID = 803609-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	7590	7600	0.132	0 - 10

Lab Control Sample

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

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	712	706	101.	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	986	998	98.8	90 - 110

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Chrome VI by EPA 218.6

Batch 09CrH12B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
803608-001 Chromium, Hexavalent	ug/L	09/07/2012 13:18	1.00	0.0250	0.20	6.8

Method Blank

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

Duplicate Lab ID = 803605-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.09	1.07	1.51	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.200	0.200	100.	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.99	5.00	99.7	90 - 110

Matrix Spike Lab ID = 803605-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.40	1.40(1.00)	99.9	90 - 110

Matrix Spike Lab ID = 803605-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	6.20	6.07(5.00)	102.	90 - 110

Matrix Spike Lab ID = 803605-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.40	1.40(1.00)	100.	90 - 110

Matrix Spike Lab ID = 803605-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.91	1.91(1.00)	100.	90 - 110

Matrix Spike Lab ID = 803606-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	15.2	15.4(10.0)	98.9	90 - 110

Matrix Spike Lab ID = 803606-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	15.6	15.6(10.0)	99.9	90 - 110

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Matrix Spike — Lab ID = 803607-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.21	1.19(1.00)	102.	90 - 110

Matrix Spike — Lab ID = 803608-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	16.8	16.8(10.0)	99.9	90 - 110

Matrix Spike — Lab ID = 803609-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.18	1.19(1.00)	98.9	90 - 110

Matrix Spike — Lab ID = 803609-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	1760	1760(1000)	99.6	90 - 110

Matrix Spike — Lab ID = 803629-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	7.56	7.42(5.00)	103.	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.92	5.00	98.3	90 - 110

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	10.3	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

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Chromium, Hexavalent by SM 3500-Cr B Batch 09CrH12A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
803608-002 Chromium, Hexavalent	ug/L	09/10/2012 14:52	10.0	20.0	100.	788.

Method Blank

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

Duplicate — Lab ID = 803608-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	10.0	798.	788	1.32	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	108.	100.	108.	90 - 110

Matrix Spike — Lab ID = 803608-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	10.0	1750	1790(1000)	96.0	85 - 115

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	57.6	60.0	96.0	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	61.7	60.0	103.	90 - 110

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pH by SM 4500-H B

Batch 09PH12B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
803608-001 pH	pH	09/05/2012 10:28	1.00	0.0784	4.00	7.55
803608-002 pH	pH	09/05/2012 10:30	1.00	0.0784	4.00	7.24

Method Blank

Parameter	Unit	DF	Result
pH	pH	1.00	ND

Duplicate — Lab ID = 803608-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
pH	pH	1.00	7.24	7.24	0.00	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
pH	pH	1.00	7.01	7.00	100.	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
pH	pH	1.00	7.05	7.00	101.	90 - 110

MRCVS - Primary

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

Total Dissolved Solids by SM 2540 C

Batch 09TDS12A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
803608-001 Total Dissolved Solids	mg/L	09/06/2012	1.00	0.757	125	2800
803608-002 Total Dissolved Solids	mg/L	09/06/2012	1.00	0.757	250.	5040

Method Blank

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

Duplicate — Lab ID = 803609-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	4580	4360	4.92	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Dissolved Solids	mg/L	1.00	504	500.	101.	90 - 110

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Metals by EPA 200.8, Dissolved Batch 091912A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
803608-001 Chromium	ug/L	09/19/2012 14:23	5.00	0.195	1.0	8.8
803608-002 Chromium	ug/L	09/19/2012 14:37	25.0	0.975	5.0	931.

Method Blank

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

Duplicate — Lab ID = 803605-001

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	0.215	0.200	107.	70 - 130
Manganese	ug/L	1.00	0.130	0.100	130.	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	5.00	102.	100.	102.	85 - 115
Manganese	ug/L	5.00	98.8	100.	98.8	85 - 115

Matrix Spike — Lab ID = 803605-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	5.00	107.	100.(100.)	107.	75 - 125
Manganese	ug/L	5.00	104.	100.(100.)	104.	75 - 125

Matrix Spike Duplicate — Lab ID = 803605-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	5.00	102.	100.(100.)	102.	75 - 125
Manganese	ug/L	5.00	97.0	100.(100.)	97.0	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	10.0	10.0	100.	90 - 110
Manganese	ug/L	1.00	9.76	10.0	97.6	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	9.42	10.0	94.2	90 - 110

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Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	ND	0.00		

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	9.81	10.0	98.1	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	9.36	10.0	93.6	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	9.15	10.0	91.5	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	9.66	10.0	96.6	80 - 120

Serial Dilution Lab ID = 803608-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	125	911.	931	2.19	0 - 10

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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E2 SC

12

Truesdail Laboratories, Inc.

Total Dissolved Solids by SM 2540 C

Calculations

Batch: 09TDS12A
Date Analyzed: 9/6/12

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	69.5584	69.5585	69.5584	0.0001	No	0.0000	0.0	25.0	ND	1
803609-1	10	50.4116	50.4527	50.4523	0.0004	No	0.0407	4070.0	250.0	4070.0	1
803609-2	10	48.9998	49.0434	49.0434	0.0000	No	0.0436	4360.0	250.0	4360.0	1
803605-1	100	72.3867	72.4255	72.4251	0.0004	No	0.0384	384.0	25.0	384.0	1
803605-2	100	75.7606	75.7891	75.7888	0.0003	No	0.0282	282.0	25.0	282.0	1
803605-3	100	67.1032	67.1421	67.1417	0.0004	No	0.0385	385.0	25.0	385.0	1
803605-4	100	72.5701	72.5984	72.5984	0.0000	No	0.0283	283.0	25.0	283.0	1
803606-1	50	72.8146	72.8805	72.8802	0.0003	No	0.0656	1312.0	50.0	1312.0	1
803606-2	50	66.8049	66.8781	66.8781	0.0000	No	0.0732	1464.0	50.0	1464.0	1
803607	100	74.8658	74.8934	74.8933	0.0001	No	0.0275	275.0	25.0	275.0	1
803608--1	20	48.1380	48.1941	48.1941	0.0000	No	0.0561	2805.0	125.0	2805.0	1
803609-2D	10	50.9558	51.0019	51.0016	0.0003	No	0.0458	4580.0	250.0	4580.0	1
LCS	100	78.3982	78.4487	78.4486	0.0001	No	0.0504	504.0	25.0	504.0	1
803608-2	10	47.9024	47.9532	47.9528	0.0004	No	0.0504	5040.0	250.0	5040.0	1
803593-14	50	74.7265	74.75555	74.7555	0.0001	No	0.0290	580.0	50.0	580.0	1
803593-15	50	75.4432	75.4712	75.4708	0.0004	No	0.0276	552.0	50.0	552.0	1
803603-17	50	76.5103	76.5486	76.5484	0.0002	No	0.0381	762.0	50.0	762.0	1
803613	50	71.8113	71.8465	71.8465	0.0000	No	0.0352	704.0	50.0	704.0	1
803615-4	100	74.5343	74.5711	74.5709	0.0002	No	0.0366	366.0	25.0	366.0	1
803616	440	111.3713	111.3791	111.3791	0.0000	No	0.0078	17.7	5.7	17.7	1
803629	50	65.4491	65.5019	65.5019	0.0000	No	0.0528	1056.0	50.0	1056.0	1
803644	50	76.3436	76.3754	76.3754	0.0000	No	0.0318	636.0	50.0	636.0	1
803691	100	111.3303	111.3793	111.3793	0.0000	No	0.0490	490.0	25.0	490.0	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	504	500	100.8%	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?
803609-2	0.0436	0.0458	2.5%	≤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

Hope T.
Reviewer Printed Name

Reviewer Signature

020

Total Dissolved Solids by SM 2540 C

TDS/EC CHECK

Batch: 09TDS12A
Date Analyzed: 9/6/12

Laboratory Number	EC	TDS/EC Ratio: 0.55-.9	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
803609-1	7050	0.58	4582.5	0.89
803609-2	7450	0.59	4842.5	0.90
803605-1	565	0.68	367.25	1.05
803605-2	441	0.64	286.65	0.98
803605-3	563	0.68	365.95	1.05
803605-4	437	0.65	284.05	1.00
803606-1	1933	0.68	1256.45	1.04
803606-2	1956	0.75	1271.4	1.15
803607	453	0.61	294.45	0.93
803608--1	4770	0.59	3100.5	0.90
803609-2D	7450	0.61	4842.5	0.95
LCS				
803608-2	8260	0.61	5369	0.94
803593-14	933	0.62	606.45	0.96
803593-15	908	0.61	590.2	0.94
803603-17	1344	0.57	873.6	0.87
803613	1262	0.56	820.3	0.86
803615-4	640	0.57	416	0.88
803616	32.3	0.55	20.995	0.84
803629	1670	0.63	1085.5	0.97
803644	921	0.69	598.65	1.06
803691	616	0.80	400.4	1.22

TRUESDAIL LABORATORIES, INC.
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803 608

CHAIN OF CUSTODY RECORD

[IM3Plant-EW-198]

TURNAROUND TIME 10 Days
DATE 09/04/12 PAGE 1 OF 1

ALERT !! Level III QC

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 / Ron Phelps

	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-01-198	09/04/12	11:50	Ground water	X		X	X	X										4	} pH=2 200.7
-2	TW-03D-198	09/04/12	11:44	Ground water	X	X	X	X											4	
																			8	TOTAL NUMBER OF CONTAINERS

For Sample Conditions See Form Attached

CHAIN OF CUSTODY SIGNATURE RECORD

Signature (Relinquished)	C.Knight	Printed Name	C.Knight	Company/ Agency	CH2M HILL	Date/ Time	9-4-12 15:30
Signature (Received)	Rafael Davila	Printed Name	Rafael	Company/ Agency	T.L.I	Date/ Time	9-4-12 15:30
Signature (Relinquished)	Rafael Davila	Printed Name	Rafael	Company/ Agency	T.L.I	Date/ Time	9-4-12 23:00
Signature (Received)	Shabunina	Printed Name	Linda	Company/ Agency	TLI	Date/ Time	9/4/12 23:00
Signature (Relinquished)		Printed Name		Company/ Agency		Date/ Time	
Signature (Received)		Printed Name		Company/ Agency		Date/ Time	

SAMPLE CONDITIONS
RECEIVED COOL ☑ WARM ☐ 4.8°C
CUSTODY SEALED YES ☐ NO ☑

SPECIAL REQUIREMENTS:

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
09/05/12	803606 -1	9.5	N/A	N/A	N/A	HAV
↓	↓ -2	↓	↓	↓	↓	↓
09/05/12	803607	9.5	N/A	N/A	N/A	HAV
09/05/12	803608 -1	7	2 ml	9.5	~~N/A~~ 9:30AM	HAV
09/05/12	803609 -1	7	2 ml	9.5	9:45 AM	HAV
↓	↓ -2	↓	↓	↓	↓	↓
09/06/12	803629	9.5	N/A	N/A	N/A	HAV

HAV 09/05/12

HAV 09/07/12

TRUESDAIL LABORATORIES, INC.

Turbidity/pH Check

	Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
T/D	803605(1-4)	<1	<2	9-5-12	BE	3010A			
	803606(1-2)								
	803607								
	803608(1-2)								
T	803609(1-2)		<2						
D	803609-2		>2					After Fil Acidified	
	803608(1-2)	<1	>2	9-5-12	ES	3010A		Filter then acidified	
	803602	<1	>2			NO	4:30 pm	9-10	pH<2
	803603(17,24)	<1	>2			↓	↓	↓	↓
	803604		<2			3010A	—		
	803611		↓			↓	—		
	803614		>2			NO	4:30 pm	9-10	pH<2
	803613		<2			3010A			
	615(1-3)		>2			—	4:30 pm	9-10	pH<2
	618(10-12)		>2			—	4:30 pm	↓	
	619	↓	<2	↓	↓	3010A			
	803629	<1	<2	9-6-12	BE	3010A			
	803628(1-2)								
	803645	<1	↓						
	803659(1-3)	<1	>2			NO	16:30	9-10	pH<2
	803651	↓	↓	↓	↓	↓	↓		
	803662	>1	<2	↓	↓	3010A			
	803666	↓	↓	↓	↓	↓	17:00	9-10	pH<2
	803667(1-7)	<1	<2	9-7-12	BE	3010A			
	803688	<1	↓						
	803678	<1	<2						
	803677	↓							
	803682	>1	<2						
	803678	↓	↓	↓	↓	↓			
	803691	>1	<2	9-10-12	BE	3010A			
	803693	↓	↓	↓	↓	↓			
	803708	<1	>2	9-11-12	BE	NO	8:30	9-13-12	pH<2
	803707		<2			3010A			
	803715		>2			NO	12:00	T&D Acidify after fil pH<2	
	803710		<2			3010A			
	803711		↓			↓			
	803712(1-3)	↓	>2	↓	↓	NO	14:00		
	~~803712-2~~	~~>2~~				~~3010A~~	↓	BE 9-11-12	
	803749(1-4)	<1	<2	9-12-12	BE	3010A			
	803751(1-4)								
	803750	↓	>2						
	803725	<1	<2						
	803726	>1							
	803727	↓	↓	↓	↓	↓			

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 #** 803608

Date Delivered: 09/04/12 **Time:** 13:00 **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? Temperature (if yes)? 4.8 C	☒Yes	☐No	☐N/A
7.	Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)?	☒Yes	☐No	☐N/A
8.	Were sample custody seals intact?	☐Yes	☐No	☒N/A
9.	Does the number of samples received agree with COC?	☒Yes	☐No	☐N/A
10.	Did sample labels correspond with the client ID's?	☒Yes	☐No	☐N/A
11.	Did sample labels indicate proper preservation? Preserved (if yes) by: ☐Truesdail ☒Client	☒Yes	☐No	☐N/A
12.	Were samples pH checked? pH = See C.O.C.	☒Yes	☐No	☐N/A
13.	Were all analyses within holding time at time of receipt? If not, notify Project Manager.	☒Yes	☐No	☐N/A
14.	Have Project due dates been checked and accepted? Turn Around Time (TAT): ☐ RUSH ☒Std	☒Yes	☐No	☐N/A

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

16. Comments: _____

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

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 1, 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.: 803751

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2012-GMP-187-Q3 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 September 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 (2.3 ug/L) and Hexavalent Chromium (1.5 ug/L) results for sample MW-63-065-187, sample from the Total Dissolved Chromium and Hexavalent Chromium sample containers were digested and analyzed for Total Dissolved Chromium. The results were both 2.2 ug/L. The original digestate was re-analyzed for confirmation and yielded a result of 2.2 ug/L. 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

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.: 803751
Date Received: September 11, 2012

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

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
803751-001	MW-28-090-187	E218.6	FLDFLT	9/10/2012	13:57	Chromium, Hexavalent	ND	ug/L	0.20
803751-001	MW-28-090-187	SW6020	FLDFLT	9/10/2012	13:57	Chromium	ND	ug/L	1.0
803751-002	MW-33-040-187	E218.6	FLDFLT	9/10/2012	15:30	Chromium, Hexavalent	ND	ug/L	0.20
803751-002	MW-33-040-187	SW6020	FLDFLT	9/10/2012	15:30	Chromium	ND	ug/L	1.0
803751-003	MW-35-060-187	E218.6	FLDFLT	9/10/2012	15:28	Chromium, Hexavalent	22.7	ug/L	0.20
803751-003	MW-35-060-187	SW6020	FLDFLT	9/10/2012	15:28	Chromium	24.5	ug/L	1.0
803751-004	MW-63-065-187	E218.6	FLDFLT	9/10/2012	13:37	Chromium, Hexavalent	1.5	ug/L	0.20
803751-004	MW-63-065-187	SW6020	FLDFLT	9/10/2012	13:37	Chromium	2.3	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

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REPORT

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

Laboratory No. 803751

Printed 10/1/2012

Samples Received on 9/11/2012 9:30:00 PM

Field ID	Lab ID	Collected	Matrix
MW-28-090-187	803751-001	09/10/2012 13:57	Water
MW-33-040-187	803751-002	09/10/2012 15:30	Water
MW-35-060-187	803751-003	09/10/2012 15:28	Water
MW-63-065-187	803751-004	09/10/2012 13:37	Water

Chrome VI by EPA 218.6 Batch 09CrH12D

Parameter	Unit	Analyzed	DF	MDL	RL	Result
803751-001 Chromium, Hexavalent	ug/L	09/12/2012 13:52	1.00	0.0250	0.20	ND
803751-002 Chromium, Hexavalent	ug/L	09/12/2012 14:03	1.00	0.0250	0.20	ND
803751-003 Chromium, Hexavalent	ug/L	09/12/2012 14:13	1.00	0.0250	0.20	22.7
803751-004 Chromium, Hexavalent	ug/L	09/12/2012 14:24	1.00	0.0250	0.20	1.5

Method Blank

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

Duplicate — Lab ID = 803749-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	38.0	38.1	0.123	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.200	0.200	100.	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 = 803749-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.97	6.06(5.00)	98.3	90 - 110

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Matrix Spike — Lab ID = 803749-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	7.09	7.14(5.00)	99.0	90 - 110

Matrix Spike — Lab ID = 803750-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.38	1.35(1.00)	102.	90 - 110

Matrix Spike — Lab ID = 803751-001

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 = 803751-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.14	1.10(1.00)	104.	90 - 110

Matrix Spike — Lab ID = 803751-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.05	48.8	47.7(25.0)	104.	90 - 110

Matrix Spike — Lab ID = 803751-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	6.52	6.51(5.00)	100.	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.90	5.00	98.0	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	10.2	10.0	102.	95 - 105

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Metals by EPA 6020A, Dissolved Batch 091912B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
803751-001 Chromium	ug/L	09/20/2012 04:50	5.00	0.195	1.0	ND
803751-002 Chromium	ug/L	09/20/2012 04:57	5.00	0.195	1.0	ND
803751-003 Chromium	ug/L	09/20/2012 05:04	5.00	0.195	1.0	24.5
803751-004 Chromium	ug/L	09/20/2012 05:11	5.00	0.195	1.0	2.3

Method Blank

Parameter	Unit	DF	Result
Chromium	ug/L	1.00	ND

Duplicate — Lab ID = 803749-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	5.00	43.8	40.9	6.96	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.102	0.100	102.	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	5.00	103.	100.	103.	85 - 115

Matrix Spike — Lab ID = 803749-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	5.00	147.	141.(100.)	106.	75 - 125

Matrix Spike Duplicate — Lab ID = 803749-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	5.00	144	141.(100.)	103.	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	9.78	10.0	97.8	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.3	20.0	96.4	90 - 110

MRCVS - Primary

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

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MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.5	20.0	102.	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	20.2	20.0	101.	90 - 110

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	ND	0.00		

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	ND	0.00		

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	9.85	10.0	98.5	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	10.0	10.0	100.	80 - 120

Serial Dilution Lab ID = 803749-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	25.0	42.7	41.8	2.15	0 - 10

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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CH2MHILL

CHAIN OF CUSTODY RECORD

803751

9/11/2012 3:17:10 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-187-Q3
Turnaround Time 10 Days
Shipping Date: 9/11/2012
COC Number: 2

	DATE	TIME	Matrix	Container: 250 ml Poly	2x250 ml Poly	500 ml Poly	2x500 ml Poly	Number of Containers	COMMENTS
				Preservatives: (NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C	HNO3, 4°C		
				Filtered: Field	Field	Field	Field		
				Holding Time: 28	28	180	180		
				Cr6 (E218.6) Field Filtered	Cr6 (E218.6R) Field Filtered	Metals (6020AFF) Field Filtered Chromium	Metals (6020AFF) Field Filtered Chromium		
-1	MW-28-090-187	9/10/2012	13:57	Water		X		X	4	pH=2
	MW-28-090-187-EB	9/10/2012	12:55	Water	X		X		2	Hold
-2	MW-33-040-187	9/10/2012	15:30	Water		X		X	4	pH=2
	MW-33-040-187-EB	9/10/2012	14:45	Water	X		X		2	Hold
-3	MW-35-060-187	9/10/2012	15:28	Water	X		X		2	pH=2
-4	MW-63-065-187	9/10/2012	13:37	Water	X		X		2	
	MW-80-187	9/11/2012	7:12	Water	X				1	Hold
	MW-81-187	9/11/2012	7:10	Water	X				1	Hold
	MW-82-187	9/11/2012	7:18	Water	X				1	Hold
								TOTAL NUMBER OF CONTAINERS	19	

Where provided w/ multiple Cr6 + CrT bottles, please analyze 1 + hold 1

ALERT !!
Level III QC

pH for 6020A

For Sample Conditions
See Form Attached

	Signatures	Date/Time
Approved by		9-11-12
Sampled by		1530
Relinquished by	Rafael Davila	9/11/12 15:30
Received by	Rafael Davila	9-11-12 21:30
Relinquished by	Linda Shabenese	9/11/12 21:30
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:
September 12 to October 17, 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
09/03/12	803606 -1	9.5	N/A	N/A	N/A	HAV
↓	↓ -2	↓	↓	↓	↓	↓
09/05/12	803607	9.5	N/A	N/A	N/A	HAV
09/05/12	803608 -1	7	2 ml	9.5	~~H~~ 9:30 AM	HAV
09/05/12	803609 -1	7	2 ml	9.5	9:45 AM	HAV
↓	↓ -2	↓	↓	↓	↓	↓
09/06/12	803629	9.5	N/A	N/A	N/A	HAV
09/10/12	803691	9.5	N/A	N/A	N/A	HAV
09/10/12	803700 -1	7	2 ml	9.5	4:30 PM	HAV
↓	↓ -2	↓	↓	↓	4:40 PM	HAV
09/12/12	803749 -1	9.5	N/A	N/A	N/A	HAV
↓	↓ -2	↓	↓	↓	↓	↓
	-3					
	-4					
09/12/12	803750	7	2 ml	9.5	9:00 AM	HAV
09/12/12	803751 -1	9.5	N/A	N/A	N/A	HAV
↓	↓ -2	↓	↓	↓	↓	↓
	-3					
	-4					

HAV 09/05/12

TRUESDAIL LABORATORIES, INC.

Turbidity/pH Check

	Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
T/D	803605(1-4)	<1	<2	9-5-12	BE	3010A			
	803606(1-2)								
	803607								
	803608(1-2)								
T	803609(1-2)		<2						
O	803609-2		>2					After fil Acidified	
	803608(1-2)	<1	>2	9-5-12	ES	3010A		Filter then acidified	
	803602	<1	>2			NO	4:30pm	9-10	PH<2
	803603(17,24)	<1	>2			↓	↓	↓	↓
	803604		<2			3010A	—		
	803611		↓			↓	—		
	803614		>2			NO	4:30 pm	9-10	PH<2
	803613		<2			3010A			
	615(1-3)		>2			—	4:30 pm	9-10	PH<2
	618(10-12)		>2			—	4:30 pm	↓	
	619	↓	<2	↓	↓	3010A			
	803629	<1	<2	9-6-12	BE	3010A			
	803628(1-2)								
	803645	<1	↓						
	803659(1-3)	<1	>2			NO	16:30	9-10	PH<2
	803651	↓	↓	↓	↓	↓	↓		
	803662	>1	<2	↓	↓	3010A			
	803666	↓	↓	↓	↓	↓	17:00	9-10	PH<2
	803667(1-7)	<1	<2	9-7-12	BE	3010A			
	803668	<1	↓						
	803676	<1	<2						
	803677	↓							
	803682	>1	<2						
	803678	↓	↓	↓	↓	↓			
	803691	>1	<2	9-10-12	BE	3010A			
	803693	↓	↓	↓	↓	↓			
	803708	<1	>2	9-11-12	BE	NO	8:30	9-13-12	PH<2
	803707		<2			3010A			
	803715		>2			NO	12:00	T+D Acidify after fil	PH<2
	803710		<2			3010A			
	803711		↓			↓			
	803712(1-3)	↓	>2	↓	↓	NO	14:00		
	~~803712-2~~	~~>2~~				~~3010A~~	↓	BE 9-11-12	
	803749(1-4)	<1	<2	9-12-12	BE	3010A			
	803751(1-4)	↓		↓	↓	↓			
	803750	↓	>2						
	803725	<1	<2						
	803726	>1	↓						
	803727	↓	↓	↓	↓	↓			

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.

TL pH Check book

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: E2 **Lab #** 203751

Date Delivered: 09 / 11 / 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? Temperature (if yes)? 4.3°C	☒Yes	☐No	☐N/A
7.	Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)?	☒Yes	☐No	☐N/A
8.	Were sample custody seals intact?	☐Yes	☐No	☒N/A
9.	Does the number of samples received agree with COC?	☒Yes	☐No	☐N/A
10.	Did sample labels correspond with the client ID's?	☒Yes	☐No	☐N/A
11.	Did sample labels indicate proper preservation? Preserved (if yes) by: ☒Truesdail ☐Client	☒Yes	☐No	☐N/A
12.	Were samples pH checked? pH = See C.O.C.	☒Yes	☐No	☐N/A
13.	Were all analyses within holding time at time of receipt? If not, notify Project Manager.	☒Yes	☐No	☐N/A
14.	Have Project due dates been checked and accepted? Turn Around Time (TAT): ☐ RUSH ☒Std	☒Yes	☐No	☐N/A

ALERT!! Level III QC

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

16. Comments: _____

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

TRUESDAIL LABORATORIES, INC.

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14201 FRANKLIN AVENUE
TUSTIN, CALIFORNIA 92780-7008
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www.truesdail.com

October 9, 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.: 803810

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2012-GMP-187-Q3 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 September 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 (1.6 ug/L) and Hexavalent Chromium (ND<0.20 ug/L) results for sample MW-123-187, sample from the Total Dissolved Chromium and Hexavalent Chromium sample containers were digested and analyzed for Total Dissolved Chromium. The results were both 1.5 ug/L. The original digestate was re-analyzed for confirmation and yielded a result of 1.6 ug/L. The original Total Dissolved Chromium result was reported.

Due to the discrepancy between the Total Dissolved Chromium (1.7 ug/L) and Hexavalent Chromium (ND<0.20 ug/L) results for sample MW-42-055-187, 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 1.4 ug/L, respectively. The original digestate was re-analyzed for confirmation and yielded a result of 1.6 ug/L. The original Total Dissolved Chromium result was reported.

Due to the discrepancy between the Total Dissolved Chromium (2.0 ug/L) and Hexavalent Chromium (ND<1.0 ug/L) results for sample MW-21-187, sample from the Total Dissolved Chromium and Hexavalent Chromium sample containers were digested and analyzed for Total Dissolved Chromium. The results were 1.9 ug/L and 1.4 ug/L, respectively. The original digestate was re-analyzed for confirmation and yielded a result of 2.0 ug/L. 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

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.: 803810
Date Received: September 13, 2012

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

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
803810-001	MW-123-187	E218.6	FLDFLT	9/11/2012	7:20	Chromium, Hexavalent	ND	ug/L	0.20
803810-001	MW-123-187	SW6020	FLDFLT	9/11/2012	7:20	Chromium	1.6	ug/L	1.0
803810-002	MW-33-150-187	E218.6	FLDFLT	9/11/2012	13:35	Chromium, Hexavalent	10.9	ug/L	1.0
803810-002	MW-33-150-187	SW6020	FLDFLT	9/11/2012	13:35	Chromium	11.9	ug/L	1.0
803810-003	MW-33-210-187	E218.6	FLDFLT	9/11/2012	12:19	Chromium, Hexavalent	12.6	ug/L	1.0
803810-003	MW-33-210-187	SW6020	FLDFLT	9/11/2012	12:19	Chromium	13.2	ug/L	1.0
803810-004	MW-42-055-187	E218.6	FLDFLT	9/11/2012	8:58	Chromium, Hexavalent	ND	ug/L	0.20
803810-004	MW-42-055-187	SW6020	FLDFLT	9/11/2012	8:58	Chromium	1.7	ug/L	1.0
803810-005	MW-42-065-187	E218.6	FLDFLT	9/11/2012	10:02	Chromium, Hexavalent	ND	ug/L	0.20
803810-005	MW-42-065-187	SW6020	FLDFLT	9/11/2012	10:02	Chromium	ND	ug/L	1.0
803810-006	MW-57-185-187	E218.6	FLDFLT	9/11/2012	14:24	Chromium, Hexavalent	7.8	ug/L	1.0
803810-006	MW-57-185-187	SW6020	FLDFLT	9/11/2012	14:24	Chromium	9.1	ug/L	1.0
803810-007	MW-121-187	E218.6	FLDFLT	9/12/2012	17:00	Chromium, Hexavalent	14.2	ug/L	1.0
803810-007	MW-121-187	SW6020	FLDFLT	9/12/2012	17:00	Chromium	15.2	ug/L	1.0
803810-008	MW-21-187	E218.6	FLDFLT	9/12/2012	8:06	Chromium, Hexavalent	ND	ug/L	1.0
803810-008	MW-21-187	SW6020	FLDFLT	9/12/2012	8:06	Chromium	2.0	ug/L	1.0
803810-009	MW-23-060-187	E218.6	FLDFLT	9/12/2012	9:56	Chromium, Hexavalent	32.8	ug/L	1.0
803810-009	MW-23-060-187	SW6020	FLDFLT	9/12/2012	9:56	Chromium	35.2	ug/L	1.0
803810-010	MW-23-080-187	E218.6	FLDFLT	9/12/2012	11:56	Chromium, Hexavalent	12.8	ug/L	1.0
803810-010	MW-23-080-187	SW6020	FLDFLT	9/12/2012	11:56	Chromium	15.9	ug/L	1.0
803810-011	MW-57-070-187	E218.6	FLDFLT	9/12/2012	10:02	Chromium, Hexavalent	609	ug/L	5.0
803810-011	MW-57-070-187	SW6020	FLDFLT	9/12/2012	10:02	Chromium	614	ug/L	2.0

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Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
803810-012	MW-62-065-187	E218.6	FLDFLT	9/12/2012	12:14	Chromium, Hexavalent	588	ug/L	5.0
803810-012	MW-62-065-187	SW6020	FLDFLT	9/12/2012	12:14	Chromium	627	ug/L	2.0
803810-013	MW-70-105-187	E218.6	FLDFLT	9/12/2012	15:13	Chromium, Hexavalent	80.8	ug/L	1.0
803810-013	MW-70-105-187	SW6020	FLDFLT	9/12/2012	15:13	Chromium	85.6	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.

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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. 803810

Printed 10/9/2012

Samples Received on 9/13/2012

Field ID	Lab ID	Collected	Matrix
MW-123-187	803810-001	09/11/2012 07:20	Water
MW-33-150-187	803810-002	09/11/2012 13:35	Water
MW-33-210-187	803810-003	09/11/2012 12:19	Water
MW-42-055-187	803810-004	09/11/2012 08:58	Water
MW-42-065-187	803810-005	09/11/2012 10:02	Water
MW-57-185-187	803810-006	09/11/2012 14:24	Water
MW-121-187	803810-007	09/12/2012 17:00	Water
MW-21-187	803810-008	09/12/2012 08:06	Water
MW-23-060-187	803810-009	09/12/2012 09:56	Water
MW-23-080-187	803810-010	09/12/2012 11:56	Water
MW-57-070-187	803810-011	09/12/2012 10:02	Water
MW-62-065-187	803810-012	09/12/2012 12:14	Water
MW-70-105-187	803810-013	09/12/2012 15:13	Water

Chrome VI by EPA 218.6

Batch 09CrH12E

Parameter	Unit	Analyzed	DF	MDL	RL	Result
803810-001 Chromium, Hexavalent	ug/L	09/17/2012 13:43	1.00	0.00580	0.20	ND
803810-002 Chromium, Hexavalent	ug/L	09/17/2012 14:51	5.00	0.0290	1.0	10.9
803810-003 Chromium, Hexavalent	ug/L	09/17/2012 16:25	5.00	0.0290	1.0	12.6
803810-004 Chromium, Hexavalent	ug/L	09/17/2012 12:44	1.00	0.00580	0.20	ND
803810-005 Chromium, Hexavalent	ug/L	09/17/2012 17:07	1.00	0.00580	0.20	ND
803810-006 Chromium, Hexavalent	ug/L	09/17/2012 17:38	5.00	0.0290	1.0	7.8

Method Blank

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

Duplicate — Lab ID = 803810-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.0377	0.0431	13.4	0 - 20

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Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.201	0.200	101.	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 = 803809-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	8.82	8.90(5.00)	98.5	90 - 110

Matrix Spike — Lab ID = 803809-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	8.40	8.82(5.00)	91.6	90 - 110

Matrix Spike — Lab ID = 803809-003

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 = 803810-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.991	1.04(1.00)	94.8	90 - 110

Matrix Spike — Lab ID = 803810-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	35.1	35.9(25.0)	97.0	90 - 110

Matrix Spike — Lab ID = 803810-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	36.0	37.6(25.0)	93.5	90 - 110

Matrix Spike — Lab ID = 803810-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.979	1.04(1.00)	94.0	90 - 110

Matrix Spike — Lab ID = 803810-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.918	1.00(1.00)	91.8	90 - 110

Matrix Spike — Lab ID = 803810-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	31.1	32.8(25.0)	93.0	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.87	5.00	97.5	90 - 110

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Chrome VI by EPA 218.6

Batch 09CrH12K

Parameter	Unit	Analyzed	DF	MDL	RL	Result
803810-007 Chromium, Hexavalent	ug/L	09/26/2012 14:16	5.00	0.0460	1.0	14.2
803810-008 Chromium, Hexavalent	ug/L	09/26/2012 14:27	5.00	0.0460	1.0	ND
803810-009 Chromium, Hexavalent	ug/L	09/26/2012 15:29	5.00	0.0460	1.0	32.8
803810-010 Chromium, Hexavalent	ug/L	09/26/2012 16:00	5.00	0.0460	1.0	12.8
803810-011 Chromium, Hexavalent	ug/L	09/26/2012 14:58	25.0	0.230	5.0	609.
803810-012 Chromium, Hexavalent	ug/L	09/26/2012 15:08	25.0	0.230	5.0	588.
803810-013 Chromium, Hexavalent	ug/L	09/26/2012 16:11	5.00	0.0460	1.0	80.8

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

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

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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

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.91	5.00	98.3	90 - 110

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Metals by EPA 6020A, Dissolved Batch 092512A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
803810-011 Chromium	ug/L	09/25/2012 16:18	10.0	0.390	2.0	614.
803810-012 Chromium	ug/L	09/25/2012 16:32	10.0	0.390	2.0	627.

Method Blank

Parameter	Unit	DF	Result
Chromium	ug/L	1.00	ND

Duplicate — Lab ID = 803810-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	5.00	1.83	1.87	2.38	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.220	0.200	110.	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	5.00	102.	100.	102.	85 - 115

Matrix Spike — Lab ID = 803810-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	5.00	102.	102.(100.)	100.	75 - 125

Matrix Spike Duplicate — Lab ID = 803810-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	5.00	104.	102.(100.)	102.	75 - 125

MRCCS - Secondary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
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	19.6	20.0	97.9	90 - 110

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	ND	0.00		

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Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	ND	0.00		

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.7	20.0	98.6	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.5	20.0	97.4	80 - 120

Serial Dilution — Lab ID = 803810-011

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	50.0	625.	614	1.71	0 - 10

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Metals by EPA 6020A, Dissolved Batch 092412A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
803810-001 Chromium	ug/L	09/24/2012 14:14	5.00	0.195	1.0	1.6
803810-002 Chromium	ug/L	09/24/2012 15:04	5.00	0.195	1.0	11.9
803810-003 Chromium	ug/L	09/24/2012 15:11	5.00	0.195	1.0	13.2
803810-004 Chromium	ug/L	09/24/2012 15:18	5.00	0.195	1.0	1.7
803810-005 Chromium	ug/L	09/24/2012 15:25	5.00	0.195	1.0	ND
803810-006 Chromium	ug/L	09/24/2012 15:33	5.00	0.195	1.0	9.1
803810-007 Chromium	ug/L	09/24/2012 15:40	5.00	0.195	1.0	15.2
803810-008 Chromium	ug/L	09/24/2012 15:47	5.00	0.195	1.0	2.0
803810-009 Chromium	ug/L	09/24/2012 15:54	5.00	0.195	1.0	35.2
803810-010 Chromium	ug/L	09/24/2012 16:30	5.00	0.195	1.0	15.9
803810-013 Chromium	ug/L	09/24/2012 16:51	5.00	0.195	1.0	85.6

Method Blank

Parameter	Unit	DF	Result
Chromium	ug/L	1.00	ND

Duplicate — Lab ID = 803810-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	5.00	1.60	1.64	2.72	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.218	0.200	109.	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	5.00	101.	100.	101.	85 - 115

Matrix Spike — Lab ID = 803810-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	5.00	95.8	102.(100.)	94.1	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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.1	20.0	95.4	90 - 110

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.1	20.0	95.3	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.0	20.0	95.0	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.5	20.0	92.6	90 - 110

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	ND	0.00		

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	ND	0.00		

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	9.82	10.0	98.2	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	10.2	10.0	102.	80 - 120

Serial Dilution — Lab ID = 803810-013

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	25.0	88.1	85.6	2.92	0 - 10

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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

CH2MHILL 803 810 **CHAIN OF CUSTODY RECORD** 9/13/2012 1:47:33 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.0
Task Order
Project 2012-GMP-187-Q3
Turnaround Time 10 Days
Shipping Date: 9/18/2012
COC Number: 4

	DATE	TIME	Matrix	Container:	250 ml Poly	2x250 ml Poly	500 ml Poly	2x500 ml Poly		Number of Containers	COMMENTS
				Preservatives:	(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C	HNO3, 4°C			
				Filtered:	Field	Field	Field	Field			
				Holding Time:	28	28	180	180			
					Cr6 (E218.6) Field Filtered	Cr6 (E218.6R) Field Filtered	Metals (6020AFF) Field Filtered Chromium	Metals (6020AFF) Field Filtered Chromium			
1	MW-123-187	9/11/2012	7:20	Water		X		X		4	pH=2
	MW-21-187-EB	9/11/2012	10:33	Water	X		X			2	Hold
3	MW-33-150-187	9/11/2012	13:35	Water	X		X			2	
2	MW-33-210-187	9/11/2012	12:19	Water	X		X			2	pH=2
4	MW-42-055-187	9/11/2012	8:58	Water		X		X		4	
	MW-42-055-187-EB	9/11/2012	8:17	Water	X		X			2	Hold
5	MW-42-065-187	9/11/2012	10:02	Water		X		X		4	pH=2
	MW-42-065-187-EB	9/11/2012	9:28	Water	X		X			2	Hold
6	MW-57-185-187	9/11/2012	14:24	Water	X		X			2	pH=2
	MW-83-187	9/11/2012	15:30	Water	X					1	Hold
	MW-84-187	9/11/2012	15:35	Water	X					1	Hold
	MW-85-187	9/11/2012	15:30	Water	X					1	Hold
7	MW-121-187	9/12/2012	17:00	Water	X		X			2	
8	MW-21-187	9/12/2012	8:06	Water		X		X		4	pH=2

* where provided w/multiple bottles for Cr6 + CrT, please analyze 1 + hold 1

ALERT !!
Level III QC

Rec'd 09/13/12
~~S3b~~ 803810

pH f, 6020A

For Sample Conditions
See Form Attached

Signatures	Date/Time
Approved by	9-13-12
Sampled by	
Relinquished by	1835
Received by Rafael Davila	9-13-12 18:40
Relinquished by Rafael Davila	9-13-12 24:00
Received by Linda, FedEx	9/13/12 24:00

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:
September 12 to October 17, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

CH2MHILL 803810 **CHAIN OF COUCHODY RECORD** 9/13/2012 1:47:34 PM Page 2 OF 2

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.0
Task Order
Project 2012-GMP-187-Q3
Turnaround Time 10 Days
Shipping Date: 9/18/2012
COC Number: 4

	Container:	250 ml Poly	2x250 ml Poly	500 ml Poly	2x500 ml Poly
	Preservatives:	(NH4)2SO4/NH4OH, 4°C	(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C	HNO3, 4°C
	Filtered:	Field	Field	Field	Field
	Holding Time:	28	28	180	180
		Cr6 (E218.6) Field Filtered	Cr6 (E218.6R) Field Filtered	Metals (6020AFF) Field Filtered Chromium	Metals (6020AFF) Field Filtered Chromium

* Where provided w/ 2 Cr6 + CrT bottles, please analyze 1 + hold 1

ALERT !!
Level III QC

		DATE	TIME	Matrix						Number of Containers	COMMENTS
9	MW-23-060-187	9/12/2012	9:56	Water	X		X			2	
10	MW-23-080-187	9/12/2012	11:56	Water	X		X			2	
11	MW-57-070-187	9/12/2012	10:02	Water	X		X			2	MS=2 6020.A
12	MW-62-065-187	9/12/2012	12:14	Water	X		X			2	
13	MW-70-105-187	9/12/2012	15:13	Water	X		X			2	
	MW-86-187	9/13/2012	6:40	Water	X					1	Hold
	MW-87-187	9/13/2012	6:42	Water	X					1	Hold
	MW-88-187	9/13/2012	6:36	Water	X					1	Hold
									TOTAL NUMBER OF CONTAINERS	46	

For Sample Conditions See Form Attached

	Signatures	Date/Time
Approved by		9-13-12
Sampled by		1835
Relinquished by		
Received by	Rafael Davila	9/13/12 18:40
Relinquished by	Rafael Davila	9-13-12 24:00
Received by	Dávila, Rafael	9/13/12 24:00

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:
September 12 to October 17, 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
09/05/12	803606-1	9.5	N/A	N/A	N/A	HAV
↓	↓ -2	↓	↓	↓	↓	↓
09/05/12	803607	9.5	N/A	N/A	N/A	HAV
09/05/12	803608-1	7	2 ml	9.5	~~9:~~9:30 AM	HAV
09/05/12	803609-1	7	2 ml	9.5	9:45 AM	HAV
↓	↓ -2	↓	↓	↓	↓	↓
09/06/12	803629	9.5	N/A	N/A	N/A	HAV
09/10/12	803691	9.5	N/A	N/A	N/A	HAV
09/10/12	803700-1	7	2 ml	9.5	4:30 PM	HAV
↓	↓ -2	↓	↓	↓	4:40 PM	HAV
09/12/12	803749-1	9.5	N/A	N/A	N/A	HAV
↓	↓ -2	↓	↓	↓	↓	↓
	-3					
	-4					
09/12/12	803750	7	2 ml	9.5	9:00 AM	HAV
09/12/12	803751-1	9.5	N/A	N/A	N/A	HAV
↓	↓ -2	↓	↓	↓	↓	↓
	-3					
	-4					
09/14/12	803809-1	10	N/A	N/A	N/A	HAV
↓	↓ -2	10	↓	↓	↓	↓
	-3	9.5				
09/14/12	803810-1	9.5	N/A	N/A	N/A	HAV
↓	↓ -2	10	↓	↓	↓	↓
	-3	10				
	-4	9.5				
	-5	10				
	-6	10				
	-7	10				
	-8	9.5				
↓	↓ -9	~~10~~ 9.5	↓	↓	↓	↓

HAV 09/05/12

Q 9/28/12

HAV 09/27/12

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
09/14/12	803810-10	~~10~~ 9.5	N/A	N/A	N/A	HAV
↓	↓ -11	9.5	↓	↓	↓	↓
	-12	~~10~~ 9.5				
↓	↓ -13	~~10~~ 9.5	↓	↓	↓	↓
	-14					
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	↓	↓	↓	↓
	-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

HAV 09/14/12

HAV 09/19/12

Q 9/28/12

C:\My Documents\Templates\Hexavalent Chromium\Cr6+ pH Log

HAV 09/27/12

Q 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
803728	>1	<2	9-12-12	BE	3010A			
803731	<1	>2			NO	12:30	9-13-12	PH<2
803743(1-31)	|	↓			↓	↓	9/14/12	pH<2
803744	>1	<2			3010A			
803745	|	|			|			
803746	|	|			|			
803747	|	|			|			
803748	|	|			|			
803752(1-2)	|	|			|			
803785	<1	>2	9/13/12	ES	NO	9:00 am	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(1-31)	<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	↓	|	|	|	|			
803959	<1	>2	|	|	|			
803860(1-31)	|	<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(10-11)	<1	>2	9-20-19	BE	NO	7:30AM	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 #** 803810

Date Delivered: 09 / 13 / 12 **Time:** 24:00 **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? Temperature (if yes)? 4.3°C	☒Yes	☐No	☐N/A
7.	Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)?	☒Yes	☐No	☐N/A
8.	Were sample custody seals intact?	☐Yes	☐No	☒N/A
9.	Does the number of samples received agree with COC?	☒Yes	☐No	☐N/A
10.	Did sample labels correspond with the client ID's?	☒Yes	☐No	☐N/A
11.	Did sample labels indicate proper preservation? Preserved (if yes) by: ☒Truesdail ☐Client	☒Yes	☐No	☐N/A
12.	Were samples pH checked? pH = see c.o.c.	☒Yes	☐No	☐N/A
13.	Were all analyses within holding time at time of receipt? If not, notify Project Manager.	☒Yes	☐No	☐N/A
14.	Have Project due dates been checked and accepted? Turn Around Time (TAT): ☐ RUSH ☒Std	☒Yes	☐No	☐N/A

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. Stabenow

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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

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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(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.: 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

004

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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.

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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.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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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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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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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** 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-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/FF) FF Chromium	Metals (6010B/FF) FF Ca,Mg,Na,Fe	Metals (6020A/FF) 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.

[signature]
9/20/2012

DATE	TIME	Matrix					Sample Names	Number of Containers	COMMENTS
9/13/12	1535	GW	✓		✓	✓	MW-44-125-187		
	1420	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 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-187SAMPLEMETHOD
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 (6020AFF) FF Chromium	Metals (6010BFF) FF Ca,Mg,Na,Fe	Metals (6020AFF) FF As,Mo,Se,Mn,Cr

Rec'd 09/18/12
S 803860

	DATE	TIME	Matrix					Sample Names	Number of Containers	COMMENTS
-1	9/13/12	1535	GW	✓		✓	✓	mw-44-125-187		7
-2		1520	GW	✓		✓	✓	mw-44-125-187ER		pH=2 6020.7
-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	Shakeerina, 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

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	~~-14~~					
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	9.3	↓	↓	↓	↓
2 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	9:00 am	9/14/12	PH<2
803776	<1	>2	9/13/12	BE	NO	10:20 am	9/17	PH<2
803779(10-12)	↓	↓	↓	↓	↓	12:00 pm	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	↓	↓	↓	↓	↓			
803959	<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(10-11)	<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? Temperature (if yes)? 4.5°C	☑Yes	☐No	☐N/A
7.	Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)?	☑Yes	☐No	☐N/A
8.	Were sample custody seals intact?	☐Yes	☐No	☑N/A
9.	Does the number of samples received agree with COC?	☑Yes	☐No	☐N/A
10.	Did sample labels correspond with the client ID's?	☑Yes	☐No	☐N/A
11.	Did sample labels indicate proper preservation? Preserved (if yes) by: ☑Truesdail ☐Client	☑Yes	☐No	☐N/A
12.	Were samples pH checked? pH = See C.O.C.	☑Yes	☐No	☐N/A
13.	Were all analyses within holding time at time of receipt? If not, notify Project Manager.	☑Yes	☐No	☐N/A
14.	Have Project due dates been checked and accepted? Turn Around Time (TAT): ☐ RUSH ☑ Std	☑Yes	☐No	☐N/A

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

16. Comments: _____

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

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

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-187-Q3, GROUNDWATER MONITORING PROJECT, TLI NO.: 803862

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2012-GMP-187-Q3 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 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.

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.: 803862
Date Received: September 18, 2012

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

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
803862-001	MW-48-187	E218.6	FLDFLT	9/13/2012	8:07	Chromium, Hexavalent	ND	ug/L	1.0
803862-001	MW-48-187	SW6020	FLDFLT	9/13/2012	8:07	Chromium	ND	ug/L	1.0
803862-002	MW-62-110-187	E218.6	FLDFLT	9/13/2012	15:15	Chromium, Hexavalent	894	ug/L	10.0
803862-002	MW-62-110-187	SW6020	FLDFLT	9/13/2012	15:15	Chromium	923	ug/L	4.0
803862-003	MW-62-190-187	E218.6	FLDFLT	9/13/2012	15:30	Chromium, Hexavalent	ND	ug/L	1.0
803862-003	MW-62-190-187	SW6020	FLDFLT	9/13/2012	15:30	Chromium	ND	ug/L	1.0
803862-004	MW-73-080-187	E218.6	FLDFLT	9/13/2012	9:14	Chromium, Hexavalent	37.3	ug/L	1.0
803862-004	MW-73-080-187	SW6020	FLDFLT	9/13/2012	9:14	Chromium	39.3	ug/L	1.0
803862-005	MW-66-165-187	E218.6	FLDFLT	9/17/2012	12:01	Chromium, Hexavalent	653	ug/L	10.0
803862-005	MW-66-165-187	SW6020	FLDFLT	9/17/2012	12:01	Chromium	665	ug/L	2.0
803862-006	MW-66-230-187	E218.6	FLDFLT	9/17/2012	13:03	Chromium, Hexavalent	6200	ug/L	100
803862-006	MW-66-230-187	SW6020	FLDFLT	9/17/2012	13:03	Chromium	6040	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.

004

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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. 803862

Printed 10/10/2012

Samples Received on 9/18/2012 9:30:00 PM

Field ID	Lab ID	Collected	Matrix
MW-48-187	803862-001	09/13/2012 08:07	Water
MW-62-110-187	803862-002	09/13/2012 15:15	Water
MW-62-190-187	803862-003	09/13/2012 15:30	Water
MW-73-080-187	803862-004	09/13/2012 09:14	Water
MW-66-165-187	803862-005	09/17/2012 12:01	Water
MW-66-230-187	803862-006	09/17/2012 13:03	Water

Chrome VI by EPA 218.6

Batch 09CrH12H

Parameter	Unit	Analyzed	DF	MDL	RL	Result
803862-001 Chromium, Hexavalent	ug/L	09/20/2012 13:37	5.00	0.0290	1.0	ND
803862-002 Chromium, Hexavalent	ug/L	09/20/2012 11:12	50.0	0.290	10.0	894.
803862-003 Chromium, Hexavalent	ug/L	09/20/2012 13:48	5.00	0.0290	1.0	ND
803862-004 Chromium, Hexavalent	ug/L	09/20/2012 11:43	5.00	0.0290	1.0	37.3
803862-005 Chromium, Hexavalent	ug/L	09/20/2012 11:53	50.0	0.290	10.0	653.
803862-006 Chromium, Hexavalent	ug/L	09/20/2012 13:27	500	2.90	100.	6200

Method Blank

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

Duplicate

Lab ID = 803862-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	887.	894	0.795	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.199	0.200	99.6	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

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Matrix Spike — Lab ID = 803862-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.94	5.19(5.00)	95.0	90 - 110

Matrix Spike — Lab ID = 803862-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.18	1.00(1.00)	118.	90 - 110

Matrix Spike — Lab ID = 803862-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	1880	1890(1000)	99.1	90 - 110

Matrix Spike — Lab ID = 803862-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.62	5.00(5.00)	92.3	90 - 110

Matrix Spike — Lab ID = 803862-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.952	1.00(1.00)	95.2	90 - 110

Matrix Spike — Lab ID = 803862-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	85.1	87.3(50.0)	95.6	90 - 110

Matrix Spike — Lab ID = 803862-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	1350	1400(750.)	92.4	90 - 110

Matrix Spike — Lab ID = 803862-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	500	13200	13700(7500)	93.0	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.88	5.00	97.6	90 - 110

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.66	10.0	96.6	95 - 105

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Metals by EPA 6020A, Dissolved

Batch 092612B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
803862-001 Chromium	ug/L	09/27/2012 09:38	5.00	0.195	1.0	ND
803862-003 Chromium	ug/L	09/27/2012 09:46	5.00	0.195	1.0	ND
803862-004 Chromium	ug/L	09/27/2012 09:54	5.00	0.195	1.0	39.3
803862-005 Chromium	ug/L	09/27/2012 10:08	10.0	0.390	2.0	665.
803862-006 Chromium	ug/L	09/27/2012 10:22	100	3.90	20.0	6040

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

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Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	ND	0.00		

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	ND	0.00		

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	ND	0.00		

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	ND	0.00		

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.9	20.0	99.3	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.8	20.0	98.9	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	20.3	20.0	101.	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 = 803862-004

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	25.0	39.1	39.3	0.612	0 - 10
Manganese	ug/L	25.0	31.2	28.7	8.48	0 - 10

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Metals by EPA 6020A, Dissolved Batch 100412A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
803862-002 Chromium	ug/L	10/04/2012 18:15	20.0	0.780	4.0	923.

Method Blank

Parameter	Unit	DF	Result
Arsenic	ug/L	1.00	ND
Chromium	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	0.112	0.100	112.	70 - 130
Chromium	ug/L	1.00	0.216	0.200	108.	70 - 130
Molybdenum	ug/L	1.00	0.416	0.400	104.	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	5.00	92.3	100.	92.3	85 - 115
Chromium	ug/L	5.00	101.	100.	101.	85 - 115
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
Arsenic	ug/L	5.00	92.4	100.(100.)	92.4	75 - 125
Chromium	ug/L	5.00	102.	100.(100.)	102.	75 - 125
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
Arsenic	ug/L	5.00	90.0	100.(100.)	90.0	75 - 125
Chromium	ug/L	5.00	99.2	100.(100.)	99.2	75 - 125
Molybdenum	ug/L	5.00	94.2	100.(100.)	94.2	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	19.9	20.0	99.4	90 - 110
Chromium	ug/L	1.00	19.9	20.0	99.4	90 - 110
Molybdenum	ug/L	1.00	18.6	20.0	93.0	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	19.0	20.0	95.0	90 - 110

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Client: E2 Consulting Engineers, Inc.

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

Printed 10/10/2012

Serial Dilution

Lab ID = 803862-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	100	957	923	3.62	0 - 10

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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803862

CH2MHILL CHAIN OF CUSTODY RECORD 9/18/2012 2:16:00 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-187-Q3
Turnaround Time 10 Days
Shipping Date: 9/18/2012
COC Number: 7

			Container:	250 ml Poly	500 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-48-187	9/13/2012	8:07	Water	X	X		2	
-2 MW-62-110-187	9/13/2012	15:15	Water	X	X		2	
-3 MW-62-190-187	9/13/2012	15:30	Water	X	X		2	pH=2
-4 MW-73-080-187	9/13/2012	9:14	Water	X	X		2	6020.7
-5 MW-66-165-187	9/17/2012	12:01	Water	X	X		2	
-6 MW-66-230-187	9/17/2012	13:03	Water	X	X		2	
MW-89-187	9/17/2012	15:03	Water	X			1	Hold
MW-90-187	9/17/2012	15:15	Water	X			1	Hold
MW-91-187	9/17/2012	15:22	Water	X			1	Hold
						TOTAL NUMBER OF CONTAINERS	15	

Rec'd 09/18/12
S 803862

For 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 21:30
Received by	Shakeemima, TCI,	9/18/12 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:
September 12 to October 17, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

036

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	~~-14~~					
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	9.3	↓	↓	↓	↓
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	↓	|	|	|	|			
803959	<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	7:30AM	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 #** 803962

Date Delivered: 09 / 18 / 12 **Time:** 2:30 **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? Temperature (if yes)? 4.5 °C	☑Yes	☐No	☐N/A
7.	Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)?	☑Yes	☐No	☐N/A
8.	Were sample custody seals intact?	☐Yes	☐No	☑N/A
9.	Does the number of samples received agree with COC?	☑Yes	☐No	☐N/A
10.	Did sample labels correspond with the client ID's?	☑Yes	☐No	☐N/A
11.	Did sample labels indicate proper preservation? Preserved (if yes) by: ☑Truesdail ☐Client	☑Yes	☐No	☐N/A
12.	Were samples pH checked? pH = See c.o.c	☑Yes	☐No	☐N/A
13.	Were all analyses within holding time at time of receipt? If not, notify Project Manager.	☑Yes	☐No	☐N/A
14.	Have Project due dates been checked and accepted? Turn Around Time (TAT): ☐ RUSH ☑ Std	☑Yes	☐No	☐N/A

ALERT !! Level III QC

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

16. Comments: _____

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

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 15, 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.: 803905

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2012-GMP-187-Q3 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 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.

Due to the discrepancy between the Total Dissolved Chromium (1.2 ug/L) and Hexavalent Chromium (ND<0.20 ug/L) results for sample MW-71-035-187, 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-digestion for Total Dissolved Chromium 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.
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.: 803905
Date Received: September 20, 2012
Revision 1; October 16, 2012

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

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
803905-001	MW-65-160-187	E218.6	FLDFLT	9/18/2012	12:25	Chromium, Hexavalent	75.7	ug/L	1.0
803905-001	MW-65-160-187	SW6020	FLDFLT	9/18/2012	12:25	Chromium	79.6	ug/L	1.0
803905-002	MW-65-225-187	E218.6	FLDFLT	9/18/2012	13:16	Chromium, Hexavalent	528	ug/L	5.0
803905-002	MW-65-225-187	SW6020	FLDFLT	9/18/2012	13:16	Chromium	570	ug/L	2.0
803905-003	MW-70BR-225-187	E218.6	FLDFLT	9/18/2012	10:16	Chromium, Hexavalent	2410	ug/L	20.0
803905-003	MW-70BR-225-187	SW6020	FLDFLT	9/18/2012	10:16	Chromium	2500	ug/L	20.0
803905-004	MW-60BR-245-187	E218.6	FLDFLT	9/19/2012	7:44	Chromium, Hexavalent	89.7	ug/L	1.0
803905-004	MW-60BR-245-187	SW6020	FLDFLT	9/19/2012	7:44	Chromium	97.2	ug/L	1.0
803905-005	MW-69-195-187	E218.6	FLDFLT	9/19/2012	15:46	Chromium, Hexavalent	789	ug/L	10.0
803905-005	MW-69-195-187	SW6020	FLDFLT	9/19/2012	15:46	Chromium	840	ug/L	2.0
803905-006	MW-71-035-187	E218.6	FLDFLT	9/19/2012	9:42	Chromium, Hexavalent	ND	ug/L	0.2
803905-006	MW-71-035-187	SW6020	FLDFLT	9/19/2012	9:42	Chromium	ND	ug/L	1.0
803905-007	MW-72-080-187	E218.6	FLDFLT	9/19/2012	12:15	Chromium, Hexavalent	151	ug/L	2.0
803905-007	MW-72-080-187	SW6020	FLDFLT	9/19/2012	12:15	Chromium	158	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

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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. 803905

Printed 10/16/2012 SC 10/16/12
Revised

Samples Received on 9/20/2012 4:30:00 PM

Field ID	Lab ID	Collected	Matrix
MW-65-160-187	803905-001	09/18/2012 12:25	Water
MW-65-225-187	803905-002	09/18/2012 13:16	Water
MW-70BR-225-187	803905-003	09/18/2012 10:16	Water
MW-60BR-245-187	803905-004	09/19/2012 07:44	Water
MW-69-195-187	803905-005	09/19/2012 15:46	Water
MW-71-035-187	803905-006	09/19/2012 09:42	Water
MW-72-080-187	803905-007	09/19/2012 12:15	Water

Chrome VI by EPA 218.6 Batch 09CrH12J

Parameter	Unit	Analyzed	DF	MDL	RL	Result
803905-001 Chromium, Hexavalent	ug/L	09/21/2012 13:02	5.00	0.0290	1.0	75.7
803905-002 Chromium, Hexavalent	ug/L	09/21/2012 13:54	25.0	0.145	5.0	528.
803905-003 Chromium, Hexavalent	ug/L	09/21/2012 15:28	100	0.580	20.0	2410
803905-004 Chromium, Hexavalent	ug/L	09/21/2012 15:38	5.00	0.0290	1.0	89.7
803905-005 Chromium, Hexavalent	ug/L	09/21/2012 15:49	50.0	0.290	10.0	789.
803905-006 Chromium, Hexavalent	ug/L	09/21/2012 15:07	1.00	0.00580	0.20	ND
803905-007 Chromium, Hexavalent	ug/L	09/21/2012 15:59	10.0	0.0580	2.0	151.

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

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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

Lab ID = 803903-001

Matrix Spike

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

Lab ID = 803903-002

Matrix Spike

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

Lab ID = 803904-001

Matrix Spike

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	26.4	26.7(15.0)	98.3	90 - 110

Lab ID = 803904-002

Matrix Spike

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	36.1	36.2(20.0)	99.3	90 - 110

Lab ID = 803904-003

Matrix Spike

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.27	9.20(5.00)	101.	90 - 110

Lab ID = 803904-004

Matrix Spike

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	25.3	25.4(15.0)	99.5	90 - 110

Lab ID = 803905-001

Matrix Spike

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	176.	176.(100.)	100.	90 - 110

Lab ID = 803905-002

Matrix Spike

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	1180	1150(625)	104.	90 - 110

Lab ID = 803905-003

Matrix Spike

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	100	4960	4910(2500)	102.	90 - 110

Lab ID = 803905-004

Matrix Spike

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	186.	190.(100.)	96.9	90 - 110

Lab ID = 803905-005

Matrix Spike

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	1790	1790(1000)	100.	90 - 110

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Matrix Spike — Lab ID = 803905-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.988	1.04(1.00)	94.4	90 - 110

Matrix Spike — Lab ID = 803905-007

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	10.0	346.	351(200.)	97.7	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.86	5.00	97.1	90 - 110

MRCVS - Primary

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

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	10.2	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

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Metals by EPA 6020A, Dissolved Batch 100412C

Parameter	Unit	Analyzed	DF	MDL	RL	Result
803905-001 Chromium	ug/L	10/05/2012 08:01	5.00	0.195	1.0	79.6
803905-002 Chromium	ug/L	10/05/2012 08:08	10.0	0.390	2.0	570.
803905-003 Chromium	ug/L	10/05/2012 08:15	100	3.90	20.0	2500
803905-004 Chromium	ug/L	10/05/2012 08:22	5.00	0.195	1.0	97.2
803905-005 Chromium	ug/L	10/05/2012 08:37	10.0	0.390	2.0	840.
803905-007 Chromium	ug/L	10/05/2012 08:51	5.00	0.195	1.0	158.

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

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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	19.8	20.0	99.1	90 - 110

MRCVS - Primary

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

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	ND	0.00		

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	ND	0.00		

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	21.4	20.0	107.	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	21.2	20.0	106.	80 - 120

Serial Dilution — Lab ID = 803905-007

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	25.0	160.	158	1.01	0 - 10

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Metals by EPA 6020A, Dissolved Batch 101112A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
803905-006 Chromium	ug/L	10/11/2012 17:14	5.00	0.195	1.0	ND

Method Blank

Parameter	Unit	DF	Result
Chromium	ug/L	1.00	ND

Duplicate — Lab ID = 804183-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	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	0.202	0.200	101.	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	5.00	90.5	100.	90.5	85 - 115

Matrix Spike — Lab ID = 804183-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	5.00	93.1	100.(100.)	93.1	75 - 125

Matrix Spike Duplicate — Lab ID = 804183-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	5.00	99.0	100.(100.)	99.0	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	20.0	20.0	99.8	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	19.1	20.0	95.4	90 - 110

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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	0.00		

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	ND	0.00		

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.9	20.0	94.4	80 - 120

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

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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CH2MHILL 803905

CHAIN OF CUSTODY RECORD

9/20/2012 10:51:26 AM Page 1 OF 1

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.02.GM.0
Task Order
Project 2012-GMP-187-Q3
Turnaround Time 10 Days
Shipping Date: 9/25/2012
COC Number: 10

	DATE	TIME	Matrix	Container:	250 ml Poly	500 ml Poly		Number of Containers	COMMENTS
				Preservatives:	(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C			
				Filtered:	Field	Field			
				Holding Time:	28	180			
					Cr6 (E218.6) Field Filtered	Metals (6020AFF) Field Filtered Chromium			
-1 MW-65-160-187	9/18/2012	12:25	Water		X	X		2	
-2 MW-65-225-187	9/18/2012	13:16	Water		X	X		2	pH2 6020A
-3 MW-70BR-225-187	9/18/2012	10:16	Water		X	X		2	
MW-92-187	9/18/2012	14:30	Water		X			1	Hold
MW-93-187	9/18/2012	16:15	Water		X			1	Hold
MW-94-187	9/18/2012	16:22	Water		X			1	Hold
-4 MW-60BR-245-187	9/19/2012	7:44	Water		X	X		2	
-5 MW-69-195-187	9/19/2012	15:46	Water		X	X		2	pH2 6020A
-6 MW-71-035-187	9/19/2012	9:42	Water		X	X		2	
-7 MW-72-080-187	9/19/2012	12:15	Water		X	X		2	
MW-95-187	9/19/2012	15:42	Water		X			1	Hold
MW-96-187	9/19/2012	15:44	Water		X			1	Hold
MW-97-187	9/19/2012	15:46	Water		X			1	Hold
							TOTAL NUMBER OF CONTAINERS	20	

Rec'd 09/20/12
~~S3d~~ 803905

ALERT !!
Level III QC

For Sample Conditions
See Form Attached

	Signatures	Date/Time
Approved by		9-20-12
Sampled by		1110
Relinquished by	Rafael Davila	9/20/12 11:10
Received by	Rafael Davila	9/20/12 4:30
Relinquished by		9/20/12 4:30
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:
September 12 to October 17, 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
09/21/12	803903-1	9.5	N/A	N/A	N/A	
↓	↓ -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	↓	↓	↓	↓	

HAV
09/24/12

09/25/12

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	~~>2~~ <2 BE	9-21-12	BE	3010A			~~-3 <2~~ BE
803895(1-3)	↓	↓	↓	↓	↓			-3 pH<2
803897(1-3)	↓	~~<2~~	↓	↓	↓			
803903(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(10-13)	<1	>2	↓	BE	NO	12:15	↓	↓
804010(1-3)	↓	↓	↓	↓	↓	↓	↓	↓
804009(1-9)	↓	↓	↓	↓	↓	↓	↓	↓
804013(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 #** 803905

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. Shabunina

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.

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

Project Name: PG&E Topock Project
Project No.: 423575.MP.06.TS
P.O. No.: 423575.MP.06.TS

Laboratory No.: 803981
Date Received: September 25, 2012

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.

004

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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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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

803981

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-187SAMPLEMETHOD
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		
DATE	TIME	Matrix	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
9-24-12	1015	water	X			X	X	2	Sample ID: MW-33-090-187
									DH-2
									6020A/
									6010B

ALERT !!
Level III QC

For Sample Conditions
See Form Attached

	Signatures	Date/Time
Approved by		
Sampled by		9-25-12 1640
Relinquished by		
Received by	Rafael Davila	9/25/12 16:4
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

947

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	
↓	↓ -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

9/28/12

TRUESDAIL LABORATORIES, INC.

Turbidity/pH Check

Sample Number	Turbidity	pH (BE)	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
803894	>1	~~>2~~ <2	9-21-12	BE	3010A			~~-3 <2~~ BE
803895(1-3	↓	↓	↓	↓	↓			-3 pH<2
803897(1-3)	↓	~~<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	↓	↓	↓	↓	↓			
803967	↓	↓	↓	↓	↓			
803980	<1	>2	9-26-12	M.M	3010A			
803981	↓	<2	↓	↓	↓			
803982(4-6)	↓	↓	↓	↓	↓			
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)	↓	↓	↓	↓	↓	↓	↓	↓
804013(2-40)	↓	↓	↓	↓	↓	↓	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 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-187-Q3, GROUNDWATER MONITORING PROJECT, TLI NO.: 803982

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2012-GMP-187-Q3 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 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
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.: 803982
Date Received: September 25, 2012

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

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
803982-001	MW-60-125-187	E218.6	FLDFLT	9/20/2012	11:28	Chromium, Hexavalent	848	ug/L	10.0
803982-001	MW-60-125-187	SW6020	FLDFLT	9/20/2012	11:28	Chromium	846	ug/L	4.0
803982-002	MW-67-185-187	E218.6	FLDFLT	9/20/2012	13:10	Chromium, Hexavalent	2370	ug/L	20.0
803982-002	MW-67-185-187	SW6020	FLDFLT	9/20/2012	13:10	Chromium	2320	ug/L	10.0
803982-003	MW-67-225-187	E218.6	FLDFLT	9/20/2012	13:09	Chromium, Hexavalent	3200	ug/L	50.0
803982-003	MW-67-225-187	SW6020	FLDFLT	9/20/2012	13:09	Chromium	3420	ug/L	10.0
803982-004	MW-67-260-187	E218.6	FLDFLT	9/20/2012	15:29	Chromium, Hexavalent	2130	ug/L	20.0
803982-004	MW-67-260-187	SW6020	FLDFLT	9/20/2012	15:29	Chromium	2160	ug/L	10.0
803982-005	MW-68-180-187	E218.6	FLDFLT	9/20/2012	15:20	Chromium, Hexavalent	16400	ug/L	200
803982-005	MW-68-180-187	SW6020	FLDFLT	9/20/2012	15:20	Chromium	16900	ug/L	40.0
803982-006	MW-68-240-187	E218.6	FLDFLT	9/20/2012	8:50	Chromium, Hexavalent	2000	ug/L	20.0
803982-006	MW-68-240-187	SW6020	FLDFLT	9/20/2012	8:50	Chromium	1980	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.

004

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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. 803982

Printed 10/12/2012

Samples Received on 9/25/2012 11:30:00 PM

Field ID	Lab ID	Collected	Matrix
MW-60-125-187	803982-001	09/20/2012 11:28	Water
MW-67-185-187	803982-002	09/20/2012 13:10	Water
MW-67-225-187	803982-003	09/20/2012 13:09	Water
MW-67-260-187	803982-004	09/20/2012 15:29	Water
MW-68-180-187	803982-005	09/20/2012 15:20	Water
MW-68-240-187	803982-006	09/20/2012 08:50	Water

Chrome VI by EPA 218.6 Batch 09CrH12K

Parameter	Unit	Analyzed	DF	MDL	RL	Result
803982-001 Chromium, Hexavalent	ug/L	09/26/2012 10:48	50.0	0.460	10.0	848.
803982-002 Chromium, Hexavalent	ug/L	09/26/2012 10:59	100	0.920	20.0	2370
803982-003 Chromium, Hexavalent	ug/L	09/26/2012 11:09	250	2.30	50.0	3200
803982-004 Chromium, Hexavalent	ug/L	09/26/2012 11:19	100	0.920	20.0	2130
803982-005 Chromium, Hexavalent	ug/L	09/26/2012 13:14	1000	9.20	200.	16400
803982-006 Chromium, Hexavalent	ug/L	09/26/2012 12:01	100	0.920	20.0	2000

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

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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

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

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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

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.91	5.00	98.3	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	9.86	10.0	98.6	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.77	10.0	97.7	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

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Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project Page 4 of 6
Project Number: 423575.MP.02.GM Printed 10/12/2012

Metals by EPA 6020A, Dissolved

Batch 100912A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
803982-001 Chromium	ug/L	10/09/2012 21:44	20.0	0.780	4.0	846.
803982-002 Chromium	ug/L	10/09/2012 22:34	50.0	1.95	10.0	2320
803982-003 Chromium	ug/L	10/09/2012 22:42	50.0	1.95	10.0	3420
803982-004 Chromium	ug/L	10/09/2012 22:49	50.0	1.95	10.0	2160
803982-005 Chromium	ug/L	10/09/2012 23:25	200	7.80	40.0	16900
803982-006 Chromium	ug/L	10/09/2012 23:32	50.0	1.95	10.0	1980

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

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Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Selenium	ug/L	1.00	ND	0.00		

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Selenium	ug/L	1.00	ND	0.00		

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.5	20.0	103.	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

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Selenium	ug/L	1.00	ND	0.00		

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Selenium	ug/L	1.00	ND	0.00		

Serial Dilution — Lab ID = 803982-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	100	917	846	8.05	0 - 10

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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803982

CH2MHILL **CHAIN OF CUSTODY RECORD** 9/25/2012 4:28:53 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-187-Q3
Turnaround Time 10 Days
Shipping Date: 9/25/2012
COC Number: 13

	DATE	TIME	Matrix	Container: 250 ml Poly; Preservatives: (NH4)2SO4/NH4OH, 4°C; Filtered: Field; Holding Time: 28; Cr6 (E218.6) Field Filtered	Container: 500 ml Poly; Preservatives: HNO3, 4°C; Filtered: Field; Holding Time: 180; Metals (6020AFF) Field Filtered Chromium	Number of Containers	COMMENTS
1 MW-60-125-187	9/20/2012	11:28	Water	X	X	2	
2 MW-67-185-187	9/20/2012	13:10	Water	X	X	2	
3 MW-67-225-187	9/20/2012	13:09	Water	X	X	2	pH=2
4 MW-67-260-187	9/20/2012	15:29	Water	X	X	2	6020A
5 MW-68-180-187	9/20/2012	15:20	Water	X	X	2	
6 MW-68-240-187	9/20/2012	8:50	Water	X	X	2	
MW-98-187	9/20/2012	15:54	Water	X		1	Hold
MW-99-187	9/20/2012	15:50	Water	X		1	Hold
					TOTAL NUMBER OF CONTAINERS	14	

For Sample Condition See Form Attached

ALERT !!
Level III QC

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	9/25/12 23:30

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:
September 12 to October 17, 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
09/21/12	803903-1	9.5	N/A	N/A	N/A	GV
↓	↓ -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					

C:\My Documents\Templates\Hexavalent Chromium\Cr6+ pH Log

HAV 09/27/12

GV 9/28/12

TRUESDAIL LABORATORIES, INC.

Turbidity/pH Check

Sample Number	Turbidity	pH (BE)	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
803894	>1	>2	9-21-12	BE	3010A			~~<3 <2~~ BE
803895(1-3)	↓	~~<2~~	↓	↓	↓			-3 pH<2
803897(1-3)	↓	↓						
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	↓	↓	↓	↓	↓			
803963	>1	<2	9-25-12	BE	3010A			
803984	↓	↓	↓	↓	↓			
803985								
803966								
803987	↓	↓	↓	↓	↓			
803980	<1	>2	9-26-12	M.M	3010A			
803981	↓	<2	↓	↓	↓			
803982(4-6)		↓						
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)	↓	↓	↓	↓	↓	↓	↓	↓
804013(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 #** 803982

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? Temperature (if yes)? 3.8°C	☑Yes	☐No	☐N/A
7.	Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)?	☑Yes	☐No	☐N/A
8.	Were sample custody seals intact?	☐Yes	☐No	☑N/A
9.	Does the number of samples received agree with COC?	☑Yes	☐No	☐N/A
10.	Did sample labels correspond with the client ID's?	☑Yes	☐No	☐N/A
11.	Did sample labels indicate proper preservation? Preserved (if yes) by: ☑Truesdail ☐Client	☑Yes	☐No	☐N/A
12.	Were samples pH checked? pH = See C.O.C.	☑Yes	☐No	☐N/A
13.	Were all analyses within holding time at time of receipt? If not, notify Project Manager.	☑Yes	☐No	☐N/A
14.	Have Project due dates been checked and accepted? Turn Around Time (TAT): ☐ RUSH ☑Std	☑Yes	☐No	☐N/A

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

16. Comments: _____

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

ALERT !!
Level III QC

TRUESDAIL LABORATORIES, INC.

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

October 25, 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-199, GROUNDWATER MONITORING PROJECT, TLI NO.: 804101

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-EW-199 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 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.

Samples for Total Dissolved Chromium were analyzed by method EPA 200.8 with the approval of Mr. Shawn Duffy.

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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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.: 804101
Date: October 25, 2012
Collected: October 2, 2012
Received: October 2, 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	Katia Kiarashpoor
EPA 218.6	Hexavalent Chromium	Himani Vaishnav
SM 3500-CrB	Hexavalent Chromium	Jenny Tankunakorn

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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.: 804101
Date Received: October 2, 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
804101-001	PE-01-199	E120.1	NONE	10/2/2012	9:40	EC	4700	umhos/cm	2.00
804101-001	PE-01-199	E200.8	LABFLT	10/2/2012	9:40	Chromium	7.0	ug/L	1.0
804101-001	PE-01-199	E218.6	LABFLT	10/2/2012	9:40	Chromium, Hexavalent	6.3	ug/L	0.20
804101-001	PE-01-199	SM2540C	NONE	10/2/2012	9:40	Total Dissolved Solids	2720	mg/L	125
804101-001	PE-01-199	SM4500HB	NONE	10/2/2012	9:40	PH	7.55	pH	4.00
804101-002	TW-03D-199	E120.1	NONE	10/2/2012	9:52	EC	8250	umhos/cm	2.00
804101-002	TW-03D-199	E200.8	LABFLT	10/2/2012	9:52	Chromium	975	ug/L	4.0
804101-002	TW-03D-199	SM2540C	NONE	10/2/2012	9:52	Total Dissolved Solids	4890	mg/L	250
804101-002	TW-03D-199	SM3500-CrB	LABFLT	10/2/2012	9:52	Chromium, Hexavalent	1000	ug/L	262
804101-002	TW-03D-199	SM4500HB	NONE	10/2/2012	9:52	PH	7.22	pH	4.00

ND: Non Detected (below reporting limit)

Note: The following "Significant Figures" rule has been applied to all results:
Results below 0.01 will have two (2) significant figures.
Result above or equal to 0.01 will have three (3) significant figures.
Quality Control data will always have three (3) significant figures.

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www.truesdail.com

REPORT

Client: **E2 Consulting Engineers, Inc.**
155 Grand Avenue, Suite 800
Oakland, CA 94612
Attention: Shawn Duffy
Project Name: PG&E Topock Project
Project Number: 456827.01.DM
P.O. Number: 456827.01.DM
Release Number:

Laboratory No. 804101

Printed 10/25/2012

Samples Received on 10/2/2012 10:00:00 PM

Field ID	Lab ID	Collected	Matrix
PE-01-199	804101-001	10/02/2012 09:40	Water
TW-03D-199	804101-002	10/02/2012 09:52	Water

Specific Conductivity - EPA 120.1

Batch 10EC12A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
804101-001 Specific Conductivity	umhos/cm	10/05/2012	1.00	0.116	2.00	4700
804101-002 Specific Conductivity	umhos/cm	10/05/2012	1.00	0.116	2.00	8250

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate

Lab ID = 804102-003

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	43400	43500	0.230	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	702	706	99.4	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	708	706	100.	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	693	706	98.2	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	970.	998	97.2	90 - 110

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MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	975	998	97.7	90 - 110

Chrome VI by EPA 218.6

Batch 10CrH12A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
804101-001 Chromium, Hexavalent	ug/L	10/03/2012 16:17	1.00	0.00920	0.20	6.3

Method Blank

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

Duplicate — Lab ID = 804101-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	6.32	6.28	0.581	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.197	0.200	98.4	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.90	5.00	97.9	90 - 110

Matrix Spike — Lab ID = 803980-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.10	1.14(1.00)	95.3	90 - 110

Matrix Spike — Lab ID = 804101-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	16.0	16.3(10.0)	97.1	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.93	5.00	98.5	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	10.00	10.0	100.0	95 - 105

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Chromium, Hexavalent by SM 3500-Cr B

Batch 10CrH12B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
804101-002 Chromium, Hexavalent	ug/L	10/24/2012 13:48	26.2	39.3	262	1000

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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pH by SM 4500-H B

Batch 10PH12C

Parameter	Unit	Analyzed	DF	MDL	RL	Result
804101-001 pH	pH	10/03/2012 08:47	1.00	0.0784	4.00	7.55
804101-002 pH	pH	10/03/2012 08:50	1.00	0.0784	4.00	7.22

Duplicate — Lab ID = 804101-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
pH	pH	1.00	7.22	7.55	4.47	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
pH	pH	1.00	7.05	7.00	101.	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
pH	pH	1.00	7.05	7.00	101.	90 - 110

MRCVS - Primary

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

Total Dissolved Solids by SM 2540 C

Batch 10TDS12B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
804101-001 Total Dissolved Solids	mg/L	10/04/2012	1.00	0.757	125	2720
804101-002 Total Dissolved Solids	mg/L	10/04/2012	1.00	0.757	250.	4890

Method Blank

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

Duplicate — Lab ID = 804101-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	2600	2720	4.70	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Dissolved Solids	mg/L	1.00	491	500.	98.2	90 - 110

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Metals by EPA 200.8, Dissolved Batch 100812C

Parameter	Unit	Analyzed	DF	MDL	RL	Result
804101-001 Chromium	ug/L	10/09/2012 04:47	5.00	0.195	1.0	7.0
804101-002 Chromium	ug/L	10/09/2012 05:52	20.0	0.780	4.0	975.

Method Blank

Parameter	Unit	DF	Result
Chromium	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

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

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	5.00	106	100.	106	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

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

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	19.6	20.0	98.0	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	20.0	20.0	100.	90 - 110

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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	20.7	20.0	104.	90 - 110

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	ND	0.00		

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	ND	0.00		

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.9	20.0	99.6	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	21.1	20.0	106.	80 - 120

Serial Dilution Lab ID = 804104-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	25.0	94.4	98.2	3.99	0 - 10

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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E2

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Truesdail Laboratories, Inc.

Total Dissolved Solids by SM 2540 C

Calculations

Batch: 10TDS12B
Date Analyzed: 10/8/12

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	69.1949	69.1952	69.1950	0.0002	No	0.0001	1.0	25.0	ND	1
804101-1	20	50.3202	50.3749	50.3747	0.0002	No	0.0545	2725.0	125.0	2725.0	1
804101-2	10	48.0084	48.0574	48.0573	0.0001	No	0.0489	4890.0	250.0	4890.0	1
804102-1	10	51.4710	51.5149	51.5145	0.0004	No	0.0435	4350.0	250.0	4350.0	1
804102-2	10	47.5160	47.5624	47.5622	0.0002	No	0.0462	4620.0	250.0	4620.0	1
804102-3	2	51.0754	51.1396	51.1394	0.0002	No	0.0640	32000.0	1250.0	32000.0	1
804111	50	67.6996	67.7385	67.7385	0.0000	No	0.0389	778.0	50.0	778.0	1
804116-1	100	69.3395	69.3975	69.3974	0.0001	No	0.0579	579.0	25.0	579.0	1
804116-2	100	67.1019	67.1613	67.1613	0.0000	No	0.0594	594.0	25.0	594.0	1
804117-8	100	78.3969	78.4321	78.4319	0.0002	No	0.0350	350.0	25.0	350.0	1
804120	200	115.2361	115.2588	115.2587	0.0001	No	0.0226	113.0	12.5	113.0	1
804101-1D	20	49.1973	49.2494	49.2492	0.0002	No	0.0519	2595.0	125.0	2595.0	1
LCS	100	69.3427	69.3920	69.3918	0.0002	No	0.0491	491.0	25.0	491.0	1
804122-1	100	66.8086	66.8314	66.8311	0.0003	No	0.0225	225.0	25.0	225.0	1
804123-1	100	66.7126	66.7354	66.7354	0.0000	No	0.0228	228.0	25.0	228.0	1
804129-4	50	50.7030	50.7652	50.7648	0.0004	No	0.0618	1236.0	50.0	1236.0	1
804129-5	50	74.5311	74.5931	74.5931	0.0000	No	0.0620	1240.0	50.0	1240.0	1
804129-6	100	50.1279	50.1689	50.1687	0.0002	No	0.0408	408.0	25.0	408.0	1
804139	490	109.0645	109.0647	109.0647	0.0000	No	0.0002	0.4	5.1	ND	1
804180-4	100	76.3406	76.388	76.388	0.0000	No	0.0474	474.0	25.0	474.0	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	491	500	98.2%	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?
804101-1	0.0545	0.0519	2.4%	≤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

Hope T.
Reviewer Printed Name

Reviewer Signature

017

Total Dissolved Solids by SM 2540 C

TDS/EC CHECK

Batch: 10TDS12B
Date Analyzed: 10/8/12

Laboratory Number	EC	TDS/EC Ratio: 0.55-.9	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
804101-1	4460	0.61	2899	0.94
804101-2	7340	0.67	4771	1.02
804102-1	7340	0.59	4771	0.91
804102-2	7660	0.60	4979	0.93
804102-3	44300	0.72	28795	1.11
804111	1340	0.58	871	0.89
804116-1	920	0.63	598	0.97
804116-2	931	0.64	605.15	0.98
804117-8	579	0.60	376.35	0.93
804120	171	0.66	111.15	1.02
804101-1D	4460	0.58	2899	0.90
LCS				
804122-1	389	0.58	252.85	0.89
804123-1	324	0.70	210.6	1.08
804129-4	1802	0.69	1171.3	1.06
804129-5	1806	0.69	1173.9	1.06
804129-6	630	0.65	409.5	1.00
804139	2.5	ND	1.625	ND
804180-4	791	0.60	514.15	0.92

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-199] 804101

TURNAROUND TIME 10 Days
DATE 10/02/12 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

	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-01-199	10/02/12	9:40	Ground water	X		X	X	X	4	pH = 6 200.7
2	TW-03D-199	10/02/12	9:52	Ground water	X	X	X	X		4	
										8	TOTAL NUMBER OF CONTAINERS

ALERT !!
Level III QC

For Sample Conditions
See Form Attached

CHAIN OF CUSTODY SIGNATURE RECORD

	Printed Name	Company/ Agency	Date/ Time
Signature (Relinquished) C. Knight	C. Knight	CH2M HILL	10-2-12 14:41
Signature (Received) Rafael Davila	Rafael	T.L.I	10-2-12 15:30
Signature (Relinquished) Rafael Davila	Rafael	T.L.I	10-2-12 22:00
Signature (Received) [illegible]	[illegible]	TLI	10/2/12 22:00
Signature (Relinquished)			
Signature (Received)			

SAMPLE CONDITIONS
RECEIVED COOL ☑ WARM ☐ 4.8 °C
CUSTODY SEALED YES ☐ NO ☑
SPECIAL REQUIREMENTS:

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	G
↓	↓ -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	↓	↓	↓	↓	↓
10/03/12	804101-1	7	2 ml	9.5	9:00 AM	HAV
10/03/12	804102-1	7	2 ml	9.5	9:20 AM	HAV
↓	↓ -2	7	2 ml	↓	9:30 AM	HAV
↓	↓ -3	8	1 ml	↓	9:40 AM	HAV
10/03/12	804101-2	7	2 ml	9.5	9:10 AM	HAV
10/03/12	804103-1	9.5	N/A	N/A	N/A	HAV
↓	↓ -2	↓	↓	↓	↓	↓

HAV
10/03/12

TRUESDAIL LABORATORIES, INC.

Turbidity/pH Check

Sample Number	Turbidity	pH (BE)	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
803894	>1	~~>2~~ <2	9-21-12	BE	3010A			~~>2~~ <2 BE
803895(1-3)	↓	↓	↓	↓	↓			>PH<2
803892(1-3)	↓	~~<2~~	↓	↓	↓			
803943(1-2)	<1	↓	↓	↓	↓			
803944(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(1-2)	↓	↓	↓	↓	↓			
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(1-3)	<1	>2	↓	BE	NO	12:15	↓	↓
804010(1-3)	↓	↓	↓	↓	↓	↓	↓	↓
804009(1-9)	↓	↓	↓	↓	↓	↓	↓	↓
804013(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~~ >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 #** 804101

Date Delivered: 10 / 02 / 12 **Time:** 11:00 **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? Temperature (if yes)? 4.8 °C	☑Yes	☐No	☐N/A
7.	Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)?	☑Yes	☐No	☐N/A
8.	Were sample custody seals intact?	☐Yes	☐No	☑N/A
9.	Does the number of samples received agree with COC?	☑Yes	☐No	☐N/A
10.	Did sample labels correspond with the client ID's?	☑Yes	☐No	☐N/A
11.	Did sample labels indicate proper preservation? Preserved (if yes) by: ☐Truesdail ☐Client	☐Yes	☐No	☑N/A
12.	Were samples pH checked? pH = see c.o.c.	☑Yes	☐No	☐N/A
13.	Were all analyses within holding time at time of receipt? If not, notify Project Manager.	☑Yes	☐No	☐N/A
14.	Have Project due dates been checked and accepted? Turn Around Time (TAT): ☐ RUSH ☑Std	☑Yes	☐No	☐N/A

ALERT II Level III QC

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

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 25, 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.: 804103

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2012-GMP-187-Q3 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 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 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

Project Name: PG&E Topock Project
Project No.: 423575.MP.02.GM.03
P.O. No.: 423575.MP.02.GM.03

Laboratory No.: 804103
Date Received: October 2, 2012

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
804103-001	MW-24BR-187	E218.6	FLDFLT	9/26/2012	8:11	Chromium, Hexavalent	ND	ug/L	1.0
804103-001	MW-24BR-187	SW6020	FLDFLT	9/26/2012	8:11	Chromium	ND	ug/L	1.0
804103-002	MW-74-240-187	E218.6	FLDFLT	9/27/2012	7:35	Chromium, Hexavalent	0.28	ug/L	0.20
804103-002	MW-74-240-187	SW6020	FLDFLT	9/27/2012	7:35	Chromium	ND	ug/L	1.0
804103-003	MW-122-187	E218.6	FLDFLT	10/1/2012	11:12	Chromium, Hexavalent	70.0	ug/L	1.0
804103-003	MW-122-187	SW6020	FLDFLT	10/1/2012	11:12	Chromium	75.1	ug/L	1.0
804103-004	MW-27-060-187	E218.6	FLDFLT	10/1/2012	9:15	Chromium, Hexavalent	ND	ug/L	0.20
804103-004	MW-27-060-187	SW6020	FLDFLT	10/1/2012	9:15	Chromium	ND	ug/L	1.0
804103-005	MW-27-085-187	E218.6	FLDFLT	10/1/2012	8:22	Chromium, Hexavalent	ND	ug/L	1.0
804103-005	MW-27-085-187	SW6020	FLDFLT	10/1/2012	8:22	Chromium	ND	ug/L	1.0
804103-006	MW-34-080-187	E218.6	FLDFLT	10/1/2012	12:01	Chromium, Hexavalent	ND	ug/L	0.20
804103-006	MW-34-080-187	SW6020	FLDFLT	10/1/2012	12:01	Chromium	ND	ug/L	1.0
804103-007	MW-34-100-187	E218.6	FLDFLT	10/1/2012	12:53	Chromium, Hexavalent	70.0	ug/L	1.0
804103-007	MW-34-100-187	SW6020	FLDFLT	10/1/2012	12:53	Chromium	71.9	ug/L	1.0
804103-008	TW-01-187	SM3500-CrB	FLDFLT	10/1/2012	15:40	Chromium, Hexavalent	3190	ug/L	250
804103-008	TW-01-187	SW6020	FLDFLT	10/1/2012	15:40	Chromium	3190	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.

004

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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. 804103

Printed 10/25/2012

Samples Received on 10/2/2012 10:00:00 PM

Field ID	Lab ID	Collected	Matrix
MW-24BR-187	804103-001	09/26/2012 08:11	Water
MW-74-240-187	804103-002	09/27/2012 07:35	Water
MW-122-187	804103-003	10/01/2012 11:12	Water
MW-27-060-187	804103-004	10/01/2012 09:15	Water
MW-27-085-187	804103-005	10/01/2012 08:22	Water
MW-34-080-187	804103-006	10/01/2012 12:01	Water
MW-34-100-187	804103-007	10/01/2012 12:53	Water
TW-01-187	804103-008	10/01/2012 15:40	Water

Chrome VI by EPA 218.6

Batch 10CrH12B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
804103-001 Chromium, Hexavalent	ug/L	10/04/2012 13:19	5.00	0.0460	1.0	ND
804103-002 Chromium, Hexavalent	ug/L	10/04/2012 10:12	1.00	0.00920	0.20	0.28
804103-003 Chromium, Hexavalent	ug/L	10/04/2012 11:45	5.00	0.0460	1.0	70.0
804103-004 Chromium, Hexavalent	ug/L	10/04/2012 10:33	1.00	0.00920	0.20	ND
804103-005 Chromium, Hexavalent	ug/L	10/04/2012 13:50	5.00	0.0460	1.0	ND
804103-006 Chromium, Hexavalent	ug/L	10/04/2012 10:53	1.00	0.00920	0.20	ND
804103-007 Chromium, Hexavalent	ug/L	10/04/2012 11:56	5.00	0.0460	1.0	70.0

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

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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

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

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Metals by EPA 6020A, Dissolved Batch 100812C

Parameter	Unit	Analyzed	DF	MDL	RL	Result
804103-002 Chromium	ug/L	10/09/2012 06:49	5.00	0.195	1.0	ND
804103-003 Chromium	ug/L	10/09/2012 06:56	5.00	0.195	1.0	75.1
804103-004 Chromium	ug/L	10/09/2012 07:44	5.00	0.195	1.0	ND
804103-005 Chromium	ug/L	10/09/2012 07:51	5.00	0.195	1.0	ND
804103-006 Chromium	ug/L	10/09/2012 07:58	5.00	0.195	1.0	ND
804103-007 Chromium	ug/L	10/09/2012 08:05	5.00	0.195	1.0	71.9
804103-008 Chromium	ug/L	10/09/2012 08:20	50.0	1.95	10.0	3190

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

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

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Metals by EPA 6020A, Dissolved Batch 101512A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
804103-001 Chromium	ug/L	10/15/2012 17:35	5.00	0.195	1.0	ND

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	19.6	20.0	98.2	90 - 110

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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

Chromium, Hexavalent by SM 3500-Cr B Batch 10CrH12B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
804103-008 Chromium, Hexavalent	ug/L	10/24/2012 13:49	25.0	37.5	250.	3190

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

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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804103

CH2MHILL **CHAIN OF CUSTODY RECORD** *10/2/2012 11:15:38 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.03
Task Order
Project 2012-GMP-187-Q3
Turnaround Time 10 Days
Shipping Date: 10/2/2012
COC Number: 15

				Container:	250 ml Poly	2x250 ml Poly	250 ml Poly	500 ml Poly	2x500 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
	MW-100-187	9/26/2012	10:22	Water	X						1	Hold
1	MW-24BR-187	9/26/2012	8:11	Water	X			X			2	
2	MW-74-240-187	9/27/2012	7:35	Water	X			X			2	pH=2
3	MW-122-187	10/1/2012	11:12	Water	X			X			2	
4	MW-27-060-187	10/1/2012	9:15	Water		X			X		4	
	MW-27-060-187-EB	10/1/2012	8:45	Water	X			X			2	Hold
5	MW-27-085-187	10/1/2012	8:22	Water		X			X		4	pH=2
	MW-27-085-187-EB	10/1/2012	7:40	Water	X						1	Hold
6	MW-34-080-187	10/1/2012	12:01	Water		X			X		4	pH=2
	MW-34-080-187-EB	10/1/2012	10:30	Water	X			X			2	Hold
7	MW-34-100-187	10/1/2012	12:53	Water	X			X			2	pH=2
8	TW-01-187	10/1/2012	15:40	Water			X	X			2	pH=2
	MW-101-187	10/2/2012	6:25	Water	X						1	Hold
	MW-102-187	10/2/2012	6:32	Water	X						1	Hold

ALERT !!
Level III QC

See Sample Conditions
See Form Attached

pH for 6020A

	Signatures	Date/Time
Approved by		
Sampled by		10-2-12
Relinquished by		1530
Received by	Rafael Davila	10/2/12 15:30
Relinquished by	Rafael Davila	10/2/12 22:00
Received by	Linda Suabennne	10/2/12 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:
September 12 to October 17, 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
09/21/12	803903-1	9.5	N/A	N/A	N/A	
↓	↓ -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	↓	↓	↓	↓	↓
10/03/12	804101-1	7	2 ml	9.5	9:00 AM	HAV
10/03/12	804102-1	7	2 ml	9.5	9:20 AM	HAV
	-2	7	2 ml		9:30 AM	HAV
↓	↓ -3	8	1 ml	↓	9:40 AM	HAV
10/03/12	804101-2	7	2 ml	9.5	9:10 AM	HAV
10/03/12	804103-1	9.5	N/A	N/A	N/A	HAV
↓	↓ -2	↓	↓	↓	↓	↓

HAV
10/06/12

10/9/12

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
10/03/12	804103-3	9.5	N/A	N/A	N/A	HAV
	-4					
	-5					
	-6					
	-7					
	-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 10/03/12

HAV 10/06/12

TRUESDAIL LABORATORIES, INC.

Turbidity/pH Check

Sample Number	Turbidity	pH (BE)	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
803894	>1	>2	9-21-12	BE	3010A			~~-3 <2~~ BE
803895(1-3)	↓	↓	↓	↓	↓			-3 pH<2
803892(1-3)	↓	~~<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(4-6)	↓	↓	↓	↓	↓			
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)	↓	↓	↓	↓	↓	↓	↓	↓
804013(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(1-9)	↓	↓	↓	↓	↓			

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 #** 804123

Date Delivered: 10/02/12 **Time:** 12:00 **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? Temperature (if yes)? 4.8°C	☑Yes	☐No	☐N/A
7.	Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)?	☑Yes	☐No	☐N/A
8.	Were sample custody seals intact?	☐Yes	☐No	☑N/A
9.	Does the number of samples received agree with COC?	☑Yes	☐No	☐N/A
10.	Did sample labels correspond with the client ID's?	☑Yes	☐No	☐N/A
11.	Did sample labels indicate proper preservation? Preserved (if yes) by: ☑Truesdail ☐Client	☑Yes	☐No	☐N/A
12.	Were samples pH checked? pH = See C.O.C.	☑Yes	☐No	☐N/A
13.	Were all analyses within holding time at time of receipt? If not, notify Project Manager.	☑Yes	☐No	☐N/A
14.	Have Project due dates been checked and accepted? Turn Around Time (TAT): ☐ RUSH ☑ Std	☑Yes	☐No	☐N/A

ALERT !! Level III QC

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

16. Comments: _____

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

TRUESDAIL LABORATORIES, INC.

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Established 1931

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

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

Project Name: PG&E Topock Project
Project No.: 423575.MP.02.GM.03
P.O. No.: 423575.MP.02.GM.03

Laboratory No.: 804104
Date Received: October 2, 2012

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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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** 804104 Page 1 OF 1

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.~~03.TO~~
Task Order .02.GM.03
Project 2012-GMP-187~~SAMPLEMETHOD~~
Turnaround Time 10 Days
Shipping Date: ~~9/12/2012~~ BK 10-2-12
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 (6020AFF) FF Chromium	Metals (6010BFF) FF Ca,Mg,Na,Fe	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 6020A/ 6010B
-2 9-27-12 1127	X			X	X	MW-44-115-187	2	
-3 1532	X			X	X	MW-61-110-187	2	
-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		1530
Received by	Rafael Davila	10/2/12 15:38
Relinquished by	Rafael Davila	10/2/12 22:30
Received by	Linda Shabecoff	10/2/12 22:30

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:

Report Copy to
Shawn Duffy
(530) 229-3303

COC

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

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	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								
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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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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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

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 002GM.03
Project 2012-GMP-187~~SAMPLEMETHOD~~
Turnaround Time 10 Days
Shipping Date: ~~9/12/2042~~ 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		
DATE	TIME	Matrix	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
									Rec'd 10/05/12 S 804182		
-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	
	~~10-1-12~~											

$12 metals

ALERT !!
Level III QC

Sample Conditions
see form attached

Signatures	Date/Time
Approved by	10-4-12
Sampled by	1700
Relinquished by	
Received by	Rafael Davila 10/5/12 9:30
Relinquished by	Rafael Davila 10-5-12 4:30
Received by	Lauder 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

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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	3010 A			
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	↓	↓	↓	↓	↓			
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.

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? Temperature (if yes)? 4.1 °C	☒Yes	☐No	☐N/A
7.	Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)?	☒Yes	☐No	☐N/A
8.	Were sample custody seals intact?	☐Yes	☐No	☒N/A
9.	Does the number of samples received agree with COC?	☒Yes	☐No	☐N/A
10.	Did sample labels correspond with the client ID's?	☒Yes	☐No	☐N/A
11.	Did sample labels indicate proper preservation? Preserved (if yes) by: ☒Truesdail ☐Client	☒Yes	☐No	☐N/A
12.	Were samples pH checked? pH = See COC	☒Yes	☐No	☐N/A
13.	Were all analyses within holding time at time of receipt? If not, notify Project Manager.	☒Yes	☐No	☐N/A
14.	Have Project due dates been checked and accepted? Turn Around Time (TAT): ☐ RUSH ☒ Std	☒Yes	☐No	☐N/A

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

16. Comments: _____

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

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 26, 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-GMP-187-Q3, GROUNDWATER MONITORING PROJECT, TLI NO.: 804183

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2012-GMP-187-Q3 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 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.

The method blank internal standard Germanium #2 for Total Dissolved Chromium by SW 6020A analyzed in batch 101312C just exceeded the recovery limits of 70% - 130%. The method blank was also analyzed in batches 101112A and 101712B and the internal standard recovery was within the acceptance range. All other QA/QC was within acceptable limits, therefore, the data was accepted. The method blank raw data from batches 101112A and 101712B can be found on pages 157 and 158.

Due to the discrepancy between the Total Dissolved Chromium (10.2 ug/L) and Hexavalent Chromium (2.3 ug/L) results for sample MW-58BR-LWR-160-187, sample from the Total Dissolved Chromium and Hexavalent Chromium sample containers were digested and analyzed for Total Dissolved Chromium. The results were 10.8 and 6.7 ug/L, respectively. The original digestate was re-analyzed for confirmation and yielded a result of 10.4 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

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.: 804183
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
804183-001	MW-66BR-270-187	E218.6	FLDFLT	10/2/2012	14:30	Chromium, Hexavalent	ND	ug/L	1.0
804183-001	MW-66BR-270-187	SW6020	FLDFLT	10/2/2012	14:30	Chromium	ND	ug/L	1.0
804183-002	MW-58BR-UPR-160-187	E218.6	FLDFLT	10/3/2012	11:30	Chromium, Hexavalent	ND	ug/L	1.0
804183-002	MW-58BR-UPR-160-187	SW6020	FLDFLT	10/3/2012	11:30	Chromium	ND	ug/L	1.0
804183-003	MW-68BR-280-187	E218.6	FLDFLT	10/3/2012	10:13	Chromium, Hexavalent	ND	ug/L	1.0
804183-003	MW-68BR-280-187	SW6020	FLDFLT	10/3/2012	10:13	Chromium	ND	ug/L	1.0
804183-004	MW-58BR-LWR-160-187	E218.6	FLDFLT	10/4/2012	12:25	Chromium, Hexavalent	2.3	ug/L	1.0
804183-004	MW-58BR-LWR-160-187	SW6020	FLDFLT	10/4/2012	12:25	Chromium	10.2	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

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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.03
P.O. Number: 423575.MP.02.GM.03
Release Number:

Laboratory No. 804183

Printed 10/24/2012

Samples Received on 10/5/2012 4:30:00 PM

Field ID	Lab ID	Collected	Matrix
MW-66BR-270-187	804183-001	10/02/2012 14:30	Water
MW-58BR-UPR-160-'	804183-002	10/03/2012 11:30	Water
MW-68BR-280-187	804183-003	10/03/2012 10:13	Water
MW-58BR-LWR-160-	804183-004	10/04/2012 12:25	Water

Chrome VI by EPA 218.6

Batch 10CrH12E

Parameter	Unit	Analyzed	DF	MDL	RL	Result
804183-001 Chromium, Hexavalent	ug/L	10/10/2012 15:26	5.00	0.0460	1.0	ND
804183-002 Chromium, Hexavalent	ug/L	10/10/2012 15:36	5.00	0.0460	1.0	ND
804183-003 Chromium, Hexavalent	ug/L	10/10/2012 15:46	5.00	0.0460	1.0	ND
804183-004 Chromium, Hexavalent	ug/L	10/10/2012 17:41	5.00	0.0460	1.0	2.3

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

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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

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	5.00	4.66	5.00(5.00)	93.2	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 = 804183-002

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	5.00	4.77	5.00(5.00)	95.4	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 = 804183-004

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

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Metals by EPA 6020A, Dissolved

Batch 101312C

Parameter	Unit	Analyzed	DF	MDL	RL	Result
804183-001 Chromium	ug/L	10/14/2012 12:55	5.00	0.195	1.0	ND
804183-002 Chromium	ug/L	10/14/2012 13:52	5.00	0.195	1.0	ND
804183-003 Chromium	ug/L	10/14/2012 13:59	5.00	0.195	1.0	ND
804183-004 Chromium	ug/L	10/14/2012 14:06	5.00	0.195	1.0	10.2

Method Blank

Parameter	Unit	DF	Result
Chromium	ug/L	1.00	ND

Duplicate

Lab ID = 804183-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	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	0.161	0.200	80.6	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	5.00	95.4	100.	95.4	85 - 115

Matrix Spike

Lab ID = 804183-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	5.00	104.	100.(100.)	104.	75 - 125

Matrix Spike Duplicate

Lab ID = 804183-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	5.00	106.	100.(100.)	106.	75 - 125

MRCCS - Secondary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	21.3	20.0	107.	90 - 110

MRCVS - Primary

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

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MRCVS - Primary

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

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	ND	0.00		

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	ND	0.00		

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
Chromium	ug/L	1.00	20.6	20.0	103.	80 - 120

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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804183

CH2MHILL

CHAIN OF CUSTODY RECORD

10/4/2012 2:15:14 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-187-Q3
Turnaround Time 10 Days
Shipping Date: 10/5/2012
COC Number: 19

	Container:	250 ml Poly	500 ml Poly						
	Preservatives:	(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C						
	Filtered:	Field	Field						
	Holding Time:	28	180						
		Cr6 (E218.6) Field Filtered	Metals (6020AFF) Field Filtered Chromium					Number of Containers	COMMENTS
	DATE	TIME	Matrix						
1	MW-66BR-270-187	10/2/2012	14:30	Water	X	X		2	
2	MW-58BR-UPR-160-187	10/3/2012	11:30	Water	X	X		2	pH=2 6020A
3	MW-68BR-260-187	10/3/2012	10:13	Water	X	X		2	
4	MW-58BR-LWR-160-187	10/4/2012	12:25	Water	X	X		2	
							TOTAL NUMBER OF CONTAINERS	8	

Rec'd 10/05/12
S 804183

For Sample Conditions See Form Attached

ALERT !!
Level III QC

	Signatures	Date/Time
Approved by		10-4-12 1700
Sampled by		
Relinquished by		
Received by	Rafael Davila	10/5/12 9:30
Relinquished by	Rafael Davila	10-5-12 4:30
Received by		10/5/12 4:30

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:
September 12 to October 17, 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
10/05/12	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	BF	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)								
804196 (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 #** 804183

Date Delivered: 10/05/12 **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? Temperature (if yes)? 4.1 °C	☒Yes	☐No	☐N/A
7.	Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)?	☒Yes	☐No	☐N/A
8.	Were sample custody seals intact?	☐Yes	☐No	☒N/A
9.	Does the number of samples received agree with COC?	☒Yes	☐No	☐N/A
10.	Did sample labels correspond with the client ID's?	☒Yes	☐No	☐N/A
11.	Did sample labels indicate proper preservation? Preserved (if yes) by: ☒Truesdail ☐Client	☒Yes	☐No	☐N/A
12.	Were samples pH checked? pH = see C.O.C.	☒Yes	☐No	☐N/A
13.	Were all analyses within holding time at time of receipt? If not, notify Project Manager.	☒Yes	☐No	☐N/A
14.	Have Project due dates been checked and accepted? Turn Around Time (TAT): ☐ RUSH ☒ Std	☒Yes	☐No	☐N/A

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

16. Comments: _____

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

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

October 25, 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.: 804230

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2012-GMP-187-Q3 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 October 9, 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

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.: 804230
Date Received: October 9, 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
804230-001	MW-64BR-UPR-150-187	E218.6	FLDFLT	10/8/2012	16:35	Chromium, Hexavalent	ND	ug/L	1.0
804230-001	MW-64BR-UPR-150-187	SW6020	FLDFLT	10/8/2012	16:35	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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TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462
www.truesdail.com

REPORT

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

Laboratory No. 804230

Printed 10/25/2012

Samples Received on 10/9/2012 9:30:00 PM

Field ID	Lab ID	Collected	Matrix
MW-64BR-UPR-150-'	804230-001	10/08/2012 16:35	Water

Chrome VI by EPA 218.6 Batch 10CrH12F

Parameter	Unit	Analyzed	DF	MDL	RL	Result
804230-001 Chromium, Hexavalent	ug/L	10/11/2012 18:10	5.00	0.0460	1.0	ND

Method Blank

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

Duplicate — Lab ID = 804200-003

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	14.9	15.0	0.589	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.195	0.200	97.4	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.91	5.00	98.3	90 - 110

Matrix Spike — Lab ID = 804199-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	6.48	6.69(5.00)	95.8	90 - 110

Matrix Spike — Lab ID = 804199-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	6.52	6.67(5.00)	97.0	90 - 110

Matrix Spike — Lab ID = 804199-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	7.39	7.65(5.00)	94.8	90 - 110

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Matrix Spike — Lab ID = 804230-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.92	5.00(5.00)	98.4	90 - 110

Matrix Spike — Lab ID = 804230-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.976	1.00(1.00)	97.6	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.89	5.00	97.8	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.90	10.0	99.0	95 - 105

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	9.92	10.0	99.2	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 102412A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
804230-001 Chromium	ug/L	10/25/2012 00:01	5.00	0.195	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	0.178	0.200	88.8	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	5.00	97.7	100.	97.7	85 - 115

Matrix Spike — Lab ID = 804230-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	5.00	101	100.(100.)	101	75 - 125

Matrix Spike Duplicate — Lab ID = 804230-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	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	19.5	20.0	97.7	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

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.1	20.0	101.	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	96.8	90 - 110

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.1	20.0	95.4	90 - 110

MRCVS - Primary

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

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	ND	0.00		

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	ND	0.00		

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.9	20.0	99.6	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.9	20.0	94.3	80 - 120

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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804230

CH2MHILL

CHAIN OF CUSTODY RECORD

10/9/2012 1:52:05 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-187-Q3
Turnaround Time 10 Days
Shipping Date: 10/9/2012
COC Number: 23

	Container:	250 ml Poly	500 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
MW-64BR-UPR-150-187	10/8/2012 16:35 Water	X	X		2	DH-2
				TOTAL NUMBER OF CONTAINERS	2	6020A

ALERT !!
Level II QC

For Sample Conditions
See Form Attached

Signatures	Date/Time
Approved by	
Sampled by	
Relinquished by	10-9-12 15:15
Received by	Rafael Davila 10-9-12 15:15
Relinquished by	Rafael Davila 10-9-12 21:30
Received by	Davila, TL 10/9/12 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:
September 12 to October 17, 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
10/09/12	804200-10	9.5	N/A	N/A	N/A	HAV
10/10/12	804229	7	9 ml	9.5	9:00 AM	HAV
10/10/12	804230	9.5	N/A	N/A	N/A	HAV
10/10/12	804231-1	9.5	N/A	N/A	N/A	HAV
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
10/10/12	804232-1	9.5	N/A	N/A	N/A	HAV
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
10/10/12	804233-1	9.5	N/A	N/A	N/A	HAV
	-2					
	-3					
	-4					
	-5					
10/10/12	804236-1	9.5	N/A	N/A	N/A	HAV
	-2					
	-3					

10-18-12

HAV 10/15/12

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								
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 #** 804230

Date Delivered: 10 / 09 / 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)? 2.6°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. Shakeney

ALERT II Level III.OC

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 25, 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.: 804304

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2012-GMP-187-Q3 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 October 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.

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
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.: 804304
Date Received: October 11, 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
804304-001	MW-64BR-LWR-150-187	E218.6	FLDFLT	10/10/2012	12:45	Chromium, Hexavalent	ND	ug/L	1.0
804304-001	MW-64BR-LWR-150-187	SW6020	FLDFLT	10/10/2012	12:45	Chromium	1.0	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 these 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
P.O. Number: 423575.MP.02.GM
Release Number:

Laboratory No. 804304

Printed 10/25/2012

Samples Received on 10/11/2012 7:30:00 PM

Field ID	Lab ID	Collected	Matrix
MW-64BR-LWR-150-	804304-001	10/10/2012 12:45	Water

Chrome VI by EPA 218.6 Batch 10CrH12L

Parameter	Unit	Analyzed	DF	MDL	RL	Result
804304-001 Chromium, Hexavalent	ug/L	10/19/2012 15:47	5.00	0.0290	1.0	ND

Method Blank

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

Duplicate — Lab ID = 804231-003

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	250	3080	3280	6.24	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.206	0.200	103	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.88	5.00	97.7	90 - 110

Matrix Spike — Lab ID = 804231-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	250	6470	6540(3750)	98.1	90 - 110

Matrix Spike — Lab ID = 804231-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	250	6550	6510(3750)	101.	90 - 110

Matrix Spike — Lab ID = 804231-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	250	6810	7030(3750)	94.1	90 - 110

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Matrix Spike — Lab ID = 804231-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	100	3710	3780(2000)	96.4	90 - 110

Matrix Spike — Lab ID = 804231-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	100	3640	3680(2000)	98.0	90 - 110

Matrix Spike — Lab ID = 804231-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	100	3890	3950(2000)	97.1	90 - 110

Matrix Spike — Lab ID = 804231-007

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	250	9670	9610(5000)	101.	90 - 110

Matrix Spike — Lab ID = 804231-008

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	250	9490	9570(5000)	98.4	90 - 110

Matrix Spike — Lab ID = 804231-009

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	250	7240	7450(3750)	94.4	90 - 110

Matrix Spike — Lab ID = 804304-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.99	5.00(5.00)	99.9	90 - 110

Matrix Spike — Lab ID = 804304-001

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

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.90	5.00	98.1	90 - 110

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	10.1	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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Metals by EPA 6020A, Dissolved Batch 102412A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
804304-001 Chromium	ug/L	10/25/2012 02:06	5.00	0.195	1.0	1.0

Method Blank

Parameter	Unit	DF	Result
Chromium	ug/L	1.00	ND

Duplicate — Lab ID = 804300-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	5.00	4.34	4.67	7.44	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.178	0.200	88.8	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	5.00	96.7	100.	96.7	85 - 115

Matrix Spike — Lab ID = 804300-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	5.00	102.	105.(100.)	97.0	75 - 125

Matrix Spike Duplicate — Lab ID = 804300-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	5.00	98.0	105.(100.)	93.3	75 - 125

MRCCS - Secondary

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	96.8	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.1	20.0	95.4	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.1	20.0	101.	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	19.6	20.0	98.1	90 - 110

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
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	19.6	20.0	98.2	90 - 110

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	ND	0.00		

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	ND	0.00		

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.9	20.0	99.6	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.9	20.0	94.3	80 - 120

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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CH2MHILL CHAIN OF CUSTODY RECORD 804304 10/10/2012 4:04:58 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-187-Q3
Turnaround Time 10 Days
Shipping Date: 10/11/2012
COC Number: 25

	DATE	TIME	Matrix	Cr6 (E218.6) Field Filtered	Metals (6020AFF) Field Filtered Chromium		Number of Containers	COMMENTS
Container:				250 ml Poly	500 ml Poly			
Preservatives:				(NH4)2SO4/NH4OH, 4°C	HNO3, 4°C			
Filtered:				Field	Field			
Holding Time:				28	180			
MW-64BR-LWR-150-187	10/10/2012	12:45	Water	x	x		2	DU=2
						TOTAL NUMBER OF CONTAINERS	2	6020A

ALERT !!
Level III QC

Rec'd 10/11/12
S 804304

	Signatures	Date/Time
Approved by		10-11-12
Sampled by		1200
Relinquished by	[signature]	10-11-12
Received by	Rafael Davila	1:30
Relinquished by	Rafael Davila	10-11-12 7:30
Received by	Linda	10/11/12 7:30 pm

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:
September 12 to October 17, 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
10/12/12	804301-9	9.5	N/A	N/A	N/A	HAV
	-10					
	-11					
	-12					
	-13					
	-14					
	-15					
10/12/12	804302-1	9.5	N/A	N/A	N/A	HAV
	-2					
	-3					
	-4					
	-5					
	-6					
10/12/12	804303	7	2 ml	9.5	6:45 Am	
10/12/12	804304	9.5	N/A	N/A	N/A	HAV
10/12/12	804305-1	9.5	N/A	N/A	N/A	HAV
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
10/12/12	804328-1	9.5	N/A	N/A	N/A	MCG
	-2					
	-3					
	-4					
	-5					
	-6					

10-24-12

HAV
10/23/12

C:\My Documents\Templates\Hexavalent Chromium\Cr6+ pH Log

TRUESDAIL LABORATORIES, INC.

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
804259	>1	<2	10/10/12	M.M	3010A			
804274 (1-7)	<1	<2	10/11/12	M.M	3010A			
804275 (1-8)	↓	↓	↓	↓	↓			
804276 (1-5, 7-8)	↓	↓	↓	↓	↓			
804209	>1	<2	10/12/12	M.M	3010A			
804211	↓	↓	↓	↓	↓			
804236 (1-6)	↓	↓	↓	↓	↓			
804237	↓	↓	↓	↓	↓			
804238	↓	↓	↓	↓	↓			
804264 (1-2)	↓	↓	↓	↓	↓			
804294	↓	↓	↓	↓	↓			
804293 (1-3)	<1	<2	10/15/12	M.M	3010A			
804295 (1-8)	↓	↓	↓	↓	↓			
804303	>1	≥2	10/15/12	MM	3010A			
804343 (1,2,4)	<1	>2	↓	~~MM~~	NO	10-15-12	10-16-12	pH<2
804222 (1-4)	↓	↓	↓	↓	↓	↓	↓	↓
804221 (1-3)	↓	↓	↓	↓	↓	↓	↓	↓
804357 (1-6)	<1	<2	10/16/12	M.M	3010A			
804358 (1-5, 7)	↓	↓	↓	↓	↓			
804359 (1-9)	↓	↓	↓	↓	↓			
804360 (1-2)	↓	↓	↓	↓	↓			
804407	<1	>2	10/17/12	MM	3010A			
804408 (1-5)	↓	<2	↓	↓	↓			
804409 (1-11)	↓	↓	↓	↓	↓			
804410 (1-2)	↓	↓	↓	↓	↓			
804411 (1-6)	↓	↓	↓	↓	↓			
804412 (1-4)	↓	↓	↓	↓	↓			
804413 (1-15)	↓	↓	↓	↓	↓			
804269 (10-12)	<1	>2	10-18-12	BE	NO	12:30pm	10-19-12	pH<2
804270 (1-7)	↓	↓	↓	↓	↓	↓	↓	↓
804376	↓	↓	↓	↓	↓	↓	10-22-12	pH<2
804399 (1-3)	↓	↓	↓	↓	↓	↓	↓	↓
804405 (1-3)	↓	↓	↓	↓	↓	↓	↓	↓
804428 (1-3)	↓	↓	↓	↓	↓	↓	↓	↓
804429 (10-12)	↓	↓	↓	↓	↓	↓	↓	↓
804439	>1	>2	10/18/12	KR	YES			
804442	>1	>2	↓	↓	↓			
804418 (1-5)	<1	<2	10/22/12	MM	3010A			
804434 (1-9)	↓	↓	↓	↓	↓			
804435 (1-4, 6-9)	↓	↓	↓	↓	↓			
804436 (1-4, 6-10)	↓	↓	↓	↓	↓			
804437	↓	↓	↓	↓	↓			
804438	↓	↓	↓	↓	↓			
804458 (1-3)	↓	↓	↓	↓	↓			
804304	<1	<2	10/16/12	MM	3010A			

MM

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 #** 804304

Date Delivered: 10/11/12 **Time:** 19:30 **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? Temperature (if yes)? 3.9 °C	☒Yes	☐No	☐N/A
7.	Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)?	☒Yes	☐No	☐N/A
8.	Were sample custody seals intact?	☐Yes	☐No	☒N/A
9.	Does the number of samples received agree with COC?	☒Yes	☐No	☐N/A
10.	Did sample labels correspond with the client ID's?	☒Yes	☐No	☐N/A
11.	Did sample labels indicate proper preservation? Preserved (if yes) by: ☒Truesdail ☐Client	☒Yes	☐No	☐N/A
12.	Were samples pH checked? pH = see c.o.c.	☒Yes	☐No	☐N/A
13.	Were all analyses within holding time at time of receipt? If not, notify Project Manager.	☒Yes	☐No	☐N/A
14.	Have Project due dates been checked and accepted? Turn Around Time (TAT): ☐ RUSH ☒ Std	☒Yes	☐No	☐N/A

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

16. Comments: _____

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

ALERT! Level III

September 24, 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.: N008471

RE: PG&E Topock, 423575.MP.02.GM.0

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on September 10, 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.

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:

N008471-001 and N008471-002 were diluted due to the high concentration of Chloride.

Advanced Technology Laboratories, Inc.

Date: *24-Sep-12*

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.0
Lab Order: N008471
Contract No: 2012-GMP-187-

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N008471-001A	MW-28-090-187	Water	9/10/2012 1:57:00 PM	9/10/2012	9/24/2012
N008471-001B	MW-28-090-187	Water	9/10/2012 1:57:00 PM	9/10/2012	9/24/2012
N008471-002A	MW-33-040-187	Water	9/10/2012 3:30:00 PM	9/10/2012	9/24/2012
N008471-002B	MW-33-040-187	Water	9/10/2012 3:30:00 PM	9/10/2012	9/24/2012
N008471-003A	MW-35-060-187	Water	9/10/2012 3:28:00 PM	9/10/2012	9/24/2012
N008471-003B	MW-35-060-187	Water	9/10/2012 3:28:00 PM	9/10/2012	9/24/2012
N008471-004A	MW-63-065-187	Water	9/10/2012 1:37:00 PM	9/10/2012	9/24/2012
N008471-004B	MW-63-065-187	Water	9/10/2012 1:37:00 PM	9/10/2012	9/24/2012
N008471-004C	MW-63-065-187	Water	9/10/2012 1:37:00 PM	9/10/2012	9/24/2012

Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *24-Sep-12*

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-28-090-187
Lab Order:	N008471	**Collection Date:**	9/10/2012 1:57:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008471-001B		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE						
		EPA 120.1				
RunID: WETCHEM_120911D	QC Batch: R85498			PrepDate:		Analyst: **KAB**
Specific Conductance	7400	0.10		umhos/cm	1	9/11/2012

Qualifiers:

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

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-33-040-187
Lab Order:	N008471	**Collection Date:**	9/10/2012 3:30:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008471-002B		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE						
		EPA 120.1				
RunID: WETCHEM_120911D	QC Batch: R85498			PrepDate:		Analyst: **KAB**
Specific Conductance	10000	0.10		umhos/cm	1	9/11/2012

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		

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-35-060-187
Lab Order:	N008471	**Collection Date:**	9/10/2012 3:28:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008471-003B		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE						
		EPA 120.1				
RunID: WETCHEM_120911D	QC Batch: R85498			PrepDate:		Analyst: **KAB**
Specific Conductance	7600	0.10		umhos/cm	1	9/11/2012

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		

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-63-065-187
Lab Order:	N008471	**Collection Date:**	9/10/2012 1:37:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008471-004B		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE						
		EPA 120.1				
RunID: WETCHEM_120912B	QC Batch: R85525			PrepDate:		Analyst: **QBM**
Specific Conductance	7600	0.10		umhos/cm	1	9/12/2012

Qualifiers:

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

CLIENT: CH2M HILL
Work Order: N008471
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: **LCS-R85498**	SampType: **LCS**	TestCode: **120.1_WPGE**	Units: **umhos/cm**	Prep Date:	RunNo: **85498**
Client ID: **LCSW**	Batch ID: **R85498**	TestNo: **EPA 120.1**		Analysis Date: **9/11/2012**	SeqNo: **1439888**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	9980.000	0.10	9977	0	100	85	115				

Sample ID: **N008471-001B-DUP**	SampType: **DUP**	TestCode: **120.1_WPGE**	Units: **umhos/cm**	Prep Date:	RunNo: **85498**
Client ID: **ZZZZZZ**	Batch ID: **R85498**	TestNo: **EPA 120.1**		Analysis Date: **9/11/2012**	SeqNo: **1439890**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	7370.000	0.10						7360	0.136	10	

Sample ID: **N008471-001B-MS**	SampType: **MS**	TestCode: **120.1_WPGE**	Units: **umhos/cm**	Prep Date:	RunNo: **85498**
Client ID: **ZZZZZZ**	Batch ID: **R85498**	TestNo: **EPA 120.1**		Analysis Date: **9/11/2012**	SeqNo: **1439891**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	17360.000	0.20	9977	7360	100	75	125				

Sample ID: **N008471-001B-MSD**	SampType: **MSD**	TestCode: **120.1_WPGE**	Units: **umhos/cm**	Prep Date:	RunNo: **85498**
Client ID: **ZZZZZZ**	Batch ID: **R85498**	TestNo: **EPA 120.1**		Analysis Date: **9/11/2012**	SeqNo: **1439893**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	17360.000	0.20	9977	7360	100	75	125	17360	0	10	

Qualifiers:

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

CLIENT: CH2M HILL
Work Order: N008471
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: **LCS-R85525** SampType: **LCS** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **85525**
Client ID: **LCSW** Batch ID: **R85525** TestNo: **EPA 120.1** Analysis Date: **9/12/2012** SeqNo: **1441330**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	10080.000	0.10	9977	0	101	85	115				

Sample ID: **N008479-002BMS** SampType: **MS** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **85525**
Client ID: **ZZZZZZ** Batch ID: **R85525** TestNo: **EPA 120.1** Analysis Date: **9/12/2012** SeqNo: **1441334**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	26800.000	0.20	9977	16240	106	75	125				

Sample ID: **N008479-002BMSD** SampType: **MSD** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **85525**
Client ID: **ZZZZZZ** Batch ID: **R85525** TestNo: **EPA 120.1** Analysis Date: **9/12/2012** SeqNo: **1441335**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	26580.000	0.20	9977	16240	104	75	125	26800	0.824	10	

Sample ID: **N008479-005BDUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **85525**
Client ID: **ZZZZZZ** Batch ID: **R85525** TestNo: **EPA 120.1** Analysis Date: **9/12/2012** SeqNo: **1441339**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	7910.000	0.10						7940	0.379	10	

Qualifiers:

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

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-28-090-187
Lab Order:	N008471	**Collection Date:**	9/10/2012 1:57:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008471-001B		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY						
			EPA 300.0			
RunID: IC2_120911A	QC Batch: R85608			PrepDate:		Analyst: **QBM**
Fluoride	3.1	2.5		mg/L	5	9/11/2012 11:23 AM
ANIONS BY ION CHROMATOGRAPHY						
			EPA 300.0			
RunID: IC2_120911A	QC Batch: R85608			PrepDate:		Analyst: **QBM**
Nitrate as N	ND	1.0		mg/L	2	9/11/2012 10:36 AM

Qualifiers:

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

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-33-040-187
Lab Order:	N008471	**Collection Date:**	9/10/2012 3:30:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008471-002B		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY						
			EPA 300.0			
RunID: IC2_120911A	QC Batch: R85608			PrepDate:		Analyst: **QBM**
Fluoride	12	2.5		mg/L	5	9/11/2012 10:48 AM
ANIONS BY ION CHROMATOGRAPHY						
			EPA 300.0			
RunID: IC2_120911A	QC Batch: R85608			PrepDate:		Analyst: **QBM**
Nitrate as N	ND	2.5		mg/L	5	9/11/2012 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		

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-35-060-187
Lab Order:	N008471	**Collection Date:**	9/10/2012 3:28:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008471-003B		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY						
		EPA 300.0				
RunID: IC2_120911A	QC Batch: R85608			PrepDate:		Analyst: **QBM**
Nitrate as N	1.8	1.0		mg/L	2	9/11/2012 11:00 AM

Qualifiers:

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

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-63-065-187
Lab Order:	N008471	**Collection Date:**	9/10/2012 1:37:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008471-004B		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY						
		EPA 300.0				
RunID: IC2_120911A	QC Batch: R85608			PrepDate:		Analyst: **QBM**
Nitrate as N	1.1	1.0		mg/L	2	9/11/2012 11:11 AM

Qualifiers:

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

CLIENT: CH2M HILL
Work Order: N008471
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_FPGE

Sample ID: **MB-R85608_F**	SampType: **MBLK**	TestCode: **300_W_FPGE**	Units: **mg/L**	Prep Date:	RunNo: **85608**
Client ID: **PBW**	Batch ID: **R85608**	TestNo: **EPA 300.0**		Analysis Date: **9/11/2012**	SeqNo: **1445577**

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

Sample ID: **LCS-R85608_F**	SampType: **LCS**	TestCode: **300_W_FPGE**	Units: **mg/L**	Prep Date:	RunNo: **85608**
Client ID: **LCSW**	Batch ID: **R85608**	TestNo: **EPA 300.0**		Analysis Date: **9/11/2012**	SeqNo: **1445578**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	2.381	0.50	2.500	0	95.2	90	110				

Sample ID: **N008471-002BDUP**	SampType: **DUP**	TestCode: **300_W_FPGE**	Units: **mg/L**	Prep Date:	RunNo: **85608**
Client ID: **ZZZZZZ**	Batch ID: **R85608**	TestNo: **EPA 300.0**		Analysis Date: **9/11/2012**	SeqNo: **1445582**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	11.965	2.5						11.95	0.167	20	

Sample ID: **N008471-002BMS**	SampType: **MS**	TestCode: **300_W_FPGE**	Units: **mg/L**	Prep Date:	RunNo: **85608**
Client ID: **ZZZZZZ**	Batch ID: **R85608**	TestNo: **EPA 300.0**		Analysis Date: **9/11/2012**	SeqNo: **1445583**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	23.670	2.5	12.50	11.95	93.8	80	120				

Sample ID: **N008471-002BMSD**	SampType: **MSD**	TestCode: **300_W_FPGE**	Units: **mg/L**	Prep Date:	RunNo: **85608**
Client ID: **ZZZZZZ**	Batch ID: **R85608**	TestNo: **EPA 300.0**		Analysis Date: **9/11/2012**	SeqNo: **1445584**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	24.125	2.5	12.50	11.95	97.4	80	120	23.67	1.90	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DQ Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

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

CLIENT: CH2M HILL
Work Order: N008471
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 300W_NO3PGE

Sample ID: **MB-R85608_NO3**	SampType: **MBLK**	TestCode: **300W_NO3P**	Units: **mg/L**	Prep Date:	RunNo: **85608**
Client ID: **PBW**	Batch ID: **R85608**	TestNo: **EPA 300.0**		Analysis Date: **9/11/2012**	SeqNo: **1445558**

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-R85608_NO3**	SampType: **LCS**	TestCode: **300W_NO3P**	Units: **mg/L**	Prep Date:	RunNo: **85608**
Client ID: **LCSW**	Batch ID: **R85608**	TestNo: **EPA 300.0**		Analysis Date: **9/11/2012**	SeqNo: **1445559**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate as N	2.402	0.50	2.500	0	96.1	90	110				

Sample ID: **N008471-002BDUP**	SampType: **DUP**	TestCode: **300W_NO3P**	Units: **mg/L**	Prep Date:	RunNo: **85608**
Client ID: **ZZZZZZ**	Batch ID: **R85608**	TestNo: **EPA 300.0**		Analysis Date: **9/11/2012**	SeqNo: **1445564**

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: **N008471-002BMS**	SampType: **MS**	TestCode: **300W_NO3P**	Units: **mg/L**	Prep Date:	RunNo: **85608**
Client ID: **ZZZZZZ**	Batch ID: **R85608**	TestNo: **EPA 300.0**		Analysis Date: **9/11/2012**	SeqNo: **1445565**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate as N	11.505	2.5	12.50	0	92.0	80	120				

Sample ID: **N008471-002BMSD**	SampType: **MSD**	TestCode: **300W_NO3P**	Units: **mg/L**	Prep Date:	RunNo: **85608**
Client ID: **ZZZZZZ**	Batch ID: **R85608**	TestNo: **EPA 300.0**		Analysis Date: **9/11/2012**	SeqNo: **1445566**

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	11.50	0.563	20	

Qualifiers:

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

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-28-090-187
Lab Order:	N008471	**Collection Date:**	9/10/2012 1:57:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008471-001A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS						
	EPA 3010A			**EPA 6020**		
RunID: ICP7_120913A	QC Batch: 40686			PrepDate:	9/12/2012	Analyst: **CEI**
Arsenic	2.0	0.10		µg/L	1	9/13/2012 02:07 PM
Manganese	160	0.50		µg/L	1	9/13/2012 02:07 PM
Molybdenum	20	0.50		µg/L	1	9/13/2012 02:07 PM
Selenium	ND	0.50		µg/L	1	9/13/2012 02:07 PM

Qualifiers:

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

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-33-040-187
Lab Order:	N008471	**Collection Date:**	9/10/2012 3:30:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008471-002A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS						
	EPA 3010A			**EPA 6020**		
RunID: ICP7_120913A	QC Batch: 40686			PrepDate:	9/12/2012	Analyst: **CEI**
Arsenic	13	0.10		µg/L	1	9/13/2012 02:27 PM
Manganese	3.5	0.50		µg/L	1	9/13/2012 02:27 PM
Molybdenum	250	2.5		µg/L	5	9/13/2012 02:22 PM
Selenium	0.82	0.50		µg/L	1	9/13/2012 02:27 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		

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-35-060-187
Lab Order:	N008471	**Collection Date:**	9/10/2012 3:28:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008471-003A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS						
	EPA 3010A			**EPA 6020**		
RunID: ICP7_120913A	QC Batch: 40686			PrepDate:	9/12/2012	Analyst: **CEI**
Arsenic	1.1	0.10		µg/L	1	9/13/2012 02:37 PM
Manganese	ND	0.50		µg/L	1	9/13/2012 02:37 PM
Molybdenum	8.3	0.50		µg/L	1	9/13/2012 02:37 PM
Selenium	0.86	0.50		µg/L	1	9/13/2012 02:37 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		

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-63-065-187
Lab Order:	N008471	**Collection Date:**	9/10/2012 1:37:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008471-004A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS						
	EPA 3010A			**EPA 6020**		
RunID: ICP7_120913A	QC Batch: 40686			PrepDate:	9/12/2012	Analyst: **CEI**
Arsenic	1.7	0.10		µg/L	1	9/13/2012 02:47 PM
Manganese	11	0.50		µg/L	1	9/13/2012 02:47 PM
Molybdenum	20	0.50		µg/L	1	9/13/2012 02:47 PM
Selenium	1.8	0.50		µg/L	1	9/13/2012 04:04 PM

Qualifiers:

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

CLIENT: CH2M HILL
Work Order: N008471
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **MB-40686** SampType: **MBLK** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **9/12/2012** RunNo: **85541**
Client ID: **PBW** Batch ID: **40686** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **9/13/2012** SeqNo: **1443178**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.069	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID: **LCS-40686** SampType: **LCS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **9/12/2012** RunNo: **85541**
Client ID: **LCSW** Batch ID: **40686** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **9/13/2012** SeqNo: **1443179**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	9.794	0.10	10.00	0	97.9	85	115				
Manganese	96.772	0.50	100.0	0	96.8	85	115				
Molybdenum	9.787	0.50	10.00	0	97.9	85	115				
Selenium	9.431	0.50	10.00	0	94.3	85	115				

Sample ID: **N008472-001B-MS** SampType: **MS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **9/12/2012** RunNo: **85541**
Client ID: **ZZZZZZ** Batch ID: **40686** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **9/13/2012** SeqNo: **1443183**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	44.402	0.10	10.00	35.75	86.5	75	125				
Manganese	93.982	0.50	100.0	1.392	92.6	75	125				
Molybdenum	24.524	0.50	10.00	14.24	103	75	125				
Selenium	9.420	0.50	10.00	0.3434	90.8	75	125				

Sample ID: **N008472-001B-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **9/12/2012** RunNo: **85541**
Client ID: **ZZZZZZ** Batch ID: **40686** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **9/13/2012** SeqNo: **1443184**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	46.306	0.10	10.00	35.75	106	75	125	44.40	4.20	20	

Qualifiers:

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

CLIENT: CH2M HILL
Work Order: N008471
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N008472-001B-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **9/12/2012** RunNo: **85541**
Client ID: **ZZZZZZ** Batch ID: **40686** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **9/13/2012** SeqNo: **1443184**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	93.736	0.50	100.0	1.392	92.3	75	125	93.98	0.261	20	
Molybdenum	24.877	0.50	10.00	14.24	106	75	125	24.52	1.43	20	
Selenium	9.354	0.50	10.00	0.3434	90.1	75	125	9.420	0.708	20	

Qualifiers:

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

CH2MHILL **CHAIN OF CUSTODY RECORD** *9/10/2012 3:59:30 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-187-Q3
Turnaround Time 10 Days
Shipping Date: 9/10/2012
COC Number: 1

	Container:	1x500 ml Poly	1x500 ml Poly	1x1 Liter	1x1 Liter	1x1 Liter	1Liter Poly			
	Preservatives:	HNO3, 4°C	HNO3, 4°C	4°C	4°C	4°C	4°C			
	Filtered:	Field	Field	NA	NA	NA	NA			
	Holding Time:	180	180	2	2	2	30			
		Arsenic (6020A) Field Filtered	Metals (6020AFF) Field Filtered Mo,Se,Mn	Specific Conductance (E120.1)	Anions (E300.0) Nitrate	Anions (E300.0) Nitrate,Fluoride	Extra (*)		Number of Containers	COMMENTS
MW-28-090-187	9/10/2012 13:57 Water	X	X	X		X		N0008471 - 1	3	
MW-33-040-187	9/10/2012 15:30 Water	X	X	X		X		- 2	3	
MW-35-060-187	9/10/2012 15:28 Water	X	X	X	X			- 3	3	
MW-63-065-187	9/10/2012 13:37 Water	X	X		X		X	- 4	4	
								TOTAL NUMBER OF CONTAINERS	13	

Signatures	Date/Time
Approved by	9-10-12
Sampled by	1610
Relinquished by	
Received by	9/10/12@1621
Relinquished by	
Received by	

Shipping Details
Method of Shipment: courier
On Ice: (yes) / no 2.9°C
Airbill No: ICE IR#2
Lab Name: ADVANCED TECHNOLOGY LABORATO
Lab Phone: (702) 307-2659

ATTN:
Sample Custody
and
Marlon

Special Instructions:
September 12 to October 17, 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:	9/10/2012	Workorder:	N008471
Rep sample Temp (Deg C):	2.9	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 9/10/12

Reviewed By:

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 **N008471-003B**, concentration in mg/L are calculated as follows:

Nitrate, mg/L = 0.886 * 2

= 1.772 mg/L

Reporting **N008471-003B**, results in two significant figures,

Nitrate, mg/L = 1.8 mg/L

MS 9/24/2012

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 **N008471-001A**, the concentration in ug/L is calculated as follows:

Arsenic, ug/L = 2.01563509720121 * 1 * (25/25)

= 2.01563509720121

Reporting results in two significant figures,

Arsenic, ug/L = 2.0

NS for a/mh

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N008471
Test Method: EPA 6020
Analysis Date: 09/13/12

Matrix: Water
Batch No.: 40686

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. PS @ 2X passed the criteria.

Sample ID	Analyte	&Units	Calc Val	QQual	SAMPrefval	%DIFF	%DIFFlimit
N008472-001B-DT 5X	Arsenic	µg/L	36.34194753	PASSED	35.75384247	1.64%	10
N008472-001B-DT 5X	Manganese	µg/L	1.518372183	NA	1.391780381	9.10%	10
N008472-001B-DT 5X	Molybdenum	µg/L	14.34671812	PASSED	14.24130417	0.74%	10
N008472-001B-DT 5X	Selenium	µg/L	0	NA	0.343387796	100.00%	10

Note: NA - Not applicable

CLIENT: CH2M HILL
Work Order: N008471
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N008472-001B-PS**	SampType: **PS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **85541**
Client ID: **ZZZZZZ**	Batch ID: **40686**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **9/13/2012**	SeqNo: **1443182**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	55.079	0.20	20.00	35.75	96.6	75	125				
Manganese	193.479	1.0	200.0	1.392	96.0	75	125				
Molybdenum	35.728	1.0	20.00	14.24	107	75	125				
Selenium	19.996	1.0	20.00	0.3434	98.3	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

September 25, 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.: N008479

RE: PG&E Topock, 423575.MP.02.GM.0

Attention: Shawn P. Duffy

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

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:

Samples were diluted due to the high concentration of Chloride.

Analytical Comments for EPA 6020_Dissolved:

Samples N008479-002,N008479-003 and N008479-006 were diluted due to failing Internal Standards when samples were analyzed at no dilution.

Advanced Technology Laboratories, Inc.

Date: *25-Sep-12*

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.0
Lab Order: N008479
Contract No: 2012-GMP-187-

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N008479-001A	MW-123-187	Water	9/11/2012 7:20:00 AM	9/11/2012	
N008479-001B	MW-123-187	Water	9/11/2012 7:20:00 AM	9/11/2012	
N008479-002A	MW-33-150-187	Water	9/11/2012 1:35:00 PM	9/11/2012	
N008479-002B	MW-33-150-187	Water	9/11/2012 1:35:00 PM	9/11/2012	
N008479-003A	MW-33-210-187	Water	9/11/2012 12:19:00 PM	9/11/2012	
N008479-003B	MW-33-210-187	Water	9/11/2012 12:19:00 PM	9/11/2012	
N008479-004A	MW-42-055-187	Water	9/11/2012 8:58:00 AM	9/11/2012	
N008479-004B	MW-42-055-187	Water	9/11/2012 8:58:00 AM	9/11/2012	
N008479-005A	MW-42-065-187	Water	9/11/2012 10:02:00 AM	9/11/2012	
N008479-005B	MW-42-065-187	Water	9/11/2012 10:02:00 AM	9/11/2012	
N008479-006A	MW-57-185-187	Water	9/11/2012 2:24:00 PM	9/11/2012	
N008479-006B	MW-57-185-187	Water	9/11/2012 2:24:00 PM	9/11/2012	
N008479-006C	MW-57-185-187	Water	9/11/2012 2:24:00 PM	9/11/2012	

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-123-187
Lab Order:	N008479	**Collection Date:**	9/11/2012 7:20:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008479-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_120912B**	QC Batch: **R85525**			PrepDate:			Analyst: **QBM**
Specific Conductance	2600	0.10	0.10		umhos/cm	1	9/12/2012

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		

PRELIMINARY

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-33-150-187
Lab Order:	N008479	**Collection Date:**	9/11/2012 1:35:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008479-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_120912B**	QC Batch: **R85525**			PrepDate:			Analyst: **QBM**
Specific Conductance	16000	0.10	0.10		umhos/cm	1	9/12/2012

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		

PRELIMINARY

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-33-210-187
Lab Order:	N008479	**Collection Date:**	9/11/2012 12:19:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008479-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_120912B**	QC Batch: **R85525**			PrepDate:			Analyst: **QBM**
Specific Conductance	19000	0.10	0.10		umhos/cm	1	9/12/2012

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		

PRELIMINARY

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-42-055-187
Lab Order:	N008479	**Collection Date:**	9/11/2012 8:58:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008479-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_120912B**	QC Batch: **R85525**			PrepDate:			Analyst: **QBM**
Specific Conductance	2600	0.10	0.10		umhos/cm	1	9/12/2012

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		

PRELIMINARY

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-42-065-187
Lab Order:	N008479	**Collection Date:**	9/11/2012 10:02:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008479-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_120912B**	QC Batch: **R85525**			PrepDate:			Analyst: **QBM**
Specific Conductance	7900	0.10	0.10		umhos/cm	1	9/12/2012

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		

PRELIMINARY

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-57-185-187
Lab Order:	N008479	**Collection Date:**	9/11/2012 2:24:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008479-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_120912B**	QC Batch: **R85525**			PrepDate:			Analyst: **QBM**
Specific Conductance	18000	0.10	0.10		umhos/cm	1	9/12/2012

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		

PRELIMINARY

CLIENT: CH2M HILL
Work Order: N008479
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: **LCS-R85525**	SampType: **LCS**	TestCode: **120.1_WPGE**	Units: **umhos/cm**	Prep Date:	RunNo: **85525**
Client ID: **LCSW**	Batch ID: **R85525**	TestNo: **EPA 120.1**		Analysis Date: **9/12/2012**	SeqNo: **1441330**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	10080.000	0.10	9977	0	101	85	115				

Sample ID: **N008479-002BMS**	SampType: **MS**	TestCode: **120.1_WPGE**	Units: **umhos/cm**	Prep Date:	RunNo: **85525**
Client ID: **ZZZZZZ**	Batch ID: **R85525**	TestNo: **EPA 120.1**		Analysis Date: **9/12/2012**	SeqNo: **1441334**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	26800.000	0.20	9977	16240	106	75	125				

Sample ID: **N008479-002BMSD**	SampType: **MSD**	TestCode: **120.1_WPGE**	Units: **umhos/cm**	Prep Date:	RunNo: **85525**
Client ID: **ZZZZZZ**	Batch ID: **R85525**	TestNo: **EPA 120.1**		Analysis Date: **9/12/2012**	SeqNo: **1441335**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	26580.000	0.20	9977	16240	104	75	125	26800	0.824	10	

Sample ID: **N008479-005BDUP**	SampType: **DUP**	TestCode: **120.1_WPGE**	Units: **umhos/cm**	Prep Date:	RunNo: **85525**
Client ID: **ZZZZZZ**	Batch ID: **R85525**	TestNo: **EPA 120.1**		Analysis Date: **9/12/2012**	SeqNo: **1441339**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	7910.000	0.10						7940	0.379	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	**Client Sample ID:**	MW-33-150-187
Lab Order:	N008479	**Collection Date:**	9/11/2012 1:35:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008479-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_120912A**	QC Batch: **R85665**			PrepDate:			Analyst: **QBM**
Fluoride	ND	0.24	10		mg/L	20	9/12/2012 11:45 AM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_120912A**	QC Batch: **R85665**			PrepDate:			Analyst: **QBM**
Nitrate as N	ND	0.070	2.5		mg/L	5	9/12/2012 10:35 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

PRELIMINARY

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-33-210-187
Lab Order:	N008479	**Collection Date:**	9/11/2012 12:19:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008479-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_120912A**	QC Batch: **R85665**			PrepDate:			Analyst: **QBM**
Fluoride	ND	0.24	10		mg/L	20	9/12/2012 11:57 AM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_120912A**	QC Batch: **R85665**			PrepDate:			Analyst: **QBM**
Nitrate as N	ND	0.070	2.5		mg/L	5	9/12/2012 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		

PRELIMINARY

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-57-185-187
Lab Order:	N008479	**Collection Date:**	9/11/2012 2:24:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008479-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_120912A**	QC Batch: **R85665**			PrepDate:			Analyst: **QBM**
Nitrate as N	ND	0.070	2.5		mg/L	5	9/12/2012 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		

PRELIMINARY

CLIENT: CH2M HILL
Work Order: N008479
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_FPGE

Sample ID: **MB-R85665_F**	SampType: **MBLK**	TestCode: **300_W_FPGE**	Units: **mg/L**	Prep Date:	RunNo: **85665**
Client ID: **PBW**	Batch ID: **R85665**	TestNo: **EPA 300.0**		Analysis Date: **9/12/2012**	SeqNo: **1447961**

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

Sample ID: **LCS-R85665_F**	SampType: **LCS**	TestCode: **300_W_FPGE**	Units: **mg/L**	Prep Date:	RunNo: **85665**
Client ID: **LCSW**	Batch ID: **R85665**	TestNo: **EPA 300.0**		Analysis Date: **9/12/2012**	SeqNo: **1447962**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	2.391	0.50	2.500	0	95.6	90	110				

Sample ID: **N008479-002BDUP**	SampType: **DUP**	TestCode: **300_W_FPGE**	Units: **mg/L**	Prep Date:	RunNo: **85665**
Client ID: **ZZZZZZ**	Batch ID: **R85665**	TestNo: **EPA 300.0**		Analysis Date: **9/12/2012**	SeqNo: **1447967**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	ND	10						0	0	20	

Sample ID: **N008479-002BMS**	SampType: **MS**	TestCode: **300_W_FPGE**	Units: **mg/L**	Prep Date:	RunNo: **85665**
Client ID: **ZZZZZZ**	Batch ID: **R85665**	TestNo: **EPA 300.0**		Analysis Date: **9/12/2012**	SeqNo: **1447968**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	51.020	10	50.00	0	102	80	120				

Sample ID: **N008479-002BMSD**	SampType: **MSD**	TestCode: **300_W_FPGE**	Units: **mg/L**	Prep Date:	RunNo: **85665**
Client ID: **ZZZZZZ**	Batch ID: **R85665**	TestNo: **EPA 300.0**		Analysis Date: **9/12/2012**	SeqNo: **1447969**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	50.500	10	50.00	0	101	80	120	51.02	1.02	20	

Qualifiers:

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

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CLIENT: CH2M HILL
Work Order: N008479
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 300W_NO3PGE

Sample ID: **MB-R85665_NO3** SampType: **MBLK** TestCode: **300W_NO3P** Units: **mg/L** Prep Date: RunNo: **85665**
Client ID: **PBW** Batch ID: **R85665** TestNo: **EPA 300.0** Analysis Date: **9/12/2012** SeqNo: **1447945**

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-R85665_NO3** SampType: **LCS** TestCode: **300W_NO3P** Units: **mg/L** Prep Date: RunNo: **85665**
Client ID: **LCSW** Batch ID: **R85665** TestNo: **EPA 300.0** Analysis Date: **9/12/2012** SeqNo: **1447946**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate as N	2.415	0.50	2.500	0	96.6	90	110				

Sample ID: **N008479-002BDUP** SampType: **DUP** TestCode: **300W_NO3P** Units: **mg/L** Prep Date: RunNo: **85665**
Client ID: **ZZZZZZ** Batch ID: **R85665** TestNo: **EPA 300.0** Analysis Date: **9/12/2012** SeqNo: **1447950**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate as N	1.390	2.5						1.435	0	20	

Sample ID: **N008479-002BMS** SampType: **MS** TestCode: **300W_NO3P** Units: **mg/L** Prep Date: RunNo: **85665**
Client ID: **ZZZZZZ** Batch ID: **R85665** TestNo: **EPA 300.0** Analysis Date: **9/12/2012** SeqNo: **1447951**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate as N	12.805	2.5	12.50	1.435	91.0	80	120				

Sample ID: **N008479-002BMSD** SampType: **MSD** TestCode: **300W_NO3P** Units: **mg/L** Prep Date: RunNo: **85665**
Client ID: **ZZZZZZ** Batch ID: **R85665** TestNo: **EPA 300.0** Analysis Date: **9/12/2012** SeqNo: **1447952**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate as N	12.830	2.5	12.50	1.435	91.2	80	120	12.80	0.195	20	

Qualifiers:

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

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CLIENT:	CH2M HILL	**Client Sample ID:**	MW-123-187
Lab Order:	N008479	**Collection Date:**	9/11/2012 7:20:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008479-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_120913A**	QC Batch: **40686**			PrepDate:	**9/12/2012**		Analyst: **CEI**
Arsenic	12	0.035	0.10		µg/L	1	9/13/2012 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		

PRELIMINARY

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-33-150-187
Lab Order:	N008479	**Collection Date:**	9/11/2012 1:35:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008479-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_120913A**	QC Batch: **40686**			PrepDate:	**9/12/2012**		Analyst: **CEI**
Arsenic	2.2	0.035	0.10		µg/L	1	9/13/2012 03:02 PM
Manganese	ND	0.80	2.5		µg/L	5	9/13/2012 03:07 PM
Molybdenum	39	0.37	2.5		µg/L	5	9/13/2012 03:07 PM
Selenium	ND	0.42	2.5		µg/L	5	9/13/2012 03:07 PM

CLIENT: CH2M HILL
Lab Order: N008479
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008479-003

Client Sample ID: MW-33-210-187
Collection Date: 9/11/2012 12:19:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_120913A**	QC Batch: **40686**			PrepDate:	**9/12/2012**		Analyst: **CEI**
Arsenic	1.3	0.035	0.10		µg/L	1	9/13/2012 03:35 PM
Manganese	5.5	0.16	0.50		µg/L	1	9/13/2012 03:35 PM
Molybdenum	17	0.37	2.5		µg/L	5	9/13/2012 03:40 PM
Selenium	ND	0.42	2.5		µg/L	5	9/13/2012 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		

PRELIMINARY

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-42-055-187
Lab Order:	N008479	**Collection Date:**	9/11/2012 8:58:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008479-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_120913A**	QC Batch: **40686**			PrepDate:	**9/12/2012**		Analyst: **CEI**
Arsenic	12	0.035	0.10		µg/L	1	9/13/2012 03:45 PM

Qualifiers:

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

PRELIMINARY

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-42-065-187
Lab Order:	N008479	**Collection Date:**	9/11/2012 10:02:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008479-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_120913A**	QC Batch: **40686**			PrepDate:	**9/12/2012**		Analyst: **CEI**
Arsenic	2.8	0.035	0.10		µg/L	1	9/13/2012 03:49 PM
Manganese	1000	0.80	2.5		µg/L	5	9/13/2012 04:28 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		

PRELIMINARY

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-57-185-187
Lab Order:	N008479	**Collection Date:**	9/11/2012 2:24:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008479-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_120913A**	QC Batch: **40686**			PrepDate:	**9/12/2012**		Analyst: **CEI**
Arsenic	14	0.035	0.10		µg/L	1	9/13/2012 03:59 PM
Manganese	400	0.80	2.5		µg/L	5	9/13/2012 03:54 PM
Molybdenum	86	0.37	2.5		µg/L	5	9/13/2012 03:54 PM
Selenium	ND	0.42	2.5		µg/L	5	9/13/2012 03:54 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		

PRELIMINARY

CLIENT: CH2M HILL
Work Order: N008479
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **MB-40686** SampType: **MBLK** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **9/12/2012** RunNo: **85541**
Client ID: **PBW** Batch ID: **40686** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **9/13/2012** SeqNo: **1443178**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.069	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID: **LCS-40686** SampType: **LCS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **9/12/2012** RunNo: **85541**
Client ID: **LCSW** Batch ID: **40686** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **9/13/2012** SeqNo: **1443179**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	9.794	0.10	10.00	0	97.9	85	115				
Manganese	96.772	0.50	100.0	0	96.8	85	115				
Molybdenum	9.787	0.50	10.00	0	97.9	85	115				
Selenium	9.431	0.50	10.00	0	94.3	85	115				

Sample ID: **N008472-001B-MS** SampType: **MS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **9/12/2012** RunNo: **85541**
Client ID: **ZZZZZZ** Batch ID: **40686** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **9/13/2012** SeqNo: **1443183**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	44.402	0.10	10.00	35.75	86.5	75	125				
Manganese	93.982	0.50	100.0	1.392	92.6	75	125				
Molybdenum	24.524	0.50	10.00	14.24	103	75	125				
Selenium	9.420	0.50	10.00	0.3434	90.8	75	125				

Sample ID: **N008472-001B-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **9/12/2012** RunNo: **85541**
Client ID: **ZZZZZZ** Batch ID: **40686** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **9/13/2012** SeqNo: **1443184**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	46.306	0.10	10.00	35.75	106	75	125	44.40	4.20	20	

Qualifiers:

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

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CLIENT: CH2M HILL
Work Order: N008479
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N008472-001B-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **9/12/2012** RunNo: **85541**
Client ID: **ZZZZZZ** Batch ID: **40686** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **9/13/2012** SeqNo: **1443184**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	93.736	0.50	100.0	1.392	92.3	75	125	93.98	0.261	20	
Molybdenum	24.877	0.50	10.00	14.24	106	75	125	24.52	1.43	20	
Selenium	9.354	0.50	10.00	0.3434	90.1	75	125	9.420	0.708	20	

Qualifiers:

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

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CH2MHILL **CHAIN OF CUSTODY RECORD** *9/11/2012 4:28:58 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-187-Q3
Turnaround Time 10 Days
Shipping Date: 9/11/2012
COC Number: 3

	Container:	1x500 ml Poly	1x500 ml Poly	1x500 ml Poly	1x1 Liter	1x1 Liter	1x1 Liter	1Liter Poly			
	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	2	2	2	30			
DATE	TIME	Matrix	Arsenic (6020A) Field Filtered	Metals (6020AFF) Field Filtered Mn	Metals (6020AFF) Field Filtered Mo,Se,Mn	Specific Conductance (E120.1)	Anions (E300.0) Nitrate	Anions (E300.0) Nitrate,Fluoride	Extra (*)	N0085479	Number of Containers	COMMENTS
MW-123-187	9/11/2012	7:20	Water	X			X				-1	2	
MW-33-150-187	9/11/2012	13:35	Water	X		X	X		X		-2	3	
MW-33-210-187	9/11/2012	12:19	Water	X		X	X		X		-3	3	
MW-42-055-187	9/11/2012	8:58	Water	X			X				-4	2	
MW-42-065-187	9/11/2012	10:02	Water	X	X		X				-5	3	
MW-57-185-187	9/11/2012	14:24	Water	X		X	X	X		X	-6	4	
										TOTAL NUMBER OF CONTAINERS		17	

Signatures	Date/Time
Approved by	9-11-12
Sampled by	1635
Relinquished by	
Received by	9/11/12 1635
Relinquished by	9/11/12 1830
Received by	9/11/12 1830

Shipping Details
Method of Shipment: courier
On Ice: ~~yes~~ / no 3.0°C
Airbill No: IR#
Lab Name: ADVANCED TECHNOLOGY LABORATO
Lab Phone: (702) 307-2659

ATTN:
Sample Custody
and
Marlon

Special Instructions:
September 12 to October 17, 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:	9/11/2012	Workorder:	N008479
Rep sample Temp (Deg C):	3.0	IR Gun ID:	2
Temp Blank:	☐ Yes ☑ No		
Carrier name:	ATL		
Last 4 digits of Tracking No.:	na	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on 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 9/12/12 Reviewed By:

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 **N008479-002B**, concentration in mg/L are calculated as follows:

Nitrate, mg/L = 0.287 * 5

= 1.435 mg/L

Reporting **N008479-002B**, results in two significant figures,

Nitrate, mg/L = 1.4 mg/L

Since PQL is 2.5 mg/L,

Nitrate, mg/L = ND

MS 9/25/2012

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 **N008479-001A**, the concentration in ug/L is calculated as follows:

Arsenic, ug/L = 12.3558403200177 * 1 * (25/25)

= 12.3558403200177

Reporting results in two significant figures,

Arsenic, ug/L = 12

NS for 9/25/12

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N008479
Test Method: EPA 6020
Analysis Date: 09/13/12

Matrix: Water
Batch No.: 40686

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. PS @ 2X passed the criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N008472-001B-DT 5X	Arsenic	µg/L	36.34194753	PASSED	35.75384247	1.64%	10
N008472-001B-DT 5X	Manganese	µg/L	1.518372183	NA	1.391780381	9.10%	10
N008472-001B-DT 5X	Molybdenum	µg/L	14.34671812	PASSED	14.24130417	0.74%	10
N008472-001B-DT 5X	Selenium	µg/L	0	NA	0.343387796	100.00%	10

Note: NA - Not applicable

CLIENT: CH2M HILL
Work Order: N008479
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N008472-001B-PS** SampType: **PS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **85541**
Client ID: **ZZZZZZ** Batch ID: **40686** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **9/13/2012** SeqNo: **1443182**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	55.079	0.20	20.00	35.75	96.6	75	125				
Manganese	193.479	1.0	200.0	1.392	96.0	75	125				
Molybdenum	35.728	1.0	20.00	14.24	107	75	125				
Selenium	19.996	1.0	20.00	0.3434	98.3	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

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.: N008491

RE: PG&E Topock, 423575.MP.02.GM.0

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on September 12, 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 EPA 6020_Dissolved:

Samples N008479-002,N008479-003 and N008479-006 were diluted due to failing Internal Standards when samples were analyzed at no dilution.

Advanced Technology Laboratories, Inc.

Date: *26-Sep-12*

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.0
Lab Order: N008491
Contract No: 2012-GMP-187-

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N008491-001A	MW-121-187	Water	9/12/2012 5:00:00 PM	9/12/2012	9/26/2012
N008491-001B	MW-121-187	Water	9/12/2012 5:00:00 PM	9/12/2012	9/26/2012
N008491-001C	MW-121-187	Water	9/12/2012 5:00:00 PM	9/12/2012	9/26/2012
N008491-002A	MW-21-187	Water	9/12/2012 8:06:00 AM	9/12/2012	9/26/2012
N008491-002B	MW-21-187	Water	9/12/2012 8:06:00 AM	9/12/2012	9/26/2012
N008491-003A	MW-23-060-187	Water	9/12/2012 9:56:00 AM	9/12/2012	9/26/2012
N008491-003B	MW-23-060-187	Water	9/12/2012 9:56:00 AM	9/12/2012	9/26/2012
N008491-003C	MW-23-060-187	Water	9/12/2012 9:56:00 AM	9/12/2012	9/26/2012
N008491-004A	MW-23-080-187	Water	9/12/2012 11:56:00 AM	9/12/2012	9/26/2012
N008491-004B	MW-23-080-187	Water	9/12/2012 11:56:00 AM	9/12/2012	9/26/2012
N008491-004C	MW-23-080-187	Water	9/12/2012 11:56:00 AM	9/12/2012	9/26/2012
N008491-005A	MW-57-070-187	Water	9/12/2012 10:02:00 AM	9/12/2012	9/26/2012
N008491-005B	MW-57-070-187	Water	9/12/2012 10:02:00 AM	9/12/2012	9/26/2012
N008491-006A	MW-62-065-187	Water	9/12/2012 12:14:00 PM	9/12/2012	9/26/2012
N008491-006B	MW-62-065-187	Water	9/12/2012 12:14:00 PM	9/12/2012	9/26/2012
N008491-007A	MW-70-105-187	Water	9/12/2012 3:13:00 PM	9/12/2012	9/26/2012
N008491-007B	MW-70-105-187	Water	9/12/2012 3:13:00 PM	9/12/2012	9/26/2012
N008491-007C	MW-70-105-187	Water	9/12/2012 3:13:00 PM	9/12/2012	9/26/2012

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-121-187
Lab Order:	N008491	**Collection Date:**	9/12/2012 5:00:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008491-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_120913B**	QC Batch: **R85537**			PrepDate:			Analyst: **QBM**
Specific Conductance	16000	0.10	0.10		umhos/cm	1	9/13/2012

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		

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-21-187
Lab Order:	N008491	**Collection Date:**	9/12/2012 8:06:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008491-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_120913B**	QC Batch: **R85537**			PrepDate:			Analyst: **QBM**
Specific Conductance	12000	0.10	0.10		umhos/cm	1	9/13/2012

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		

CLIENT: CH2M HILL
Lab Order: N008491
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008491-003

Client Sample ID: MW-23-060-187
Collection Date: 9/12/2012 9:56:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_120913B**	QC Batch: **R85537**			PrepDate:			Analyst: **QBM**
Specific Conductance	16000	0.10	0.10		umhos/cm	1	9/13/2012

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		

CLIENT: CH2M HILL
Lab Order: N008491
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008491-004

Client Sample ID: MW-23-080-187
Collection Date: 9/12/2012 11:56:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_120913B**	QC Batch: **R85537**			PrepDate:			Analyst: **QBM**
Specific Conductance	16000	0.10	0.10		umhos/cm	1	9/13/2012

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		

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-57-070-187
Lab Order:	N008491	**Collection Date:**	9/12/2012 10:02:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008491-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_120913B**	QC Batch: **R85537**			PrepDate:			Analyst: **QBM**
Specific Conductance	2300	0.10	0.10		umhos/cm	1	9/13/2012

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-62-065-187
Lab Order:	N008491	**Collection Date:**	9/12/2012 12:14:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008491-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_120913B**	QC Batch: **R85537**			PrepDate:			Analyst: **QBM**
Specific Conductance	6400	0.10	0.10		umhos/cm	1	9/13/2012

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		

CLIENT: CH2M HILL
Lab Order: N008491
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008491-007

Client Sample ID: MW-70-105-187
Collection Date: 9/12/2012 3:13:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_120913B**	QC Batch: **R85537**			PrepDate:			Analyst: **QBM**
Specific Conductance	3300	0.10	0.10		umhos/cm	1	9/13/2012

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		

CLIENT: CH2M HILL
Work Order: N008491
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: **LCS-R85537** SampType: **LCS** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **85537**
Client ID: **LCSW** Batch ID: **R85537** TestNo: **EPA 120.1** Analysis Date: **9/13/2012** SeqNo: **1442270**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	10110.000	0.10	9977	0	101	85	115				

Sample ID: **N008491-001BDUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **85537**
Client ID: **ZZZZZZ** Batch ID: **R85537** TestNo: **EPA 120.1** Analysis Date: **9/13/2012** SeqNo: **1442272**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	16450.000	0.10						16410	0.243	10	

Sample ID: **N008491-002BMS** SampType: **MS** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **85537**
Client ID: **ZZZZZZ** Batch ID: **R85537** TestNo: **EPA 120.1** Analysis Date: **9/13/2012** SeqNo: **1442274**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	22300.000	0.20	9977	11990	103	75	125				

Sample ID: **N008491-002BMSD** SampType: **MSD** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **85537**
Client ID: **ZZZZZZ** Batch ID: **R85537** TestNo: **EPA 120.1** Analysis Date: **9/13/2012** SeqNo: **1442275**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	22220.000	0.20	9977	11990	103	75	125	22300	0.359	10	

Qualifiers:

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

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-70-105-187
Lab Order:	N008491	**Collection Date:**	9/12/2012 3:13:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008491-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_120913A**	QC Batch: **R85676**			PrepDate:			Analyst: **QBM**
Nitrate as N	2.0	0.014	0.50		mg/L	1	9/13/2012 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		

CLIENT: CH2M HILL
Work Order: N008491
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 300W_NO3PGE

Sample ID: **MB-R85676_NO3** SampType: **MBLK** TestCode: **300W_NO3P** Units: **mg/L** Prep Date: RunNo: **85676**
Client ID: **PBW** Batch ID: **R85676** TestNo: **EPA 300.0** Analysis Date: **9/13/2012** SeqNo: **1448160**

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-R85676_NO3** SampType: **LCS** TestCode: **300W_NO3P** Units: **mg/L** Prep Date: RunNo: **85676**
Client ID: **LCSW** Batch ID: **R85676** TestNo: **EPA 300.0** Analysis Date: **9/13/2012** SeqNo: **1448161**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate as N	2.422	0.50	2.500	0	96.9	90	110				

Sample ID: **N008492-001DDUP** SampType: **DUP** TestCode: **300W_NO3P** Units: **mg/L** Prep Date: RunNo: **85676**
Client ID: **ZZZZZZ** Batch ID: **R85676** TestNo: **EPA 300.0** Analysis Date: **9/13/2012** SeqNo: **1448164**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate as N	1.092	0.50						1.128	3.24	20	

Sample ID: **N008492-001DMS** SampType: **MS** TestCode: **300W_NO3P** Units: **mg/L** Prep Date: RunNo: **85676**
Client ID: **ZZZZZZ** Batch ID: **R85676** TestNo: **EPA 300.0** Analysis Date: **9/13/2012** SeqNo: **1448165**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate as N	3.610	0.50	2.500	1.128	99.3	80	120				

Sample ID: **N008492-001DMSD** SampType: **MSD** TestCode: **300W_NO3P** Units: **mg/L** Prep Date: RunNo: **85676**
Client ID: **ZZZZZZ** Batch ID: **R85676** TestNo: **EPA 300.0** Analysis Date: **9/13/2012** SeqNo: **1448166**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate as N	3.682	0.50	2.500	1.128	102	80	120	3.610	1.97	20	

Qualifiers:

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

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Lab Order: N008491
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008491-001

Client Sample ID: MW-121-187
Collection Date: 9/12/2012 5:00:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **ICP7_120917E**	QC Batch: **40721**				PrepDate:	**9/16/2012**	Analyst: **CEI**
Arsenic	3.0	0.17	0.50		µg/L	5	9/17/2012 06:18 PM
Manganese	ND	0.80	2.5		µg/L	5	9/17/2012 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		

CLIENT: CH2M HILL
Lab Order: N008491
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008491-003

Client Sample ID: MW-23-060-187
Collection Date: 9/12/2012 9:56:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **ICP7_120917E**	QC Batch: **40721**				PrepDate:	**9/16/2012**	Analyst: **CEI**
Arsenic	5.9	0.035	0.10		µg/L	1	9/17/2012 06:43 PM
Manganese	ND	0.16	0.50		µg/L	1	9/17/2012 06:43 PM

Qualifiers:

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

CLIENT: CH2M HILL
Lab Order: N008491
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008491-004

Client Sample ID: MW-23-080-187
Collection Date: 9/12/2012 11:56:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **ICP7_120917E**	QC Batch: **40721**				PrepDate:	**9/16/2012**	Analyst: **CEI**
Arsenic	3.3	0.035	0.10		µg/L	1	9/17/2012 06:53 PM
Manganese	ND	0.16	0.50		µg/L	1	9/17/2012 06:53 PM

CLIENT: CH2M HILL
Lab Order: N008491
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008491-007

Client Sample ID: MW-70-105-187
Collection Date: 9/12/2012 3:13:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_120917E**	QC Batch: **40721**			PrepDate:	**9/16/2012**		Analyst: **CEI**
Arsenic	6.2	0.035	0.10		µg/L	1	9/17/2012 07:02 PM
Manganese	220	0.80	2.5		µg/L	5	9/17/2012 06:58 PM
Molybdenum	120	0.074	0.50		µg/L	1	9/17/2012 07:02 PM
Selenium	2.2	0.084	0.50		µg/L	1	9/20/2012 08:19 PM

CLIENT: CH2M HILL
Work Order: N008491
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **MB-40721** SampType: **MBLK** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **9/16/2012** RunNo: **85632**
Client ID: **PBW** Batch ID: **40721** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **9/17/2012** SeqNo: **1446746**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.068	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID: **LCS-40721** SampType: **LCS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **9/16/2012** RunNo: **85632**
Client ID: **LCSW** Batch ID: **40721** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **9/17/2012** SeqNo: **1446747**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.088	0.10	10.00	0	101	85	115				
Manganese	95.353	0.50	100.0	0	95.4	85	115				
Molybdenum	10.117	0.50	10.00	0	101	85	115				
Selenium	9.100	0.50	10.00	0	91.0	85	115				

Sample ID: **N008509-001B-MS** SampType: **MS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **9/16/2012** RunNo: **85632**
Client ID: **ZZZZZZ** Batch ID: **40721** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **9/17/2012** SeqNo: **1446751**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	25.029	0.10	10.00	14.25	108	75	125				
Manganese	201.423	0.50	100.0	103.6	97.9	75	125				
Molybdenum	16.020	0.50	10.00	5.097	109	75	125				
Selenium	8.762	0.50	10.00	0	87.6	75	125				

Sample ID: **N008509-001B-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **9/16/2012** RunNo: **85632**
Client ID: **ZZZZZZ** Batch ID: **40721** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **9/17/2012** SeqNo: **1446752**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	24.411	0.10	10.00	14.25	102	75	125	25.03	2.50	20	

Qualifiers:

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

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N008491
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N008509-001B-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **9/16/2012** RunNo: **85632**
Client ID: **ZZZZZZ** Batch ID: **40721** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **9/17/2012** SeqNo: **1446752**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	201.418	0.50	100.0	103.6	97.9	75	125	201.4	0.00212	20	
Molybdenum	15.942	0.50	10.00	5.097	108	75	125	16.02	0.488	20	
Selenium	8.243	0.50	10.00	0	82.4	75	125	8.762	6.10	20	

Qualifiers:

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

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CH2MHILL

CHAIN OF CUSTODY RECORD

9/12/2012 4:27:14 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-187-Q3
Turnaround Time 10 Days
Shipping Date: 9/12/2012
COC Number: 5

			Container:	1x500 ml Poly	1x500 ml Poly	1x500 ml Poly	1x1 Liter	1x1 Liter	1Liter Poly			
			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	2	2	30			
	DATE	TIME	Matrix	Arsenic (6020A) Field Filtered	Metals (6020AFF) Field Filtered Mn	Metals (6020AFF) Field Filtered Mo,Se,Mn	Specific Conductance (E120.1)	Anions (E300.0) Nitrate	Extra (*)	MOOF491	Number of Containers	COMMENTS
MW-121-187	9/12/2012	17:00	Water	x	x		x		x	-1	4	
MW-21-187	9/12/2012	8:06	Water				x		x	-2	2	
MW-23-060-187	9/12/2012	9:56	Water	x	x		x		x	-3	4	
MW-23-080-187	9/12/2012	11:56	Water	x	x		x		x	-4	4	
MW-57-070-187	9/12/2012	10:02	Water				x		x	-5	2	
MW-62-065-187	9/12/2012	12:14	Water				x		x	-6	2	
MW-70-105-187	9/12/2012	15:13	Water	x		x	x	x	x	-7	4	
										TOTAL NUMBER OF CONTAINERS	22	

	Signatures	Date/Time
Approved by	[signature]	9-12-12
Sampled by	[signature]	1700
Relinquished by	[signature]	9/12/12 1800
Received by	[signature]	9/12/12 2054
Relinquished by	[signature]	9/12/12 2054
Received by	[signature]	9/12/12 2054

Shipping Details

Method of Shipment: courier
On Ice: ~~yes~~ / no 4.4 ac
Airbill No: IR#7
Lab Name: ADVANCED TECHNOLOGY LABORATO
Lab Phone: (702) 307-2659

ATTN:
Sample Custody
and
Marlon

Special Instructions:
September 12 to October 17, 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:	9/12/2012	Workorder:	N008491
Rep sample Temp (Deg C):	4.4	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 9/13/12 Reviewed By:

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 **N008491-007B**, concentration in mg/L are calculated as follows:

Nitrate, mg/L = 2.007 * 1

= 2.007 mg/L

Reporting **N008491-007B**, results in two significant figures,

Nitrate, mg/L = 2.0 mg/L ✓ na|26|-

MS 9|26|2012

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 **N008491-003C**, the concentration in ug/L is calculated as follows:

Arsenic, ug/L = 5.87243300259509 * 1 * (25/25)

= 5.87243300259509

Reporting result in two significant figures,

Arsenic, ug/L = 5.9

MJ fn
9/26/12

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N008491
Test Method: EPA 6020
Analysis Date: 09/17/12

Matrix: Water
Batch No.: 40721

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

Comments:

Analyzed By: Mary Claire Ignacio

Dilution Test is not applicable to Mo and Se. The calculated values were < 25X the RL. PS @ 2X passed the criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N008509-001B-DT 5X	Arsenic	µg/L	14.4498	PASSED	14.2454	-1.43%	10
N008509-001B-DT 5X	Manganese	µg/L	106.2580	PASSED	103.5618	-2.60%	10
N008509-001B-DT 5X	Molybdenum	µg/L	5.5192	NA	5.0975	-8.27%	10
N008509-001B-DT 5X	Selenium	µg/L	0.0000	NA	0.0000		10

Note: NA - Not applicable

CLIENT: CH2M HILL
Work Order: N008491
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N008509-001B-PS**	SampType: **PS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **85632**
Client ID: **ZZZZZZ**	Batch ID: **40721**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **9/17/2012**	SeqNo: **1446750**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	34.603	0.20	20.00	14.25	102	75	125				
Manganese	295.021	1.0	200.0	103.6	95.7	75	125				
Molybdenum	25.886	1.0	20.00	5.097	104	75	125				
Selenium	17.045	1.0	20.00	0	85.2	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

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,

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

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
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		

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		

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		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Lab Order: 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
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

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

CLIENT: CH2M HILL
Work Order: 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
ND Not Detected at the Reporting Limit
DQ Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: 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
ND Not Detected at the Reporting Limit
DQ Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

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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		

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

CLIENT: CH2M HILL
Work Order: 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
ND Not Detected at the Reporting Limit
DQ Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: 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
ND Not Detected at the Reporting Limit
DQ Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: 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
ND Not Detected at the Reporting Limit
DQ Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

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CH2MHILL **CHAIN OF CUSTODY RECORD** N0068501 Page 3 OF 5

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 (*)	Sample Name	Number of Containers	COMMENTS
9/13/12	1535	GW	✓	✓		✓		MW-44-125-187 N0068501-1	1	
9/13/12	0810	GW	✓	✓		✓		MW-124-187 ↓ -2	1	
								~~MW-66~~ 9/13/12		

	Signatures	Date/Time
Approved by		9-13-12
Sampled by		1830
Relinquished by		
Received by		9/13/12 1530
Relinquished by		9/13/12 2017
Received by		9/13/12 2017

Shipping Details
Method of Shipment: ~~FedEx~~ COURIER/ATL
On Ice: (yes) / no 2.2°C
Airbill No: 1RH2 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: 9/14/12

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 ✓ Ag110L

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 Na/mL

MS 9/26/2012

September 27, 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.: N008503

RE: PG&E Topock, 423575.MP.02.GM.0

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,

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 6020_Dissolved:

Samples were diluted due to failing internal standards when samples were analyzed at no dilution.

Advanced Technology Laboratories, Inc.

Date: *27-Sep-12*

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.0
Lab Order: N008503
Contract No: 2012-GMP-187-

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N008503-001A	MW-48-187	Water	9/13/2012 8:07:00 AM	9/13/2012	9/27/2012
N008503-001B	MW-48-187	Water	9/13/2012 8:07:00 AM	9/13/2012	9/27/2012
N008503-002A	MW-62-110-187	Water	9/13/2012 3:15:00 PM	9/13/2012	9/27/2012
N008503-002B	MW-62-110-187	Water	9/13/2012 3:15:00 PM	9/13/2012	9/27/2012
N008503-002C	MW-62-110-187	Water	9/13/2012 3:15:00 PM	9/13/2012	9/27/2012
N008503-003A	MW-62-190-187	Water	9/13/2012 3:30:00 PM	9/13/2012	9/27/2012
N008503-003B	MW-62-190-187	Water	9/13/2012 3:30:00 PM	9/13/2012	9/27/2012
N008503-003C	MW-62-190-187	Water	9/13/2012 3:30:00 PM	9/13/2012	9/27/2012
N008503-004A	MW-73-080-187	Water	9/13/2012 9:14:00 AM	9/13/2012	9/27/2012
N008503-004B	MW-73-080-187	Water	9/13/2012 9:14:00 AM	9/13/2012	9/27/2012
N008503-004C	MW-73-080-187	Water	9/13/2012 9:14:00 AM	9/13/2012	9/27/2012

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-48-187
Lab Order:	N008503	**Collection Date:**	9/13/2012 8:07:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008503-001		

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	18000	0.10	0.10		umhos/cm	1	9/14/2012

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-62-110-187
Lab Order:	N008503	**Collection Date:**	9/13/2012 3:15:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008503-002		

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	9200	0.10	0.10		umhos/cm	1	9/14/2012

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-62-190-187
Lab Order:	N008503	**Collection Date:**	9/13/2012 3:30:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008503-003		

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	19000	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		

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-73-080-187
Lab Order:	N008503	**Collection Date:**	9/13/2012 9:14:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008503-004		

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	11000	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		

CLIENT: CH2M HILL
Work Order: N008503
Project: PG&E Topock, 423575.MP.02.GM.0

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

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CLIENT:	CH2M HILL	**Client Sample ID:**	MW-62-110-187
Lab Order:	N008503	**Collection Date:**	9/13/2012 3:15:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008503-002		

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**
Nitrate as N	4.2	0.060	2.5		mg/L	5	9/14/2012 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		

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-62-190-187
Lab Order:	N008503	**Collection Date:**	9/13/2012 3:30:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008503-003		

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**
Nitrate as N	ND	0.060	2.5		mg/L	5	9/14/2012 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		

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-73-080-187
Lab Order:	N008503	**Collection Date:**	9/13/2012 9:14:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008503-004		

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**
Nitrate as N	4.6	0.060	2.5		mg/L	5	9/14/2012 07:07 PM

Qualifiers:

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

CLIENT: CH2M HILL
Work Order: N008503
Project: PG&E Topock, 423575.MP.02.GM.0

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

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CLIENT: CH2M HILL
Lab Order: N008503
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008503-002

Client Sample ID: MW-62-110-187
Collection Date: 9/13/2012 3:15:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_120917E**	QC Batch: **40721**			PrepDate:	**9/16/2012**		Analyst: **CEI**
Arsenic	8.5	0.035	0.10		µg/L	1	9/17/2012 07:12 PM
Manganese	140	0.16	0.50		µg/L	1	9/17/2012 07:12 PM
Molybdenum	45	0.074	0.50		µg/L	1	9/17/2012 07:12 PM
Selenium	3.6	0.42	2.5		µg/L	5	9/20/2012 08:58 PM

Qualifiers:

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

CLIENT: CH2M HILL
Lab Order: N008503
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008503-003

Client Sample ID: MW-62-190-187
Collection Date: 9/13/2012 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_120917E**	QC Batch: **40721**				PrepDate:	**9/16/2012**	Analyst: **CEI**
Arsenic	5.9	0.035	0.10		µg/L	1	9/17/2012 07:22 PM
Manganese	790	0.80	2.5		µg/L	5	9/17/2012 07:17 PM
Molybdenum	76	0.37	2.5		µg/L	5	9/17/2012 07:17 PM
Selenium	ND	0.42	2.5		µg/L	5	9/20/2012 09:03 PM

Qualifiers:

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

CLIENT: CH2M HILL
Lab Order: N008503
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008503-004

Client Sample ID: MW-73-080-187
Collection Date: 9/13/2012 9:14:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_120917E**	QC Batch: **40721**			PrepDate:	**9/16/2012**		Analyst: **CEI**
Arsenic	1.6	0.035	0.10		µg/L	1	9/17/2012 07:42 PM
Manganese	22	0.16	0.50		µg/L	1	9/17/2012 07:42 PM
Molybdenum	23	0.37	2.5		µg/L	5	9/17/2012 07:27 PM
Selenium	6.2	0.42	2.5		µg/L	5	9/20/2012 09:08 PM

Qualifiers:

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

CLIENT: CH2M HILL
Work Order: N008503
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **MB-40721** SampType: **MBLK** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **9/16/2012** RunNo: **85632**
Client ID: **PBW** Batch ID: **40721** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **9/17/2012** SeqNo: **1446746**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.068	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID: **LCS-40721** SampType: **LCS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **9/16/2012** RunNo: **85632**
Client ID: **LCSW** Batch ID: **40721** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **9/17/2012** SeqNo: **1446747**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.088	0.10	10.00	0	101	85	115				
Manganese	95.353	0.50	100.0	0	95.4	85	115				
Molybdenum	10.117	0.50	10.00	0	101	85	115				
Selenium	9.100	0.50	10.00	0	91.0	85	115				

Sample ID: **N008509-001B-MS** SampType: **MS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **9/16/2012** RunNo: **85632**
Client ID: **ZZZZZZ** Batch ID: **40721** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **9/17/2012** SeqNo: **1446751**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	25.029	0.10	10.00	14.25	108	75	125				
Manganese	201.423	0.50	100.0	103.6	97.9	75	125				
Molybdenum	16.020	0.50	10.00	5.097	109	75	125				
Selenium	8.762	0.50	10.00	0	87.6	75	125				

Sample ID: **N008509-001B-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **9/16/2012** RunNo: **85632**
Client ID: **ZZZZZZ** Batch ID: **40721** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **9/17/2012** SeqNo: **1446752**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	24.411	0.10	10.00	14.25	102	75	125	25.03	2.50	20	

Qualifiers:

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

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CLIENT: CH2M HILL
Work Order: N008503
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N008509-001B-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **9/16/2012** RunNo: **85632**
Client ID: **ZZZZZZ** Batch ID: **40721** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **9/17/2012** SeqNo: **1446752**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	201.418	0.50	100.0	103.6	97.9	75	125	201.4	0.00212	20	
Molybdenum	15.942	0.50	10.00	5.097	108	75	125	16.02	0.488	20	
Selenium	8.243	0.50	10.00	0	82.4	75	125	8.762	6.10	20	

Qualifiers:

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

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CH2MHILL **CHAIN OF CUSTODY RECORD** *9/13/2012 5:51:40 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-187-Q3
Turnaround Time 10 Days
Shipping Date: 9/13/2012
COC Number: 6

				Container:	1x500 ml Poly	1x500 ml Poly	1x1 Liter	1x1 Liter	1Liter Poly			
				Preservatives:	HNO3, 4°C	HNO3, 4°C	4°C	4°C	4°C			
				Filtered:	Field	Field	NA	NA	NA			
				Holding Time:	180	180	2	2	30			
	DATE	TIME	Matrix		Arsenic (6020A) Field Filtered	Metals (6020AFF) Field Filtered Mo,Se,Mn	Specific Conductance (E120.1)	Anions (E300.0) Nitrate	Extra (*)		Number of Containers	COMMENTS
MW-48-187	9/13/2012	8:07	Water				X		X	N001T03 -1	2	
MW-62-110-187	9/13/2012	15:15	Water		X	X	X	X	X	-2	4	
MW-62-190-187	9/13/2012	15:30	Water		X	X	X	X	X	-3	4	
MW-73-080-187	9/13/2012	9:14	Water		X	X	X	X	X	-4	4	
										TOTAL NUMBER OF CONTAINERS	14	

	Signatures	Date/Time
Approved by		9-13-12
Sampled by		1830
Relinquished by		9/13/12 1830
Received by		9/13/12 2057
Relinquished by		9/13/12 2057
Received by		

Shipping Details
Method of Shipment: courier
On Ice: ~~yes~~ / no 4-6°C
Airbill No: IR#1
Lab Name: ADVANCED TECHNOLOGY LABORATO
Lab Phone: (702) 307-2659

ATTN:
Sample Custody
and
Marlon

Special Instructions:
September 12 to October 17, 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:	9/13/2012	Workorder:	N008503
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 9/14/12

Reviewed By:

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 **N008503-002B**, concentration in mg/L are calculated as follows:

Nitrate, mg/L = 0.846 * 5

= 4.23 mg/L

Reporting **N008503-002B**, results in two significant figures,

Nitrate, mg/L = 4.2 mg/L mg/L

MS 9/26/2012

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 **N008503-002C**, the concentration in ug/L is calculated as follows:

Arsenic, ug/L = 8.51243497433027 * 1 * (25/25)

= 8.51243497433027

Reporting result in two significant figures,

Arsenic, ug/L = 8.5

MSF 9/27/12

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N008503
Test Method: EPA 6020
Analysis Date: 09/17/12

Matrix: Water
Batch No.: 40721

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

Comments:

Analyzed By: Mary Claire Ignacio

Dilution Test is not applicable to Mo and Se. The calculated values were < 25X the RL. PS @ 2X passed the criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N008509-001B-DT 5X	Arsenic	µg/L	14.4498	PASSED	14.2454	-1.43%	10
N008509-001B-DT 5X	Manganese	µg/L	106.2580	PASSED	103.5618	-2.60%	10
N008509-001B-DT 5X	Molybdenum	µg/L	5.5192	NA	5.0975	-8.27%	10
N008509-001B-DT 5X	Selenium	µg/L	0.0000	NA	0.0000		10

Note: NA - Not applicable

CLIENT: CH2M HILL
Work Order: N008503
Project: PG&E Topock, 423575.MP.02.GM.02

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N008509-001B-PS**	SampType: **PS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **85632**
Client ID: **ZZZZZZ**	Batch ID: **40721**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **9/17/2012**	SeqNo: **1446750**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	34.603	0.20	20.00	14.25	102	75	125				
Manganese	295.021	1.0	200.0	103.6	95.7	75	125				
Molybdenum	25.886	1.0	20.00	5.097	104	75	125				
Selenium	17.045	1.0	20.00	0	85.2	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

October 02, 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.: N008525

RE: PG&E Topock, 423575.MP.02.GM.0

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on September 17, 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 EPA 6020_Dissolved:

Dilution was necessary on sample N008525-002 due to failing internal standards when sample was analyzed at no dilution.

Sample N008525-001 was analyzed at no dilution however, internal standards for matrix spike was not recovered indicating possible matrix interference. Hence ,sample N008525-001 and matrix spikes N008525-001B-MS/N008525-001B-MSD were reported at 5x dilution .

Advanced Technology Laboratories, Inc.

Date: *02-Oct-12*

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.0
Lab Order: N008525
Contract No: 2012-GMP-187-

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N008525-001A	MW-66-165-187	Water	9/17/2012 12:01:00 PM	9/17/2012	10/2/2012
N008525-001B	MW-66-165-187	Water	9/17/2012 12:01:00 PM	9/17/2012	10/2/2012
N008525-001C	MW-66-165-187	Water	9/17/2012 12:01:00 PM	9/17/2012	10/2/2012
N008525-002A	MW-66-230-187	Water	9/17/2012 1:03:00 PM	9/17/2012	10/2/2012
N008525-002B	MW-66-230-187	Water	9/17/2012 1:03:00 PM	9/17/2012	10/2/2012
N008525-002C	MW-66-230-187	Water	9/17/2012 1:03:00 PM	9/17/2012	10/2/2012

CLIENT: CH2M HILL
Lab Order: N008525
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008525-001

Client Sample ID: MW-66-165-187
Collection Date: 9/17/2012 12:01:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_120918C**	QC Batch: **R85597**			PrepDate:			Analyst: **KAB**
Specific Conductance	4500	0.10	0.10		umhos/cm	1	9/18/2012

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		

CLIENT: CH2M HILL
Lab Order: N008525
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008525-002

Client Sample ID: MW-66-230-187
Collection Date: 9/17/2012 1:03:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_120918C**	QC Batch: **R85597**			PrepDate:			Analyst: **KAB**
Specific Conductance	19000	0.10	0.10		umhos/cm	1	9/18/2012

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		

CLIENT: CH2M HILL
Work Order: N008525
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: **LCS-R85597** SampType: **LCS** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **85597**
Client ID: **LCSW** Batch ID: **R85597** TestNo: **EPA 120.1** Analysis Date: **9/18/2012** SeqNo: **1444948**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	9980.000	0.10	9977	0	100	85	115				

Sample ID: **N008525-001C-DUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **85597**
Client ID: **ZZZZZZ** Batch ID: **R85597** TestNo: **EPA 120.1** Analysis Date: **9/18/2012** SeqNo: **1444950**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	4490.000	0.10						4480	0.223	10	

Sample ID: **N008525-001C-MS** SampType: **MS** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **85597**
Client ID: **ZZZZZZ** Batch ID: **R85597** TestNo: **EPA 120.1** Analysis Date: **9/18/2012** SeqNo: **1444951**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	14520.000	0.20	9977	4480	101	75	125				

Sample ID: **N008525-001C-MSD** SampType: **MSD** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **85597**
Client ID: **ZZZZZZ** Batch ID: **R85597** TestNo: **EPA 120.1** Analysis Date: **9/18/2012** SeqNo: **1444952**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	14520.000	0.20	9977	4480	101	75	125	14520	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
Lab Order: N008525
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008525-001

Client Sample ID: MW-66-165-187
Collection Date: 9/17/2012 12:01:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_120918A**	QC Batch: **R85753**			PrepDate:			Analyst: **QBM**
Nitrate as N	30	0.28	10		mg/L	20	9/18/2012 11:47 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		

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-66-230-187
Lab Order:	N008525	**Collection Date:**	9/17/2012 1:03:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008525-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_120918A**	QC Batch: **R85753**			PrepDate:			Analyst: **QBM**
Nitrate as N	12	0.070	2.5		mg/L	5	9/18/2012 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		

CLIENT: CH2M HILL
Work Order: N008525
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 300W_NO3PGE

Sample ID: **MB-R85753_NO3** SampType: **MBLK** TestCode: **300W_NO3P** Units: **mg/L** Prep Date: RunNo: **85753**
Client ID: **PBW** Batch ID: **R85753** TestNo: **EPA 300.0** Analysis Date: **9/18/2012** SeqNo: **1450752**

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-R85753_NO3** SampType: **LCS** TestCode: **300W_NO3P** Units: **mg/L** Prep Date: RunNo: **85753**
Client ID: **LCSW** Batch ID: **R85753** TestNo: **EPA 300.0** Analysis Date: **9/18/2012** SeqNo: **1450753**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate as N	2.448	0.50	2.500	0	97.9	90	110				

Sample ID: **N008525-001CDUP** SampType: **DUP** TestCode: **300W_NO3P** Units: **mg/L** Prep Date: RunNo: **85753**
Client ID: **ZZZZZZ** Batch ID: **R85753** TestNo: **EPA 300.0** Analysis Date: **9/18/2012** SeqNo: **1450756**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate as N	30.000	10						30.30	0.995	20	

Sample ID: **N008525-001CMS** SampType: **MS** TestCode: **300W_NO3P** Units: **mg/L** Prep Date: RunNo: **85753**
Client ID: **ZZZZZZ** Batch ID: **R85753** TestNo: **EPA 300.0** Analysis Date: **9/18/2012** SeqNo: **1450757**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate as N	79.220	10	50.00	30.30	97.8	80	120				

Sample ID: **N008525-001CMSD** SampType: **MSD** TestCode: **300W_NO3P** Units: **mg/L** Prep Date: RunNo: **85753**
Client ID: **ZZZZZZ** Batch ID: **R85753** TestNo: **EPA 300.0** Analysis Date: **9/18/2012** SeqNo: **1450758**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate as N	79.940	10	50.00	30.30	99.3	80	120	79.22	0.905	20	

Qualifiers:

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

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CLIENT: CH2M HILL
Lab Order: N008525
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008525-001

Client Sample ID: MW-66-165-187
Collection Date: 9/17/2012 12:01:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **ICP7_120928B**	QC Batch: **40747**				PrepDate:	**9/24/2012**	Analyst: **CEI**
Arsenic	1.8	0.17	0.50		µg/L	5	9/28/2012 04:35 PM
Manganese	ND	0.80	2.5		µg/L	5	9/28/2012 04:35 PM
Molybdenum	6.4	0.37	2.5		µg/L	5	9/28/2012 04:35 PM
Selenium	36	0.42	2.5		µg/L	5	9/28/2012 04:35 PM

Qualifiers:

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

CLIENT: CH2M HILL
Lab Order: N008525
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008525-002

Client Sample ID: MW-66-230-187
Collection Date: 9/17/2012 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_120928B**	QC Batch: **40747**				PrepDate:	**9/24/2012**	Analyst: **CEI**
Arsenic	6.9	0.17	0.50		µg/L	5	9/28/2012 04:55 PM
Manganese	26	0.80	2.5		µg/L	5	9/28/2012 04:55 PM
Molybdenum	79	0.37	2.5		µg/L	5	9/28/2012 04:55 PM
Selenium	10	0.42	2.5		µg/L	5	9/28/2012 04:55 PM

Qualifiers:

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

CLIENT: CH2M HILL
Work Order: N008525
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **MB-40747** SampType: **MBLK** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **9/24/2012** RunNo: **85754**
Client ID: **PBW** Batch ID: **40747** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **9/28/2012** SeqNo: **1450768**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.051	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID: **LCS-40747** SampType: **LCS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **9/24/2012** RunNo: **85754**
Client ID: **LCSW** Batch ID: **40747** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **9/28/2012** SeqNo: **1450769**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.549	0.10	10.00	0	105	85	115				
Manganese	100.141	0.50	100.0	0	100	85	115				
Molybdenum	10.289	0.50	10.00	0	103	85	115				
Selenium	10.328	0.50	10.00	0	103	85	115				

Sample ID: **N008525-001B-MS** SampType: **MS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **9/24/2012** RunNo: **85754**
Client ID: **ZZZZZZ** Batch ID: **40747** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **9/28/2012** SeqNo: **1450776**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	93.738	2.5	100.0	0	93.7	75	125				
Molybdenum	17.587	2.5	10.00	6.449	111	75	125				

Sample ID: **N008525-001B-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **9/24/2012** RunNo: **85754**
Client ID: **ZZZZZZ** Batch ID: **40747** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **9/28/2012** SeqNo: **1450777**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	95.750	2.5	100.0	0	95.7	75	125	93.74	2.12	20	
Molybdenum	17.412	2.5	10.00	6.449	110	75	125	17.59	1.00	20	

Qualifiers:

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

Advanced Technology Laboratories, Inc.
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CLIENT: CH2M HILL
Work Order: N008525
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N008525-001B-MS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **9/24/2012**	RunNo: **85771**
Client ID: **ZZZZZZ**	Batch ID: **40747**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/1/2012**	SeqNo: **1451424**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	12.741	0.50	10.00	1.815	109	75	125				
Selenium	44.130	2.5	10.00	36.34	77.9	75	125				

Sample ID: **N008525-001B-MSD**	SampType: **MSD**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **9/24/2012**	RunNo: **85771**
Client ID: **ZZZZZZ**	Batch ID: **40747**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/1/2012**	SeqNo: **1451425**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	11.377	0.50	10.00	1.815	95.6	75	125	12.74	11.3	20	
Selenium	44.090	2.5	10.00	36.34	77.5	75	125	44.13	0.0924	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** *9/17/2012 1:58:41 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-187-Q3
Turnaround Time 10 Days
Shipping Date: 9/17/2012
COC Number: 8

	Container:	1x500 ml Poly	1x500 ml Poly	1x1 Liter	1x1 Liter	1Liter Poly			
	Preservatives:	HNO3, 4°C	HNO3, 4°C	4°C	4°C	4°C			
	Filtered:	Field	Field	NA	NA	NA			
	Holding Time:	180	180	2	2	30			
DATE / TIME / Matrix		Arsenic (6020A) Field Filtered	Metals (6020AFF) Field Filtered Mo,Se,Mn	Specific Conductance (E120.1)	Anions (E300.0) Nitrate	Extra (*)		Number of Containers	COMMENTS
MW-66-165-187	9/17/2012 12:01 Water	X	X	X	X	X		4	
MW-66-230-187	9/17/2012 13:03 Water	X	X	X	X	X		4	
							TOTAL NUMBER OF CONTAINERS	8	

525
NO08479 9/18/12
-1
-2

	Signatures	Date/Time
Approved by		9-17-12
Sampled by		1620
Relinquished by		9/17/12 1620
Received by		9/17/12 1855
Relinquished by		9/17/12 1855
Received by		9/17/12 1855

Shipping Details
Method of Shipment: courier
On Ice: ~~yes~~ / no 3-2 °C
Airbill No: 1R#1
Lab Name: ADVANCED TECHNOLOGY LABORATO
Lab Phone: (702) 307-2659

ATTN:
Sample Custody
and
Marion

Special Instructions:
September 12 to October 17, 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:	9/17/2012	Workorder:	N008525
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 9/18/12

Reviewed By:

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 **N008525-001C**, concentration in mg/L are calculated as follows:

Nitrate, mg/L = 1.515 * 20

= 30.3 mg/L

Reporting **N008525-001C**, results in two significant figures,

Nitrate, mg/L = 30 mg/L Rev 1.1

MS 10/1/2012

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 **N008525-001B**, the concentration in ug/L is calculated as follows:

Arsenic, ug/L	=	0.36307 * 5 * (25/25)
	=	1.815341

Reporting results in two significant figures,

Arsenic, ug/L	=	**1.8**

MJ for 10/2/12

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N008525
Test Method: EPA 6020
Analysis Date: 9/28/2012 7 10/1/2012

Matrix: Water
Batch No.: 40747

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

Comments: As ns for 10/2/12

Analyzed By: Mary Claire Ignacio

Dilution Test is not applicable to Mn & Mo. The calculated values were < 25X the RL. PS @ 5X passed the criteria.

Dilution Test of ~~As &~~ Se failed. ns for 10/2/12

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N008525-001B-DT 25X	Arsenic	µg/L	0.0000	NA	1.815340595	100.00%	10
N008525-001B-DT 25X	Manganese	µg/L	0	NA	0		10
N008525-001B-DT 25X	Molybdenum	µg/L	6.1559	NA	6.449117741	4.55%	10
N008525-001B-DT 25X	Selenium	µg/L	45.10065824	FAILED	36.34326363	24.10%	10

Note: NA - Not applicable

CLIENT: CH2M HILL
Work Order: N008525
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N008525-001B-PS**	SampType: **PS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **85754**
Client ID: **ZZZZZZ**	Batch ID: **40747**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **9/28/2012**	SeqNo: **1450774**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	482.808	2.5	500.0	0	96.6	75	125				
Molybdenum	60.597	2.5	50.00	6.449	108	75	125				
Selenium	86.580	2.5	50.00	36.34	100	75	125				

Sample ID: **N008525-001B-PS**	SampType: **PS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **85771**
Client ID: **ZZZZZZ**	Batch ID: **40747**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/1/2012**	SeqNo: **1451422**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	56.260	0.50	50.00	1.815	109	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

October 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.: N008529

RE: PG&E Topock, 423575.MP.02.GM.0

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on September 18, 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.0
Lab Order: N008529

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

Samples were received intact with proper chain of custody documentation.

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

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

Samples were analyzed within method holding time.

Analytical Comments for EPA 6020_Dissolved:

Dilution was necessary on sample N008529-003 for Selenium due to failing internal standard when sample was analyzed at lower or no dilution.

Advanced Technology Laboratories, Inc.

Date: *04-Oct-12*

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.0
Lab Order: N008529
Contract No: 2012-GMP-187-

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N008529-001A	MW-65-160-187	Water	9/18/2012 12:25:00 PM	9/18/2012	10/4/2012
N008529-001B	MW-65-160-187	Water	9/18/2012 12:25:00 PM	9/18/2012	10/4/2012
N008529-001C	MW-65-160-187	Water	9/18/2012 12:25:00 PM	9/18/2012	10/4/2012
N008529-002A	MW-65-225-187	Water	9/18/2012 1:16:00 PM	9/18/2012	10/4/2012
N008529-002B	MW-65-225-187	Water	9/18/2012 1:16:00 PM	9/18/2012	10/4/2012
N008529-002C	MW-65-225-187	Water	9/18/2012 1:16:00 PM	9/18/2012	10/4/2012
N008529-003A	MW-70BR-225-187	Water	9/18/2012 10:16:00 AM	9/18/2012	10/4/2012
N008529-003B	MW-70BR-225-187	Water	9/18/2012 10:16:00 AM	9/18/2012	10/4/2012
N008529-003C	MW-70BR-225-187	Water	9/18/2012 10:16:00 AM	9/18/2012	10/4/2012

CLIENT: CH2M HILL
Lab Order: N008529
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008529-001

Client Sample ID: MW-65-160-187
Collection Date: 9/18/2012 12:25:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_120919G**	QC Batch: **R85621**			PrepDate:			Analyst: **KAB**
Specific Conductance	4300	0.10	0.10		umhos/cm	1	9/19/2012

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		

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-65-225-187
Lab Order:	N008529	**Collection Date:**	9/18/2012 1:16:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008529-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_120919G**	QC Batch: **R85621**			PrepDate:			Analyst: **KAB**
Specific Conductance	12000	0.10	0.10		umhos/cm	1	9/19/2012

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		

CLIENT: CH2M HILL
Lab Order: N008529
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008529-003

Client Sample ID: MW-70BR-225-187
Collection Date: 9/18/2012 10:16:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_120919G**	QC Batch: **R85621**			PrepDate:			Analyst: **KAB**
Specific Conductance	14000	0.10	0.10		umhos/cm	1	9/19/2012

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		

CLIENT: CH2M HILL
Work Order: N008529
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: **LCS-R85621** SampType: **LCS** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **85621**
Client ID: **LCSW** Batch ID: **R85621** TestNo: **EPA 120.1** Analysis Date: **9/19/2012** SeqNo: **1446338**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	9980.000	0.10	9977	0	100	85	115				

Sample ID: **N008529-001B-DUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **85621**
Client ID: **ZZZZZZ** Batch ID: **R85621** TestNo: **EPA 120.1** Analysis Date: **9/19/2012** SeqNo: **1446340**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	4330.000	0.10						4330	0	10	

Sample ID: **N008529-001B-MS** SampType: **MS** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **85621**
Client ID: **ZZZZZZ** Batch ID: **R85621** TestNo: **EPA 120.1** Analysis Date: **9/19/2012** SeqNo: **1446341**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	14780.000	0.20	9977	4330	105	75	125				

Sample ID: **N008529-001B-MSD** SampType: **MSD** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **85621**
Client ID: **ZZZZZZ** Batch ID: **R85621** TestNo: **EPA 120.1** Analysis Date: **9/19/2012** SeqNo: **1446342**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	14780.000	0.20	9977	4330	105	75	125	14780	0	10	

Qualifiers:

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

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-65-160-187
Lab Order:	N008529	**Collection Date:**	9/18/2012 12:25:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008529-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_120919A**	QC Batch: **R85760**			PrepDate:			Analyst: **QBM**
Nitrate as N	8.6	0.070	2.5		mg/L	5	9/19/2012 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		

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-65-225-187
Lab Order:	N008529	**Collection Date:**	9/18/2012 1:16:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008529-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_120919A**	QC Batch: **R85760**			PrepDate:			Analyst: **QBM**
Nitrate as N	8.1	0.070	2.5		mg/L	5	9/19/2012 11:32 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		

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-70BR-225-187
Lab Order:	N008529	**Collection Date:**	9/18/2012 10:16:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008529-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_120919A**	QC Batch: **R85760**			PrepDate:			Analyst: **QBM**
Nitrate as N	3.6	0.070	2.5		mg/L	5	9/19/2012 11:44 AM

Qualifiers:

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

CLIENT: CH2M HILL
Work Order: N008529
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 300W_NO3PGE

Sample ID: **MB-R85760_NO3** SampType: **MBLK** TestCode: **300W_NO3P** Units: **mg/L** Prep Date: RunNo: **85760**
Client ID: **PBW** Batch ID: **R85760** TestNo: **EPA 300.0** Analysis Date: **9/19/2012** SeqNo: **1451028**

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-R85760_NO3** SampType: **LCS** TestCode: **300W_NO3P** Units: **mg/L** Prep Date: RunNo: **85760**
Client ID: **LCSW** Batch ID: **R85760** TestNo: **EPA 300.0** Analysis Date: **9/19/2012** SeqNo: **1451029**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate as N	2.435	0.50	2.500	0	97.4	90	110				

Sample ID: **N008529-001BDUP** SampType: **DUP** TestCode: **300W_NO3P** Units: **mg/L** Prep Date: RunNo: **85760**
Client ID: **ZZZZZZ** Batch ID: **R85760** TestNo: **EPA 300.0** Analysis Date: **9/19/2012** SeqNo: **1451033**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate as N	8.810	2.5						8.605	2.35	20	

Sample ID: **N008529-002BMS** SampType: **MS** TestCode: **300W_NO3P** Units: **mg/L** Prep Date: RunNo: **85760**
Client ID: **ZZZZZZ** Batch ID: **R85760** TestNo: **EPA 300.0** Analysis Date: **9/19/2012** SeqNo: **1451034**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate as N	20.455	2.5	12.50	8.060	99.2	80	120				

Sample ID: **N008529-002BMSD** SampType: **MSD** TestCode: **300W_NO3P** Units: **mg/L** Prep Date: RunNo: **85760**
Client ID: **ZZZZZZ** Batch ID: **R85760** TestNo: **EPA 300.0** Analysis Date: **9/19/2012** SeqNo: **1451035**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate as N	20.430	2.5	12.50	8.060	99.0	80	120	20.46	0.122	20	

Qualifiers:

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

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Lab Order: N008529
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008529-001

Client Sample ID: MW-65-160-187
Collection Date: 9/18/2012 12:25:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_121001A**	QC Batch: **40747**			PrepDate:	**9/24/2012**		Analyst: **CEI**
Arsenic	0.90	0.035	0.10		µg/L	1	10/1/2012 04:16 PM
Manganese	68	0.16	0.50		µg/L	1	10/1/2012 04:16 PM
Molybdenum	29	0.074	0.50		µg/L	1	10/1/2012 04:16 PM
Selenium	6.4	0.084	0.50		µg/L	1	10/1/2012 04:16 PM

CLIENT: CH2M HILL
Lab Order: N008529
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008529-002

Client Sample ID: MW-65-225-187
Collection Date: 9/18/2012 1:16:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_121001A**	QC Batch: **40747**			PrepDate:	**9/24/2012**		Analyst: **CEI**
Arsenic	2.3	0.035	0.10		µg/L	1	10/1/2012 04:21 PM
Manganese	91	0.16	0.50		µg/L	1	10/1/2012 04:21 PM
Molybdenum	34	0.37	2.5		µg/L	5	9/28/2012 07:48 PM
Selenium	5.8	0.084	0.50		µg/L	1	10/1/2012 04:21 PM

Qualifiers:

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

CLIENT: CH2M HILL
Lab Order: N008529
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008529-003

Client Sample ID: MW-70BR-225-187
Collection Date: 9/18/2012 10:16:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_121001A**	QC Batch: **40747**			PrepDate:	**9/24/2012**		Analyst: **CEI**
Arsenic	2.1	0.035	0.10		µg/L	1	10/1/2012 04:26 PM
Manganese	ND	0.16	0.50		µg/L	1	10/1/2012 04:26 PM
Molybdenum	16	0.37	2.5		µg/L	5	9/28/2012 07:53 PM
Selenium	ND	0.84	5.0		µg/L	10	9/28/2012 09:31 PM

Qualifiers:

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

CLIENT: CH2M HILL
Work Order: N008529
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **MB-40747** SampType: **MBLK** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **9/24/2012** RunNo: **85754**
Client ID: **PBW** Batch ID: **40747** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **9/28/2012** SeqNo: **1450768**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.051	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID: **LCS-40747** SampType: **LCS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **9/24/2012** RunNo: **85754**
Client ID: **LCSW** Batch ID: **40747** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **9/28/2012** SeqNo: **1450769**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.549	0.10	10.00	0	105	85	115				
Manganese	100.141	0.50	100.0	0	100	85	115				
Molybdenum	10.289	0.50	10.00	0	103	85	115				
Selenium	10.328	0.50	10.00	0	103	85	115				

Sample ID: **N008525-001B-MS** SampType: **MS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **9/24/2012** RunNo: **85754**
Client ID: **ZZZZZZ** Batch ID: **40747** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **9/28/2012** SeqNo: **1450776**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	93.738	2.5	100.0	0	93.7	75	125				
Molybdenum	17.587	2.5	10.00	6.449	111	75	125				

Sample ID: **N008525-001B-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **9/24/2012** RunNo: **85754**
Client ID: **ZZZZZZ** Batch ID: **40747** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **9/28/2012** SeqNo: **1450777**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	95.750	2.5	100.0	0	95.7	75	125	93.74	2.12	20	
Molybdenum	17.412	2.5	10.00	6.449	110	75	125	17.59	1.00	20	

Qualifiers:

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

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N008529
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N008525-001B-MS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **9/24/2012**	RunNo: **85771**
Client ID: **ZZZZZZ**	Batch ID: **40747**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/1/2012**	SeqNo: **1451424**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	12.741	0.50	10.00	1.815	109	75	125				
Selenium	44.130	2.5	10.00	36.34	77.9	75	125				

Sample ID: **N008525-001B-MSD**	SampType: **MSD**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **9/24/2012**	RunNo: **85771**
Client ID: **ZZZZZZ**	Batch ID: **40747**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/1/2012**	SeqNo: **1451425**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	11.377	0.50	10.00	1.815	95.6	75	125	12.74	11.3	20	
Selenium	44.090	2.5	10.00	36.34	77.5	75	125	44.13	0.0924	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** *9/18/2012 3:24:44 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-187-Q3
Turnaround Time 10 Days
Shipping Date: 9/18/2012
COC Number: 9

	Container:	1x500 ml Poly	1x500 ml Poly	1x1 Liter	1x1 Liter	1Liter Poly			
	Preservatives:	HNO3, 4°C	HNO3, 4°C	4°C	4°C	4°C			
	Filtered:	Field	Field	NA	NA	NA			
	Holding Time:	180	180	2	2	30			
DATE	TIME	Matrix	Arsenic (6020A) Field Filtered	Metals (6020AFF) Field Filtered Mo,Se,Mn	Specific Conductance (E120.1)	Anions (E300.0) Nitrate	Extra (*)		Number of Containers	COMMENTS
MW-65-160-187	9/18/2012	12:25	Water	X	X	X	X	X	N0085294-001	4	
MW-65-225-187	9/18/2012	13:16	Water	X	X	X	X	X	2	4	
MW-70BR-225-187	9/18/2012	10:16	Water	X	X	X	X	X	3	4	
									TOTAL NUMBER OF CONTAINERS	12	

	Signatures	Date/Time
Approved by		9-18-12
Sampled by		
Relinquished by		1550
Received by		9/18/12 1550
Relinquished by		9/18/12 1830
Received by		9/18/12 1830

Shipping Details
Method of Shipment: courier
On Ice: ~~yes~~ no 2.8°C
Airbill No: IR#1
Lab Name: ADVANCED TECHNOLOGY LABORATO
Lab Phone: (702) 307-2659

ATTN:
Sample Custody
and
Marlon

Special Instructions:
September 12 to October 17, 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:	9/18/2012	Workorder:	N008529
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 By MBC 9/19/12

Reviewed By:

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 **N008529-001B**, concentration in mg/L are calculated as follows:

Nitrate, mg/L = 1.721 * 5

= 8.605 mg/L

Reporting **N008529-001B**, results in two significant figures,

Nitrate, mg/L = 8.6 mg/L ✓ Awl2L

MS 10/2/2012

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

A MS fr 10/3/12

For Sample **N008529-001B**, the concentration in ug/L is calculated as follows:

Arsenic, ug/L	=	0.89689 * 1 * (25/25)
	=	0.89689

Reporting results in two significant figures,

Arsenic, ug/L	=	**0.90**

MS fr
10/3/12

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N008529
Test Method: EPA 6020
Analysis Date: 9/28/2012 7 10/1/2012

Matrix: Water
Batch No.: 40747

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

Comments: MS for 10/3/12

Analyzed By: Mary Claire Ignacio

Dilution Test is not applicable to As, Mn & Mo. The calculated values were < 25X the RL. PS @ 5X passed the criteria.
Dilution Test of ~~As~~ & Se failed.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N008525-001B-DT 25X	Arsenic	µg/L	0.0000	NA	1.815340595	100.00%	10
N008525-001B-DT 25X	Manganese	µg/L	0	NA	0		10
N008525-001B-DT 25X	Molybdenum	µg/L	6.1559	NA	6.449117741	4.55%	10
N008525-001B-DT 25X	Selenium	µg/L	45.10065824	FAILED	36.34326363	24.10%	10

Note: NA - Not applicable

CLIENT: CH2M HILL
Work Order: N008529
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N008525-001B-PS**	SampType: **PS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **85754**
Client ID: **ZZZZZZ**	Batch ID: **40747**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **9/28/2012**	SeqNo: **1450774**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	482.808	2.5	500.0	0	96.6	75	125				
Molybdenum	60.597	2.5	50.00	6.449	108	75	125				
Selenium	86.580	2.5	50.00	36.34	100	75	125				

Sample ID: **N008525-001B-PS**	SampType: **PS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **85771**
Client ID: **ZZZZZZ**	Batch ID: **40747**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/1/2012**	SeqNo: **1451422**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	56.260	0.50	50.00	1.815	109	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

October 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.: N008535

RE: PG&E Topock, 423575.MP.02.GM.0

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,

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:

Samples were diluted due to the high concentration of Chloride.

Analytical Comments for EPA 6020_Dissolved:

Dilution was necessary for sample N008535-001 due to failing internal standard when sample was analyzed at no dilution.

Sample N008525-001 was analyzed at no dilution however, internal standards for matrix spike was not recovered indicating possible matrix interference. Hence ,sample N008525-001 and matrix spikes N008525-001B-MS/N008525-001B-MSD were reported at 5x dilution .

Advanced Technology Laboratories, Inc.

Date: *04-Oct-12*

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.0
Lab Order: N008535
Contract No: 2012-GMP-187-

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N008535-001A	MW-60BR-245-187	Water	9/19/2012 7:44:00 AM	9/19/2012	10/4/2012
N008535-001B	MW-60BR-245-187	Water	9/19/2012 7:44:00 AM	9/19/2012	10/4/2012
N008535-001C	MW-60BR-245-187	Water	9/19/2012 7:44:00 AM	9/19/2012	10/4/2012
N008535-002A	MW-69-195-187	Water	9/19/2012 3:46:00 PM	9/19/2012	10/4/2012
N008535-002B	MW-69-195-187	Water	9/19/2012 3:46:00 PM	9/19/2012	10/4/2012
N008535-002C	MW-69-195-187	Water	9/19/2012 3:46:00 PM	9/19/2012	10/4/2012
N008535-003A	MW-71-035-187	Water	9/19/2012 9:42:00 AM	9/19/2012	10/4/2012
N008535-003B	MW-71-035-187	Water	9/19/2012 9:42:00 AM	9/19/2012	10/4/2012
N008535-004A	MW-72-080-187	Water	9/19/2012 12:15:00 PM	9/19/2012	10/4/2012
N008535-004B	MW-72-080-187	Water	9/19/2012 12:15:00 PM	9/19/2012	10/4/2012
N008535-004C	MW-72-080-187	Water	9/19/2012 12:15:00 PM	9/19/2012	10/4/2012

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-60BR-245-187
Lab Order:	N008535	**Collection Date:**	9/19/2012 7:44:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008535-001		

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	18000	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		

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-69-195-187
Lab Order:	N008535	**Collection Date:**	9/19/2012 3:46:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008535-002		

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	3900	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		

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-71-035-187
Lab Order:	N008535	**Collection Date:**	9/19/2012 9:42:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008535-003		

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	7500	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		

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-72-080-187
Lab Order:	N008535	**Collection Date:**	9/19/2012 12:15:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008535-004		

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	15000	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		

CLIENT: CH2M HILL
Work Order: N008535
Project: PG&E Topock, 423575.MP.02.GM.0

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

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-60BR-245-187
Lab Order:	N008535	**Collection Date:**	9/19/2012 7:44:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008535-001		

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**
Nitrate as N	ND	0.070	2.5		mg/L	5	9/20/2012 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		

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-69-195-187
Lab Order:	N008535	**Collection Date:**	9/19/2012 3:46:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008535-002		

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**
Nitrate as N	22	0.14	5.0		mg/L	10	9/20/2012 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		

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-71-035-187
Lab Order:	N008535	**Collection Date:**	9/19/2012 9:42:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008535-003		

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**
Nitrate as N	1.3	0.028	1.0		mg/L	2	9/20/2012 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		

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-72-080-187
Lab Order:	N008535	**Collection Date:**	9/19/2012 12:15:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008535-004		

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**
Nitrate as N	ND	0.070	2.5		mg/L	5	9/20/2012 11:37 AM

Qualifiers:

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

CLIENT: CH2M HILL
Work Order: N008535
Project: PG&E Topock, 423575.MP.02.GM.0

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

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CLIENT: CH2M HILL
Lab Order: N008535
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008535-001

Client Sample ID: MW-60BR-245-187
Collection Date: 9/19/2012 7:44:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_121001A**	QC Batch: **40747**			PrepDate:	**9/24/2012**		Analyst: **CEI**
Arsenic	8.1	0.035	0.10		µg/L	1	10/1/2012 04:31 PM
Manganese	5.9	0.16	0.50		µg/L	1	10/1/2012 04:31 PM
Molybdenum	54	0.37	2.5		µg/L	5	9/28/2012 07:23 PM
Selenium	ND	0.42	2.5		µg/L	5	9/28/2012 07:23 PM

Qualifiers:

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

CLIENT: CH2M HILL
Lab Order: N008535
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008535-002

Client Sample ID: MW-69-195-187
Collection Date: 9/19/2012 3:46:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_121001A**	QC Batch: **40747**			PrepDate:	**9/24/2012**		Analyst: **CEI**
Arsenic	2.1	0.035	0.10		µg/L	1	10/1/2012 05:13 PM
Manganese	3.9	0.16	0.50		µg/L	1	10/1/2012 05:13 PM
Molybdenum	50	0.074	0.50		µg/L	1	10/1/2012 05:13 PM
Selenium	14	0.084	0.50		µg/L	1	10/1/2012 05:13 PM

Qualifiers:

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

CLIENT: CH2M HILL
Lab Order: N008535
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008535-003

Client Sample ID: MW-71-035-187
Collection Date: 9/19/2012 9:42:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_121001A**	QC Batch: **40747**			PrepDate:	**9/24/2012**		Analyst: **CEI**
Arsenic	1.7	0.035	0.10		µg/L	1	10/1/2012 05:18 PM
Manganese	190	0.16	0.50		µg/L	1	10/1/2012 05:18 PM
Molybdenum	58	0.074	0.50		µg/L	1	10/1/2012 05:18 PM
Selenium	2.5	0.084	0.50		µg/L	1	10/1/2012 05:18 PM

Qualifiers:

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

CLIENT: CH2M HILL
Lab Order: N008535
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008535-004

Client Sample ID: MW-72-080-187
Collection Date: 9/19/2012 12:15:00 PM
Matrix: WATER

DISSOLVED METALS BY ICP-MS

EPA 3010A **EPA 6020**

RunID: **ICP7_121001A** QC Batch: **40747** PrepDate: **9/24/2012** Analyst: **CEI**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
Arsenic	11	0.035	0.10		µg/L	1	10/1/2012 05:23 PM
Manganese	120	0.16	0.50		µg/L	1	10/1/2012 05:23 PM
Molybdenum	76	0.074	0.50		µg/L	1	10/1/2012 05:23 PM
Selenium	2.0	0.084	0.50		µg/L	1	10/1/2012 05:23 PM

Qualifiers:

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

CLIENT: CH2M HILL
Work Order: N008535
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **MB-40747** SampType: **MBLK** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **9/24/2012** RunNo: **85754**
Client ID: **PBW** Batch ID: **40747** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **9/28/2012** SeqNo: **1450768**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.051	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID: **LCS-40747** SampType: **LCS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **9/24/2012** RunNo: **85754**
Client ID: **LCSW** Batch ID: **40747** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **9/28/2012** SeqNo: **1450769**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.549	0.10	10.00	0	105	85	115				
Manganese	100.141	0.50	100.0	0	100	85	115				
Molybdenum	10.289	0.50	10.00	0	103	85	115				
Selenium	10.328	0.50	10.00	0	103	85	115				

Sample ID: **N008525-001B-MS** SampType: **MS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **9/24/2012** RunNo: **85754**
Client ID: **ZZZZZZ** Batch ID: **40747** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **9/28/2012** SeqNo: **1450776**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	93.738	2.5	100.0	0	93.7	75	125				
Molybdenum	17.587	2.5	10.00	6.449	111	75	125				

Sample ID: **N008525-001B-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **9/24/2012** RunNo: **85754**
Client ID: **ZZZZZZ** Batch ID: **40747** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **9/28/2012** SeqNo: **1450777**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	95.750	2.5	100.0	0	95.7	75	125	93.74	2.12	20	
Molybdenum	17.412	2.5	10.00	6.449	110	75	125	17.59	1.00	20	

Qualifiers:

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

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CLIENT: CH2M HILL
Work Order: N008535
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N008525-001B-MS** SampType: **MS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **9/24/2012** RunNo: **85771**
Client ID: **ZZZZZZ** Batch ID: **40747** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **10/1/2012** SeqNo: **1451424**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	12.741	0.50	10.00	1.815	109	75	125				
Selenium	44.130	2.5	10.00	36.34	77.9	75	125				

Sample ID: **N008525-001B-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **9/24/2012** RunNo: **85771**
Client ID: **ZZZZZZ** Batch ID: **40747** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **10/1/2012** SeqNo: **1451425**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	11.377	0.50	10.00	1.815	95.6	75	125	12.74	11.3	20	
Selenium	44.090	2.5	10.00	36.34	77.5	75	125	44.13	0.0924	20	

Qualifiers:

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

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CH2MHILL

CHAIN OF CUSTODY RECORD

9/19/2012 4:20:11 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-187-Q3
Turnaround Time 10 Days
Shipping Date: 9/19/2012
COC Number: 11

			Container:	1x500 ml Poly	1x500 ml Poly	1x1 Liter	1x1 Liter	1Liter Poly			
			Preservatives:	HNO3, 4°C	HNO3, 4°C	4°C	4°C	4°C			
			Filtered:	Field	Field	NA	NA	NA			
			Holding Time:	180	180	2	2	30			
	DATE	TIME	Matrix	Arsenic (6020A) Field Filtered	Metals (6020AFF) Field Filtered Mo,Se,Mn	Specific Conductance (E120.1)	Anions (E300.0) Nitrate	Extra (*)		Number of Containers	COMMENTS
MW-60BR-245-187	9/19/2012	7:44	Water	X	X	X	X	X	N008535-1	3	
MW-69-195-187	9/19/2012	15:46	Water	X	X	X	X	X	-2	3	
MW-71-035-187	9/19/2012	9:42	Water	X	X	X	X		-3	2	
MW-72-080-187	9/19/2012	12:15	Water	X	X	X	X	X	-4	3	
									TOTAL NUMBER OF CONTAINERS	~~15~~ 11	BEC

	Signatures	Date/Time
Approved by		9-19-12
Sampled by		1800
Relinquished by		
Received by	[signature]	9/19/12 @ 1900
Relinquished by		
Received by		

Shipping Details

Method of Shipment: courier
On Ice: yes / no 4.8°C
Airbill No: ICE 1R#2
Lab Name: ADVANCED TECHNOLOGY LABORATO
Lab Phone: (702) 307-2659

ATTN:
Sample Custody
and
Marlon

Special Instructions:
September 12 to October 17, 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:	9/19/2012	Workorder:	N008535
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 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 **N008535-002B**, concentration in mg/L are calculated as follows:

Nitrate, mg/L = 2.182 * 10

= 21.82 mg/L

Reporting **N008535-002B**, results in two significant figures,

Nitrate, mg/L = 22 mg/L ✓ A 10/3 L

MS 10/3/2012

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

A is for water

For Sample **N008535-001B**, the concentration in ug/L is calculated as follows:

Arsenic, ug/L	=	8.06842 * 1 * (25/25)
	=	8.06842

Reporting results in two significant figures,

Arsenic, ug/L	=	**8.1**

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N008535
Test Method: EPA 6020
Analysis Date: 9/28/2012 7 10/1/2012

Matrix: Water
Batch No.: 40747

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

Comments: As Mn fr 10/4/12

Analyzed By: Mary Claire Ignacio

Dilution Test is not applicable to Mn & Mo. The calculated values were < 25X the RL. PS @ 5X passed the criteria.
Dilution Test of As & Se failed.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N008525-001B-DT 25X	Arsenic	µg/L	0.0000	NA	1.815340595	100.00%	10
N008525-001B-DT 25X	Manganese	µg/L	0	NA	0		10
N008525-001B-DT 25X	Molybdenum	µg/L	6.1559	NA	6.449117741	4.55%	10
N008525-001B-DT 25X	Selenium	µg/L	45.10065824	FAILED	36.34326363	24.10%	10

Note: NA - Not applicable

CLIENT: CH2M HILL
Work Order: N008535
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: N008525-001B-PS	SampType: PS	TestCode: 6020_DIS	Units: µg/L	Prep Date:	RunNo: 85754
Client ID: ZZZZZZ	Batch ID: 40747	TestNo: EPA 6020	EPA 3010A	Analysis Date: 9/28/2012	SeqNo: 1450774

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	482.808	2.5	500.0	0	96.6	75	125				
Molybdenum	60.597	2.5	50.00	6.449	108	75	125				
Selenium	86.580	2.5	50.00	36.34	100	75	125				

Sample ID: N008525-001B-PS	SampType: PS	TestCode: 6020_DIS	Units: µg/L	Prep Date:	RunNo: 85771
Client ID: ZZZZZZ	Batch ID: 40747	TestNo: EPA 6020	EPA 3010A	Analysis Date: 10/1/2012	SeqNo: 1451422

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	56.260	0.50	50.00	1.815	109	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

October 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.: N008544

RE: PG&E Topock, 423575.MP.02.GM.0

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on September 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 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.

SAMPLE RECEIVING/GENERAL COMMENTS:

Samples were received intact with proper chain of custody documentation.

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

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

Samples were analyzed within method holding time.

Analytical Comments for EPA 6020_Dissolved:

Sample N008525-001 was analyzed at no dilution however, internal standards for matrix spike was not recovered indicating possible matrix interference. Hence ,sample N008525-001 and matrix spikes N008525-001B-MS/N008525-001B-MSD were reported at 5x dilution .

Analytical Comments for EPA 300.0:

Samples were diluted due to the high concentration of Chloride.

Advanced Technology Laboratories, Inc.

Date: *04-Oct-12*

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.0
Lab Order: N008544
Contract No: 2012-GMP-187-

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N008544-001A	MW-60-125-187	Water	9/20/2012 11:28:00 AM	9/20/2012	10/4/2012
N008544-001B	MW-60-125-187	Water	9/20/2012 11:28:00 AM	9/20/2012	10/4/2012
N008544-001C	MW-60-125-187	Water	9/20/2012 11:28:00 AM	9/20/2012	10/4/2012
N008544-002A	MW-67-185-187	Water	9/20/2012 1:10:00 PM	9/20/2012	10/4/2012
N008544-002B	MW-67-185-187	Water	9/20/2012 1:10:00 PM	9/20/2012	10/4/2012
N008544-002C	MW-67-185-187	Water	9/20/2012 1:10:00 PM	9/20/2012	10/4/2012
N008544-003A	MW-67-225-187	Water	9/20/2012 1:09:00 PM	9/20/2012	10/4/2012
N008544-003B	MW-67-225-187	Water	9/20/2012 1:09:00 PM	9/20/2012	10/4/2012
N008544-003C	MW-67-225-187	Water	9/20/2012 1:09:00 PM	9/20/2012	10/4/2012
N008544-004A	MW-67-260-187	Water	9/20/2012 3:29:00 PM	9/20/2012	10/4/2012
N008544-004B	MW-67-260-187	Water	9/20/2012 3:29:00 PM	9/20/2012	10/4/2012
N008544-004C	MW-67-260-187	Water	9/20/2012 3:29:00 PM	9/20/2012	10/4/2012
N008544-005A	MW-68-180-187	Water	9/20/2012 3:20:00 PM	9/20/2012	10/4/2012
N008544-005B	MW-68-180-187	Water	9/20/2012 3:20:00 PM	9/20/2012	10/4/2012
N008544-005C	MW-68-180-187	Water	9/20/2012 3:20:00 PM	9/20/2012	10/4/2012
N008544-006A	MW-68-240-187	Water	9/20/2012 8:50:00 AM	9/20/2012	10/4/2012
N008544-006B	MW-68-240-187	Water	9/20/2012 8:50:00 AM	9/20/2012	10/4/2012
N008544-006C	MW-68-240-187	Water	9/20/2012 8:50:00 AM	9/20/2012	10/4/2012

CLIENT: CH2M HILL
Lab Order: N008544
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008544-001

Client Sample ID: MW-60-125-187
Collection Date: 9/20/2012 11:28:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_120921B**	QC Batch: **R85640**			PrepDate:			Analyst: **KAB**
Specific Conductance	9600	0.10	0.10		umhos/cm	1	9/21/2012

Qualifiers:

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

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-67-185-187
Lab Order:	N008544	**Collection Date:**	9/20/2012 1:10:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008544-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_120921B**	QC Batch: **R85640**			PrepDate:			Analyst: **KAB**
Specific Conductance	4700	0.10	0.10		umhos/cm	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		

CLIENT: CH2M HILL
Lab Order: N008544
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008544-003

Client Sample ID: MW-67-225-187
Collection Date: 9/20/2012 1:09:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_120921B**	QC Batch: **R85640**			PrepDate:			Analyst: **KAB**
Specific Conductance	8000	0.10	0.10		umhos/cm	1	9/21/2012

Qualifiers:

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

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-67-260-187
Lab Order:	N008544	**Collection Date:**	9/20/2012 3:29:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008544-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_120921B**	QC Batch: **R85640**			PrepDate:			Analyst: **KAB**
Specific Conductance	18000	0.10	0.10		umhos/cm	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		

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-68-180-187
Lab Order:	N008544	**Collection Date:**	9/20/2012 3:20:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008544-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_120921B**	QC Batch: **R85640**			PrepDate:			Analyst: **KAB**
Specific Conductance	4100	0.10	0.10		umhos/cm	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		

CLIENT: CH2M HILL
Lab Order: N008544
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008544-006

Client Sample ID: MW-68-240-187
Collection Date: 9/20/2012 8:50:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_120921B**	QC Batch: **R85640**			PrepDate:			Analyst: **KAB**
Specific Conductance	17000	0.10	0.10		umhos/cm	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		

CLIENT: CH2M HILL
Work Order: N008544
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: **LCS-R85640** SampType: **LCS** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **85640**
Client ID: **LCSW** Batch ID: **R85640** TestNo: **EPA 120.1** Analysis Date: **9/21/2012** SeqNo: **1447052**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	9970.000	0.10	9977	0	99.9	85	115				

Sample ID: **N008544-001C-DUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **85640**
Client ID: **ZZZZZZ** Batch ID: **R85640** TestNo: **EPA 120.1** Analysis Date: **9/21/2012** SeqNo: **1447056**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	9600.000	0.10						9590	0.104	10	

Sample ID: **N008544-001C-MS** SampType: **MS** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **85640**
Client ID: **ZZZZZZ** Batch ID: **R85640** TestNo: **EPA 120.1** Analysis Date: **9/21/2012** SeqNo: **1447057**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	19780.000	0.20	9977	9590	102	75	125				

Sample ID: **N008544-001C-MSD** SampType: **MSD** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **85640**
Client ID: **ZZZZZZ** Batch ID: **R85640** TestNo: **EPA 120.1** Analysis Date: **9/21/2012** SeqNo: **1447058**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	19780.000	0.20	9977	9590	102	75	125	19780	0	10	

Qualifiers:

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

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CLIENT:	CH2M HILL	**Client Sample ID:**	MW-60-125-187
Lab Order:	N008544	**Collection Date:**	9/20/2012 11:28:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008544-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_120921A**	QC Batch: **R85652**			PrepDate:			Analyst: **QBM**
Nitrate as N	2.9	0.070	2.5		mg/L	5	9/21/2012 03:33 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		

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-67-185-187
Lab Order:	N008544	**Collection Date:**	9/20/2012 1:10:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008544-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_120921A**	QC Batch: **R85652**			PrepDate:			Analyst: **QBM**
Nitrate as N	19	0.14	5.0		mg/L	10	9/21/2012 03:45 PM

Qualifiers:

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

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-67-225-187
Lab Order:	N008544	**Collection Date:**	9/20/2012 1:09:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008544-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_120921A**	QC Batch: **R85652**			PrepDate:			Analyst: **QBM**
Nitrate as N	19	0.14	5.0		mg/L	10	9/21/2012 03:57 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		

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-67-260-187
Lab Order:	N008544	**Collection Date:**	9/20/2012 3:29:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008544-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_120921A**	QC Batch: **R85652**			PrepDate:			Analyst: **QBM**
Nitrate as N	ND	0.14	5.0		mg/L	10	9/21/2012 04:08 PM

Qualifiers:

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

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-68-180-187
Lab Order:	N008544	**Collection Date:**	9/20/2012 3:20:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008544-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_120921A**	QC Batch: **R85652**			PrepDate:			Analyst: **QBM**
Nitrate as N	25	0.14	5.0		mg/L	10	9/21/2012 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		

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-68-240-187
Lab Order:	N008544	**Collection Date:**	9/20/2012 8:50:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008544-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_120921A**	QC Batch: **R85652**			PrepDate:			Analyst: **QBM**
Nitrate as N	ND	0.14	5.0		mg/L	10	9/21/2012 04:32 PM

Qualifiers:

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

CLIENT: CH2M HILL
Work Order: N008544
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 300W_NO3PGE

Sample ID: **MB-R85652_NO3** SampType: **MBLK** TestCode: **300W_NO3P** Units: **mg/L** Prep Date: RunNo: **85652**
Client ID: **PBW** Batch ID: **R85652** TestNo: **EPA 300.0** Analysis Date: **9/21/2012** SeqNo: **1447290**

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-R85652_NO3** SampType: **LCS** TestCode: **300W_NO3P** Units: **mg/L** Prep Date: RunNo: **85652**
Client ID: **LCSW** Batch ID: **R85652** TestNo: **EPA 300.0** Analysis Date: **9/21/2012** SeqNo: **1447291**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate as N	2.418	0.50	2.500	0	96.7	90	110				

Sample ID: **N008542-004CMS** SampType: **MS** TestCode: **300W_NO3P** Units: **mg/L** Prep Date: RunNo: **85652**
Client ID: **ZZZZZZ** Batch ID: **R85652** TestNo: **EPA 300.0** Analysis Date: **9/21/2012** SeqNo: **1447294**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate as N	2.373	0.50	2.500	0.07300	92.0	80	120				

Sample ID: **N008542-004CMSD** SampType: **MSD** TestCode: **300W_NO3P** Units: **mg/L** Prep Date: RunNo: **85652**
Client ID: **ZZZZZZ** Batch ID: **R85652** TestNo: **EPA 300.0** Analysis Date: **9/21/2012** SeqNo: **1447295**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate as N	2.399	0.50	2.500	0.07300	93.0	80	120	2.373	1.09	20	

Sample ID: **N008542-005CDUP** SampType: **DUP** TestCode: **300W_NO3P** Units: **mg/L** Prep Date: RunNo: **85652**
Client ID: **ZZZZZZ** Batch ID: **R85652** TestNo: **EPA 300.0** Analysis Date: **9/21/2012** SeqNo: **1447298**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate as N	0.077	0.50						0.08100	0	20	

Qualifiers:

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

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CLIENT: CH2M HILL
Work Order: N008544
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 300W_NO3PGE

Sample ID: **N008544-001CMS** SampType: **MS** TestCode: **300W_NO3P** Units: **mg/L** Prep Date: RunNo: **85652**
Client ID: **ZZZZZZ** Batch ID: **R85652** TestNo: **EPA 300.0** Analysis Date: **9/21/2012** SeqNo: **1447308**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate as N	14.830	2.5	12.50	2.880	95.6	80	120				

Qualifiers:

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

Advanced Technology Laboratories, Inc.
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CLIENT: CH2M HILL
Lab Order: N008544
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008544-001

Client Sample ID: MW-60-125-187
Collection Date: 9/20/2012 11:28:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_121001A**	QC Batch: **40747**			PrepDate:	**9/24/2012**		Analyst: **CEI**
Arsenic	1.7	0.035	0.10		µg/L	1	10/1/2012 05:28 PM
Manganese	10	0.16	0.50		µg/L	1	10/1/2012 05:28 PM
Molybdenum	18	0.074	0.50		µg/L	1	10/1/2012 05:28 PM
Selenium	5.2	0.084	0.50		µg/L	1	10/1/2012 05:28 PM

CLIENT: CH2M HILL
Lab Order: N008544
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008544-002

Client Sample ID: MW-67-185-187
Collection Date: 9/20/2012 1:10:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_121001A**	QC Batch: **40747**			PrepDate:	**9/24/2012**		Analyst: **CEI**
Arsenic	1.7	0.035	0.10		µg/L	1	10/1/2012 05:33 PM
Manganese	5.6	0.16	0.50		µg/L	1	10/1/2012 05:33 PM
Molybdenum	14	0.074	0.50		µg/L	1	10/1/2012 05:33 PM
Selenium	86	0.084	0.50		µg/L	1	10/1/2012 05:33 PM

Qualifiers:

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

CLIENT: CH2M HILL
Lab Order: N008544
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008544-003

Client Sample ID: MW-67-225-187
Collection Date: 9/20/2012 1:09:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_121001A**	QC Batch: **40747**			PrepDate:	**9/24/2012**		Analyst: **CEI**
Arsenic	2.8	0.035	0.10		µg/L	1	10/1/2012 05:38 PM
Manganese	42	0.16	0.50		µg/L	1	10/1/2012 05:38 PM
Molybdenum	33	0.074	0.50		µg/L	1	10/1/2012 05:38 PM
Selenium	67	0.084	0.50		µg/L	1	10/1/2012 05:38 PM

Qualifiers:

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

CLIENT: CH2M HILL
Lab Order: N008544
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008544-004

Client Sample ID: MW-67-260-187
Collection Date: 9/20/2012 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_121001A**	QC Batch: **40747**			PrepDate:	**9/24/2012**		Analyst: **CEI**
Arsenic	11	0.035	0.10		µg/L	1	10/1/2012 05:43 PM
Manganese	190	0.16	0.50		µg/L	1	10/1/2012 05:43 PM
Molybdenum	81	0.074	0.50		µg/L	1	10/1/2012 05:43 PM
Selenium	1.6	0.084	0.50		µg/L	1	10/1/2012 05:43 PM

Qualifiers:

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

CLIENT: CH2M HILL
Lab Order: N008544
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008544-005

Client Sample ID: MW-68-180-187
Collection Date: 9/20/2012 3:20:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_121001A**	QC Batch: **40747**			PrepDate:	**9/24/2012**		Analyst: **CEI**
Arsenic	2.2	0.035	0.10		µg/L	1	10/1/2012 05:48 PM
Manganese	ND	0.16	0.50		µg/L	1	10/1/2012 05:48 PM
Molybdenum	42	0.074	0.50		µg/L	1	10/1/2012 05:48 PM
Selenium	13	0.084	0.50		µg/L	1	10/1/2012 05:48 PM

Qualifiers:

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

CLIENT: CH2M HILL
Lab Order: N008544
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008544-006

Client Sample ID: MW-68-240-187
Collection Date: 9/20/2012 8:50:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_121001A**	QC Batch: **40747**			PrepDate:	**9/24/2012**		Analyst: **CEI**
Arsenic	1.7	0.035	0.10		µg/L	1	10/1/2012 05:53 PM
Manganese	100	0.16	0.50		µg/L	1	10/1/2012 05:53 PM
Molybdenum	19	0.37	2.5		µg/L	5	9/28/2012 08:49 PM
Selenium	4.1	0.084	0.50		µg/L	1	10/1/2012 05:53 PM

CLIENT: CH2M HILL
Work Order: N008544
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **MB-40747** SampType: **MBLK** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **9/24/2012** RunNo: **85754**
Client ID: **PBW** Batch ID: **40747** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **9/28/2012** SeqNo: **1450768**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.051	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID: **LCS-40747** SampType: **LCS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **9/24/2012** RunNo: **85754**
Client ID: **LCSW** Batch ID: **40747** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **9/28/2012** SeqNo: **1450769**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.549	0.10	10.00	0	105	85	115				
Manganese	100.141	0.50	100.0	0	100	85	115				
Molybdenum	10.289	0.50	10.00	0	103	85	115				
Selenium	10.328	0.50	10.00	0	103	85	115				

Sample ID: **N008525-001B-MS** SampType: **MS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **9/24/2012** RunNo: **85754**
Client ID: **ZZZZZZ** Batch ID: **40747** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **9/28/2012** SeqNo: **1450776**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	93.738	2.5	100.0	0	93.7	75	125				
Molybdenum	17.587	2.5	10.00	6.449	111	75	125				

Sample ID: **N008525-001B-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **9/24/2012** RunNo: **85754**
Client ID: **ZZZZZZ** Batch ID: **40747** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **9/28/2012** SeqNo: **1450777**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	95.750	2.5	100.0	0	95.7	75	125	93.74	2.12	20	
Molybdenum	17.412	2.5	10.00	6.449	110	75	125	17.59	1.00	20	

Qualifiers:

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

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N008544
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N008525-001B-MS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **9/24/2012**	RunNo: **85771**
Client ID: **ZZZZZZ**	Batch ID: **40747**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/1/2012**	SeqNo: **1451424**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	12.741	0.50	10.00	1.815	109	75	125				
Selenium	44.130	2.5	10.00	36.34	77.9	75	125				

Sample ID: **N008525-001B-MSD**	SampType: **MSD**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **9/24/2012**	RunNo: **85771**
Client ID: **ZZZZZZ**	Batch ID: **40747**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/1/2012**	SeqNo: **1451425**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	11.377	0.50	10.00	1.815	95.6	75	125	12.74	11.3	20	
Selenium	44.090	2.5	10.00	36.34	77.5	75	125	44.13	0.0924	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** *9/20/2012 4:24:46 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-187-Q3
Turnaround Time 10 Days
Shipping Date: 9/20/2012
COC Number: 12

	Container:	1x500 ml Poly	1x500 ml Poly	1x1 Liter	1x1 Liter	1Liter Poly			
	Preservatives:	HNO3, 4°C	HNO3, 4°C	4°C	4°C	4°C			
	Filtered:	Field	Field	NA	NA	NA			
	Holding Time:	180	180	2	2	30			
DATE / TIME / Matrix		Arsenic (6020A) Field Filtered	Metals (6020AFF) Field Filtered Mo,Se,Mn	Specific Conductance (E120.1)	Anions (E300.0) Nitrate	Extra (*)	N0085944	Number of Containers	COMMENTS
MW-60-125-187	9/20/2012 11:28 Water	X	X	X	X	X	-1	4	
MW-67-185-187	9/20/2012 13:10 Water	X	X	X	X	X	-2	4	
MW-67-225-187	9/20/2012 13:09 Water	X	X	X	X	X	-3	4	
MW-67-260-187	9/20/2012 15:29 Water	X	X	X	X	X	-4	4	
MW-68-180-187	9/20/2012 15:20 Water	X	X	X	X	X	-5	4	
MW-68-240-187	9/20/2012 8:50 Water	X	X	X	X	X	-6	4	
							TOTAL NUMBER OF CONTAINERS	24	

	Signatures	Date/Time
Approved by		9-20-12
Sampled by		1700
Relinquished by		
Received by		9/20/12 1738
Relinquished by		9/20/12 1944
Received by		9/21/12 1945

Shipping Details
Method of Shipment: courier
On Ice: ~~yes~~ / no 3.4°C
Airbill No: 1RA1
Lab Name: ADVANCED TECHNOLOGY LABORATO
Lab Phone: (702) 307-2659

ATTN:
Sample Custody
and
Marlon

Special Instructions:
September 12 to October 17, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

03

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:	9/20/2012	Workorder:	N008544
Rep sample Temp (Deg C):	3.8	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 9/21/12

Reviewed By:

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 **N008544-001C**, concentration in mg/L are calculated as follows:

Nitrate, mg/L = 0.576 * 5

= 2.88 mg/L

Reporting **N008544-001C**, results in two significant figures,

Nitrate, mg/L = 2.9 mg/L

MS 10/4/2012

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 **N008544-001B**, the concentration in ug/L is calculated as follows:

Arsenic, ug/L	=	1.69203 * 1 * (25/25)
	=	1.69203

Reporting results in two significant figures,

Arsenic, ug/L	=	**1.7**

WS fn 10/4h

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N008544
Test Method: EPA 6020
Analysis Date: 9/28/2012 7 10/1/2012

Matrix: Water
Batch No.: 40747

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

Comments: AS rs fr 10/4/12

Analyzed By: Mary Claire Ignacio

Dilution Test is not applicable to Mn & Mo. The calculated values were < 25X the RL. PS @ 5X passed the criteria.
Dilution Test of ~~As~~ & Se failed.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N008525-001B-DT 25X	Arsenic	µg/L	0.0000	NA	1.815340595	100.00%	10
N008525-001B-DT 25X	Manganese	µg/L	0	NA	0		10
N008525-001B-DT 25X	Molybdenum	µg/L	6.1559	NA	6.449117741	4.55%	10
N008525-001B-DT 25X	Selenium	µg/L	45.10065824	FAILED	36.34326363	24.10%	10

Note: NA - Not applicable

CLIENT: CH2M HILL
Work Order: N008544
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N008525-001B-PS**	SampType: **PS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **85754**
Client ID: **ZZZZZZ**	Batch ID: **40747**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **9/28/2012**	SeqNo: **1450774**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	482.808	2.5	500.0	0	96.6	75	125				
Molybdenum	60.597	2.5	50.00	6.449	108	75	125				
Selenium	86.580	2.5	50.00	36.34	100	75	125				

Sample ID: **N008525-001B-PS**	SampType: **PS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **85771**
Client ID: **ZZZZZZ**	Batch ID: **40747**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/1/2012**	SeqNo: **1451422**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	56.260	0.50	50.00	1.815	109	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

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,

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

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		

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		

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

CLIENT: CH2M HILL
Work Order: 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
ND Not Detected at the Reporting Limit
DQ Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: 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
ND Not Detected at the Reporting Limit
DQ Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
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
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Work Order: 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
ND Not Detected at the Reporting Limit
DQ Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: 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
ND Not Detected at the Reporting Limit
DQ Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: 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
- ND Not Detected at the Reporting Limit
- DQ Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

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

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: 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
ND Not Detected at the Reporting Limit
DQ Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CH2MHILL

CHAIN OF CUSTODY RECORD

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
ND08558-1	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		1754 9/24/12 1754

Shipping Details
Method of Shipment: FedEx
On Ice: ~~yes~~ / no 2 pcs
Airbill No: (RH)
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:

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:

Chloride MS 10/8/2012

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 **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**

Rw 18L

MS 10/8/2012

October 10, 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.: N008577

RE: PG&E Topock, 423575.MP.02.GM.03

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on September 26, 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 300.0:

Samples were diluted due to the high concentration of Chloride.

Advanced Technology Laboratories, Inc.

Date: *10-Oct-12*

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.03
Lab Order: N008577
Contract No: 2012-GMP-187S

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N008577-001A	MW-46-175-187	Water	9/26/2012 3:05:00 PM	9/26/2012	10/10/2012

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-46-175-187
Lab Order:	N008577	**Collection Date:**	9/26/2012 3:05:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N008577-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_120927B**	QC Batch: **R85714**			PrepDate:			Analyst: **KAB**
Specific Conductance	18000	0.10	0.10		umhos/cm	1	9/27/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected 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: N008577
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: **LCS-R85714** SampType: **LCS** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **85714**
Client ID: **LCSW** Batch ID: **R85714** TestNo: **EPA 120.1** Analysis Date: **9/27/2012** SeqNo: **1449424**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	99900.000	0.10	99900	0	100	85	115				

Sample ID: **N008576-002A-DUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **85714**
Client ID: **ZZZZZZ** Batch ID: **R85714** TestNo: **EPA 120.1** Analysis Date: **9/27/2012** SeqNo: **1449427**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	18060.000	0.10						18070	0.0554	10	

Sample ID: **N008576-002A-MS** SampType: **MS** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **85714**
Client ID: **ZZZZZZ** Batch ID: **R85714** TestNo: **EPA 120.1** Analysis Date: **9/27/2012** SeqNo: **1449428**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	123600.000	0.20	99900	18070	106	75	125				

Sample ID: **N008576-002A-MSD** SampType: **MSD** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **85714**
Client ID: **ZZZZZZ** Batch ID: **R85714** TestNo: **EPA 120.1** Analysis Date: **9/27/2012** SeqNo: **1449429**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	123600.000	0.20	99900	18070	106	75	125	123600	0	10	

Qualifiers:

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

CLIENT: CH2M HILL
Lab Order: N008577
Project: PG&E Topock, 423575.MP.02.GM.03
Lab ID: N008577-001

Client Sample ID: MW-46-175-187
Collection Date: 9/26/2012 3:05:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **WETCHEM_120927D**	QC Batch: **R85721**			PrepDate:			Analyst: **KAB**
Alkalinity, Bicarbonate (As CaCO3)	38	1.2	5.0		mg/L	1	9/27/2012
Alkalinity, Carbonate (As CaCO3)	ND	1.2	5.0		mg/L	1	9/27/2012
Alkalinity, Hydroxide (As CaCO3)	ND	1.2	5.0		mg/L	1	9/27/2012
Alkalinity, Total (As CaCO3)	38	1.2	5.0		mg/L	1	9/27/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected 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: N008577
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **LCS-R85721** SampType: **LCS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **85721**
Client ID: **LCSW** Batch ID: **R85721** TestNo: **SM 2320 B** Analysis Date: **9/27/2012** SeqNo: **1449733**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	96.983	5.0	100.0	0	97.0	85	115				
Alkalinity, Total (As CaCO3)	99.138	5.0	100.0	0	99.1	85	115				

Sample ID: **LCSD-R85721** SampType: **LCSD** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **85721**
Client ID: **LCSS02** Batch ID: **R85721** TestNo: **SM 2320 B** Analysis Date: **9/27/2012** SeqNo: **1449734**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	96.983	5.0	100.0	0	97.0	85	115	96.98	0	20	
Alkalinity, Total (As CaCO3)	99.138	5.0	100.0	0	99.1	85	115	99.14	0	20	

Sample ID: **MB-R85721** SampType: **MBLK** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **85721**
Client ID: **PBW** Batch ID: **R85721** TestNo: **SM 2320 B** Analysis Date: **9/27/2012** SeqNo: **1449735**

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: **N008574-001E-DUP** SampType: **DUP** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **85721**
Client ID: **ZZZZZZ** Batch ID: **R85721** TestNo: **SM 2320 B** Analysis Date: **9/27/2012** SeqNo: **1449737**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	121.767	5.0						120.7	0.889	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)	121.767	5.0						120.7	0.889	30	

Qualifiers:

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

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CLIENT: CH2M HILL
Work Order: N008577
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **N008574-001E-MS** SampType: **MS** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **85721**
Client ID: **ZZZZZZ** Batch ID: **R85721** TestNo: **SM 2320 B** Analysis Date: **9/27/2012** SeqNo: **1449738**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	215.517	5.0	100.0	120.7	94.8	75	125				
Alkalinity, Total (As CaCO3)	215.517	5.0	100.0	120.7	94.8	75	125				

Sample ID: **N008574-001E-MSD** SampType: **MSD** TestCode: **2320_W_SP** Units: **mg/L** Prep Date: RunNo: **85721**
Client ID: **ZZZZZZ** Batch ID: **R85721** TestNo: **SM 2320 B** Analysis Date: **9/27/2012** SeqNo: **1449739**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	216.595	5.0	100.0	120.7	95.9	75	125	215.5	0.499	20	
Alkalinity, Total (As CaCO3)	216.595	5.0	100.0	120.7	95.9	75	125	215.5	0.499	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
Lab Order: N008577
Project: PG&E Topock, 423575.MP.02.GM.03
Lab ID: N008577-001

Client Sample ID: MW-46-175-187
Collection Date: 9/26/2012 3:05:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_120927A**	QC Batch: **R85824**			PrepDate:			Analyst: **QBM**
Chloride	5900	11	500		mg/L	1000	9/27/2012 11:05 PM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_120927A**	QC Batch: **R85824**			PrepDate:			Analyst: **QBM**
Sulfate	770	3.5	50		mg/L	100	9/27/2012 11:17 PM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_120927A**	QC Batch: **R85824**			PrepDate:			Analyst: **QBM**
Nitrate as N	ND	0.070	2.5		mg/L	5	9/27/2012 05:16 PM

Qualifiers:

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

CLIENT: CH2M HILL
Work Order: N008577
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **MB-R85824_CL** SampType: **MBLK** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **85824**
Client ID: **PBW** Batch ID: **R85824** TestNo: **EPA 300.0** Analysis Date: **9/27/2012** SeqNo: **1453642**

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

Sample ID: **LCS-R85824_CL** SampType: **LCS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **85824**
Client ID: **LCSW** Batch ID: **R85824** TestNo: **EPA 300.0** Analysis Date: **9/27/2012** SeqNo: **1453643**

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: **N008574-002DDUP** SampType: **DUP** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **85824**
Client ID: **ZZZZZZ** Batch ID: **R85824** TestNo: **EPA 300.0** Analysis Date: **9/27/2012** SeqNo: **1453651**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	112.040	10						111.6	0.358	20	

Sample ID: **N008574-002DMS** SampType: **MS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **85824**
Client ID: **ZZZZZZ** Batch ID: **R85824** TestNo: **EPA 300.0** Analysis Date: **9/27/2012** SeqNo: **1453652**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	163.980	10	50.00	111.6	105	80	120				

Sample ID: **N008574-002DMSD** SampType: **MSD** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **85824**
Client ID: **ZZZZZZ** Batch ID: **R85824** TestNo: **EPA 300.0** Analysis Date: **9/27/2012** SeqNo: **1453653**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	162.860	10	50.00	111.6	102	80	120	164.0	0.685	20	

Qualifiers:

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

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CLIENT: CH2M HILL
Work Order: N008577
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **N008579-001CMS** SampType: **MS** TestCode: **300_W_CLPG** Units: **mg/L** Prep Date: RunNo: **85824**
Client ID: **ZZZZZZ** Batch ID: **R85824** TestNo: **EPA 300.0** Analysis Date: **9/27/2012** SeqNo: **1453660**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	27.665	2.5	12.50	14.96	102	80	120				

Qualifiers:

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

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CLIENT: CH2M HILL
Work Order: N008577
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **MB-R85824_SO4**	SampType: **MBLK**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **85824**
Client ID: **PBW**	Batch ID: **R85824**	TestNo: **EPA 300.0**		Analysis Date: **9/27/2012**	SeqNo: **1453670**

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

Sample ID: **LCS-R85824_SO4**	SampType: **LCS**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **85824**
Client ID: **LCSW**	Batch ID: **R85824**	TestNo: **EPA 300.0**		Analysis Date: **9/27/2012**	SeqNo: **1453671**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.884	0.50	5.000	0	97.7	90	110				

Sample ID: **N008574-002DDUP**	SampType: **DUP**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **85824**
Client ID: **ZZZZZZ**	Batch ID: **R85824**	TestNo: **EPA 300.0**		Analysis Date: **9/27/2012**	SeqNo: **1453680**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	88.580	10						88.86	0.316	20	

Sample ID: **N008574-002DMS**	SampType: **MS**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **85824**
Client ID: **ZZZZZZ**	Batch ID: **R85824**	TestNo: **EPA 300.0**		Analysis Date: **9/27/2012**	SeqNo: **1453681**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	185.640	10	100.0	88.86	96.8	80	120				

Sample ID: **N008574-002DMSD**	SampType: **MSD**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **85824**
Client ID: **ZZZZZZ**	Batch ID: **R85824**	TestNo: **EPA 300.0**		Analysis Date: **9/27/2012**	SeqNo: **1453682**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	183.940	10	100.0	88.86	95.1	80	120	185.6	0.920	20	

Qualifiers:

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

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CLIENT: CH2M HILL
Work Order: N008577
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **N008579-001CMS** SampType: **MS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **85824**
Client ID: **ZZZZZZ** Batch ID: **R85824** TestNo: **EPA 300.0** Analysis Date: **9/27/2012** SeqNo: **1453689**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	66.440	2.5	25.00	40.97	102	80	120				

Qualifiers:

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

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3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N008577
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 300W_NO3PGE

Sample ID: **MB-R85824_NO3** SampType: **MBLK** TestCode: **300W_NO3P** Units: **mg/L** Prep Date: RunNo: **85824**
Client ID: **PBW** Batch ID: **R85824** TestNo: **EPA 300.0** Analysis Date: **9/27/2012** SeqNo: **1453570**

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-R85824_NO3** SampType: **LCS** TestCode: **300W_NO3P** Units: **mg/L** Prep Date: RunNo: **85824**
Client ID: **LCSW** Batch ID: **R85824** TestNo: **EPA 300.0** Analysis Date: **9/27/2012** SeqNo: **1453571**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate as N	2.403	0.50	2.500	0	96.1	90	110				

Sample ID: **N008574-001DDUP** SampType: **DUP** TestCode: **300W_NO3P** Units: **mg/L** Prep Date: RunNo: **85824**
Client ID: **ZZZZZZ** Batch ID: **R85824** TestNo: **EPA 300.0** Analysis Date: **9/27/2012** SeqNo: **1453575**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate as N	11.595	2.5						11.37	1.96	20	

Sample ID: **N008574-002DMS** SampType: **MS** TestCode: **300W_NO3P** Units: **mg/L** Prep Date: RunNo: **85824**
Client ID: **ZZZZZZ** Batch ID: **R85824** TestNo: **EPA 300.0** Analysis Date: **9/27/2012** SeqNo: **1453576**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate as N	19.720	2.5	12.50	7.220	100	80	120				

Sample ID: **N008574-002DMSD** SampType: **MSD** TestCode: **300W_NO3P** Units: **mg/L** Prep Date: RunNo: **85824**
Client ID: **ZZZZZZ** Batch ID: **R85824** TestNo: **EPA 300.0** Analysis Date: **9/27/2012** SeqNo: **1453579**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate as N	19.690	2.5	12.50	7.220	99.8	80	120	19.72	0.152	20	

Qualifiers:

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

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CLIENT: CH2M HILL
Work Order: N008577
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 300W_NO3PGE

Sample ID: **N008579-001CMS** SampType: **MS** TestCode: **300W_NO3P** Units: **mg/L** Prep Date: RunNo: **85824**
Client ID: **ZZZZZZ** Batch ID: **R85824** TestNo: **EPA 300.0** Analysis Date: **9/27/2012** SeqNo: **1453590**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate as N	3.743	0.50	2.500	1.304	97.6	80	120				

Qualifiers:

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

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CH2MHILL

CHAIN OF CUSTODY RECORD

Project Name PG&E Topock
Location Topock
Project Manager Jay Piper
Sample Manager Shawn Duffy
Project Number 423575.MP.~~06.TS~~ .02.GM03
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 (*)

#	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
N008578-1	9-26-12	1505	Water	X	X		X		Sample ID: MW-46-175-187	1	

	Signatures	Date/Time
Approved by		9-26-12
Sampled by		1615
Relinquished by		
Received by	MCLARTIN	9/26/12@1615
Relinquished by		
Received by		

Shipping Details

Method of Shipment: ~~FedEx~~ COURIER
On Ice: yes / no 5.1°C
Airbill No: IR#1 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:	9/26/2012	Workorder:	N008577
Rep sample Temp (Deg C):	5.1	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 9/27/12

Reviewed By:

Sample ID: **N008577-001A @ 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) (11.60mL)

= **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 = (1.75) (0.02155N) (1) * 1000

= **37.71 mg/L**

Reporting results in two significant figures,

= **38 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) (0.02155 N) (1) * 1000

= **0**

Total Alkalinity

T alkalinity, mg/L as $CaCO_3$ = $M_{vol.}$ * N H_2SO_4 * DF * 1000

= (1.75mL) (0.02155) (1) * 1000

= **37.71 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 $CaCO_3$ = **37.71 mg/L**

Reporting results in two significant figures,

OH Alkalinity as $CaCO_3$ = **0**

MR 10/1/2012

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = **38 mg/L**

Sample Calculation

METHOD: EPA 300
TEST NAME: INORGANIC ANIONS BY IC
MATRIX: WATER

FORMULA:

CHLORIDE MS 10/10/2012

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 **N008577-001A**, concentration in mg/L are calculated as follows:

Chloride, mg/L = 5.883 * 1000

= 5883 mg/L

Reporting **N008577-001A**, results in two significant figures,

Chloride, mg/L = 5900 mg/L ✓ Awlw 11-

MS 10/10/2012

ANALYSIS RUN LOG

DIONEX SCHEDULE - C:\DX\SCHEDULE\120927.SCH

Inj#	Sample Name	Method	Data File	Vol.	Dil.	Int.Std.
1	,BLANK,	..\120927.M	..\12092701.D01	1	1	1
2	,BLANK,	..\120927.M	..\12092701.D02	1	1	1
3	AUTOCAL1R	..\120927.M	..\12092701.D03	1	1	1
4	AUTOCAL2R	..\120927.M	..\12092701.D04	1	1	1
5	AUTOCAL3R	..\120927.M	..\12092701.D05	1	1	1
6	AUTOCAL4R	..\120927.M	..\12092701.D06	1	1	1
7	AUTOCAL5R	..\120927.M	..\12092701.D07	1	1	1
8	AUTOCAL6R	..\120927.M	..\12092701.D08	1	1	1
9	,ICV,ICV,1,	..\120927.M	..\12092701.D09	1	1	1
10	,ICB,ICB,1,	..\120927.M	..\12092701.D10	1	1	1
11	,MB-H2O,MBLK,1,	..\120927.M	..\12092701.D11	1	1	1
12	,LCS-H2O,LCS,1,	..\120927.M	..\12092701.D12	1	1	1
13	,N008574-001D,SAMP,	..\120927.M	..\12092701.D13	1	1	1
14	,N008574-002D,SAMP,	..\120927.M	..\12092701.D14	1	1	1
15	,N008574-003D,SAMP,	..\120927.M	..\12092701.D15	1	1	1
16	,N008574-004D,SAMP,	..\120927.M	..\12092701.D16	1	1	1
17	,N008574-005D,SAMP,	..\120927.M	..\12092701.D17	1	1	1
18	,N008574-001D,SAMP,	..\120927.M	..\12092701.D18	1	1	1
19	,N008574-001DDUP,DU	..\120927.M	..\12092701.D19	1	1	1
20	,N008574-002D,SAMP,	..\120927.M	..\12092701.D20	1	1	1
21	,CCV-1,CCV,	..\120927.M	..\12092701.D21	1	1	1
22	,CCB-1,CCB,1,	..\120927.M	..\12092701.D22	1	1	1
23	,N008574-002DMSD,MS	..\120927.M	..\12092701.D23	1	1	1
24	,N008574-002D,SAMP,	..\120927.M	..\12092701.D24	1	1	1
25	,N008574-005D,SAMP,	..\120927.M	..\12092701.D25	1	1	1
26	,N008574-005D,SAMP,	..\120927.M	..\12092701.D26	1	1	1
27	,N008574-001D,SAMP,	..\120927.M	..\12092701.D27	1	1	1
28	,N008574-001D,SAMP,	..\120927.M	..\12092701.D28	1	1	1
29	,N008574-002D,SAMP,	..\120927.M	..\12092701.D29	1	1	1
30	,N008574-003D,SAMP,	..\120927.M	..\12092701.D30	1	1	1
31	,N008574-004D,SAMP,	..\120927.M	..\12092701.D31	1	1	1
32	,N008574-003D,SAMP,	..\120927.M	..\12092701.D32	1	1	1
33	,CCV-2,CCV,1,	..\120927.M	..\12092701.D33	1	1	1
34	,CCB-2,CCB,1,	..\120927.M	..\12092701.D34	1	1	1
35	,N008574-002DDUP,DU	..\120927.M	..\12092701.D35	1	1	1
36	,N008574-002DMS,MS,	..\120927.M	..\12092701.D36	1	1	1
37	,N008574-002DMSD,MS	..\120927.M	..\12092701.D37	1	1	1
38	,N008574-004D,SAMP,	..\120927.M	..\12092701.D38	1	1	1
39	,N008574-005D,SAMP,	..\120927.M	..\12092701.D39	1	1	1
40	,N008574-005D,SAMP,	..\120927.M	..\12092701.D40	1	1	1
41	,N008576-001A,SAMP,	..\120927.M	..\12092701.D41	1	1	1
42	,N008577-002A,SAMP,	..\120927.M	..\12092701.D42	1	1	1
43	,N008577-002A,SAMP,	..\120927.M	..\12092701.D43	1	1	1
44	,N008579-001C,SAMP,	..\120927.M	..\12092701.D44	1	1	1
45	,CCV-3,CCV,1,	..\120927.M	..\12092701.D45	1	1	1
46	,CCB-3,CCB,1,	..\120927.M	..\12092701.D46	1	1	1
47	,N008579-001CMS,MS,	..\120927.M	..\12092701.D47	1	1	1
48	,N008575-007C,SAMP,	..\120927.M	..\12092701.D48	1	1	1
49	,N008575-001C,SAMP,	..\120927.M	..\12092701.D49	1	1	1
50	,N008575-002C,SAMP,	..\120927.M	..\12092701.D50	1	1	1
51	,N008575-003C,SAMP,	..\120927.M	..\12092701.D51	1	1	1
52	,N008575-004C,SAMP,	..\120927.M	..\12092701.D52	1	1	1
53	,N008575-005C,SAMP,	..\120927.M	..\12092701.D53	1	1	1
54	,N008575-006C,SAMP,	..\120927.M	..\12092701.D54	1	1	1
55	,N008575-007C,SAMP,	..\120927.M	..\12092701.D55	1	1	1
56	,N008579-001C,SAMP,	..\120927.M	..\12092701.D56	1	1	1
57	,CCV-4,CCV,1,	..\120927.M	..\12092701.D57	1	1	1
58	,CCB-4,CCB,1,	..\120927.M	..\12092701.D58	1	1	1
59	,N008579-001CMS,MS,	..\120927.M	..\12092701.D59	1	1	1
60	,N008575-001C,SAMP,	..\120927.M	..\12092701.D60	1	1	1
61	,N008575-002C,SAMP,	..\120927.M	..\12092701.D61	1	1	1
62	,N008575-003C,SAMP,	..\120927.M	..\12092701.D62	1	1	1
63	,N008575-004C,SAMP,	..\120927.M	..\12092701.D63	1	1	1
64	,N008575-005C,SAMP,	..\120927.M	..\12092701.D64	1	1	1

Inj#	Sample Name	Method	Data File	Vol.	Dil.	Int.Std.
65	,N008575-006C,SAMP,	..\120927.M	..\12092701.D65	1	1	1
66	,N008575-007C,SAMP,	..\120927.M	..\12092701.D66	1	1	1
67	,N008576-001A,SAMP,	..\120927.M	..\12092701.D67	1	1	1
68	,N008576-001A,SAMP,	..\120927.M	..\12092701.D68	1	1	1
69	,CCV-5,CCV,1,	..\120927.M	..\12092701.D69	1	1	1
70	,CCB-5,CCB,1,	..\120927.M	..\12092701.D70	1	1	1
71	,N008576-002A,SAMP,	..\120927.M	..\12092701.D71	1	1	1
72	,N008576-002A,SAMP,	..\120927.M	..\12092701.D72	1	1	1
73	,N008577-001A,SAMP,	..\120927.M	..\12092701.D73	1	1	1
74	,N008577-001A,SAMP,	..\120927.M	..\12092701.D74	1	1	1
75	,CCV-6,CCV,1,	..\120927.M	..\12092701.D75	1	1	1
76	,CCB-6,CCB,1,	..\120927.M	..\12092701.D76	1	1	1
77	SHUTDOWN	..\SHUTDOWN		1	1	1

Comment:
Standard for IC-02 (Anions) = ICV/LCS/MS/MSD : ISST-120206J, K, L, M, N, O and P
ICAL/CCV : ISST-120816A, B, C, D, E, F, and G

IC-02 ANIONS

Module

INITIAL CALIBRATION DATA SUMMARY

DIONEX METHOD PARAMETERS - 120927.MET

Method Comment:
Column ID:
Analyst ID:

System Parameters

System Name: ANIONS

Number of Detectors	1
Run Time (minutes)	9.00
Sampling Rate (seconds)	0.20
Detector 1 Type	COND
Detector 1 real time plot scale maximum (mV)	100.000
minimum	-10.000
Detector 1 Output Equivalent to 1 Volt (in mV)	100.00
Detector 1 ACI Analog Input Connection	DET1
Save Data File	Yes

Data File Name: C:\DX\DATA\12031501.D15

-- DETECTOR 1 PARAMETERS --

Report Options

Create ASCII Report File	No
Print Report	Yes
Print All Components	Yes
Print Components Found	No
Print Missing Components	No
Print All Peaks	Yes
Print Unknown Peaks	Yes
Print Chromatogram	Yes
Autoscale Chromatogram Maximum	Yes
Autoscale Maximum Value Delay (minutes)	0.0
Autoscale Chromatogram Minimum	Yes
Autoscale Minimum Value Delay (minutes)	0.0
Fill Peaks with Color	No
Draw Grid Lines on Chromatogram	No
Show Component Fraction Numbers	No
Label with Peak Number	No
Label with Retention Times on Chromatogram	No
Label with Component Name	Yes

Format File Name: C:\DX\METHOD\DEFAULT.PRF

Integration Parameters

Starting Peak Width (seconds)	5.0
Peak Threshold	0.500
Peak Area Reject	2000
Area Reject for Reference Peaks	3000

Data Events

Time	Description
0.50	Start peak detection
0.51	Force baseline at start of this peak
0.51	Split peak
0.51	Force common baseline following this peak
0.52	End peaks on baseline penetration

IC-02 ANIONS

Calibration Parameters

Number Of Levels for Calibration	6
Force Calibration Curve Through Origin	No
Calibration Fit Type	Linear
Replace Or Average Calibrations	Replace
External or Internal Calibration	External
Calculate Unknowns by Area or Height	Area
Default Sample Volume	1.0
Default Dilution Factor	1.0
Default Response Factor for Unknown Peaks	0.0
Calibration Standard Volume	1.0
Internal Standard Amount in Samples	1.0
Amount Units	

Component Table -- Last Modified: 09:50 on Thu, 27 Sep 2012

Component # 1 Fluoride Retention Time 0.93
Reference Comp. Fluoride Window Size 0.15 min.
Amount = K0 + K1*Area
K0 = 4.41385E-002
K1 = 3.77824E-006

Level	Amount	Area	Height
1	0.00000E+000	0	0
2	5.00000E-002	14563	2947
3	5.00000E-001	119026	24951
4	1.00000E+000	240469	51297
5	2.50000E+000	625721	136290
6	5.00000E+000	1325425	295931

Component # 2 Chloride Retention Time 1.39
Reference Comp. Chloride Window Size 0.05 min.
Amount = K0 + K1*Area
K0 = 1.28203E-001
K1 = 5.71715E-006

Level	Amount	Area	Height
1	0.00000E+000	0	0
2	5.00000E-001	76595	15257
3	1.00000E+000	154074	31798
4	2.50000E+000	392027	80670
5	5.00000E+000	819681	172309
6	1.00000E+001	1746408	374829

Component # 3 Nitrite Retention Time 1.65
Reference Comp. Nitrite Window Size 0.20 min.
Amount = K0 + K1*Area
K0 = 4.34615E-002
K1 = 2.62444E-006

Level	Amount	Area	Height
1	0.00000E+000	0	0
2	5.00000E-002	24271	3265
3	5.00000E-001	171015	25917
4	1.00000E+000	344674	56506
5	2.50000E+000	899783	152209
6	5.00000E+000	1909245	331459

Component # 4 Bromide Retention Time 2.43
Reference Comp. Bromide Window Size 0.20 min.
Amount = K0 + K1*Area
K0 = 1.49135E-002
K1 = 1.38751E-005

Level	Amount	Area	Height
1	0.00000E+000	0	0
2	5.00000E-002	4005	563
3	5.00000E-001	37532	5068
4	1.00000E+000	66592	9499
5	2.50000E+000	176663	24488
6	5.00000E+000	361007	50967

Component # 5 Nitrate Retention Time 2.75
Reference Comp. Nitrate Window Size 0.20 min.
Amount = K0 + K1*Area
K0 = 6.18787E-002
K1 = 2.32606E-006

Level	Amount	Area	Height
1	0.00000E+000	0	0
2	5.00000E-002	23677	2777
3	5.00000E-001	183958	23007
4	1.00000E+000	374805	47801
5	2.50000E+000	996913	121694
6	5.00000E+000	2151727	258710

Component # 6 Phosphate Retention Time 4.21
Reference Comp. Phosphate Window Size 0.50 min.
Amount = K0 + K1*Area
K0 = 3.49944E-002
K1 = 6.97288E-006

Level	Amount	Area	Height
1	0.00000E+000	0	0
2	1.00000E-001	17841	1458
3	5.00000E-001	67212	5270
4	1.00000E+000	132198	10673
5	2.50000E+000	337087	27033
6	5.00000E+000	720606	58438

Component # 7 Sulfate Retention Time 5.47
Reference Comp. Sulfate Window Size 0.50 min.
Amount = K0 + K1*Area
K0 = 1.44855E-001
K1 = 8.24167E-006

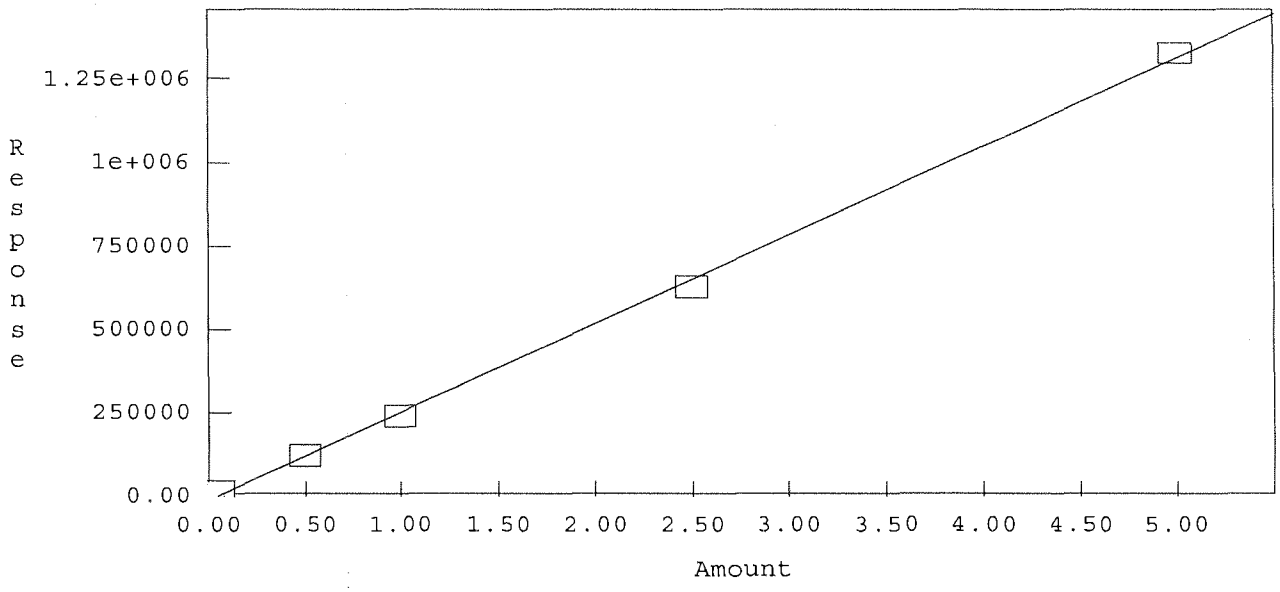
Level	Amount	Area	Height
1	0.00000E+000	0	0
2	5.00000E-001	60035	3931
3	2.00000E+000	224484	14397
4	5.00000E+000	571267	37900
5	1.00000E+001	1157760	77663
6	2.00000E+001	2431046	163573

Timed Events File: C:\DX\METHOD\AS4ASC2.TE

Step	Time	Description
Init		ACI Autosmp OFF
Init		ACI Autooff OFF
Init		ACI Pmpstrt ON
Init		ACI Inject OFF
Init		ACI OFF
Init		ACI OFF
Init		ACI OFF
Init		ACI OFF
Init		ACI OFF
Init		ACI OFF
1	0.0	ACI Autosmp ON
2	2.3	ACI Autosmp OFF
2	2.3	ACI Autooff ON
3	2.4	ACI Inject ON
3	2.4	Start Sampling

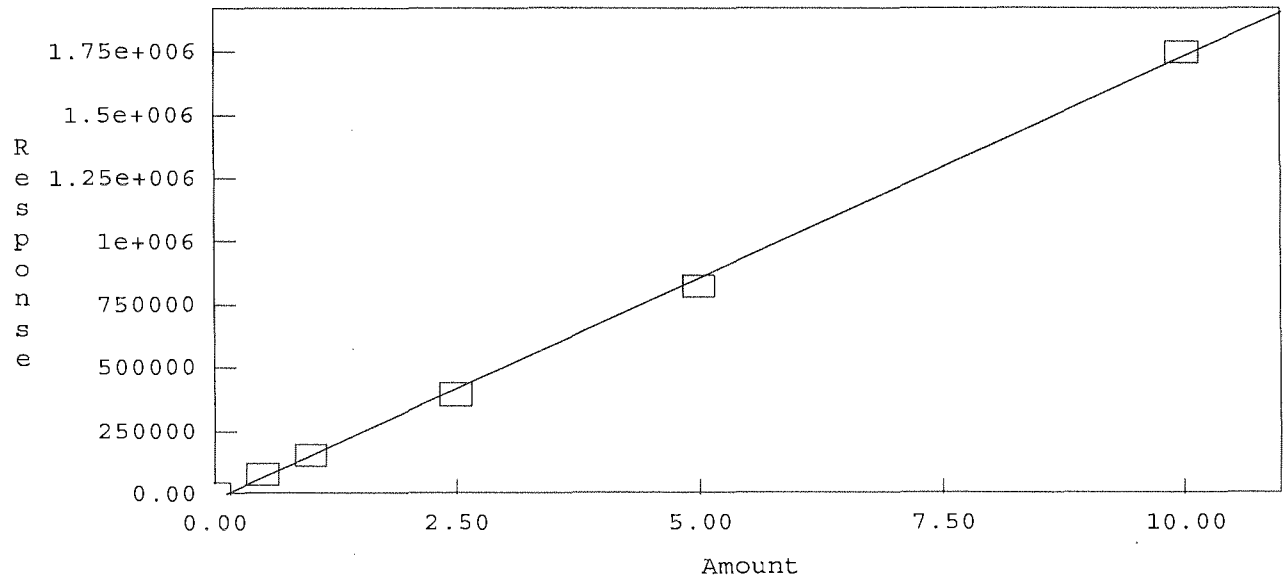
Method: 120927.MET - Last Updated: 09:50 on Thu, 27 Sep 2012

Component: Fluoride
Fit Type: Linear
r^2 = 0.999058
Amt = Resp * 3.778e-006 + 0.04414
Resp = Amt * 2.647e+005 + -1.168e+004
Standardization: External
Calibration: Area



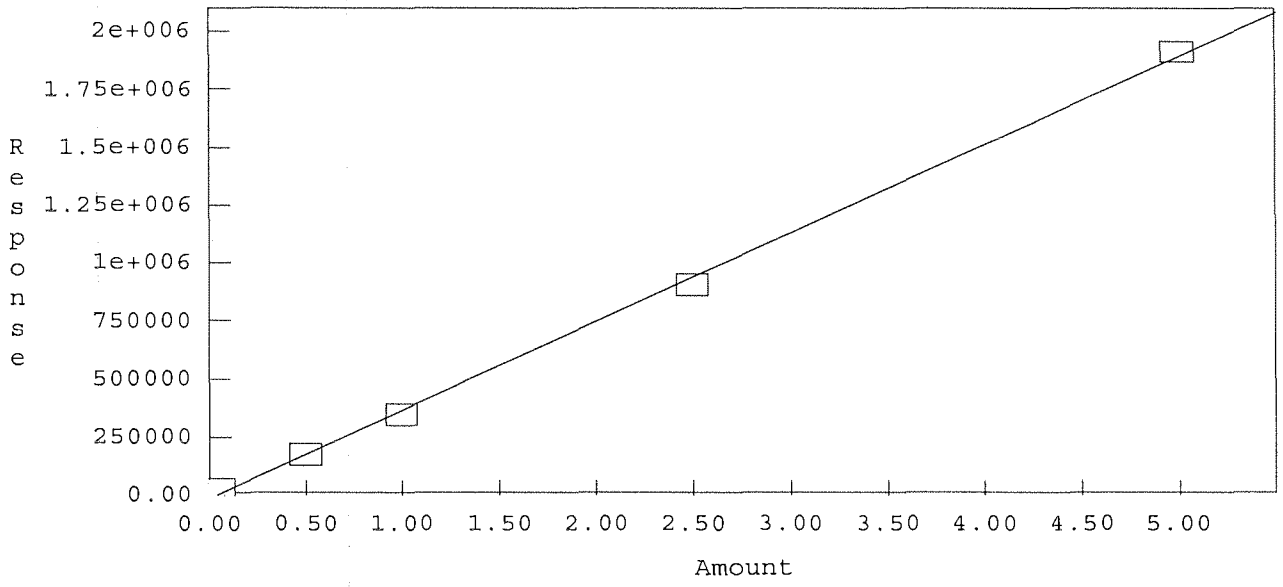
Method: C:\DX\METHOD\120927.MET

Component: Chloride
Fit Type: Linear
r^2 = 0.998824
Amt = Resp * 5.717e-006 + 0.1282
Resp = Amt * 1.749e+005 + -2.242e+004
Standardization: External
Calibration: Area



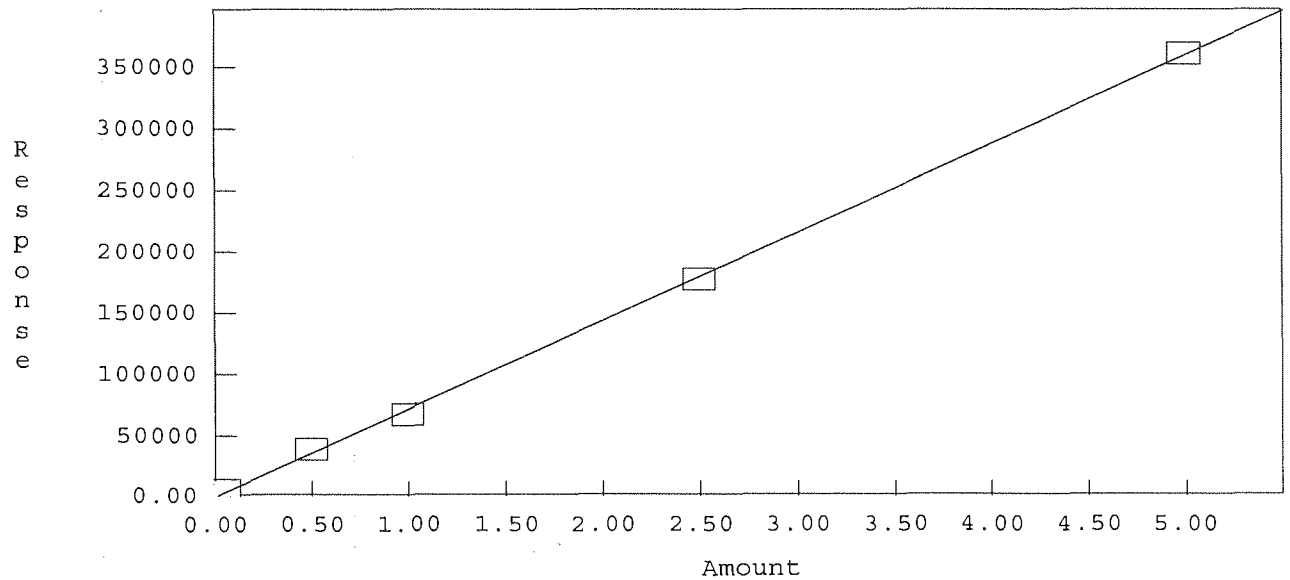
Method: C:\DX\METHOD\120927.MET

Component: Nitrite
Fit Type: Linear
r^2 = 0.998945
Amt = Resp * 2.624e-006 + 0.04346
Resp = Amt * 3.81e+005 + -1.656e+004
Standardization: External
Calibration: Area



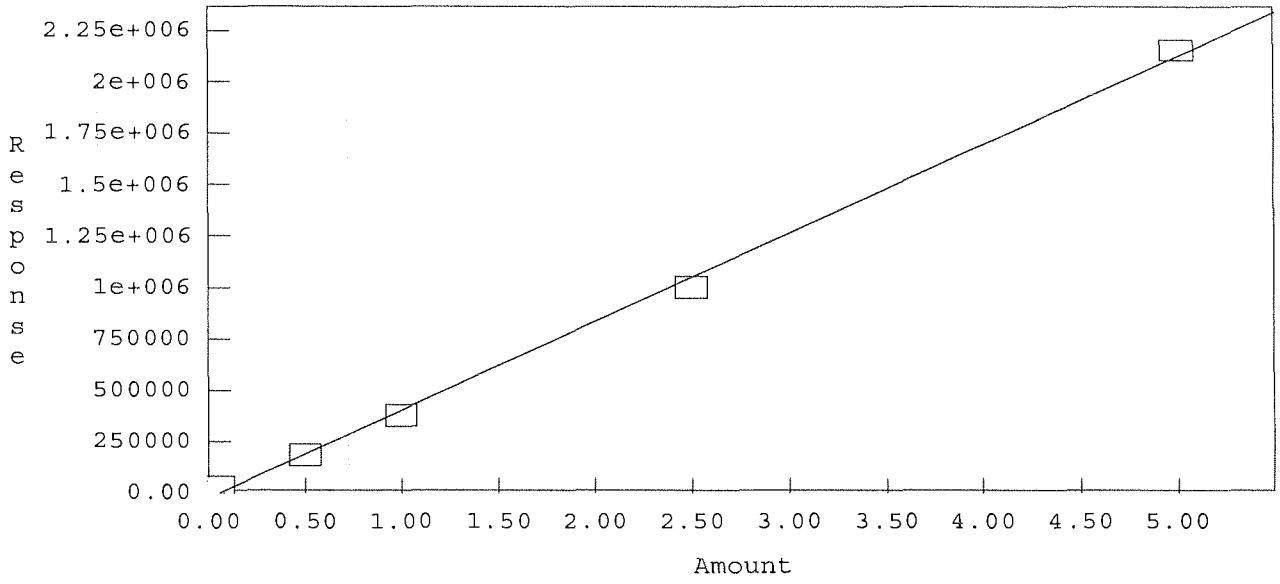
Method: C:\DX\METHOD\120927.MET

Component: Bromide
Fit Type: Linear
r^2 = 0.999609
Amt = Resp * 1.388e-005 + 0.01491
Resp = Amt * 7.207e+004 + -1075
Standardization: External
Calibration: Area



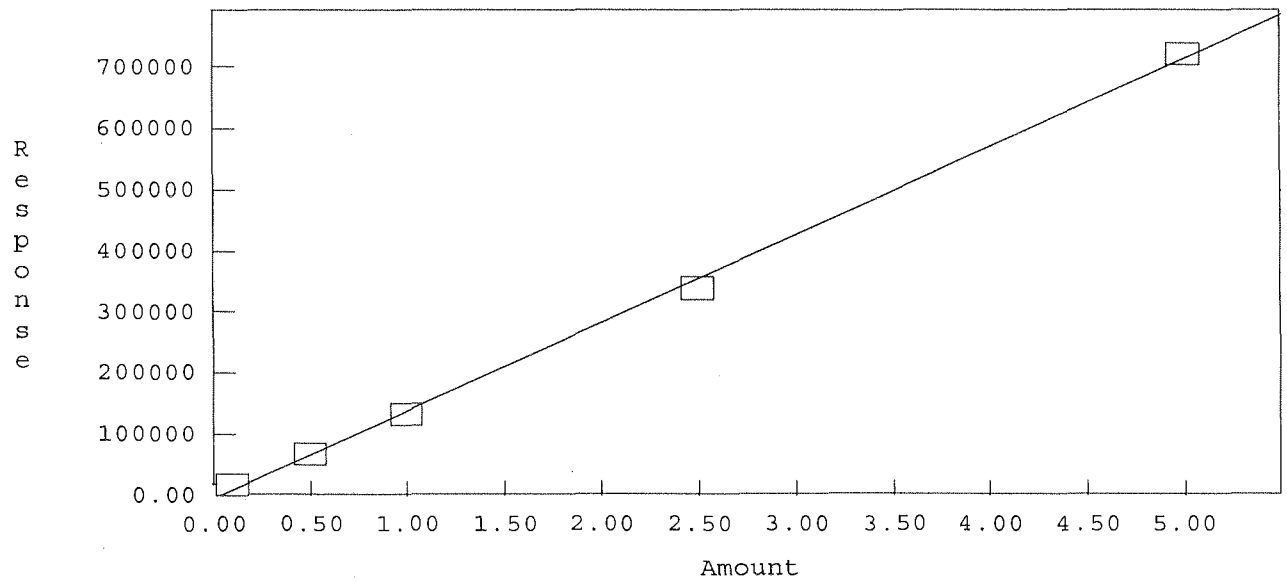
Method: C:\DX\METHOD\120927.MET

Component: Nitrate
Fit Type: Linear
r^2 = 0.998329
Amt = Resp * 2.326e-006 + 0.06188
Resp = Amt * 4.299e+005 + -2.66e+004
Standardization: External
Calibration: Area



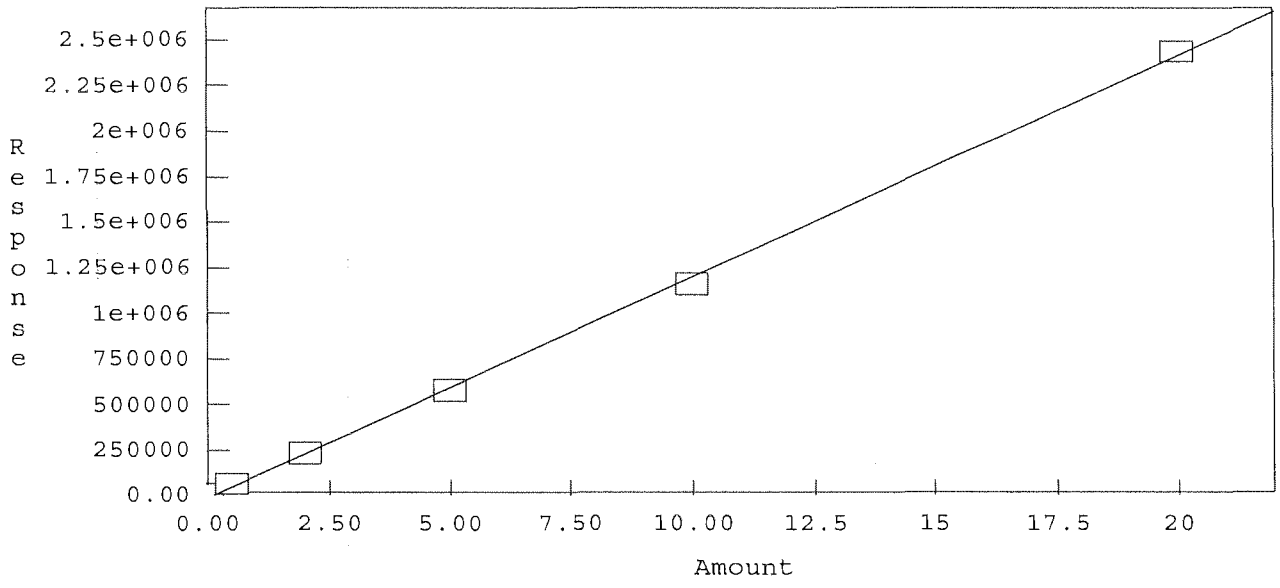
Method: C:\DX\METHOD\120927.MET

Component: Phosphate
Fit Type: Linear
r^2 = 0.998754
Amt = Resp * 6.973e-006 + 0.03499
Resp = Amt * 1.434e+005 + -5019
Standardization: External
Calibration: Area



Method: C:\DX\METHOD\120927.MET

Component: Sulfate
Fit Type: Linear
r^2 = 0.999346
Amt = Resp * 8.242e-006 + 0.1449
Resp = Amt * 1.213e+005 + -1.758e+004
Standardization: External
Calibration: Area



INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: CH2M HILL
Work Order: N008577
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **ICV**	SampType: **ICV**	TestCode: **300_W_CLPG**	Units: **mg/L**	Prep Date:	RunNo: **85824**
Client ID: **ICV**	Batch ID: **R85824**	TestNo: **EPA 300.0**		Analysis Date: **9/27/2012**	SeqNo: **1453640**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.419	0.50	2.500	0	96.8	90	110				

Sample ID: **CCV-1**	SampType: **CCV**	TestCode: **300_W_CLPG**	Units: **mg/L**	Prep Date:	RunNo: **85824**
Client ID: **CCV**	Batch ID: **R85824**	TestNo: **EPA 300.0**		Analysis Date: **9/27/2012**	SeqNo: **1453644**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.424	0.50	2.500	0	97.0	90	110				

Sample ID: **CCV-2**	SampType: **CCV**	TestCode: **300_W_CLPG**	Units: **mg/L**	Prep Date:	RunNo: **85824**
Client ID: **CCV**	Batch ID: **R85824**	TestNo: **EPA 300.0**		Analysis Date: **9/27/2012**	SeqNo: **1453649**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.390	0.50	2.500	0	95.6	90	110				

Sample ID: **CCV-3**	SampType: **CCV**	TestCode: **300_W_CLPG**	Units: **mg/L**	Prep Date:	RunNo: **85824**
Client ID: **CCV**	Batch ID: **R85824**	TestNo: **EPA 300.0**		Analysis Date: **9/27/2012**	SeqNo: **1453655**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.388	0.50	2.500	0	95.5	90	110				

Sample ID: **CCV-4**	SampType: **CCV**	TestCode: **300_W_CLPG**	Units: **mg/L**	Prep Date:	RunNo: **85824**
Client ID: **CCV**	Batch ID: **R85824**	TestNo: **EPA 300.0**		Analysis Date: **9/27/2012**	SeqNo: **1453658**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.368	0.50	2.500	0	94.7	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

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

CLIENT: CH2M HILL
Work Order: N008577
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **CCV-5**	SampType: **CCV**	TestCode: **300_W_CLPG**	Units: **mg/L**	Prep Date:	RunNo: **85824**
Client ID: **CCV**	Batch ID: **R85824**	TestNo: **EPA 300.0**		Analysis Date: **9/27/2012**	SeqNo: **1453662**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.373	0.50	2.500	0	94.9	90	110				

Sample ID: **CCV-6**	SampType: **CCV**	TestCode: **300_W_CLPG**	Units: **mg/L**	Prep Date:	RunNo: **85824**
Client ID: **CCV**	Batch ID: **R85824**	TestNo: **EPA 300.0**		Analysis Date: **9/27/2012**	SeqNo: **1453666**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.360	0.50	2.500	0	94.4	90	110				

Qualifiers:

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

CLIENT: CH2M HILL
Work Order: N008577
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **ICV**	SampType: **ICV**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **85824**
Client ID: **ICV**	Batch ID: **R85824**	TestNo: **EPA 300.0**		Analysis Date: **9/27/2012**	SeqNo: **1453668**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.949	0.50	5.000	0	99.0	90	110				

Sample ID: **CCV-1**	SampType: **CCV**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **85824**
Client ID: **CCV**	Batch ID: **R85824**	TestNo: **EPA 300.0**		Analysis Date: **9/27/2012**	SeqNo: **1453672**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	5.113	0.50	5.000	0	102	90	110				

Sample ID: **CCV-2**	SampType: **CCV**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **85824**
Client ID: **CCV**	Batch ID: **R85824**	TestNo: **EPA 300.0**		Analysis Date: **9/27/2012**	SeqNo: **1453678**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.971	0.50	5.000	0	99.4	90	110				

Sample ID: **CCV-3**	SampType: **CCV**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **85824**
Client ID: **CCV**	Batch ID: **R85824**	TestNo: **EPA 300.0**		Analysis Date: **9/27/2012**	SeqNo: **1453684**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.926	0.50	5.000	0	98.5	90	110				

Sample ID: **CCV-4**	SampType: **CCV**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **85824**
Client ID: **CCV**	Batch ID: **R85824**	TestNo: **EPA 300.0**		Analysis Date: **9/27/2012**	SeqNo: **1453687**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.880	0.50	5.000	0	97.6	90	110				

Qualifiers:

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

CLIENT: CH2M HILL
Work Order: N008577
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **CCV-5**	SampType: **CCV**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **85824**
Client ID: **CCV**	Batch ID: **R85824**	TestNo: **EPA 300.0**		Analysis Date: **9/27/2012**	SeqNo: **1453698**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.908	0.50	5.000	0	98.2	90	110				

Sample ID: **CCV-6**	SampType: **CCV**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **85824**
Client ID: **CCV**	Batch ID: **R85824**	TestNo: **EPA 300.0**		Analysis Date: **9/27/2012**	SeqNo: **1453702**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.867	0.50	5.000	0	97.3	90	110				

Qualifiers:

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

CLIENT: CH2M HILL
Work Order: N008577
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 300W_NO3PGE

Sample ID: ICV	SampType: ICV	TestCode: 300W_NO3P	Units: mg/L	Prep Date:	RunNo: 85824
Client ID: ICV	Batch ID: R85824	TestNo: EPA 300.0		Analysis Date: 9/27/2012	SeqNo: 1453568

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate as N	2.409	0.50	2.500	0	96.4	90	110				

Sample ID: CCV-1	SampType: CCV	TestCode: 300W_NO3P	Units: mg/L	Prep Date:	RunNo: 85824
Client ID: CCV	Batch ID: R85824	TestNo: EPA 300.0		Analysis Date: 9/27/2012	SeqNo: 1453577

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate as N	2.412	0.50	2.500	0	96.5	90	110				

Sample ID: CCV-2	SampType: CCV	TestCode: 300W_NO3P	Units: mg/L	Prep Date:	RunNo: 85824
Client ID: CCV	Batch ID: R85824	TestNo: EPA 300.0		Analysis Date: 9/27/2012	SeqNo: 1453582

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate as N	2.373	0.50	2.500	0	94.9	90	110				

Sample ID: CCV-3	SampType: CCV	TestCode: 300W_NO3P	Units: mg/L	Prep Date:	RunNo: 85824
Client ID: CCV	Batch ID: R85824	TestNo: EPA 300.0		Analysis Date: 9/27/2012	SeqNo: 1453588

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate as N	2.383	0.50	2.500	0	95.3	90	110				

Sample ID: CCV-4	SampType: CCV	TestCode: 300W_NO3P	Units: mg/L	Prep Date:	RunNo: 85824
Client ID: CCV	Batch ID: R85824	TestNo: EPA 300.0		Analysis Date: 9/27/2012	SeqNo: 1453598

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate as N	2.328	0.50	2.500	0	93.1	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

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

CLIENT: CH2M HILL
Work Order: N008577
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 300W_NO3PGE

Sample ID: **CCV-5**	SampType: **CCV**	TestCode: **300W_NO3P**	Units: **mg/L**	Prep Date:	RunNo: **85824**
Client ID: **CCV**	Batch ID: **R85824**	TestNo: **EPA 300.0**		Analysis Date: **9/27/2012**	SeqNo: **1453600**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate as N	2.342	0.50	2.500	0	93.7	90	110				

Sample ID: **CCV-6**	SampType: **CCV**	TestCode: **300W_NO3P**	Units: **mg/L**	Prep Date:	RunNo: **85824**
Client ID: **CCV**	Batch ID: **R85824**	TestNo: **EPA 300.0**		Analysis Date: **9/27/2012**	SeqNo: **1453602**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate as N	2.339	0.50	2.500	0	93.6	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

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

SUMMARY OF INSTRUMENT BLANKS

CLIENT: CH2M HILL
Work Order: N008577
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **ICB**	SampType: **ICB**	TestCode: **300_W_CLPG**	Units: **mg/L**	Prep Date:	RunNo: **85824**
Client ID: **ICB**	Batch ID: **R85824**	TestNo: **EPA 300.0**		Analysis Date: **9/27/2012**	SeqNo: **1453641**

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

Sample ID: **CCB-1**	SampType: **CCB**	TestCode: **300_W_CLPG**	Units: **mg/L**	Prep Date:	RunNo: **85824**
Client ID: **CCB**	Batch ID: **R85824**	TestNo: **EPA 300.0**		Analysis Date: **9/27/2012**	SeqNo: **1453645**

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

Sample ID: **CCB-2**	SampType: **CCB**	TestCode: **300_W_CLPG**	Units: **mg/L**	Prep Date:	RunNo: **85824**
Client ID: **CCB**	Batch ID: **R85824**	TestNo: **EPA 300.0**		Analysis Date: **9/27/2012**	SeqNo: **1453650**

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

Sample ID: **CCB-3**	SampType: **CCB**	TestCode: **300_W_CLPG**	Units: **mg/L**	Prep Date:	RunNo: **85824**
Client ID: **CCB**	Batch ID: **R85824**	TestNo: **EPA 300.0**		Analysis Date: **9/27/2012**	SeqNo: **1453656**

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

Sample ID: **CCB-4**	SampType: **CCB**	TestCode: **300_W_CLPG**	Units: **mg/L**	Prep Date:	RunNo: **85824**
Client ID: **CCB**	Batch ID: **R85824**	TestNo: **EPA 300.0**		Analysis Date: **9/27/2012**	SeqNo: **1453659**

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

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: N008577
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **CCB-5**	SampType: **CCB**	TestCode: **300_W_CLPG**	Units: **mg/L**	Prep Date:	RunNo: **85824**
Client ID: **CCB**	Batch ID: **R85824**	TestNo: **EPA 300.0**		Analysis Date: **9/27/2012**	SeqNo: **1453663**

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

Sample ID: **CCB-6**	SampType: **CCB**	TestCode: **300_W_CLPG**	Units: **mg/L**	Prep Date:	RunNo: **85824**
Client ID: **CCB**	Batch ID: **R85824**	TestNo: **EPA 300.0**		Analysis Date: **9/27/2012**	SeqNo: **1453667**

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

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: N008577
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **ICB**	SampType: **ICB**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **85824**
Client ID: **ICB**	Batch ID: **R85824**	TestNo: **EPA 300.0**		Analysis Date: **9/27/2012**	SeqNo: **1453669**

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

Sample ID: **CCB-1**	SampType: **CCB**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **85824**
Client ID: **CCB**	Batch ID: **R85824**	TestNo: **EPA 300.0**		Analysis Date: **9/27/2012**	SeqNo: **1453673**

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

Sample ID: **CCB-2**	SampType: **CCB**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **85824**
Client ID: **CCB**	Batch ID: **R85824**	TestNo: **EPA 300.0**		Analysis Date: **9/27/2012**	SeqNo: **1453679**

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

Sample ID: **CCB-3**	SampType: **CCB**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **85824**
Client ID: **CCB**	Batch ID: **R85824**	TestNo: **EPA 300.0**		Analysis Date: **9/27/2012**	SeqNo: **1453685**

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

Sample ID: **CCB-4**	SampType: **CCB**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **85824**
Client ID: **CCB**	Batch ID: **R85824**	TestNo: **EPA 300.0**		Analysis Date: **9/27/2012**	SeqNo: **1453688**

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

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: N008577
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **CCB-5**	SampType: **CCB**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **85824**
Client ID: **CCB**	Batch ID: **R85824**	TestNo: **EPA 300.0**		Analysis Date: **9/27/2012**	SeqNo: **1453699**

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

Sample ID: **CCB-6**	SampType: **CCB**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **85824**
Client ID: **CCB**	Batch ID: **R85824**	TestNo: **EPA 300.0**		Analysis Date: **9/27/2012**	SeqNo: **1453703**

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

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: N008577
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 300W_NO3PGE

Sample ID: **ICB**	SampType: **ICB**	TestCode: **300W_NO3P**	Units: **mg/L**	Prep Date:	RunNo: **85824**
Client ID: **ICB**	Batch ID: **R85824**	TestNo: **EPA 300.0**		Analysis Date: **9/27/2012**	SeqNo: **1453569**

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: **CCB-1**	SampType: **CCB**	TestCode: **300W_NO3P**	Units: **mg/L**	Prep Date:	RunNo: **85824**
Client ID: **CCB**	Batch ID: **R85824**	TestNo: **EPA 300.0**		Analysis Date: **9/27/2012**	SeqNo: **1453578**

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: **CCB-2**	SampType: **CCB**	TestCode: **300W_NO3P**	Units: **mg/L**	Prep Date:	RunNo: **85824**
Client ID: **CCB**	Batch ID: **R85824**	TestNo: **EPA 300.0**		Analysis Date: **9/27/2012**	SeqNo: **1453583**

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: **CCB-3**	SampType: **CCB**	TestCode: **300W_NO3P**	Units: **mg/L**	Prep Date:	RunNo: **85824**
Client ID: **CCB**	Batch ID: **R85824**	TestNo: **EPA 300.0**		Analysis Date: **9/27/2012**	SeqNo: **1453589**

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: **CCB-4**	SampType: **CCB**	TestCode: **300W_NO3P**	Units: **mg/L**	Prep Date:	RunNo: **85824**
Client ID: **CCB**	Batch ID: **R85824**	TestNo: **EPA 300.0**		Analysis Date: **9/27/2012**	SeqNo: **1453599**

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

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: N008577
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 300W_NO3PGE

Sample ID: **CCB-5**	SampType: **CCB**	TestCode: **300W_NO3P**	Units: **mg/L**	Prep Date:	RunNo: **85824**
Client ID: **CCB**	Batch ID: **R85824**	TestNo: **EPA 300.0**		Analysis Date: **9/27/2012**	SeqNo: **1453601**

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: **CCB-6**	SampType: **CCB**	TestCode: **300W_NO3P**	Units: **mg/L**	Prep Date:	RunNo: **85824**
Client ID: **CCB**	Batch ID: **R85824**	TestNo: **EPA 300.0**		Analysis Date: **9/27/2012**	SeqNo: **1453603**

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

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

RETENTION TIME SUMMARY

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-2

Date Analyzed: **9/27/2012**

Sample Name	Analyte	Retention Time	Evaluation
ICV	Nitrate as N	2.77	
CCV-1	Nitrate as N	2.77	
CCV-2	Nitrate as N	2.72	
CCV-3	Nitrate as N	2.72	
CCV-4	Nitrate as N	2.73	
CCV-5	Nitrate as N	2.75	
CCV-6	Nitrate as N	2.71	
	Average	2.74	
	Lower Limit	2.64	
	Upper Limit	2.83	
LCS-R85824_NO3	Nitrate as N	2.76	PASS
N008574-001DDUP	Nitrate as N	2.77	PASS
N008574-002DMS	Nitrate as N	2.75	PASS
N008574-002DMSD	Nitrate as N	2.73	PASS
N008577-001A	Nitrate as N	2.74	PASS
N008579-001CMS	Nitrate as N	2.72	PASS

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-2

Date Analyzed: **9/27/2012**

Sample Name	Analyte	Retention Time	Evaluation
ICV	Chloride	1.38	
CCV-1	Chloride	1.38	
CCV-2	Chloride	1.37	
CCV-3	Chloride	1.37	
CCV-4	Chloride	1.37	
CCV-5	Chloride	1.38	
CCV-6	Chloride	1.37	
	Average	1.37	
	Lower Limit	1.35	
	Upper Limit	1.40	
LCS-R85824_CL	Chloride	1.38	PASS
N008574-002DDUP	Chloride	1.37	PASS
N008574-002DMS	Chloride	1.37	PASS
N008574-002DMSD	Chloride	1.37	PASS
N008579-001CMS	Chloride	1.38	PASS
N008577-001A	Chloride	1.37	PASS

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-2

Date Analyzed: **9/27/2012**

Sample Name	Analyte	Retention Time	Evaluation
ICV	Sulfate	5.51	
CCV-1	Sulfate	5.53	
CCV-2	Sulfate	5.49	
CCV-3	Sulfate	5.5	
CCV-4	Sulfate	5.5	
CCV-5	Sulfate	5.51	
CCV-6	Sulfate	5.53	
	Average	5.51	
	Lower Limit	5.39	
	Upper Limit	5.63	
LCS-R85824_SO4	Sulfate	5.49	PASS
N008574-002DDUP	Sulfate	5.53	PASS
N008574-002DMS	Sulfate	5.52	PASS
N008574-002DMSD	Sulfate	5.5	PASS
N008579-001CMS	Sulfate	5.51	PASS
N008577-001A	Sulfate	5.53	PASS

RAW DATA

INITIAL CALIBRATION

Sample Name: AUTOCAL1R	Date: 09/27/2012 08:52:30
Data File : C:\DX\DATA\12092701.D03	
Method : C:\DX\METHOD\120927.MET	
ACI Address: 1 System: 1 Inject#: 3	Detector:COND
Analyst : Column:	

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	1	2700	5Hz	0.00	9.00	2000

********** Component Report: All Components **********

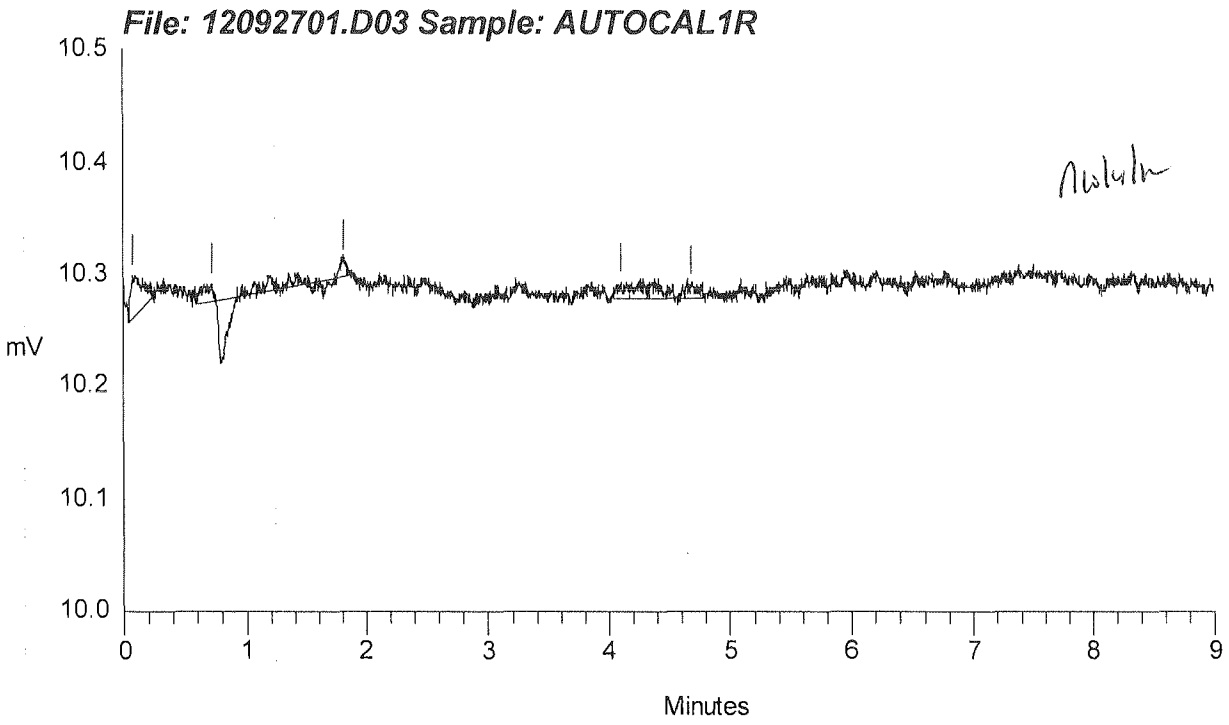
Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
0	0.00	Fluoride	0.000	0	0	0	0.00
0	0.00	Chloride	0.000	0	0	0	0.00
0	0.00	Nitrite	0.000	0	0	0	0.00
0	0.00	Bromide	0.000	0	0	0	0.00
0	0.00	Nitrate	0.000	0	0	0	0.00
0	0.00	Phosphate	0.000	0	0	0	0.00
0	0.00	Sulfate	0.000	0	0	0	0.00
		Totals	0.000	0	0		

********** Peak Report: All Peaks **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	0.08		0.000	393	2419	1	
		Totals	0.000	393	2419		

********** Peak Report: Unknown Peaks **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	0.08		0.000	393	2419	1	
		Totals	0.000	393	2419		


File: 12092701.D03 Sample: AUTOCAL1R
10.5
10.4
10.3
10.2
10.1
10.0
mV
0
1
2
3
4
5
6
7
8
9
Minutes

Sample Name: AUTOCAL2R		Date: 09/27/2012 09:04:09	
Data File : C:\DX\DATA\12092701.D04			
Method : C:\DX\METHOD\120927.MET			
ACI Address: 1 System: 1 Inject#: 4		Detector:COND	
Analyst :	Column:		

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	1	2700	5Hz	0.00	9.00	2000

********** Component Report: All Components **********

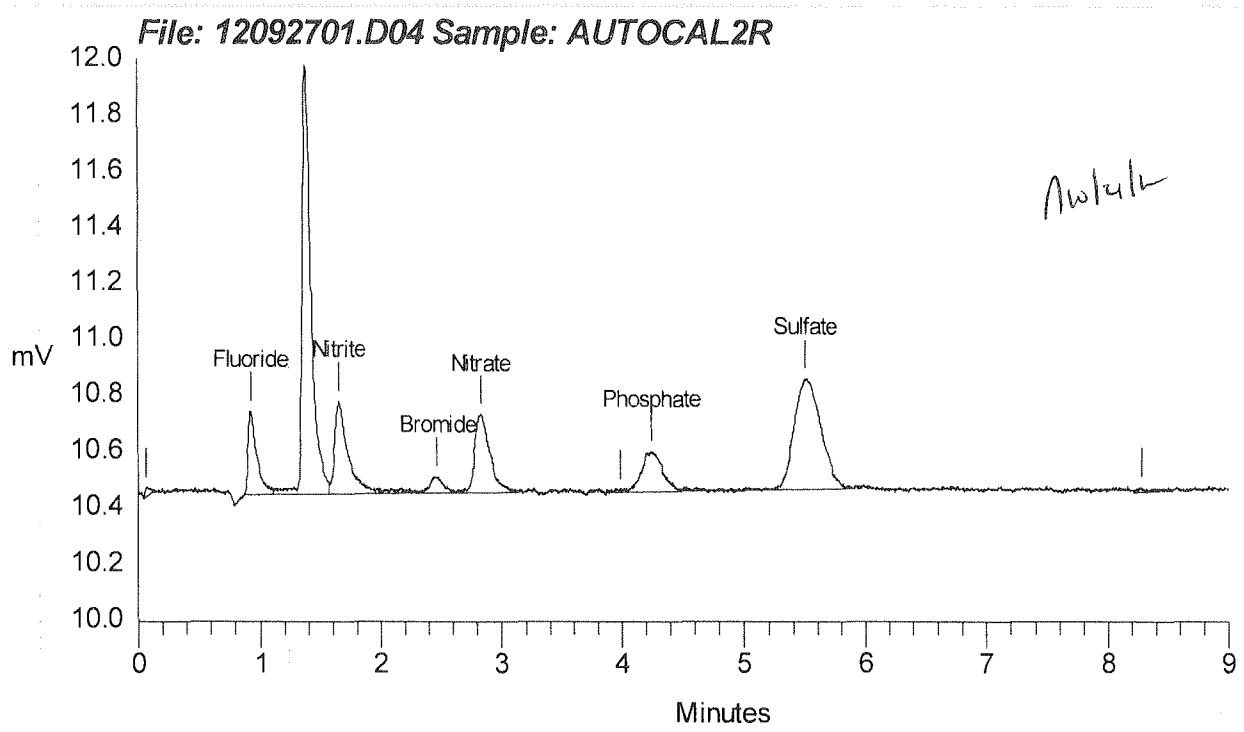
Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
2	0.93	Fluoride	0.050	2947	14563	2	0.00
3	1.39	Chloride	0.500	15257	76595	2	0.00
4	1.65	Nitrite	0.050	3265	24271	2	0.00
5	2.47	Bromide	0.050	563	4005	2	0.00
6	2.83	Nitrate	0.050	2777	23677	2	0.00
8	4.25	Phosphate	0.100	1458	17841	2	0.00
9	5.51	Sulfate	0.500	3931	60035	2	0.00
		Totals	1.300	30198	220989		

********** Peak Report: All Peaks **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
2	0.93	Fluoride	0.050	2947	14563	2	0.00
3	1.39	Chloride	0.500	15257	76595	2	0.00
4	1.65	Nitrite	0.050	3265	24271	2	0.00
5	2.47	Bromide	0.050	563	4005	2	0.00
6	2.83	Nitrate	0.050	2777	23677	2	0.00
8	4.25	Phosphate	0.100	1458	17841	2	0.00
9	5.51	Sulfate	0.500	3931	60035	2	0.00
		Totals	1.300	30198	220989		

********** Peak Report: Unknown Peaks **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
		Totals	0.000	0	0		


File: 12092701.D04 Sample: AUTOCAL2R
12.0
11.8
11.6
11.4
11.2
11.0
10.8
10.6
10.4
10.2
10.0
mV
Fluoride
Nitrite
Bromide
Nitrate
Phosphate
Sulfate
0
1
2
3
4
5
6
7
8
9
Minutes

Data Reprocessed On 09/27/2012 09:30:27

Sample Name: AUTOCAL3R		Date: 09/27/2012 09:15:48	
Data File : C:\DX\DATA\12092701.D05			
Method : C:\DX\METHOD\120927.MET			
ACI Address: 1 System: 1 Inject#: 5		Detector:COND	
Analyst :	Column:		

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	1	2700	5Hz	0.00	9.00	2000

********** Component Report: All Components **********

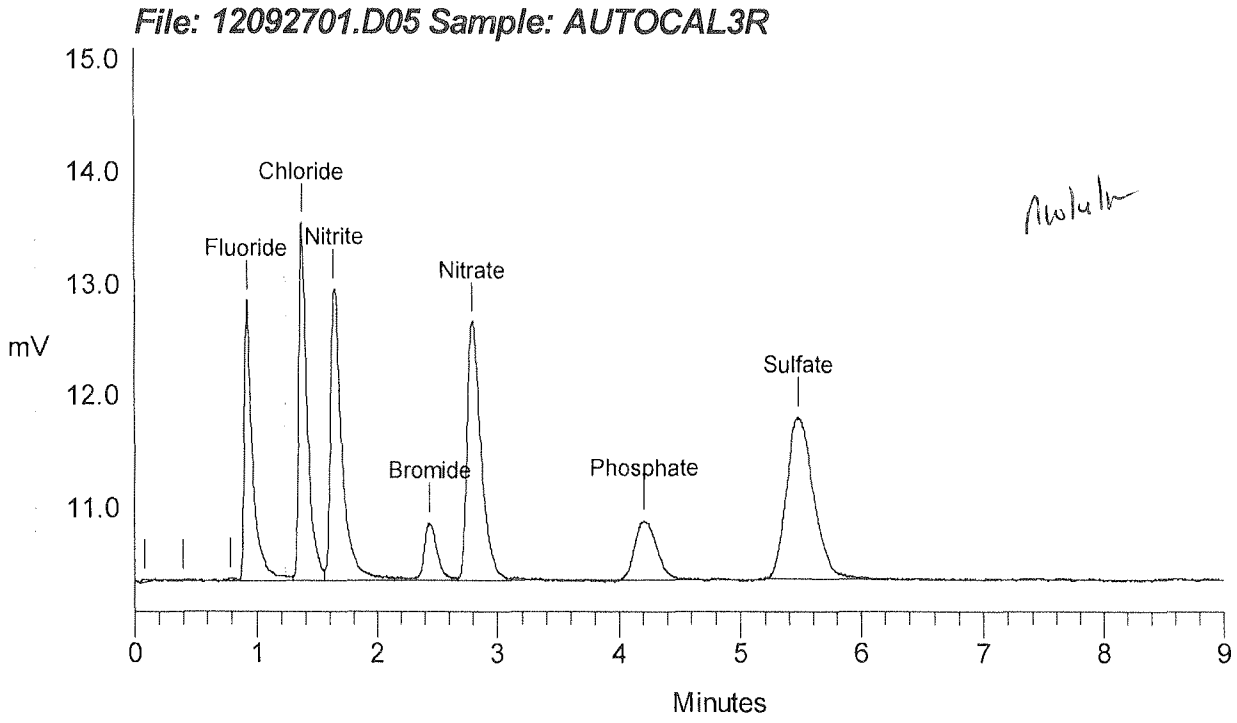
Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
4	0.93	Fluoride	0.500	24951	119026	2	0.00
5	1.38	Chloride	1.000	31798	154074	2	0.00
6	1.65	Nitrite	0.500	25917	171015	2	0.00
7	2.44	Bromide	0.500	5068	37532	2	0.00
8	2.80	Nitrate	0.500	23007	183958	2	0.00
9	4.21	Phosphate	0.500	5270	67212	2	0.00
10	5.49	Sulfate	2.000	14397	224484	1	0.00
		Totals	5.500	130408	957302		

********** Peak Report: All Peaks **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
4	0.93	Fluoride	0.500	24951	119026	2	0.00
5	1.38	Chloride	1.000	31798	154074	2	0.00
6	1.65	Nitrite	0.500	25917	171015	2	0.00
7	2.44	Bromide	0.500	5068	37532	2	0.00
8	2.80	Nitrate	0.500	23007	183958	2	0.00
9	4.21	Phosphate	0.500	5270	67212	2	0.00
10	5.49	Sulfate	2.000	14397	224484	1	0.00
		Totals	5.500	130408	957302		

********** Peak Report: Unknown Peaks **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
		Totals	0.000	0	0		


File: 12092701.D05 Sample: AUTOCAL3R
15.0
14.0
13.0
12.0
11.0
mV
Chloride
Fluoride
Nitrite
Nitrate
Sulfate
Bromide
Phosphate
0
1
2
3
4
5
6
7
8
9
Minutes

Sample Name: AUTOCAL4R			Date: 09/27/2012 09:27:27	
Data File : C:\DX\DATA\12092701.D06				
Method : C:\DX\METHOD\120927.MET				
ACI Address: 1 System: 1 Inject#: 6			Detector:COND	
Analyst :	Column:			

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	1	2700	5Hz	0.00	9.00	2000

********** Component Report: All Components **********

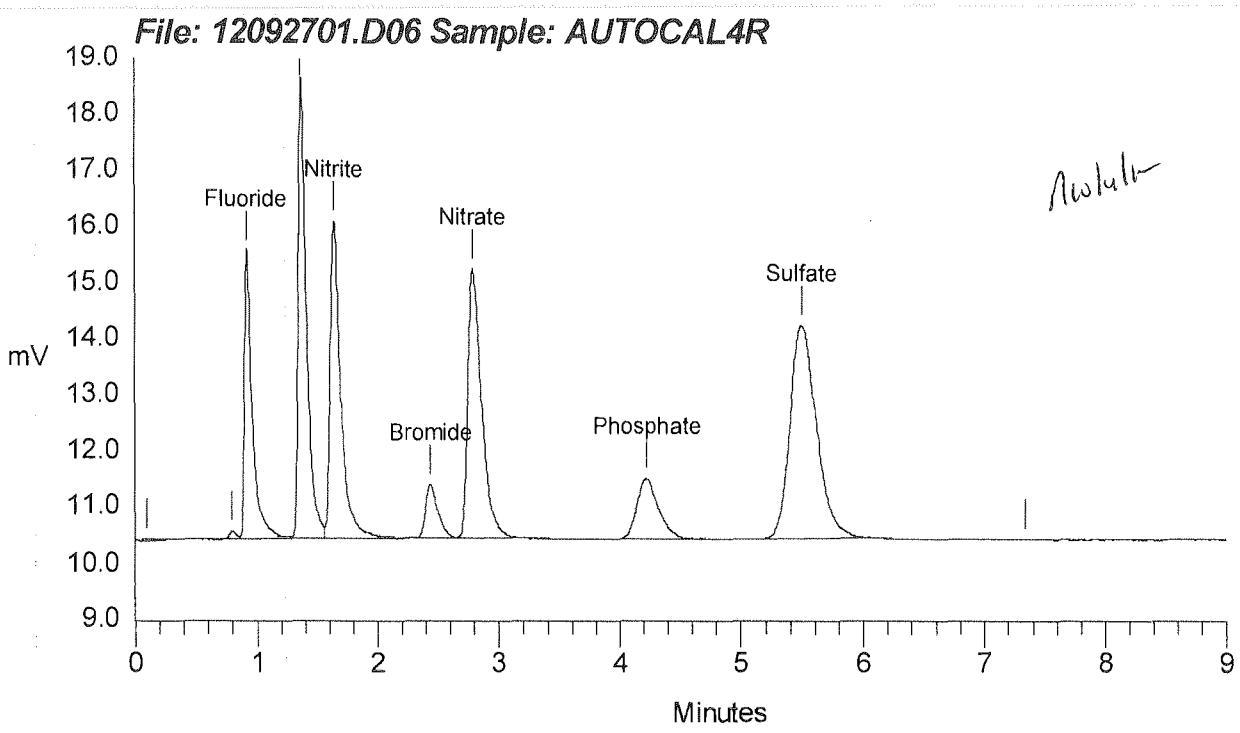
Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
3	0.92	Fluoride	1.000	51297	240469	2	0.00
4	1.37	Chloride	2.500	80670	392027	2	0.00
5	1.65	Nitrite	1.000	56506	344674	2	0.00
6	2.44	Bromide	1.000	9499	66592	2	0.00
7	2.79	Nitrate	1.000	47801	374805	2	0.00
8	4.23	Phosphate	1.000	10673	132198	1	0.00
9	5.51	Sulfate	5.000	37900	571267	1	0.00
		Totals	12.500	294346	2122032		

********** Peak Report: All Peaks **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	0.09		0.000	391	2705	1	
2	0.79		0.000	1456	5926	2	
3	0.92	Fluoride	1.000	51297	240469	2	0.00
4	1.37	Chloride	2.500	80670	392027	2	0.00
5	1.65	Nitrite	1.000	56506	344674	2	0.00
6	2.44	Bromide	1.000	9499	66592	2	0.00
7	2.79	Nitrate	1.000	47801	374805	2	0.00
8	4.23	Phosphate	1.000	10673	132198	1	0.00
9	5.51	Sulfate	5.000	37900	571267	1	0.00
		Totals	12.500	296194	2130663		

********** Peak Report: Unknown Peaks **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	0.09		0.000	391	2705	1	
2	0.79		0.000	1456	5926	2	
		Totals	0.000	1847	8631		


File: 12092701.D06 Sample: AUTOCAL4R
19.0
18.0
17.0
16.0
15.0
14.0
13.0
12.0
11.0
10.0
9.0
mV
Fluoride
Nitrite
Nitrate
Bromide
Phosphate
Sulfate
0
1
2
3
4
5
6
7
8
9
Minutes

Sample Name: AUTOCAL5R	Date: 09/27/2012 09:39:06
Data File : C:\DX\DATA\12092701.D07	
Method : C:\DX\METHOD\120927.MET	
ACI Address: 1 System: 1 Inject#: 7	Detector:COND
Analyst : Column:	

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	1	2700	5Hz	0.00	9.00	2000

********** Component Report: All Components **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
3	0.93	Fluoride	2.500	136290	625721	2	0.00
4	1.39	Chloride	5.000	172309	819681	2	0.00
5	1.65	Nitrite	2.500	152209	899783	2	0.00
6	2.45	Bromide	2.500	24488	176663	2	0.00
7	2.79	Nitrate	2.500	121694	996913	2	0.00
8	4.23	Phosphate	2.500	27033	337087	2	0.00
9	5.50	Sulfate	10.000	77663	1157760	1	0.00
		Totals	27.500	711686	5013607		

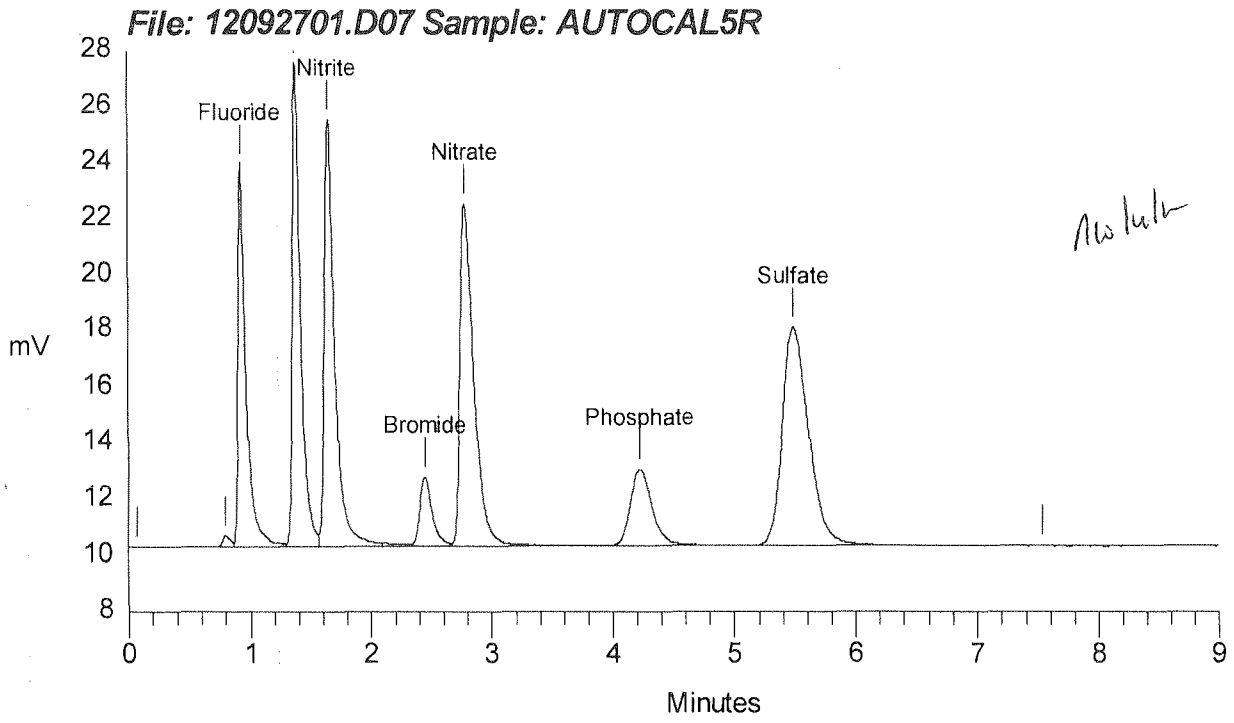
Absolute

********** Peak Report: All Peaks **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	0.07		0.000	222	2126	1	
2	0.79		0.000	3795	17207	2	
3	0.93	Fluoride	2.500	136290	625721	2	0.00
4	1.39	Chloride	5.000	172309	819681	2	0.00
5	1.65	Nitrite	2.500	152209	899783	2	0.00
6	2.45	Bromide	2.500	24488	176663	2	0.00
7	2.79	Nitrate	2.500	121694	996913	2	0.00
8	4.23	Phosphate	2.500	27033	337087	2	0.00
9	5.50	Sulfate	10.000	77663	1157760	1	0.00
		Totals	27.500	715703	5032941		

********** Peak Report: Unknown Peaks **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	0.07		0.000	222	2126	1	
2	0.79		0.000	3795	17207	2	
		Totals	0.000	4016	19333		


File: 12092701.D07 Sample: AUTOCAL5R
mV
28
26
24
22
20
18
16
14
12
10
8
Fluoride
Nitrite
Nitrate
Bromide
Phosphate
Sulfate
0
1
2
3
4
5
6
7
8
9
Minutes

Sample Name:	AUTOCAL6R	Date:	09/27/2012 09:50:45
Data File :	C:\DX\DATA\12092701.D08		
Method :	C:\DX\METHOD\120927.MET		
ACI Address: 1	System: 1 Inject#: 8	Detector:	COND
Analyst :	Column:		

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	1	2700	5Hz	0.00	9.00	2000

********** Component Report: All Components **********

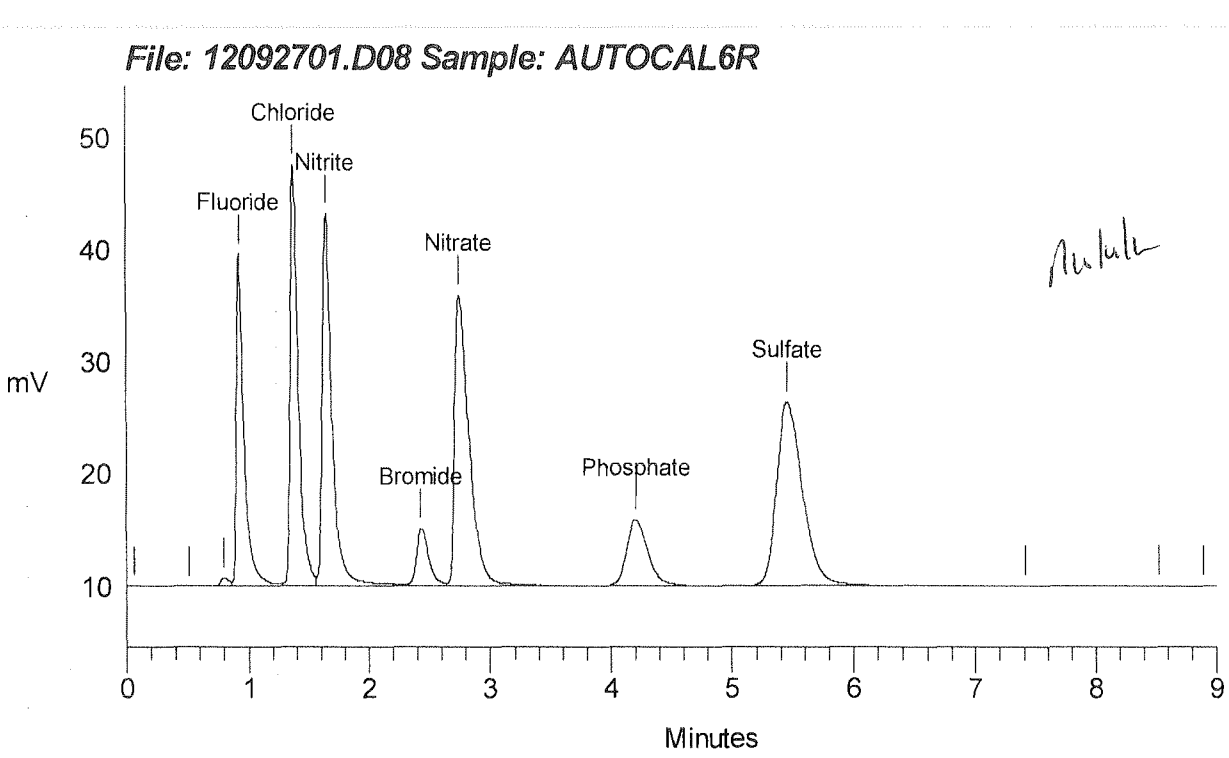
Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
4	0.93	Fluoride	5.000	295931	1325425	2	0.00
5	1.39	Chloride	10.000	374829	1746408	2	0.00
6	1.65	Nitrite	5.000	331459	1909245	2	0.00
7	2.43	Bromide	5.000	50967	361007	2	0.00
8	2.75	Nitrate	5.000	258710	2151727	2	0.00
9	4.21	Phosphate	5.000	58438	720606	2	0.00
10	5.47	Sulfate	20.000	163573	2431046	2	0.00
		Totals	55.000	1533908	10645463		

********** Peak Report: All Peaks **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	0.07		0.000	334	5144	3	
3	0.79		0.000	7673	34946	2	
4	0.93	Fluoride	5.000	295931	1325425	2	0.00
5	1.39	Chloride	10.000	374829	1746408	2	0.00
6	1.65	Nitrite	5.000	331459	1909245	2	0.00
7	2.43	Bromide	5.000	50967	361007	2	0.00
8	2.75	Nitrate	5.000	258710	2151727	2	0.00
9	4.21	Phosphate	5.000	58438	720606	2	0.00
10	5.47	Sulfate	20.000	163573	2431046	2	0.00
		Totals	55.000	1541915	10685554		

********** Peak Report: Unknown Peaks **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	0.07		0.000	334	5144	3	
3	0.79		0.000	7673	34946	2	
		Totals	0.000	8007	40090		


File: 12092701.D08 Sample: AUTOCAL6R
Chloride
Nitrite
Fluoride
Nitrate
Sulfate
Bromide
Phosphate
mV
50
40
30
20
10
0
1
2
3
4
5
6
7
8
9
Minutes

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION

Data Reprocessed On 10/05/2012 10:01:13

Sample Name: ,ICV,ICV,1,	Date: 09/27/2012 10:02:24
Data File : C:\DX\DATA\12092701.D09	
Method : C:\DX\METHOD\120927.MET	
ACI Address: 1 System: 1 Inject#: 9	Detector:COND
Analyst :	Column:

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	1	2700	5Hz	0.00	9.00	2000

********** Component Report: All Components **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
2	0.93	Fluoride	2.456	141118	638429	2	0.00
3	1.38	Chloride	2.419	82503	400632	2	0.00
4	1.65	Nitrite	2.404	152284	899458	2	0.00
5	2.43	Bromide	2.483	24734	177910	2	0.00
6	2.77	Nitrate	2.409	123407	1009043	2	0.00
7	4.23	Phosphate	2.513	28430	355435	2	0.00
8	5.51	Sulfate	4.949	38683	582936	2	0.00
		Totals	19.634	591159	4063842		

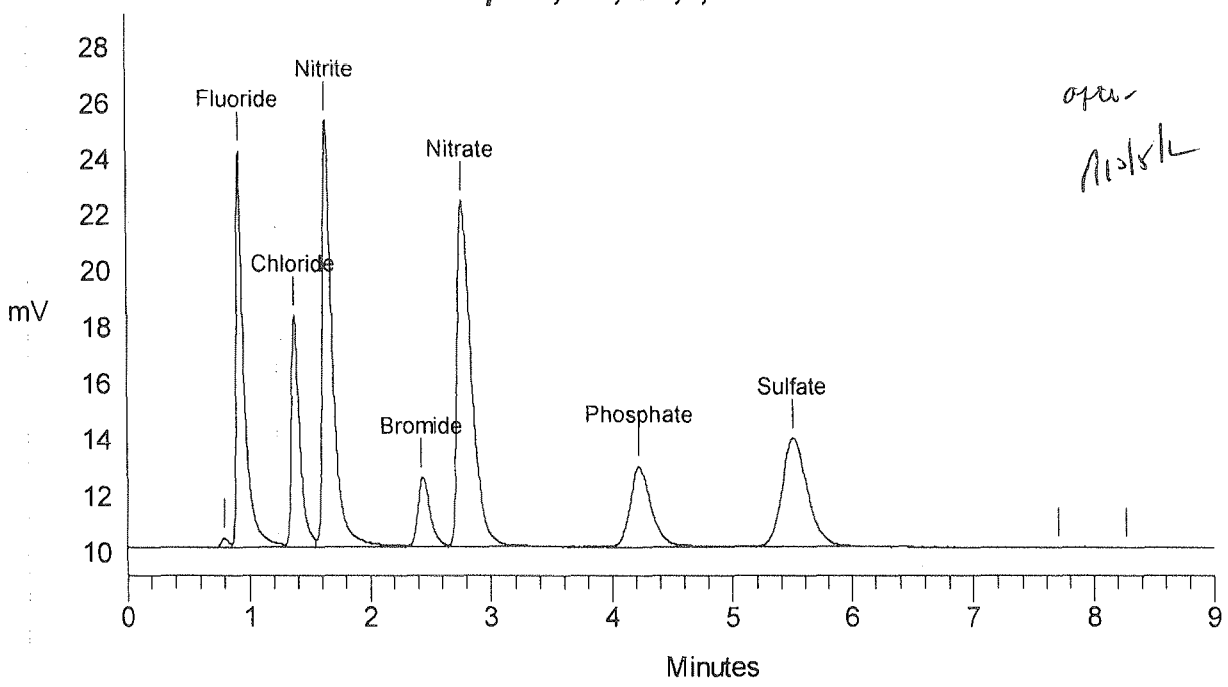
Walsh

********** Peak Report: All Peaks **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	0.79		0.000	3325	13932	2	
2	0.93	Fluoride	2.456	141118	638429	2	0.00
3	1.38	Chloride	2.419	82503	400632	2	0.00
4	1.65	Nitrite	2.404	152284	899458	2	0.00
5	2.43	Bromide	2.483	24734	177910	2	0.00
6	2.77	Nitrate	2.409	123407	1009043	2	0.00
7	4.23	Phosphate	2.513	28430	355435	2	0.00
8	5.51	Sulfate	4.949	38683	582936	2	0.00
		Totals	19.634	594484	4077775		

********** Peak Report: Unknown Peaks **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	0.79		0.000	3325	13932	2	
		Totals	0.000	3325	13932		



opw- 11/5/12

MS 10/5/2012

Sample Name: ,ICV,ICV,1,	Date: 09/27/2012 10:02:24
Data File : C:\DX\DATA\12092701.D09	
Method : C:\DX\METHOD\120927.MET	
ACI Address: 1 System: 1 Inject#: 9	Detector:COND
Analyst : Column:	

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	1	2700	5Hz	0.00	9.00	2000

********** Component Report: All Components **********

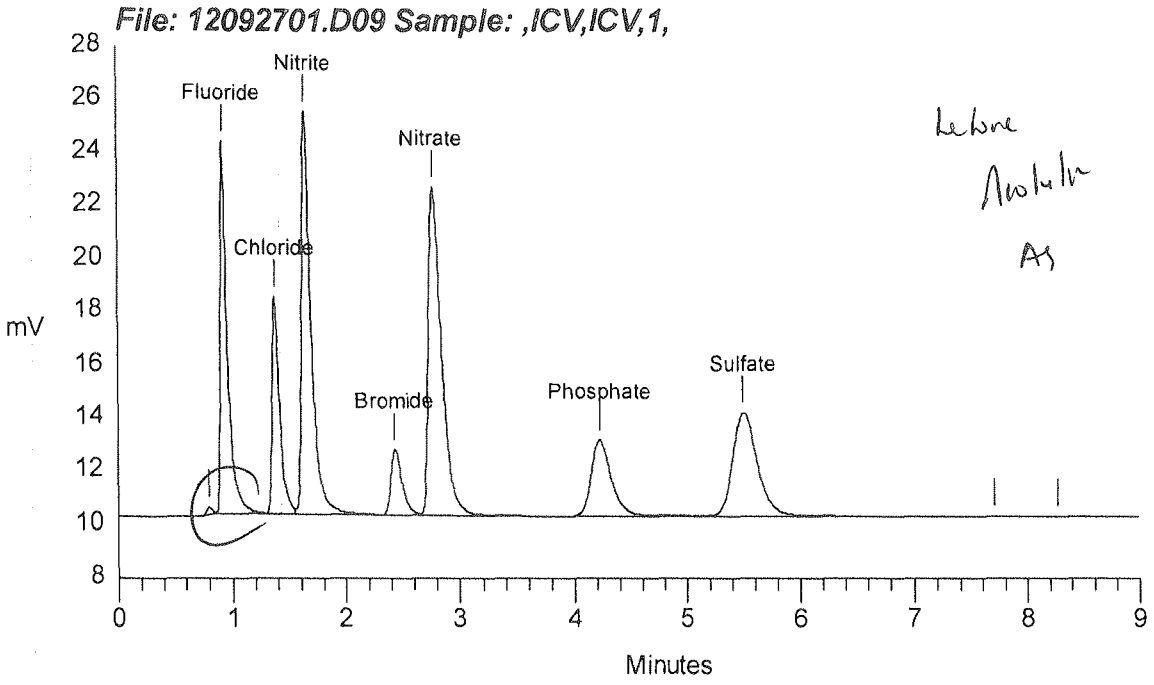
Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
2	0.93	Fluoride	2.352	140006	610843	2	0.00
3	1.38	Chloride	2.345	81615	387679	2	0.00
4	1.65	Nitrite	2.332	151528	872183	2	0.00
5	2.43	Bromide	2.348	24261	168165	2	0.00
6	2.77	Nitrate	2.385	123076	998700	2	0.00
7	4.23	Phosphate	2.513	28430	355435	2	0.00
8	5.51	Sulfate	4.949	38683	582936	2	0.00
		Totals	19.225	587599	3975942		

********** Peak Report: All Peaks **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	0.79		0.000	2803	10090	1	
2	0.93	Fluoride	2.352	140006	610843	2	0.00
3	1.38	Chloride	2.345	81615	387679	2	0.00
4	1.65	Nitrite	2.332	151528	872183	2	0.00
5	2.43	Bromide	2.348	24261	168165	2	0.00
6	2.77	Nitrate	2.385	123076	998700	2	0.00
7	4.23	Phosphate	2.513	28430	355435	2	0.00
8	5.51	Sulfate	4.949	38683	582936	2	0.00
		Totals	19.225	590403	3986032		

********** Peak Report: Unknown Peaks **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	0.79		0.000	2803	10090	1	
		Totals	0.000	2803	10090		


File: 12092701.D09 Sample: ,ICV,ICV,1,
mV
28
26
24
22
20
18
16
14
12
10
8
Fluoride
Nitrite
Nitrate
Chloride
Bromide
Phosphate
Sulfate
0
1
2
3
4
5
6
7
8
9
Minutes

Sample Name: ,CCV-1,CCV, Date: 09/27/2012 12:22:12
Data File : C:\DX\DATA\12092701.D21
Method : C:\DX\METHOD\120927.MET
ACI Address: 1 System: 1 Inject#: 21 Detector:COND
Analyst : Column:

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	1	2700	5Hz	0.00	9.00	2000

********** Component Report: All Components **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
4	0.93	Fluoride	2.459	137819	639220	2	0.00
5	1.38	Chloride	2.424	81750	401515	2	0.00
6	1.65	Nitrite	2.406	151101	900034	2	0.00
7	2.43	Bromide	2.518	25266	180431	2	0.00
8	2.77	Nitrate	2.412	123307	1010398	2	0.00
9	4.25	Phosphate	2.515	28456	355627	2	0.00
10	5.53	Sulfate	5.113	38474	602820	3	0.00
		Totals	19.847	586173	4090045		

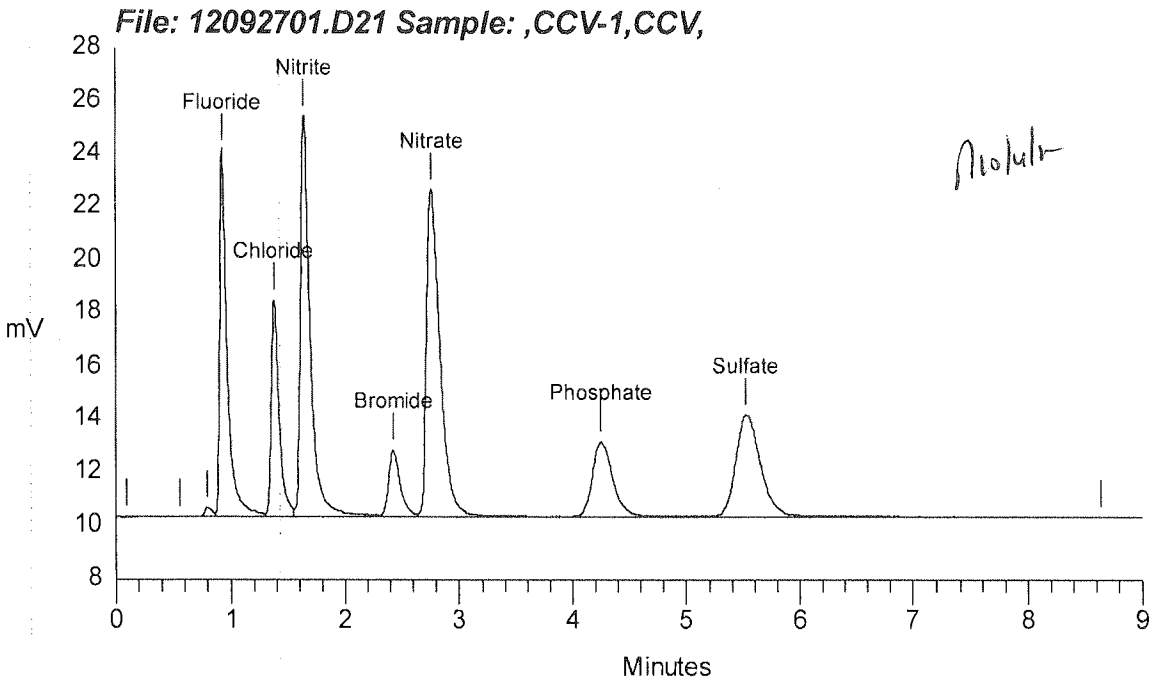
Absolute

********** Peak Report: All Peaks **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	0.09		0.000	322	2320	1	
3	0.79		0.000	3319	14929	2	
4	0.93	Fluoride	2.459	137819	639220	2	0.00
5	1.38	Chloride	2.424	81750	401515	2	0.00
6	1.65	Nitrite	2.406	151101	900034	2	0.00
7	2.43	Bromide	2.518	25266	180431	2	0.00
8	2.77	Nitrate	2.412	123307	1010398	2	0.00
9	4.25	Phosphate	2.515	28456	355627	2	0.00
10	5.53	Sulfate	5.113	38474	602820	3	0.00
		Totals	19.847	589815	4107294		

********** Peak Report: Unknown Peaks **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	0.09		0.000	322	2320	1	
3	0.79		0.000	3319	14929	2	
		Totals	0.000	3641	17249		


File: 12092701.D21 Sample: ,CCV-1,CCV,
mV
28
26
24
22
20
18
16
14
12
10
8
Fluoride
Nitrite
Nitrate
Chloride
Bromide
Phosphate
Sulfate
0
1
2
3
4
5
6
7
8
9
Minutes

Sample Name: ,CCV-2,CCV,1,	Date: 09/27/2012 15:19:37
Data File : C:\DX\DATA\12092701.D33	
Method : C:\DX\METHOD\120927.MET	
ACI Address: 1 System: 1 Inject#: 33	Detector:COND
Analyst : Column:	

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	1	2700	5Hz	0.00	9.00	2000

********** Component Report: All Components **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
3	0.92	Fluoride	2.416	132944	627746	2	0.00
4	1.37	Chloride	2.390	79177	395529	2	0.00
5	1.63	Nitrite	2.339	147261	874487	2	0.00
6	2.39	Bromide	2.450	24602	175499	2	0.00
7	2.72	Nitrate	2.373	121845	993610	2	0.00
8	4.21	Phosphate	2.584	28078	365550	2	0.00
9	5.49	Sulfate	4.971	38575	585569	2	0.00
		Totals	19.522	572482	4017990		

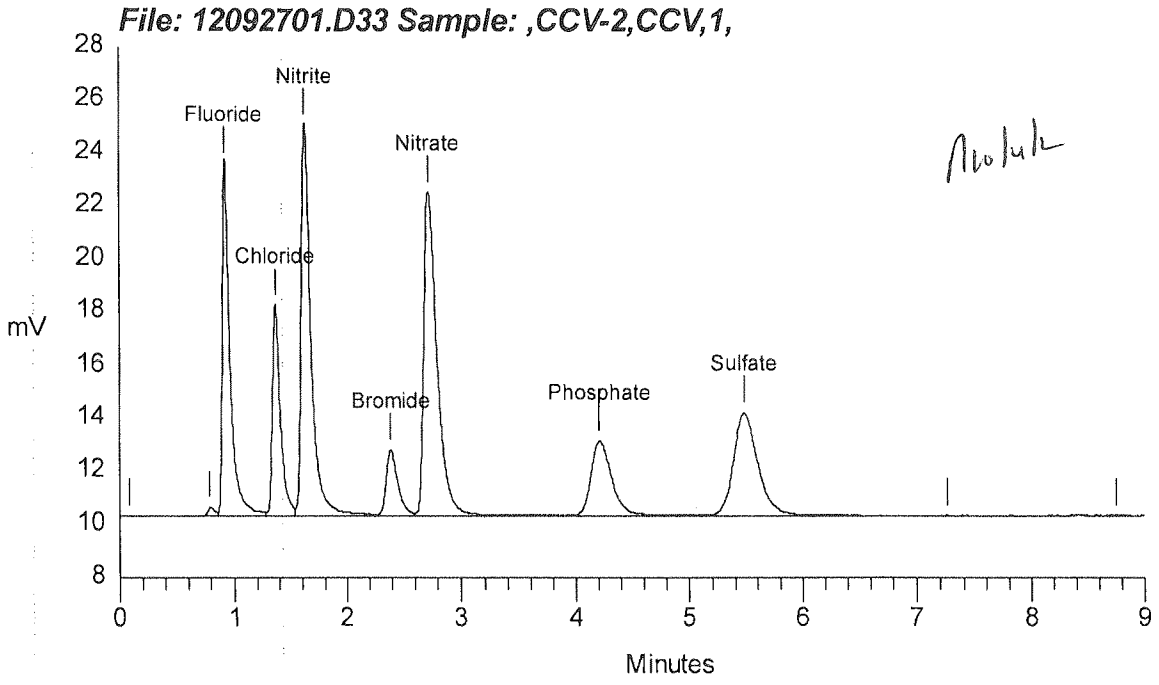
Nitrite

********** Peak Report: All Peaks **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	0.08		0.000	372	4630	1	
2	0.79		0.000	3151	14030	2	
3	0.92	Fluoride	2.416	132944	627746	2	0.00
4	1.37	Chloride	2.390	79177	395529	2	0.00
5	1.63	Nitrite	2.339	147261	874487	2	0.00
6	2.39	Bromide	2.450	24602	175499	2	0.00
7	2.72	Nitrate	2.373	121845	993610	2	0.00
8	4.21	Phosphate	2.584	28078	365550	2	0.00
9	5.49	Sulfate	4.971	38575	585569	2	0.00
		Totals	19.522	576005	4036650		

********** Peak Report: Unknown Peaks **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	0.08		0.000	372	4630	1	
2	0.79		0.000	3151	14030	2	
		Totals	0.000	3523	18660		


File: 12092701.D33 Sample: ,CCV-2,CCV,1,
mV
28
26
24
22
20
18
16
14
12
10
8
Fluoride
Nitrite
Chloride
Nitrate
Bromide
Phosphate
Sulfate
0
1
2
3
4
5
6
7
8
9
Minutes

Sample Name: ,CCV-3,CCV,1,	Date: 09/27/2012 17:39:26
Data File : C:\DX\DATA\12092701.D45	
Method : C:\DX\METHOD\120927.MET	
ACI Address: 1 System: 1 Inject#: 45	Detector:COND
Analyst :	Column:

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	1	2700	5Hz	0.00	9.00	2000

********** Component Report: All Components **********

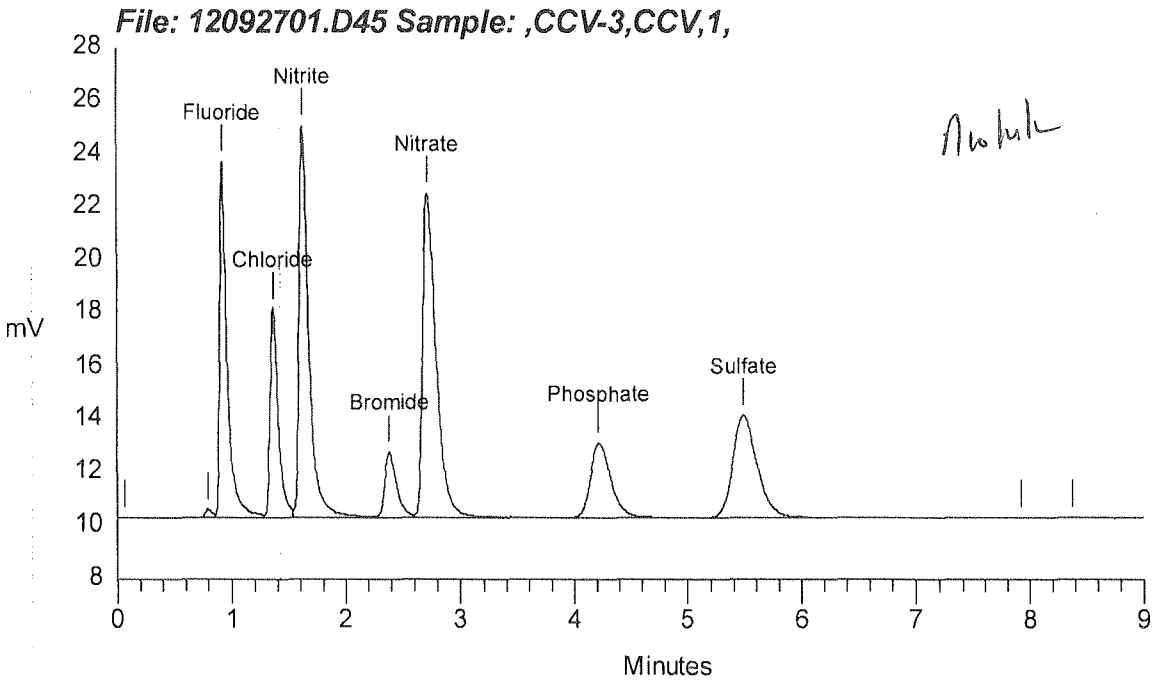
Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
3	0.93	Fluoride	2.415	133993	627600	2	0.00
4	1.37	Chloride	2.388	78807	395333	2	0.00
5	1.63	Nitrite	2.348	147785	878093	2	0.00
6	2.39	Bromide	2.471	24692	176996	2	0.00
7	2.72	Nitrate	2.383	122186	997951	2	0.00
8	4.22	Phosphate	2.538	28137	358892	2	0.00
9	5.50	Sulfate	4.926	38702	580058	3	0.00
		Totals	19.469	574301	4014924		

********** Peak Report: All Peaks **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
2	0.79		0.000	3193	13827	2	
3	0.93	Fluoride	2.415	133993	627600	2	0.00
4	1.37	Chloride	2.388	78807	395333	2	0.00
5	1.63	Nitrite	2.348	147785	878093	2	0.00
6	2.39	Bromide	2.471	24692	176996	2	0.00
7	2.72	Nitrate	2.383	122186	997951	2	0.00
8	4.22	Phosphate	2.538	28137	358892	2	0.00
9	5.50	Sulfate	4.926	38702	580058	3	0.00
10	7.93		0.000	170	3398	4	
		Totals	19.469	577664	4032150		

********** Peak Report: Unknown Peaks **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
2	0.79		0.000	3193	13827	2	
10	7.93		0.000	170	3398	4	
		Totals	0.000	3363	17226		


File: 12092701.D45 Sample: ,CCV-3,CCV,1,
mV
28
26
24
22
20
18
16
14
12
10
8
Fluoride
Nitrite
Chloride
Nitrate
Bromide
Phosphate
Sulfate
0
1
2
3
4
5
6
7
8
9
Minutes

Sample Name: ,CCV-4,CCV,1,	Date: 09/27/2012 19:59:14
Data File : C:\DX\DATA\12092701.D57	
Method : C:\DX\METHOD\120927.MET	
ACI Address: 1 System: 1 Inject#: 57	Detector:COND
Analyst : Column:	

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	1	2700	5Hz	0.00	9.00	2000

********** Component Report: All Components **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
3	0.92	Fluoride	2.418	132708	628180	2	0.00
4	1.37	Chloride	2.368	78263	391811	2	0.00
5	1.63	Nitrite	2.298	145391	858929	2	0.00
6	2.39	Bromide	2.379	24273	170368	2	0.00
7	2.73	Nitrate	2.328	120894	974157	2	0.00
8	4.23	Phosphate	2.489	28071	351894	2	0.00
9	5.50	Sulfate	4.880	38448	574584	2	0.00
		Totals	19.159	568049	3949925		

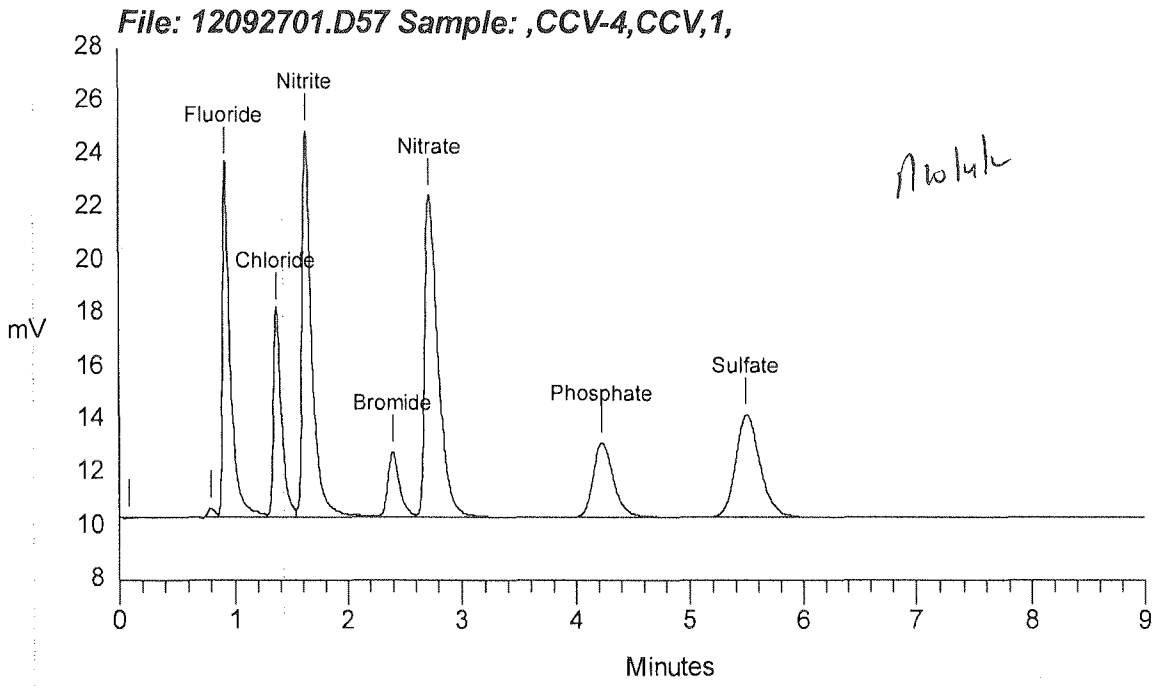
Analyte

********** Peak Report: All Peaks **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
2	0.79		0.000	3296	14174	2	
3	0.92	Fluoride	2.418	132708	628180	2	0.00
4	1.37	Chloride	2.368	78263	391811	2	0.00
5	1.63	Nitrite	2.298	145391	858929	2	0.00
6	2.39	Bromide	2.379	24273	170368	2	0.00
7	2.73	Nitrate	2.328	120894	974157	2	0.00
8	4.23	Phosphate	2.489	28071	351894	2	0.00
9	5.50	Sulfate	4.880	38448	574584	2	0.00
		Totals	19.159	571345	3964099		

********** Peak Report: Unknown Peaks **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
2	0.79		0.000	3296	14174	2	
		Totals	0.000	3296	14174		


File: 12092701.D57 Sample: ,CCV-4,CCV,1,
mV
28
26
24
22
20
18
16
14
12
10
8
Fluoride
Nitrite
Nitrate
Chloride
Bromide
Phosphate
Sulfate
0
1
2
3
4
5
6
7
8
9
Minutes

Sample Name: ,CCV-5,CCV,1,	Date: 09/27/2012 22:19:02
Data File : C:\DX\DATA\12092701.D69	
Method : C:\DX\METHOD\120927.MET	
ACI Address: 1 System: 1 Inject#: 69	Detector:COND
Analyst : Column:	

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	1	2700	5Hz	0.00	9.00	2000

********** Component Report: All Components **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
5	0.93	Fluoride	2.413	133516	627021	2	0.00
6	1.38	Chloride	2.373	78911	392659	2	0.00
7	1.65	Nitrite	2.376	149626	888918	2	0.00
8	2.41	Bromide	2.498	25118	178929	2	0.00
9	2.75	Nitrate	2.342	121521	980463	2	0.00
10	4.25	Phosphate	2.517	28744	355915	2	0.00
11	5.51	Sulfate	4.908	38301	577963	2	0.00
		Totals	19.428	575736	4001867		

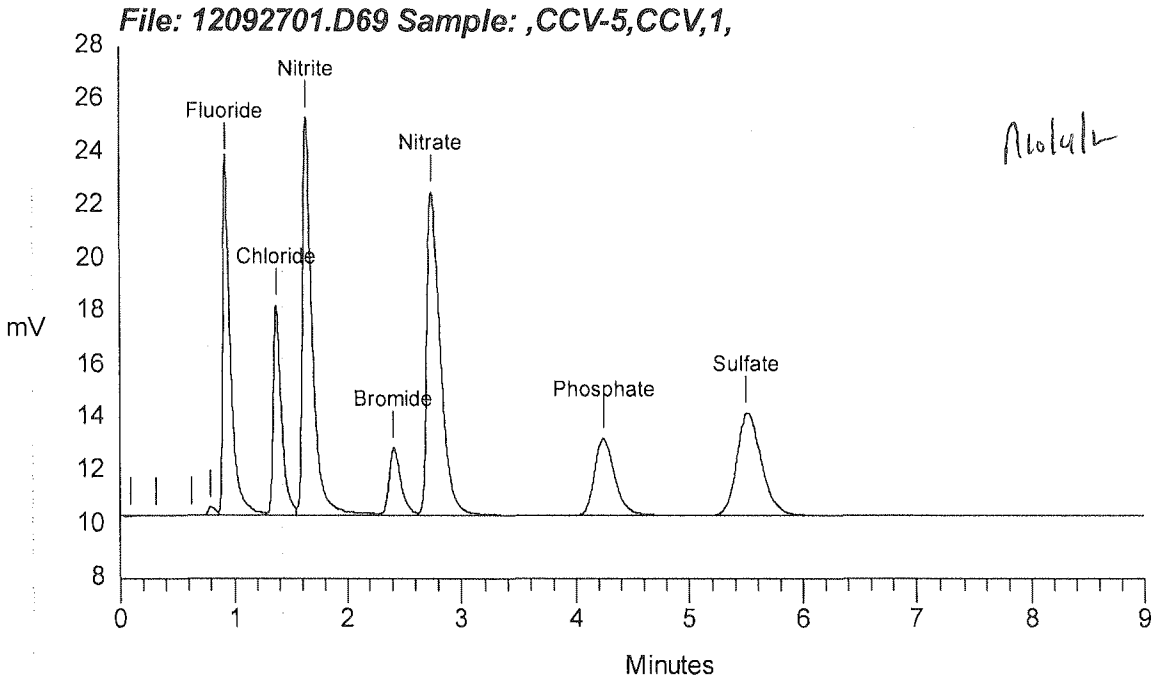
Awlulh

********** Peak Report: All Peaks **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
4	0.80		0.000	3024	13371	2	
5	0.93	Fluoride	2.413	133516	627021	2	0.00
6	1.38	Chloride	2.373	78911	392659	2	0.00
7	1.65	Nitrite	2.376	149626	888918	2	0.00
8	2.41	Bromide	2.498	25118	178929	2	0.00
9	2.75	Nitrate	2.342	121521	980463	2	0.00
10	4.25	Phosphate	2.517	28744	355915	2	0.00
11	5.51	Sulfate	4.908	38301	577963	2	0.00
		Totals	19.428	578761	4015238		

********** Peak Report: Unknown Peaks **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
4	0.80		0.000	3024	13371	2	
		Totals	0.000	3024	13371		


File: 12092701.D69 Sample: ,CCV-5,CCV,1,
mV
28
26
24
22
20
18
16
14
12
10
8
Fluoride
Nitrite
Nitrate
Chloride
Bromide
Phosphate
Sulfate
0
1
2
3
4
5
6
7
8
9
Minutes

Sample Name: ,CCV-6,CCV,1,	Date: 09/27/2012 23:28:56
Data File : C:\DX\DATA\12092701.D75	
Method : C:\DX\METHOD\120927.MET	
ACI Address: 1 System: 1 Inject#: 75	Detector:COND
Analyst : Column:	

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	1	2700	5Hz	0.00	9.00	2000

********** Component Report: All Components **********

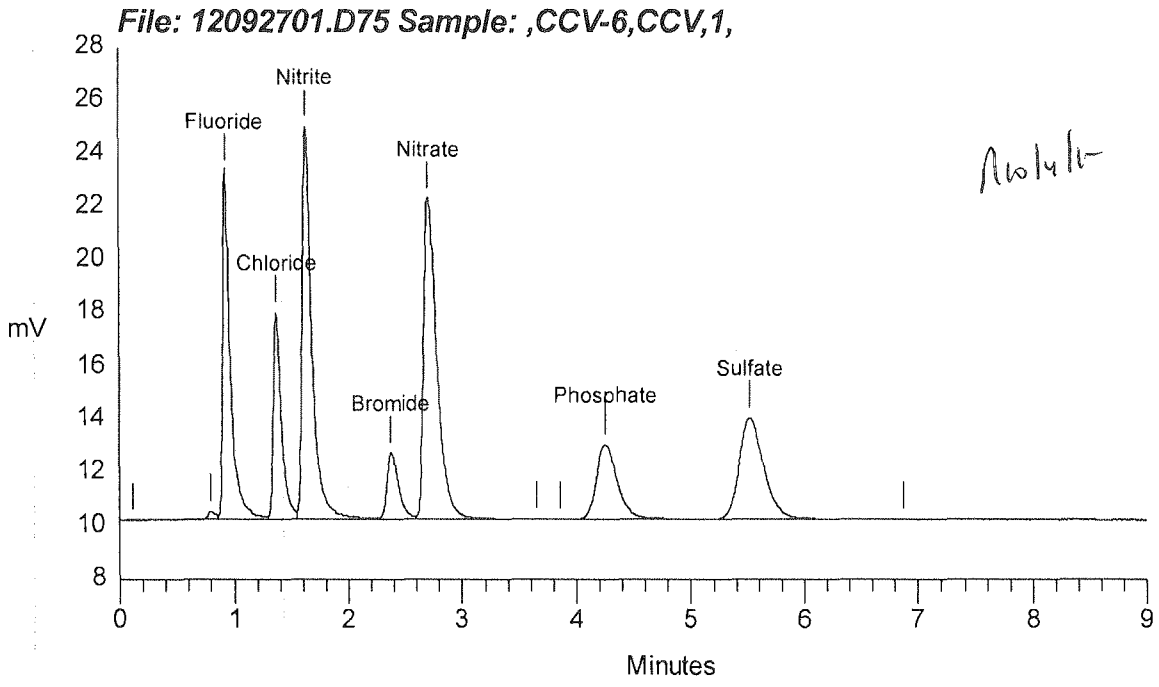
Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
3	0.93	Fluoride	2.398	131227	622916	2	0.00
4	1.37	Chloride	2.360	77739	390420	2	0.00
5	1.63	Nitrite	2.362	147699	883548	2	0.00
6	2.38	Bromide	2.498	24934	178960	2	0.00
7	2.71	Nitrate	2.339	120624	978812	3	0.00
10	4.26	Phosphate	2.526	27973	357249	2	0.00
11	5.53	Sulfate	4.867	38029	572999	2	0.00
		Totals	19.350	568224	3984904		

********** Peak Report: All Peaks **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
2	0.80		0.000	2990	13261	2	
3	0.93	Fluoride	2.398	131227	622916	2	0.00
4	1.37	Chloride	2.360	77739	390420	2	0.00
5	1.63	Nitrite	2.362	147699	883548	2	0.00
6	2.38	Bromide	2.498	24934	178960	2	0.00
7	2.71	Nitrate	2.339	120624	978812	3	0.00
10	4.26	Phosphate	2.526	27973	357249	2	0.00
11	5.53	Sulfate	4.867	38029	572999	2	0.00
		Totals	19.350	571214	3998164		

********** Peak Report: Unknown Peaks **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
2	0.80		0.000	2990	13261	2	
		Totals	0.000	2990	13261		


File: 12092701.D75 Sample: ,CCV-6,CCV,1,
mV
28
26
24
22
20
18
16
14
12
10
8
Fluoride
Nitrite
Nitrate
Chloride
Bromide
Phosphate
Sulfate
0
1
2
3
4
5
6
7
8
9
Minutes

INITIAL CALIBRATION AND CONTINUING CALIBRATION BLANKS

```
==============================================================================
| Sample Name: ,ICB,ICB,1,                    Date: 09/27/2012 10:14:03      |
| Data File  : C:\DX\DATA\12092701.D10                                       |
| Method     : C:\DX\METHOD\120927.MET                                       |
| ACI Address: 1  System: 1  Inject#: 10                  Detector:COND      |
| Analyst    :                Column:                                       |
==============================================================================
```

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area	Reject
External	1	1	2700	5Hz	0.00	9.00		2000

********** Component Report: All Components **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
0	0.00	Fluoride	0.000	0	0	0	0.00
0	0.00	Chloride	0.000	0	0	0	0.00
0	0.00	Nitrite	0.000	0	0	0	0.00
0	0.00	Bromide	0.000	0	0	0	0.00
0	0.00	Nitrate	0.000	0	0	0	0.00
0	0.00	Phosphate	0.000	0	0	0	0.00
0	0.00	Sulfate	0.000	0	0	0	0.00
		Totals	0.000	0	0		

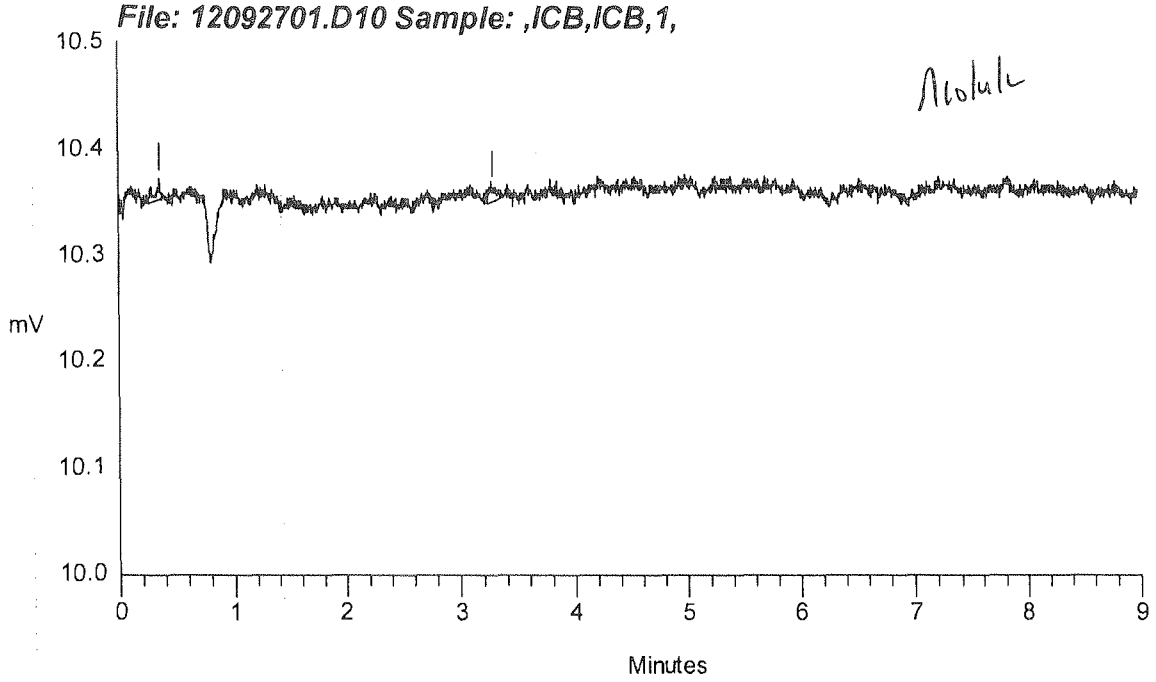
Aiolulu

********** Peak Report: All Peaks **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
		Totals	0.000	0	0		

********** Peak Report: Unknown Peaks **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
		Totals	0.000	0	0		


File: 12092701.D10 Sample: ,ICB,ICB,1,
Acetate
10.5
10.4
10.3
mV
10.2
10.1
10.0
0
1
2
3
4
5
6
7
8
9
Minutes

Data Reprocessed On 10/05/2012 10:04:47

Sample Name: ,CCB-1,CCB,1,		Date: 09/27/2012 12:33:51	
Data File : C:\DX\DATA\12092701.D22			
Method : C:\DX\METHOD\120927.MET			
ACI Address: 1 System: 1 Inject#: 22		Detector:COND	
Analyst :	Column:		

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	1	2700	5Hz	0.00	9.00	2000

********** Component Report: All Components **********

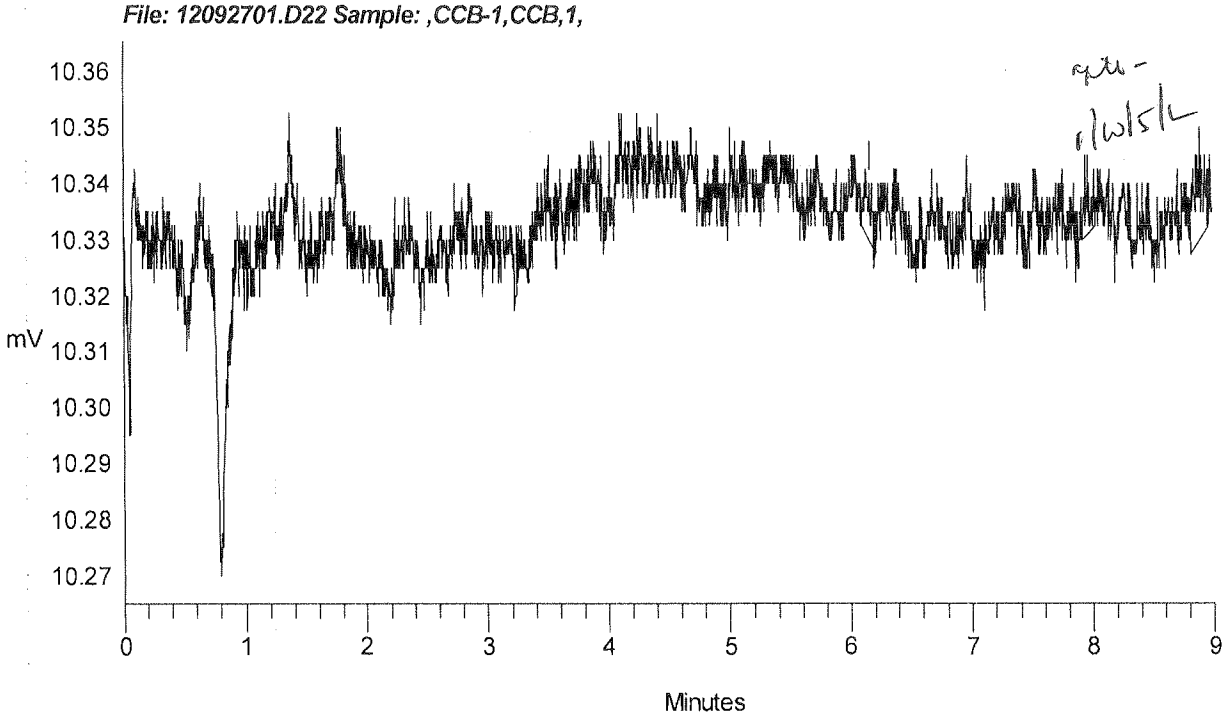
Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
0	0.00	Fluoride	0.000	0	0	0	0.00
0	0.00	Chloride	0.000	0	0	0	0.00
0	0.00	Nitrite	0.000	0	0	0	0.00
0	0.00	Bromide	0.000	0	0	0	0.00
0	0.00	Nitrate	0.000	0	0	0	0.00
0	0.00	Phosphate	0.000	0	0	0	0.00
0	0.00	Sulfate	0.000	0	0	0	0.00
		Totals	0.000	0	0		

********** Peak Report: All Peaks **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
		Totals	0.000	0	0		

********** Peak Report: Unknown Peaks **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
		Totals	0.000	0	0		


File: 12092701.D22 Sample: ,CCB-1,CCB,1,
10.36
10.35
10.34
10.33
10.32
mV
10.31
10.30
10.29
10.28
10.27
0
1
2
3
4
5
6
7
8
9
Minutes

MS 10/5/2012

Sample Name: ,CCB-1,CCB,1, Date: 09/27/2012 12:33:51
Data File : C:\DX\DATA\12092701.D22
Method : C:\DX\METHOD\120927.MET
ACI Address: 1 System: 1 Inject#: 22 Detector:COND
Analyst : Column:

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	1	2700	5Hz	0.00	9.00	2000

********** Component Report: All Components **********

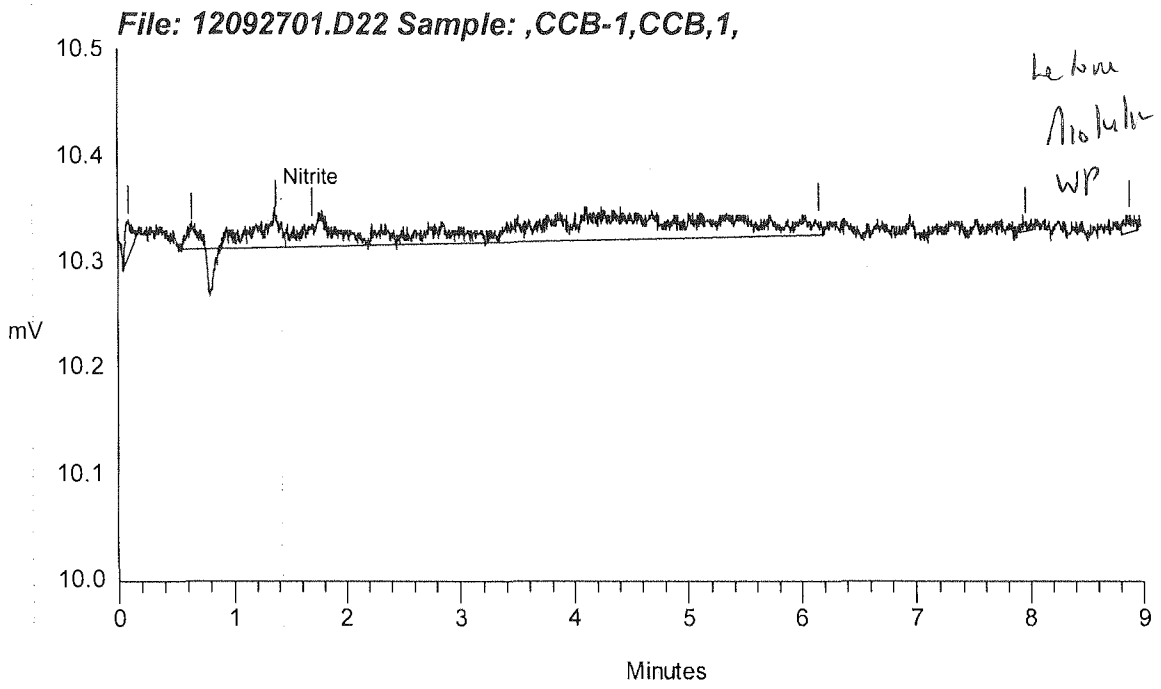
Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
0	0.00	Fluoride	0.000	0	0	0	0.00
0	0.00	Chloride	0.000	0	0	0	0.00
4	1.69	Nitrite	0.056	193	4693	2	0.00
0	0.00	Bromide	0.000	0	0	0	0.00
0	0.00	Nitrate	0.000	0	0	0	0.00
0	0.00	Phosphate	0.000	0	0	0	0.00
0	0.00	Sulfate	0.000	0	0	0	0.00
		Totals	0.056	193	4693		

********** Peak Report: All Peaks **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
4	1.69	Nitrite	0.056	193	4693	2	0.00
		Totals	0.056	193	4693		

********** Peak Report: Unknown Peaks **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
		Totals	0.000	0	0		


File: 12092701.D22 Sample: ,CCB-1,CCB,1,
10.5
10.4
10.3
10.2
10.1
10.0
mV
Nitrite
0
1
2
3
4
5
6
7
8
9
Minutes

Sample Name: ,CCB-2,CCB,1,	Date: 09/27/2012 15:31:16
Data File : C:\DX\DATA\12092701.D34	
Method : C:\DX\METHOD\120927.MET	
ACI Address: 1 System: 1 Inject#: 34	Detector:COND
Analyst :	Column:

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	1	2700	5Hz	0.00	9.00	2000

********** Component Report: All Components **********

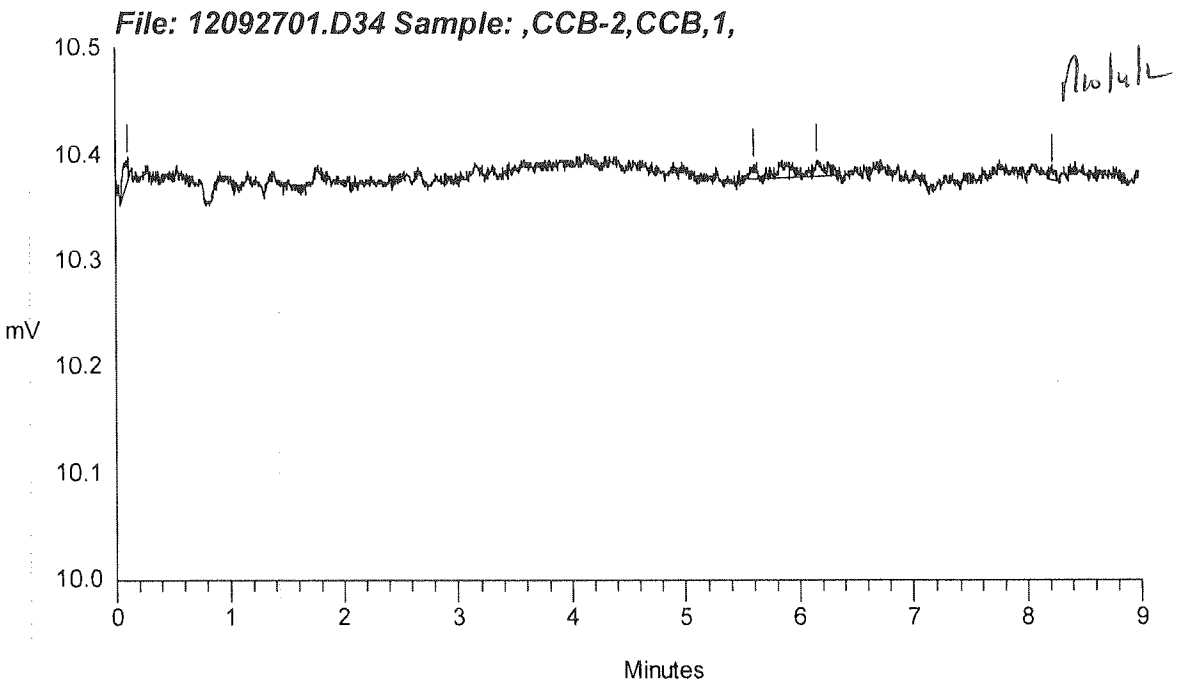
Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
0	0.00	Fluoride	0.000	0	0	0	0.00
0	0.00	Chloride	0.000	0	0	0	0.00
0	0.00	Nitrite	0.000	0	0	0	0.00
0	0.00	Bromide	0.000	0	0	0	0.00
0	0.00	Nitrate	0.000	0	0	0	0.00
0	0.00	Phosphate	0.000	0	0	0	0.00
0	0.00	Sulfate	0.000	0	0	0	0.00
		Totals	0.000	0	0		

********** Peak Report: All Peaks **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
		Totals	0.000	0	0		

********** Peak Report: Unknown Peaks **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
		Totals	0.000	0	0		


File: 12092701.D34 Sample: ,CCB-2,CCB,1,
10.5
10.4
10.3
mV
10.2
10.1
10.0
0
1
2
3
4
5
6
7
8
9
Minutes

```
| Sample Name: ,CCB-3,CCB,1,                    Date: 09/27/2012 17:51:05      |
| Data File  : C:\DX\DATA\12092701.D46                                         |
| Method     : C:\DX\METHOD\120927.MET                                         |
| ACI Address: 1  System: 1  Inject#: 46                 Detector:COND         |
| Analyst    :                Column:                                         |
```

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	1	2700	5Hz	0.00	9.00	2000

********** Component Report: All Components **********

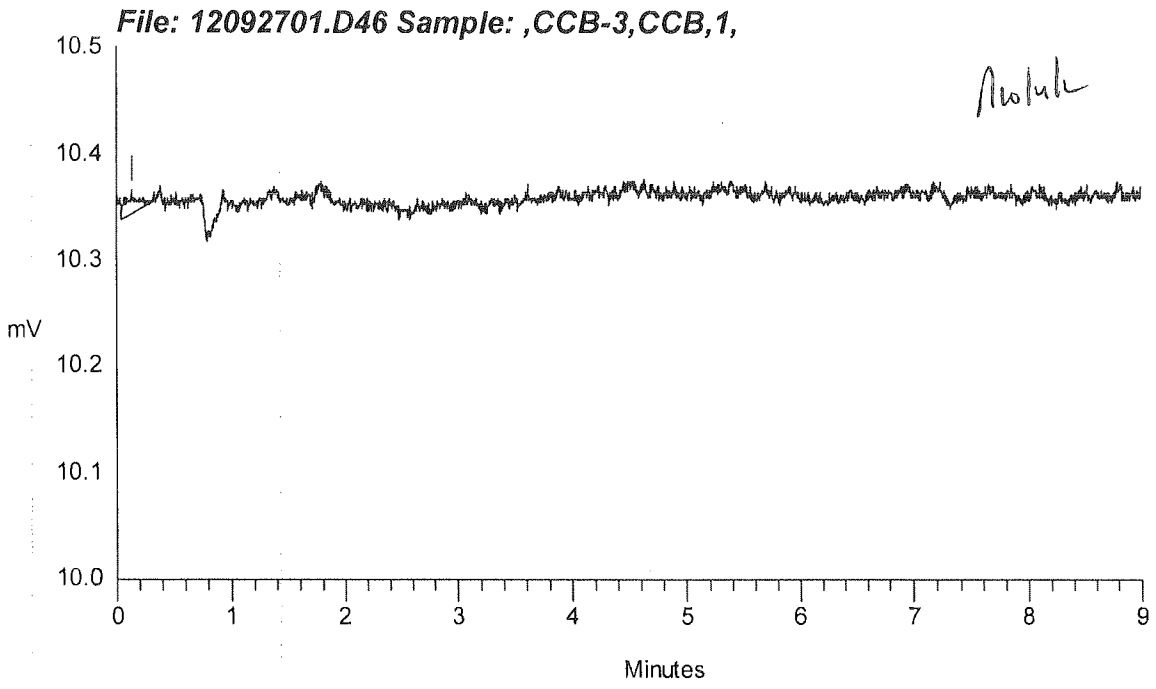
Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
0	0.00	Fluoride	0.000	0	0	0	0.00
0	0.00	Chloride	0.000	0	0	0	0.00
0	0.00	Nitrite	0.000	0	0	0	0.00
0	0.00	Bromide	0.000	0	0	0	0.00
0	0.00	Nitrate	0.000	0	0	0	0.00
0	0.00	Phosphate	0.000	0	0	0	0.00
0	0.00	Sulfate	0.000	0	0	0	0.00
		Totals	0.000	0	0		

********** Peak Report: All Peaks **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
		Totals	0.000	0	0		

********** Peak Report: Unknown Peaks **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
		Totals	0.000	0	0		


File: 12092701.D46 Sample: ,CCB-3,CCB,1,
10.5
10.4
10.3
mV
10.2
10.1
10.0
0
1
2
3
4
5
6
7
8
9
Minutes

Sample Name: ,CCB-4,CCB,1,	Date: 09/27/2012 20:10:53	
Data File : C:\DX\DATA\12092701.D58		
Method : C:\DX\METHOD\120927.MET		
ACI Address: 1 System: 1 Inject#: 58	Detector:COND	
Analyst :	Column:	

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	1	2700	5Hz	0.00	9.00	2000

********** Component Report: All Components **********

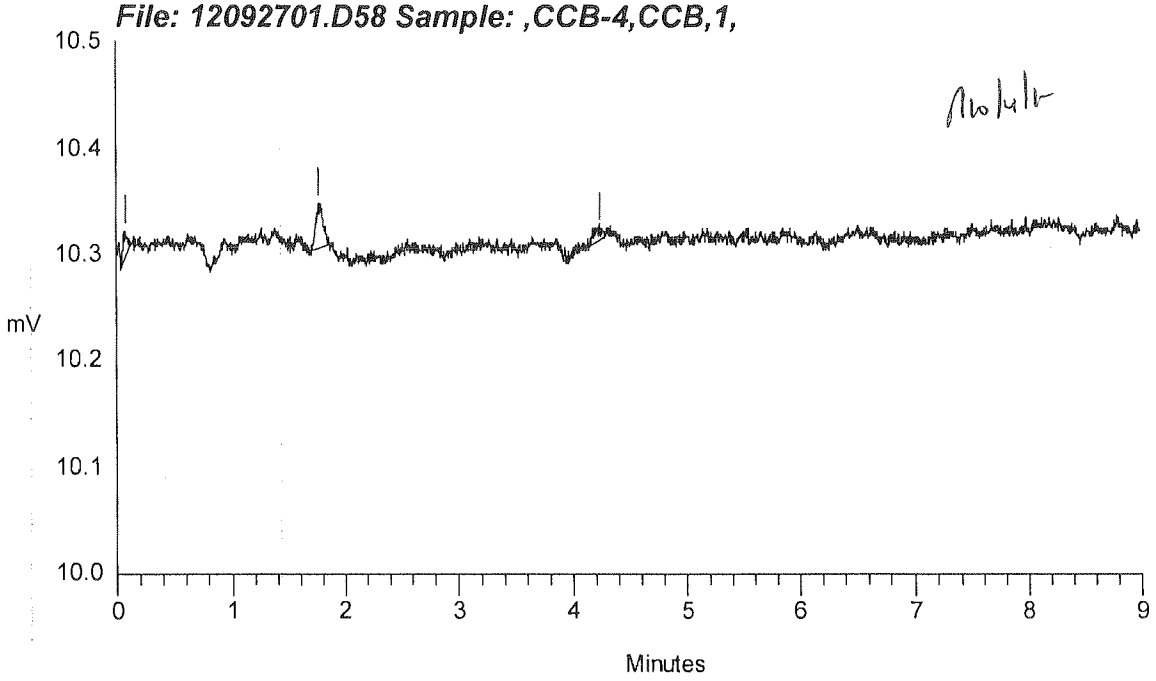
Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
0	0.00	Fluoride	0.000	0	0	0	0.00
0	0.00	Chloride	0.000	0	0	0	0.00
0	0.00	Nitrite	0.000	0	0	0	0.00
0	0.00	Bromide	0.000	0	0	0	0.00
0	0.00	Nitrate	0.000	0	0	0	0.00
0	0.00	Phosphate	0.000	0	0	0	0.00
0	0.00	Sulfate	0.000	0	0	0	0.00
		Totals	0.000	0	0		

********** Peak Report: All Peaks **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
		Totals	0.000	0	0		

********** Peak Report: Unknown Peaks **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
		Totals	0.000	0	0		


File: 12092701.D58 Sample: ,CCB-4,CCB,1,
10.5
10.4
10.3
10.2
10.1
10.0
mV
0
1
2
3
4
5
6
7
8
9
Minutes

```
Sample Name: ,CCB-5,CCB,1,                    Date: 09/27/2012 22:30:41
Data File  : C:\DX\DATA\12092701.D70
Method     : C:\DX\METHOD\120927.MET
ACI Address: 1  System: 1  Inject#: 70                  Detector:COND
Analyst    :               Column:
```

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	1	2700	5Hz	0.00	9.00	2000

********** Component Report: All Components **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
0	0.00	Fluoride	0.000	0	0	0	0.00
0	0.00	Chloride	0.000	0	0	0	0.00
0	0.00	Nitrite	0.000	0	0	0	0.00
0	0.00	Bromide	0.000	0	0	0	0.00
0	0.00	Nitrate	0.000	0	0	0	0.00
0	0.00	Phosphate	0.000	0	0	0	0.00
0	0.00	Sulfate	0.000	0	0	0	0.00
		Totals	0.000	0	0		

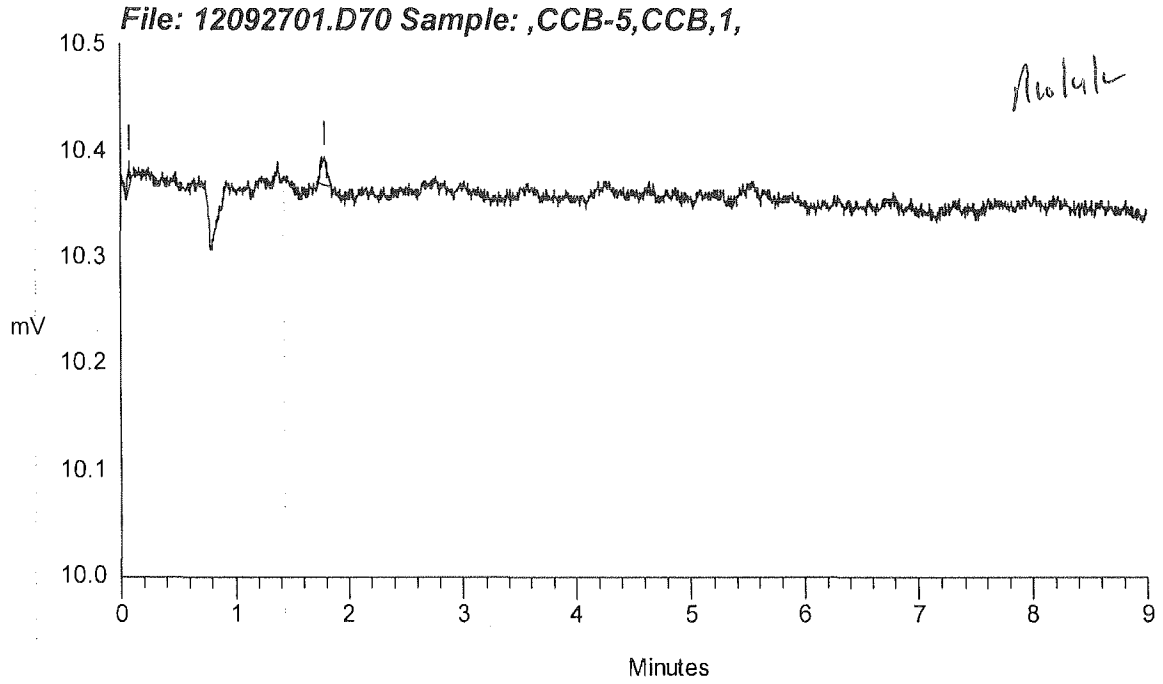
Analyte

********** Peak Report: All Peaks **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
		Totals	0.000	0	0		

********** Peak Report: Unknown Peaks **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
		Totals	0.000	0	0		


File: 12092701.D70 Sample: ,CCB-5,CCB,1,
10.5
10.4
10.3
mV
10.2
10.1
10.0
0
1
2
3
4
5
6
7
8
9
Minutes

```
Sample Name: ,CCB-6,CCB,1,                    Date: 09/27/2012 23:40:35
Data File  : C:\DX\DATA\12092701.D76
Method     : C:\DX\METHOD\120927.MET
ACI Address: 1  System: 1  Inject#: 76                  Detector:COND
Analyst    :               Column:
```

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	1	2700	5Hz	0.00	9.00	2000

********** Component Report: All Components **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
0	0.00	Fluoride	0.000	0	0	0	0.00
0	0.00	Chloride	0.000	0	0	0	0.00
0	0.00	Nitrite	0.000	0	0	0	0.00
0	0.00	Bromide	0.000	0	0	0	0.00
0	0.00	Nitrate	0.000	0	0	0	0.00
0	0.00	Phosphate	0.000	0	0	0	0.00
0	0.00	Sulfate	0.000	0	0	0	0.00
		Totals	0.000	0	0		

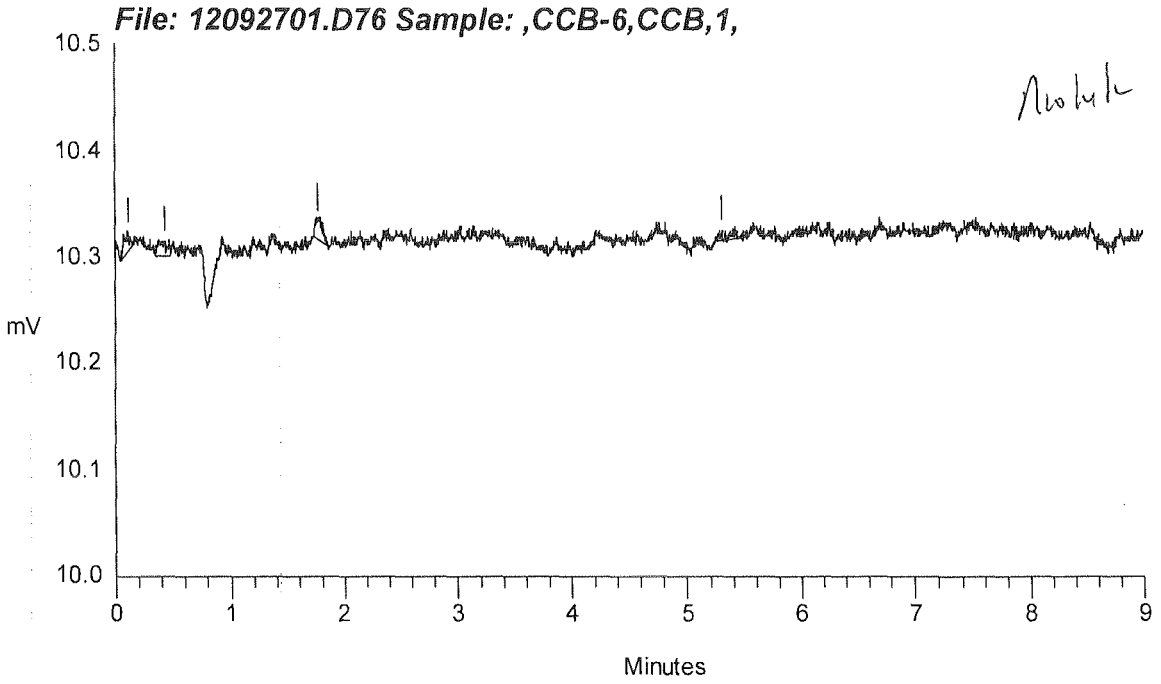
Analyte

********** Peak Report: All Peaks **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
		Totals	0.000	0	0		

********** Peak Report: Unknown Peaks **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
		Totals	0.000	0	0		


File: 12092701.D76 Sample: ,CCB-6,CCB,1,
10.5
10.4
10.3
10.2
10.1
10.0
mV
0
1
2
3
4
5
6
7
8
9
Minutes

QUALITY CONTROL

Data Reprocessed On 10/05/2012 10:02:28

Sample Name:	,MB-H2O,MBLK,1,
Data File :	C:\DX\DATA\12092701.D11
Method :	C:\DX\METHOD\120927.MET
ACI Address: 1	System: 1 Inject#: 11
Analyst :	Column:

Date: 09/27/2012 10:25:42

Detector:COND

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	1	2700	5Hz	0.00	9.00	2000

********** Component Report: All Components **********

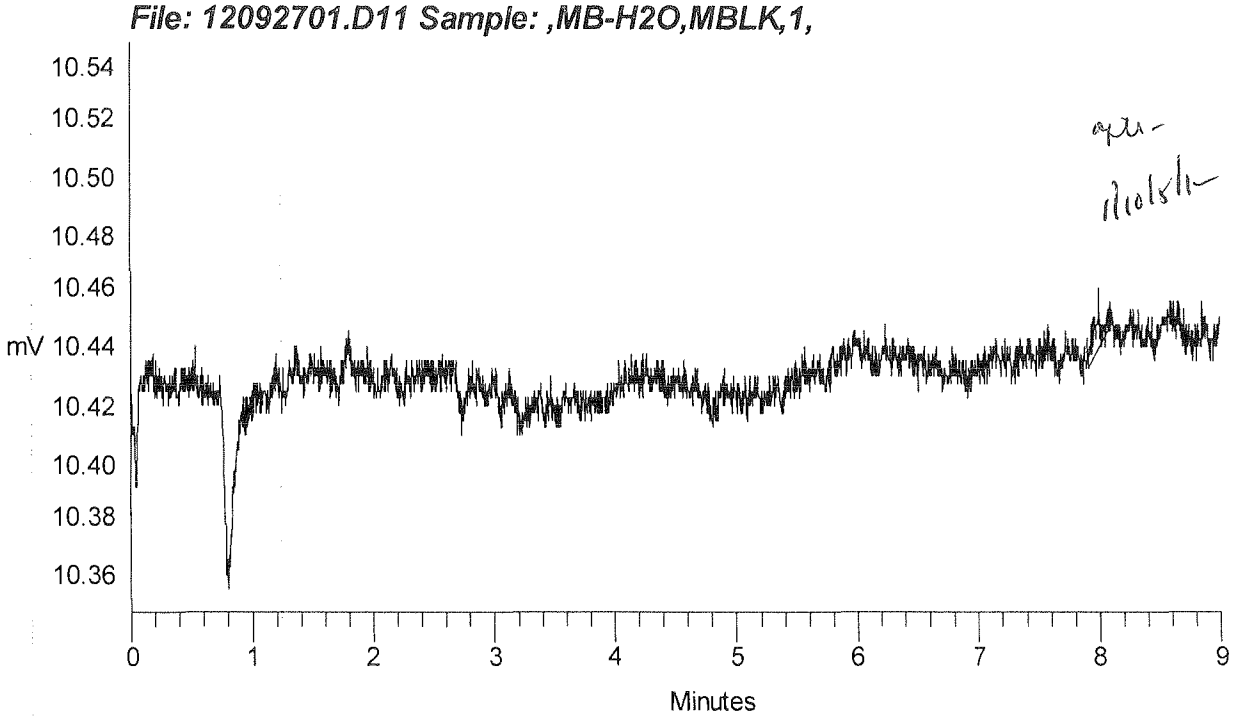
Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
0	0.00	Fluoride	0.000	0	0	0	0.00
0	0.00	Chloride	0.000	0	0	0	0.00
0	0.00	Nitrite	0.000	0	0	0	0.00
0	0.00	Bromide	0.000	0	0	0	0.00
0	0.00	Nitrate	0.000	0	0	0	0.00
0	0.00	Phosphate	0.000	0	0	0	0.00
0	0.00	Sulfate	0.000	0	0	0	0.00
		Totals	0.000	0	0		

********** Peak Report: All Peaks **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
		Totals	0.000	0	0		

********** Peak Report: Unknown Peaks **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
		Totals	0.000	0	0		


File: 12092701.D11 Sample: ,MB-H2O,MBLK,1,
10.54
10.52
10.50
10.48
10.46
mV 10.44
10.42
10.40
10.38
10.36
0
1
2
3
4
5
6
7
8
9
Minutes

MS 10/5/2012

Sample Name: ,MB-H2O,MBLK,1,		Date: 09/27/2012 10:25:42
Data File : C:\DX\DATA\12092701.D11		
Method : C:\DX\METHOD\120927.MET		
ACI Address: 1 System: 1 Inject#: 11		Detector:COND
Analyst :	Column:	

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	1	2700	5Hz	0.00	9.00	2000

********** Component Report: All Components **********

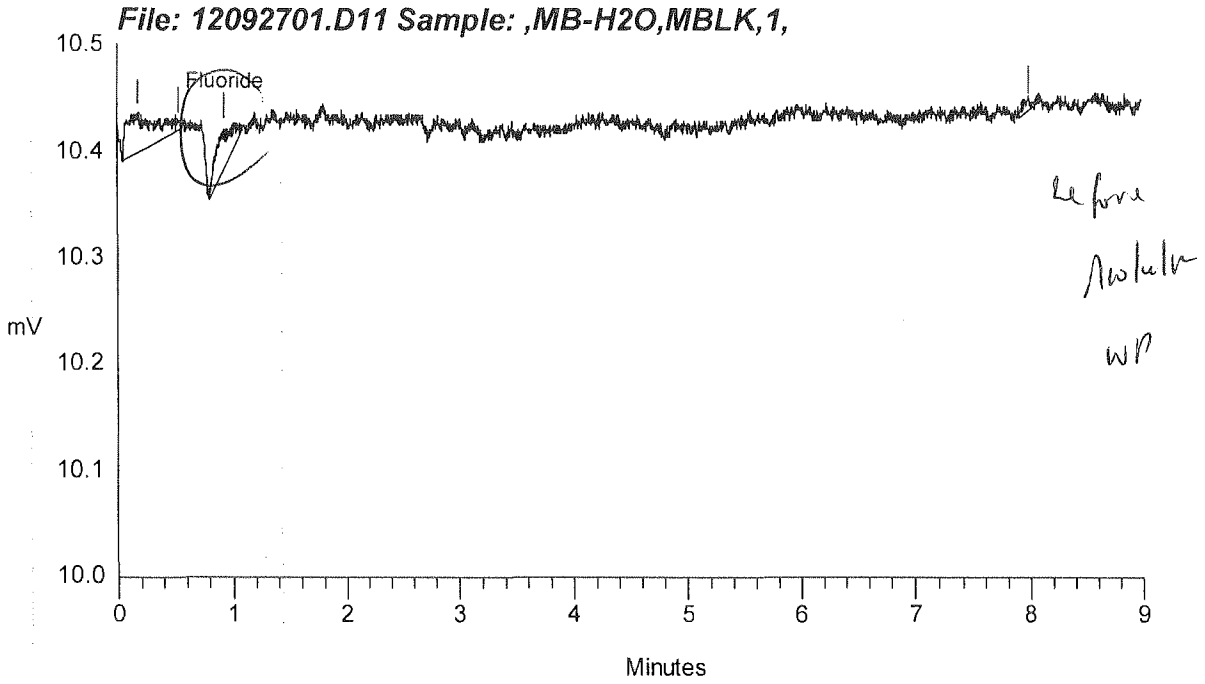
Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
3	0.93	Fluoride	0.058	374	3646	1	0.00
0	0.00	Chloride	0.000	0	0	0	0.00
0	0.00	Nitrite	0.000	0	0	0	0.00
0	0.00	Bromide	0.000	0	0	0	0.00
0	0.00	Nitrate	0.000	0	0	0	0.00
0	0.00	Phosphate	0.000	0	0	0	0.00
0	0.00	Sulfate	0.000	0	0	0	0.00
		Totals	0.058	374	3646		

********** Peak Report: All Peaks **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	0.18		0.000	355	5876	2	
3	0.93	Fluoride	0.058	374	3646	1	0.00
		Totals	0.058	729	9522		

********** Peak Report: Unknown Peaks **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	0.18		0.000	355	5876	2	
		Totals	0.000	355	5876		


File: 12092701.D11 Sample: ,MB-H2O,MBLK,1,
Fluoride
10.5
10.4
10.3
10.2
10.1
10.0
mV
0
1
2
3
4
5
6
7
8
9
Minutes

Sample Name: ,LCS-H2O,LCS,1,	Date: 09/27/2012 10:37:21
Data File : C:\DX\DATA\12092701.D12	
Method : C:\DX\METHOD\120927.MET	
ACI Address: 1 System: 1 Inject#: 12	Detector:COND
Analyst :	Column:

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	1	2700	5Hz	0.00	9.00	2000

********** Component Report: All Components **********

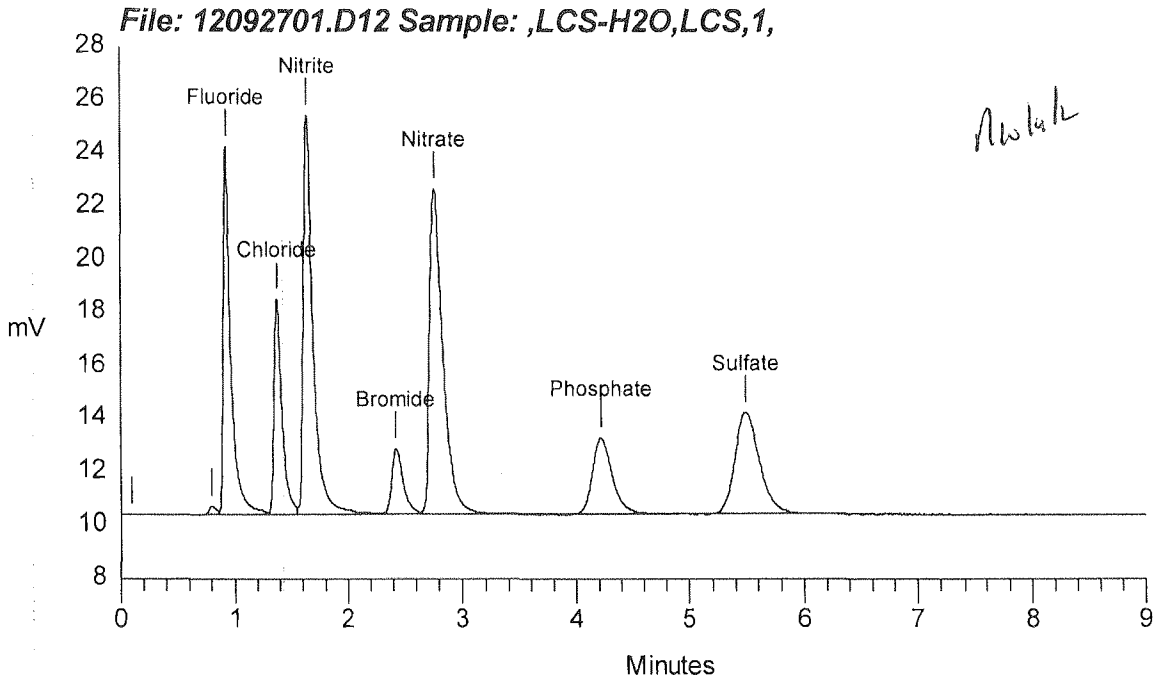
Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
3	0.93	Fluoride	2.435	138726	632824	2	0.00
4	1.38	Chloride	2.386	80960	394868	2	0.00
5	1.65	Nitrite	2.380	150320	890125	2	0.00
6	2.42	Bromide	2.443	24640	174966	2	0.00
7	2.76	Nitrate	2.403	122408	1006342	2	0.00
8	4.22	Phosphate	2.512	28668	355212	2	0.00
9	5.49	Sulfate	4.884	38129	575044	2	0.00
		Totals	19.442	583852	4029380		

********** Peak Report: All Peaks **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
2	0.79		0.000	3187	14217	2	
3	0.93	Fluoride	2.435	138726	632824	2	0.00
4	1.38	Chloride	2.386	80960	394868	2	0.00
5	1.65	Nitrite	2.380	150320	890125	2	0.00
6	2.42	Bromide	2.443	24640	174966	2	0.00
7	2.76	Nitrate	2.403	122408	1006342	2	0.00
8	4.22	Phosphate	2.512	28668	355212	2	0.00
9	5.49	Sulfate	4.884	38129	575044	2	0.00
		Totals	19.442	587039	4043597		

********** Peak Report: Unknown Peaks **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
2	0.79		0.000	3187	14217	2	
		Totals	0.000	3187	14217		


File: 12092701.D12 Sample: ,LCS-H2O,LCS,1,
mV
28
26
24
22
20
18
16
14
12
10
8
Fluoride
Nitrite
Chloride
Nitrate
Bromide
Phosphate
Sulfate
0
1
2
3
4
5
6
7
8
9
Minutes

Sample Name: ,N008574-001DDUP,DUP,5,	Date: 09/27/2012 11:58:54
Data File : C:\DX\DATA\12092701.D19	
Method : C:\DX\METHOD\120927.MET	
ACI Address: 1 System: 1 Inject#: 19	Detector:COND
Analyst : Column:	

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	1	2700	5Hz	0.00	9.00	2000

********** Component Report: All Components **********

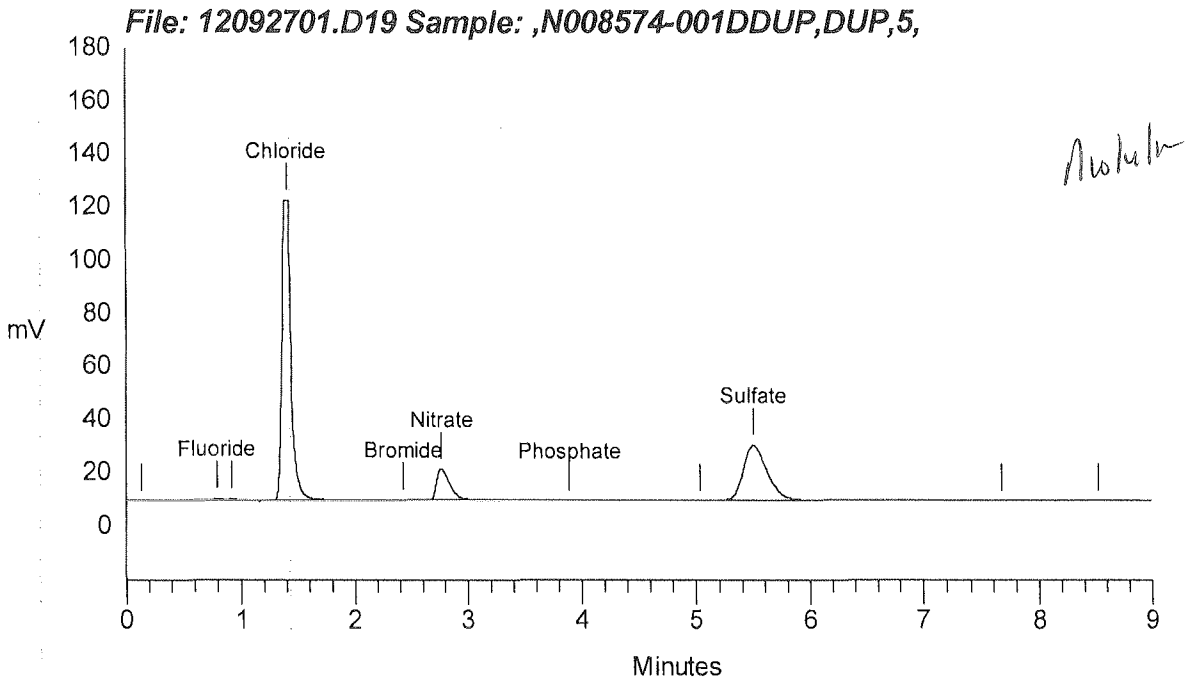
Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
2	0.79	Fluoride	0.190	8028	38734	2	0.00
4	1.41	Chloride	35.699	1129392	6221837	3	0.00
0	0.00	Nitrite	0.000	0	0	0	0.00
5	2.43	Bromide	0.196	1150	13056	4	0.00
6	2.77	Nitrate	2.319	118072	970187	3	0.00
7	3.90	Phosphate	0.058	374	3354	4	0.00
9	5.51	Sulfate	25.536	206613	3080858	3	0.00
		Totals	63.999	1463630	10328027		

********** Peak Report: All Peaks **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	0.14		0.000	308	2629	1	
2	0.79	Fluoride	0.190	8028	38734	2	0.00
3	0.92		0.000	6482	36695	2	
4	1.41	Chloride	35.699	1129392	6221837	3	0.00
5	2.43	Bromide	0.196	1150	13056	4	0.00
6	2.77	Nitrate	2.319	118072	970187	3	0.00
7	3.90	Phosphate	0.058	374	3354	4	0.00
8	5.04		0.000	395	2566	4	
9	5.51	Sulfate	25.536	206613	3080858	3	0.00
10	7.68		0.000	151	2503	4	
		Totals	63.999	1470965	10372420		

********** Peak Report: Unknown Peaks **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	0.14		0.000	308	2629	1	
3	0.92		0.000	6482	36695	2	
8	5.04		0.000	395	2566	4	
10	7.68		0.000	151	2503	4	
		Totals	0.000	7335	44394		


File: 12092701.D19 Sample: ,N008574-001DDUP,DUP,5,
mV
180
160
140
120
100
80
60
40
20
0
Chloride
Fluoride
Bromide
Nitrate
Phosphate
Sulfate
0
1
2
3
4
5
6
7
8
9
Minutes

Sample Name:	,N008574-002D, SAMP,5,
Data File :	C:\DX\DATA\12092701.D20
Method :	C:\DX\METHOD\120927.MET
ACI Address: 1	System: 1 Inject#: 20
Analyst :	Column:

Date: 09/27/2012 12:10:33

Detector:COND

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	1	2700	5Hz	0.00	9.00	2000

********** Component Report: All Components **********

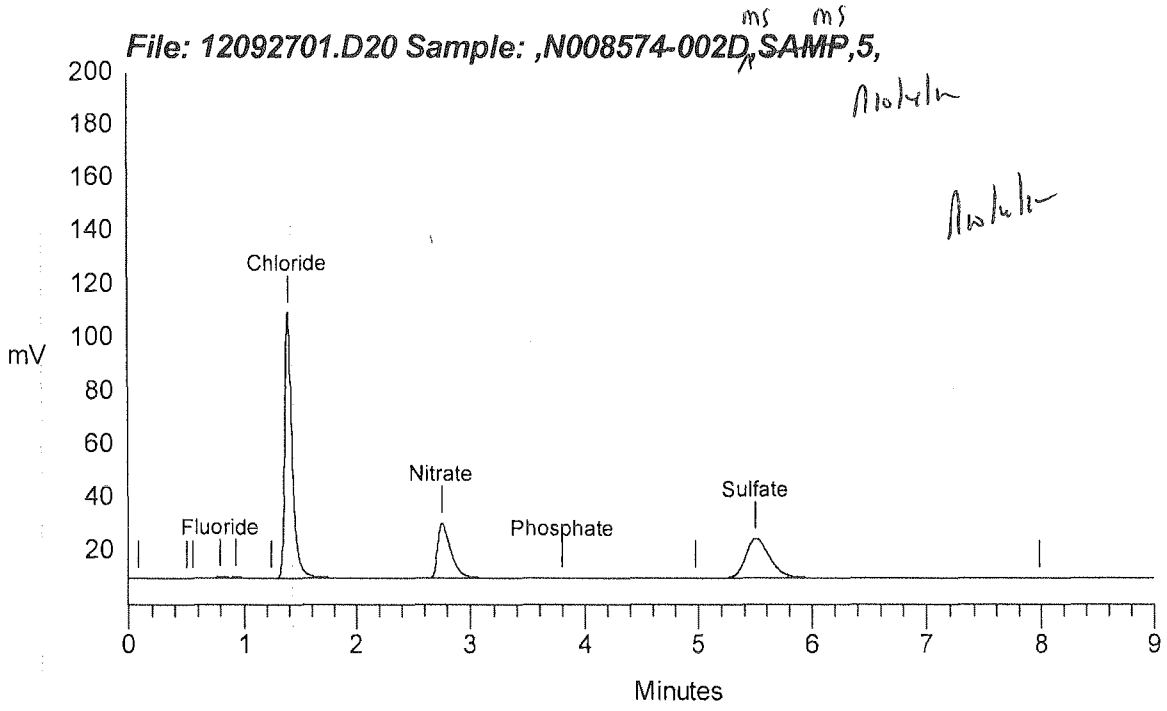
Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
4	0.79	Fluoride	0.169	6670	33025	2	0.00
7	1.40	Chloride	25.955	999943	4517394	2	0.00
0	0.00	Nitrite	0.000	0	0	0	0.00
0	0.00	Bromide	0.000	0	0	0	0.00
8	2.75	Nitrate	3.944	204199	1668975	3	0.00
9	3.80	Phosphate	0.050	248	2185	4	-9.67
11	5.51	Sulfate	18.171	147816	2187253	2	0.00
		Totals	48.289	1358877	8408832		

********** Peak Report: All Peaks **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
4	0.79	Fluoride	0.169	6670	33025	2	0.00
5	0.93		0.000	5772	30943	2	
6	1.25		0.000	520	2974	2	
7	1.40	Chloride	25.955	999943	4517394	2	0.00
8	2.75	Nitrate	3.944	204199	1668975	3	0.00
9	3.80	Phosphate	0.050	248	2185	4	-9.67
11	5.51	Sulfate	18.171	147816	2187253	2	0.00
		Totals	48.289	1365168	8442750		

********** Peak Report: Unknown Peaks **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
5	0.93		0.000	5772	30943	2	
6	1.25		0.000	520	2974	2	
		Totals	0.000	6292	33917		


File: 12092701.D20 Sample: ,N008574-002D,SAMP,5,
mV
200
180
160
140
120
100
80
60
40
20
Chloride
Fluoride
Nitrate
Phosphate
Sulfate
0
1
2
3
4
5
6
7
8
9
Minutes

Sample Name: ,N008574-002DMSD,MSD,5,		Date: 09/27/2012 12:45:30	
Data File : C:\DX\DATA\12092701.D23			
Method : C:\DX\METHOD\120927.MET			
ACI Address: 1 System: 1 Inject#: 23		Detector:COND	
Analyst :	Column:		

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	1	2700	5Hz	0.00	9.00	2000

********** Component Report: All Components **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
2	0.79	Fluoride	0.170	6726	33217	2	0.00
5	1.39	Chloride	25.794	978276	4489284	3	0.00
0	0.00	Nitrite	0.000	0	0	0	0.00
6	2.41	Bromide	0.113	680	7068	4	0.00
7	2.73	Nitrate	3.938	203008	1666465	2	0.00
0	0.00	Phosphate	0.000	0	0	0	0.00
8	5.51	Sulfate	18.376	147783	2212122	2	0.00
		Totals	48.391	1336473	8408157		

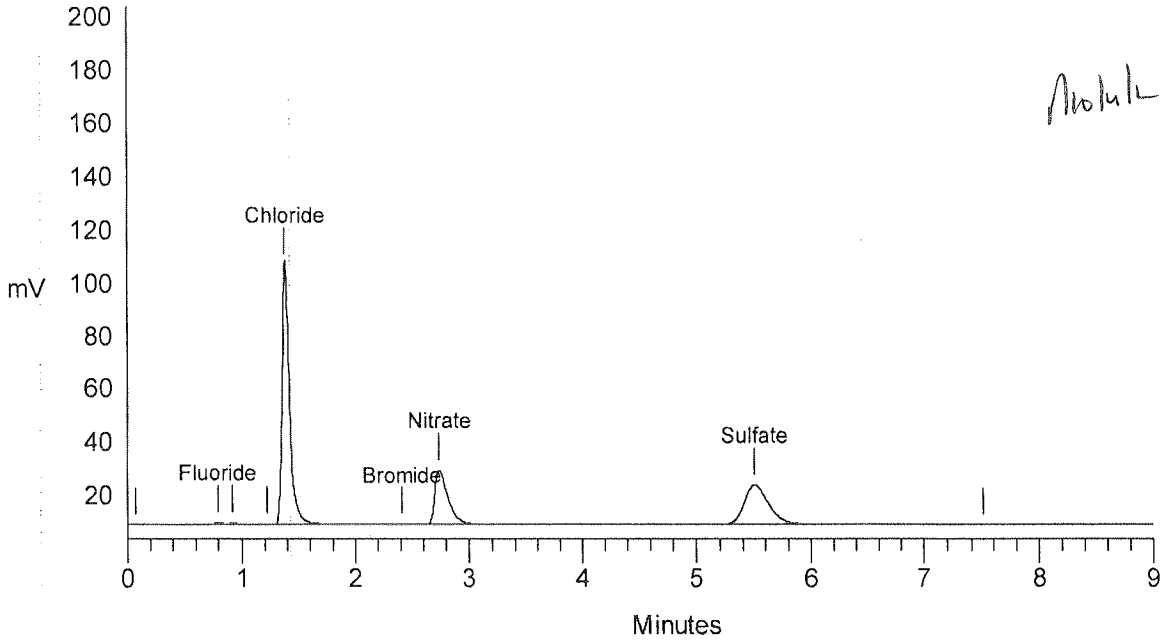
********** Peak Report: All Peaks **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	0.07		0.000	352	2581	1	
2	0.79	Fluoride	0.170	6726	33217	2	0.00
3	0.92		0.000	5565	30121	2	
4	1.22		0.000	551	3019	2	
5	1.39	Chloride	25.794	978276	4489284	3	0.00
6	2.41	Bromide	0.113	680	7068	4	0.00
7	2.73	Nitrate	3.938	203008	1666465	2	0.00
8	5.51	Sulfate	18.376	147783	2212122	2	0.00
		Totals	48.391	1342940	8443878		

********** Peak Report: Unknown Peaks **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	0.07		0.000	352	2581	1	
3	0.92		0.000	5565	30121	2	
4	1.22		0.000	551	3019	2	
		Totals	0.000	6467	35722		

File: 12092701.D23 Sample: ,N008574-002DMSD,MSD,5,



Sample Name: ,N008574-002DDUP,DUP,20,	Date: 09/27/2012 15:42:55
Data File : C:\DX\DATA\12092701.D35	
Method : C:\DX\METHOD\120927.MET	
ACI Address: 1 System: 1 Inject#: 35	Detector:COND
Analyst :	Column:

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	1	2700	5Hz	0.00	9.00	2000

********** Component Report: All Components **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
5	0.93	Fluoride	0.067	1309	6044	2	0.00
7	1.37	Chloride	5.602	195450	957413	2	0.00
0	0.00	Nitrite	0.000	0	0	0	0.00
0	0.00	Bromide	0.000	0	0	0	0.00
8	2.76	Nitrate	0.380	16975	136653	1	0.00
0	0.00	Phosphate	0.000	0	0	0	0.00
9	5.53	Sulfate	4.429	34119	519759	1	0.00
		Totals	10.477	247853	1619869		

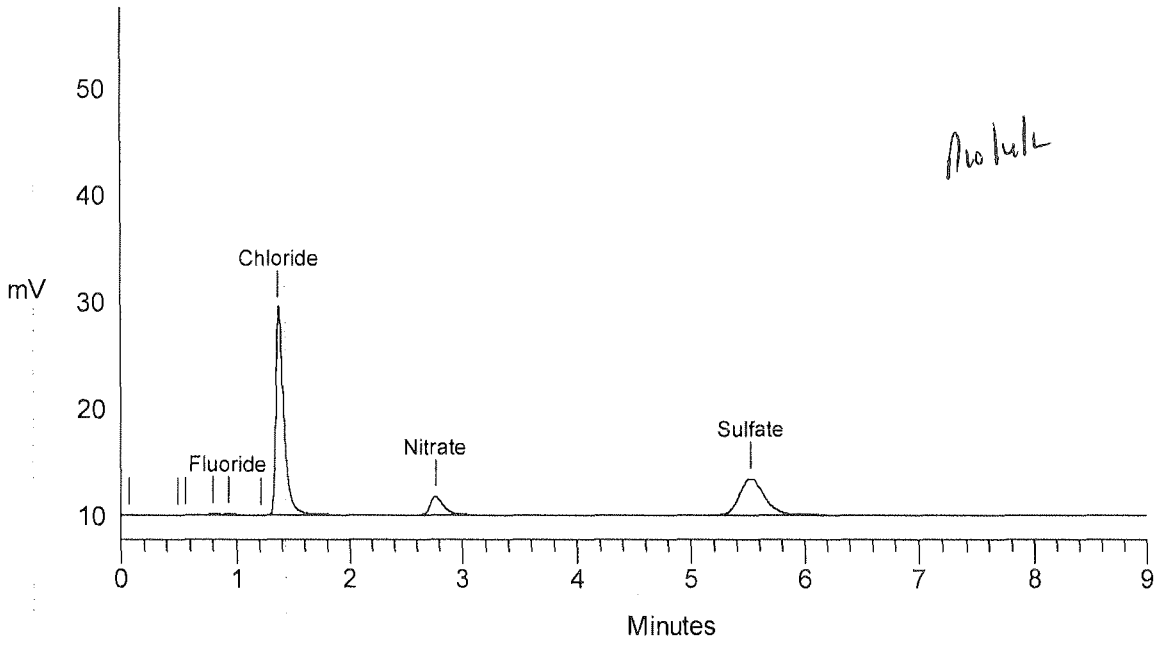
********** Peak Report: All Peaks **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
4	0.79		0.000	1100	5075	2	
5	0.93	Fluoride	0.067	1309	6044	2	0.00
7	1.37	Chloride	5.602	195450	957413	2	0.00
8	2.76	Nitrate	0.380	16975	136653	1	0.00
9	5.53	Sulfate	4.429	34119	519759	1	0.00
		Totals	10.477	248954	1624945		

********** Peak Report: Unknown Peaks **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
4	0.79		0.000	1100	5075	2	
		Totals	0.000	1100	5075		

File: 12092701.D35 Sample: ,N008574-002DDUP,DUP,20,



Sample Name: ,N008574-002DMS,MS,20,		Date: 09/27/2012 15:54:34	
Data File : C:\DX\DATA\12092701.D36			
Method : C:\DX\METHOD\120927.MET			
ACI Address: 1 System: 1 Inject#: 36		Detector:COND	
Analyst :	Column:		

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	1	2700	5Hz	0.00	9.00	2000

********** Component Report: All Components **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	0.79	Fluoride	0.071	1694	7164	1	0.00
3	1.37	Chloride	8.199	291892	1411629	3	0.00
0	0.00	Nitrite	0.000	0	0	0	0.00
4	2.42	Bromide	0.044	268	2122	4	-0.55
5	2.76	Nitrate	0.386	17077	139534	2	0.00
0	0.00	Phosphate	0.000	0	0	0	0.00
7	5.52	Sulfate	9.282	74044	1108671	1	0.00
		Totals	17.983	384974	2669120		

Analyte

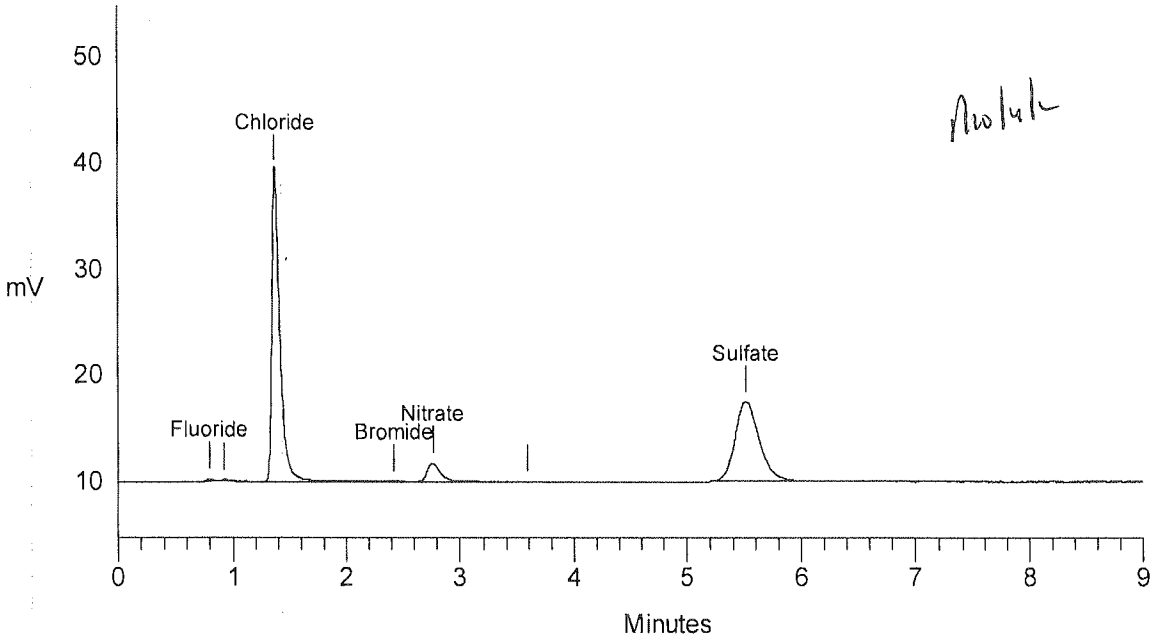
********** Peak Report: All Peaks **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	0.79	Fluoride	0.071	1694	7164	1	0.00
2	0.92		0.000	1073	3664	1	
3	1.37	Chloride	8.199	291892	1411629	3	0.00
4	2.42	Bromide	0.044	268	2122	4	-0.55
5	2.76	Nitrate	0.386	17077	139534	2	0.00
7	5.52	Sulfate	9.282	74044	1108671	1	0.00
		Totals	17.983	386047	2672784		

********** Peak Report: Unknown Peaks **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
2	0.92		0.000	1073	3664	1	
		Totals	0.000	1073	3664		

File: 12092701.D36 Sample: ,N008574-002DMS,MS,20,



Analyte

Sample Name: ,N008574-002DMSD,MSD,20,	Date: 09/27/2012 16:06:13
Data File : C:\DX\DATA\12092701.D37	
Method : C:\DX\METHOD\120927.MET	
ACI Address: 1 System: 1 Inject#: 37	Detector:COND
Analyst :	Column:

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	1	2700	5Hz	0.00	9.00	2000

********** Component Report: All Components **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	0.79	Fluoride	0.069	1652	6663	1	0.00
3	1.37	Chloride	8.143	294262	1401869	2	0.00
0	0.00	Nitrite	0.000	0	0	0	0.00
0	0.00	Bromide	0.000	0	0	0	0.00
4	2.75	Nitrate	0.375	17017	134587	2	0.00
0	0.00	Phosphate	0.000	0	0	0	0.00
5	5.50	Sulfate	9.197	73873	1098285	1	0.00
		Totals	17.784	386804	2641405		

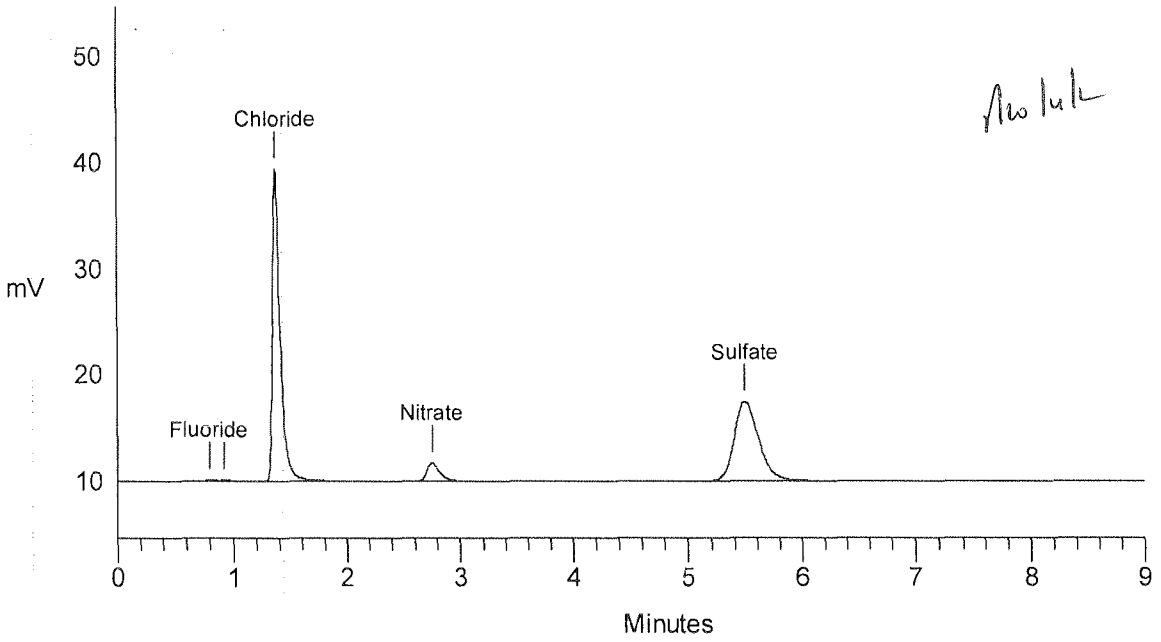
Analyte

********** Peak Report: All Peaks **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	0.79	Fluoride	0.069	1652	6663	1	0.00
2	0.92		0.000	1071	4134	1	
3	1.37	Chloride	8.143	294262	1401869	2	0.00
4	2.75	Nitrate	0.375	17017	134587	2	0.00
5	5.50	Sulfate	9.197	73873	1098285	1	0.00
		Totals	17.784	387874	2645538		

********** Peak Report: Unknown Peaks **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
2	0.92		0.000	1071	4134	1	
		Totals	0.000	1071	4134		


File: 12092701.D37 Sample: ,N008574-002DMSD,MSD,20,
50
40
30
20
10
mV
Chloride
Fluoride
Nitrate
Sulfate
0
1
2
3
4
5
6
7
8
9
Minutes

Sample Name: ,N008579-001CMS,MS,1,	Date: 09/27/2012 18:02:44
Data File : C:\DX\DATA\12092701.D47	
Method : C:\DX\METHOD\120927.MET	
ACI Address: 1 System: 1 Inject#: 47	Detector:COND
Analyst :	Column:

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	1	2700	5Hz	0.00	9.00	2000

********** Component Report: All Components **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
2	0.79	Fluoride	0.403	20034	94895	2	0.00
5	1.40	Chloride	17.478	714401	3034713	3	0.00
0	0.00	Nitrite	0.000	0	0	0	0.00
6	2.41	Bromide	0.112	796	6987	4	0.00
7	2.72	Nitrate	3.743	195046	1582455	2	0.00
8	4.25	Phosphate	0.850	8449	116928	2	0.00
9	5.45	Sulfate	45.974	378493	5560658	2	0.00
		Totals	68.560	1317219	10396635		

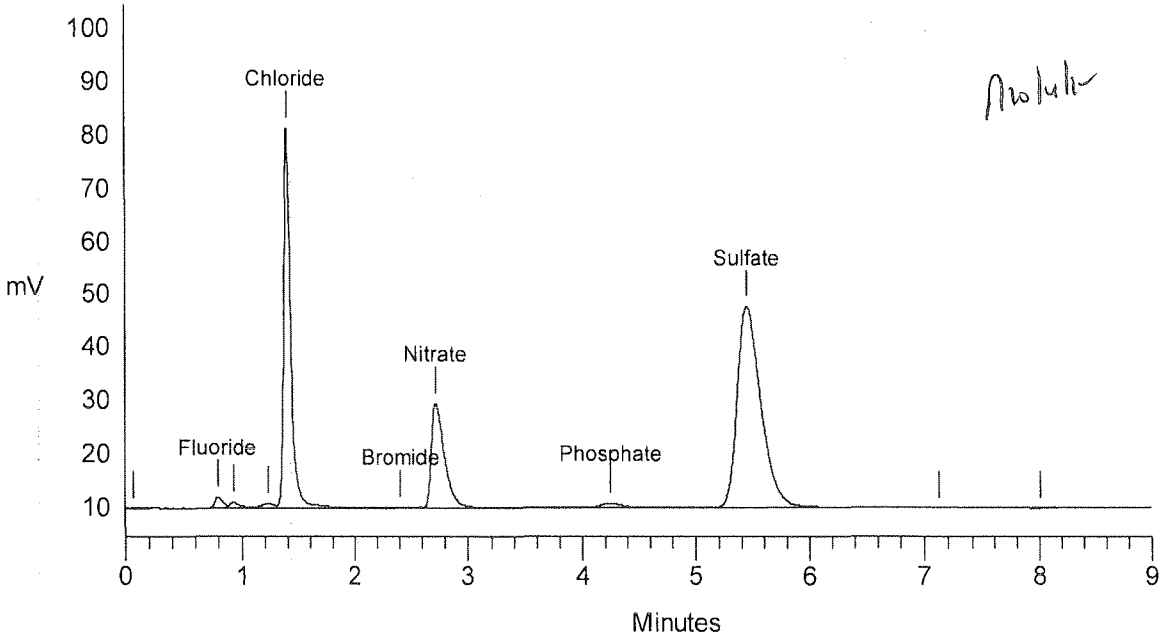
********** Peak Report: All Peaks **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
2	0.79	Fluoride	0.403	20034	94895	2	0.00
3	0.93		0.000	10932	57501	2	
4	1.23		0.000	8645	59148	2	
5	1.40	Chloride	17.478	714401	3034713	3	0.00
6	2.41	Bromide	0.112	796	6987	4	0.00
7	2.72	Nitrate	3.743	195046	1582455	2	0.00
8	4.25	Phosphate	0.850	8449	116928	2	0.00
9	5.45	Sulfate	45.974	378493	5560658	2	0.00
11	8.01		0.000	440	3910	1	
		Totals	68.560	1337235	10517194		

********** Peak Report: Unknown Peaks **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
3	0.93		0.000	10932	57501	2	
4	1.23		0.000	8645	59148	2	
11	8.01		0.000	440	3910	1	
		Totals	0.000	20016	120559		

File: 12092701.D47 Sample: ,N008579-001CMS,MS,1,



Sample Name: ,N008579-001CMS,MS,5,		Date: 09/27/2012 20:22:32
Data File : C:\DX\DATA\12092701.D59		
Method : C:\DX\METHOD\120927.MET		
ACI Address: 1 System: 1 Inject#: 59		Detector:COND
Analyst :	Column:	

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	1	2700	5Hz	0.00	9.00	2000

********** Component Report: All Components **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
2	0.79	Fluoride	0.116	4133	18915	2	0.00
5	1.38	Chloride	5.533	194633	945323	2	0.00
0	0.00	Nitrite	0.000	0	0	0	0.00
0	0.00	Bromide	0.000	0	0	0	0.00
6	2.77	Nitrate	0.295	11985	100357	2	0.00
7	4.26	Phosphate	0.172	1692	19641	1	0.00
8	5.51	Sulfate	13.288	106688	1594696	1	0.00
		Totals	19.403	319131	2678933		

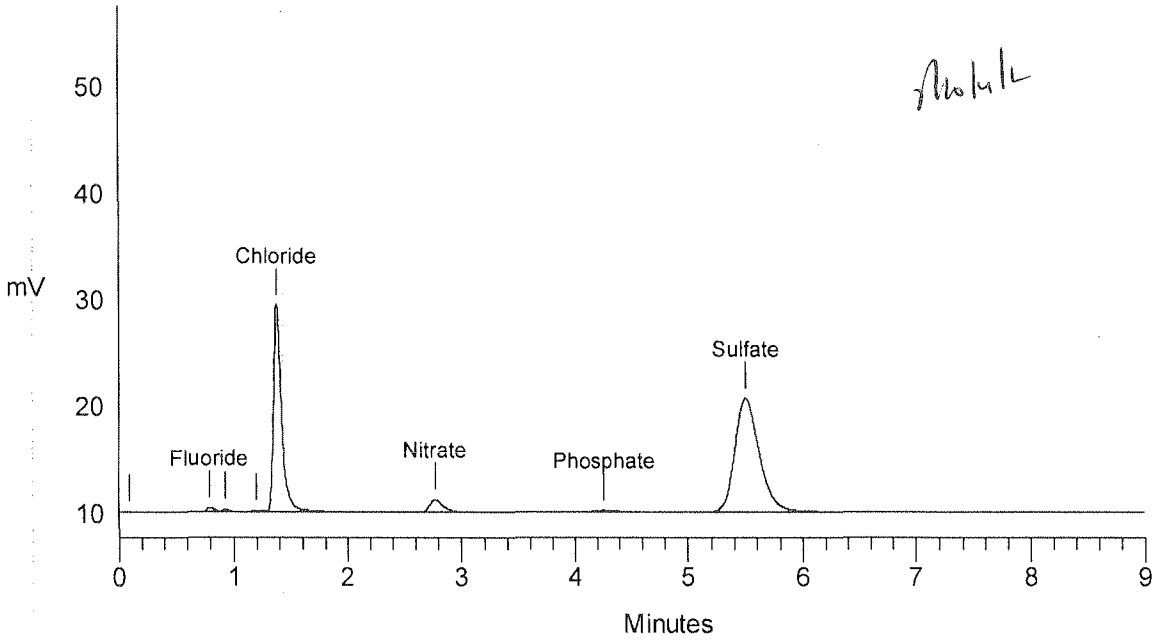
********** Peak Report: All Peaks **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
2	0.79	Fluoride	0.116	4133	18915	2	0.00
3	0.93		0.000	2502	11759	2	
4	1.21		0.000	1750	10606	2	
5	1.38	Chloride	5.533	194633	945323	2	0.00
6	2.77	Nitrate	0.295	11985	100357	2	0.00
7	4.26	Phosphate	0.172	1692	19641	1	0.00
8	5.51	Sulfate	13.288	106688	1594696	1	0.00
		Totals	19.403	323384	2701298		

********** Peak Report: Unknown Peaks **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
3	0.93		0.000	2502	11759	2	
4	1.21		0.000	1750	10606	2	
		Totals	0.000	4253	22365		

File: 12092701.D59 Sample: ,N008579-001CMS,MS,5,



SAMPLES

Sample Name: ,N008577-001A,SAMP,1000,	Date: 09/27/2012 23:05:38
Data File : C:\DX\DATA\12092701.D73	
Method : C:\DX\METHOD\120927.MET	
ACI Address: 1 System: 1 Inject#: 73	Detector:COND
Analyst :	Column:

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	1	2700	5Hz	0.00	9.00	2000

********** Component Report: All Components **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
2	0.80	Fluoride	0.058	612	3637	2	0.00
3	1.37	Chloride	5.883	206613	1006602	2	0.00
0	0.00	Nitrite	0.000	0	0	0	0.00
0	0.00	Bromide	0.000	0	0	0	0.00
0	0.00	Nitrate	0.000	0	0	0	0.00
0	0.00	Phosphate	0.000	0	0	0	0.00
5	5.51	Sulfate	0.970	6068	100146	3	0.00
		Totals	6.911	213293	1110385		

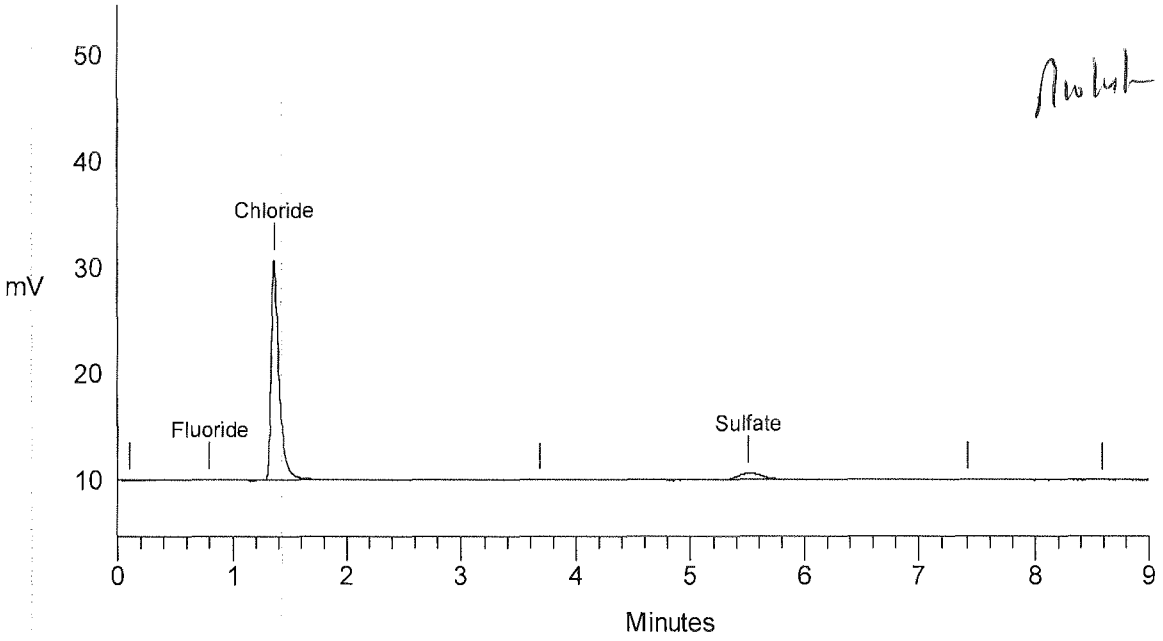
********** Peak Report: All Peaks **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	0.11		0.000	291	2477	1	
2	0.80	Fluoride	0.058	612	3637	2	0.00
3	1.37	Chloride	5.883	206613	1006602	2	0.00
4	3.69		0.000	178	2492	2	
5	5.51	Sulfate	0.970	6068	100146	3	0.00
6	7.42		0.000	191	2776	4	
		Totals	6.911	213953	1118131		

********** Peak Report: Unknown Peaks **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	0.11		0.000	291	2477	1	
4	3.69		0.000	178	2492	2	
6	7.42		0.000	191	2776	4	
		Totals	0.000	660	7746		

File: 12092701.D73 Sample: ,N008577-001A,SAMP,1000,



```
==========================================================================
| Sample Name: ,N008577-001A,SAMP,100,        Date: 09/27/2012 23:17:17    |
| Data File  : C:\DX\DATA\12092701.D74                                     |
| Method     : C:\DX\METHOD\120927.MET                                     |
| ACI Address: 1  System: 1  Inject#: 74                Detector:COND      |
| Analyst    :                Column:                                      |
==========================================================================
```

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	1	2700	5Hz	0.00	9.00	2000

********** Component Report: All Components **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
4	0.79	Fluoride	0.188	7356	38028	2	0.00
0	0.00	Chloride	0.000	0	0	0	0.00
0	0.00	Nitrite	0.000	0	0	0	0.00
0	0.00	Bromide	0.000	0	0	0	0.00
6	2.73	Nitrate	0.076	632	5952	4	0.00
7	4.65	Phosphate	0.055	257	2900	2	10.62
8	5.53	Sulfate	7.708	60047	917629	2	0.00
		Totals	8.026	68292	964509		

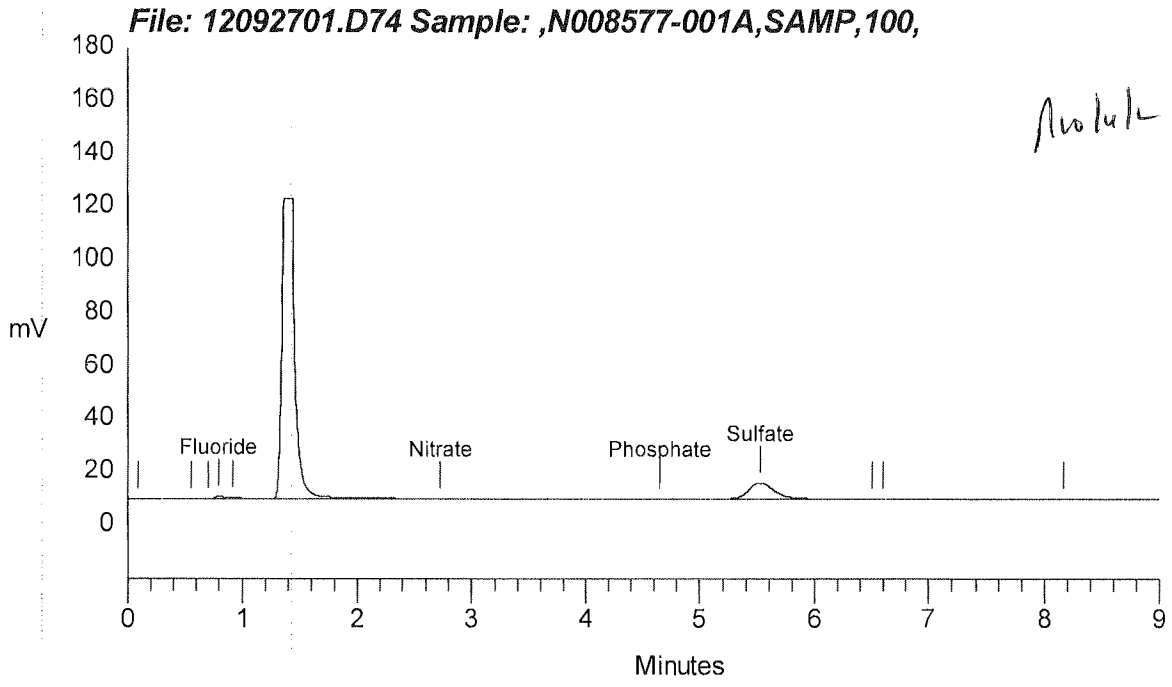
Anolulu

********** Peak Report: All Peaks **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	0.09		0.000	252	2870	2	
4	0.79	Fluoride	0.188	7356	38028	2	0.00
5	0.92		0.000	3332	18856	3	
6	2.73	Nitrate	0.076	632	5952	4	0.00
7	4.65	Phosphate	0.055	257	2900	2	10.62
8	5.53	Sulfate	7.708	60047	917629	2	0.00
		Totals	8.026	71876	986236		

********** Peak Report: Unknown Peaks **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	0.09		0.000	252	2870	2	
5	0.92		0.000	3332	18856	3	
		Totals	0.000	3584	21726		


File: 12092701.D74 Sample: ,N008577-001A,SAMP,100,
mV
180
160
140
120
100
80
60
40
20
0
Fluoride
Nitrate
Phosphate
Sulfate
0
1
2
3
4
5
6
7
8
9
Minutes

Data Reprocessed On 10/05/2012 10:05:57

Sample Name: ,N008577-002A,SAMP,5,	Date: 09/27/2012 17:16:08
Data File : C:\DX\DATA\12092701.D43	
Method : C:\DX\METHOD\120927.MET	
ACI Address: 1 System: 1 Inject#: 43	Detector:COND
Analyst : Column:	

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	1	2700	5Hz	0.00	9.00	2000

********** Component Report: All Components **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	0.79	Fluoride	3.891	135483	1018072	1	0.00
0	0.00	Chloride	0.000	0	0	0	0.00
0	0.00	Nitrite	0.000	0	0	0	0.00
0	0.00	Bromide	0.000	0	0	0	0.00
2	2.74	Nitrate	0.176	6823	48855	1	0.00
0	0.00	Phosphate	0.000	0	0	0	0.00
0	0.00	Sulfate	0.000	0	0	0	0.00
		Totals	4.066	142306	1066927		

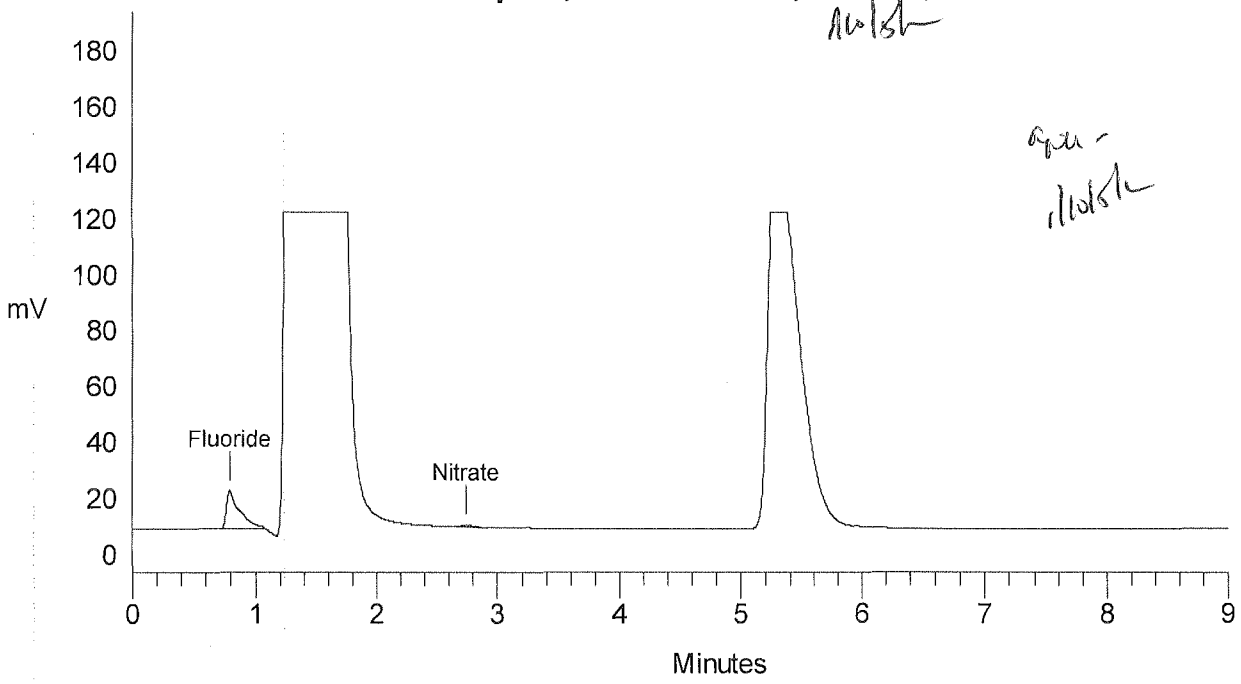
********** Peak Report: All Peaks **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	0.79	Fluoride	3.891	135483	1018072	1	0.00
2	2.74	Nitrate	0.176	6823	48855	1	0.00
		Totals	4.066	142306	1066927		

********** Peak Report: Unknown Peaks **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
		Totals	0.000	0	0		

File: 12092701.D43 Sample: ,N008577-002A,SAMP,5,



MS 10/5/2012

Sample Name: ,N008577-002A,SAMP,5,	Date: 09/27/2012 17:16:08	
Data File : C:\DX\DATA\12092701.D43		
Method : C:\DX\METHOD\120927.MET		
ACI Address: 1 System: 1 Inject#: 43	Detector:COND	
Analyst : Column:		

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	1	2700	5Hz	0.00	9.00	2000

********** Component Report: All Components **********

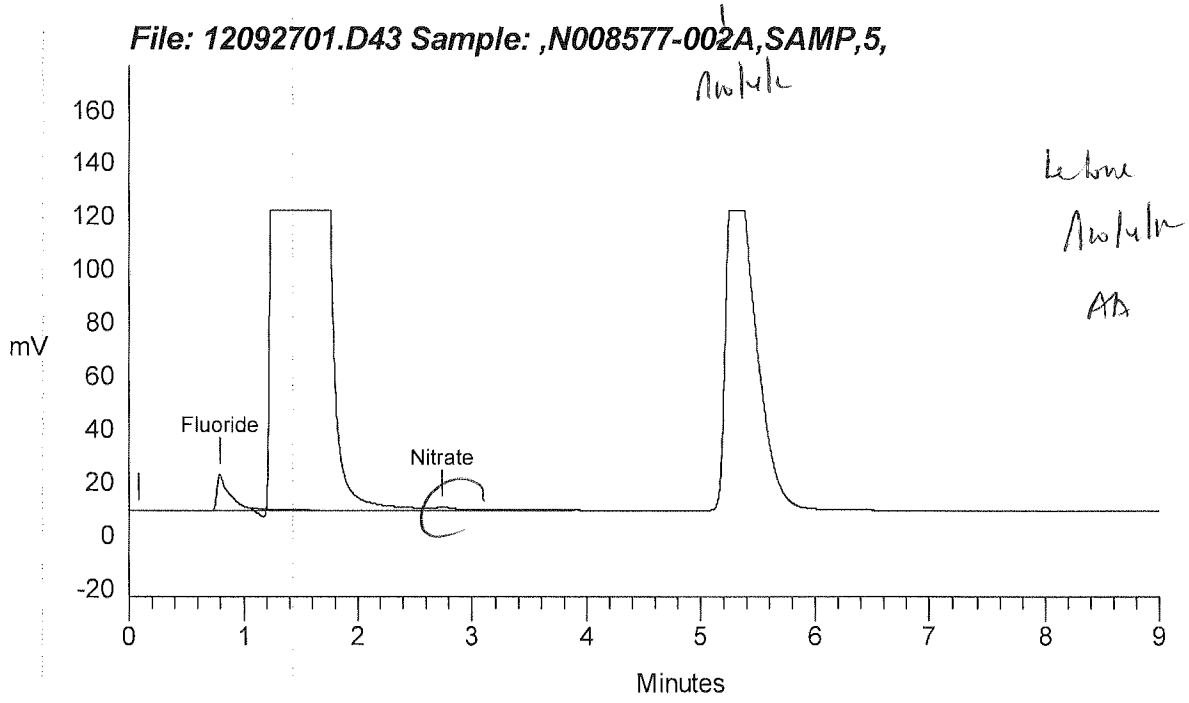
Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
2	0.79	Fluoride	4.102	135898	1074001	3	0.00
0	0.00	Chloride	0.000	0	0	0	0.00
0	0.00	Nitrite	0.000	0	0	0	0.00
0	0.00	Bromide	0.000	0	0	0	0.00
3	2.74	Nitrate	0.518	12069	196190	4	0.00
0	0.00	Phosphate	0.000	0	0	0	0.00
0	0.00	Sulfate	0.000	0	0	0	0.00
		Totals	4.620	147967	1270191		

********** Peak Report: All Peaks **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
2	0.79	Fluoride	4.102	135898	1074001	3	0.00
3	2.74	Nitrate	0.518	12069	196190	4	0.00
		Totals	4.620	147967	1270191		

********** Peak Report: Unknown Peaks **********

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
		Totals	0.000	0	0		


File: 12092701.D43 Sample: ,N008577-002A,SAMP,5,
mV
160
140
120
100
80
60
40
20
0
-20
Fluoride
Nitrate
0
1
2
3
4
5
6
7
8
9
Minutes

STANDARDS LOG

Inorganics Stock Standard Logbook

Date	Stock STD							Exp Date	
	STD Name	Stock Code	Conc.	Supplier	Lot #	Date Rec'd	Date Opened	Stock/Manufact.	Initials
9/12/11	TOC STANDARD 2°	ISST-110912 B	1000 ppm	CPI INTERNATIONAL	09K078	9/12/11	10/31/11	~~9/07~~ 3/8/13	MI
11/10/11	1000 PPM PERCHLORATE 1°	ISST-~~110~~ 111110A	1000 PPM	ERA WATER COMPANY	25071	11/10/11	11/10/11	MI 9/07/11 07-2013	JH
—	→	JH 11/10/11 — JH 11/10/11	—	—	—	—	—	—	—
11/10/11	1000 PPM PERCHLORATE 2°	ISST-111110 B	1000 ppm	ABSOLUTE STDS.	072711	11/10/11	11/10/11	07-27-14	JH
11/10/11	POTASSIUM HYDROXIDE	ISST-111110C	8.127 M	JT BAKER	J50049	11/10/11	11/10/11	11/10/12	JH
~	45% (w/w) ≈ 8.127 M	—	—	—	—	—	—	—	—
2/6/12	EPA 1664 Standard	ISST120206A	40000 mg/l each	Ultra Scientific	CH-0707	—		4/30/14	2
	Fluoride, 1000 ppm 1°	ISST120206 B	1000 ppm	ERA	181211	2/2/12	2/7/12	12/13	2
	chloride, 1000 ppm 1°	C			071211			12/13	
	Nitrite as N, 1000 ppm 1°	D			171211			12/13	
	Bromide, 1000 ppm 1°	E			370911			9/13	
	Nitrate as N, 1000 ppm 1°	F			051211			12/13	
	phosphate as P, 1000 ppm 1°	G			030112			1/14	
	Sulfate, 1000 ppm 1°	H			4H0911			9/13	
	Hexavalent chromium, 1000 ppm	I	1000 ppm	ERA	6504094	2/2/12		6/14	2
	Fluoride, 1000 ppm 2°	ISST120206 J	1000 ppm	Absolute Standards	011112	2/3/12	2/7/12	011115	2
	chloride, 1000 ppm 2°	K			012712			012715	
	Nitrite as N, 1000 ppm 2°	L			121311			121312	
	Bromide, 1000 ppm 2°	M			110711			110714	

Advanced Technology Laboratories-Las Vegas
Logbook #1

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Inorganics Stock Standard Logbook

Date	Stock STD							Exp Date	Initials
	STD Name	Stock Code	Conc.	Supplier	Lot #	Date Rec'd	Date Opened	Stock/Manufact.	
2/6/12	Nitrate as N, 1000 ppm 2°	ISST120206 N	1000 ppm	Absolute Standards	610312	2/8/12	2/7/12	010315	Z
	Phosphate as P, 1000 ppm 2°	O			010412		2/6/2012	10/12 010415	
	Sulfate, 1000 ppm 2°	P			012712		2/7/2012	012715	
2/9/12	HEXAVALENT CHROMIUM STD	ISST120208A	100 ppm	HIGH PURITY	1011102	2/8/12	03/01/12	2/1/13	MS
5/15/12	HEXADECANE & STERIC ACID	ISST120515 A	8000 ppm	ACCUSTANDARD, INC.	212011378	5/15/12	7/16/12	2/3/22	MS
		B					8/28/12		
		C							
		D							
		E							
7/24/12	EPA Method 1664 Std.	ISST120724A	4000 µg/mL	Ultra Scientific	CJ-1223	7/24/12	8/9/12	5/31/15	KP
8/16/12	Phosphate as P, 1000 ppm 1°	ISST120816A	1000 ppm	ERA	140312	8/16/12	9/15/12	3/2014	KP
	Fluoride, 1000 ppm 1°	B			130312				
	Bromide, 1000 ppm 1°	C			040112			1/2014	
	Nitrate as N, 1000 ppm 1°	D			480412			5/2014	
	Nitrite as N, 1000 ppm 1°	E			490412				
	Sulfate, 1000 ppm 1°	F			230212			2/2014	
	Chloride, 1000 ppm 1°	G			210312			4/2014	
09/14/2012	TOC Standard (C from KHP in H2O)	KST-120919 A	1000 ug/mL	Peak Performance	12F242	09/19/12		03/17/2014	KB
		B			09K078				

Advanced Technology Laboratories-Las Vegas
Logbook #1

Reagent Preparation

Reagent Name	Reagent Code	Inventory Chemical Inventory Code	Preparation Wt/Vol of Aliquot	Preparation Final Vol (ml)	
ASCORBIC ACID	R120601 A	CINV-120312B / CINV-120308Af	6g / 2mL	100mL	1
ELUENT (Cr6+)	R120606 A	CINV-120213A / CINV-120425A	33g / 6.5 mL	1000	
POST-COLUMN RGT (Cr6+)	" B	CINV-120413A / CINV-120213F / CINV-120213D	0.5g / 28 mL / 100 mL	1	
STOCK ELUENT (ANIONS)	" C	CINV-120664A / CINV-110516B	28.564g / 38.156	2000	
ELUENT (Cr6+)	R120608A	CINV-120213A / CINV-120425A	33g / 6.5 mL	1000	5
POST-COLUMN RGT (Cr6+)	" B	CINV-120413A / CINV-120213F / CINV-120213D	0.5g / 28 mL / 100 mL	1	
SODIUM THIOSULFATE	R120611 A	CINV-110202A	3.5g	1000	
ELUENT (Cr6+)	R120614A	CINV-120213B / CINV-120425A	33g / 6.5 mL	1000	
POST-COLUMN RGT (Cr6+)	" B	CINV-120413A / CINV-120213F / CINV-120213D	0.5g / 28 mL / 100 mL	1	
1N HCl	R120614C	CINV-120410E LIMS# 5822	20.83ml	250ml	10
ELUENT (Cr6+)	R120618A	CINV-120213B / CINV-120425A	33g / 6.5 mL	1000	
POST-COLUMN RGT (Cr6+)	" B	CINV-120413A / CINV-120213F / CINV-120213D	0.5g / 28 mL / 100 mL	1	
50% V/V H_2SO_4	R120618 C	CINV-120502Y	300 ml	600	
ASCORBIC ACID	R120619 A	CINV-120312B / CINV-~~120350~~ 120515A	6g / 2mL	100 mL	
2% Ammonium Persulfate	R120619 B	CINV-101217B	2g	100 mL	15
1N H_2SO_4	R120620 A	CINV-120213F (LIMS# 4407)	3 mL	100mL	
ASCORBIC ACID	" B	CINV-120312B / CINV-120515A	6g / 2 mL	100mL	
AMMONIUM MOLYBDATE - 5% POTASSIUM TARTRATE SOLN.	" C	CINV-102117A / CINV-101223A	8g / 0.2g	1000 mL	
2% BORIC ACID	R120620 D	CINV-080722A	20g	1000 mL	
ELUENT (Cr6+)	R120626A	CINV-120213B / CINV-120425A	33g / 6.5 mL	1000	20

Advanced Technology Laboratories
3151 W. Post Road, Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

Reagent Preparation

	Preparation		Exp Date			
	Final Conc.	Date Prepared	Reagent	Stock/ Manufacturer	Comments	Initials
1	—	06/01/2012	06/14/2012	04/24/2015 ; 3/08/2014		KB
	—	6/6/12	5/14/13	5/10/15 ; 5/14/13		2
	—	〃	6/13/12	5/11/15 ; 4/12/13 ; 4/18/13		〃
	0.17M/0.18M	6/6/12	6/6/12 6/13/12	6/6/15 ; 5/31/14		2
5	—	6/8/12	5/14/13	5/11/15 ; 5/14/13		2
	—	〃	6/18/12	5/11/15 ; 4/12/13 ; 4/18/13		〃
	—	~~6/11/2012~~ ~~H2O 6/11/12~~	06/11/2013	02/02/2014		K
	—	6/14/12	5/14/13	6/14/15 ; 5/14/13		2
	—	〃	6/21/12	5/11/15 ; 4/12/13 ; 4/18/13		〃
10	1N	6/14/12	6/14/13	5/31/14		KJ.
	—	6/18/12	5/14/13	6/14/15 ; 5/14/13		2
	—	〃	6/25/12	5/11/15 ; 4/12/13 ; 4/18/13		〃
	50% V/V	6/18/12	5/18/13	5/18/13	blt# 5859	
	—	6/19/12	7/3/12	4/24/15 ; 6/15/13		M / KB
15	20 %	6/19/12	6/19/13	5/11/14		M 6/20/12
	11N	06/20/12	06/02/2013	04/02/2013		KB ~~MT~~ QBM
	—	06/20/12	7/4/12	4/24/15 ; 6/15/13		KB / QBM
	—	06/20/12	06/20/2013	12/28/2013		KB
	2%	6/20/12	06/20/2013	1/23/2015		KB
20	—	6/26/12	5/14/13	6/14/15 ; 5/14/13		2

* Check reagent expiration date versus stock/manufacturer's expiration date

Logbook 2

Advanced Technology Laboratories
3151 W. Post Road, Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CHEMICAL INVENTORY LOG

Inventory Code	Chemical Name	Vendor	Lot #	% Purity	Date Rec'd	Date Opened	Date Expired	Init	Comments
CINV-120516A	ZINC ACETATE	RICCA	1112037	ZN	5/16/12		11/2013		
B	↓	↓	↓	↓	↓		↓		
C	↓	↓	↓	↓	↓		↓		
CINV-120604A	SODIUM BICARBONATE	MACRON CHEMICALS	L05606	99.7-100.3%	6/4/12	6/6/12	6/6/15	MB	5885
CINV-120607A	Dichloromethane	EMD	52038	99.96	6/7/12			BF	
B	↓	↓	↓	↓	↓			↓	
C									
D									
E									
F									
G									
H									
I									
J									
K									
L									
M									
N									
O									
P	↓	↓	↓	↓	↓			↓	

CHEMICAL INVENTORY LOG

Inventory Code	Chemical Name	Vendor	Lot #	% Purity	Date Rec'd	Date Opened	Date Expired	Init	Comments
CINV-110512 L	Dichloromethane	EMD	51020	99.96%	5/12/11			[illegible]	
M									
N									
O									
P									
Q									
R									
S									
T									
CINV-110516 A	Sodium Borate, 10-Hydrate	JT BAKER	JT7622	101.1 %	5/16/11	5/16/11	5/16/14	mi	
L B	Sodium Carbonate, Anhydrous	Mallinckrodt	V43633	99.95-100.05%	"	5/31/11 [illegible]	5/31/14	L	
CINV-110519 A	Acetone	B&J	DD887	99.9%	5/19/11			[illegible]	
B									
C									
D									
E	Hexane	J.T. Baker	V35E91	99.9%					
F									
G									
H									
I	Hexane	EMD	51012	98.5%					

October 10, 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.: N008578

RE: PG&E Topock, 423575.MP.02.GM.03

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on September 26, 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.03
Lab Order: N008578

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: *10-Oct-12*

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.03
Lab Order: N008578
Contract No: 2012-GMP-187-

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N008578-001A	MW-24BR-187	Water	9/26/2012 8:11:00 AM	9/26/2012	10/10/2012

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-24BR-187
Lab Order:	N008578	**Collection Date:**	9/26/2012 8:11:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N008578-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_120927B**	QC Batch: **R85714**			PrepDate:			Analyst: **KAB**
Specific Conductance	14000	0.10	0.10		umhos/cm	1	9/27/2012

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected 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: N008578
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: **LCS-R85714** SampType: **LCS** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **85714**
Client ID: **LCSW** Batch ID: **R85714** TestNo: **EPA 120.1** Analysis Date: **9/27/2012** SeqNo: **1449424**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	99900.000	0.10	99900	0	100	85	115				

Sample ID: **N008576-002A-DUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **85714**
Client ID: **ZZZZZZ** Batch ID: **R85714** TestNo: **EPA 120.1** Analysis Date: **9/27/2012** SeqNo: **1449427**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	18060.000	0.10						18070	0.0554	10	

Sample ID: **N008576-002A-MS** SampType: **MS** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **85714**
Client ID: **ZZZZZZ** Batch ID: **R85714** TestNo: **EPA 120.1** Analysis Date: **9/27/2012** SeqNo: **1449428**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	123600.000	0.20	99900	18070	106	75	125				

Sample ID: **N008576-002A-MSD** SampType: **MSD** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **85714**
Client ID: **ZZZZZZ** Batch ID: **R85714** TestNo: **EPA 120.1** Analysis Date: **9/27/2012** SeqNo: **1449429**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	123600.000	0.20	99900	18070	106	75	125	123600	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		

CH2MHILL

CHAIN OF CUSTODY RECORD

9/26/2012 12:27:21 PM

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-187-Q3
Turnaround Time 10 Days
Shipping Date: 9/26/2012
COC Number: 14

	DATE	TIME	Matrix	Specific Conductance (E120.1)		Number of Containers	COMMENTS
Container:				1x1 Liter			
Preservatives:				4°C			
Filtered:				NA			
Holding Time:				2			
					8 8		
MW-24BR-187	9/26/2012	8:11	Water	x	N008574-1	1	
					TOTAL NUMBER OF CONTAINERS	1	

	Signatures	Date/Time
Approved by		9-26-12
Sampled by		1615
Relinquished by		
Received by	MBCARTIN	9/26/12@1615
Relinquished by		
Received by		

Shipping Details

Method of Shipment: courier
On Ice: yes / no 5.1°C
Airbill No: IR#1 ICE
Lab Name: ADVANCED TECHNOLOGY LABORATO
Lab Phone: (702) 307-2659

ATTN:
Sample Custody
and
Marlon

Special Instructions:
September 12 to October 17, 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:	9/26/2012	Workorder:	N008578
Rep sample Temp (Deg C):	5.1	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 9/27/12 Reviewed By:

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.: N008584

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 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 6020:

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

Advanced Technology Laboratories, Inc.

Date: *11-Oct-12*

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.03
Lab Order: N008584
Contract No: 2012-GMP-187-

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N008584-001A	MW-74-240-187	Water	9/27/2012 7:35:00 AM	9/27/2012	10/11/2012
N008584-001B	MW-74-240-187	Water	9/27/2012 7:35:00 AM	9/27/2012	10/11/2012

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-74-240-187
Lab Order:	N008584	**Collection Date:**	9/27/2012 7:35:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N008584-001		

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	1200	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		

CLIENT: CH2M HILL
Work Order: N008584
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		

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-74-240-187
Lab Order:	N008584	**Collection Date:**	9/27/2012 7:35:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N008584-001		

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**
Nitrate as N	ND	0.014	0.50		mg/L	1	9/28/2012 03:11 PM

Qualifiers:

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

CLIENT: CH2M HILL
Work Order: N008584
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
ND Not Detected at the Reporting Limit
DQ Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N008584
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
ND Not Detected at the Reporting Limit
DQ Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Lab Order: N008584
Project: PG&E Topock, 423575.MP.02.GM.03
Lab ID: N008584-001

Client Sample ID: MW-74-240-187
Collection Date: 9/27/2012 7:35:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_121008A**	QC Batch: **40870**			PrepDate:	**10/5/2012**		Analyst: **CEI**
Arsenic	9.3	0.035	0.10		µg/L	1	10/8/2012 10:55 AM
Manganese	4.9	0.16	0.50		µg/L	1	10/8/2012 10:55 AM
Molybdenum	47	0.074	0.50		µg/L	1	10/8/2012 10:55 AM
Selenium	3.8	0.084	0.50		µg/L	1	10/8/2012 10:55 AM

Qualifiers:

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

CLIENT: CH2M HILL
Work Order: N008584
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **MB-40870** SampType: **MBLK** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **10/5/2012** RunNo: **85854**
Client ID: **PBW** Batch ID: **40870** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **10/8/2012** SeqNo: **1455403**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.067	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID: **LCS-40870** SampType: **LCS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **10/5/2012** RunNo: **85854**
Client ID: **LCSW** Batch ID: **40870** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **10/8/2012** SeqNo: **1455404**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	9.617	0.10	10.00	0	96.2	85	115				
Manganese	96.133	0.50	100.0	0	96.1	85	115				
Molybdenum	9.785	0.50	10.00	0	97.9	85	115				
Selenium	9.864	0.50	10.00	0	98.6	85	115				

Sample ID: **N008584-001A-MS** SampType: **MS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **10/5/2012** RunNo: **85854**
Client ID: **ZZZZZZ** Batch ID: **40870** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **10/8/2012** SeqNo: **1455408**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	18.898	0.10	10.00	9.306	95.9	75	125				
Manganese	95.384	0.50	100.0	4.893	90.5	75	125				
Molybdenum	56.314	0.50	10.00	47.20	91.1	75	125				
Selenium	13.551	0.50	10.00	3.824	97.3	75	125				

Sample ID: **N008584-001A-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **10/5/2012** RunNo: **85854**
Client ID: **ZZZZZZ** Batch ID: **40870** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **10/8/2012** SeqNo: **1455409**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.035	0.10	10.00	9.306	107	75	125	18.90	5.84	20	

Qualifiers:

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

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N008584
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N008584-001A-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **10/5/2012** RunNo: **85854**
Client ID: **ZZZZZZ** Batch ID: **40870** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **10/8/2012** SeqNo: **1455409**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	96.901	0.50	100.0	4.893	92.0	75	125	95.38	1.58	20	
Molybdenum	60.021	0.50	10.00	47.20	128	75	125	56.31	6.37	20	S
Selenium	13.616	0.50	10.00	3.824	97.9	75	125	13.55	0.474	20	

Qualifiers:

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

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** *9/27/2012 3:16:25 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-187-Q3
Turnaround Time 10 Days
Shipping Date: 9/27/2012
COC Number: 16

	Container:	1x500 ml Poly	1x500 ml Poly	1x1 Liter	1x1 Liter			
	Preservatives:	HNO3, 4°C	HNO3, 4°C	4°C	4°C			
	Filtered:	Field	Field	NA	NA			
	Holding Time:	180	180	2	2			
DATE / TIME / Matrix		Arsenic (6020A) Field Filtered	Metals (6020AFF) Field Filtered Mo,Se,Mn	Specific Conductance (E120.1)	Anions (E300.0) Nitrate		Number of Containers	COMMENTS
MW-74-240-187 9/27/2012 7:35 Water		X	X	X	X	N0085584 ↓ −1	3	
						TOTAL NUMBER OF CONTAINERS	3	

	Signatures	Date/Time
Approved by		
Sampled by		9-27-12 1700
Relinquished by		
Received by		9/27/12 1707
Relinquished by		9/27/12 1907
Received by		9/27/12 1907

Shipping Details
Method of Shipment: courier
On Ice: ~~yes~~ / no 2.5°C
Airbill No: 1R#1
Lab Name: ADVANCED TECHNOLOGY LABORATO
Lab Phone: (702) 307-2659

ATTN:
Sample Custody
and
Marlon

Special Instructions:
September 12 to October 17, 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:	9/27/2012	Workorder:	N008584
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 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 **N008584-001B**, concentration in mg/L are calculated as follows:

Nitrate, mg/L = 0.438 * 1

= 0.438 mg/L

Reporting **N008584-001B**, results in two significant figures,

Nitrate, mg/L = 0.44 mg/L

Since PQL is 0.5 mg/L,

Nitrate, mg/L = ND

MS 10/11/2012

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 **N008584-001A**, the concentration in ug/L is calculated as follows:

Arsenic, ug/L = 9.3059743587907 * 1 * (25/25)

= 9.3059743587907

Reporting result in two significant figures,

Arsenic, ug/L = 9.3

NS for 10/10

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N008584
Test Method: EPA 6020
Analysis Date: 10/08/12

Matrix: Water
Batch No.: 40870

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. PS @ 2X passed the criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N008584-001A-DT 5X	Arsenic	µg/L	9.417671836	PASSED	9.305974359	1.20%	10
N008584-001A-DT 5X	Manganese	µg/L	5.074539097	NA	4.893302617	3.70%	10
N008584-001A-DT 5X	Molybdenum	µg/L	46.6694768	PASSED	47.1993616	1.12%	10
N008584-001A-DT 5X	Selenium	µg/L	4.306583285	NA	3.824333646	12.61%	10

Note: NA - Not applicable

CLIENT: CH2M HILL
Work Order: N008584
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N008584-001A-PS** SampType: **PS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **85854**
Client ID: **ZZZZZZ** Batch ID: **40870** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **10/8/2012** SeqNo: **1455407**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	30.487	0.20	20.00	9.306	106	75	125				
Manganese	202.182	1.0	200.0	4.893	98.6	75	125				
Molybdenum	68.082	1.0	20.00	47.20	104	75	125				
Selenium	24.224	1.0	20.00	3.824	102	75	125				

Qualifiers:

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

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,

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

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

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-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		

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		

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		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Lab Order: 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
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		

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

CLIENT: CH2M HILL
Lab Order: 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
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
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Work Order: 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
ND Not Detected at the Reporting Limit
DQ Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: 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
ND Not Detected at the Reporting Limit
DQ Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
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		

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		

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		

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

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: 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
ND Not Detected at the Reporting Limit
DQ Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

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

Advanced Technology Laboratories, Inc.
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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		

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

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CH2MHILL

CHAIN OF CUSTODY RECORD

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

			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	[signature]	9/27/12 1700
Relinquished by	[signature]	9/27/12 1900
Received by	[signature]	9/27/12 1900

Shipping Details
Method of Shipment: FedEx
On Ice: ~~yes~~ no 2.5°C (PH)
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 ✓ Analyte

MS 10/11/2012

October 15, 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.: N008605

RE: PG&E Topock, 423575.MP.02.GM.03

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on October 01, 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.

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

Samples were received intact with proper chain of custody documentation.

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

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

Samples were analyzed within method holding time.

Analytical Comments for EPA 6020:

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

Analytical Comments for EPA 300.0:

Sample N008605-003 was diluted due to the high concentration of Chloride.

Advanced Technology Laboratories, Inc.

Date: *15-Oct-12*

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.03
Lab Order: N008605
Contract No: 2012-GMP-187-

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N008605-001A	MW-122-187	Water	10/1/2012 11:12:00 AM	10/1/2012	10/15/2012
N008605-001B	MW-122-187	Water	10/1/2012 11:12:00 AM	10/1/2012	10/15/2012
N008605-002A	MW-27-060-187	Water	10/1/2012 9:15:00 AM	10/1/2012	10/15/2012
N008605-002B	MW-27-060-187	Water	10/1/2012 9:15:00 AM	10/1/2012	10/15/2012
N008605-003A	MW-27-085-187	Water	10/1/2012 8:22:00 AM	10/1/2012	10/15/2012
N008605-003B	MW-27-085-187	Water	10/1/2012 8:22:00 AM	10/1/2012	10/15/2012
N008605-004A	MW-34-080-187	Water	10/1/2012 12:01:00 PM	10/1/2012	10/15/2012
N008605-004B	MW-34-080-187	Water	10/1/2012 12:01:00 PM	10/1/2012	10/15/2012
N008605-005A	MW-34-100-187	Water	10/1/2012 12:53:00 PM	10/1/2012	10/15/2012
N008605-005B	MW-34-100-187	Water	10/1/2012 12:53:00 PM	10/1/2012	10/15/2012
N008605-006A	TW-01-187	Water	10/1/2012 3:40:00 PM	10/1/2012	10/15/2012
N008605-006B	TW-01-187	Water	10/1/2012 3:40:00 PM	10/1/2012	10/15/2012

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-122-187
Lab Order:	N008605	**Collection Date:**	10/1/2012 11:12:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N008605-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121002C**	QC Batch: **R85778**			PrepDate:			Analyst: **KAB**
Specific Conductance	18000	0.10	0.10		umhos/cm	1	10/2/2012

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-27-060-187
Lab Order:	N008605	**Collection Date:**	10/1/2012 9:15:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N008605-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121002C**	QC Batch: **R85778**			PrepDate:			Analyst: **KAB**
Specific Conductance	1100	0.10	0.10		umhos/cm	1	10/2/2012

Qualifiers:

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

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-27-085-187
Lab Order:	N008605	**Collection Date:**	10/1/2012 8:22:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N008605-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121002C**	QC Batch: **R85778**			PrepDate:			Analyst: **KAB**
Specific Conductance	12000	0.10	0.10		umhos/cm	1	10/2/2012

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-34-080-187
Lab Order:	N008605	**Collection Date:**	10/1/2012 12:01:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N008605-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121002C**	QC Batch: **R85778**			PrepDate:			Analyst: **KAB**
Specific Conductance	8000	0.10	0.10		umhos/cm	1	10/2/2012

Qualifiers:

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

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-34-100-187
Lab Order:	N008605	**Collection Date:**	10/1/2012 12:53:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N008605-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121002C**	QC Batch: **R85778**			PrepDate:			Analyst: **KAB**
Specific Conductance	19000	0.10	0.10		umhos/cm	1	10/2/2012

Qualifiers:

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

CLIENT: CH2M HILL
Lab Order: N008605
Project: PG&E Topock, 423575.MP.02.GM.03
Lab ID: N008605-006

Client Sample ID: TW-01-187
Collection Date: 10/1/2012 3:40:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121002C**	QC Batch: **R85778**			PrepDate:			Analyst: **KAB**
Specific Conductance	7400	0.10	0.10		umhos/cm	1	10/2/2012

Qualifiers:

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

CLIENT: CH2M HILL
Work Order: N008605
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: **LCS-R85778** SampType: **LCS** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **85778**
Client ID: **LCSW** Batch ID: **R85778** TestNo: **EPA 120.1** Analysis Date: **10/2/2012** SeqNo: **1451667**

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: **N008605-006B-DUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **85778**
Client ID: **ZZZZZZ** Batch ID: **R85778** TestNo: **EPA 120.1** Analysis Date: **10/2/2012** SeqNo: **1451674**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	7380.000	0.10						7390	0.135	10	

Sample ID: **N008605-006B-MS** SampType: **MS** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **85778**
Client ID: **ZZZZZZ** Batch ID: **R85778** TestNo: **EPA 120.1** Analysis Date: **10/2/2012** SeqNo: **1451675**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	108200.000	0.20	99800	7390	101	75	125				

Sample ID: **N008605-006B-MSD** SampType: **MSD** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **85778**
Client ID: **ZZZZZZ** Batch ID: **R85778** TestNo: **EPA 120.1** Analysis Date: **10/2/2012** SeqNo: **1451676**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	108200.000	0.20	99800	7390	101	75	125	108200	0	10	

Qualifiers:

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

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CLIENT: CH2M HILL
Lab Order: N008605
Project: PG&E Topock, 423575.MP.02.GM.03
Lab ID: N008605-002

Client Sample ID: MW-27-060-187
Collection Date: 10/1/2012 9:15:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_121002A** QC Batch: **R85920**				PrepDate:			Analyst: **QBM**
Fluoride	0.69	0.012	0.50		mg/L	1	10/2/2012 02:50 PM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_121002A** QC Batch: **R85920**				PrepDate:			Analyst: **QBM**
Nitrate as N	ND	0.014	0.50		mg/L	1	10/2/2012 02:50 PM

Qualifiers:

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

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-27-085-187
Lab Order:	N008605	**Collection Date:**	10/1/2012 8:22:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N008605-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_121002A**	QC Batch: **R85920**			PrepDate:			Analyst: **QBM**
Fluoride	ND	0.12	5.0		mg/L	10	10/2/2012 04:24 PM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_121002A**	QC Batch: **R85920**			PrepDate:			Analyst: **QBM**
Nitrate as N	ND	0.070	2.5		mg/L	5	10/2/2012 03:02 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		

CLIENT:	CH2M HILL	**Client Sample ID:**	TW-01-187
Lab Order:	N008605	**Collection Date:**	10/1/2012 3:40:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N008605-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **IC2_121002A**	QC Batch: **R85920**			PrepDate:			Analyst: **QBM**
Nitrate as N	22	0.14	5.0		mg/L	10	10/2/2012 03:14 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		

CLIENT: CH2M HILL
Work Order: N008605
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_FPGE

Sample ID: **MB-R85920_F** SampType: **MBLK** TestCode: **300_W_FPGE** Units: **mg/L** Prep Date: RunNo: **85920**
Client ID: **PBW** Batch ID: **R85920** TestNo: **EPA 300.0** Analysis Date: **10/2/2012** SeqNo: **1458513**

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

Sample ID: **LCS-R85920_F** SampType: **LCS** TestCode: **300_W_FPGE** Units: **mg/L** Prep Date: RunNo: **85920**
Client ID: **LCSW** Batch ID: **R85920** TestNo: **EPA 300.0** Analysis Date: **10/2/2012** SeqNo: **1458514**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	2.415	0.50	2.500	0	96.6	90	110				

Sample ID: **N008605-002BDUP** SampType: **DUP** TestCode: **300_W_FPGE** Units: **mg/L** Prep Date: RunNo: **85920**
Client ID: **ZZZZZZ** Batch ID: **R85920** TestNo: **EPA 300.0** Analysis Date: **10/2/2012** SeqNo: **1458520**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	0.635	0.50						0.6920	8.59	20	

Sample ID: **N008605-002BMS** SampType: **MS** TestCode: **300_W_FPGE** Units: **mg/L** Prep Date: RunNo: **85920**
Client ID: **ZZZZZZ** Batch ID: **R85920** TestNo: **EPA 300.0** Analysis Date: **10/2/2012** SeqNo: **1458521**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	2.994	0.50	2.500	0.6920	92.1	80	120				

Sample ID: **N008605-002BMSD** SampType: **MSD** TestCode: **300_W_FPGE** Units: **mg/L** Prep Date: RunNo: **85920**
Client ID: **ZZZZZZ** Batch ID: **R85920** TestNo: **EPA 300.0** Analysis Date: **10/2/2012** SeqNo: **1458522**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	2.976	0.50	2.500	0.6920	91.4	80	120	2.994	0.603	20	

Qualifiers:

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

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CLIENT: CH2M HILL
Work Order: N008605
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 300W_NO3PGE

Sample ID: **MB-R85920_NO3** SampType: **MBLK** TestCode: **300W_NO3P** Units: **mg/L** Prep Date: RunNo: **85920**
Client ID: **PBW** Batch ID: **R85920** TestNo: **EPA 300.0** Analysis Date: **10/2/2012** SeqNo: **1458475**

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-R85920_NO3** SampType: **LCS** TestCode: **300W_NO3P** Units: **mg/L** Prep Date: RunNo: **85920**
Client ID: **LCSW** Batch ID: **R85920** TestNo: **EPA 300.0** Analysis Date: **10/2/2012** SeqNo: **1458476**

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

Sample ID: **N008605-002BDUP** SampType: **DUP** TestCode: **300W_NO3P** Units: **mg/L** Prep Date: RunNo: **85920**
Client ID: **ZZZZZZ** Batch ID: **R85920** TestNo: **EPA 300.0** Analysis Date: **10/2/2012** SeqNo: **1458488**

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: **N008605-002BMS** SampType: **MS** TestCode: **300W_NO3P** Units: **mg/L** Prep Date: RunNo: **85920**
Client ID: **ZZZZZZ** Batch ID: **R85920** TestNo: **EPA 300.0** Analysis Date: **10/2/2012** SeqNo: **1458489**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate as N	2.409	0.50	2.500	0	96.4	80	120				

Sample ID: **N008605-002BMSD** SampType: **MSD** TestCode: **300W_NO3P** Units: **mg/L** Prep Date: RunNo: **85920**
Client ID: **ZZZZZZ** Batch ID: **R85920** TestNo: **EPA 300.0** Analysis Date: **10/2/2012** SeqNo: **1458490**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate as N	2.386	0.50	2.500	0	95.4	80	120	2.409	0.959	20	

Qualifiers:

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

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CLIENT:	CH2M HILL	**Client Sample ID:**	MW-122-187
Lab Order:	N008605	**Collection Date:**	10/1/2012 11:12:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N008605-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_121008A**	QC Batch: **40870**			PrepDate:	**10/5/2012**		Analyst: **CEI**
Arsenic	1.6	0.035	0.10		µg/L	1	10/8/2012 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		

CLIENT: CH2M HILL
Lab Order: N008605
Project: PG&E Topock, 423575.MP.02.GM.03
Lab ID: N008605-002

Client Sample ID: MW-27-060-187
Collection Date: 10/1/2012 9:15:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_121008A**	QC Batch: **40870**			PrepDate:	**10/5/2012**		Analyst: **CEI**
Arsenic	7.4	0.035	0.10		µg/L	1	10/8/2012 11:26 AM
Manganese	120	0.16	0.50		µg/L	1	10/8/2012 11:26 AM
Molybdenum	3.5	0.074	0.50		µg/L	1	10/8/2012 11:26 AM
Selenium	ND	0.084	0.50		µg/L	1	10/8/2012 11:26 AM

Qualifiers:

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

CLIENT: CH2M HILL
Lab Order: N008605
Project: PG&E Topock, 423575.MP.02.GM.03
Lab ID: N008605-003

Client Sample ID: MW-27-085-187
Collection Date: 10/1/2012 8:22:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_121008A**	QC Batch: **40870**			PrepDate:		**10/5/2012**	Analyst: **CEI**
Arsenic	1.5	0.035	0.10		µg/L	1	10/8/2012 11:54 AM
Manganese	77	0.16	0.50		µg/L	1	10/8/2012 11:54 AM
Molybdenum	22	0.074	0.50		µg/L	1	10/8/2012 11:54 AM
Selenium	ND	0.084	0.50		µg/L	1	10/8/2012 11:54 AM

Qualifiers:

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

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-34-080-187
Lab Order:	N008605	**Collection Date:**	10/1/2012 12:01:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N008605-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_121008A**	QC Batch: **40870**			PrepDate:	**10/5/2012**		Analyst: **CEI**
Arsenic	1.7	0.035	0.10		µg/L	1	10/8/2012 11:59 AM

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-34-100-187
Lab Order:	N008605	**Collection Date:**	10/1/2012 12:53:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N008605-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **ICP7_121008A**	QC Batch: **40870**				PrepDate:	**10/5/2012**	Analyst: **CEI**
Arsenic	1.5	0.035	0.10		µg/L	1	10/8/2012 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		

CLIENT: CH2M HILL
Lab Order: N008605
Project: PG&E Topock, 423575.MP.02.GM.03
Lab ID: N008605-006

Client Sample ID: TW-01-187
Collection Date: 10/1/2012 3:40:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **ICP7_121008A**	QC Batch: **40870**				PrepDate:	**10/5/2012**	Analyst: **CEI**
Molybdenum	14	0.074	0.50		µg/L	1	10/8/2012 12:09 PM
Selenium	20	0.084	0.50		µg/L	1	10/8/2012 12:09 PM

CLIENT: CH2M HILL
Work Order: N008605
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **MB-40870** SampType: **MBLK** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **10/5/2012** RunNo: **85854**
Client ID: **PBW** Batch ID: **40870** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **10/8/2012** SeqNo: **1455403**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.067	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID: **LCS-40870** SampType: **LCS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **10/5/2012** RunNo: **85854**
Client ID: **LCSW** Batch ID: **40870** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **10/8/2012** SeqNo: **1455404**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	9.617	0.10	10.00	0	96.2	85	115				
Manganese	96.133	0.50	100.0	0	96.1	85	115				
Molybdenum	9.785	0.50	10.00	0	97.9	85	115				
Selenium	9.864	0.50	10.00	0	98.6	85	115				

Sample ID: **N008584-001A-MS** SampType: **MS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **10/5/2012** RunNo: **85854**
Client ID: **ZZZZZZ** Batch ID: **40870** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **10/8/2012** SeqNo: **1455408**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	18.898	0.10	10.00	9.306	95.9	75	125				
Manganese	95.384	0.50	100.0	4.893	90.5	75	125				
Molybdenum	56.314	0.50	10.00	47.20	91.1	75	125				
Selenium	13.551	0.50	10.00	3.824	97.3	75	125				

Sample ID: **N008584-001A-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **10/5/2012** RunNo: **85854**
Client ID: **ZZZZZZ** Batch ID: **40870** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **10/8/2012** SeqNo: **1455409**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.035	0.10	10.00	9.306	107	75	125	18.90	5.84	20	

Qualifiers:

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

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N008605
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N008584-001A-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **10/5/2012** RunNo: **85854**
Client ID: **ZZZZZZ** Batch ID: **40870** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **10/8/2012** SeqNo: **1455409**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	96.901	0.50	100.0	4.893	92.0	75	125	95.38	1.58	20	
Molybdenum	60.021	0.50	10.00	47.20	128	75	125	56.31	6.37	20	S
Selenium	13.616	0.50	10.00	3.824	97.9	75	125	13.55	0.474	20	

Qualifiers:

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

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ATL

CH2MHILL **CHAIN OF CUSTODY RECORD** *9/27/2012 5:10:14 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-187-Q3
Turnaround Time 10 Days
Shipping Date: 10/1/2012
COC Number: 17

	Container:	1x500 ml Poly	1x500 ml Poly	1x500 ml Poly	1x1 Liter	1x1 Liter	1x1 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	2	2	2			
		Arsenic (6020A) Field Filtered	Metals (6020AFF) Field Filtered Mo,Se	Metals (6020AFF) Field Filtered Mo,Se,Mn	Specific Conductance (E120.1)	Anions (E300.0) Nitrate	Anions (E300.0) Nitrate,Fluoride		Number of Containers	COMMENTS
MW-122-187	10/1/2012 11:12 Water	X			X			1008605-1	2	
MW-27-060-187	10/1/2012 9:15 Water	X		X	X		X	-2	2 (AM)	
MW-27-085-187	10/1/2012 8:22 Water	X		X	X		X	-3	2 (AM)	
MW-34-080-187	10/1/2012 12:01 Water	X			X			-4	2	
MW-34-100-187	10/1/2012 12:53 Water	X			X			-5	2	
TW-01-187	10/1/2012 15:40 Water		X		X	X		-6	2	
								TOTAL NUMBER OF CONTAINERS	~~14~~ 12 (AM)	

	Signatures	Date/Time
Approved by		
Sampled by	[signature]	10/1/12 16:15
Relinquished by		
Received by	MBCARTIN [signature]	10/1/12C 1634
Relinquished by		
Received by		

Shipping Details
Method of Shipment: courier
On Ice: (yes) / no 4.8 1R1 ICE
Airbill No:
Lab Name: ADVANCED TECHNOLOGY LABORATO
Lab Phone: (702) 307-2659

ATTN:
Sample Custody
and
Marion

Special Instructions:
September 12 to October 17, 2012

Report Copy to
Shawn Duffy
(530) 229-3303

10

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:	10/1/2012	Workorder:	N008605
Rep sample Temp (Deg C):	4.8	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 10/2/12

Reviewed By: jgb

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 **N008605-006B**, concentration in mg/L are calculated as follows:

Nitrate, mg/L	=	2.155 * 10
	=	21.55 mg/L

Reporting **N008605-006B**, results in two significant figures,

Nitrate, mg/L = 22 mg/L ✓ AW 10/15/-

MS 10/15/2012

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 **N008605-001A**, the concentration in ug/L is calculated as follows:

Arsenic, ug/L = 1.60566056852705 * 1 * (25/25)

= 1.60566056852705

Reporting result in two significant figures,

Arsenic, ug/L = 1.6

WS for 10/10/12

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N008605
Test Method: EPA 6020
Analysis Date: 10/08/12

Matrix: Water
Batch No.: 40870

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. PS @ 2X passed the criteria.

Sample ID	Analyte	&Units	Calc Val	QQual	SAMPrefval	%DIFF	%DIFFlimit
N008584-001A-DT 5X	Arsenic	µg/L	9.417671836	PASSED	9.305974359	1.20%	10
N008584-001A-DT 5X	Manganese	µg/L	5.074539097	NA	4.893302617	3.70%	10
N008584-001A-DT 5X	Molybdenum	µg/L	46.6694768	PASSED	47.1993616	1.12%	10
N008584-001A-DT 5X	Selenium	µg/L	4.306583285	NA	3.824333646	12.61%	10

Note: NA - Not applicable

CLIENT: CH2M HILL
Work Order: N008605
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N008584-001A-PS**	SampType: **PS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **85854**
Client ID: **ZZZZZZ**	Batch ID: **40870**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/8/2012**	SeqNo: **1455407**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	30.487	0.20	20.00	9.306	106	75	125				
Manganese	202.182	1.0	200.0	4.893	98.6	75	125				
Molybdenum	68.082	1.0	20.00	47.20	104	75	125				
Selenium	24.224	1.0	20.00	3.824	102	75	125				

Qualifiers:

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

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.

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

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
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		

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

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

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-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		

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

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

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
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
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Lab Order: 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
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Work Order: 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
DQ	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: 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
ND Not Detected at the Reporting Limit
DQ Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

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

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: 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
ND Not Detected at the Reporting Limit
DQ Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

Advanced Technology Laboratories, Inc.
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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~~ .02.GM.03
Task Order
Project 2012-GMP-187~~SAMPLEMETHOD~~
Turnaround Time 10 Days
Shipping Date: ~~9/12/2012~~ 10-9-12
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
10-2-12	1039	Water	X	X		X		Sample ID: MW-12-187 N0086618-1	1	
1	1324	1	X	X		X	X	MW-59-100-187 1 -2	2	

	Signatures	Date/Time
Approved by		
Sampled by		10-2-12
Relinquished by		1624
Received by	MCEARTIN	10/2/12 1624
Relinquished by		
Received by		

Shipping Details
Method of Shipment: FedEx
On Ice: (yes) / no 4.6 1R1 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 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.: N008620

RE: PG&E Topock, 423575.MP.02.GM.0

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.

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

Samples were received intact with proper chain of custody documentation.

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

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

Samples were analyzed within method holding time.

Analytical Comments for EPA 6020:

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

Analytical Comments for EPA 300.0:

Sample was diluted due to the high concentration of Chloride.

Advanced Technology Laboratories, Inc.

Date: *16-Oct-12*

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.0
Lab Order: N008620
Contract No: 2012-GMP-187-

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N008620-001A	MW-66BR-270-187	Water	10/2/2012 2:30:00 PM	10/2/2012	10/16/2012
N008620-001B	MW-66BR-270-187	Water	10/2/2012 2:30:00 PM	10/2/2012	10/16/2012

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-66BR-270-187
Lab Order:	N008620	**Collection Date:**	10/2/2012 2:30:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008620-001		

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	18000	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		

CLIENT: CH2M HILL
Work Order: N008620
Project: PG&E Topock, 423575.MP.02.GM.0

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		

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-66BR-270-187
Lab Order:	N008620	**Collection Date:**	10/2/2012 2:30:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008620-001		

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**
Nitrate as N	ND	0.070	2.5		mg/L	5	10/3/2012 04:33 PM

Qualifiers:

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

CLIENT: CH2M HILL
Work Order: N008620
Project: PG&E Topock, 423575.MP.02.GM.0

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

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Lab Order: N008620
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008620-001

Client Sample ID: MW-66BR-270-187
Collection Date: 10/2/2012 2:30:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_121008A**	QC Batch: **40870**			PrepDate:		**10/5/2012**	Analyst: **CEI**
Arsenic	0.32	0.035	0.10		µg/L	1	10/8/2012 12:14 PM
Manganese	ND	0.16	0.50		µg/L	1	10/8/2012 12:14 PM
Molybdenum	28	0.37	2.5		µg/L	5	10/8/2012 12:40 PM
Selenium	7.5	0.42	2.5		µg/L	5	10/8/2012 12:40 PM

Qualifiers:

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

CLIENT: CH2M HILL
Work Order: N008620
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **MB-40870** SampType: **MBLK** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **10/5/2012** RunNo: **85854**
Client ID: **PBW** Batch ID: **40870** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **10/8/2012** SeqNo: **1455403**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.067	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID: **LCS-40870** SampType: **LCS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **10/5/2012** RunNo: **85854**
Client ID: **LCSW** Batch ID: **40870** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **10/8/2012** SeqNo: **1455404**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	9.617	0.10	10.00	0	96.2	85	115				
Manganese	96.133	0.50	100.0	0	96.1	85	115				
Molybdenum	9.785	0.50	10.00	0	97.9	85	115				
Selenium	9.864	0.50	10.00	0	98.6	85	115				

Sample ID: **N008584-001A-MS** SampType: **MS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **10/5/2012** RunNo: **85854**
Client ID: **ZZZZZZ** Batch ID: **40870** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **10/8/2012** SeqNo: **1455408**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	18.898	0.10	10.00	9.306	95.9	75	125				
Manganese	95.384	0.50	100.0	4.893	90.5	75	125				
Molybdenum	56.314	0.50	10.00	47.20	91.1	75	125				
Selenium	13.551	0.50	10.00	3.824	97.3	75	125				

Sample ID: **N008584-001A-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **10/5/2012** RunNo: **85854**
Client ID: **ZZZZZZ** Batch ID: **40870** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **10/8/2012** SeqNo: **1455409**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.035	0.10	10.00	9.306	107	75	125	18.90	5.84	20	

Qualifiers:

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

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N008620
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N008584-001A-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **10/5/2012** RunNo: **85854**
Client ID: **ZZZZZZ** Batch ID: **40870** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **10/8/2012** SeqNo: **1455409**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	96.901	0.50	100.0	4.893	92.0	75	125	95.38	1.58	20	
Molybdenum	60.021	0.50	10.00	47.20	128	75	125	56.31	6.37	20	S
Selenium	13.616	0.50	10.00	3.824	97.9	75	125	13.55	0.474	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** *10/2/2012 3:14:49 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-187-Q3
Turnaround Time 10 Days
Shipping Date: 10/2/2012
COC Number: 18

	Container:	1x500 ml Poly	1x500 ml Poly	1x1 Liter	1x1 Liter			
	Preservatives:	HNO3, 4°C	HNO3, 4°C	4°C	4°C			
	Filtered:	Field	Field	NA	NA			
	Holding Time:	180	180	2	2			
DATE / TIME / Matrix		Arsenic (6020A) Field Filtered	Metals (6020AFF) Field Filtered Mo,Se,Mn	Specific Conductance (E120.1)	Anions (E300.0) Nitrate		Number of Containers	COMMENTS
MW-66BR-270-187	10/2/2012 14:30 Water	X	X	X	X	N0086620-1	3	
						TOTAL NUMBER OF CONTAINERS	3	BEL

Signatures		Date/Time
Approved by		10-2-12
Sampled by		1624
Relinquished by		
Received by		10/2/12 01624
Relinquished by		
Received by		

Shipping Details
Method of Shipment: courier
On Ice: (yes) / no 4.6 1R1 1CE
Airbill No:
Lab Name: ADVANCED TECHNOLOGY LABORATO
Lab Phone: (702) 307-2659

ATTN:
Sample Custody
and
Marlon

Special Instructions:
September 12 to October 17, 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:	10/2/2012	Workorder:	N008620
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 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 **N008620-001B**, concentration in mg/L are calculated as follows:

Nitrate, mg/L = 0 * 5

= 0 mg/L

Reporting **N008620-001B**, results in two significant figures,

Nitrate, mg/L = ND ✓

Nwhole

MK 10/16/2012

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 **N008620-001A**, the concentration in ug/L is calculated as follows:

Arsenic, ug/L = 0.315374231973535 * 1 * (25/25)

= 0.315374231973535

Reporting result in two significant figures,

Arsenic, ug/L = 0.32

WS for 10/10/12

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N008620
Test Method: EPA 6020
Analysis Date: 10/08/12

Matrix: Water
Batch No.: 40870

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. PS @ 2X passed the criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N008584-001A-DT 5X	Arsenic	µg/L	9.417671836	PASSED	9.305974359	1.20%	10
N008584-001A-DT 5X	Manganese	µg/L	5.074539097	NA	4.893302617	3.70%	10
N008584-001A-DT 5X	Molybdenum	µg/L	46.6694768	PASSED	47.1993616	1.12%	10
N008584-001A-DT 5X	Selenium	µg/L	4.306583285	NA	3.824333646	12.61%	10

Note: NA - Not applicable

CLIENT: CH2M HILL
Work Order: N008620
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N008584-001A-PS**	SampType: **PS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **85854**
Client ID: **ZZZZZZ**	Batch ID: **40870**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/8/2012**	SeqNo: **1455407**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	30.487	0.20	20.00	9.306	106	75	125				
Manganese	202.182	1.0	200.0	4.893	98.6	75	125				
Molybdenum	68.082	1.0	20.00	47.20	104	75	125				
Selenium	24.224	1.0	20.00	3.824	102	75	125				

Qualifiers:

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

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.: N008634

RE: PG&E Topock, 423575.MP.02.GM.0

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,

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 6020:

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

Analytical Comments for EPA 300.0:

Sample was diluted due to the high concentration of Chloride.

Advanced Technology Laboratories, Inc.

Date: *17-Oct-12*

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.0
Lab Order: N008634
Contract No: 2012-GMP-187-

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N008634-001A	MW-58BR-UPR-160-187	Water	10/3/2012 11:30:00 AM	10/3/2012	10/17/2012
N008634-001B	MW-58BR-UPR-160-187	Water	10/3/2012 11:30:00 AM	10/3/2012	10/17/2012
N008634-001C	MW-58BR-UPR-160-187	Water	10/3/2012 11:30:00 AM	10/3/2012	10/17/2012
N008634-002A	MW-68BR-280-187	Water	10/3/2012 10:13:00 AM	10/3/2012	10/17/2012
N008634-002B	MW-68BR-280-187	Water	10/3/2012 10:13:00 AM	10/3/2012	10/17/2012
N008634-002C	MW-68BR-280-187	Water	10/3/2012 10:13:00 AM	10/3/2012	10/17/2012

CLIENT: CH2M HILL
Lab Order: N008634
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008634-001

Client Sample ID: MW-58BR-UPR-160-187
Collection Date: 10/3/2012 11:30:00 AM
Matrix: WATER

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	10000	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		

CLIENT: CH2M HILL
Lab Order: N008634
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008634-002

Client Sample ID: MW-68BR-280-187
Collection Date: 10/3/2012 10:13:00 AM
Matrix: WATER

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

CLIENT: CH2M HILL
Work Order: N008634
Project: PG&E Topock, 423575.MP.02.GM.0

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		

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-68BR-280-187
Lab Order:	N008634	**Collection Date:**	10/3/2012 10:13:00 AM
Project:	PG&E Topock, 423575.MP.02.GM.0	**Matrix:**	WATER
Lab ID:	N008634-002		

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**
Nitrate as N	ND	0.070	2.5		mg/L	5	10/4/2012 02:02 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		

CLIENT: CH2M HILL
Work Order: N008634
Project: PG&E Topock, 423575.MP.02.GM.0

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

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Lab Order: N008634
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008634-001

Client Sample ID: MW-58BR-UPR-160-187
Collection Date: 10/3/2012 11:30:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **ICP7_121008A**	QC Batch: **40870**				PrepDate:	**10/5/2012**	Analyst: **CEI**
Arsenic	0.49	0.035	0.10		µg/L	1	10/8/2012 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		

CLIENT: CH2M HILL
Lab Order: N008634
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008634-002

Client Sample ID: MW-68BR-280-187
Collection Date: 10/3/2012 10:13:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_121008A**	QC Batch: **40870**			PrepDate:	**10/5/2012**		Analyst: **CEI**
Arsenic	2.5	0.035	0.10		µg/L	1	10/8/2012 12:29 PM
Manganese	220	0.80	2.5		µg/L	5	10/8/2012 12:55 PM
Molybdenum	95	0.37	2.5		µg/L	5	10/8/2012 12:55 PM
Selenium	ND	0.42	2.5		µg/L	5	10/8/2012 12:55 PM

Qualifiers:

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

CLIENT: CH2M HILL
Work Order: N008634
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **MB-40870**	SampType: **MBLK**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **10/5/2012**	RunNo: **85854**
Client ID: **PBW**	Batch ID: **40870**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/8/2012**	SeqNo: **1455403**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.067	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID: **LCS-40870**	SampType: **LCS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **10/5/2012**	RunNo: **85854**
Client ID: **LCSW**	Batch ID: **40870**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/8/2012**	SeqNo: **1455404**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	9.617	0.10	10.00	0	96.2	85	115				
Manganese	96.133	0.50	100.0	0	96.1	85	115				
Molybdenum	9.785	0.50	10.00	0	97.9	85	115				
Selenium	9.864	0.50	10.00	0	98.6	85	115				

Sample ID: **N008584-001A-MS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **10/5/2012**	RunNo: **85854**
Client ID: **ZZZZZZ**	Batch ID: **40870**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/8/2012**	SeqNo: **1455408**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	18.898	0.10	10.00	9.306	95.9	75	125				
Manganese	95.384	0.50	100.0	4.893	90.5	75	125				
Molybdenum	56.314	0.50	10.00	47.20	91.1	75	125				
Selenium	13.551	0.50	10.00	3.824	97.3	75	125				

Sample ID: **N008584-001A-MSD**	SampType: **MSD**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **10/5/2012**	RunNo: **85854**
Client ID: **ZZZZZZ**	Batch ID: **40870**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/8/2012**	SeqNo: **1455409**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.035	0.10	10.00	9.306	107	75	125	18.90	5.84	20	

Qualifiers:

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

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N008634
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N008584-001A-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **10/5/2012** RunNo: **85854**
Client ID: **ZZZZZZ** Batch ID: **40870** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **10/8/2012** SeqNo: **1455409**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	96.901	0.50	100.0	4.893	92.0	75	125	95.38	1.58	20	
Molybdenum	60.021	0.50	10.00	47.20	128	75	125	56.31	6.37	20	S
Selenium	13.616	0.50	10.00	3.824	97.9	75	125	13.55	0.474	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 10/3/2012 1:38:46 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-187-Q3
Turnaround Time 10 Days
Shipping Date: 10/3/2012
COC Number: 20

			Container:	1x500 ml Poly	1x500 ml Poly	1x1 Liter	1x1 Liter	1Liter Poly			
			Preservatives:	HNO3, 4°C	HNO3, 4°C	4°C	4°C	4°C			
			Filtered:	Field	Field	NA	NA	NA			
			Holding Time:	180	180	2	2	30			
	DATE	TIME	Matrix	Arsenic (6020A) Field Filtered	Metals (6020AFF) Field Filtered Mo,Se,Mn	Specific Conductance (E120.1)	Anions (E300.0) Nitrate	Extra (*)		Number of Containers	COMMENTS
MW-58BR-UPR-160-~~*~~ 187	10/3/2012	11:30	Water	X		X		X	N008634 -1	3	
MW-68BR-280-187	10/3/2012	10:13	Water	X	X	X	X	X	↓ -2	~~1~~ 3	
									TOTAL NUMBER OF CONTAINERS	~~7~~ 6	BSC

	Signatures	Date/Time
Approved by		10-3-12
Sampled by		
Relinquished by		1615
Received by		10-3-12
Relinquished by		1615
Received by		10-3-12 1820

Shipping Details
Method of Shipment: courier
On Ice: yes / no 4.2 IR1 ICE
Airbill No:
Lab Name: ADVANCED TECHNOLOGY LABORATO
Lab Phone: (702) 307-2659

ATTN:
Sample Custody and Marlon

Special Instructions:
September 12 to October 17, 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:	10/3/2012	Workorder:	N008634
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 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 **N008634-002B**, concentration in mg/L are calculated as follows:

Nitrate, mg/L = 0 * 5

= 0 mg/L

Reporting **N008634-002B**, results in two significant figures,

Nitrate, mg/L = ND /

Nd 1mL

MS 10/17/2012

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 **N008634-001A**, the concentration in ug/L is calculated as follows:

Arsenic, ug/L = 0.489849748867422 * 1 * (25/25)

= 0.489849748867422

Reporting result in two significant figures,

Arsenic, ug/L = 0.49

NS for 10/10

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N008634
Test Method: EPA 6020
Analysis Date: 10/08/12

Matrix: Water
Batch No.: 40870

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. PS @ 2X passed the criteria.

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N008584-001A-DT 5X	Arsenic	µg/L	9.417671836	PASSED	9.305974359	1.20%	10
N008584-001A-DT 5X	Manganese	µg/L	5.074539097	NA	4.893302617	3.70%	10
N008584-001A-DT 5X	Molybdenum	µg/L	46.6694768	PASSED	47.1993616	1.12%	10
N008584-001A-DT 5X	Selenium	µg/L	4.306583285	NA	3.824333646	12.61%	10

Note: NA - Not applicable

CLIENT: CH2M HILL
Work Order: N008634
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N008584-001A-PS**	SampType: **PS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **85854**
Client ID: **ZZZZZZ**	Batch ID: **40870**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/8/2012**	SeqNo: **1455407**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	30.487	0.20	20.00	9.306	106	75	125				
Manganese	202.182	1.0	200.0	4.893	98.6	75	125				
Molybdenum	68.082	1.0	20.00	47.20	104	75	125				
Selenium	24.224	1.0	20.00	3.824	102	75	125				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

  Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

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,

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

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		

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

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

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-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		

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

CLIENT: CH2M HILL
Work Order: 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
ND Not Detected at the Reporting Limit
DQ Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

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

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

CLIENT: CH2M HILL
Lab Order: 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
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: CH2M HILL
Work Order: 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
ND Not Detected at the Reporting Limit
DQ Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: 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		

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

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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.TO~~.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 N00860-1	1	
1	1220	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 NO3/N L

ML 10/17/2012

October 18, 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.: N008641

RE: PG&E Topock, 423575.MP.02.GM.0

Attention: Shawn P. Duffy

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

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.0
Lab Order: N008641

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: *18-Oct-12*

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.0
Lab Order: N008641
Contract No: 2012-GMP-187-

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N008641-001A	MW-58BR-LWR-160-187	Water	10/4/2012 12:25:00 PM	10/4/2012	10/18/2012
N008641-001B	MW-58BR-LWR-160-187	Water	10/4/2012 12:25:00 PM	10/4/2012	10/18/2012
N008641-001C	MW-58BR-LWR-160-187	Water	10/4/2012 12:25:00 PM	10/4/2012	10/18/2012

CLIENT: CH2M HILL
Lab Order: N008641
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008641-001

Client Sample ID: MW-58BR-LWR-160-187
Collection Date: 10/4/2012 12:25:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121005C**	QC Batch: **R85830**			PrepDate:			Analyst: **KAB**
Specific Conductance	9400	0.10	0.10		umhos/cm	1	10/5/2012

Qualifiers:

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

CLIENT: CH2M HILL
Work Order: N008641
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: **LCS-R85830** SampType: **LCS** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **85830**
Client ID: **LCSW** Batch ID: **R85830** TestNo: **EPA 120.1** Analysis Date: **10/5/2012** SeqNo: **1453916**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	9850.000	0.10	9992	0	98.6	85	115				

Sample ID: **N008641-001B-DUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **85830**
Client ID: **ZZZZZZ** Batch ID: **R85830** TestNo: **EPA 120.1** Analysis Date: **10/5/2012** SeqNo: **1453918**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	9440.000	0.10						9440	0	10	

Sample ID: **N008641-001B-MS** SampType: **MS** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **85830**
Client ID: **ZZZZZZ** Batch ID: **R85830** TestNo: **EPA 120.1** Analysis Date: **10/5/2012** SeqNo: **1453919**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	19280.000	0.20	9992	9440	98.5	75	125				

Sample ID: **N008641-001B-MSD** SampType: **MSD** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **85830**
Client ID: **ZZZZZZ** Batch ID: **R85830** TestNo: **EPA 120.1** Analysis Date: **10/5/2012** SeqNo: **1453920**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	19280.000	0.20	9992	9440	98.5	75	125	19280	0	10	

Qualifiers:

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

CLIENT: CH2M HILL
Lab Order: N008641
Project: PG&E Topock, 423575.MP.02.GM.0
Lab ID: N008641-001

Client Sample ID: MW-58BR-LWR-160-187
Collection Date: 10/4/2012 12:25:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED ICP-MS METALS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_121008A**	QC Batch: **40870**			PrepDate:	**10/5/2012**		Analyst: **CEI**
Arsenic	0.71	0.035	0.10		µg/L	1	10/8/2012 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		

CLIENT: CH2M HILL
Work Order: N008641
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_WD_AsPGE

Sample ID: **MB-40870** SampType: **MBLK** TestCode: **6020_WD_As** Units: **µg/L** Prep Date: **10/5/2012** RunNo: **85854**
Client ID: **PBW** Batch ID: **40870** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **10/8/2012** SeqNo: **1456211**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.067	0.10									

Sample ID: **LCS-40870** SampType: **LCS** TestCode: **6020_WD_As** Units: **µg/L** Prep Date: **10/5/2012** RunNo: **85854**
Client ID: **LCSW** Batch ID: **40870** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **10/8/2012** SeqNo: **1456212**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	9.617	0.10	10.00	0	96.2	85	115				

Sample ID: **N008584-001A-MS** SampType: **MS** TestCode: **6020_WD_As** Units: **µg/L** Prep Date: **10/5/2012** RunNo: **85854**
Client ID: **ZZZZZZ** Batch ID: **40870** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **10/8/2012** SeqNo: **1456216**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	18.898	0.10	10.00	9.306	95.9	75	125				

Sample ID: **N008584-001A-MSD** SampType: **MSD** TestCode: **6020_WD_As** Units: **µg/L** Prep Date: **10/5/2012** RunNo: **85854**
Client ID: **ZZZZZZ** Batch ID: **40870** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **10/8/2012** SeqNo: **1456217**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.035	0.10	10.00	9.306	107	75	125	18.90	5.84	20	

Qualifiers:

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

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CH2MHILL **CHAIN OF CUSTODY RECORD** *10/4/2012 2:17:28 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.0
Task Order
Project 2012-GMP-187-Q3
Turnaround Time 10 Days
Shipping Date: 10/4/2012
COC Number: 21

	Container:	1x500 ml Poly	1x1 Liter	1Liter Poly			
	Preservatives:	HNO3, 4°C	4°C	4°C			
	Filtered:	Field	NA	NA			
	Holding Time:	180	2	30			
DATE TIME Matrix		Arsenic (6020A) Field Filtered	Specific Conductance (E120.1)	Extra (*)		Number of Containers	COMMENTS
MW-58BR-LWR-160-187 10/4/2012 12:25 Water		X	X	X	D0098641-1	3	
					TOTAL NUMBER OF CONTAINERS	3	

	Signatures	Date/Time
Approved by		10-4-12
Sampled by		1630
Relinquished by		
Received by		10-4-12 1630
Relinquished by		10-4-12 1847
Received by		10-4-12 1847

Shipping Details
Method of Shipment: courier
On Ice: (yes) / no 5.7 ICE
Airbill No: 1R#1
Lab Name: ADVANCED TECHNOLOGY LABORATO
Lab Phone: (702) 307-2659

ATTN:
Sample Custody
and
Marlon

Special Instructions:
September 12 to October 17, 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:	10/4/2012	Workorder:	N008641
Rep sample Temp (Deg C):	5.7	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 10/5/12

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 **N008641-001A**, the concentration in ug/L is calculated as follows:

Arsenic, ug/L = 0.705851940496161 * 1 * (25/25)

= 0.705851940496161

Reporting result in two significant figures,

Arsenic, ug/L = 0.71

NS for 10/10/14

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N008641
Test Method: EPA 6020
Analysis Date: 10/08/12

Matrix: Water
Batch No.: 40870

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

Comments:

Analyzed By: Mary Claire Ignacio

Sample ID	Analyte	&Units	Calc Val	QQual	SAMPrefval	%DIFF	%DIFFlimit
N008584-001A-DT 5X	Arsenic	µg/L	9.417671836	PASSED	9.305974359	1.20%	10

Note: NA - Not applicable

CLIENT: CH2M HILL
Work Order: N008641
Project: PG&E Topock, 423575.MP.02.GM.0

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_WD_AsPGE

Sample ID: **N008584-001A-PS**	SampType: **PS**	TestCode: **6020_WD_As**	Units: **µg/L**	Prep Date:	RunNo: **85854**
Client ID: **ZZZZZZ**	Batch ID: **40870**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/8/2012**	SeqNo: **1456215**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	30.487	0.20	20.00	9.306	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

October 23, 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.: N008668

RE: PG&E Topock, 423575.MP.02.GM.03

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on October 09, 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.

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: *23-Oct-12*

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.03
Lab Order: N008668
Contract No: 2012-GMP-187-

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N008668-001A	MW-64BR-UPR-150-187	Water	10/8/2012 4:35:00 PM	10/9/2012	10/23/2012
N008668-001B	MW-64BR-UPR-150-187	Water	10/8/2012 4:35:00 PM	10/9/2012	10/23/2012

CLIENT: CH2M HILL
Lab Order: N008668
Project: PG&E Topock, 423575.MP.02.GM.03
Lab ID: N008668-001

Client Sample ID: MW-64BR-UPR-150-187
Collection Date: 10/8/2012 4:35:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121010A**	QC Batch: **R85876**			PrepDate:			Analyst: **KAB**
Specific Conductance	12000	0.10	0.10		umhos/cm	1	10/10/2012

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		

CLIENT: CH2M HILL
Work Order: N008668
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: **LCS-R85876** SampType: **LCS** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **85876**
Client ID: **LCSW** Batch ID: **R85876** TestNo: **EPA 120.1** Analysis Date: **10/10/2012** SeqNo: **1456961**

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: **N008669-001A-DUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **85876**
Client ID: **ZZZZZZ** Batch ID: **R85876** TestNo: **EPA 120.1** Analysis Date: **10/10/2012** SeqNo: **1456963**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	12010.000	0.10						12000	0.0833	10	

Sample ID: **N008669-001A-MS** SampType: **MS** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **85876**
Client ID: **ZZZZZZ** Batch ID: **R85876** TestNo: **EPA 120.1** Analysis Date: **10/10/2012** SeqNo: **1456964**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	113600.000	0.20	99800	12000	102	75	125				

Sample ID: **N008669-001A-MSD** SampType: **MSD** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **85876**
Client ID: **ZZZZZZ** Batch ID: **R85876** TestNo: **EPA 120.1** Analysis Date: **10/10/2012** SeqNo: **1456965**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	113600.000	0.20	99800	12000	102	75	125	113600	0	10	

Qualifiers:

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

CLIENT:	CH2M HILL	**Client Sample ID:**	MW-64BR-UPR-150-187
Lab Order:	N008668	**Collection Date:**	10/8/2012 4:35:00 PM
Project:	PG&E Topock, 423575.MP.02.GM.03	**Matrix:**	WATER
Lab ID:	N008668-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED ICP-MS METALS							
	EPA 3010A				**EPA 6020**		
RunID: **ICP7_121022C**	QC Batch: **40931**				PrepDate:	**10/15/2012**	Analyst: **CEI**
Arsenic	7.4	0.035	0.10		µg/L	1	10/22/2012 05:23 PM

CLIENT: CH2M HILL
Work Order: N008668
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_WD_AsPGE

Sample ID: **MB-40931** SampType: **MBLK** TestCode: **6020_WD_As** Units: **µg/L** Prep Date: **10/15/2012** RunNo: **86018**
Client ID: **PBW** Batch ID: **40931** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **10/22/2012** SeqNo: **1462113**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.069	0.10									

Sample ID: **LCS-40931** SampType: **LCS** TestCode: **6020_WD_As** Units: **µg/L** Prep Date: **10/15/2012** RunNo: **86018**
Client ID: **LCSW** Batch ID: **40931** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **10/22/2012** SeqNo: **1462116**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	9.633	0.10	10.00	0	96.3	85	115				

Sample ID: **N008683-001A-MS** SampType: **MS** TestCode: **6020_WD_As** Units: **µg/L** Prep Date: **10/15/2012** RunNo: **86018**
Client ID: **ZZZZZZ** Batch ID: **40931** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **10/22/2012** SeqNo: **1462128**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.281	0.10	10.00	9.319	110	75	125				

Sample ID: **N008683-001A-MSD** SampType: **MSD** TestCode: **6020_WD_As** Units: **µg/L** Prep Date: **10/15/2012** RunNo: **86018**
Client ID: **ZZZZZZ** Batch ID: **40931** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **10/22/2012** SeqNo: **1462129**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.801	0.10	10.00	9.319	115	75	125	20.28	2.53	20	

Qualifiers:

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

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CH2MHILL **CHAIN OF CUSTODY RECORD** *10/9/2012 1:52:47 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-187-Q3
Turnaround Time 10 Days
Shipping Date: 10/9/2012
COC Number: 22

	Container:	1x500 ml Poly	1x1 Liter			
	Preservatives:	HNO3, 4°C	4°C			
	Filtered:	Field	NA			
	Holding Time:	180	2			
DATE / TIME / Matrix		Arsenic (6020A) Field Filtered	Specific Conductance (E120.1)		Number of Containers	COMMENTS
MW-64BR-UPR-150-187 10/8/2012 16:35 Water		x	x	N00 8668-1	2	
				TOTAL NUMBER OF CONTAINERS	2	

Signatures	Date/Time
Approved by	10-9-12
Sampled by	1605
Relinquished by	
Received by	10-9-12 1605
Relinquished by	10-9-12 1837
Received by	10-9-12 1837

Shipping Details
Method of Shipment: courier
On Ice: (yes) / no 4.2 IRI ICE
Airbill No:
Lab Name: ADVANCED TECHNOLOGY LABORATO
Lab Phone: (702) 307-2659

ATTN:
Sample Custody
and
Marlon

Special Instructions:
September 12 to October 17, 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:	10/9/2012	Workorder:	N008668
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 10/10/12

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 **N008668-001A**, the concentration in ug/L is calculated as follows:

Arsenic, ug/L = 7.3521757292 * 1 * (25/25)

= 7.3521757292

Reporting results in two significant figures,

Arsenic, ug/L = 7.4

NS fn
10/23/12

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N008668
Test Method: EPA 6020
Analysis Date: 10/22/12

Matrix: Water
Batch No.: 40931

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

Comments:

Analyzed By: Mary Claire Ignacio

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N008683-001A-DT 5X	Arsenic	µg/L	9.43860	PASSED	9.31937	1.28%	10

Note: NA - Not applicable

CLIENT: CH2M HILL
Work Order: N008668
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_WD_AsPGE

Sample ID: **N008683-001A-PS** SampType: **PS** TestCode: **6020_WD_As** Units: **µg/L** Prep Date: RunNo: **86018**
Client ID: **ZZZZZZ** Batch ID: **40931** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **10/22/2012** SeqNo: **1462125**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	31.448	0.20	20.00	9.319	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

October 24, 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.: N008678

RE: PG&E Topock, 423575.MP.02.GM.03

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on October 10, 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.

Advanced Technology Laboratories, Inc.

Date: *24-Oct-12*

CLIENT: CH2M HILL
Project: PG&E Topock, 423575.MP.02.GM.03
Lab Order: N008678
Contract No: 2012-GMP-187-

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N008678-001A	MW-64BR-LWR-150-187	Water	10/10/2012 12:45:00 PM	10/10/2012	10/24/2012
N008678-001B	MW-64BR-LWR-150-187	Water	10/10/2012 12:45:00 PM	10/10/2012	10/24/2012
N008678-001C	MW-64BR-LWR-150-187	Water	10/10/2012 12:45:00 PM	10/10/2012	10/24/2012

CLIENT: CH2M HILL
Lab Order: N008678
Project: PG&E Topock, 423575.MP.02.GM.03
Lab ID: N008678-001

Client Sample ID: MW-64BR-LWR-150-187
Collection Date: 10/10/2012 12:45:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **WETCHEM_121011C**	QC Batch: **R85897**			PrepDate:			Analyst: **KAB**
Specific Conductance	14000	0.10	0.10		umhos/cm	1	10/11/2012

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		

CLIENT: CH2M HILL
Work Order: N008678
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: **LCS-R85897** SampType: **LCS** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **85897**
Client ID: **LCSW** Batch ID: **R85897** TestNo: **EPA 120.1** Analysis Date: **10/11/2012** SeqNo: **1457729**

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: **N008679-001A-DUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **85897**
Client ID: **ZZZZZZ** Batch ID: **R85897** TestNo: **EPA 120.1** Analysis Date: **10/11/2012** SeqNo: **1457732**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	14420.000	0.10						14420	0	10	

Sample ID: **N008679-001A-MS** SampType: **MS** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **85897**
Client ID: **ZZZZZZ** Batch ID: **R85897** TestNo: **EPA 120.1** Analysis Date: **10/11/2012** SeqNo: **1457733**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	118600.000	0.20	99800	14420	104	75	125				

Sample ID: **N008679-001A-MSD** SampType: **MSD** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **85897**
Client ID: **ZZZZZZ** Batch ID: **R85897** TestNo: **EPA 120.1** Analysis Date: **10/11/2012** SeqNo: **1457734**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	118600.000	0.20	99800	14420	104	75	125	118600	0	10	

Qualifiers:

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

CLIENT: CH2M HILL
Lab Order: N008678
Project: PG&E Topock, 423575.MP.02.GM.03
Lab ID: N008678-001

Client Sample ID: MW-64BR-LWR-150-187
Collection Date: 10/10/2012 12:45:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED ICP-MS METALS							
	EPA 3010A			**EPA 6020**			
RunID: **ICP7_121022C**	QC Batch: **40931**			PrepDate:	**10/15/2012**		Analyst: **CEI**
Arsenic	1.7	0.035	0.10		µg/L	1	10/22/2012 05:35 PM

Qualifiers:

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

CLIENT: CH2M HILL
Work Order: N008678
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_WD_AsPGE

Sample ID: **MB-40931** SampType: **MBLK** TestCode: **6020_WD_As** Units: **µg/L** Prep Date: **10/15/2012** RunNo: **86018**
Client ID: **PBW** Batch ID: **40931** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **10/22/2012** SeqNo: **1462113**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.069	0.10									

Sample ID: **LCS-40931** SampType: **LCS** TestCode: **6020_WD_As** Units: **µg/L** Prep Date: **10/15/2012** RunNo: **86018**
Client ID: **LCSW** Batch ID: **40931** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **10/22/2012** SeqNo: **1462116**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	9.633	0.10	10.00	0	96.3	85	115				

Sample ID: **N008683-001A-MS** SampType: **MS** TestCode: **6020_WD_As** Units: **µg/L** Prep Date: **10/15/2012** RunNo: **86018**
Client ID: **ZZZZZZ** Batch ID: **40931** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **10/22/2012** SeqNo: **1462128**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.281	0.10	10.00	9.319	110	75	125				

Sample ID: **N008683-001A-MSD** SampType: **MSD** TestCode: **6020_WD_As** Units: **µg/L** Prep Date: **10/15/2012** RunNo: **86018**
Client ID: **ZZZZZZ** Batch ID: **40931** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **10/22/2012** SeqNo: **1462129**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.801	0.10	10.00	9.319	115	75	125	20.28	2.53	20	

Qualifiers:

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

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CH2MHILL **CHAIN OF CUSTODY RECORD** *10/10/2012 4:04:13 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-187-Q3
Turnaround Time 10 Days
Shipping Date: 10/10/2012
COC Number: 24

	Container:	1x500 ml Poly	1x1 Liter	1Liter Poly			
	Preservatives:	HNO3, 4°C	4°C	4°C			
	Filtered:	Field	NA	NA			
	Holding Time:	180	2	30			
DATE / TIME / Matrix		Arsenic (6020A) Field Filtered	Specific Conductance (E120.1)	Extra (*)		Number of Containers	COMMENTS
MW-64BR-LWR-150-187 / 10/10/2012 / 12:45 / Water		X	X	X	N0086785-1	3	
					TOTAL NUMBER OF CONTAINERS	3	

Signatures	Date/Time
Approved by	10-10-12
Sampled by	1654
Relinquished by	
Received by	10-10-12 1654
Relinquished by	10-10-12 1917
Received by	10-10-12 1917

Shipping Details
Method of Shipment: courier
On Ice: (yes) / no 4.3 IR1 ICE
Airbill No:
Lab Name: ADVANCED TECHNOLOGY LABORATO
Lab Phone: (702) 307-2659

ATTN:
Sample Custody
and
Marion

Special Instructions:
September 12 to October 17, 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:	10/10/2012	Workorder:	N008678
Rep sample Temp (Deg C):	4.3	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 10/11/12

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 **N008678-001A**, the concentration in ug/L is calculated as follows:

Arsenic, ug/L = 1.6552381942 * 1 * (25/25)

= 1.6552381942

Reporting results in two significant figures,

Arsenic, ug/L = 1.7

NS for 10/24/12

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N008678
Test Method: EPA 6020
Analysis Date: 10/22/12

Matrix: Water
Batch No.: 40931

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

Comments:

Analyzed By: Mary Claire Ignacio

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N008683-001A-DT 5X	Arsenic	µg/L	9.43860	PASSED	9.31937	1.28%	10

Note: NA - Not applicable

CLIENT: CH2M HILL
Work Order: N008678
Project: PG&E Topock, 423575.MP.02.GM.03

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_WD_AsPGE

Sample ID: **N008683-001A-PS**	SampType: **PS**	TestCode: **6020_WD_As**	Units: **µg/L**	Prep Date:	RunNo: **86018**
Client ID: **ZZZZZZ**	Batch ID: **40931**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **10/22/2012**	SeqNo: **1462125**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	31.448	0.20	20.00	9.319	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

Appendix B
Other Groundwater Monitoring Results

Table B-1
Arsenic Results in Monitoring Wells, September 2011 through October 2012
Third Quarter 2012 Interim Measure Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Well ID	Aquifer Zone	Sample Date		Dissolved Arsenic (µg/L)
MW-10	SA	09-Dec-11		6.3
MW-12	SA	06-Oct-11		47.0
		09-Dec-11		49.0
		09-Feb-12		47.0
		07-May-12		47.0
		02-Oct-12		42.4
MW-13	SA	06-Dec-11		2.0
MW-16	SA	07-Dec-11		11.0
		24-Apr-12		11.0
MW-17	SA	07-Dec-11		1.5
		25-Apr-12		1.4
MW-20-130	DA	09-Dec-11		5.2
		10-May-12		5.8
MW-22	SA	16-Dec-11		14.0
		11-Apr-12		12.0
MW-23-060	BR	29-Sep-11		2.1
		13-Dec-11		2.2
		14-Feb-12		3.3
		30-Apr-12		2.6
		30-Apr-12	FD	2.2
		12-Sep-12		5.9
MW-23-080	BR	29-Sep-11		3.5
		12-Dec-11		3.3
		12-Dec-11	FD	3.3
		14-Feb-12		3.7
		30-Apr-12		4.1
		12-Sep-12		3.3
		12-Sep-12	FD	3.0
MW-25	SA	15-Dec-11		1.4
		15-Dec-11	FD	1.2
MW-26	SA	09-Dec-11		1.7
		07-May-12		1.7
MW-27-20	SA	05-Dec-11		2.4
MW-27-60	MA	05-Dec-11		10.0
		07-Feb-12		9.6
		01-Oct-12		7.4

Table B-1
Arsenic Results in Monitoring Wells, September 2011 through October 2012
Third Quarter 2012 Interim Measure Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Well ID	Aquifer Zone	Sample Date		Dissolved Arsenic (µg/L)
MW-27-85	DA	03-Oct-11		1.4
		03-Oct-11	FD	1.4
		05-Dec-11		1.7
		07-Feb-12		1.4
		09-Apr-12		1.4
		01-Oct-12		1.5
MW-28-25	SA	12-Dec-11		1.5
		10-Apr-12		2.3
MW-28-90	DA	26-Sep-11		2.0
		12-Dec-11		1.9
		07-Feb-12		1.8
		10-Apr-12		2.0 J
		10-Apr-12	FD	2.4 J
		10-Sep-12		2.0
MW-29	SA	07-Dec-11		4.4
		10-Apr-12		7.9
MW-30-30	SA	07-Dec-11		2.6
MW-30-50	MA	08-Dec-11		5.6
MW-31-60	SA	06-Dec-11		1.3
		16-May-12		1.2
MW-31-135	DA	06-Dec-11		4.0
MW-32-20	SA	08-Dec-11		3.2
MW-32-35	SA	09-Dec-11		25.0
		09-Apr-12		30.0
MW-33-40	SA	27-Sep-11		11.0
		12-Dec-11		13.0
		08-Feb-12		15.0
		23-Apr-12		17.0
		10-Sep-12		13.0
MW-33-90	MA	13-Dec-11		1.4
		24-Sep-12		1.6
MW-33-150	DA	13-Dec-11		1.7
		09-Feb-12		1.8
		11-Sep-12		2.2
MW-33-210	DA	13-Dec-11		0.96
		09-Feb-12		1.2

Table B-1
Arsenic Results in Monitoring Wells, September 2011 through October 2012
Third Quarter 2012 Interim Measure Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Well ID	Aquifer Zone	Sample Date		Dissolved Arsenic (µg/L)
MW-33-210	DA	11-Sep-12		1.3
MW-34-55	MA	06-Dec-11		2.7
MW-34-80	DA	03-Oct-11		1.5
		06-Dec-11		1.6
		07-Feb-12		1.4
		09-Apr-12		1.4
		01-Oct-12		1.7
MW-34-100	DA	03-Oct-11		1.3
		03-Oct-11	FD	1.4
		09-Nov-11		2.0
		06-Dec-11		1.6
		06-Dec-11	FD	1.6
		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
MW-35-60	SA	07-Dec-11		1.2
		06-Feb-12		0.97
		26-Apr-12		1.1
		10-Sep-12		1.1
MW-35-135	DA	07-Dec-11		0.99
MW-36-20	SA	14-Dec-11		3.1
MW-36-40	SA	14-Dec-11		5.3
MW-36-50	MA	14-Dec-11		3.9
MW-36-70	MA	14-Dec-11		6.7
MW-36-90	DA	14-Dec-11		19.0
		10-Apr-12		19.0
MW-36-100	DA	06-Dec-11		6.6
		10-Apr-12		7.4
MW-37S	MA	07-Dec-11		1.9
MW-39-40	SA	15-Dec-11		19.0
		15-Dec-11	FD	18.0
MW-39-50	MA	15-Dec-11		8.5

Table B-1
Arsenic Results in Monitoring Wells, September 2011 through October 2012
Third Quarter 2012 Interim Measure 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-39-60	MA	15-Dec-11		6.5
MW-39-100	DA	14-Dec-11		3.2
MW-40D	DA	07-Dec-11		4.6
MW-40S	SA	07-Dec-11		1.2
MW-41D	DA	05-Dec-11		2.8
		26-Apr-12		2.7
MW-41M	DA	05-Dec-11		2.2
MW-41S	SA	07-Dec-11		2.1
		07-Dec-11	FD	2.1
MW-42-30	SA	06-Dec-11		2.2
MW-42-55	MA	26-Sep-11		13.0
		06-Dec-11		14.0
		07-Feb-12		13.0
		09-Apr-12		12.0
		11-Sep-12		12.0
		11-Sep-12	FD	12.0
MW-42-65	MA	26-Sep-11		2.3
		06-Dec-11		2.4
		07-Feb-12		2.4
		09-Apr-12		2.8
		11-Sep-12		2.8
MW-43-25	SA	09-Dec-11		20.0
MW-43-75	DA	09-Dec-11		12.0
MW-43-90	DA	09-Dec-11		3.5
MW-44-70	MA	08-Dec-11		3.9
		12-Apr-12		3.9
MW-44-115	DA	27-Sep-11		6.1
		08-Dec-11		5.7
		08-Dec-11	FD	5.4
		08-Feb-12		5.5
		12-Apr-12		5.8
		12-Apr-12	FD	6.1
		27-Sep-12		3.6
MW-44-125	DA	27-Sep-11		4.2
		27-Sep-11	FD	3.8
		08-Dec-11		4.9

Table B-1
Arsenic Results in Monitoring Wells, September 2011 through October 2012
Third Quarter 2012 Interim Measure Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California

Well ID	Aquifer Zone	Sample Date		Dissolved Arsenic (µg/L)
MW-44-125	DA	08-Dec-11	FD	4.8
		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
MW-45-095a	DA	14-Dec-11		ND (2.5)
		14-Dec-11	FD	3.2
MW-46-175	DA	26-Sep-12		1.2
MW-47-55	SA	08-Dec-11		1.4
		25-Apr-12		1.1
MW-49-135	DA	07-Dec-11		1.9
MW-50-200	DA	03-Oct-12		3.8
		03-Oct-12	FD	3.4
MW-51	MA	07-Dec-11		4.5
		08-May-12		4.1
MW-52D	DA	15-Dec-11		24.0
		11-Apr-12		3.5
MW-52M	DA	15-Dec-11		1.4
		11-Apr-12		1.3
MW-52S	MA	15-Dec-11		0.6
		11-Apr-12		ND (1.0)
MW-53D	DA	03-Oct-11		3.0
		03-Oct-11	FD	2.9
		16-Dec-11		3.3
		16-Dec-11	FD	ND (2.5)
		11-Apr-12		3.5
MW-53M	DA	16-Dec-11		ND (2.5)
		11-Apr-12		1.1
MW-54-85	DA	06-Dec-11		4.4
		24-Apr-12		4.9
MW-54-140	DA	06-Dec-11		3.1
		24-Apr-12		ND (5.0)
MW-54-195	DA	06-Dec-11		ND (5.0)
		24-Apr-12		ND (5.0)
		24-Apr-12	FD	ND (5.0)

Table B-1
Arsenic Results in Monitoring Wells, September 2011 through October 2012
Third Quarter 2012 Interim Measure 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-55-45	MA	03-Apr-12		4.7
MW-55-120	DA	03-Apr-12		5.2
MW-57-070	BR	15-Dec-11		ND (2.5)
		15-Feb-12		1.2
		03-May-12		1.6
MW-57-185	BR	28-Sep-11		13.0
		13-Dec-11		12.0
		10-Feb-12		12.0
		10-Feb-12	FD	13.0
		30-Apr-12		14.0
		11-Sep-12		14.0
MW-58BR-LWR-160	BR	13-Oct-11		0.75
		09-Nov-11		1.8
		04-Oct-12		0.71
MW-58BR-UPR-160	BR	11-Oct-11		0.93
		08-Nov-11		0.79
		03-Oct-12		0.49
MW-59-100	SA	04-Oct-11		2.0
		15-Dec-11		2.0
		15-Dec-11	FD	1.5
		22-Feb-12		2.0
		08-May-12		2.1
		02-Oct-12		2.9
MW-60-125	BR	04-Oct-11		1.7
		14-Dec-11		1.5
		15-Feb-12		1.2
		03-May-12		1.7
		20-Sep-12		1.7
MW-60BR-245	BR	07-Sep-11		8.8
		16-Nov-11		8.0
		14-Dec-11		5.9
		16-Feb-12		4.0
		17-May-12		8.8
		19-Sep-12		8.1
MW-61-110	BR	30-Sep-11		3.3
		14-Dec-11		3.2
		15-Feb-12		3.2

Table B-1
Arsenic Results in Monitoring Wells, September 2011 through October 2012
Third Quarter 2012 Interim Measure 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-61-110	BR	03-May-12	3.2
		27-Sep-12	2.0
		27-Sep-12 FD	2.1
MW-62-065	BR	29-Sep-11	1.3
		13-Dec-11	0.98
		17-Feb-12	1.5
		02-May-12	1.8
MW-62-110	BR	29-Sep-11	11.0
		14-Dec-11	10.0
		16-Feb-12	6.3
		10-May-12	8.8
		13-Sep-12	8.5
MW-62-190	BR	29-Sep-11	6.6
		14-Dec-11	6.7
		16-Feb-12	6.4
		10-May-12	5.4
		13-Sep-12	5.9
MW-63-065	BR	28-Sep-11	1.5
		12-Dec-11	1.5
		13-Feb-12	1.2
		26-Apr-12	1.2
		10-Sep-12	1.7
MW-64BR-LWR-150	BR	15-Sep-11	3.5
		27-Oct-11	2.9
		17-Nov-11	3.4
		10-Oct-12	1.7
MW-64BR-UPR-150	BR	12-Sep-11	2.5
		24-Oct-11	4.7
		14-Nov-11	2.7
		08-Oct-12	7.4
MW-65-160	SA	07-Sep-11	0.82
		17-Oct-11	0.78
		15-Nov-11	0.9
		15-Dec-11	0.91
		16-Feb-12	0.82
		01-May-12	0.96
		18-Sep-12	0.9

Table B-1
Arsenic Results in Monitoring Wells, September 2011 through October 2012
Third Quarter 2012 Interim Measure 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-65-225	DA	07-Sep-11		2.0
		17-Oct-11		2.1
		15-Nov-11		2.0
		15-Nov-11	FD	2.0
		15-Dec-11		1.8
		16-Feb-12		2.0
		02-May-12		2.2
		18-Sep-12		2.3
MW-66-165	SA	18-Oct-11		1.2
		15-Nov-11		1.2
		15-Dec-11		0.97
		17-Feb-12		1.3
		02-May-12		1.3
		17-Sep-12		1.8
MW-66-230	DA	19-Oct-11		4.5
		17-Nov-11		4.4
		15-Dec-11		3.7
		22-Feb-12		4.1
		10-May-12		4.8
		10-May-12	FD	5.4
		17-Sep-12		6.9
MW-66BR-270	BR	17-Nov-11		ND (2.5)
		16-Jan-12		0.32
		07-Mar-12		ND (0.5)
		24-May-12		ND (0.5)
		02-Oct-12		0.32
MW-67-185	SA	18-Oct-11		2.3
		18-Oct-11	FD	2.3
		16-Nov-11		1.8
		14-Dec-11		1.8
		21-Feb-12		1.8
		03-May-12		1.7
		20-Sep-12		1.7
MW-67-225	MA	08-Sep-11		2.5
		19-Oct-11		2.6
		17-Nov-11		2.7
		14-Dec-11		2.9

Table B-1
Arsenic Results in Monitoring Wells, September 2011 through October 2012
Third Quarter 2012 Interim Measure 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	21-Feb-12		2.5
		21-Feb-12	FD	2.8
		07-May-12		2.8
		20-Sep-12		2.8
MW-67-260	DA	08-Sep-11		12.0
		19-Oct-11		12.0
		17-Nov-11		11.0
		14-Dec-11		13.0
		21-Feb-12		8.4
		07-May-12		12.0
		20-Sep-12		11.0
MW-68-180	SA	08-Sep-11		2.1
		18-Oct-11		2.2
		17-Nov-11		2.3
		15-Dec-11		2.3
		22-Feb-12		2.5
		10-May-12		2.9
		20-Sep-12		2.2
MW-68-240	DA	07-Sep-11		1.8
		07-Sep-11	FD	1.8
		18-Oct-11		1.9
		16-Nov-11		2.0
		14-Dec-11		ND (2.5)
		17-Feb-12		1.6
		03-May-12		1.9
		20-Sep-12		1.7
MW-68BR-280	BR	08-Sep-11		2.7
		21-Oct-11		1.6
		16-Nov-11		2.1
		14-Dec-11		1.8
		14-Feb-12		1.8
		09-May-12		2.4
		03-Oct-12		2.5
MW-69-195	BR	07-Sep-11		1.8
		18-Oct-11		1.8
		15-Nov-11		1.9
		14-Dec-11		2.0

Table B-1
Arsenic Results in Monitoring Wells, September 2011 through October 2012
Third Quarter 2012 Interim Measure 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-69-195	BR	17-Feb-12		2.4
		02-May-12		2.1
		19-Sep-12		2.1
MW-70-105	BR	06-Sep-11		3.4
		14-Nov-11		5.2
		12-Dec-11		4.8
		16-Feb-12		4.5
		01-May-12		5.4
		12-Sep-12		6.2
MW-70BR-225	BR	16-Nov-11		2.1
		15-Dec-11		2.1
		16-Feb-12		1.9
		17-May-12		2.0
		17-May-12	FD	2.1
		18-Sep-12		2.1
MW-71-035	SA	15-Nov-11		1.5
		14-Dec-11		ND (2.5)
		15-Feb-12		1.8
		03-May-12		1.7
		19-Sep-12		1.7
MW-72-080	BR	06-Sep-11		7.5
		17-Oct-11		8.8
		14-Nov-11		9.4
		15-Dec-11		9.3
		13-Feb-12		9.4
		01-May-12		9.7
		19-Sep-12		11.0
MW-73-080	BR	15-Nov-11		1.2
		14-Dec-11		1.7
		14-Feb-12		1.3
		02-May-12		1.4
		13-Sep-12		1.6
MW-74-240	BR	16-Jan-12		58.0
		17-Feb-12		15.0
		10-May-12		15.0
		27-Sep-12		9.3
OW-3D	DA	06-Dec-11		2.8

Table B-1
Arsenic Results in Monitoring Wells, September 2011 through October 2012
Third Quarter 2012 Interim Measure Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

NOTES:

µg/L = micrograms per liter.
FD = field duplicate.
J = concentration or reporting limit estimated by laboratory or data validation.

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.

Appendix C
Groundwater Monitoring Data for GMP and Interim Measures Monitoring Wells

Table C-1

Chemical Performance Monitoring Analytical Results, March 2005 through October 2012

Third Quarter 2012 Interim Measure 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	---
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
	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

Table C-1

Chemical Performance Monitoring Analytical Results, March 2005 through October 2012

Third Quarter 2012 Interim Measure 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]	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	---
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
	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

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Third Quarter 2012 Interim Measure 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]	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
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
	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

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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	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
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
	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
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)

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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-27-20	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	---
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)
	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	---
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

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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-30-30	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	---
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
	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	---
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

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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-31-60	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
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
	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	---
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

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										Calcium	Magnesium	Potassium	Sodium	Boron
Monitoring Wells														
MW-32-35	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
	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
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

Table C-1

Chemical Performance Monitoring Analytical Results, March 2005 through October 2012

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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	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
	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
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

Table C-1

Chemical Performance Monitoring Analytical Results, March 2005 through October 2012

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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	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
	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
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)

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Chemical Performance Monitoring Analytical Results, March 2005 through October 2012

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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-27	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)
	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)

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Chemical Performance Monitoring Analytical Results, March 2005 through October 2012

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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	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)
	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)

NOTES:

FD = field duplicate sample.
ND =parameter not detected at the listed reporting limit.
J = concentration or reporting limit estimated by laboratory or data validation.
--- = data not collected or available.

[a] Data collected February 2011 due to field logistical issues.

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).

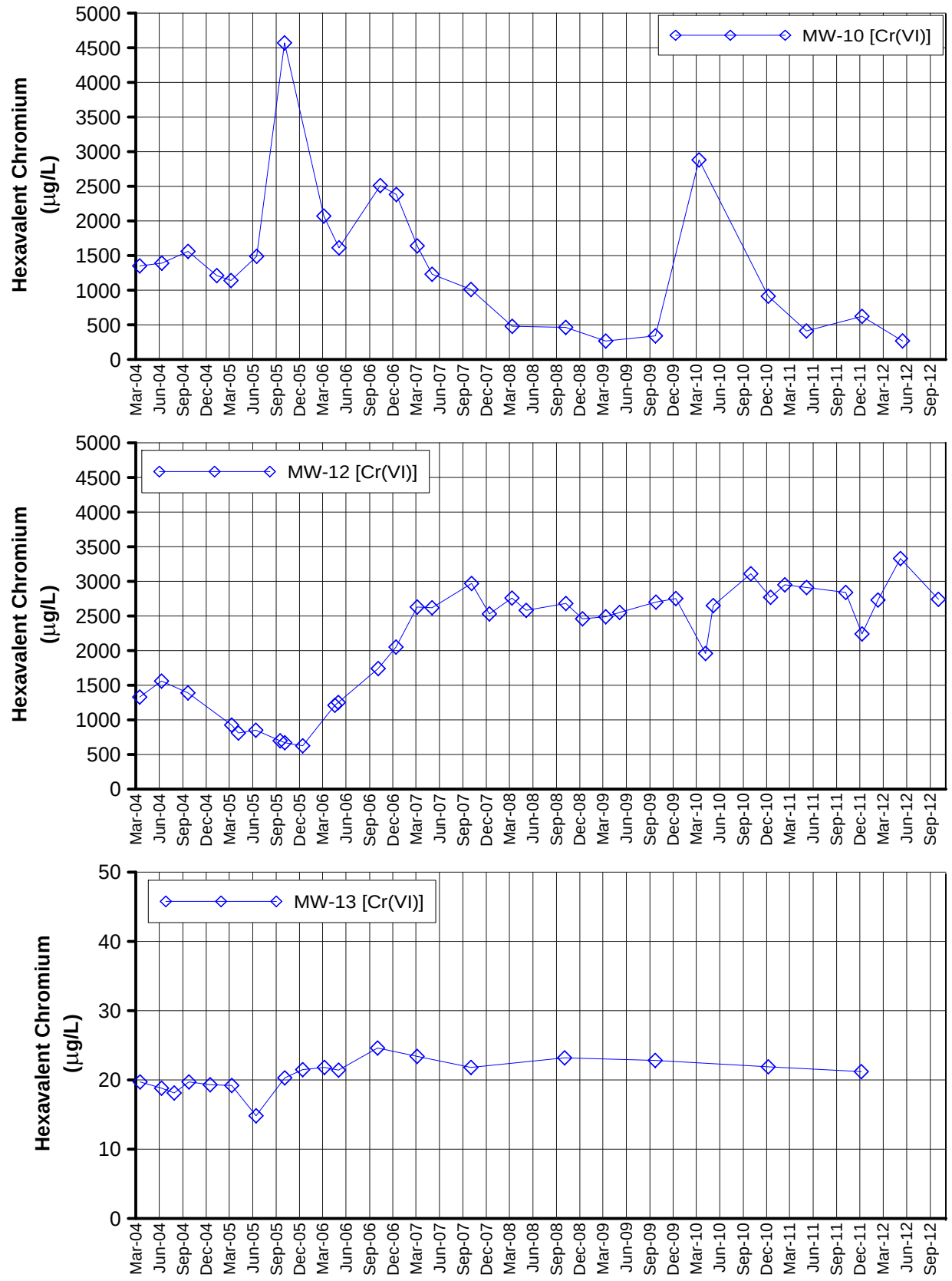

FIGURE C-1
HEXAVALENT CHROMIUM
IN MW-10, MW-12, AND MW-13
THIRD QUARTER 2012 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

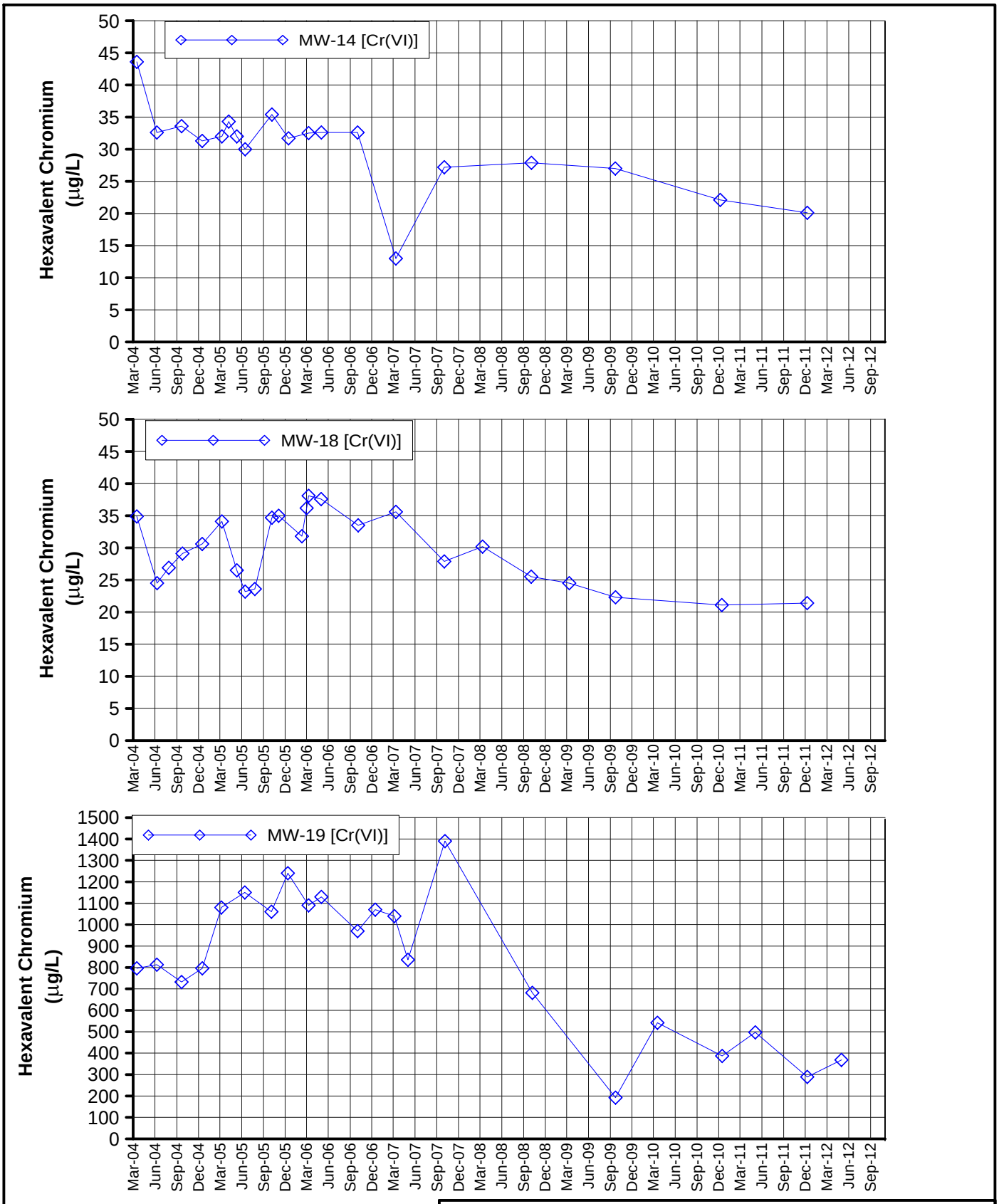

FIGURE C-2
HEXAVALENT CHROMIUM
IN MW-14, MW-18, AND MW-19
THIRD QUARTER 2012 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

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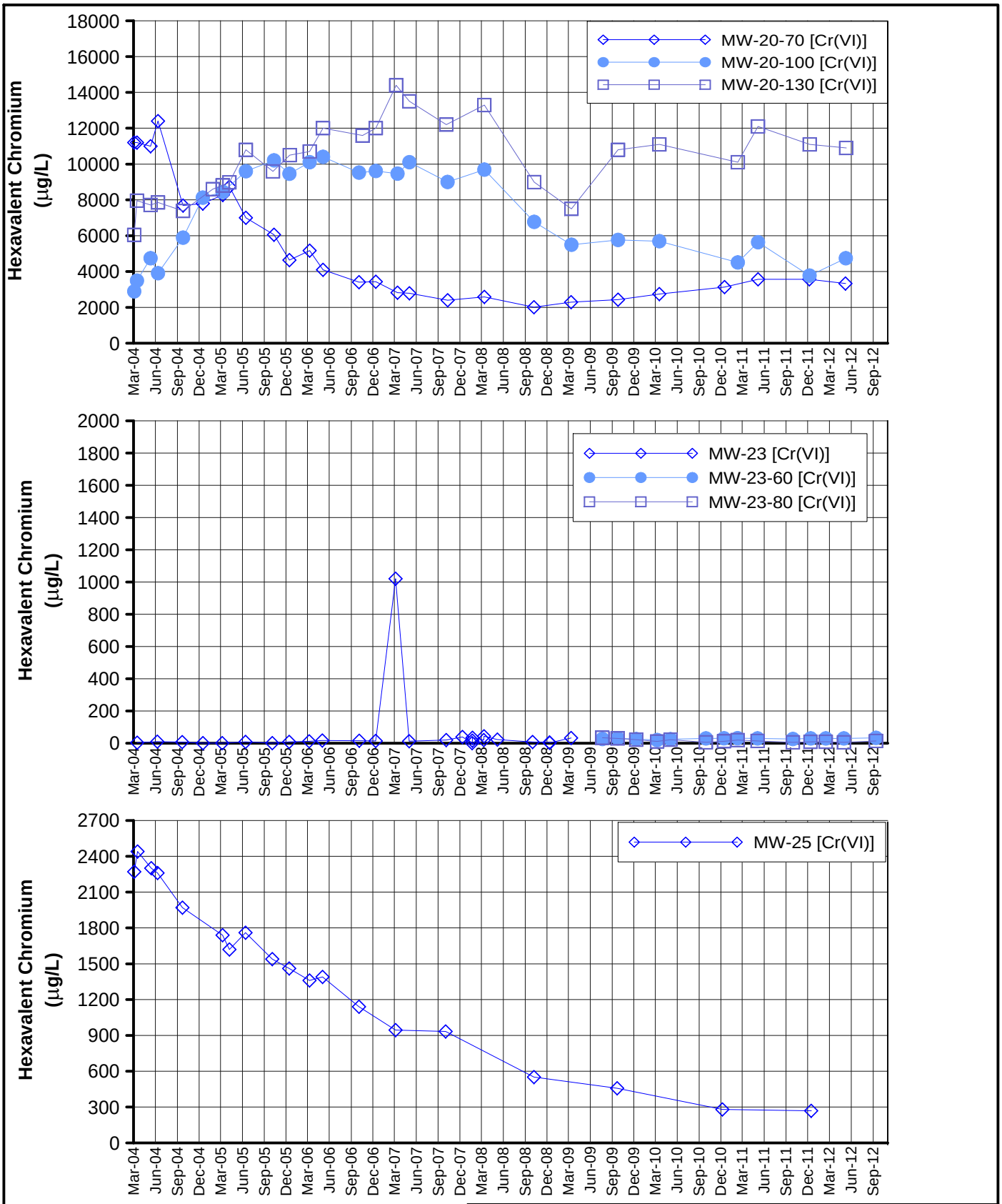

Notes:
1) Fourth Quarter 2010 data for MW-20-100 and MW-20-130 collected in February 2011 due to logistical issues.

FIGURE C-3
HEXAVALENT CHROMIUM
IN MW-20, MW-23, AND MW-25 CLUSTERS
THIRD QUARTER 2012 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

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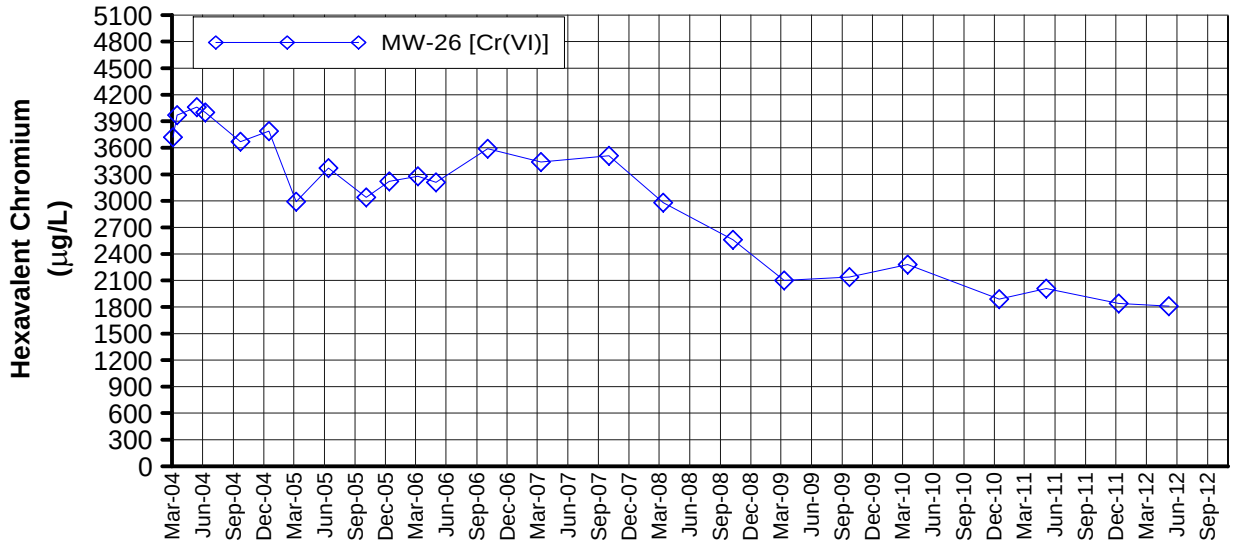
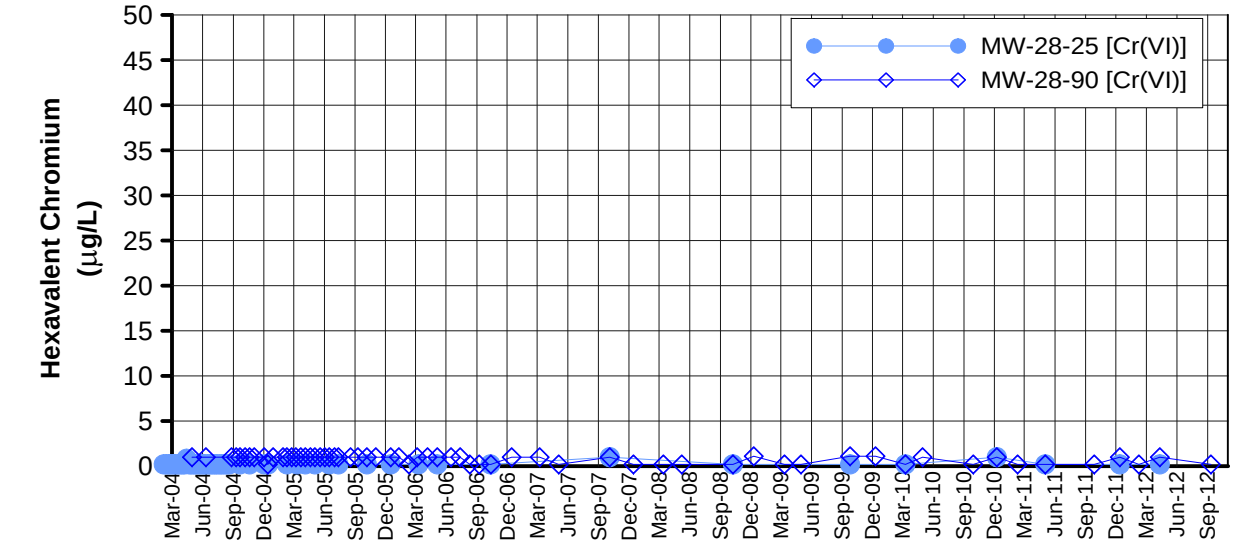
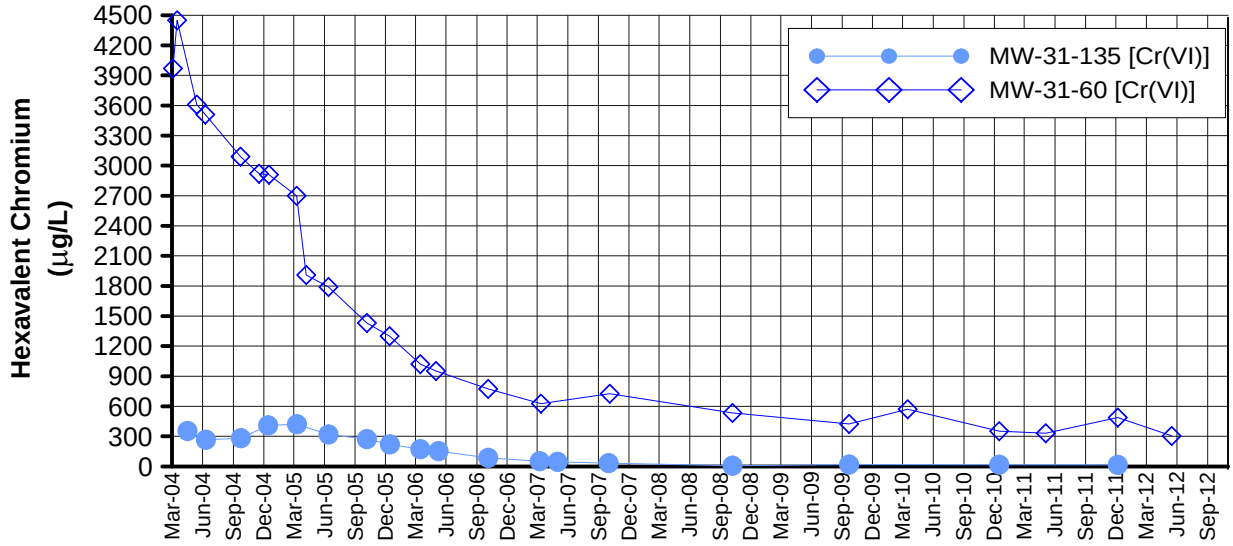


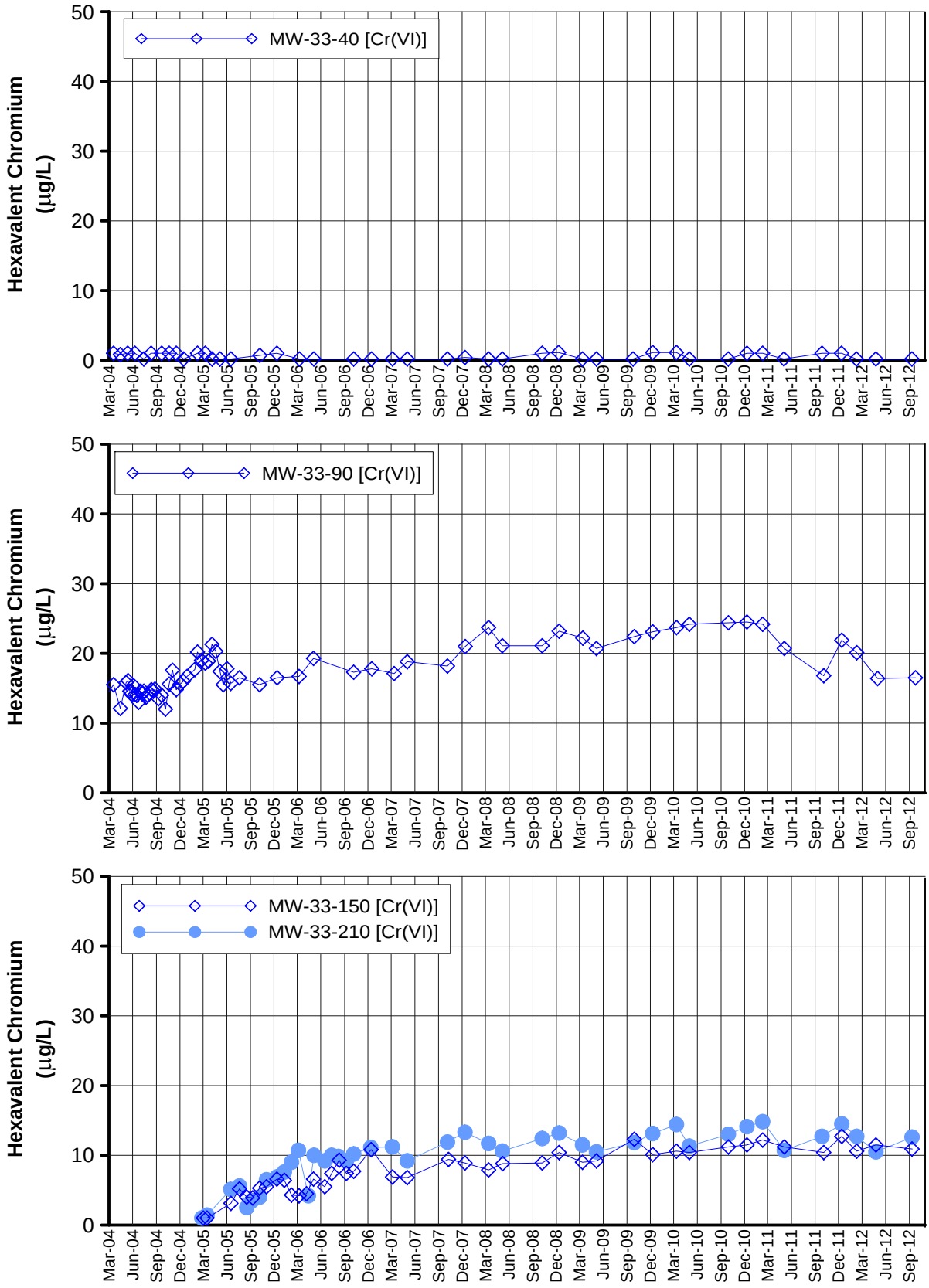




Notes:
1) The IM Contingency Plan and hexavalent chromium [Cr(VI)] trigger levels were updated July 17, 2008 (DTSC, 2008b).
2) The trigger level for MW-28-90 is 20 µg/L.

FIGURE C-4
HEXAVALENT CHROMIUM
IN MW-26, MW-28, AND MW-31 CLUSTERS
THIRD QUARTER 2012 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

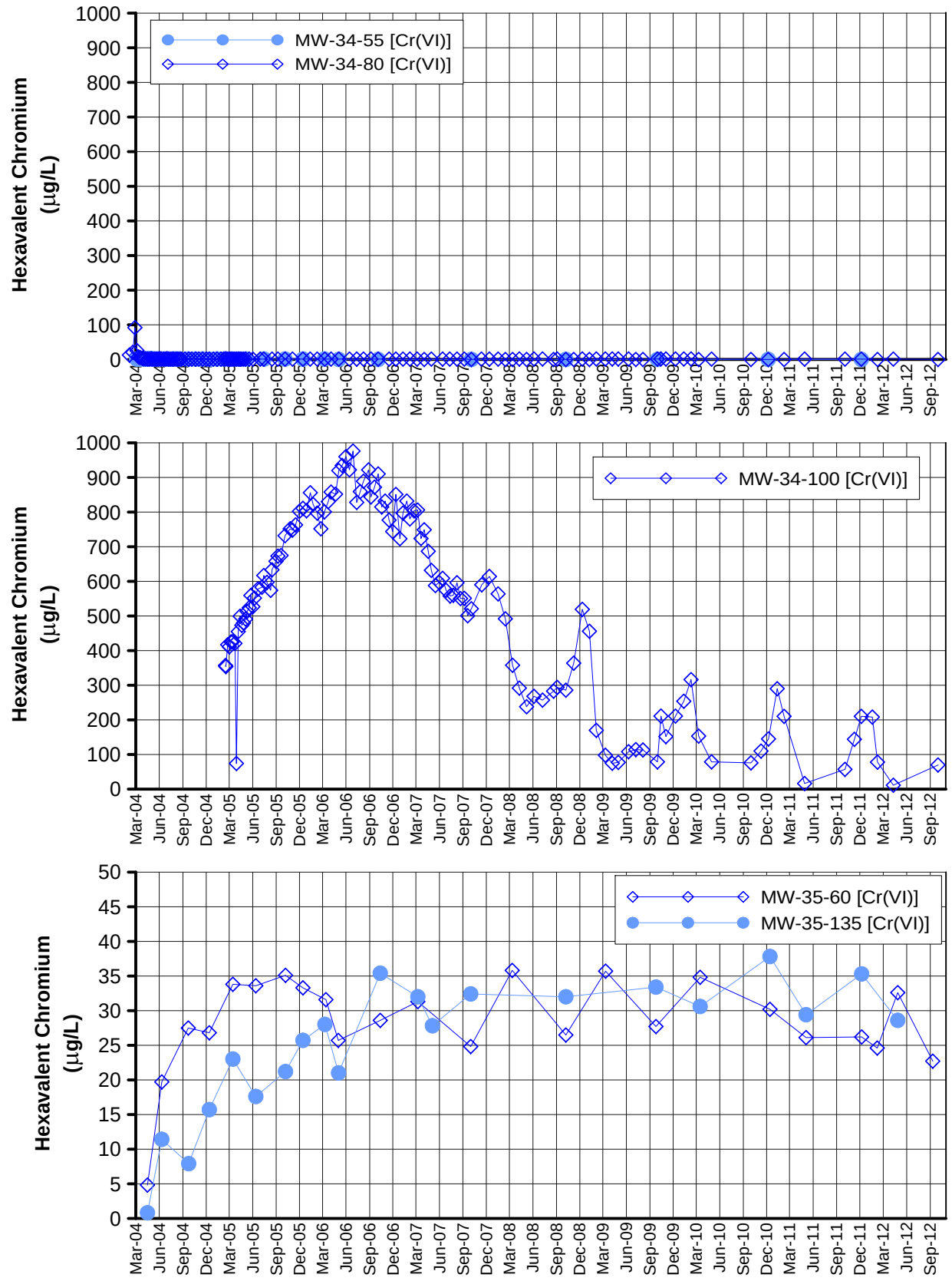


Notes:

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

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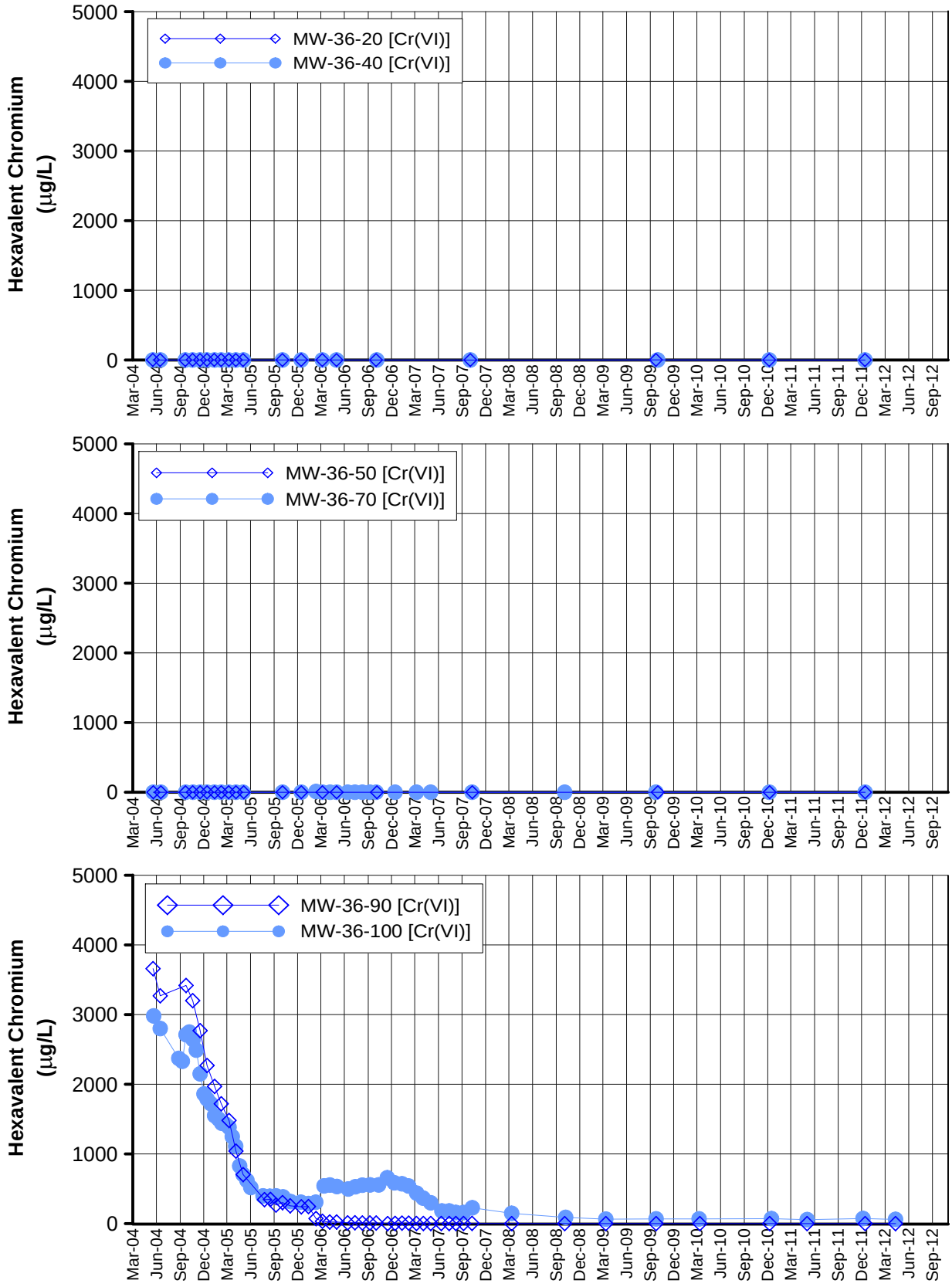
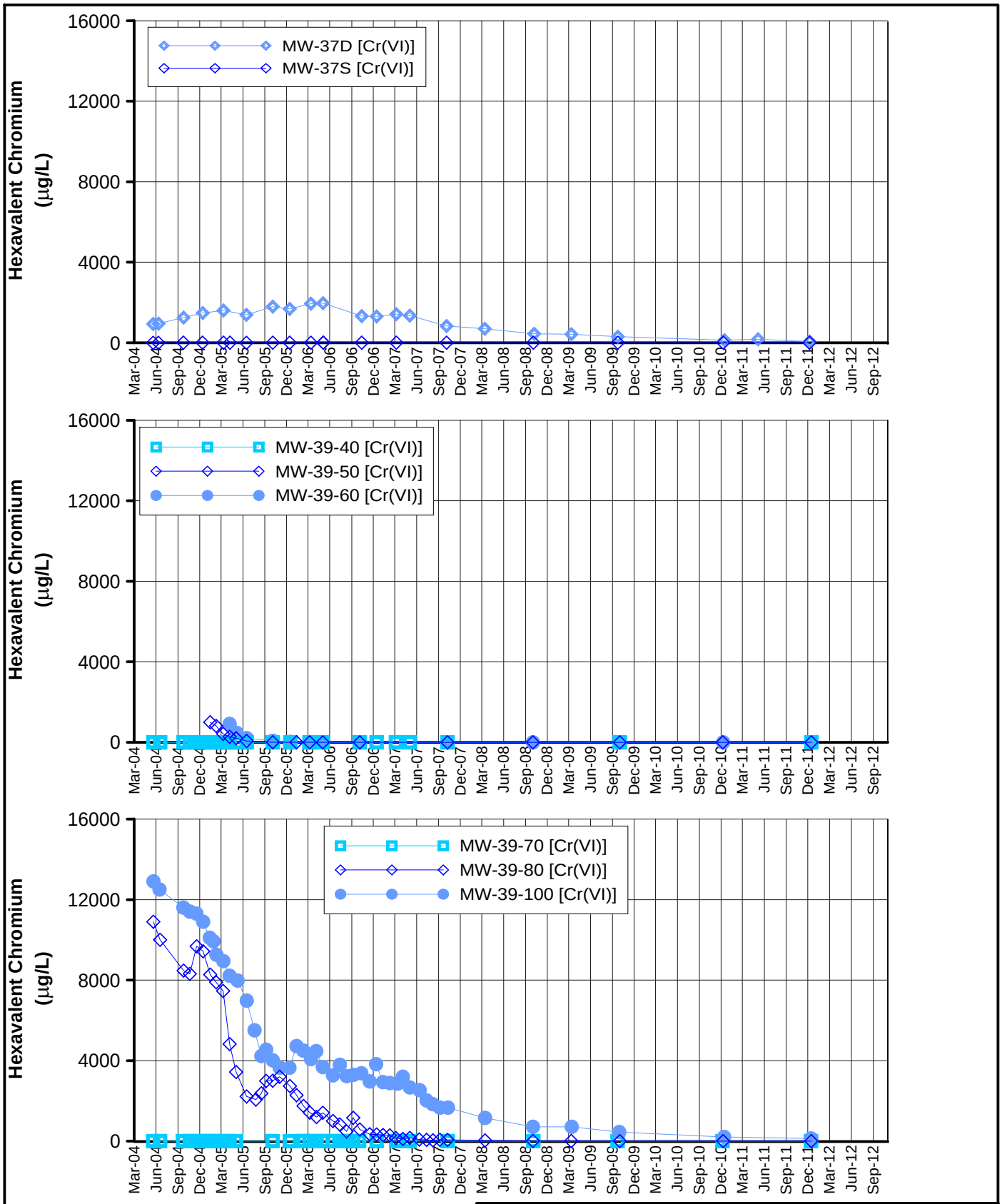


Notes:
1) The IM Contingency Plan and hexavalent chromium [Cr(VI)] trigger levels were updated July 17, 2008 (DTSC, 2008b).
2) The trigger level for MW-36-70 is 20 µg/L.

FIGURE C-7
HEXAVALENT CHROMIUM
IN MW-36 CLUSTER
THIRD QUARTER 2012 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
THIRD QUARTER 2012 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

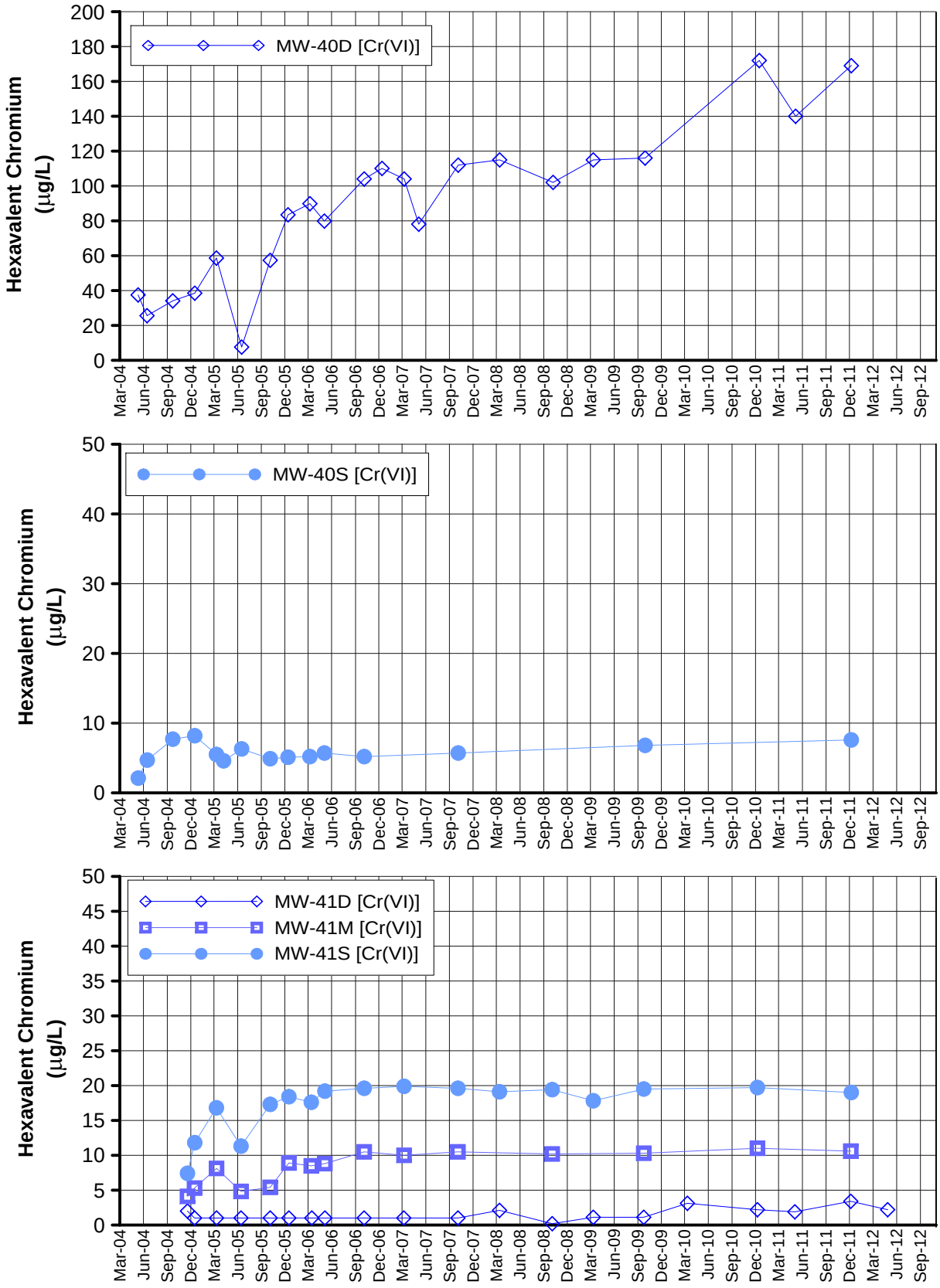


FIGURE C-9
HEXAVALENT CHROMIUM
IN MW-40 AND MW-41 CLUSTERS
THIRD QUARTER 2012 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

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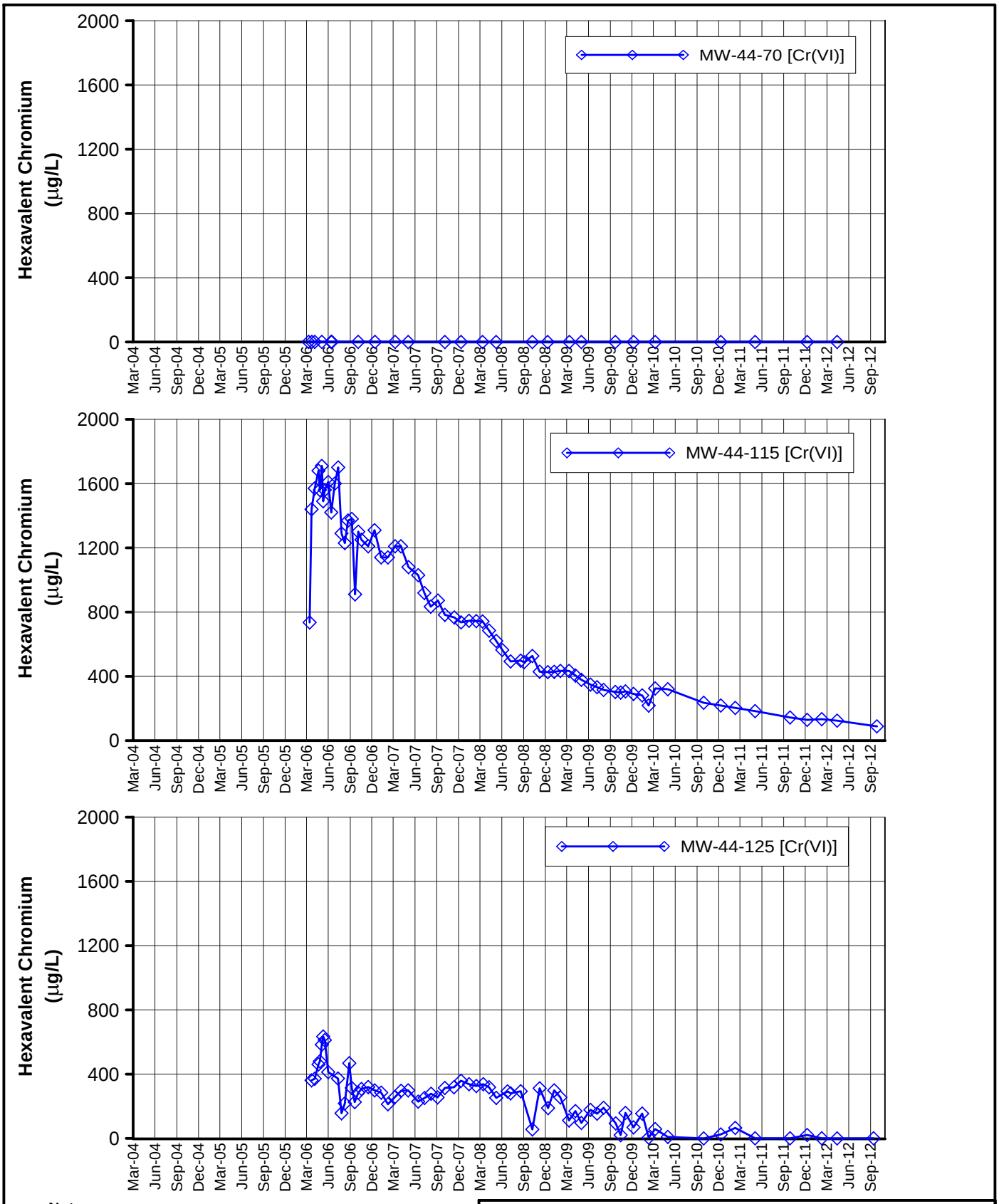
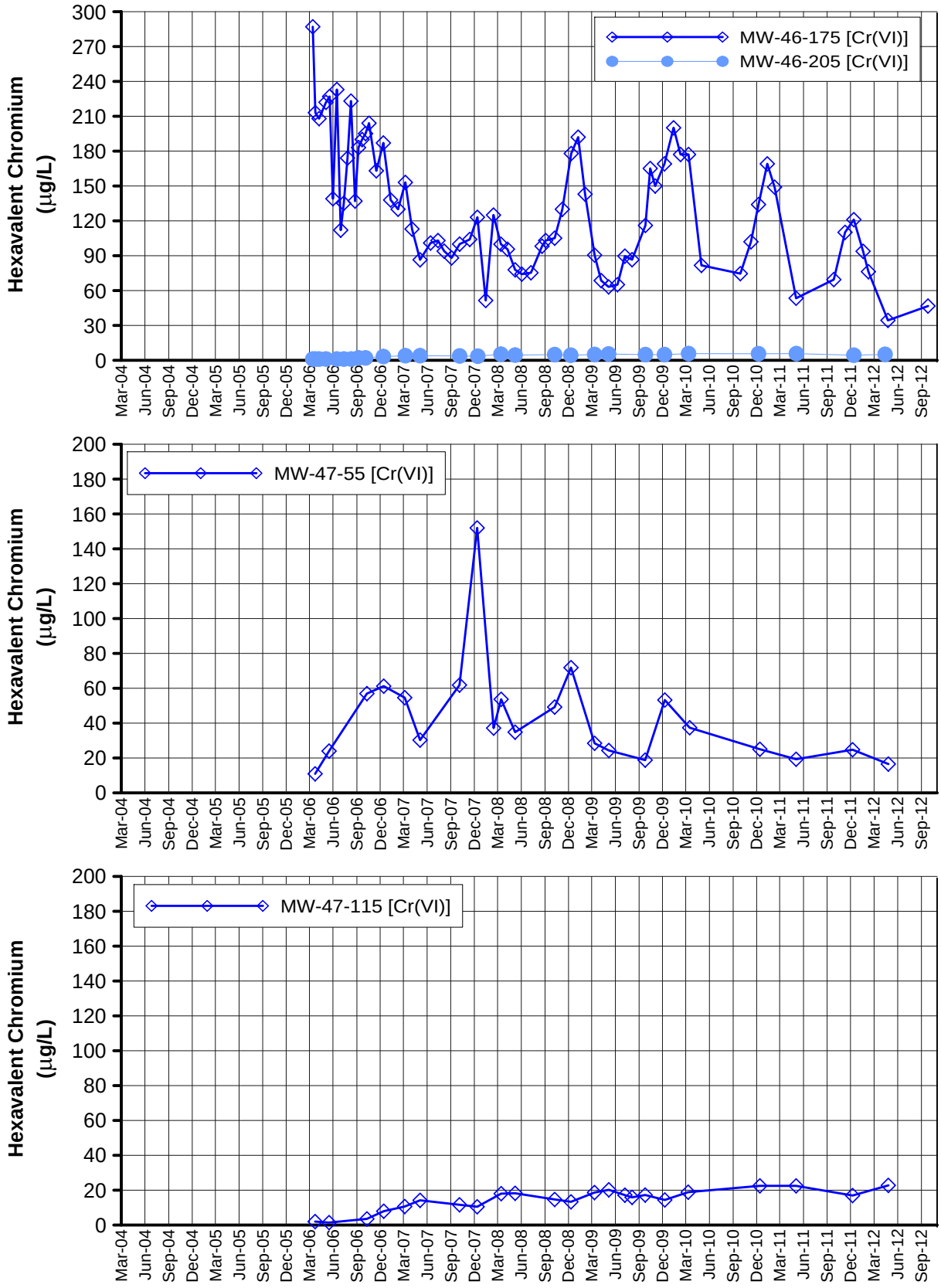


Notes:
1) The IM Contingency Plan and hexavalent chromium [Cr(VI)] trigger levels were updated July 17, 2008 (DTSC, 2008b).
2) The trigger level for MW-44-70 is 20 µg/L.
3) The trigger level for MW-44-115 is 1,200 µg/L.
4) The trigger level for MW-44-125 is 475 µg/L.

FIGURE C-10
HEXAVALENT CHROMIUM
IN MW-44 CLUSTER
THIRD QUARTER 2012 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

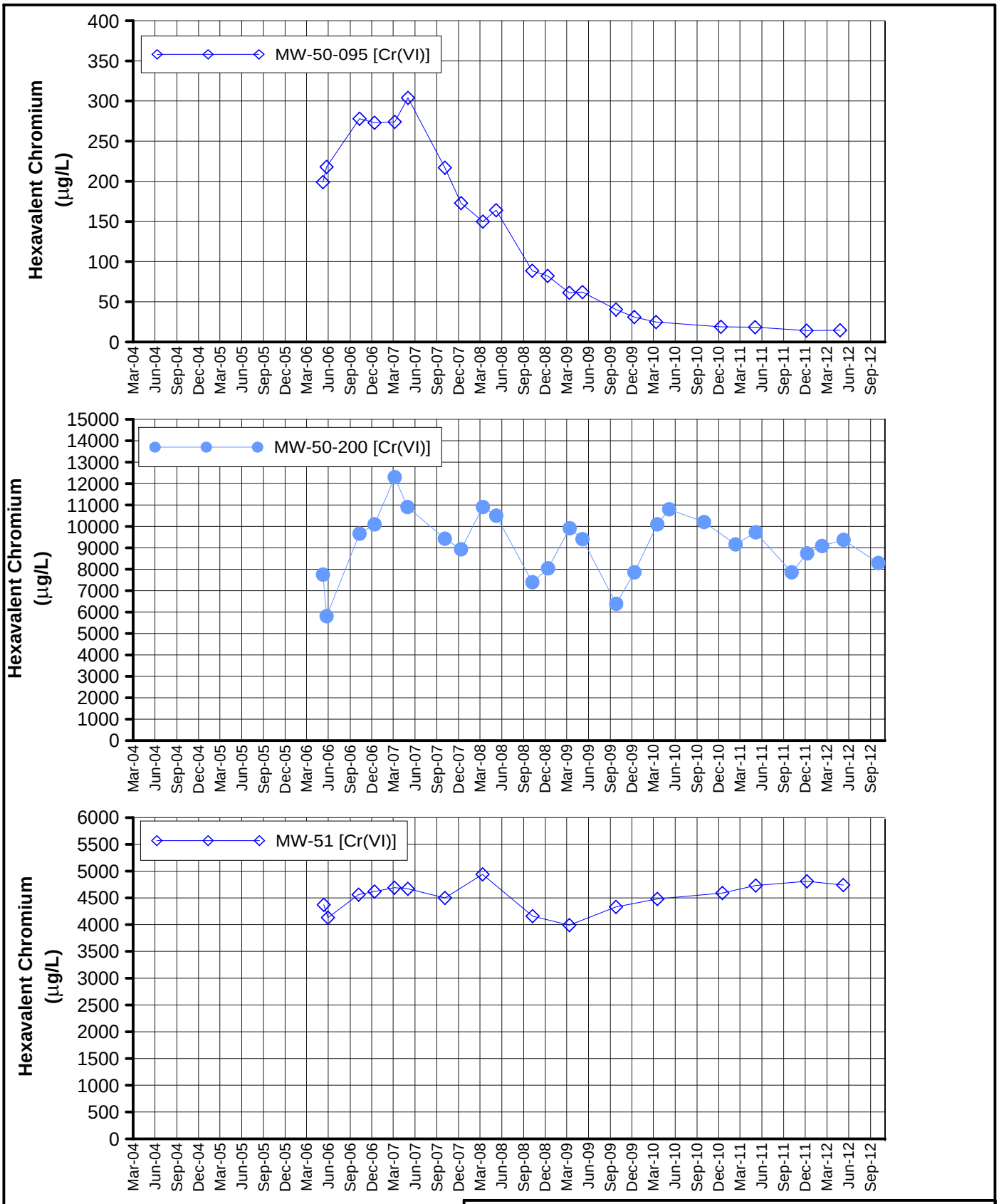


Notes:

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

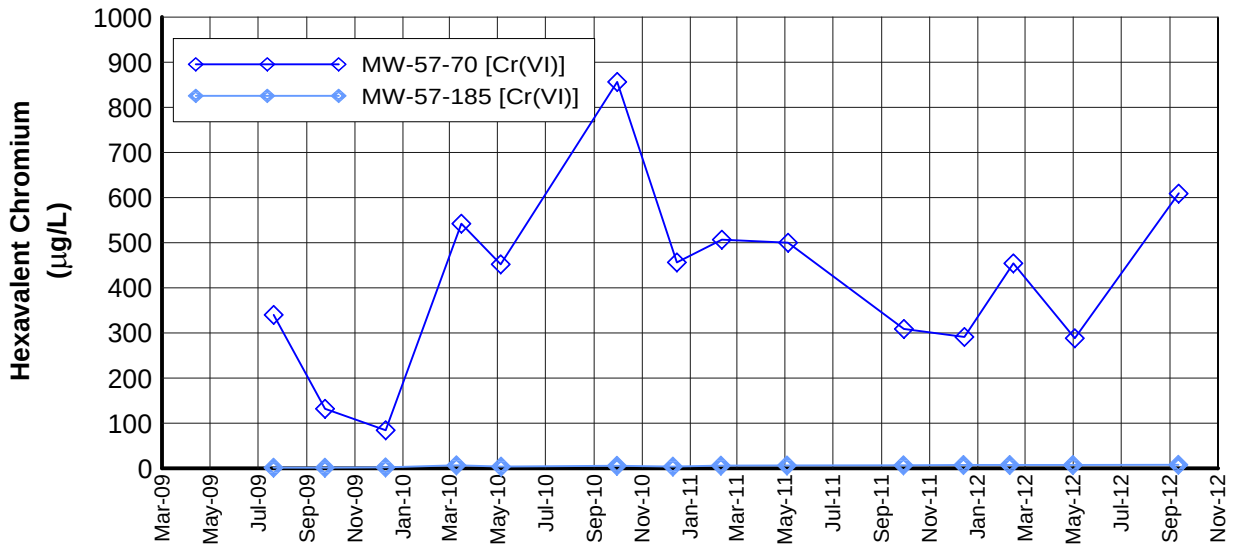
CH2MHILL

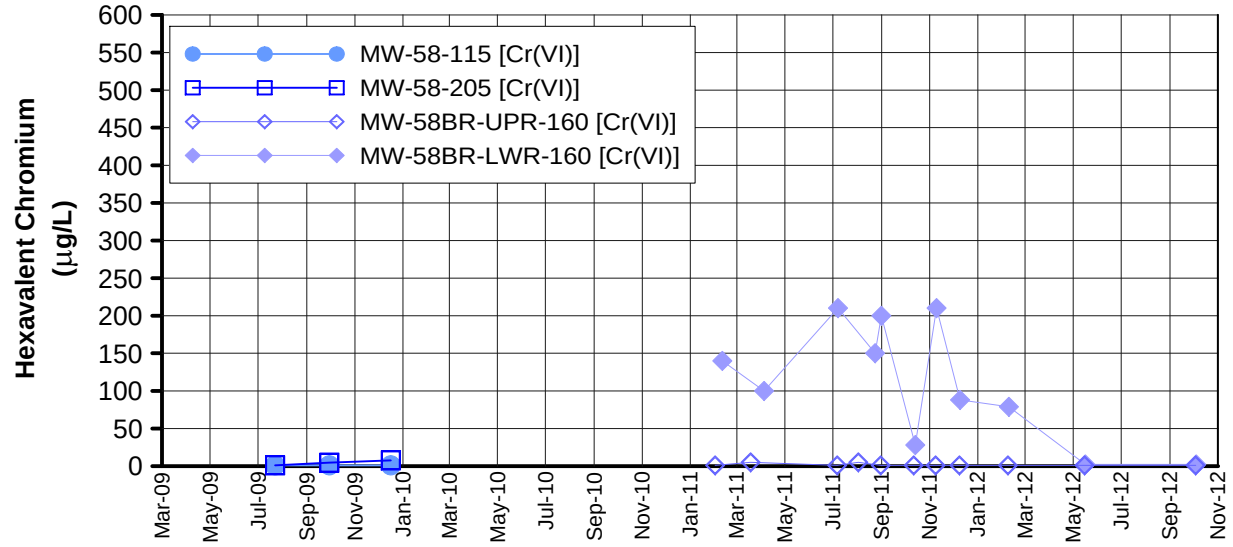


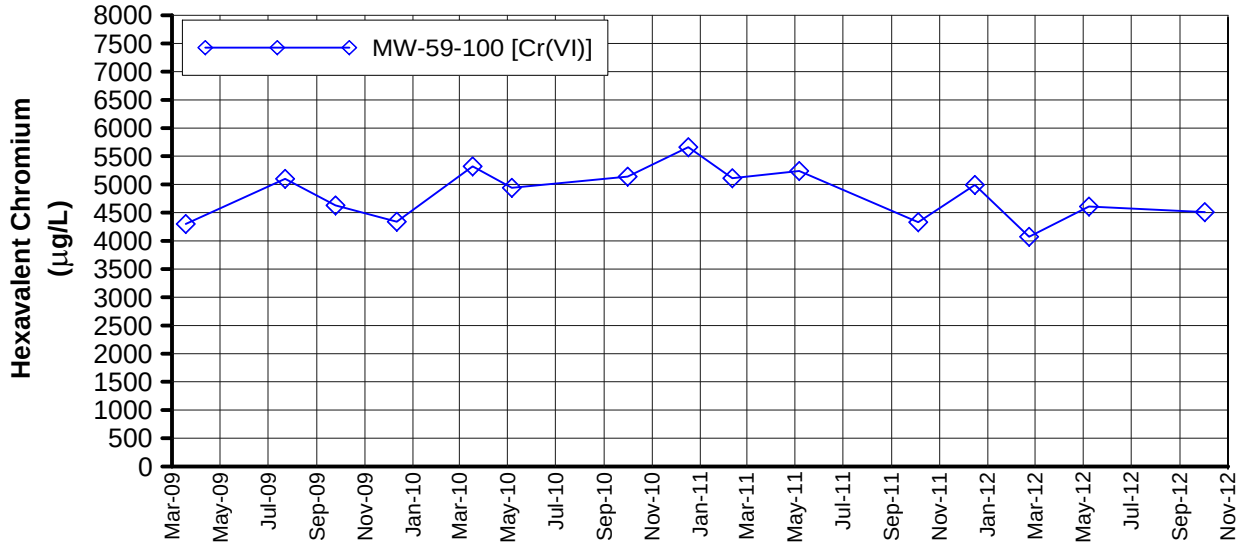
Notes:
1) Fourth Quarter 2010 data for MW-50-200 collected in February 2011 due to logistical issues.

FIGURE C-12
HEXAVALENT CHROMIUM
IN MW-50 AND MW-51 CLUSTERS
THIRD QUARTER 2012 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL





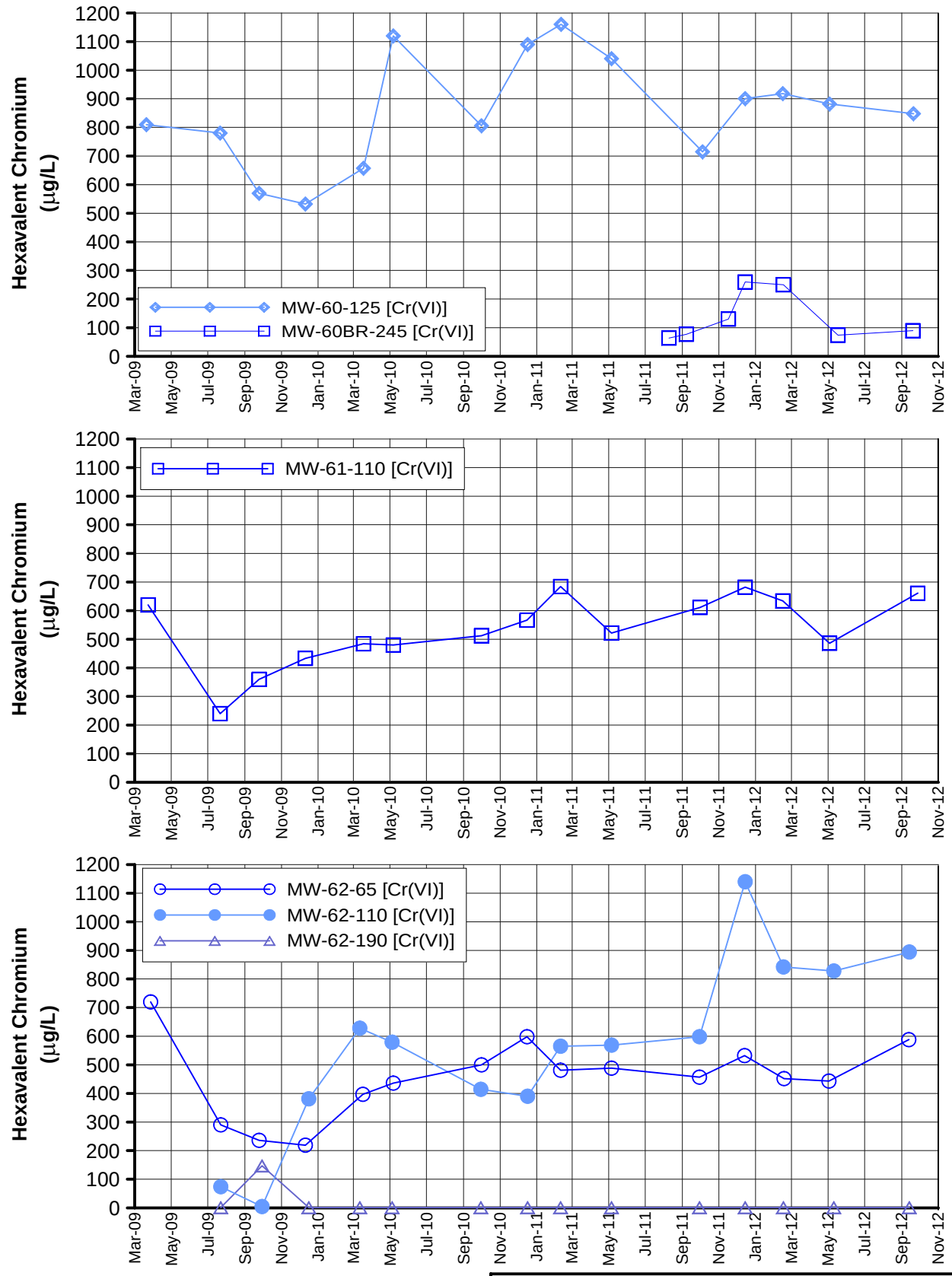


Notes:
MW-58BR upper and lower packer data prior to May 2012 is reported in:

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, MW-58 and MW-59 CLUSTERS
THIRD QUARTER 2012 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

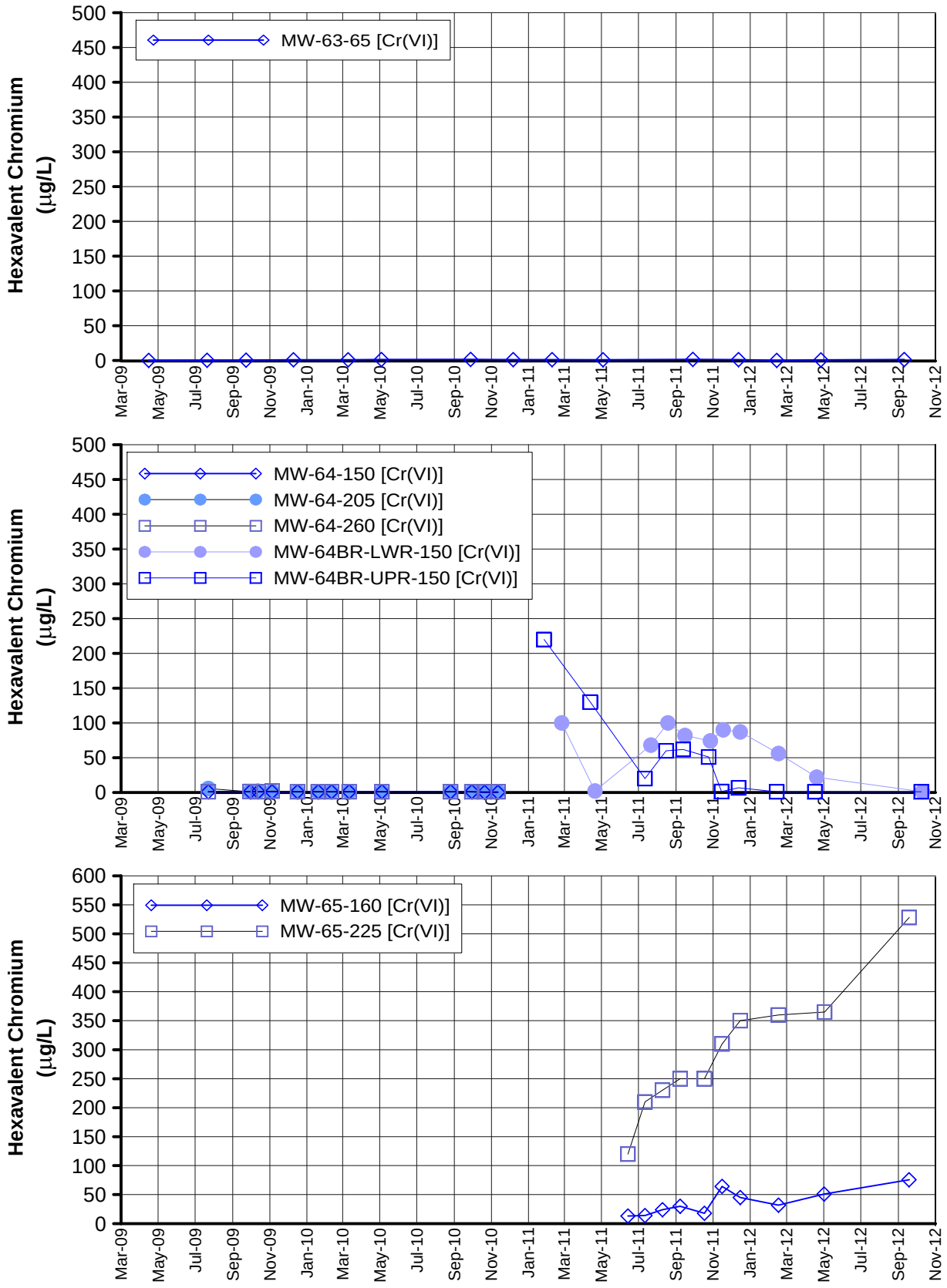


Notes:
MW-60BR-245 data prior to May 2012 is reported in:

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 THE MW-60 CLUSTER, MW-61-110 AND THE MW-62 CLUSTER
THIRD QUARTER 2012 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

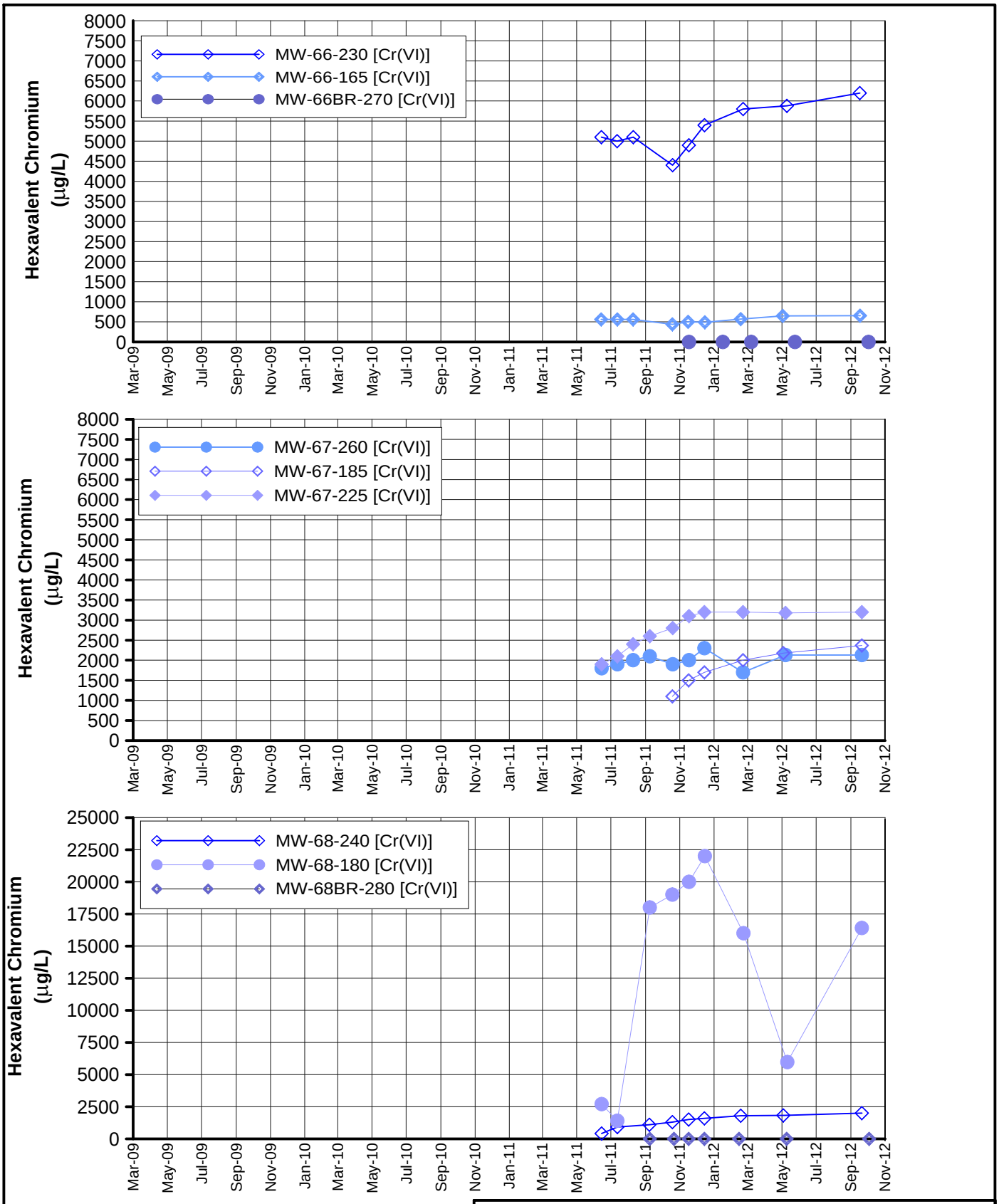


Notes:
MW-64BR upper and lower packer data, MW-65-160, and MW-65-225 data prior to May 2012 is reported in:

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-63-065, AND CLUSTERS MW-64 AND MW-65
THIRD QUARTER 2012 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

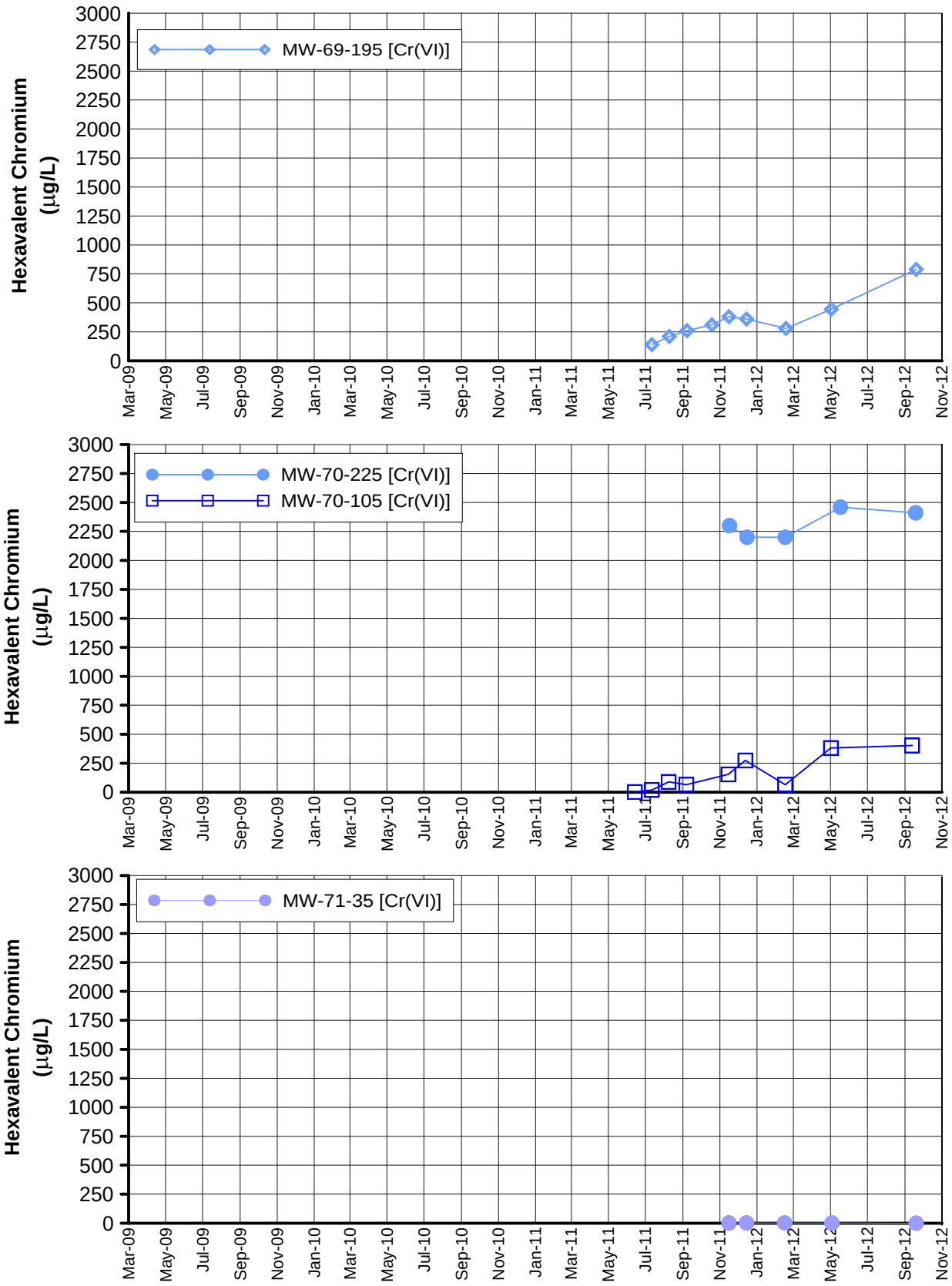


Notes:
Data prior to May 2012 is reported in:

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

CH2MHILL

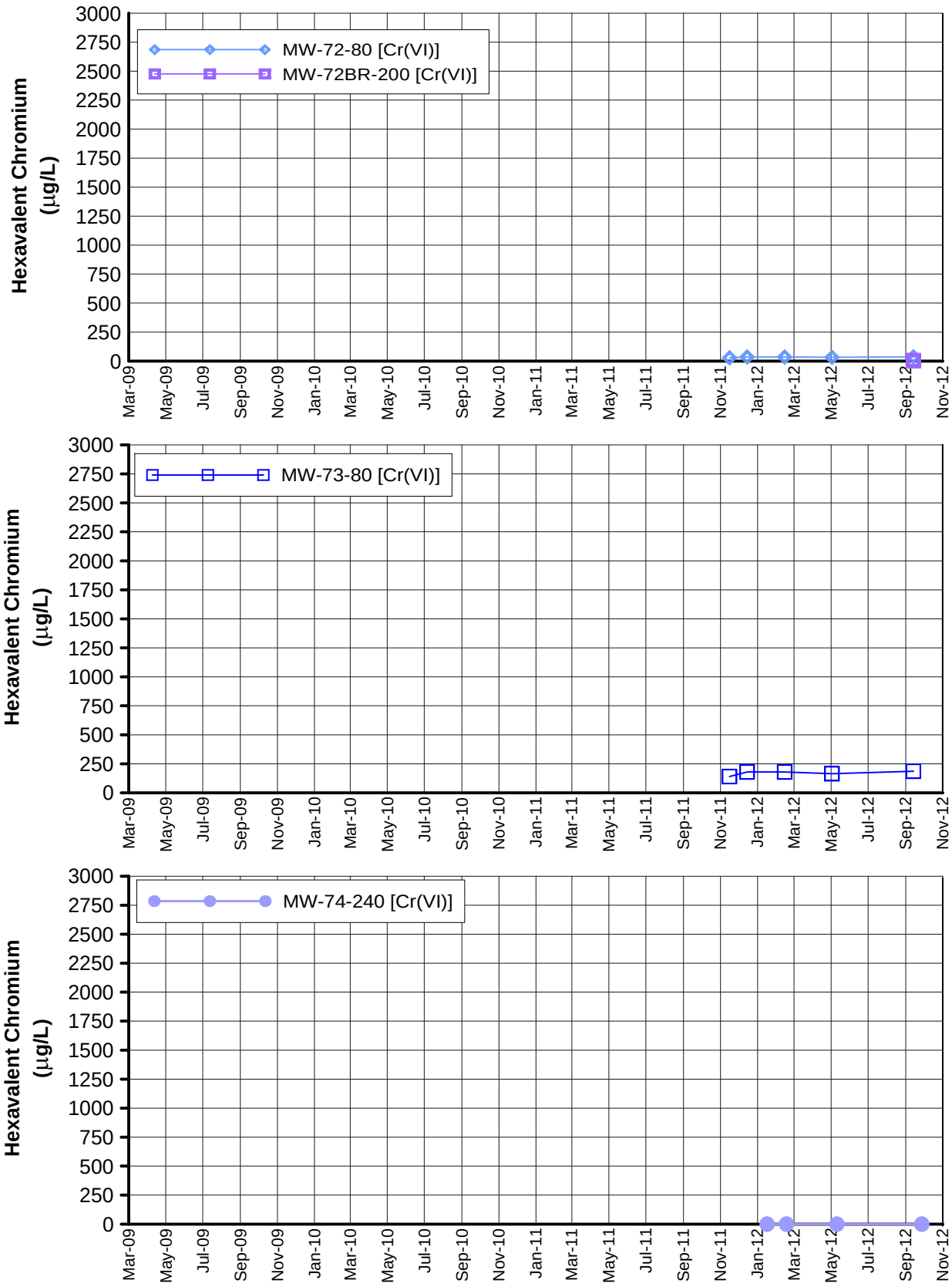


Notes:
Data prior to May 2012 is reported in:

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, THE MW-70 CLUSTER, AND MW-71-35
THIRD QUARTER 2012 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-72-80, MW-73-80, AND MW-74-240
THIRD QUARTER 2012 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

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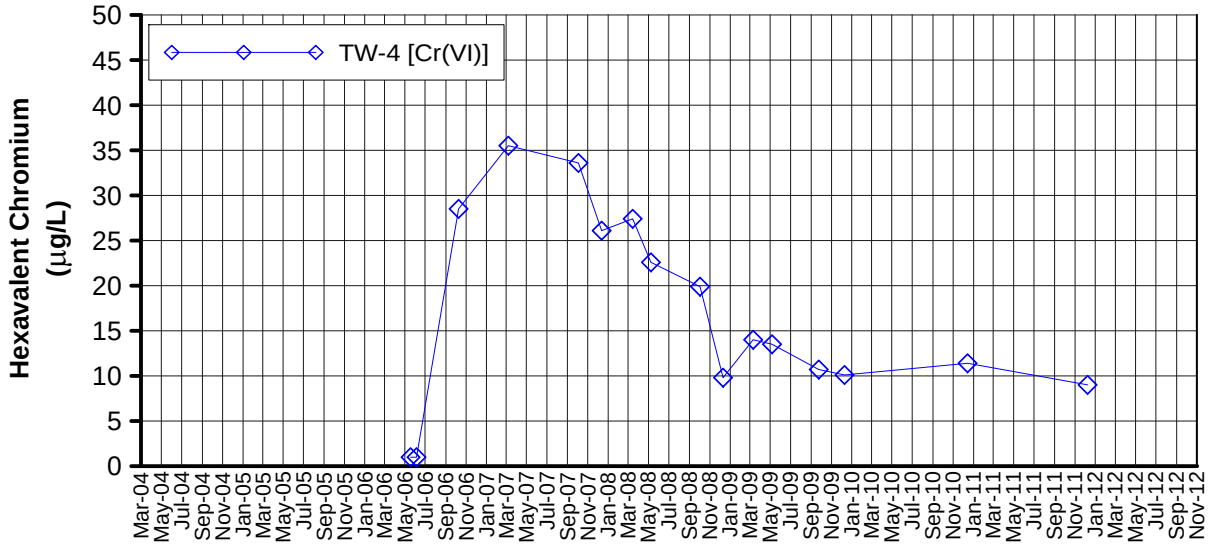

FIGURE C-19
HEXAVALENT CHROMIUM
IN TW-4
THIRD QUARTER 2012 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
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Appendix D
Interim Measure Extraction System Operations Log, Third Quarter 2012

APPENDIX D

Interim Measures Extraction System Operations Log, Third Quarter 2012, PG&E Topock Performance Monitoring Program

During Third Quarter 2012 (July through October), extraction wells TW-3D and PE-1 operated at a target pump rate of at 135 gallons per minute, excluding periods of planned and unplanned downtime. Extraction wells TW-2D and TW-2S were not operated during Third Quarter 2012. The operational run time for the Interim Measure groundwater extraction system (combined or individual pumping) was approximately 95.4 percent during Third Quarter 2012.

The Interim Measure Number 3 (IM-3) facility treated approximately 22,624,712 gallons of extracted groundwater during Third Quarter 2012. The IM-3 facility also treated approximately 6,530 gallons of water generated from the groundwater monitoring program and 37,800 gallons of water from IM-3 well backwashing. Eleven 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 4.6 percent of downtime during Third Quarter 2012) are summarized below. The times shown are in Pacific Standard Time to be consistent with other data collected (for example, water level data) at the site.

D.1 July 2012

- **July 2, 2012 (planned):** The extraction well system was offline from 2:10 p.m. to 2:56 p.m. due to permanent alarm and leak detection system testing that shut down extraction wells. Extraction system downtime was 46 minutes.
- **July 5, 2012 (unplanned):** The extraction well system was offline from 9:40 p.m. to 10:06 p.m. due to a loss of power from Needles Power. Extraction system downtime was 26 minutes.
- **July 8, 2012 (unplanned):** The extraction well system was offline from 9:00 p.m. to 9:06 p.m. due to loss of power from Needles Power. Extraction system downtime was 6 minutes.
- **July 9, 2012 (unplanned):** The extraction well system was offline from 5:42 a.m. to 6:12 a.m. due to loss of power from Needles Power. Extraction system downtime was 30 minutes.
- **July 11, 2012 (planned):** The extraction well system was offline from 6:50 a.m. to 12:08 p.m. due to planned maintenance to clear a blockage between the 301 tanks. Extraction system downtime was 5 hours, 18 minutes.
- **July 14, 2012 (unplanned):** The extraction well system was offline from 4:00 p.m. to 4:04 p.m. and from 6:34 p.m. to 6:38 p.m due to loss of power from Needles Power. Extraction system downtime was 8 minutes.
- **July 21, 2012 (unplanned):** The extraction well system was offline from 1:54 a.m. to 2:08 a.m. due to loss of power from Needles Power. Extraction system downtime was 14 minutes.

D.2 August 2012

- **August 2, 2012 (planned):** The extraction well system was offline from 10:54 a.m. to 10:56 a.m., 11:04 a.m. to 11:06 a.m., 11:08 a.m. to 11:10 a.m. and 11:16 a.m. to 11:18 a.m. due to testing of critical alarms and leak detection system. Extraction system downtime was 8 minutes.
- **August 9, 2012 (unplanned):** The extraction well system was offline from 5:58 p.m. to 6:00 p.m. due to a loss of power from Needles Power. Extraction system downtime was 2 minutes.

- **August 13-17, 2012 (planned):** The extraction well system was offline from 4:26 a.m. on August 13th to 2:16 p.m. on August 16th, from 2:58 p.m. on August 16th to 6:46 a.m. on August 17th and from 9:40 a.m. to 10:38 a.m. on August 17th for semiannual scheduled maintenance. Extraction system downtime was 4 days, 2 hours and 36 minutes.

- **August 21, 2012 (unplanned):** The extraction well system was offline from 6:56 p.m. to 7:02 p.m. due to a loss of power from Needles Power. Extraction system downtime was 6 minutes.

- **August 23, 2012 (unplanned):** The extraction well system was offline from 4:00 a.m. to 4:10 a.m. and 9:14 a.m. to 9:18 a.m. due to a loss of power from Needles Power. Extraction system downtime was 14 minutes.

- **August 30, 2012 (unplanned):** The extraction well system was offline from 4:06 p.m. to 4:20 p.m. and 4:36 p.m. to 11:48 p.m. due to a ferrous feed pump malfunction. Plant was in recirculation mode until pump was repaired and all parameters were within specifications. Extraction system downtime was 7 hours, 26 minutes.

D.3 September 2012

- **September 4, 2012 (planned):** The extraction well system was offline from 12:46 p.m. to 12:48 p.m., from 1:06 p.m. to 1:08 p.m., from 1:16 p.m. to 1:18 p.m., and from 1:34 p.m. to 1:44 p.m. due to testing of critical alarms and leak detection system. Extraction system downtime was 16 minutes.

- **September 4, 2012 (unplanned):** The extraction well system was offline from 4:42 p.m. to 5:02 p.m. due to a loss of power from Needles Power. Extraction system downtime was 20 minutes.

- **September 5, 2012 (unplanned):** The extraction well system was offline from 12:08 a.m. to 12:12 a.m. due to a loss of power from Needles Power. Extraction system downtime was 4 minutes.

- **September 5, 2012 (unplanned):** The extraction well system was offline from 7:54 a.m. to 9:48 a.m. for maintenance of electrical bucket for extraction well pump, PE-1, motor. Extraction system downtime was 1 hour and 54 minutes.

- **September 5, 2012 (unplanned):** The extraction well system was offline from 10:08 a.m. to 2:08 p.m., from 2:10 p.m. to 2:12 p.m., 2:14 p.m. to 2:18 p.m., from 2:20 p.m. to 2:22 p.m., from 2:28 p.m. to 2:34 p.m., from 2:40 p.m. to 3:00 p.m., from 3:06 p.m. to 3:14 p.m., from 3:16 p.m. to 3:26 p.m., from 3:28 p.m. to 3:32 p.m., from 3:34 p.m. to 4:00 p.m., from 4:46 p.m. to 4:50 p.m., from 5:08 p.m. to 5:12 p.m., and from 5:14 p.m. to 5:16 p.m. for maintenance of the variable frequency drive on the primary reverse osmosis pump, P-2501. Extraction system downtime was 5 hours and 32 minutes.

- **September 6, 2012 (unplanned):** The extraction well system was offline from 2:12 p.m. to 2:18 p.m. and from 2:42 p.m. to 2:46 p.m. due to a loss of power from Needles Power. Extraction system downtime was 10 minutes.

- **September 8, 2012 (unplanned):** The extraction well system was offline from 1:08 p.m. to 1:14 p.m. and 2:36 p.m. to 2:40 p.m. due to a loss of power from Needles Power. Extraction system downtime was 10 minutes.

- **September 11, 2012 (planned):** The extraction well system was offline from 3:54 a.m.to 4:16 am, from 7:04 a.m.to 7:06 am, and from 7:08 a.m.to 7:10 a.m. due to a planned loss of power from Needles Power. Extraction system downtime was 26 minutes.

- **September 12, 2012 (unplanned):** The extraction well system was offline from 12:14 p.m. to 12:56 p.m. for maintenance of the blower. Extraction system downtime was 42 minutes.

- **September 14, 2012 (unplanned):** The extraction well system was offline from 2:10 a.m.to 2:16 a.m. and 4:04 a.m.to 4:10 a.m. due to a loss of power from Needles Power. Extraction system downtime was 12 minutes.

- **September 21, 2012 (unplanned):** The extraction well system was offline from 11:14 a.m. to 1:08 p.m. and from 1:12 p.m. to 2:00 p.m. for replacement of the microfilter feed pump, P-500. Extraction system downtime was 2 hours and 42 minutes.
- **September 23, 2012 (unplanned):** The extraction well system was offline from 9:46 p.m. to 9:48 p.m. due to a loss of power from Needles Power. Extraction system downtime was 2 minutes.
- **September 26, 2012 (unplanned):** The extraction well system was offline from 2:24 a.m.to 2:26 a.m. and 2:28 a.m.to 2:30 a.m. because the incoming power to the plant from the City of Needles was too high, so plant power supply needed to be switched to generator power. Extraction system downtime was 4 minutes.
- **September 23, 2012 (unplanned):** The extraction well system was offline from 6:16 a.m.to 6:28 a.m. and 10:30 a.m.to 10:52 a.m. when Needles Power adjusted power feed to plant. Extraction system downtime was 34 minutes.

D.3 October 2012

- **October 1, 2012 (unplanned):** The extraction well system was offline from 2:12 am to 3:48 am, 3:50 am to 5:06 am and 5:48 am to 6:04 am due to a low pH alarm in the treated water that shutdown the extraction well system. The low pH alarm was a false alarm due to a malfunction of the installed pH probe. Extraction system downtime was 3 hours and 8 minutes.
- **October 3, 2012 (planned):** The extraction well system was offline from 9:26 am to 10:02 am and 10:06 am to 10:08 am due to testing of critical alarms and leak detection system. Extraction system downtime was 38 minutes.
- **October 10, 2012 (unplanned):** The extraction well system was offline from 6:48 pm 6:54 pm due to a loss of power from Needles Power. Extraction system downtime was 6 minutes.
- **October 11, 2012 (unplanned):** The extraction well system was offline from 7:18 am to 7:20 am, from 9:40 am to 9:44 am and 11:20 am to 11:22 am due to a loss of power from Needles Power. Extraction system downtime was 8 minutes.
- **October 13, 2012 (unplanned):** The extraction well system was offline from 9:40 am to 9:44 am due to a loss of power from Needles Power. Extraction system downtime was 4 minutes.
- **October 24, 2012 (unplanned):** The extraction well system was offline from 9:18 am to 1:26 pm due to microfilter maintenance. Extraction system downtime was 4 hours and 8 minutes.

Appendix E
Hydraulic Data for Interim Measures Reporting Period

Table E-1
Average Monthly and Quarterly Groundwater Elevations, Third Quarter 2012
Third Quarter 2012 Interim Measure Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California

Well ID	Aquifer Zone	July 2012	August 2012	September 2012	October 2012	Quarter Average	Days in Quarter Average
I-3	River Station	455.72	455.36	455.31	453.98	455.10	122
MW-20-070	Shallow Zone	454.79	454.51	454.22	453.36	454.23	121
MW-20-100	Middle Zone	454.15	453.94	453.59	452.83	453.63	121
MW-20-130	Deep Zone	453.72	453.59	453.27	452.39	453.25	122
MW-22	Shallow Zone	455.57	455.14	455.05	454.62	455.10	121
MW-25	Shallow Zone	456.36	456.00	455.77	455.27	455.86	120
MW-26	Shallow Zone	455.97	455.60	455.23	454.33	455.29	119
MW-27-020	Shallow Zone	455.68	455.17	455.17	453.88	454.99	121
MW-27-060	Middle Zone	455.54	455.09	455.19	453.90	454.94	121
MW-27-085	Deep Zone	455.59	455.07	455.04	453.96	454.91	123
MW-28-025	Shallow Zone	455.69	455.17	455.15	453.82	454.98	119
MW-28-090	Deep Zone	455.71	455.24	455.24	454.01	455.06	119
MW-30-050	Middle Zone	455.40	454.95	454.85	453.74	454.75	120
MW-31-060	Shallow Zone	455.55	455.23	454.96	454.05	454.95	119
MW-31-135	Deep Zone	454.83	454.61	454.15	453.36	454.23	112
MW-32-035	Shallow Zone	455.49	455.02	454.96	453.91	454.86	121
MW-33-040	Shallow Zone	455.79	455.21	455.12	454.12	455.06	123
MW-33-090	Middle Zone	455.82	455.47	455.36	454.36	455.25	123
MW-33-150	Deep Zone	455.79	455.40	455.24	454.33	455.19	122
MW-34-055	Middle Zone	455.61	455.11	455.07	453.77	454.91	121
MW-34-080	Deep Zone	455.62	455.21	455.14	453.87	454.98	121
MW-34-100	Deep Zone	455.33	454.95	454.90	453.76	454.73	123
MW-35-060	Shallow Zone	456.16	455.62	455.57	454.54	455.48	120
MW-35-135	Deep Zone	456.53	456.10	456.01	455.19	455.96	120
MW-36-020	Shallow Zone	455.57	455.13	455.05	453.94	454.94	120
MW-36-040	Shallow Zone	455.44	455.00	454.97	453.78	454.81	120
MW-36-050	Middle Zone	456.65	INC	454.89	453.76	INC	55
MW-36-070	Middle Zone	455.35	454.92	454.85	453.64	454.71	120
MW-36-090	Deep Zone	454.54	454.24	454.03	452.93	453.95	120
MW-36-100	Deep Zone	454.88	454.57	454.39	453.26	454.29	120
MW-39-040	Shallow Zone	455.32	454.92	454.80	453.69	454.70	121
MW-39-050	Middle Zone	455.12	454.69	454.66	453.51	454.51	121
MW-39-060	Middle Zone	454.94	454.59	454.43	453.35	454.34	121
MW-39-070	Middle Zone	454.56	454.28	454.04	453.03	453.99	121
MW-39-080	Deep Zone	454.76	454.48	454.24	453.23	454.19	121
MW-39-100	Deep Zone	455.13	454.95	454.72	453.70	454.64	121
MW-42-030	Shallow Zone	455.29	454.86	454.77	453.69	454.67	121
MW-42-065	Middle Zone	455.53	455.10	455.00	453.91	454.90	121
MW-43-025	Shallow Zone	455.63	455.10	455.13	453.79	454.93	121
MW-43-090	Deep Zone	455.95	455.34	455.53	454.21	455.27	121
MW-44-070	Middle Zone	455.52	455.10	455.04	453.80	454.88	120
MW-44-115	Deep Zone	455.14	454.78	454.60	453.58	454.54	120
MW-44-125	Deep Zone	455.45	455.16	454.90	453.97	454.88	119
MW-45-095a	Deep Zone	454.36	454.36	454.16	453.12	454.00	123
MW-46-175	Deep Zone	455.55	455.17	455.08	454.13	455.00	120
MW-47-055	Shallow Zone	456.12	455.63	455.55	454.62	455.49	120
MW-47-115	Deep Zone	456.07	455.61	455.51	454.70	455.49	120
MW-49-135	Deep Zone	456.11	455.69	455.62	454.58	455.51	119

Table E-1

Average Monthly and Quarterly Groundwater Elevations, Third Quarter 2012

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

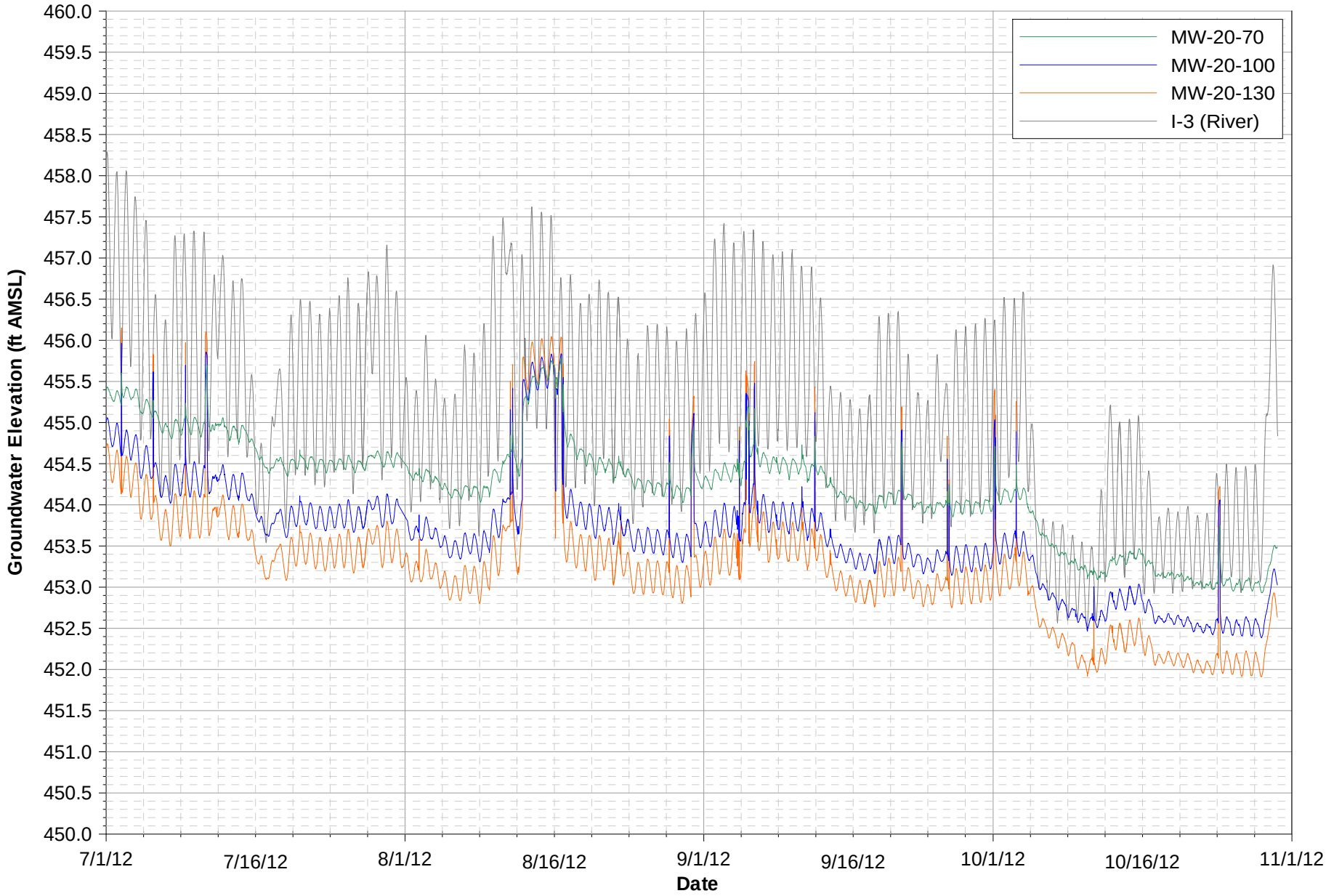
Well ID	Aquifer Zone	July 2012	August 2012	September 2012	October 2012	Quarter Average	Days in Quarter Average
MW-50-095	Middle Zone	455.80	455.38	455.20	454.39	455.20	120
MW-51	Middle Zone	455.97	455.70	455.52	454.79	INC	90
MW-54-085	Deep Zone	455.95	455.48	455.64	INC	INC	82
MW-54-140	Deep Zone	456.15	455.70	455.72	INC	INC	86
MW-54-195	Deep Zone	456.35	455.90	455.91	INC	INC	86
MW-55-045	Middle Zone	456.70	456.27	456.21	455.55	456.19	122
MW-55-120	Deep Zone	457.27	456.97	INC	INC	INC	37
PT2D	Deep Zone	454.29	454.15	453.88	452.81	453.80	121
PT5D	Deep Zone	454.70	454.38	454.16	453.22	454.13	121
PT6D	Deep Zone	454.86	454.59	454.36	453.32	454.30	121
RRB	River Station	456.09	455.57	455.56	454.30	455.37	120

NOTES:

Averages reported in ft AMSL (feet above mean sea level).

Quarterly Average = average of daily averages over reporting period.

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



Notes:
Data subject to review.

FIGURE E-1A
MW-20 CLUSTER HYDROGRAPHS
THIRD QUARTER 2012 INTERIM MEASURES PERFORMANCE MONITORING
AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

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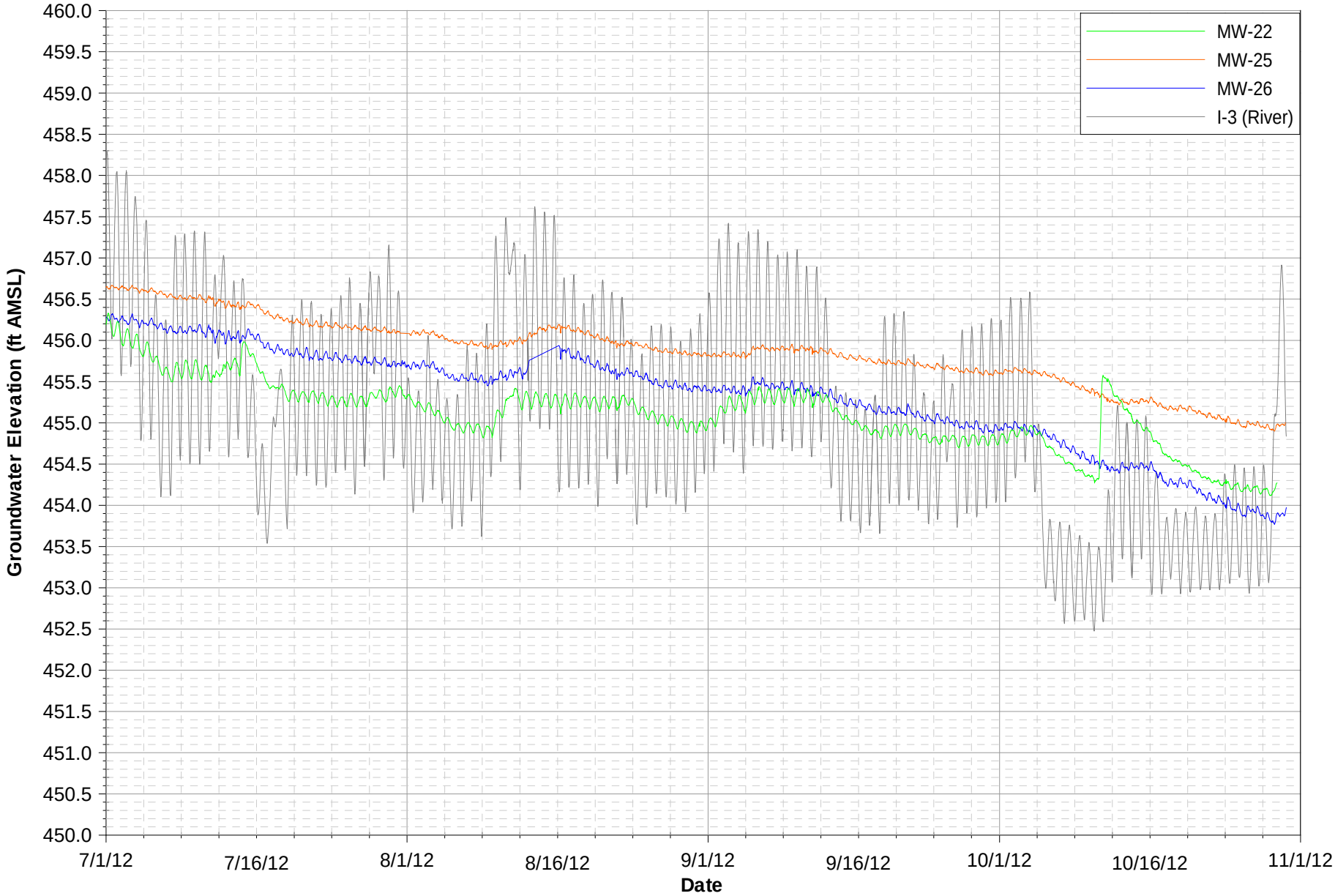

Notes:
Data subject to review..

FIGURE E-1B

MW-22, MW-25, AND MW-26 HYDROGRAPHS

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

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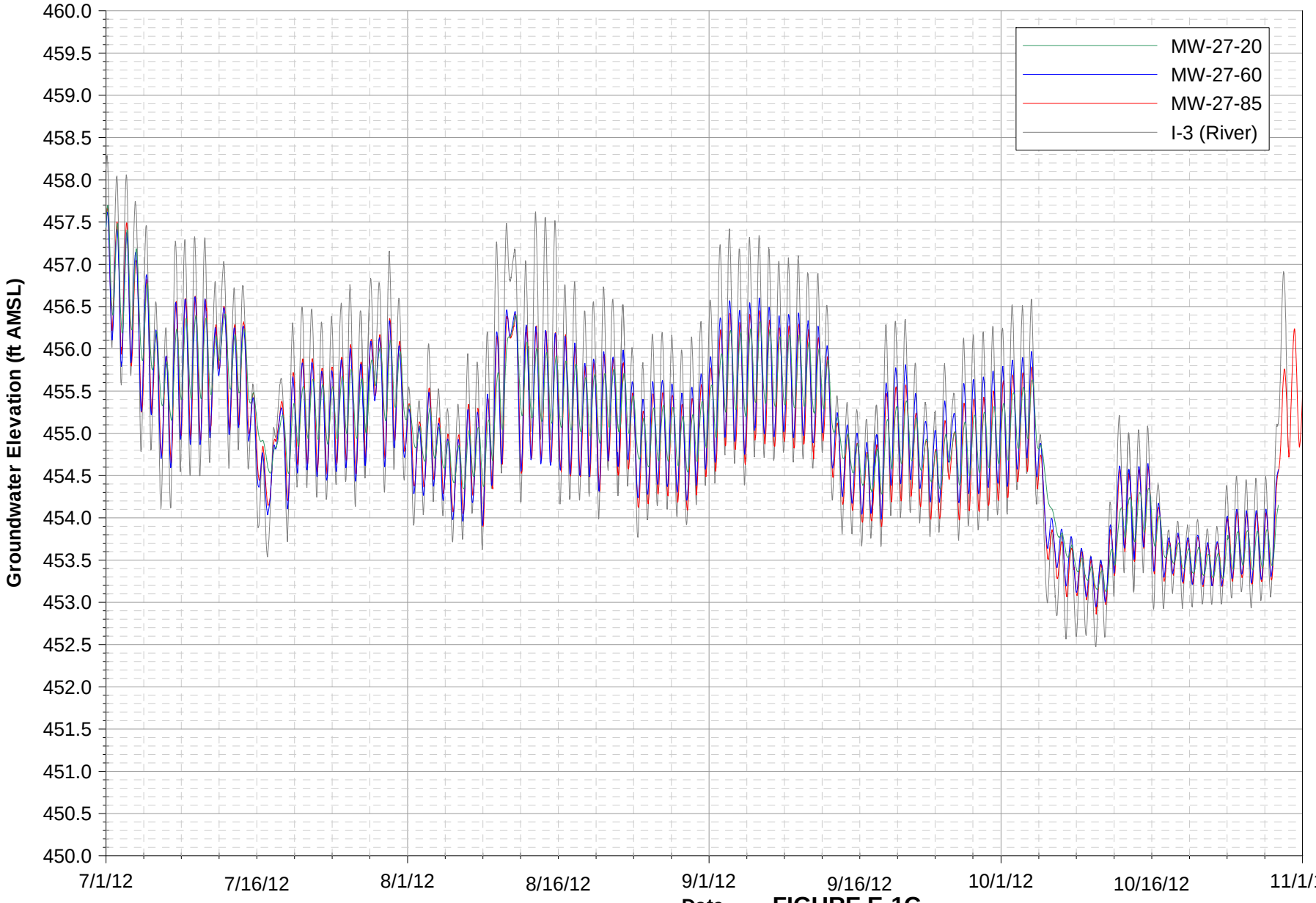
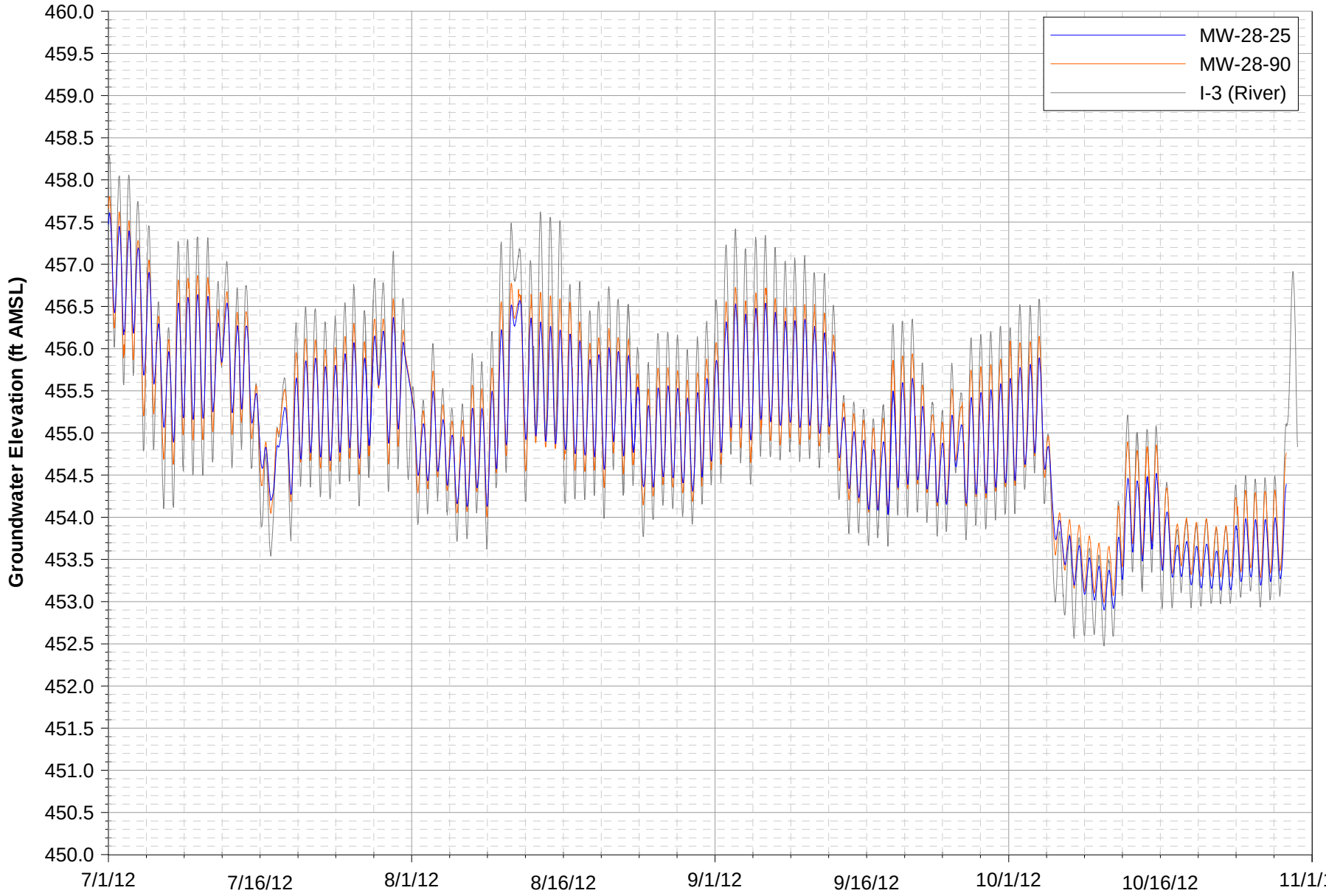


Notes:
Data subject to review.

FIGURE E-1C
MW-27 CLUSTER HYDROGRAPHS
THIRD QUARTER 2012 INTERIM MEASURES PERFORMANCE MONITORING
AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

CH2MHILL



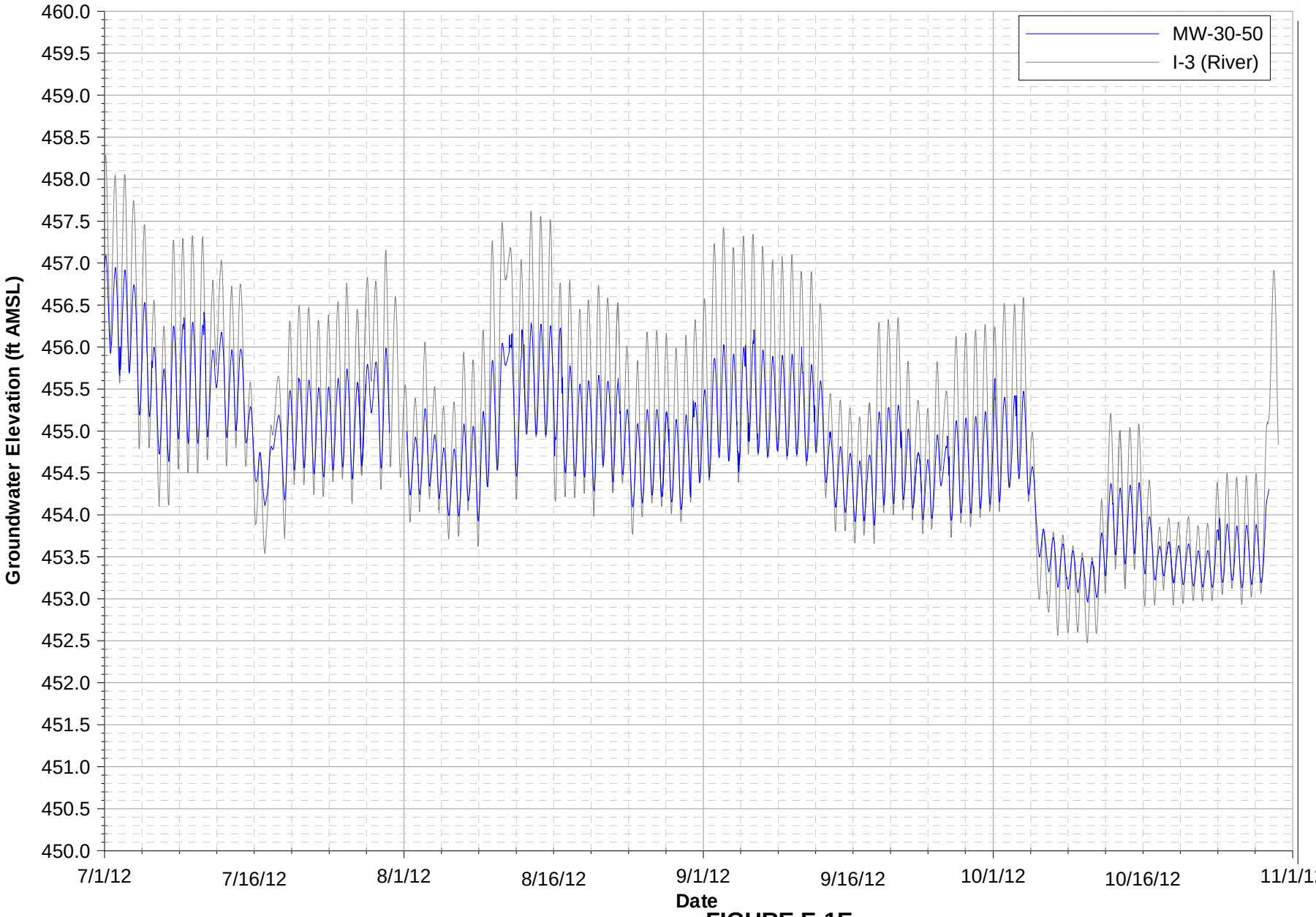
Notes:
Data subject to review.

FIGURE E-1D

MW-28 CLUSTER HYDROGRAPHS

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

CH2MHILL

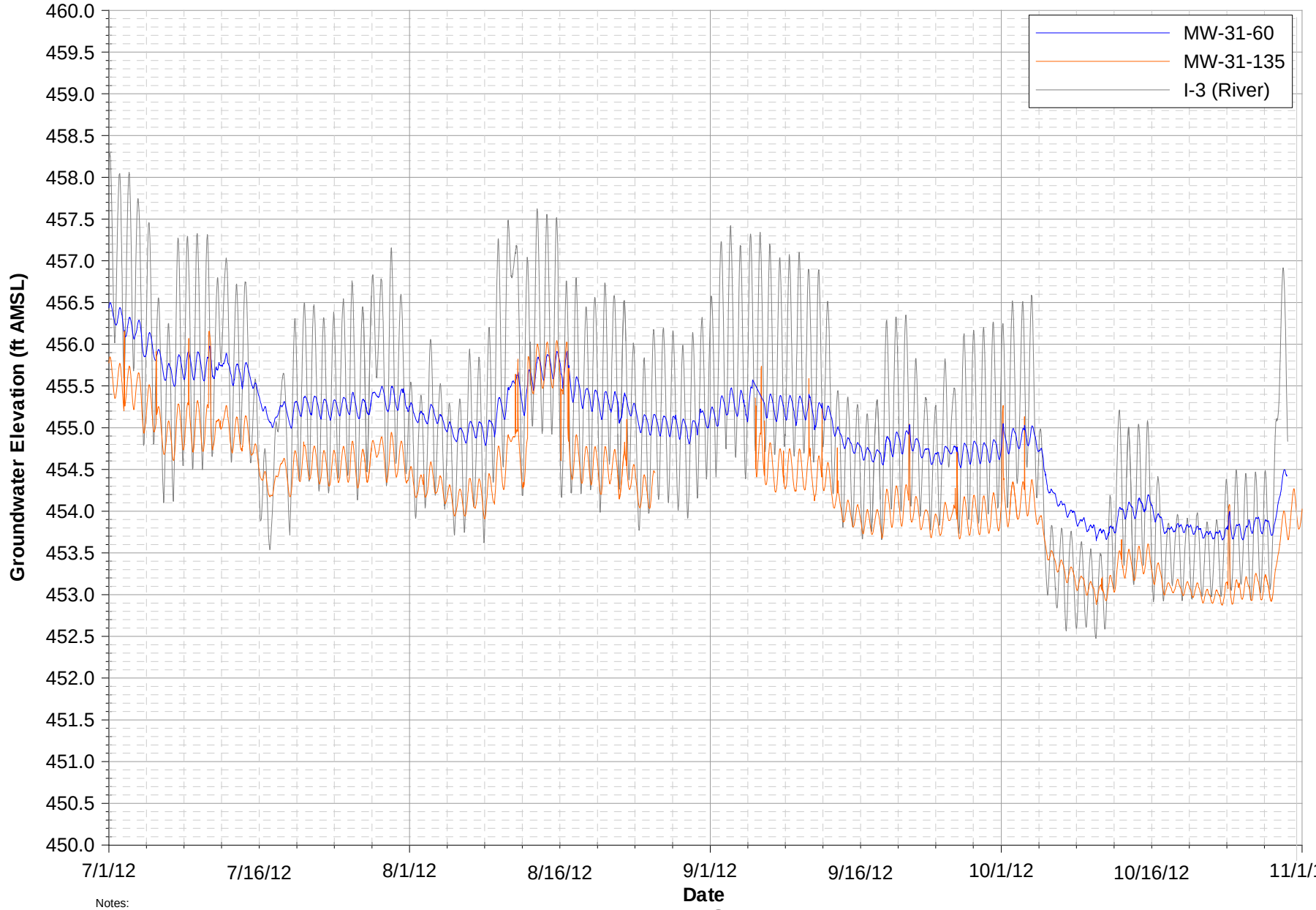


Notes:
Data subject to review.
MW-30-050 data unavailable from July 30, 2012 through August 1, 2012 due to equipment malfunction.

FIGURE E-1E
MW-30-50 HYDROGRAPH

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

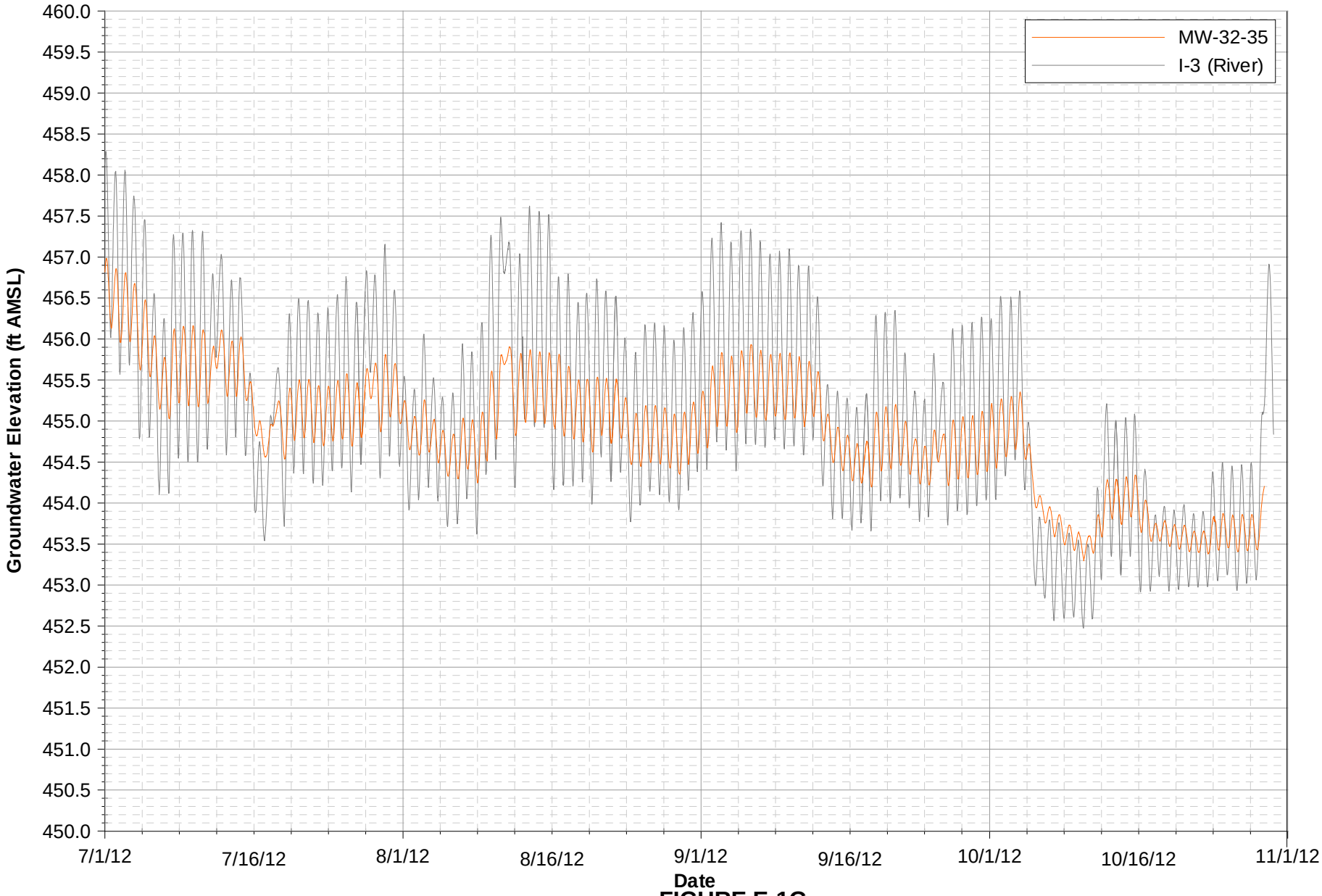
CH2MHILL



Notes:
Data subject to review.
MW-31-135 data unavailable from August 26, 2012 through September 5, 2012 due to equipment malfunction.

FIGURE E-1F
MW-31 CLUSTER HYDROGRAPHS
THIRD QUARTER 2012 INTERIM MEASURES PERFORMANCE MONITORING
AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

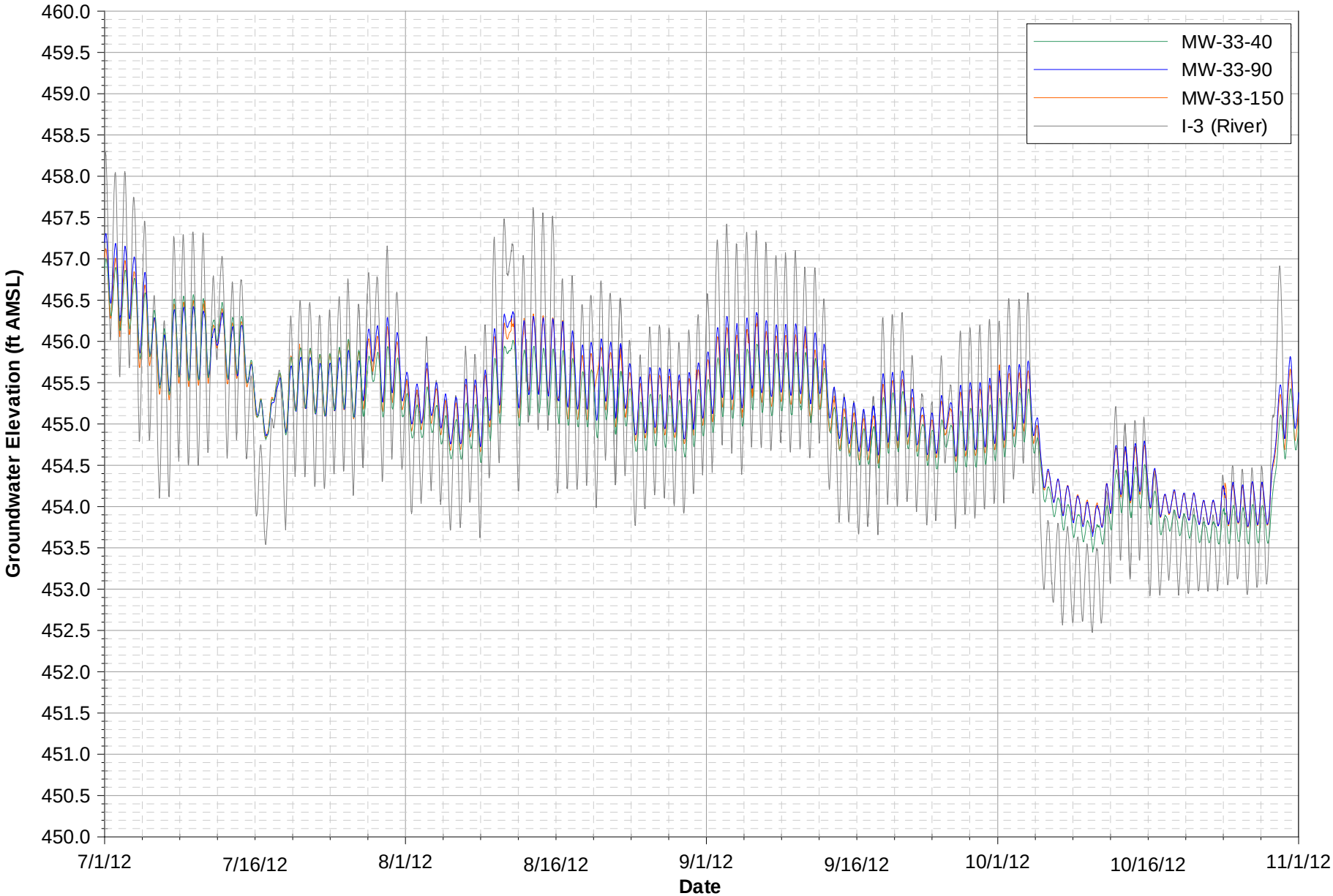
CH2MHILL



Notes:
Data subject to review.

FIGURE E-1G
MW-32 HYDROGRAPH
THIRD QUARTER 2012 INTERIM MEASURES PERFORMANCE MONITORING
AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

CH2MHILL



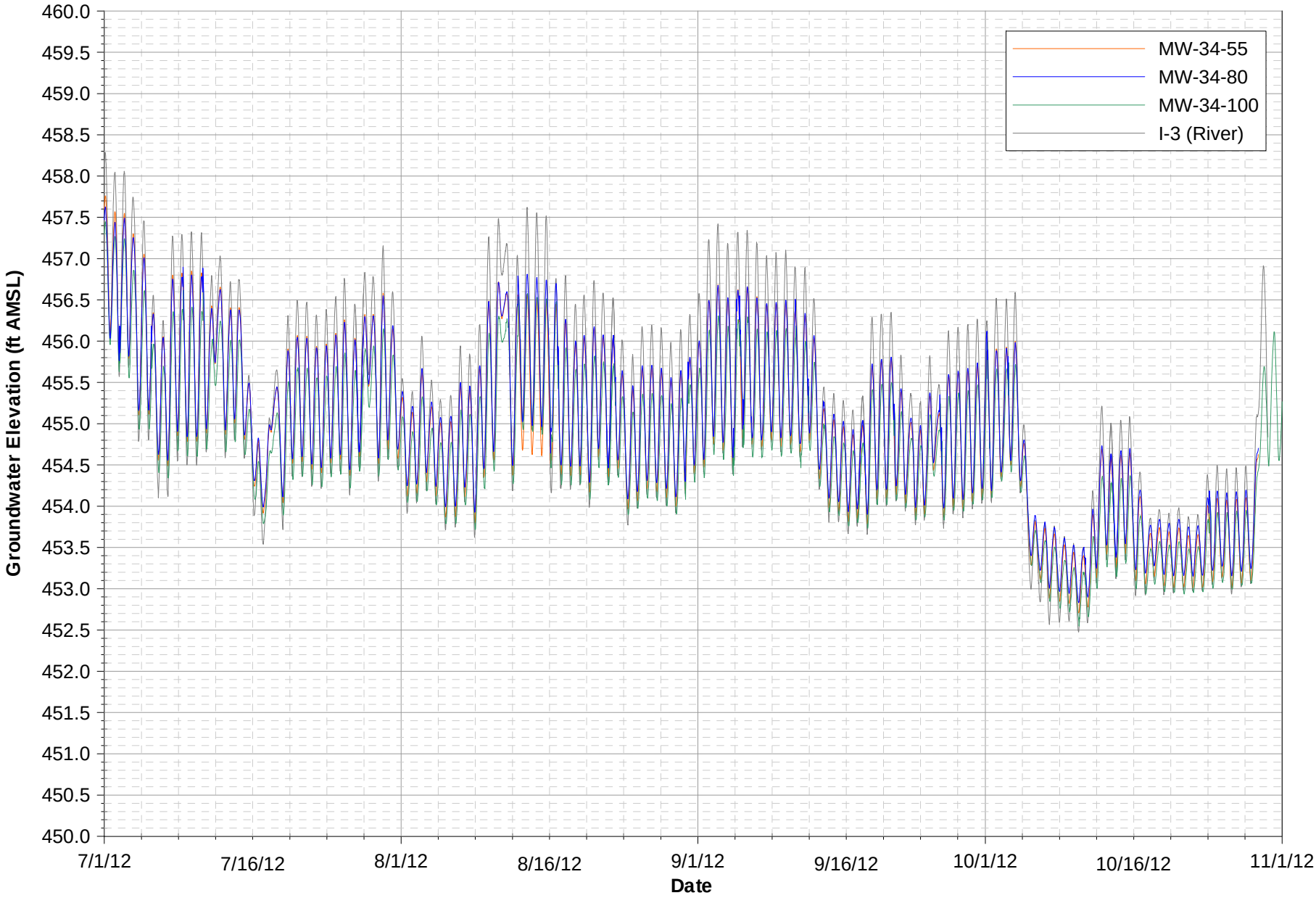
Notes:
Data subject to review.

FIGURE E-1H

MW-33 CLUSTER HYDROGRAPHS

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

CH2MHILL



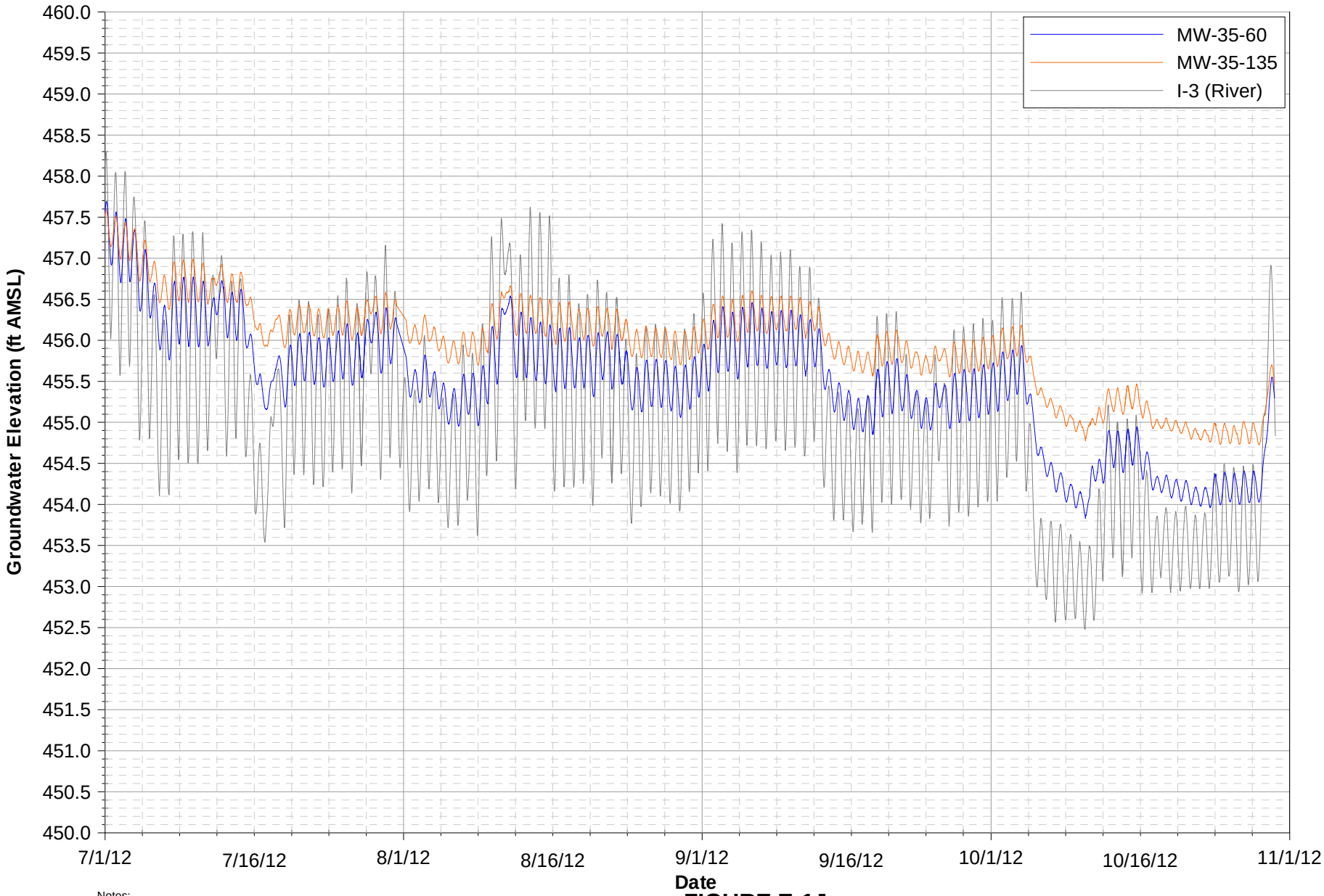
Notes:
Data subject to review.

FIGURE E-1I

MW-34 CLUSTER HYDROGRAPHS

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

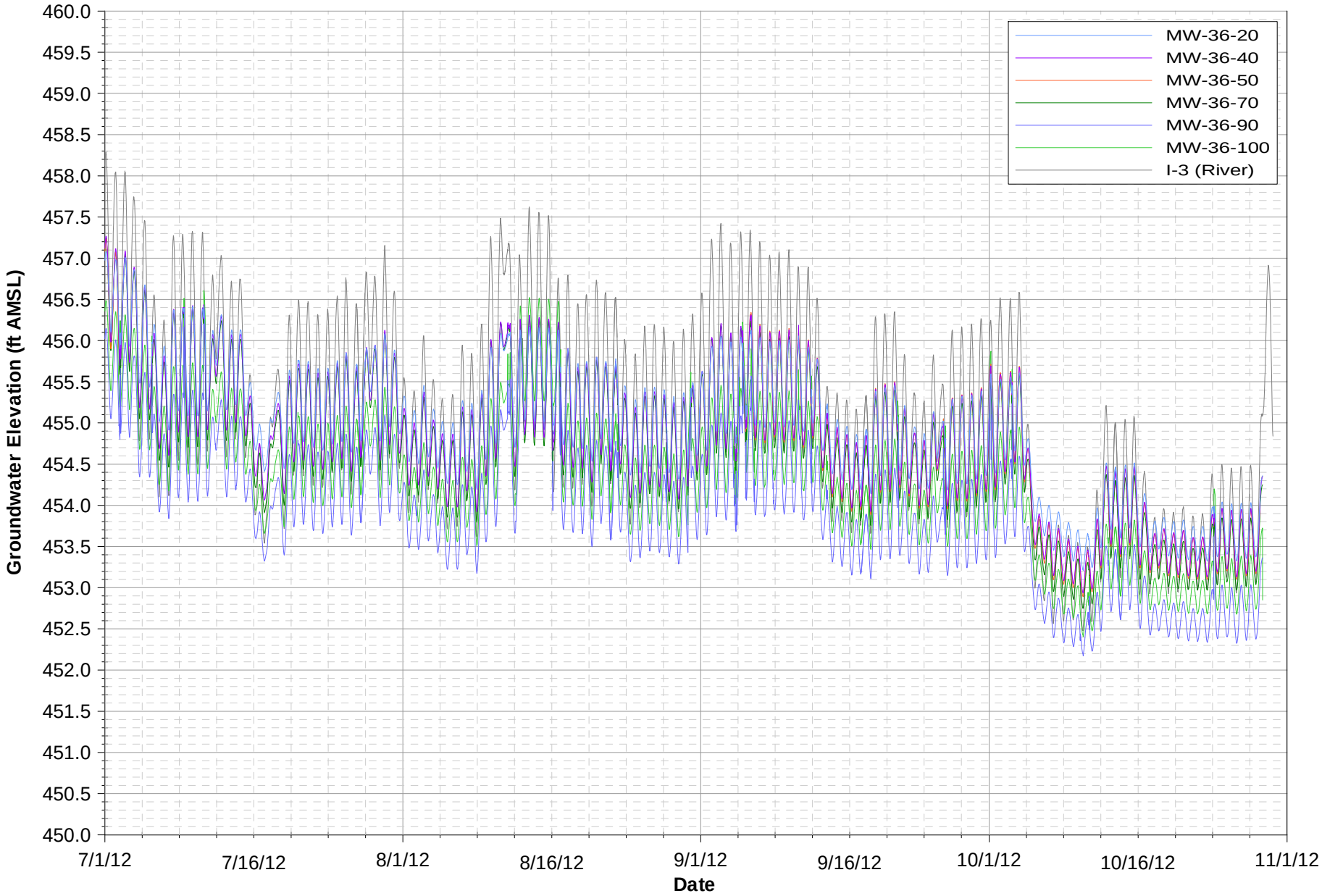
CH2MHILL



Notes:
Data subject to review.

FIGURE E-1J
MW-35 CLUSTER HYDROGRAPHS
THIRD QUARTER 2012 INTERIM MEASURES PERFORMANCE MONITORING
AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

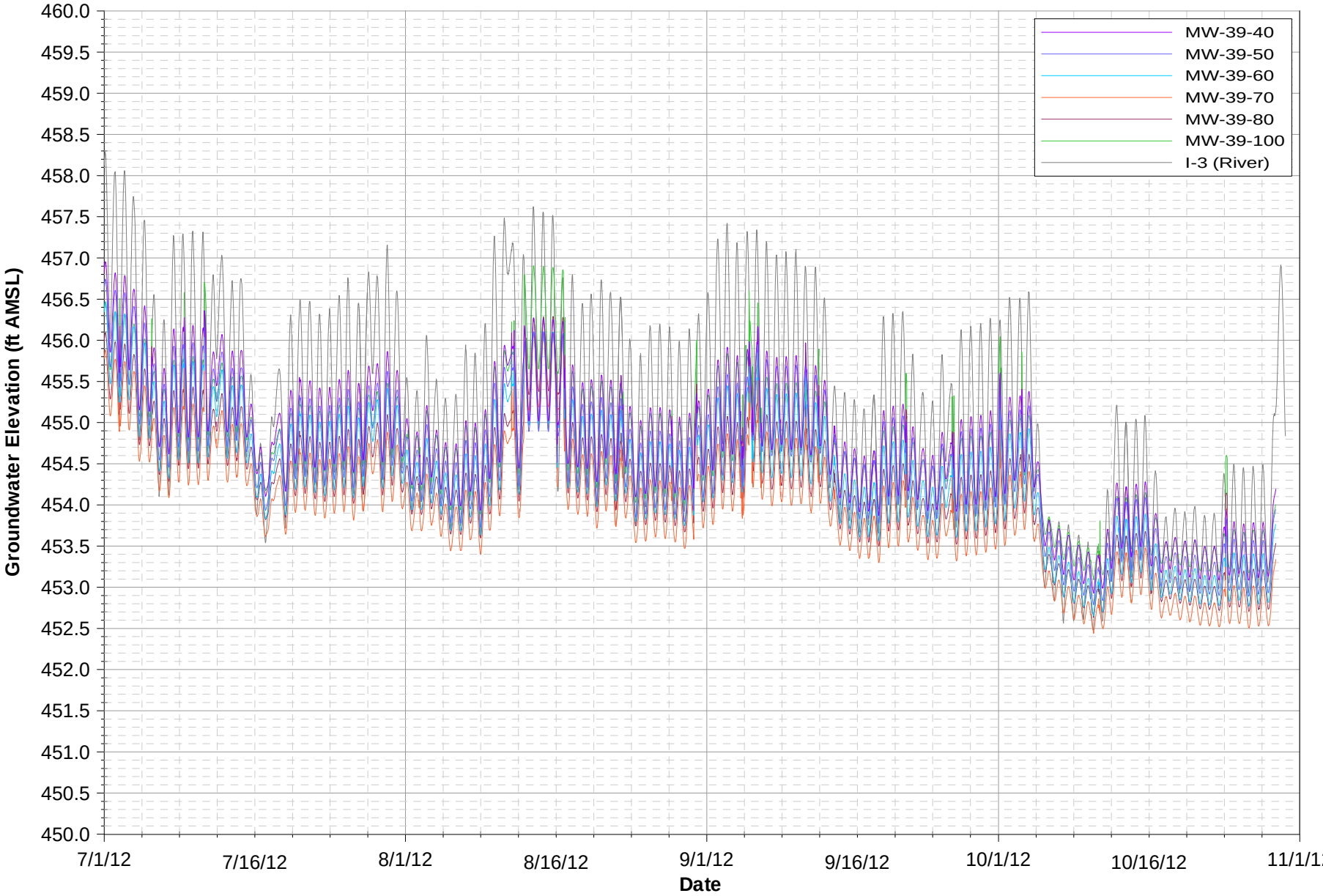
CH2MHILL



Notes:
Data subject to review.
MW-36-50 data unavailable from July 2, 2012 through September 5, 2012 due to equipment malfunction.

FIGURE E-1K
MW-36 CLUSTER HYDROGRAPHS
THIRD QUARTER 2012 INTERIM MEASURES PERFORMANCE MONITORING
AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

CH2MHILL



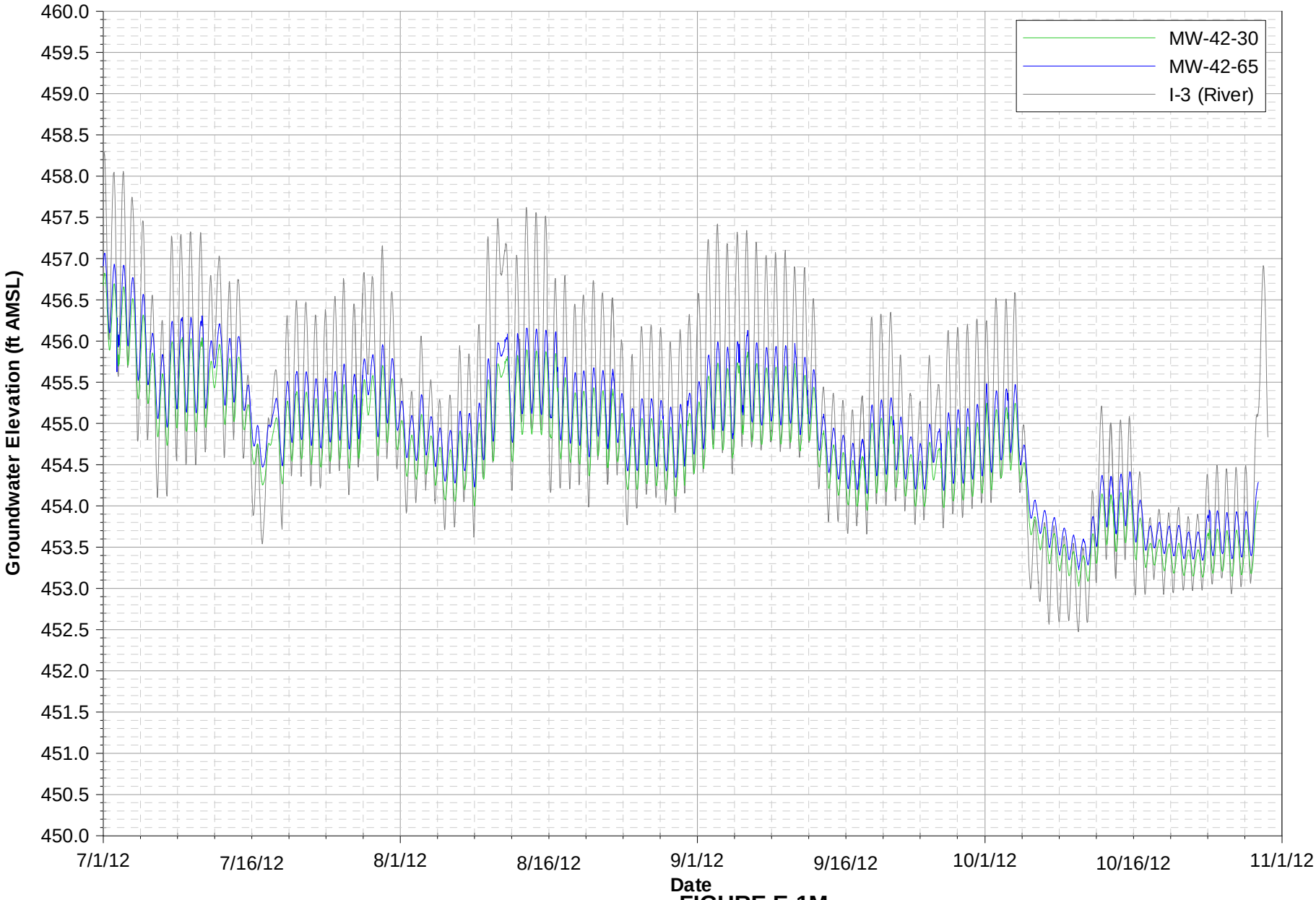
Notes:
Data subject to review.

FIGURE E-1L

MW-39 CLUSTER HYDROGRAPHS

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

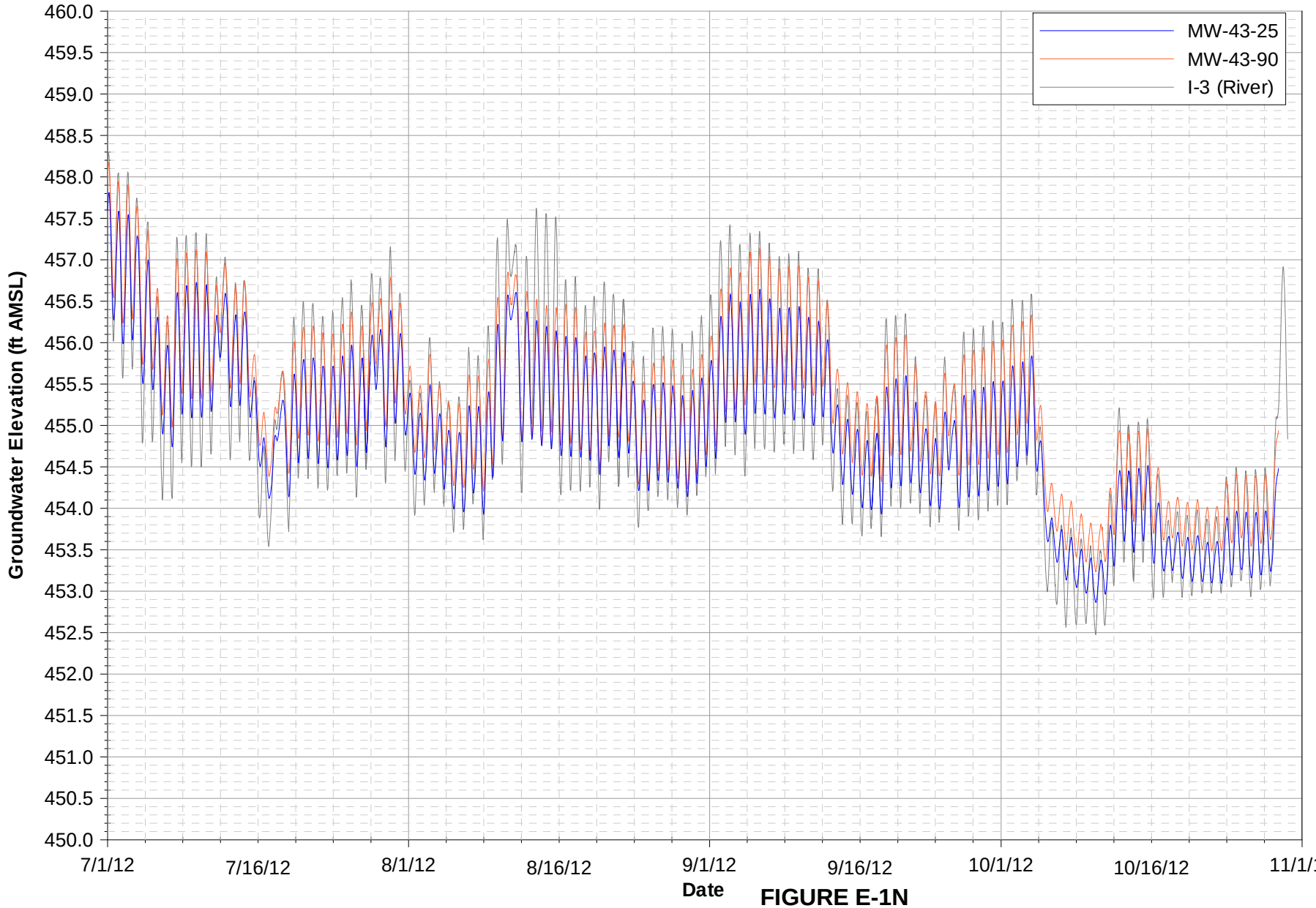
CH2MHILL



Notes:
Data subject to review.

FIGURE E-1M
MW-42 CLUSTER HYDROGRAPHS
THIRD QUARTER 2012 INTERIM MEASURES PERFORMANCE MONITORING
AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

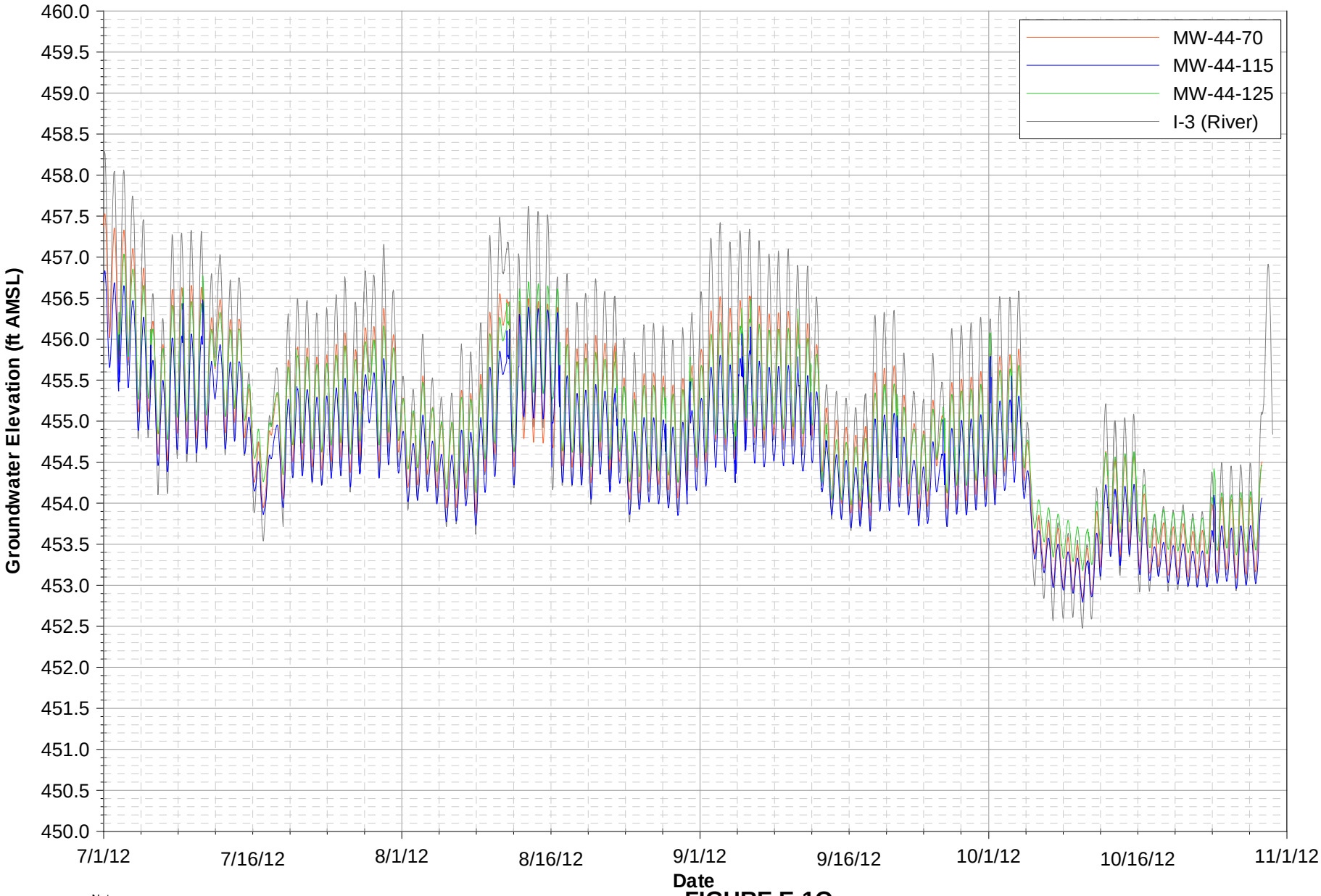
CH2MHILL



Notes:
Data subject to review.

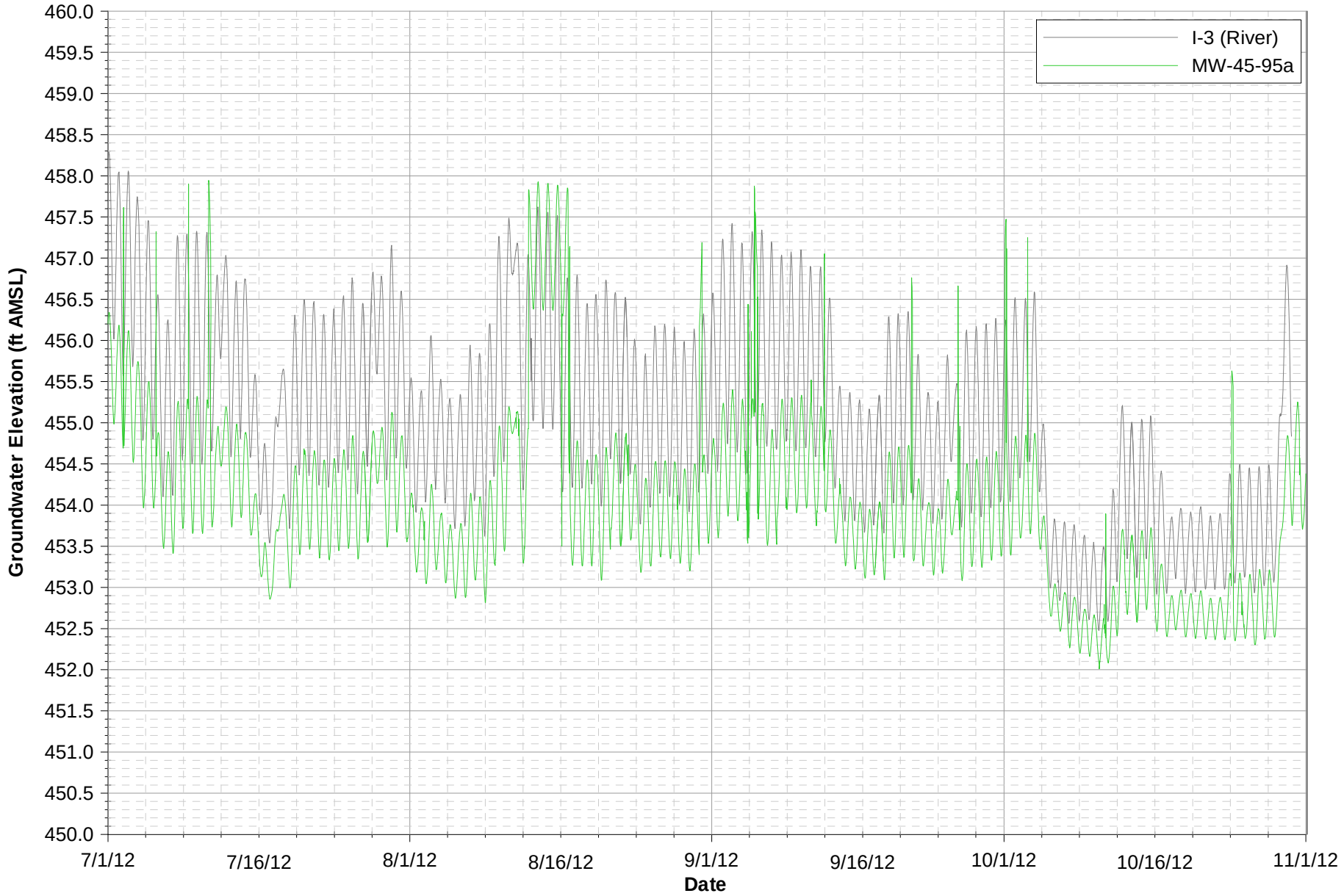
FIGURE E-1N
MW-43 CLUSTER HYDROGRAPHS
THIRD QUARTER 2012 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

CH2MHILL



Notes:
Data subject to review.
MW-44-125 data unavailable from July 1, 2012 through July 2, 2012 due to equipment malfunction.

FIGURE E-1O
MW-44 CLUSTER HYDROGRAPHS
THIRD QUARTER 2012 INTERIM MEASURES PERFORMANCE MONITORING
AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



Notes:
Data subject to review.

FIGURE E-1P
MW-45-95a HYDROGRAPH
THIRD QUARTER 2012 INTERIM MEASURES PERFORMANCE MONITORING
AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

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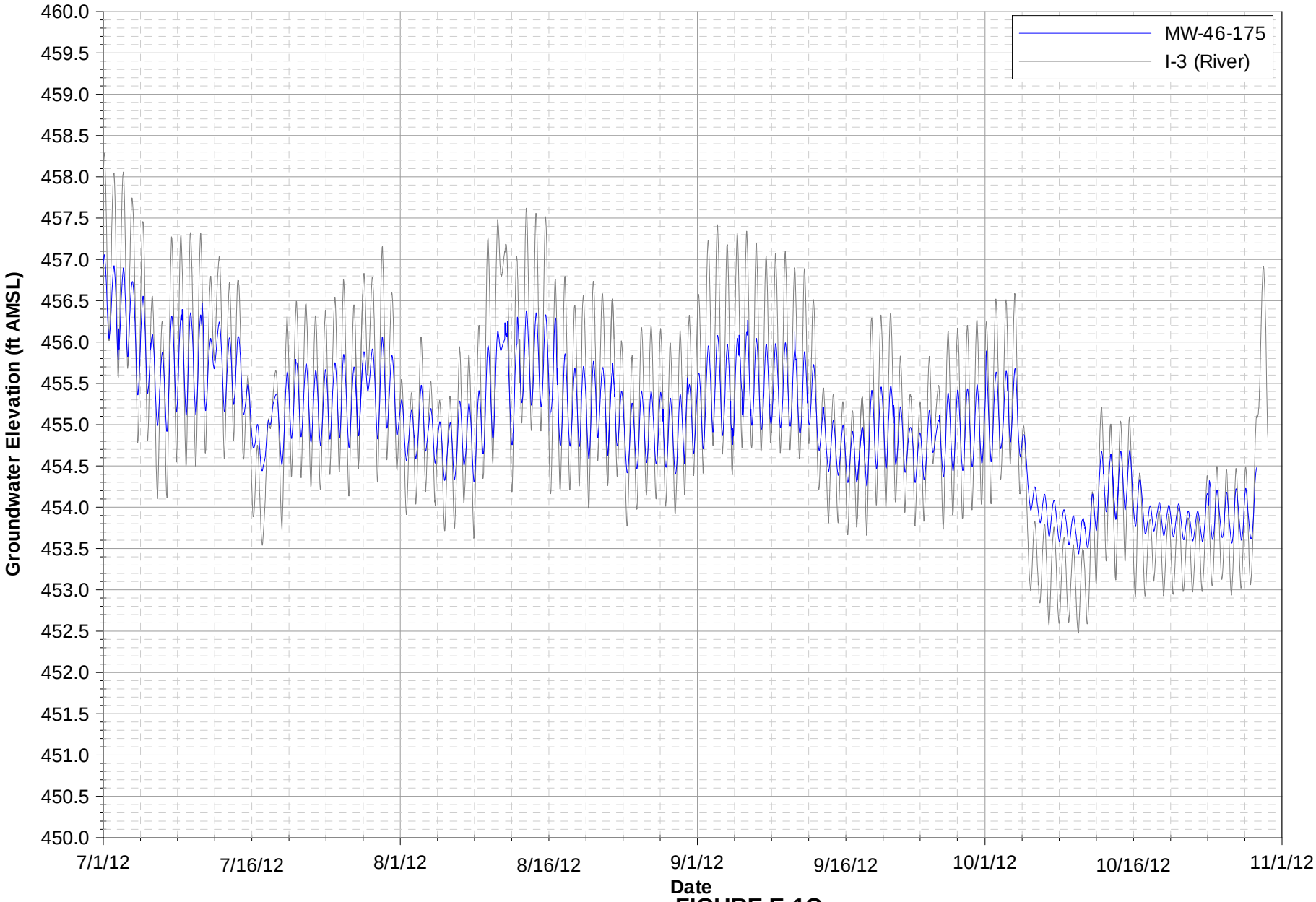
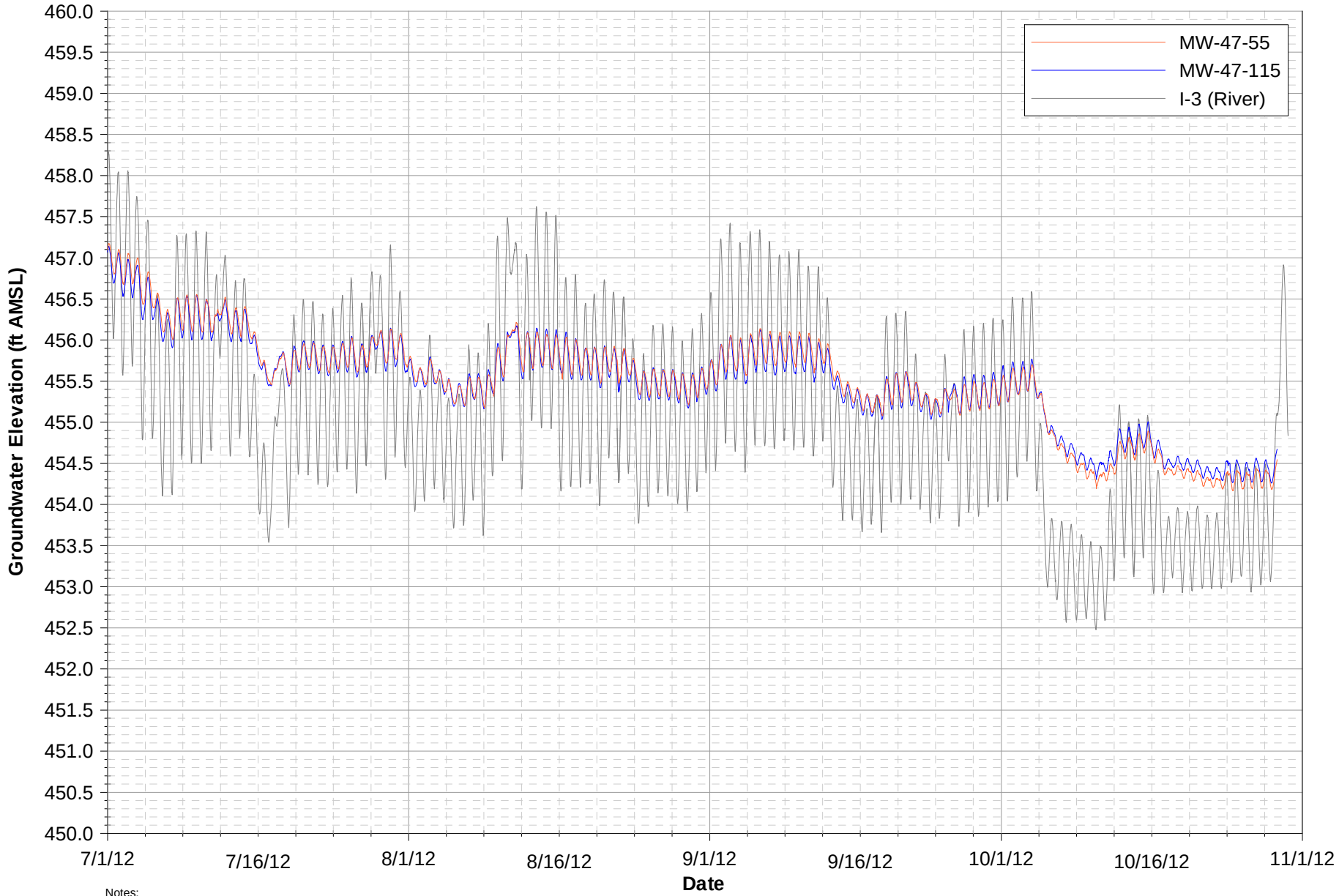


Notes:
Data subject to review.

FIGURE E-1Q
MW-46 HYDROGRAPH
THIRD QUARTER 2012 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.

FIGURE E-1R
MW-47 CLUSTER HYDROGRAPHS

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

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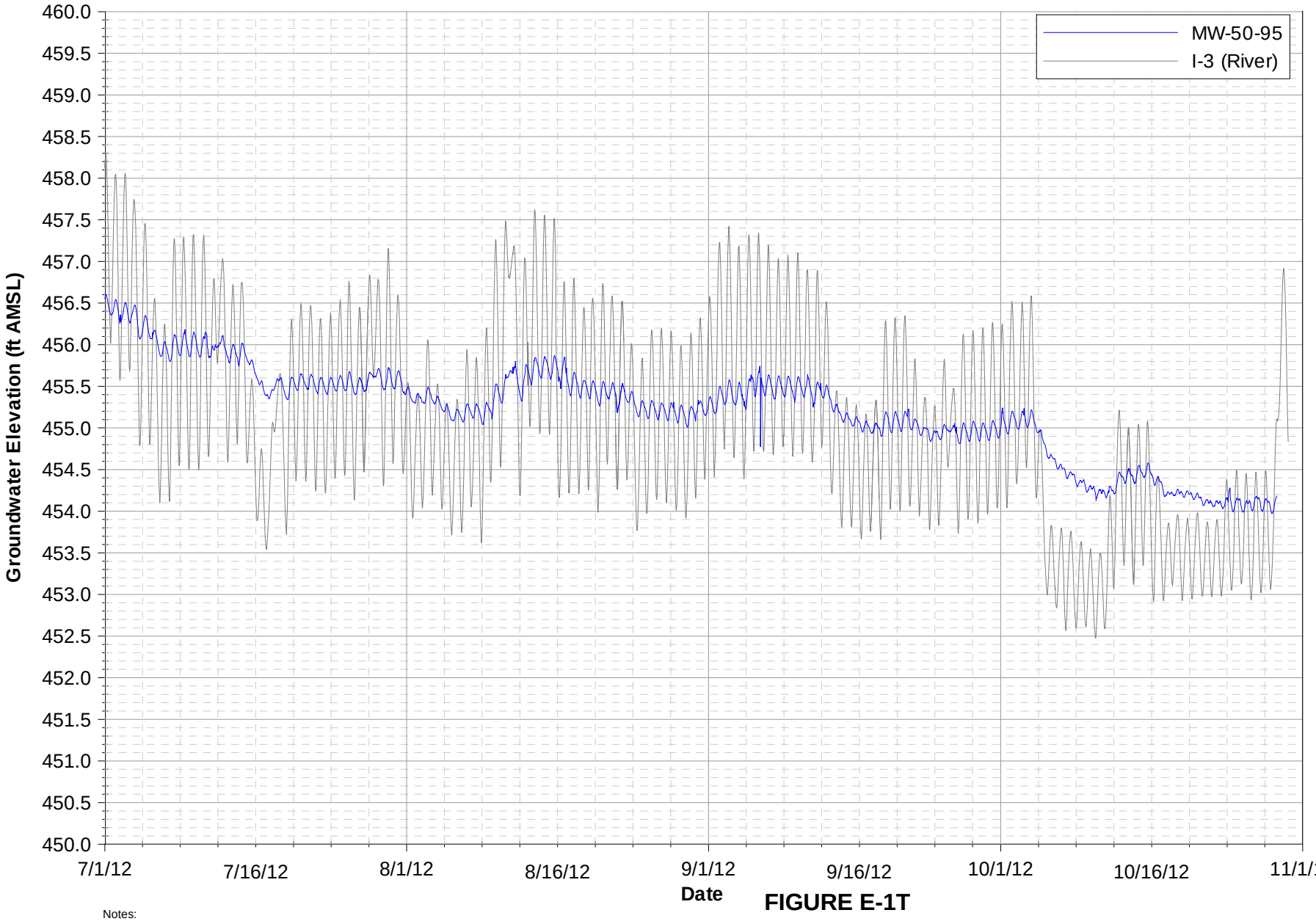
Notes:
Data subject to review.

FIGURE E-1S
MW-49 HYDROGRAPH
THIRD QUARTER 2012 INTERIM MEASURES PERFORMANCE MONITORING
AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



Notes:
Data subject to review.

FIGURE E-1T
MW-50 HYDROGRAPH
THIRD QUARTER 2012 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



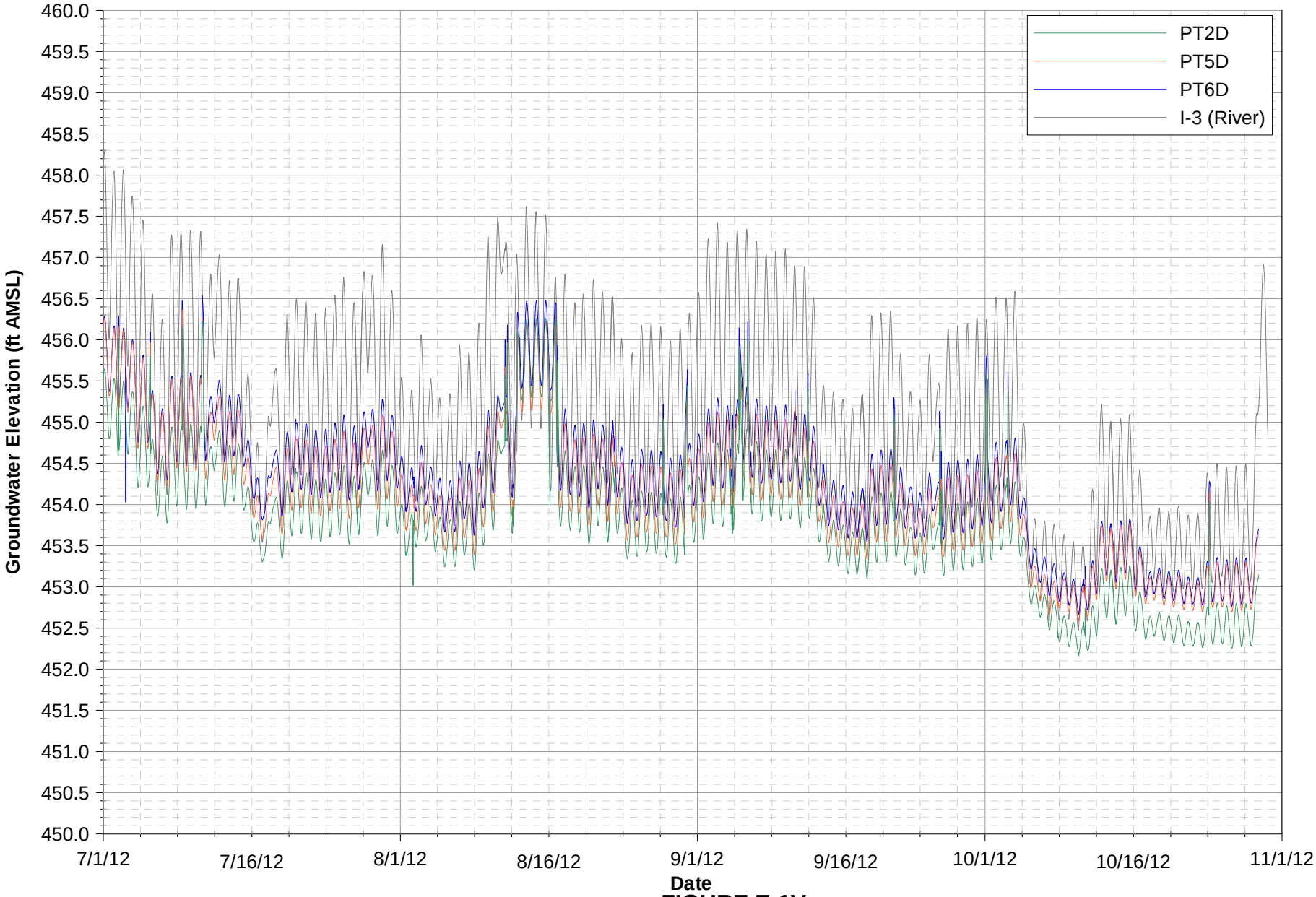
Notes:
Data subject to review.
MW-51 data unavailable from September 6, 2012 through October 9, 2012 due to equipment malfunction.

FIGURE E-1U

MW-26 & MW-51 HYDROGRAPHS

THIRD QUARTER 2012 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.

FIGURE E-1V

INSITU PILOT STUDY WELL HYDROGRAPHS

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

CH2MHILL