

July 15, 2014

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**Subject: Topock IM-3 Combined Second Quarter 2014 Monitoring, Semiannual January – June 2014
Operation and Maintenance Report
PG&E Topock Compressor Station, Needles, California
Interim Measure No. 3 Groundwater Treatment System
(Document ID: PGE20140715B)**

Dear Ms. Innis and Mr. Perdue:

Enclosed is the Second Quarter 2014 Monitoring, Semiannual January – June 2014 Operation and Maintenance Report for the Pacific Gas and Electric Company (PG&E) Topock Compressor Station, Interim Measure No. 3 (IM-3) Groundwater Treatment System.

From July 2005 through September 2011 PG&E was operating the IM-3 groundwater treatment system as authorized by the Colorado River Basin Regional Water Quality Control Board (Regional Water Board) Order No. R7-2004-0103 (issued October 13, 2004); Order No. R7-2006-0060 (issued September 20, 2006); and the revised Monitoring and Reporting Program under Order No. R7-2006-0060 (issued August 28, 2008). Order No. R7-2006-0060 expired on September 20, 2011.

PG&E is currently operating the IM-3 groundwater treatment system as authorized by the U.S. Department of the Interior (DOI) Waste Discharge Applicable or Relevant and Appropriate Requirements (ARARs) as documented in Attachment A to the Letter Agreement issued July 26, 2011 from the Regional Water Board to DOI, and the subsequent Letter of Concurrence issued August 18, 2011 from DOI to the Regional Water Board. Quarterly monitoring reports are required to be submitted by the fifteenth day of the month following the end of the quarter.

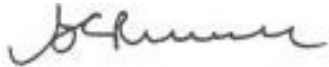
The IM-3 groundwater extraction and treatment system has extracted and treated approximately 589,076,165 gallons of water and removed approximately 6,169 pounds of total chromium from August 1, 2005 through June 30, 2014.

Pamela S. Innis
Robert Perdue
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The groundwater monitoring results for wells OW-1S/M/D, OW-2S/M/D, OW-5S/M/D, CW-1M/D, CW-2M/D, CW-3M/D, and CW-4M/D will be submitted under separate cover as part of the Compliance Monitoring Program.

If you have any questions regarding this report, please call me at (760) 326-5582.

Sincerely,



Curt Russell
Topock Site Manager

Enclosures:

Topock IM-3 Combined Second Quarter 2014 Monitoring, Semiannual January – June 2014 Operation and Maintenance Report

cc: Jose Cortez, Colorado River Basin Regional Water Board
Thomas Vandenberg, Colorado River Basin Regional Water Board
Aaron Yue, California Department of Toxic Substances Control

Topock Project Executive Abstract

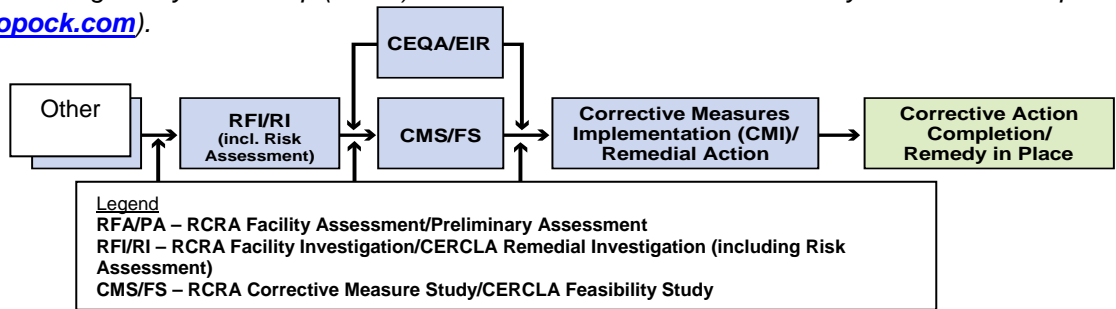
<p>Document Title: Topock IM-3 Second Quarter 2014 Monitoring, Semiannual January - June 2014 Operation and Maintenance Report Submitting Agency/ Authored by: U.S. Department of the Interior and Regional Water Quality Control Board Final Document? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>Date of Document: July 15, 2014 Who Created this Document?: (i.e. PG&E, DTSC, DOI, Other) PG&E Document ID Number: PGE20140715B</p>
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<p>Type of Document: <input type="checkbox"/> Draft <input checked="" type="checkbox"/> Report <input type="checkbox"/> Letter <input type="checkbox"/> Memo <input type="checkbox"/> Other / Explain:</p>	<p>What does this information pertain to? <input type="checkbox"/> Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA)/Preliminary Assessment (PA) <input type="checkbox"/> RCRA Facility Investigation (RFI)/Remedial Investigation (RI) (including Risk Assessment) <input type="checkbox"/> Corrective Measures Study (CMS)/Feasibility Study (FS) <input type="checkbox"/> Corrective Measures Implementation (CMI)/Remedial Action <input type="checkbox"/> California Environmental Quality Act (CEQA)/Environmental Impact Report (EIR) <input checked="" type="checkbox"/> Interim Measures <input type="checkbox"/> Other / Explain:</p>
<p>What is the consequence of NOT doing this item? What is the consequence of DOING this item? Submittal of this report is a compliance requirement of the ARARs for waste discharge as documented in Attachment A to the Letter Agreement issued July 26, 2011.</p>	<p>Is this a Regulatory Requirement? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If no, why is the document needed? Other Justification/s: <input type="checkbox"/> Permit <input type="checkbox"/> Other / Explain:</p>
<p>Brief Summary of attached document: This report covers the Interim Measures No. 3 (IM-3) groundwater treatment system monitoring activities during the Second Quarter 2014 period, and the operation and maintenance activities during the January 1, 2014 to June 30, 2014 semiannual period. The groundwater monitoring results for wells OW-1S/M/D, OW-2S/M/D, OW-5S/M/D, CW-1M/D, CW-2M/D, CW-3M/D, and CW-4M/D will be submitted under separate cover as part of the Compliance Monitoring Program. This report also covers the IM-3 operation and maintenance activities during the January – June 2013 semiannual period. Written by: PG&E</p>	
<p>Recommendations: This report is for your information only.</p>	
<p>How is this information related to the Final Remedy or Regulatory Requirements? The Topock IM-3 Second Quarter 2014 Monitoring, Semiannual January - June 2014 Operation and Maintenance Report is related to the Interim Measure. PG&E is currently operating the IM-3 groundwater treatment system as authorized by the U.S. Department of the Interior (DOI) Waste Discharge Applicable or Relevant and Appropriate Requirements (ARARs) as documented in Attachment A to the Letter Agreement issued July 26, 2011 from the Colorado River Basin Regional Water Quality Control Board (Regional Water Board) to DOI, and the subsequent Letter of Concurrence issued August 18, 2011 from DOI to the Regional Water Board.</p>	

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).



Version 9

**Combined Second Quarter 2014 Monitoring,
Semiannual January – June 2014 Operation
and Maintenance Report
Interim Measure No. 3 Groundwater
Treatment System**

Document ID: PGE20140715B

**PG&E Topock Compressor Station
Needles, California**

Prepared for

**Colorado River Basin Regional Water Quality Control Board
and
United States Department of the Interior**

on behalf of

Pacific Gas and Electric Company

July 15, 2014

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

**Combined Second Quarter 2014 Monitoring, Semiannual January - June 2014
Operation and Maintenance Report
for Interim Measure No. 3 Groundwater Treatment System**

**PG&E Topock Compressor Station
Needles, California**

Prepared for

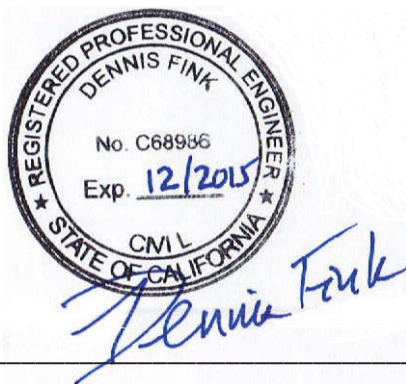
United States Department of the Interior
and
Colorado River Basin Regional Water Quality Control Board

on behalf of

Pacific Gas and Electric Company

July 15, 2014

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



Dennis Fink, P.E.
Project Engineer

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- B Daily Volumes of Groundwater Treated
- C Flowmeter Calibration Records
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Acronyms and Abbreviations

ARARs	Applicable or Relevant and Appropriate Requirements
DOI	United States Department of the Interior
gpm	gallons per minute
IM	Interim Measure
IM-3	Interim Measure No. 3
IW	injection well
MRP	Monitoring and Reporting Program
PG&E	Pacific Gas and Electric Company
RCRA	Resource Conservations and Recovery Act
Regional Water Board	Colorado River Basin Regional Water Quality Control Board
RO	reverse osmosis
Truesdail	Truesdail Laboratories, Inc.
WDR	Waste Discharge Requirements

SECTION 1

Introduction

Pacific Gas and Electric Company (PG&E) is implementing an Interim Measure (IM) to address chromium concentrations in groundwater at the Topock Compressor Station near Needles, California. The IM consists of groundwater extraction for hydraulic control of the plume boundaries in the Colorado River floodplain, treatment of extracted groundwater, and treated groundwater injection into injection wells located on San Bernardino County Assessor's Parcel No. 650-151-06. The groundwater extraction, treatment, and injection systems collectively are referred to as Interim Measure No. 3 (IM-3). Figure 1 provides a map of the project area. All figures are located at the end of this report.

From July 2005 through September 2011 PG&E was operating the IM-3 groundwater treatment system as authorized by the Colorado River Basin Regional Water Quality Control Board (Regional Water Board) Order No. R7-2004-0103 (issued October 13, 2004), Order No. R7-2006-0060 (issued September 20, 2006), and the revised Monitoring and Reporting Program (MRP) under Order No. R7-2006-0060 (issued August 28, 2008). Order No. R7-2006-0060 expired September 20, 2011.

PG&E is currently operating the IM-3 groundwater treatment system as authorized by the U.S. Department of the Interior (DOI) Waste Discharge Applicable or Relevant and Appropriate Requirements (ARARs) as documented in Attachment A to the Letter Agreement issued July 26, 2011 from the Regional Water Board to DOI, and the subsequent Letter of Concurrence issued August 18, 2011 from DOI to the Regional Water Board. Quarterly monitoring reports are required to be submitted by the fifteenth day of the month following the end of the quarter.

This report covers monitoring activities related to operation of the IM-3 groundwater treatment system during the Second Quarter 2014 and the operation and maintenance activities during the January 1, 2014 to June 30, 2014 semi-annual period. The groundwater monitoring results for wells OW-1S/M/D, OW-2S/M/D, OW-5S/M/D, CW-1M/D, CW-2M/D, CW-3M/D, and CW-4M/D will be submitted under separate cover, as part of the Compliance Monitoring Program.

SECTION 2

Sampling Station Locations

Table 1 lists the locations of sampling stations. (All tables are located at the end of this report.) Sampling station locations are shown on the process and instrumentation diagrams (Figures TP-PR-10-10-04, PR-10-03, PR-10-04, and TP-PR-10-10-06) provided at the end of this report.

Description of Activities

The treatment system was initially operated between July 25 and July 28, 2005 for the Waste Discharge Requirement (WDR)-mandated startup phase. Discharge to the injection wells was initiated July 31, 2005 after successfully completing the startup phase in accordance with Order No. R7-2004-0103. Full-time operation of the treatment system commenced in August 2005.

This report describes Second Quarter 2014 monitoring activities and the January 1, 2014 through June 30, 2014 (First and Second Quarters) operation and maintenance activities related to the IM-3 groundwater treatment system. IM-3 monitoring activities from January 1, 2014 through March 31, 2014 (First Quarter) were presented in the First Quarter 2014 Monitoring Report for IM-3 submitted to the DOI and Regional Water Board April 15, 2014.

This report, therefore, serves as the Semiannual January – June 2014 Operation and Maintenance Report for IM-3.

3.1 Groundwater Treatment System

The treatment system was initially operated between July 25 and July 28, 2005 for the WDR-mandated startup phase. Discharge to the injection wells was initiated July 31, 2005 after successfully completing the startup phase in accordance with Order R7-2004-0103. Full-time operation of the treatment system commenced in August 2005.

Influent to the treatment facility, as listed in Attachment A, Waste Discharge ARARs, to the Letter Agreement issued July 26, 2011, includes the following:

- Groundwater from extraction wells TW-2S, TW-2D, TW-3D, and PE-1
- Purged groundwater and water generated from rinsing field equipment during monitoring events
- Groundwater generated during well installation, well development, and aquifer testing

Operation of the groundwater treatment system results in the following three effluent streams:

- **Treated Effluent:** Treated water that is discharged to the injection well(s)
- **Reverse Osmosis (RO) Concentrate (brine):** Treatment byproduct that is transported and disposed of offsite at a permitted facility
- **Sludge:** Treatment byproduct that is transported offsite for disposal at a permitted facility, which occurs either when a sludge waste storage bin reaches capacity, or within 90 days of the start date for accumulation in the storage container, whichever occurs first

3.2 Groundwater Treatment System Flow Rates for Second Quarter 2014

Downtime is defined as any periods when all extraction wells are not operating so that no groundwater is being extracted and piped into IM-3 as influent. Periods of planned and unplanned extraction system downtime are summarized in the Semiannual Operations and Maintenance Log provided in Appendix A. The times shown are in Pacific Standard Time to be consistent with other data collected (e.g., water level data) at the site. Periods of planned and unplanned extraction system downtime during the months January 2014 through March 2014 were originally reported in the First Quarter 2014 Monitoring Report for IM-3 submitted to the DOI and Regional Water Board on April 15, 2014, and are also included in Appendix A of this report.

Data regarding daily volumes of groundwater treated and discharged are provided in Appendix B. The IM-3 groundwater treatment system flowmeter calibration records are included in Appendix C.

3.2.1 Treatment System Influent

During the Second Quarter 2014, extraction wells TW-3D and PE-1 operated with a target pumping rate of 135 gallons per minute (gpm), excluding periods of planned and unplanned downtime. Extraction well TW-2D was only operated for a short time on April 4 and 5, 2014 for groundwater sampling, and on June 24, 25, 26 and 27 due to the TW-3D pump overheating. Extraction well TW-2S was not operated during Second Quarter 2014. The operational run time for the IM groundwater extraction system (combined or individual pumping), by month, was approximately:

- 87.7 percent during April 2014
- 97.8 percent during May 2014
- 92.3 percent during June 2014

The Second Quarter 2014 treatment system monthly average flow rates (influent, effluent, and RO concentrate) are presented in Table 2. The system influent flow rate was measured by flowmeters at groundwater extraction wells TW-2S, TW-2D, TW-3D, and PE-1 (Figure TP-PR-10-10-03).

The IM-3 facility treated approximately 16,301,483 gallons of extracted groundwater during Second Quarter 2014.

In addition to extracted groundwater, during Second Quarter 2014 the IM-3 facility treated 5,210 gallons of water generated from the groundwater monitoring program and 29,700 gallons of injection well development water.

3.2.2 Effluent Streams

The treatment system effluent flow rate was measured by flowmeters in the piping leading to injection wells IW-2 and IW-3 (Figure TP-PR-10-10-11) and in the piping running from the treated water tank T-700 to the injection wells (Figure TP-PR-10-10-04). The IM-3 facility injected 16,258,512 gallons of treatment system effluent during Second Quarter 2014. The monthly average flow rate to injection wells is shown in Table 2.

The RO concentrate flow rate was measured by a flowmeter at the piping carrying water from RO concentrate tank T-701 to the truck load-out station (Figure PR-10-04). The IM-3 facility generated 105,180 gallons of RO concentrate during Second Quarter 2014. The monthly average RO concentrate flow rate is shown in Table 2.

The sludge flow rate is measured by the size and weight of containers shipped offsite. Six sludge containers were shipped offsite from the IM-3 facility during Second Quarter 2014. The shipment dates and approximate weights are provided in Section 5.3.

3.3 Sampling and Analytical Procedures

With the exception of pH, all samples were collected at the designated sampling locations and placed directly into containers provided by Truesdail Laboratories, Inc. (Truesdail). Sample containers were labeled and packaged according to standard sampling procedures.

The samples were stored in a sealed container chilled with ice and transported to Truesdail via courier under chain-of-custody documentation. The laboratories confirmed the samples were received in chilled condition upon arrival.

Truesdail is certified by the California Department of Health Services (Certification No. 1237) under the State of California's Environmental Laboratory Accreditation Program. California-certified laboratory analyses were performed in accordance with the latest edition of the *Guidelines Establishing Test Procedures for Analysis of Pollutants* (40 Code of Federal Regulations Part 136), promulgated by the U.S. Environmental Protection Agency.

Analysis of pH was conducted by field method pursuant to the Regional Water Board letter dated October 16, 2007 (subject: Clarification of Monitoring and Reporting Program Requirements) authorizing pH measurements to be conducted in the field. The field method pH samples were collected at the designated sampling locations and field tested within 15 minutes of sampling.

As required by the MRP, the analytical method selected for total chromium has a method detection limit of 1 part per billion, and the analytical method selected for hexavalent chromium has a method detection limit of 0.2 part per billion.

Influent, effluent, RO concentrate, and sludge sampling frequency were in accordance with the MRP. The Second Quarter 2014 sample collection schedule is shown in Table 3.

Groundwater quality is being monitored in observation and compliance wells according to Attachment A, Waste Discharge ARARs, to the Letter Agreement issued July 26, 2011, and the procedures and schedules approved in the *Groundwater Compliance Monitoring Plan for Interim Measures No. 3 Injection Area* submitted to the Regional Water Board on June 17, 2005. Quarterly groundwater monitoring analytical results for the injection area (wells OW-1S/M/D, OW-2S/M/D, OW-5S/M/D, CW-1M/D, CW-2M/D, CW-3M/D, and CW-4M/D) are reported in a separate document, in conjunction with groundwater level maps of the same monitoring wells.

SECTION 4

Analytical Results

The analytical results and laboratory reports for the IM-3 groundwater treatment system monitoring program were previously reported for the First Quarter of 2014 in the First Quarter 2014 Monitoring Report submitted to the DOI and Regional Water Board on April 15, 2014.

Laboratory reports for samples collected in Second Quarter 2014 were prepared by certified analytical laboratories, and are presented in Appendix D. The Second Quarter 2014 analytical results are presented in Tables 4, 5, 6, and 7:

- Influent analytical results are presented in Table 4.
- Effluent analytical results are presented in Table 5. There were no exceedances of effluent limitations during the reporting period.
- RO concentrate analytical results are presented in Table 6.
- Sludge analytical results are presented in Table 7.

The sludge is required to have an aquatic bioassay test annually. The most recent aquatic bioassay test was conducted on a September 2013 sample, and the results were presented in the Third Quarter 2013 Monitoring Report submitted to the DOI and the Regional Water Board on October 15, 2013.

Table 8 identifies the following information for each analysis:

- Sample location
- Sample identification number
- Sampler name
- Sample date
- Sample time
- Laboratory performing analysis
- Analysis method
- Analysis date
- Laboratory technician

SECTION 5

Semiannual Operation and Maintenance

This section includes the Semiannual Operation and Maintenance Report for the IM-3 groundwater treatment system for the period January 1, 2014 through June 30, 2014.

All operation and maintenance records are maintained at the facility, including site inspection forms, process monitoring records, hazardous waste generator records (i.e., waste manifests), and self-monitoring reports. These records will be maintained onsite for a period of at least 5 years. Operational programmable logic controller data (flow rates, system alarms, process monitoring data, etc.) are maintained electronically via data historian software. Operation and maintenance records are also archived using maintenance software. The subsections below summarize the operation and maintenance activities during this semiannual reporting period.

5.1 Flowmeter Calibration Records

The IM-3 groundwater treatment system flowmeter calibration records are included in Appendix C. Flowmeter calibrations are performed in a timely manner consistent with the use, flow, material, and manufacturer recommendations. The following flowmeters are used at the facility to measure groundwater flow:

Location	Flowmeter Location ID	Current Flowmeter Serial No.	Date of Calibration	Date of Installation
Extraction well PE-1	FIT-103	6C036F16000	8/6/2010	9/18/2013
Extraction well TW-3D	FIT-102	6C037316000	1/7/2013	9/4/2013
Extraction well TW-2D	FIT-101	6A022016000	9/20/2013	11/1/2013
Extraction well TW-2S	FIT-100	6A022116000	9/20/2013	11/1/2013
Injection well IW-02	FIT-1202	6C037016000	6/19/2012	7/12/2012
Injection well IW-03	FIT-1203	6C037216000	9/20/2013	10/1/2013
Combined IW-02 and IW-03	FIT-700	7700C616000	7/25/2011	12/13/2011
Reverse osmosis concentrate	FIT-701	6A021F16000	6/19/2012	7/14/2012

5.2 Volumes of Groundwater Treated

Data regarding daily volumes of groundwater treated between January 1, 2014 through June 30, 2014 are provided in Appendix B.

Approximately 33,391,211 gallons of groundwater were extracted and treated between January 1, 2014 and June 30, 2014. Treatment of this water at the IM-3 facility is being performed in accordance with the conditions of ARARs.

Additionally, approximately 7,070 gallons of well purge water (generated during well development, monitoring well sampling, and/or aquifer testing), as well as 50,600 gallons of injection well re-development water, were treated at the IM-3 facility during the January 1, 2014 through June 30, 2014 semiannual period.

A total of approximately 33,359,064 gallons of treated groundwater were injected back into the Alluvial Aquifer between January 1, 2014 and June 30, 2014.

5.3 Residual Solids Generated (Sludge)

During the January 1, 2014 through June 30, 2014 reporting period, 16 containers of sludge were shipped offsite for disposal. The sludge was shipped to U.S. Ecology in Beatty, Nevada for disposal. A listing of each shipment during the reporting period is provided below.

Date Sludge Bin Removed from Site	Approximate Quantity from Waste Manifests (cubic yards)	Type of Shipment
1/15/2014	8	Non-RCRA hazardous waste
1/15/2014	8	Non-RCRA hazardous waste
1/30/2014	8	Non-RCRA hazardous waste
1/30/2014	8	Non-RCRA hazardous waste
2/18/2014	8	Non-RCRA hazardous waste
2/18/2014	8	Non-RCRA hazardous waste
3/18/2014	8	Non-RCRA hazardous waste
3/18/2014	8	Non-RCRA hazardous waste
3/31/2014	8	Non-RCRA hazardous waste
3/31/2014	8	Non-RCRA hazardous waste
4/23/2014	8	Non-RCRA hazardous waste
4/23/2014	8	Non-RCRA hazardous waste
5/21/2014	8	Non-RCRA hazardous waste
5/21/2014	8	Non-RCRA hazardous waste
6/1/2014	8	Non-RCRA hazardous waste
6/1/2014	8	Non-RCRA hazardous waste

Notes:

RCRA = Resource Conservation and Recovery Act

5.4 Reverse Osmosis Concentrate Generated

Data regarding daily volumes of RO concentrate generated are provided in Appendix B, as measured by flowmeter FIT-701 (Figures PR-10-03 and PR-10-04). From January 1, 2014 through June 30, 2014, approximately 219,180 gallons of RO concentrate were transported to Liquid Environmental Solutions in Phoenix, Arizona for disposal.

5.5 Summary of ARARs Compliance

No ARAR violations were identified during the January 1, 2014 through June 30, 2014 semiannual reporting period.

5.6 Operation and Maintenance – Required Shutdowns

Records of routine maintenance are kept onsite.

Appendix A contains a summary of the operation or maintenance issues that required the groundwater extraction system to be shut down during the January 1, 2014 through June 30, 2014 semiannual reporting period.

Activities during the Second Quarter 2014 included one extended shutdown. The extraction system downtime was 3 days, 12 hours, 54 minutes, and it occurred from April 1 to 4, 2014 due to scheduled semi-annual facility maintenance.

5.7 Treatment Facility Modifications

No modifications were made to the IM-3 treatment facility that resulted in a material change in the quality or quantity of wastewater treated or discharged, nor resulted in a material change in the location of discharge, during the January 1, 2014 through June 30, 2014 semiannual period.

SECTION 6

Conclusions

There were no exceedances of effluent limitations during the reporting period.

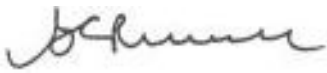
In addition, no incidents of non-compliance were identified during the reporting period. No events that caused an immediate or potential threat to human health or the environment, and no new releases of hazardous waste or hazardous waste constituents, or new solid waste management units, were identified during the reporting period.

SECTION 7

Certification

Certification Statement:

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

Signature:  _____

Name: Curt Russell

Company: Pacific Gas and Electric Company

Title: Topock Site Manager

Date: July 15, 2014

Tables

TABLE 1

Sampling Station Descriptions*Second Quarter 2014 Monitoring Report for Interim Measure No. 3 Groundwater Treatment System*

Sample Station	Sample ID^a	Location
Sampling Station A: Groundwater Treatment System Influent	SC-100B-WDR-###	Sample collected from tap on pipe into T-100 (see Figure TP-RP-10-10-04).
Sampling Station B: Groundwater Treatment System Effluent	SC-700B-WDR-###	Sample collected from tap on pipe downstream from T-700 (see Figure TP-RP-10-10-04).
Sampling Station D: Groundwater Treatment System Reverse Osmosis Concentrate	SC-701-WDR-###	Sample collected from tap on pipe into T-701 (see Figure PR-10-03 and PR-10-04).
Sampling Station E: Groundwater Treatment System Sludge	SC-SLUDGE-WDR-###	Sample collected from sludge accumulated in the phase separator used this quarter (see Figure TP-RP-10-10-06).

Note:

= Sequential sample identification number at each sample station

^a The sample event number is included at the end of the sample ID (e.g., SC-100B-WDR-015).

TABLE 2

Flow Monitoring Results*Second Quarter 2014 Monitoring Report for Interim Measure No. 3 Groundwater Treatment System*

Parameter	System Influent ^{a,b} (gpm)	System Effluent ^b (gpm)	Reverse Osmosis Concentrate ^b (gpm)
April 2014 Average Monthly Flowrate	117.9	115.7	1.2
May 2014 Average Monthly Flowrate	134.6	133.9	0.9
June 2014 Average Monthly Flowrate	120.4	122.3	0.3

Notes:

gpm: gallons per minute

^a Extraction wells TW-3D and PE-1 were operated during the Second Quarter 2014. Extraction wells TW-2D operated on April 4 and 5, 2014 and June 24, 25, 26 and 27, 2014. TW-2S did not operate during Second Quarter 2014.

^b The difference between influent flow rate and the sum of the effluent and reverse osmosis concentrate flow rates during the Second Quarter 2014 is approximately 0.38 percent.

TABLE 3
Sample Collection Dates
Second Quarter 2014 Monitoring Report for Interim Measure No. 3 Groundwater Treatment System

Parameter	Sample Collection Dates	Results
Influent	April 8, 2014	See Table 4
	May 6, 2014	
	June 3, 2014	
Effluent	April 5, 2014	See Table 5
	April 8, 2014	
	April 15, 2014	
	April 22, 2014	
	April 29, 2014	
	May 6, 2014	
	May 13, 2014	
	May 20, 2014	
	May 27, 2014	
	June 3, 2014	
	June 10, 2014	
	June 17, 2014	
	June 24, 2014	
Reverse Osmosis Concentrate	April 8, 2014	See Table 6
Sludge ^a	First Quarter Composite sent to lab April 8, 2014	See Table 7

Notes:

^a Sludge samples analysis is required quarterly by composite.

TABLE 4

Topock IM-3 Waste Discharge Applicable or Relevant and Appropriate Requirements (ARARs)
 Influent Monitoring Results ^a
 Second Quarter 2014 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

Sampling Frequency		Monthly																						
Sample ID	Date	TDS	Turbidity	Specific Conductance	Field ^c pH	Chromium	Hexavalent Chromium	Aluminium	Ammonia (as N)	Antimony	Arsenic	Barium	Boron	Copper	Fluoride	Lead	Manganese	Molybdenum	Nickel	Nitrate (as N)	Nitrite (as N)	Sulfate	Iron	Zinc
		mg/L	NTU	µmhos/cm	pH units	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	mg/L	µg/L
Analytes Units ^b	MDL	1.76	0.0140	0.606	---	0.710	0.150	7.20	0.0318	0.0350	0.0500	0.300	0.0041	0.190	0.104	0.140	0.0600	0.0500	0.240	0.0415	0.00063	1.54	3.00	5.10
SC-100B-WDR-462	4/8/2014	4620	ND (0.100)	6910	7.5	643	610	ND (50.0)	ND (0.500)	ND (2.00)	3.40	27.6	0.974	ND (1.00)	2.30	ND (1.00)	6.60	18.7	ND (2.00)	2.53	ND (0.0050)	523	ND (20.0)	ND (20.0)
RL		125	0.100	2.00	---	5.00	5.00	50.0	0.500	2.00	0.500	5.00	0.0500	1.00	0.500	1.00	0.500	2.00	2.00	0.500	0.0050	50.0	20.0	20.0
SC-100B-WDR-466	5/6/2014	4420	0.184	7470	7.1	624	575	ND (50.0)	ND (0.500)	ND (2.00)	3.60	26.2	0.979	ND (1.00)	2.34	ND (1.00)	7.80	21.3	ND (2.00)	2.64	ND (0.0050)	512	ND (20.0)	ND (20.0)
RL		250	0.100	2.00	---	1.00	5.00	50.0	0.500	2.00	0.500	5.00	0.0500	1.00	0.500	1.00	0.500	2.00	2.00	0.500	0.0050	25.0	20.0	20.0
SC-100B-WDR-470	6/3/2014	4250	0.177	7380	7.1	575	516	ND (50.0)	ND (0.500)	ND (2.00)	3.90	24.4	1.01	ND (1.00)	2.41	ND (1.00)	6.90	19.8	ND (2.00)	2.60	ND (0.0050)	513	ND (20.0)	ND (20.0)
RL		250	0.100	2.00	---	2.00	5.00	50.0	0.500	2.00	0.500	5.00	0.0500	1.00	0.500	1.00	0.500	2.00	2.00	0.500	0.0050	25.0	20.0	20.0

NOTES:

- (---) = not required by the ARARs Monitoring and Reporting Program
- J = concentration or reporting limits estimated by laboratory or validation
- MDL = method detection limit
- mg/L = milligrams per liter
- N = nitrogen
- ND = parameter not detected at the listed value
- NTU = nephelometric turbidity units
- RL = project reporting limit
- µg/L = micrograms per liter
- µmhos/cm = micromhos per centimeter

^a Sampling Location for all influent samples is tap on pipe from extraction wells into tank T-100 (see attached P&ID TP-PR-10-10-04).

^b Units reported in this table are those units required in the ARARs.

^c Starting 11/20/2007, analysis of pH was switched from California certified laboratory analysis to field method pursuant to the Water Board letter dated October 16, 2007 – Clarification of Monitoring and Reporting Program Requirements, stating that pH measurements may be conducted in the field.

TABLE 5
 Topock IM-3 Waste Discharge Applicable or Relevant and Appropriate Requirements (ARARs)
 Effluent Monitoring Results^a
 Second Quarter 2014 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

Effluent Limits ^b	Ave. Monthly	NA	NA	NA	6.5-8.4	25	8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Max Daily	NA	NA	NA	6.5-8.4	50	16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sampling Frequency		Weekly						Monthly																
Analytes Units ^c	MDL ^d	TDS	Turbidity	Specific Conductance	Field pH ^e	Chromium	Hexavalent Chromium	Aluminium	Ammonia (as N)	Antimony	Arsenic	Barium	Boron	Copper	Fluoride	Lead	Manganese	Molybdenum	Nickel	Nitrate (as N)	Nitrite (as N)	Sulfate	Iron	Zinc
		mg/L	NTU	µmhos/cm	pH units	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	mg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	mg/L	µg/L	µg/L
Sample ID	Date	1.76	0.0140	0.100	---	0.0300	0.0060	7.20	0.0318	0.0350	0.0500	0.300	0.0041	0.190	0.104	0.140	0.0260	0.0500	0.240	0.0415	0.00063	1.54	3.00	5.10
SC-700B-WDR-461	4/5/2014	3800	ND (0.100)	6600	6.90	ND (1.00)	0.450	---	---	---	---	---	---	---	---	ND (0.500)	---	---	---	---	---	---	---	---
RL		50.0	0.100	0.100	---	1.00	0.200	---	---	---	---	---	---	---	---	0.500	---	---	---	---	---	---	---	---
SC-700B-WDR-462	4/8/2014	4440	ND (0.100)	6850	6.90	ND (1.00)	ND (0.200)	ND (50.0)	ND (0.500)	ND (2.00)	ND (0.500)	12.0	0.936	ND (1.00)	1.98	ND (1.00)	4.30	18.7	ND (2.00)	2.38	ND (0.0050)	478	ND (20.0)	ND (20.0)
RL		125	0.100	2.00	---	1.00	0.200	50.0	0.500	2.00	0.500	5.00	0.0500	1.00	0.500	1.00	0.500	2.00	2.00	0.500	0.0050	25.0	20.0	20.0
SC-700B-WDR-463	4/15/2014	4390	ND (0.100)	6590	6.80	ND (1.00)	ND (0.200)	---	---	---	---	---	---	---	---	---	2.70	---	---	---	---	---	---	---
RL		250	0.100	2.00	---	1.00	0.200	---	---	---	---	---	---	---	---	0.500	---	---	---	---	---	---	---	---
SC-700B-WDR-464	4/22/2014	3940	0.283	6150	6.90	ND (1.00)	ND (0.200)	---	---	---	---	---	---	---	---	---	0.900	---	---	---	---	---	---	---
RL		125	0.100	2.00	---	1.00	0.200	---	---	---	---	---	---	---	---	0.500	---	---	---	---	---	---	---	---
SC-700B-WDR-465	4/29/2014	3800	0.136	6370	7.00	ND (1.00)	ND (0.200)	---	---	---	---	---	---	---	---	---	1.00	---	---	---	---	---	---	---
RL		125	0.100	2.00	---	1.00	0.200	---	---	---	---	---	---	---	---	0.500	---	---	---	---	---	---	---	---
SC-700B-WDR-466	5/6/2014	4410	ND (0.100)	7310	7.10	ND (1.00)	ND (0.200)	ND (50.0)	ND (0.500)	ND (2.00)	ND (0.500)	10.2	0.945	ND (1.00)	2.00	ND (1.00)	1.00	21.0	2.30	2.60	ND (0.0050)	500	ND (20.0)	ND (20.0)
RL		250	0.100	2.00	---	1.00	0.200	50.0	0.500	2.00	0.500	5.00	0.0500	1.00	0.500	1.00	0.500	2.00	2.00	0.500	0.0050	25.0	20.0	20.0
SC-700B-WDR-467	5/13/2014	4120	ND (0.100)	7170	7.00	ND (1.00)	ND (0.200)	---	---	---	---	---	---	---	---	---	4.20	---	---	---	---	---	---	---
RL		250	0.100	2.00	---	1.00	0.200	---	---	---	---	---	---	---	---	0.500	---	---	---	---	---	---	---	---
SC-700B-WDR-468	5/20/2014	4210	0.125	7640	7.10	ND (1.00)	0.350	---	---	---	---	---	---	---	---	---	4.10	---	---	---	---	---	---	---
RL		250	0.100	2.00	---	1.00	0.200	---	---	---	---	---	---	---	---	0.500	---	---	---	---	---	---	---	---
SC-700B-WDR-469	5/27/2014	4340	ND (0.100)	7170	7.10	ND (1.00)	0.210	---	---	---	---	---	---	---	---	---	1.50	---	---	---	---	---	---	---
RL		250	0.100	2.00	---	1.00	0.200	---	---	---	---	---	---	---	---	0.500	---	---	---	---	---	---	---	---
SC-700B-WDR-470	6/3/2014	4360	ND (0.100)	7490	6.80	ND (1.00)	ND (0.200)	ND (50.0)	ND (0.500)	ND (2.00)	ND (0.500)	10.0	0.970	ND (1.00)	2.13	ND (1.00)	3.00	19.9	2.10	2.68	ND (0.0050)	506	ND (20.0)	ND (20.0)
RL		250	0.100	2.00	---	1.00	0.200	50.0	0.500	2.00	0.500	5.00	0.0500	1.00	0.500	1.00	0.500	2.00	2.00	0.500	0.0050	25.0	20.0	20.0
SC-700B-WDR-471	6/10/2014	4230	ND (0.100)	7360	7.10	ND (1.00)	ND (0.200)	---	---	---	---	---	---	---	---	---	1.10	---	---	---	---	---	---	---
RL		250	0.100	2.00	---	1.00	0.200	---	---	---	---	---	---	---	---	0.500	---	---	---	---	---	---	---	---
SC-700B-WDR-472	6/17/2014	4380	ND (0.100)	7330	6.90	ND (1.00)	ND (0.200)	---	---	---	---	---	---	---	---	---	3.20	---	---	---	---	---	---	---
RL		250	0.100	2.00	---	1.00	0.200	---	---	---	---	---	---	---	---	0.500	---	---	---	---	---	---	---	---
SC-700B-WDR-473	6/24/2014	4510	0.150	7800	6.80	3.40	1.50	---	---	---	---	---	---	---	---	---	31.4	---	---	---	---	---	---	---
RL		250	0.100	2.00	---	1.00	1.00	---	---	---	---	---	---	---	---	0.500	---	---	---	---	---	---	---	---

TABLE 5

Topock IM-3 Waste Discharge Applicable or Relevant and Appropriate Requirements (ARARs)
Effluent Monitoring Results^a

Second Quarter 2014 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

NOTES:

(---) = not required by the ARARs Monitoring and Reporting Program
J = concentration or reporting limits estimated by laboratory or validation
MDL = method detection limit
mg/L = milligrams per liter
N = nitrogen
NA = not applicable
ND = parameter not detected at the listed value
NTU = nephelometric turbidity units
RL = project reporting limit
µg/L = micrograms per liter
µmhos/cm = micromhos per centimeter

- ^a Sampling location for all effluent samples is tap on pipe downstream from tank T-700 to injection wells (see attached P&ID TP-PR-10-10-04).
- ^b In addition to the listed effluent limits, the ARARs state that the effluent shall not contain heavy metals, chemicals, pesticides or other constituents in concentrations toxic to human health.
- ^c Units reported in this table are those units required in the ARARs.
- ^d MDL listed is the target MDL by analysis method; however, the MDL may change for each sample analysis due to the dilution required by the matrix to meet the method QC requirements. The target MDL for each method/analyte combination is calculated annually.
- ^e Starting 11/20/2007, analysis of pH was switched from California certified laboratory analysis to field method pursuant to the Water Board letter dated October 16, 2007 – Clarification of Monitoring and Reporting Program Requirements, stating that pH measurements may be conducted in the field.

TABLE 6

Topock IM-3 Waste Discharge Applicable or Relevant and Appropriate Requirements (ARARs)
 Reverse Osmosis Concentrate Monitoring Results ^a
 Second Quarter 2014 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

Sampling Frequency		Quarterly																					
Sample ID	Date	TDS	Specific Conductance	Field ^c pH	Chromium	Hexavalent Chromium	Antimony	Arsenic	Barium	Beryllium	Cadmium	Cobalt	Copper	Fluoride	Lead	Molybdenum	Mercury	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
		mg/L	µmhos/cm	pH units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
		1.76	0.606	---	0.00014	0.000060	0.000076	0.00010	0.00059	0.00072	0.00080	0.00080	0.00038	0.104	0.00029	0.0010	0.000080	0.00048	0.00042	0.00058	0.000060	0.00014	0.0051
SC-701-WDR-462	4/8/2014	27500	35900	7.7	0.00160	ND (0.0020)	ND (0.0020)	0.000810	0.0805	ND (0.0040)	ND (0.0040)	ND (0.0050)	0.00480	12.6	ND (0.0010)	0.118	ND (0.00040)	0.00940	0.0246	ND (0.0100)	ND (0.0010)	ND (0.0050)	ND (0.0200)
RL		833	2.00	---	0.0010	0.0020	0.0020	0.00050	0.0050	0.0040	0.0040	0.0050	0.0020	0.500	0.0010	0.0040	0.00040	0.0020	0.0100	0.0100	0.0010	0.0050	0.0200

NOTES:
 (---) = not required by the ARARs Monitoring and Reporting Program
 MDL = method detection limit
 mg/L = milligrams per liter
 ND = parameter not detected at the listed value
 RL = project reporting limit
 µg/L = micrograms per liter
 µmhos/cm = micromhos per centimeter

^a Sampling location for all reverse osmosis samples is tap on pipe T-701 (see attached P&ID PR-10-04).

^b Units reported in this table are those units required in the ARARs.

^c Starting 11/20/2007, analysis of pH was switched from California certified laboratory analysis to field method pursuant to the Water Board letter dated October 16, 2007 – Clarification of Monitoring and Reporting Program Requirements, stating that pH measurements may be conducted in the field.

TABLE 7

Topock IM-3 Waste Discharge Applicable or Relevant and Appropriate Requirements (ARARs)
 Sludge Monitoring Results^a
 Second Quarter 2014 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

Sampling Frequency		Quarterly																		
Analytes Units ^b	MDL	Chromium	Hexavalent Chromium	Antimony	Arsenic	Barium	Beryllium	Cadmium	Cobalt	Copper	Fluoride	Lead	Molybdenum	Mercury	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Sample ID	Date																			
SC-Sludge-WDR-462	4/8/2014	2480	49.2	ND (5.00)	ND (5.00)	59.2	ND (2.15)	4.29	ND (10.0)	35.1	22.5	ND (5.00)	ND (10.0)	ND (0.107)	19.5	ND (5.00)	ND (5.00)	ND (5.00)	30.7	24.9
RL		5.37	4.64	5.00	5.00	10.0	2.15	2.15	10.0	8.58	4.64	5.00	10.0	0.107	5.00	5.00	5.00	5.00	5.00	10.7

NOTES:

(---) = not required by the ARARs Monitoring and Reporting Program
 J = concentration or reporting limits estimated by laboratory or validation
 mg/kg = milligrams per kilogram
 mg/L = milligrams per liter
 MDL = method detection limit
 ND = parameter not detected at the listed reporting limit
 RL = project reporting limit

^a Sampling location for all sludge samples is the sludge collection bin (see attached P&ID TP-PR-10-10-06).

^b Units reported in this table are those units required in the ARARs.

TABLE 8

Topock IM-3 Waste Discharge Applicable or Relevant and Appropriate Requirements (ARARs)
Monitoring Information
Second Quarter 2014 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician
SC-100B	SC-100B-WDR-462	Ryan Phelps	4/8/2014	2:18:00 PM	TLI	EPA 120.1	SC	4/11/2014	Jenny Tankunakorn
					TLI	EPA 200.7	AL	4/16/2014	Ethel Suico
					TLI	EPA 200.7	B	4/16/2014	Ethel Suico
					TLI	EPA 200.7	FE	4/16/2014	Ethel Suico
					TLI	EPA 200.7	ZN	4/16/2014	Ethel Suico
					TLI	EPA 200.8	AS	4/9/2014	Ethel Suico
					TLI	EPA 200.8	BA	4/10/2014	Ethel Suico
					TLI	EPA 200.8	CR	4/9/2014	Ethel Suico
					TLI	EPA 200.8	CU	4/25/2014	Ethel Suico
					TLI	EPA 200.8	MN	4/10/2014	Ethel Suico
					TLI	EPA 200.8	MO	4/10/2014	Ethel Suico
					TLI	EPA 200.8	NI	4/9/2014	Ethel Suico
					TLI	EPA 200.8	PB	4/10/2014	Ethel Suico
					TLI	EPA 200.8	SB	4/10/2014	Ethel Suico
					TLI	EPA 218.6	CR6	4/10/2014	Naheed Eidinejad
					TLI	EPA 300.0	FL	4/9/2014	Giawad Ghenniwa
					TLI	EPA 300.0	NO3N	4/9/2014	Giawad Ghenniwa
					TLI	EPA 300.0	SO4	4/9/2014	Giawad Ghenniwa
					FIELD	HACH	PH	4/8/2014	Ryan Phelps
					TLI	SM2130B	TRB	4/8/2014	Felipe Mendoza
					TLI	SM2540C	TDS	4/14/2014	Jenny Tankunakorn
					TLI	SM4500NH3D	NH3N	4/16/2014	Himani Vaishnav/Maksim Gorbunov
					TLI	SM4500NO2B	NO2N	4/9/2014	Jenny Tankunakorn
SC-100B	SC-100B-WDR-466	Scott O' Donnell	5/6/2014	2:20:00 PM	TLI	EPA 120.1	SC	5/12/2014	Jenny Tankunakorn
					TLI	EPA 200.7	AL	5/13/2014	Ethel Suico
					TLI	EPA 200.7	B	5/13/2014	Ethel Suico
					TLI	EPA 200.7	FE	5/13/2014	Ethel Suico
					TLI	EPA 200.7	FETD	5/13/2014	Ethel Suico
					TLI	EPA 200.7	ZN	5/13/2014	Ethel Suico
					TLI	EPA 200.8	AS	5/12/2014	Ethel Suico
					TLI	EPA 200.8	BA	5/12/2014	Ethel Suico
					TLI	EPA 200.8	CR	5/12/2014	Ethel Suico
					TLI	EPA 200.8	CU	5/14/2014	Ethel Suico
					TLI	EPA 200.8	MN	5/12/2014	Ethel Suico
					TLI	EPA 200.8	MND	5/13/2014	Ethel Suico
					TLI	EPA 200.8	MO	5/12/2014	Ethel Suico

TABLE 8

Topock IM-3 Waste Discharge Applicable or Relevant and Appropriate Requirements (ARARs)
Monitoring Information
Second Quarter 2014 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician					
SC-100B	SC-100B-WDR-466	Scott O' Donnell	5/6/2014	2:20:00 PM	TLI	EPA 200.8	NI	5/12/2014	Ethel Suico					
					TLI	EPA 200.8	PB	5/12/2014	Ethel Suico					
					TLI	EPA 200.8	SB	5/12/2014	Ethel Suico					
					TLI	EPA 218.6	CR6	5/7/2014	Naheed Eidinejad					
					TLI	EPA 300.0	FL	5/7/2014	Giawad Ghenniwa					
					TLI	EPA 300.0	NO3N	5/7/2014	Giawad Ghenniwa					
					TLI	EPA 300.0	SO4	5/7/2014	Giawad Ghenniwa					
					FIELD	HACH	PH	5/6/2014	Scott O'Donnell					
					TLI	SM 2320B	ALKB	5/16/2014	Alex Luna					
					TLI	SM 2320B	ALKC	5/16/2014	Alex Luna					
					TLI	SM2130B	TRB	5/7/2014	Jennine Ta					
					TLI	SM2540C	TDS	5/12/2014	Jenny Tankunakorn					
					TLI	SM4500NH3D	NH3N	5/28/2014	Felipe Mendoza					
					TLI	SM4500NO2B	NO2N	5/7/2014	Jenny Tankunakorn					
					SC-100B	SC-100B-WDR-470	Chris Lentz	6/3/2014	9:00:00 AM	TLI	EPA 120.1	SC	6/3/2014	Jenny Tankunakorn
										TLI	EPA 200.7	AL	6/6/2014	Ethel Suico
TLI	EPA 200.7	B	6/6/2014	Ethel Suico										
TLI	EPA 200.7	FE	6/6/2014	Ethel Suico										
TLI	EPA 200.7	FETD	6/11/2014	Ethel Suico										
TLI	EPA 200.7	ZN	6/6/2014	Ethel Suico										
TLI	EPA 200.8	AS	6/6/2014	Ethel Suico										
TLI	EPA 200.8	BA	6/6/2014	Ethel Suico										
TLI	EPA 200.8	CR	6/6/2014	Ethel Suico										
TLI	EPA 200.8	CU	6/5/2014	Ethel Suico										
TLI	EPA 200.8	MN	6/6/2014	Ethel Suico										
TLI	EPA 200.8	MND	6/10/2014	Ethel Suico										
TLI	EPA 200.8	MO	6/6/2014	Ethel Suico										
TLI	EPA 200.8	NI	6/6/2014	Ethel Suico										
TLI	EPA 200.8	PB	6/6/2014	Ethel Suico										
TLI	EPA 200.8	SB	6/6/2014	Ethel Suico										
TLI	EPA 218.6	CR6	6/4/2014	Naheed Eidinejad										
TLI	EPA 300.0	FL	6/4/2014	Giawad Ghenniwa										
TLI	EPA 300.0	NO3N	6/4/2014	Giawad Ghenniwa										
TLI	EPA 300.0	SO4	6/4/2014	Giawad Ghenniwa										
FIELD	HACH	PH	6/3/2014	Chris Lentz										
TLI	SM 2320B	ALKB	6/10/2014	Alex Luna/Jennine Ta										

TABLE 8

Topock IM-3 Waste Discharge Applicable or Relevant and Appropriate Requirements (ARARs)

Monitoring Information

Second Quarter 2014 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician
SC-100B	SC-100B-WDR-470	Chris Lentz	6/3/2014	9:00:00 AM	TLI	SM 2320B	ALKC	6/10/2014	Alex Luna/Jennine Ta
					TLI	SM2130B	TRB	6/4/2014	Jennine Ta
					TLI	SM2540C	TDS	6/3/2014	Jenny Tankunakorn
					TLI	SM4500NH3D	NH3N	6/30/2014	Maksim Gorbunov
					TLI	SM4500NO2B	NO2N	6/4/2014	Jenny Tankunakorn
SC-700B	SC-700B-WDR-461	Joe Aide	4/5/2014	6:30:00 AM	AVTS	EPA 120.1	SC	4/5/2014	Luisa Cabasug
					AVTS	EPA 180.1	TRB	4/5/2014	Luisa Cabasug
					AVTS	EPA 200.8	CR	4/7/2014	Claire Ignacio
					AVTS	EPA 200.8	MN	4/7/2014	Claire Ignacio
					AVTS	EPA 218.6	CR6	4/6/2014	Quennie Manimtim
					FIELD	HACH	PH	4/5/2014	J.Aide
					AVTS	SM2540C	TDS	4/7/2014	Luisa Cabasug
SC-700B	SC-700B-WDR-462	Ryan Phelps	4/8/2014	2:05:00 PM	TLI	EPA 120.1	SC	4/11/2014	Jenny Tankunakorn
					TLI	EPA 200.7	AL	4/16/2014	Ethel Suico
					TLI	EPA 200.7	B	4/16/2014	Ethel Suico
					TLI	EPA 200.7	FE	4/16/2014	Ethel Suico
					TLI	EPA 200.7	ZN	4/16/2014	Ethel Suico
					TLI	EPA 200.8	AS	4/9/2014	Ethel Suico
					TLI	EPA 200.8	BA	4/10/2014	Ethel Suico
					TLI	EPA 200.8	CR	4/9/2014	Ethel Suico
					TLI	EPA 200.8	CU	4/25/2014	Ethel Suico
					TLI	EPA 200.8	MN	4/10/2014	Ethel Suico
					TLI	EPA 200.8	MO	4/10/2014	Ethel Suico
					TLI	EPA 200.8	NI	4/9/2014	Ethel Suico
					TLI	EPA 200.8	PB	4/10/2014	Ethel Suico
					TLI	EPA 200.8	SB	4/10/2014	Ethel Suico
					TLI	EPA 218.6	CR6	4/10/2014	Naheed Eidinejad
					TLI	EPA 300.0	FL	4/9/2014	Giawad Ghenniwa
					TLI	EPA 300.0	NO3N	4/9/2014	Giawad Ghenniwa
					TLI	EPA 300.0	SO4	4/9/2014	Giawad Ghenniwa
					FIELD	HACH	PH	4/8/2014	Ryan Phelps
					TLI	SM2130B	TRB	4/8/2014	Felipe Mendoza
					TLI	SM2540C	TDS	4/14/2014	Jenny Tankunakorn
					TLI	SM4500NH3D	NH3N	4/16/2014	Himani Vaishnav/Maksim Gorbunov
TLI	SM4500NO2B	NO2N	4/9/2014	Jenny Tankunakorn					

TABLE 8

Topock IM-3 Waste Discharge Applicable or Relevant and Appropriate Requirements (ARARs)

Monitoring Information

Second Quarter 2014 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician
SC-700B	SC-700B-WDR-463	Chris Lentz	4/15/2014	8:40:00 AM	TLI	EPA 120.1	SC	4/30/2014	Maksim Gorbunov
					TLI	EPA 200.8	CR	4/18/2014	Ethel Suico
					TLI	EPA 200.8	MN	4/18/2014	Ethel Suico
					TLI	EPA 218.6	CR6	4/16/2014	Naheed Eidinejad
					FIELD	HACH	PH	4/15/2014	Chris Lentz
					TLI	SM2130B	TRB	4/16/2014	Felipe Mendoza
					TLI	SM2540C	TDS	4/17/2014	Maksim Gorbunov
SC-700B	SC-700B-WDR-464	Chris Lentz	4/22/2014	8:35:00 AM	TLI	EPA 120.1	SC	4/29/2014	Maksim Gorbunov
					TLI	EPA 200.8	CR	4/28/2014	Ethel Suico
					TLI	EPA 200.8	MN	4/28/2014	Ethel Suico
					TLI	EPA 218.6	CR6	4/23/2014	Naheed Eidinejad
					FIELD	HACH	PH	4/22/2014	Chris Lentz
					TLI	SM2130B	TRB	4/23/2014	Felipe Mendoza
					TLI	SM2540C	TDS	4/22/2014	Kim Luck
SC-700B	SC-700B-WDR-465	Chris Lentz	4/29/2014	9:00:00 AM	TLI	EPA 120.1	SC	4/30/2014	Maksim Gorbunov
					TLI	EPA 200.8	CR	5/1/2014	Ethel Suico
					TLI	EPA 200.8	MN	5/1/2014	Ethel Suico
					TLI	EPA 218.6	CR6	4/30/2014	Naheed Eidinejad
					FIELD	HACH	PH	4/29/2014	Chris Lentz
					TLI	SM2130B	TRB	4/30/2014	Himani Vaishnav
					TLI	SM2540C	TDS	4/29/2014	Kim Luck
SC-700B	SC-700B-WDR-466	Scott O' Donnell	5/6/2014	2:30:00 PM	TLI	EPA 120.1	SC	5/12/2014	Jenny Tankunakorn
					TLI	EPA 200.7	AL	5/13/2014	Ethel Suico
					TLI	EPA 200.7	B	5/13/2014	Ethel Suico
					TLI	EPA 200.7	FE	5/13/2014	Ethel Suico
					TLI	EPA 200.7	ZN	5/13/2014	Ethel Suico
					TLI	EPA 200.8	AS	5/12/2014	Ethel Suico
					TLI	EPA 200.8	BA	5/12/2014	Ethel Suico
					TLI	EPA 200.8	CR	5/12/2014	Ethel Suico
					TLI	EPA 200.8	CU	5/14/2014	Ethel Suico
					TLI	EPA 200.8	MN	5/12/2014	Ethel Suico
					TLI	EPA 200.8	MO	5/12/2014	Ethel Suico
					TLI	EPA 200.8	NI	5/12/2014	Ethel Suico
					TLI	EPA 200.8	PB	5/12/2014	Ethel Suico
					TLI	EPA 200.8	SB	5/12/2014	Ethel Suico

TABLE 8

Topock IM-3 Waste Discharge Applicable or Relevant and Appropriate Requirements (ARARs)

Monitoring Information

Second Quarter 2014 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician
SC-700B	SC-700B-WDR-466	Scott O' Donnell	5/6/2014	2:30:00 PM	TLI	EPA 218.6	CR6	5/7/2014	Naheed Eidinejad
					TLI	EPA 300.0	FL	5/7/2014	Giawad Ghenniwa
					TLI	EPA 300.0	NO3N	5/7/2014	Giawad Ghenniwa
					TLI	EPA 300.0	SO4	5/7/2014	Giawad Ghenniwa
					FIELD	HACH	PH	5/6/2014	Scott O'Donnel
					TLI	SM2130B	TRB	5/7/2014	Jennine Ta
					TLI	SM2540C	TDS	5/12/2014	Jenny Tankunakorn
					TLI	SM4500NH3D	NH3N	5/28/2014	Felipe Mendoza
					TLI	SM4500NO2B	NO2N	5/7/2014	Jenny Tankunakorn
SC-700B	SC-700B-WDR-467	Chris Lentz	5/13/2014	1:00:00 PM	TLI	EPA 120.1	SC	5/16/2014	Jenny Tankunakorn
					TLI	EPA 200.8	CR	5/19/2014	Ethel Suico
					TLI	EPA 200.8	MN	5/19/2014	Ethel Suico
					TLI	EPA 218.6	CR6	5/14/2014	Naheed Eidinejad
					FIELD	HACH	PH	5/13/2014	Chris Lentz
					TLI	SM2130B	TRB	5/14/2014	Jennine Ta
					TLI	SM2540C	TDS	5/16/2014	Jenny Tankunakorn
SC-700B	SC-700B-WDR-468	Chris Lentz	5/20/2014	2:50:00 PM	TLI	EPA 120.1	SC	5/22/2014	Jenny Tankunakorn
					TLI	EPA 200.8	CR	5/27/2014	Ethel Suico
					TLI	EPA 200.8	MN	5/27/2014	Ethel Suico
					TLI	EPA 218.6	CR6	5/23/2014	Naheed Eidinejad
					FIELD	HACH	PH	5/20/2014	Chris Lentz
					TLI	SM2130B	TRB	5/21/2014	Jennine Ta
					TLI	SM2540C	TDS	5/22/2014	Jenny Tankunakorn
SC-700B	SC-700B-WDR-469	Ron Phelps	5/27/2014	10:00:00 AM	TLI	EPA 120.1	SC	5/27/2014	Jenny Tankunakorn
					TLI	EPA 200.8	CR	5/30/2014	Ethel Suico
					TLI	EPA 200.8	MN	5/30/2014	Ethel Suico
					TLI	EPA 218.6	CR6	6/4/2014	Naheed Eidinejad
					FIELD	HACH	PH	5/27/2014	Ron Phelps
					TLI	SM2130B	TRB	5/28/2014	Jennine Ta
					TLI	SM2540C	TDS	5/27/2014	Jenny Tankunakorn
SC-700B	SC-700B-WDR-470	Chris Lentz	6/3/2014	9:00:00 AM	TLI	EPA 120.1	SC	6/3/2014	Jenny Tankunakorn
					TLI	EPA 200.7	AL	6/6/2014	Ethel Suico
					TLI	EPA 200.7	B	6/6/2014	Ethel Suico
					TLI	EPA 200.7	FE	6/6/2014	Ethel Suico
					TLI	EPA 200.7	ZN	6/6/2014	Ethel Suico

TABLE 8

Topock IM-3 Waste Discharge Applicable or Relevant and Appropriate Requirements (ARARs)

Monitoring Information

Second Quarter 2014 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician
SC-700B	SC-700B-WDR-470	Chris Lentz	6/3/2014	9:00:00 AM	TLI	EPA 200.8	AS	6/6/2014	Ethel Suico
					TLI	EPA 200.8	BA	6/6/2014	Ethel Suico
					TLI	EPA 200.8	CR	6/6/2014	Ethel Suico
					TLI	EPA 200.8	CU	6/5/2014	Ethel Suico
					TLI	EPA 200.8	MN	6/6/2014	Ethel Suico
					TLI	EPA 200.8	MO	6/6/2014	Ethel Suico
					TLI	EPA 200.8	NI	6/6/2014	Ethel Suico
					TLI	EPA 200.8	PB	6/6/2014	Ethel Suico
					TLI	EPA 200.8	SB	6/6/2014	Ethel Suico
					TLI	EPA 218.6	CR6	6/4/2014	Naheed Eidinejad
					TLI	EPA 300.0	FL	6/4/2014	Giawad Ghenniwa
					TLI	EPA 300.0	NO3N	6/4/2014	Jenny Tankunakorn
					TLI	EPA 300.0	SO4	6/4/2014	Giawad Ghenniwa
					FIELD	HACH	PH	6/3/2014	Chris Lentz
					TLI	SM2130B	TRB	6/4/2014	Jennine Ta
					TLI	SM2540C	TDS	6/3/2014	Jenny Tankunakorn
					SC-700B	SC-700B-WDR-471	Ron Phelps	6/10/2014	9:00:00 AM
TLI	EPA 200.8	CR	6/18/2014	Ethel Suico					
TLI	EPA 200.8	MN	6/18/2014	Ethel Suico					
TLI	EPA 218.6	CR6	6/11/2014	Naheed Eidinejad					
FIELD	HACH	PH	6/10/2014	Ron Phelps					
TLI	SM2130B	TRB	6/10/2014	Jennine Ta					
TLI	SM2540C	TDS	6/11/2014	Jenny Tankunakorn					
SC-700B	SC-700B-WDR-472	Chris Lentz	6/17/2014	2:05:00 PM	TLI	EPA 120.1	SC	6/19/2014	Jenny Tankunakorn
					TLI	EPA 200.8	CR	6/18/2014	Ethel Suico
					TLI	EPA 200.8	MN	6/18/2014	Ethel Suico
					TLI	EPA 218.6	CR6	6/18/2014	Naheed Eidinejad
					FIELD	HACH	PH	6/17/2014	Chris Lentz
					TLI	SM2130B	TRB	6/19/2014	Jennine Ta
TLI	SM2540C	TDS	6/18/2014	Jenny Tankunakorn					
SC-700B	SC-700B-WDR-473	Ron Phelps	6/24/2014	10:30:00 AM	TLI	EPA 120.1	SC	6/27/2014	Jenny Tankunakorn
					TLI	EPA 200.8	CR	6/27/2014	Ethel Suico
					TLI	EPA 200.8	MN	6/27/2014	Ethel Suico

TABLE 8

Topock IM-3 Waste Discharge Applicable or Relevant and Appropriate Requirements (ARARs)

Monitoring Information

Second Quarter 2014 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician
SC-700B	SC-700B-WDR-473	Ron Phelps	6/24/2014	10:30:00 AM	TLI	EPA 218.6	CR6	6/25/2014	Naheed Eidinejad
					FIELD	HACH	PH	6/24/2014	Ron Phelps
					TLI	SM2130B	TRB	6/26/2014	Jennine Ta
					TLI	SM2540C	TDS	6/27/2014	Jenny Tankunakorn
SC-701	SC-701-WDR-462	Ryan Phelps	4/8/2014	2:09:00 PM	TLI	EPA 120.1	SC	4/11/2014	Jenny Tankunakorn
					TLI	EPA 200.7	ZN	4/16/2014	Ethel Suico
					TLI	EPA 200.8	AG	4/10/2014	Ethel Suico
					TLI	EPA 200.8	AS	4/9/2014	Ethel Suico
					TLI	EPA 200.8	BA	4/10/2014	Ethel Suico
					TLI	EPA 200.8	BE	4/10/2014	Ethel Suico
					TLI	EPA 200.8	CD	4/10/2014	Ethel Suico
					TLI	EPA 200.8	CO	4/10/2014	Ethel Suico
					TLI	EPA 200.8	CR	4/9/2014	Ethel Suico
					TLI	EPA 200.8	CU	4/10/2014	Ethel Suico
					TLI	EPA 200.8	HG	4/10/2014	Ethel Suico
					TLI	EPA 200.8	MN	4/9/2014	Ethel Suico
					TLI	EPA 200.8	MO	4/10/2014	Ethel Suico
					TLI	EPA 200.8	NI	4/9/2014	Ethel Suico
					TLI	EPA 200.8	PB	4/10/2014	Ethel Suico
					TLI	EPA 200.8	SB	4/10/2014	Ethel Suico
					TLI	EPA 200.8	SE	4/10/2014	Ethel Suico
					TLI	EPA 200.8	TL	4/10/2014	Ethel Suico
					TLI	EPA 200.8	V	4/9/2014	Ethel Suico
					TLI	EPA 218.6	CR6	4/10/2014	Naheed Eidinejad
					TLI	EPA 300.0	FL	4/9/2014	Giawad Ghenniwa
FIELD	HACH	PH	4/8/2014	Ryan Phelps					
TLI	SM2540C	TDS	4/14/2014	Jenny Tankunakorn					
Phase Separator	SC-Sludge-WDR-462	Chris Lentz	4/8/2014	2:15:00 PM	TLI	EPA 300.0	FL	4/9/2014	Giawad Ghenniwa
					TLI	EPA 6010B	AS	4/15/2014	Ethel Suico
					TLI	EPA 6010B	BA	4/15/2014	Ethel Suico
					TLI	EPA 6010B	BE	4/15/2014	Ethel Suico
					TLI	EPA 6010B	CD	4/15/2014	Ethel Suico
					TLI	EPA 6010B	CO	4/16/2014	Ethel Suico
					TLI	EPA 6010B	CR	4/15/2014	Ethel Suico
					TLI	EPA 6010B	CU	4/15/2014	Ethel Suico

TABLE 8

Topock IM-3 Waste Discharge Applicable or Relevant and Appropriate Requirements (ARARs)
 Monitoring Information
 Second Quarter 2014 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician
Phase Separator	SC-Sludge-WDR-462	Chris Lentz	4/8/2014	2:15:00 PM	TLI	EPA 6010B	MN	4/15/2014	Ethel Suico
					TLI	EPA 6010B	MO	4/15/2014	Ethel Suico
					TLI	EPA 6010B	NI	4/15/2014	Ethel Suico
					TLI	EPA 6010B	SE	4/15/2014	Ethel Suico
					TLI	EPA 6010B	V	4/15/2014	Ethel Suico
					TLI	EPA 6010B	ZN	4/16/2014	Ethel Suico
					TLI	SM2540B	MOIST	4/15/2014	Himani Vaishnav
					TLI	SW 6020A	AG	4/24/2014	Ethel Suico
					TLI	SW 6020A	HG	4/18/2014	Ethel Suico
					TLI	SW 6020A	PB	4/24/2014	Ethel Suico
					TLI	SW 6020A	SB	4/24/2014	Ethel Suico
					TLI	SW 6020A	TL	4/24/2014	Ethel Suico
					TLI	SW 7199	CR6	4/25/2014	Naheed Eidinejad

TABLE 8

Topock IM-3 Waste Discharge Applicable or Relevant and Appropriate Requirements (ARARs)
Monitoring Information
Second Quarter 2014 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

NOTES:

SC-700B = Sampling location for all effluent samples is tap on pipe downstream from tank T-700 to injection well IW-2 (see attached P&ID TP-PR-10-10-04).

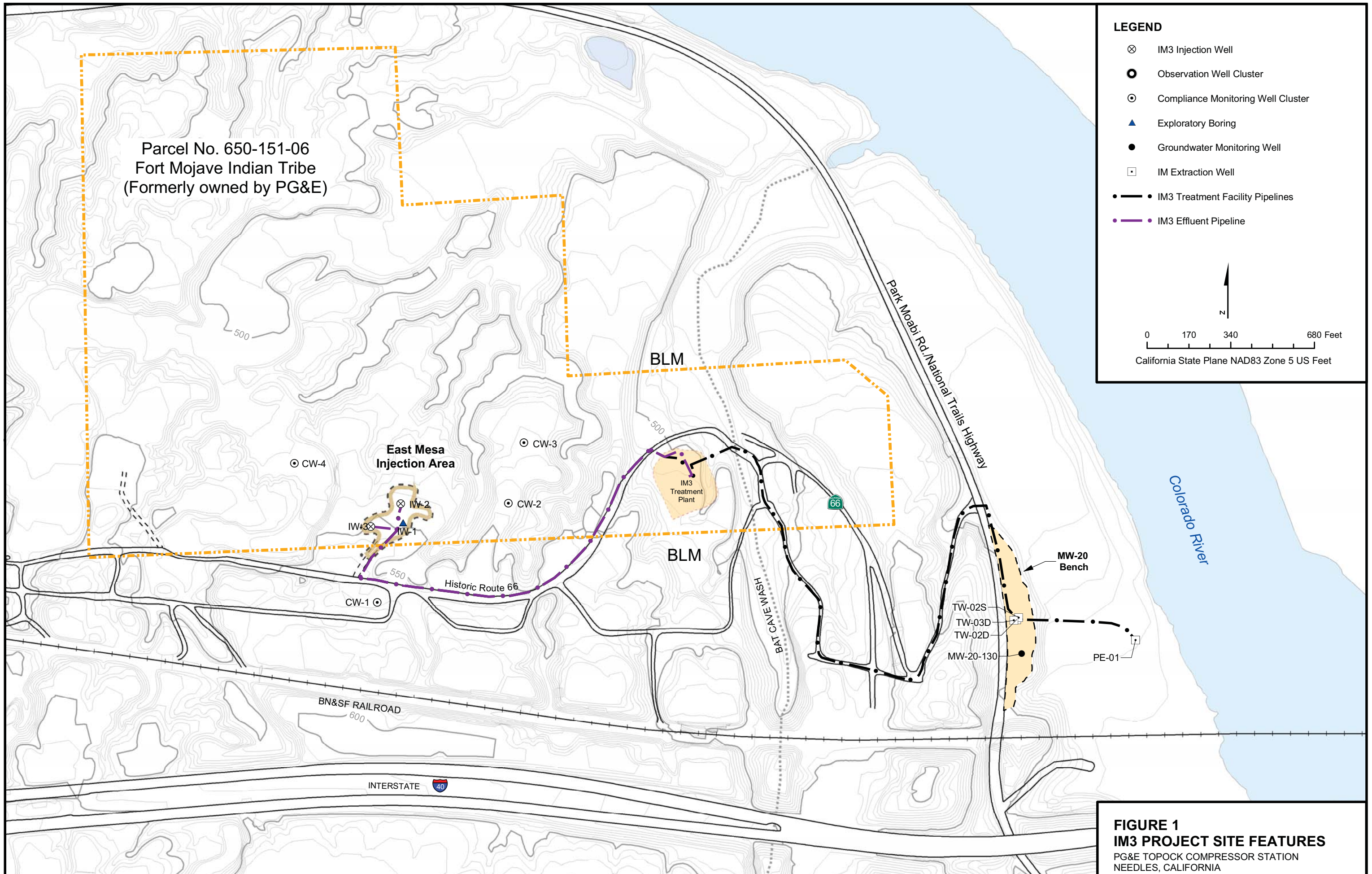
SC-100B = Sampling location for all influent samples is tap on pipe from extraction wells into tank T-100 (see attached P&ID TP-PR-10-10-04).

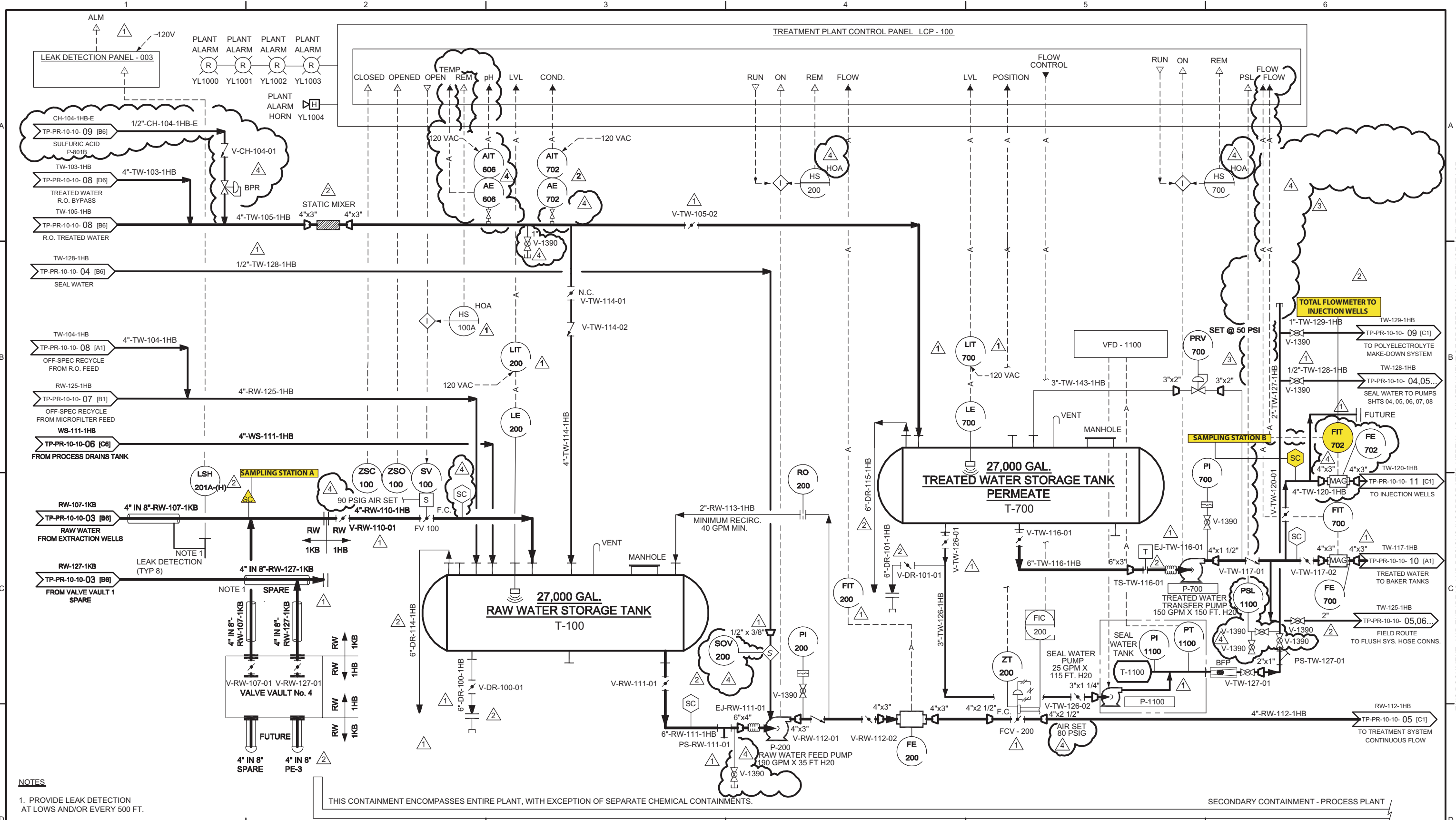
SC-701 = Sampling location for all reverse osmosis samples is tap on pipe T-701 (see attached P&ID PR-10-04).

Prior to April 11, 2007 the analytical methods listed in the 40 CFR Part 136 for pH and TDS were E150.1 and E160.1, respectively. Per EPA and Department of Health Services guidelines, the analytical methods listed in the current 40 CFR Part 136 have changed to SM4500-H B and SM2540C as shown on the table.

ALKB = alkalinity, bicarb as CaCO3	MO = molybdenum
ALKC = alkalinity, carb as CaCO3	MOIST = moisture
AL = aluminum	NH3N = ammonia (as N)
Ag = silver	NI = nickel
AS = arsenic	NO2N = nitrite (as N)
B = boron	NO3N = nitrate (as N)
BA = barium	PB = lead
BE = beryllium	PH = pH
CD = cadmium	SB = antimony
CO = cobalt	SC = specific conductance
CR = chromium	SE = selenium
CR6 = hexavalent chromium	SO4 = sulfate
CU = copper	TDS = total dissolved solids
FE = iron	TL = thallium
FETD = iron, dissolved	TLI = Truesdail Laboratories, Inc.
FL = fluoride	TRB = turbidity
HG = mercury	V = vanadium
MN = manganese	ZN = zinc
MND = manganese, dissolved	

Figures





NOTES
 1. PROVIDE LEAK DETECTION AT LOWS AND/OR EVERY 500 FT.

THIS CONTAINMENT ENCOMPASSES ENTIRE PLANT, WITH EXCEPTION OF SEPARATE CHEMICAL CONTAINMENTS.

SECONDARY CONTAINMENT - PROCESS PLANT

NO.	DATE	REVISION	BY	CHK	REVISION APPROVAL	REV 4	DATE 09/21/05	PRINT DISTRIBUTION	STATUS					
						DISCIPLINE	REVIEWED	DISCIPLINE	REVIEWED	DATE	ISSUED	REV	DATE	SDE
0	07/28/04	FOR INTERNAL REVIEW	EFC	AJ	DISCIPLINE	REVIEWED	DISCIPLINE	REVIEWED	DATE	ISSUED	REV	DATE	SDE	PEM
0	09/03/04	APPROVED FOR CONSTRUCTION	EFC	AJ	CIVIL		ELECTRICAL		STATUS	PRELIMINARY				
1	10/13/04	REVISED AND APPROVED FOR CONSTRUCTION	EFC	AJ	STRUCTURAL		INST & CONTROL		REV.	FOR REVIEW AND APPROVAL	D	07/28/04		
2	01/23/05	REVISED AND APPROVED FOR CONSTRUCTION	EFC	AJ	MECHANICAL		ARCHITECTURAL		CLIENT	APPROVED FOR CONSTRUCTION	0	09/03/04	KLM	TP
3	02/14/05	ADDED RECIRC. LINE AND PRV VALVE TO T-700 - APPROVED FOR CONSTRUCTION	EFC	AJ	PROCESS		ENVIRONMENTAL		FIELD	REVISED & APPROVED FOR CONSTRUCTION	4	/ /		
4	09/21/05	REVISED PER AS-BUILT CONDITIONS	EFC	AJ	PIPING		GEN. ARRANG.		INTRA CO.					

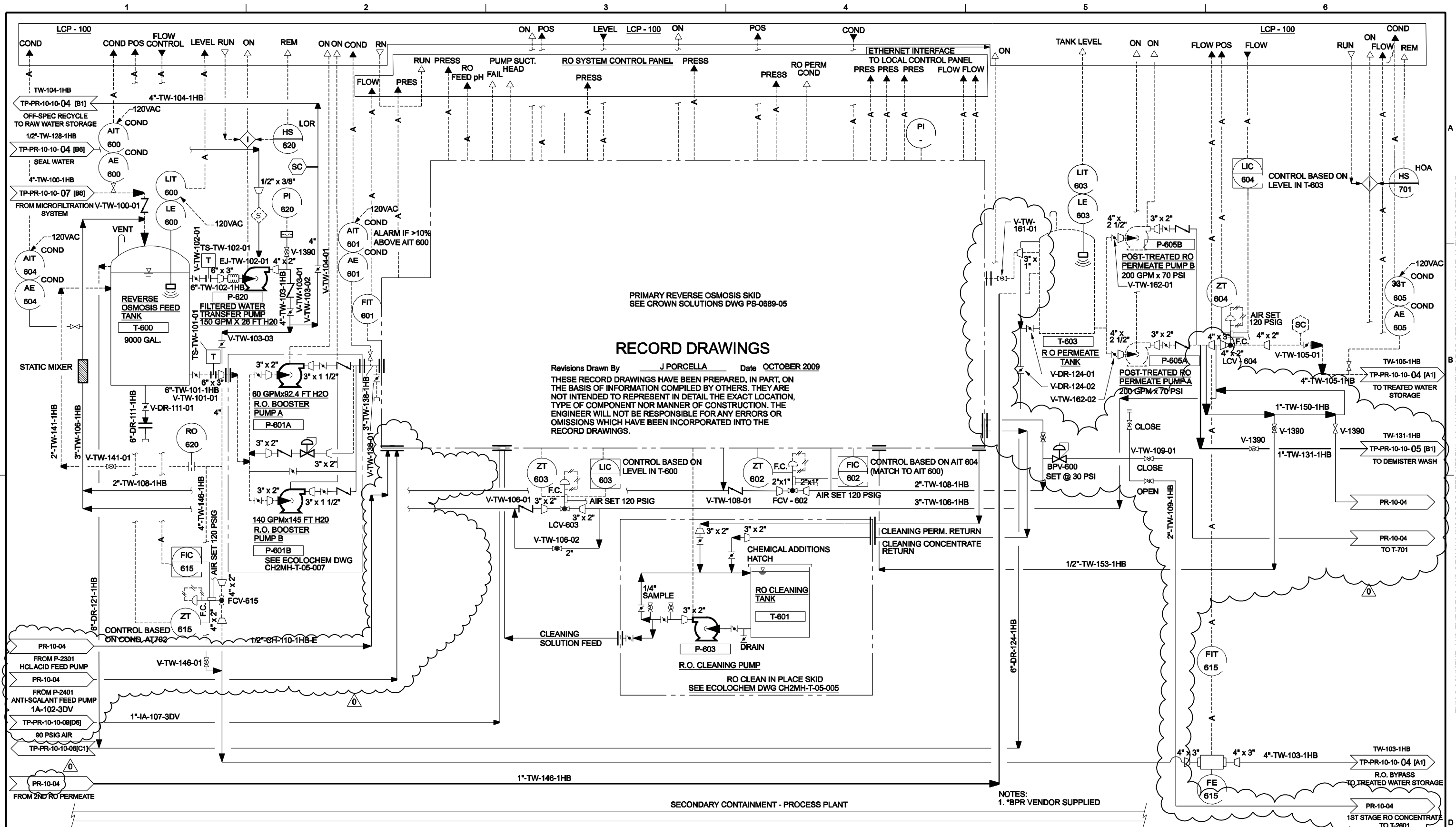
SCALE NONE

PACIFIC GAS & ELECTRIC CO.
 TOPOCK COMPRESSOR STATION
 INTERIM MEASURE 3
 EXPANDED GROUNDWATER EXTRACTION
 AND TREATMENT SYSTEM
 PROJ NO. 315994

CH2MHILL

PROCESS AND INSTRUMENTATION DIAGRAM
 SHEET 04
 STORAGE AREA
 DWG. NO. TP-PR-10-10-04 REV. 4

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SECONDARY CONTAINMENT - PROCESS PLANT

NOTES:
1. *BPR VENDOR SUPPLIED

**** ORIGINAL STAMPED AND SIGNED BY: JOHN PORCELLA CALIFORNIA PE NO. C70145 ON 04-01-2009 ****

NO.	DATE	REVISION	BY	CHK	REVISION APPROVAL	REV 0		DATE 10/02/09	PRINT DISTRIBUTION	STATUS				
						DISCIPLINE	REVIEWED			DISCIPLINE	REVIEWED	ISSUED	REV	DATE
A	2/12/09	INTERNAL REVIEW				CIVIL				PRELIMINARY	A	2/12/09	JP	JP
B	2/12/09	CLIENT REVIEW				ELECTRICAL				FOR REVIEW AND APPROVAL	C	4/01/09	JP	JP
C	4/01/09	FOR REVIEW AND APPROVAL	JR	JP		STRUCTURAL				APPROVED FOR CONSTRUCTION				
D	11/17/09	FINAL RECORD ISSUE	JR	JP		MECHANICAL				REVISED & APPROVED FOR CONSTRUCTION	0	10/02/09	JP	JP
						PROCESS								
						PIPING								

PACIFIC GAS & ELECTRIC CO.
TOPOCK COMPRESSOR STATION
INTERIM MEASURE 3
PLANT PERFORMANCE IMPROVEMENTS

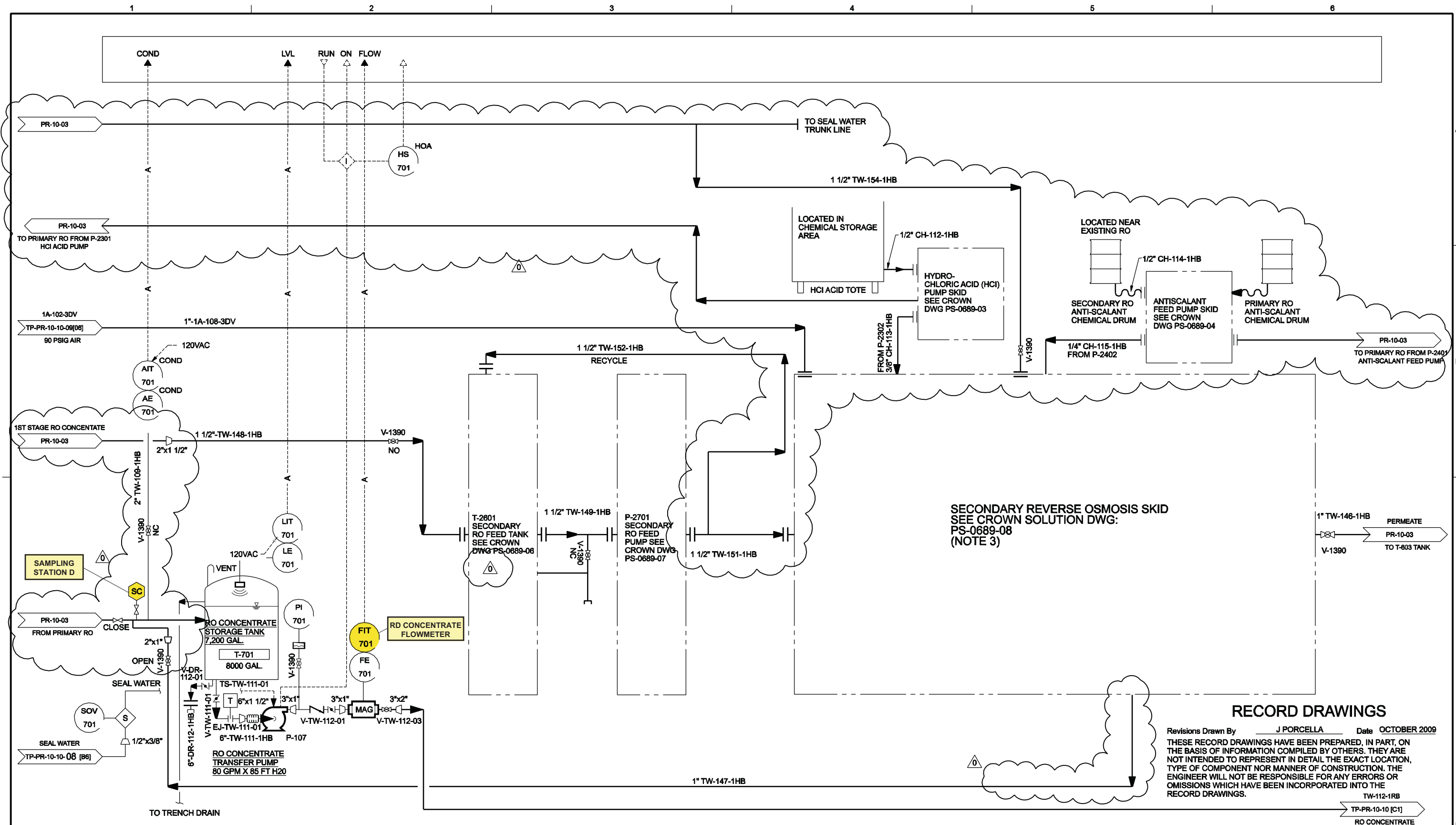
PROJECT NO. 362032

CH2MHILL

DWG. NO. PR-10-03 REV. 0

PROCESS AND INSTRUMENTATION DIAGRAM
REVERSE OSMOSIS SYSTEM
SHEET ONE OF TWO

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SECONDARY REVERSE OSMOSIS SKID
SEE CROWN SOLUTION DWG:
PS-0689-08
(NOTE 3)

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NO.	DATE	REVISION	BY	CHK	REVISION APPROVAL		REV 0		DATE 10/02/09	PRINT DISTRIBUTION	STATUS					
					DISCIPLINE	REVIEWED	DISCIPLINE	REVIEWED			ISSUED	REV	DATE	SDE	PEM	
A	2/12/09	INTERNAL REVIEW									ISSUED					
B	2/12/09	CLIENT REVIEW									PRELIMINARY	A	2/12/09	JP	JP	
C	4/01/09	FOR REVIEW AND APPROVAL	JR	JP	STRUCTURAL		INST & CONTROL	JG			FOR REVIEW AND APPROVAL	C	4/01/09	JP	JP	
D	11/17/09	FINAL RECORD ISSUE	JR	JP	MECHANICAL		ARCHITECTURAL				APPROVED FOR CONSTRUCTION					
					PROCESS	DF	ENVIRONMENTAL				REVISED & APPROVED FOR CONSTRUCTION	0	10/02/09	JP	JP	
					PIPING	SJ	GEN. ARRANG.	SJ								

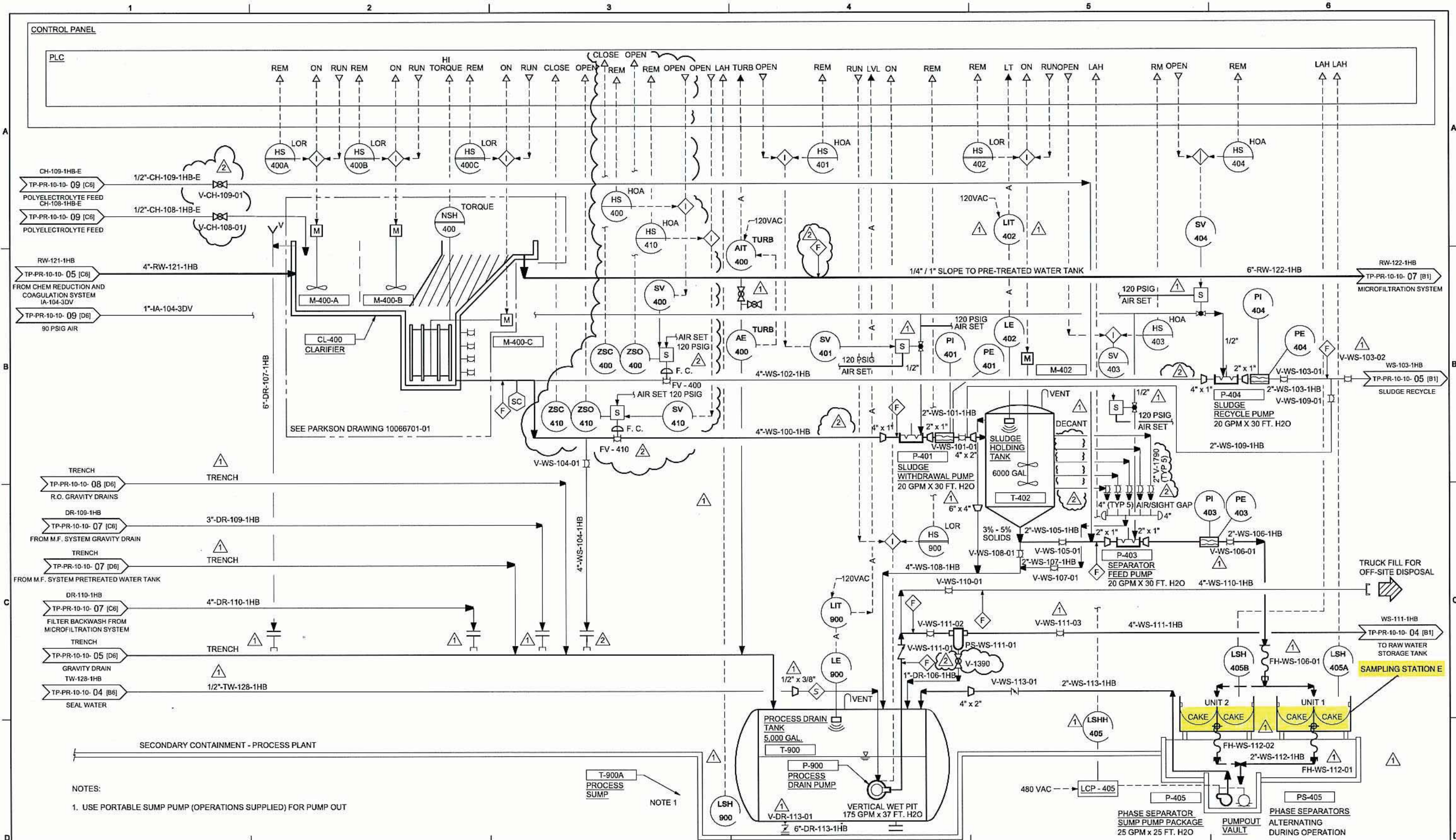
PACIFIC GAS & ELECTRIC CO.
TOPOCK COMPRESSOR STATION
INTERIM MEASURE 3
PLANT PERFORMANCE IMPROVEMENTS
PROJ NO. 362032

PROCESS AND INSTRUMENTATION DIAGRAM
REVERSE OSMOSIS SYSTEM
SHEET TWO OF TWO
DWG. NO. **PR-10-04** REV. **0**

SCALE NONE

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NOTES:
 1. USE PORTABLE SUMP PUMP (OPERATIONS SUPPLIED) FOR PUMP OUT

NOTE 1
 T-900A
 PROCESS SUMP

NO.	DATE	REVISION	BY	CHK	REVISION APPROVAL	REV 2	DATE 01/23/05	PRINT DISTRIBUTION	STATUS					
									ISSUED	REV	DATE	SDE	PEM	
0	07/28/04	FOR INTERNAL REVIEW	EFC	AJ	DISCIPLINE	REVIEWED		DATE	ISSUED					
0	09/03/04	APPROVED FOR CONSTRUCTION	EFC	AJ	CIVIL			DATE	PRELIMINARY					
1	10/13/04	REVISED AND APPROVED FOR CONSTRUCTION	EFC	AJ	STRUCTURAL			DATE	FOR REVIEW AND APPROVAL	D	07/28/04			
2	01/23/05	REVISED AND APPROVED FOR CONSTRUCTION	EFC	AJ	MECHANICAL			DATE	APPROVED FOR CONSTRUCTION	0	09/03/04	KLM	TP	
					PROCESS			DATE	REVISED & APPROVED FOR CONSTRUCTION	2	01/23/05			
					PIPING			DATE						
								DATE						

PACIFIC GAS & ELECTRIC CO.
 TOPOCK COMPRESSOR STATION
 INTERIM MEASURE 3
 EXPANDED GROUNDWATER EXTRACTION
 AND TREATMENT SYSTEM
 PROJ. NO. 315994

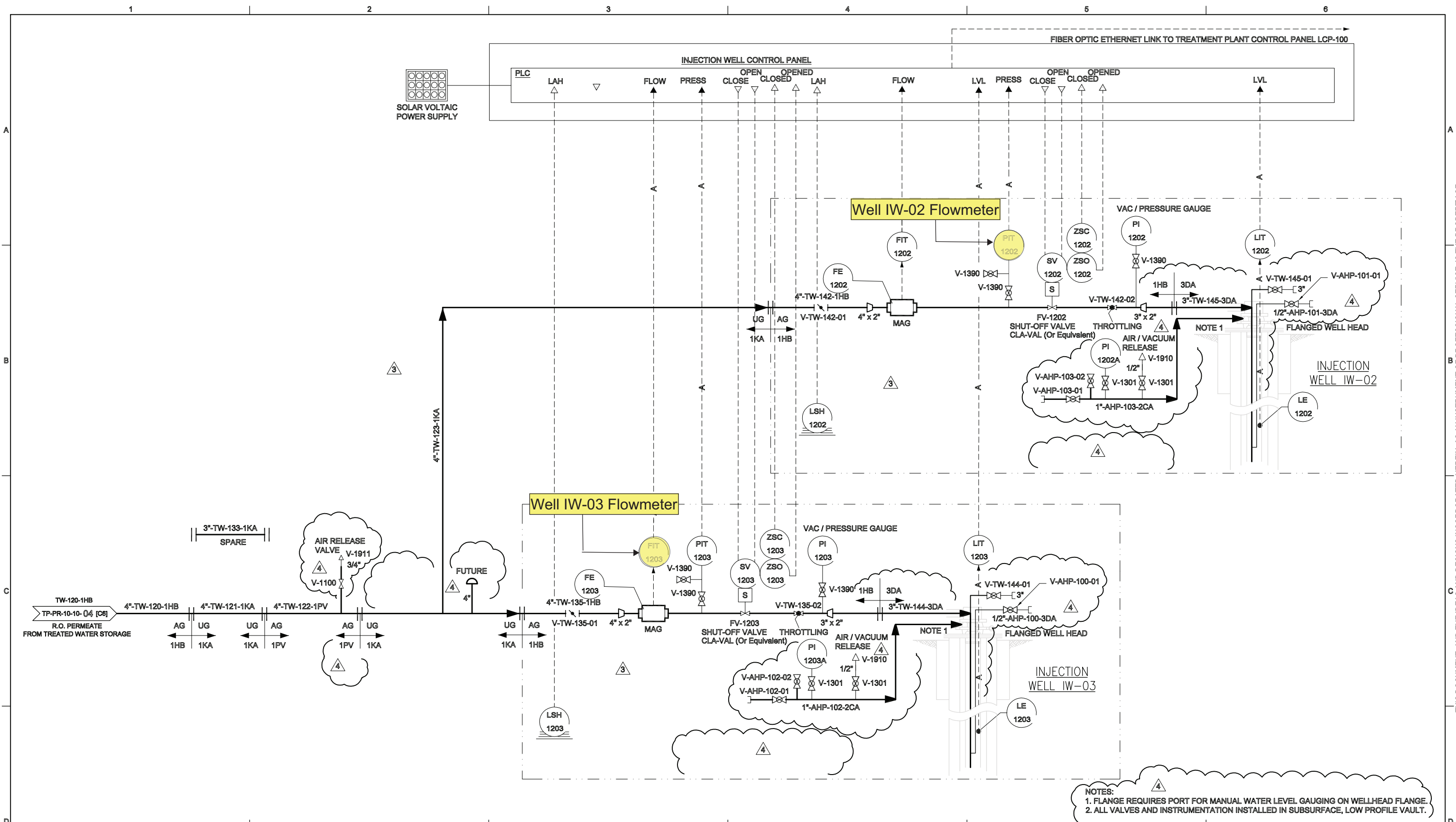
PROCESS AND INSTRUMENTATION DIAGRAM
 SHEET 06
 CLARIFICATION AND
 SLUDGE REMOVAL

SCALE NONE

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DWG. NO. TP-PR-10-10-06 REV. 2

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NOTES:
 1. FLANGE REQUIRES PORT FOR MANUAL WATER LEVEL GAUGING ON WELLHEAD FLANGE.
 2. ALL VALVES AND INSTRUMENTATION INSTALLED IN SUBSURFACE, LOW PROFILE VAULT.

NO.	DATE	REVISION	BY	CHK	DISCIPLINE	APPROVAL	REV 4	DATE 03/10/05	PRINT DISTRIBUTION	STATUS			
										ISSUED	REV	DATE	PEM
A	07/28/04	FOR INTERNAL REVIEW	EFC	AJ	DISCIPLINE	REVIEWED	DISCIPLINE	REVIEWED	DATE				
0	09/03/04	APPROVED FOR CONSTRUCTION	EFC	AJ	CIVIL		ELECTRICAL		STATUS				
1	10/13/04	REVISED AND APPROVED FOR CONSTRUCTION	EFC	AJ	STRUCTURAL		INST & CONTROL		REV.				
2	01/23/05	REVISED AND APPROVED FOR CONSTRUCTION	EFC	AJ	MECHANICAL		ARCHITECTURAL		CLIENT				
3	02/14/05	REVISED AND APPROVED FOR CONSTRUCTION	EFC	AJ	PROCESS		ENVIRONMENTAL		FIELD				
4	03/10/05	REMOVED HOLD AND APPROVED FOR CONSTRUCTION	EFC	AJ	PIPING		GEN. ARRANG.		INTRA CO.				

SCALE NONE

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PACIFIC GAS & ELECTRIC CO.
 TOPOCK COMPRESSOR STATION
 INTERIM MEASURE 3
 EXPANDED GROUNDWATER EXTRACTION
 AND TREATMENT SYSTEM
 PROJ NO. 315994

PROCESS AND INSTRUMENTATION DIAGRAM
 SHEET 11
 INJECTION WELLS

DWG. NO. TP-PR-10-10-11 REV. 4

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Appendix A
Semiannual Operations and Maintenance Log,
January 1, 2014 through June 30, 2014

Semiannual Operations and Maintenance Log, January 1, 2014 through June 30, 2014

Downtime is defined as any period when all extraction wells are not operating, so that no groundwater is being extracted and piped into IM-3 as influent. Periods of planned and unplanned extraction system downtime are summarized here. The times shown are in Pacific Standard Time to be consistent with other data collected at the site.

January 2014

During January 2014, extraction wells TW-3D and PE-1 operated at a target pump rate of 135 gpm excluding periods of planned and unplanned downtime. Extraction wells TW-2D and TW-2S were not operated during January 2014. The operational run time for the IM-3 groundwater extraction system (combined or individual pumping) was 98.7 percent during the January 2014 reporting period.

The IM-3 facility treated approximately 5,905,218 gallons of extracted groundwater during January 2014. The IM-3 facility treated 20,900 gallons of injection well backwashing/re-development water and 910 gallons from groundwater monitoring well sampling. Four containers of solids from the IM-3 facility were transported offsite during January 2014.

Periods of planned and unplanned extraction system downtime (that together resulted in approximately 1.3 percent of downtime during January 2014) are summarized below.

- **January 6, 2014 (planned):** The extraction well system was offline from 8:34 a.m. to 8:36 a.m., from 9:00 a.m. to 9:12 a.m., and from 9:16 a.m. to 9:28 a.m. due to testing of critical alarms and leak detection system. Extraction system downtime was 26 minutes.
- **January 8, 2014 (planned):** The extraction well system was offline from 8:14 a.m. to 4:08 p.m. for replacement of the primary RO membranes and cleaning of the T-100, T-700 and Microfilter strainers. Extraction system downtime was 7 hours, 54 minutes.
- **January 16, 2014 (planned):** The extraction well system was offline from 6:36 a.m. to 7:52 a.m. to lower the level in the raw water storage tank (T-100) for injection of AquaGuard in injection wells IW-2 and IW-3. Extraction system downtime was 1 hour, 16 minutes.
- **January 27, 2014 (unplanned):** The extraction well system was offline from 1:50 p.m. to 1:52 p.m. due to loss of power from City of Needles power. Extraction system downtime was 2 minutes.
- **January 28, 2014 (unplanned):** The extraction well system was offline from 9:58 a.m. to 10:20 a.m. due to a low oil level in the air compressor. Extraction system downtime was 22 minutes.

February 2014

During February 2014, extraction wells TW-3D and PE-1 operated at a target pump rate of 135 gpm excluding periods of planned and unplanned downtime. Extraction wells TW-2D and TW-2S were not operated during February 2014. The operational run time for the IM-3 groundwater extraction system (combined or individual pumping) was 99.0 percent during the February 2014 reporting period.

The IM-3 facility treated approximately 5,349,142 gallons of extracted groundwater during February 2014. The IM-3 facility treated 950 gallons from groundwater monitoring well sampling. Two containers of solids from the IM-3 facility were transported offsite during February 2014.

Periods of planned and unplanned extraction system downtime (that together resulted in approximately 0.9 percent of downtime during February 2014) are summarized below.

- **February 6, 2014 (planned):** The extraction well system was offline from 10:24 a.m. to 11:24 a.m. due to testing of critical alarms and leak detection system. Extraction system downtime was 1 hour.
- **February 6, 2014 (unplanned):** The extraction well system was offline from 12:38 p.m. to 1:00 p.m. to repair a minor leak in the RO system. Extraction system downtime was 22 minutes.
- **February 10, 2014 (planned):** The extraction well system was offline from 10:44 a.m. to 11:20 a.m. to clean the Microfilter strainers. Extraction system downtime was 36 minutes.
- **February 12, 2014 (planned):** The extraction well system was offline from 10:58 a.m. to 1:26 p.m. to replace the Chemical Mixing Pump (P-201) and clean the pipes in the chemical loop. Extraction system downtime was 2 hours, 28 minutes.
- **February 14, 2014 (unplanned):** The extraction well system was offline from 6:18 a.m. to 6:46 a.m. to repair a valve on the ferrous chloride feed skid. Extraction system downtime was 28 minutes.
- **February 19, 2014 (planned):** The extraction well system was offline from 10:32 a.m. to 12:04 p.m. to replace a fitting on the primary RO unit. Extraction system downtime was 1 hour, 32 minutes.

March 2014

During March 2014, extraction wells TW-3D and PE-1 operated at a target pump rate of 135 gpm excluding periods of planned and unplanned downtime. Extraction wells TW-2D and TW-2S were not operated during March 2014. The operational run time for the IM-3 groundwater extraction system (combined or individual pumping) was 97.3 percent during the March 2014 reporting period.

The IM-3 facility treated approximately 5,835,368 gallons of extracted groundwater during March 2014. Two containers of solids from the IM-3 facility were transported offsite during March 2014.

Periods of planned and unplanned extraction system downtime (that together resulted in approximately 2.7 percent of downtime during March 2014) are summarized below.

- **March 5, 2014 (planned):** The extraction well system was offline from 12:26 pm to 12:28 pm during installation of a riser extension on the leak detection system sensors. Extraction system downtime was 2 minutes.
- **March 6, 2014 (planned):** The extraction well system was offline from 7:06 a.m. to 7:08 a.m., from 7:48 a.m. to 7:50 a.m., from 11:28 a.m. to 11:30 a.m., from 11:34 a.m. to 11:44 a.m., from 11:48 a.m. to 11:50 a.m., and from 11:58 a.m. to 12:00 p.m. due to testing of critical alarms and leak detection system. Extraction system downtime was 20 minutes.
- **March 12, 2014 (unplanned):** The extraction well system was offline from 12:40 p.m. to 1:38 p.m. due to a high level alarm in the Pre-Treated Water Tank (T-500) caused by a Microfilter shutdown. Extraction system downtime was 58 minutes.
- **March 31, 2014 (planned):** The extraction well system was offline from 5:32 a.m. to 12:00 a.m. for the semiannual maintenance shutdown event. Extraction system downtime was 18 hours, 28 minutes.

April 2014

During April 2014, extraction wells TW-3D and PE-1 operated at a target pump rate of 135 gpm excluding periods of planned and unplanned downtime. Extraction well TW-2D operated on April 4 and 5, 2014 for a total of 6 hours and 24 minutes. Extraction well TW-2S was not operated during April 2014. The operational run time for the IM-3 groundwater extraction system (combined or individual pumping) was 87.7 percent during the April 2014 reporting period.

The IM-3 facility treated approximately 5,094,054 gallons of extracted groundwater during April 2014. The IM-3 facility treated 2,700 gallons of injection well backwashing/re-development water and 3,000 gallons from groundwater monitoring well sampling. Two containers of solids from the IM-3 facility were transported offsite during April 2014.

Periods of planned and unplanned extraction system down time (that together resulted in approximately 12.3 percent of downtime during April 2014) are summarized below.

- **April 1-4, 2014 (planned):** The extraction well system was offline from 12:00 a.m. on April 1st to 7:22 a.m. on April 4th and from 1:46 p.m. to 7:18 p.m. on April 4th for semiannual scheduled maintenance. Extraction system downtime was 3 days, 12 hours and 54 minutes.
- **April 6, 2014 (unplanned):** The extraction well system was offline from 5:58 a.m. to 6:14 a.m., from 8:24 a.m. to 8:36 a.m., and from 1:40 p.m. to 1:46 p.m. due to loss of power from City of Needles power. Extraction system downtime was 34 minutes.
- **April 10, 2014 (unplanned):** The extraction well system was offline from 10:28 p.m. to 10:30 p.m. and 10:34 p.m. to 10:36 p.m. due to loss of power from City of Needles power. Extraction system downtime was 4 minutes.
- **April 16, 2014 (unplanned):** The extraction well system was offline from 4:04 p.m. to 6:36 p.m. to repair a leaking valve in the TW-03D vault at the MW-20 bench. Extraction system downtime was 2 hours, 32 minutes.
- **April 29, 2014 (unplanned):** The extraction well system was offline from 2:06 p.m. to 2:14 p.m. and 3:36 p.m. to 3:48 p.m. due to loss of power from City of Needles power. Extraction system downtime was 20 minutes.

May 2014

During May 2014, extraction wells TW-3D and PE-1 operated at a target pump rate of 135 gpm excluding periods of planned and unplanned downtime. Extraction wells TW-2D and TW-2S were not operated during May 2014. The operational run time for the IM-3 groundwater extraction system (combined or individual pumping) was 97.8 percent during the May 2014 reporting period.

The IM-3 facility treated approximately 6,006,584 gallons of extracted groundwater during May 2014. The IM-3 facility treated 2,210 gallons from groundwater monitoring well sampling. Two containers of solids from the IM-3 facility were transported offsite during May 2014.

Periods of planned and unplanned extraction system down time (that together resulted in approximately 2.2 percent of downtime during May 2014) are summarized below.

- **May 1, 2014 (planned):** The extraction well system was offline from 12:56 p.m. to 12:58 p.m., 1:12 p.m. to 1:16 p.m., from 1:20 p.m. to 1:22 p.m., from 1:28 p.m. to 1:30 p.m., from 1:38 p.m. to 1:44 p.m., and from 1:46 p.m. to 1:48 p.m. due to testing of critical alarms and leak detection system. Extraction system downtime was 18 minutes.

- **May 4, 2014 (unplanned):** The extraction well system was offline from 2:52 p.m. to 3:54 p.m. due to a low ferrous level. Extraction system downtime was 1 hour, 2 minutes.
- **May 7, 2014 (unplanned):** The extraction well system was offline from 10:42 p.m. to 11:22 p.m. to clean the T-100 microfilter strainer and flow meter FSL-201 and replace the concentrate CLA valve. Extraction system downtime was 40 minutes.
- **May 14, 2014 (unplanned):** The extraction well system was offline from 10:16 p.m. to 10:54 p.m. to replace the gear box on the clarifier flocculator. Extraction system downtime was 38 minutes.
- **May 17, 2014 (unplanned):** The extraction well system was offline from 9:32 p.m. to 9:54 p.m. to a low ferrous level. Extraction system downtime was 22 minutes.
- **May 20, 2014 (unplanned):** The extraction well system was offline from 9:38 a.m. to 10:20 a.m., 10:54 a.m. to 12:40 p.m., 1:04 p.m. to 1:36 p.m., 7:22 p.m. to 7:58 p.m., and 10:04 p.m. to 10:34 p.m. due to a malfunctioning air valve water valves in the microfilter system. Extraction system downtime was 4 hours, 6 minutes.
- **May 21, 2014 (unplanned):** The extraction well system was offline from 10:52 a.m. to 12:20 p.m. due to a high level in the Raw Water Tank (T-100). Extraction system downtime was 1 hour, 28 minutes.
- **May 28, 2014 (unplanned):** The extraction well system was offline from 4:44 a.m. to 12:20 p.m. and from 12:30 p.m. to 12:48 p.m. due to failure of the pretreated water booster pump (P-500). The pump was replaced and the RO membranes were switched during this time. Extraction system downtime was 7 hours, 54 minutes.

June 2014

During June 2014, extraction wells TW-3D and PE-1 operated at a target pump rate of 135 gpm excluding periods of planned and unplanned downtime. Extraction well TW-2D was in operation June 24, 25, 26, and 27, 2014. Extraction well TW-2S was not operated during June 2014. The operational run time for the IM-3 groundwater extraction system (combined or individual pumping) was 92.3 percent during the June 2014 reporting period.

The IM-3 facility treated approximately 5,200,751 gallons of extracted groundwater during June 2014. The IM-3 facility treated 27,000 gallons of injection well backwashing/re-development water. Two containers of solids from the IM-3 facility were transported offsite during June 2014.

Periods of planned and unplanned extraction system down time (that together resulted in approximately 7.7 percent of downtime during June 2014) are summarized below.

- **June 5, 2014 (planned):** The extraction well system was offline from 11:38 a.m. to 2:02 p.m. due to testing of critical alarms and leak detection system and replacement of the ferrous draw down tube. Extraction system downtime was 2 hours, 24 minutes.
- **June 7, 2014 (unplanned):** The extraction well system was offline from 6:58 a.m. to 10:12 a.m. due to a motor failure in the primary RO system. Extraction system downtime was 3 hours, 14 minutes.
- **June 11, 2014 (unplanned):** The extraction well system was offline from 1:18 p.m. to 3:08 p.m. due to a flow blockage in a manually operated valve between the oxidation tanks and the clarifier. Extraction system downtime was 1 hour, 50 minutes.

- **June 18, 2014 (unplanned):** The extraction well system was offline from 1:54 a.m. to 2:26 a.m. due to high levels in the Chromium Reduction Reactor (T-300) and the Iron Oxidation Reactors 1&2 (T-301A and T-301B). Extraction system downtime was 32 minutes.
- **June 18, 2014 (unplanned):** The extraction well system was offline from 1:04 p.m. to 4:12 p.m. due to a flow blockage in a manually controlled valve between the Iron Oxidation Reactors (T-301A,B,C) and the Clarifier (CL 400). Extraction system downtime was 3 hours, 8 minutes.
- **June 23-24, 2014 (planned):** The extraction well system was offline from 12:34 p.m. on June 23, 2014 to 8:34 a.m. on June 24, 2014 for AquaGuard application in extraction well TW-3D. Extraction system downtime was 20 hours.
- **June 24-25, 2014 (unplanned):** The extraction well system was offline on June 24, 2014 from 8:48 a.m. to 8:54 a.m., 9:10 a.m. to 9:14 a.m., 9:30 a.m. to 9:38 a.m. and 9:48 a.m. to 10:54 a.m.; on June 24, 2014 from 8:04 p.m. to June 25, 2014 at 1:36 p.m.; and on June 25, 2014 from 3:36 p.m. to 8:30 p.m. due to the TW-3D pump overheating. Extraction system downtime was 23 hours, 50 minutes.
- **June 26, 2014 (unplanned):** The extraction well system was offline from 7:24 p.m. to 7:38 p.m. due to a high level in the Raw Water Tank (T-100). Extraction system downtime was 14 minutes.
- **June 27, 2014 (unplanned):** The extraction well system was offline from 3:22 p.m. to 3:34 p.m. and 4:28 p.m. to 4:32 p.m. to switch the plant onto and off of generator power due to a loss of power from the City of Needles. Extraction system downtime was 16 minutes.

Appendix B
Daily Volumes of Groundwater Treated

January 2014 Operational Data

IM-3 Groundwater Extraction and Treatment System

PG&E Topock Compressor Station, Needles, California

Month	Day	Year	Extraction Well System					Injection Well System			RO Brine
			TW-2S (gallons)	TW-2D (gallons)	TW-3D (gallons)	PE-1 (gallons)	Total (gallons)	IW-02 (gallons)	IW-03 (gallons)	Total (gallons)	(gallons)
January	1	2014	--	--	155,247	38,142	193,389	193,277	19	193,296	0
January	2	2014	--	--	155,203	38,062	193,265	190,938	19	190,956	0
January	3	2014	--	--	155,167	38,007	193,174	197,394	24	197,418	0
January	4	2014	--	--	155,165	38,000	193,165	196,014	41	196,055	2,773
January	5	2014	--	--	155,054	37,922	192,977	191,555	26	191,581	0
January	6	2014	--	--	151,419	37,768	189,186	89,895	99,492	189,387	0
January	7	2014	--	--	154,876	38,620	193,496	145,835	46,268	192,103	0
January	8	2014	--	--	103,797	25,868	129,665	127,365	24	127,389	0
January	9	2014	--	--	154,985	38,425	193,410	195,355	27	195,382	3,013
January	10	2014	--	--	154,948	38,363	193,311	196,488	20	196,508	2,834
January	11	2014	--	--	154,928	38,362	193,290	190,834	21	190,856	3,777
January	12	2014	--	--	154,824	38,322	193,146	182,223	12,493	194,716	0
January	13	2014	--	--	154,732	38,160	192,892	186,358	239	186,596	0
January	14	2014	--	--	154,701	38,105	192,806	192,487	429	192,916	0
January	15	2014	--	--	154,649	38,141	192,790	128,154	68,997	197,151	0
January	16	2014	--	--	146,299	36,652	182,951	77,042	120,010	197,052	3,339
January	17	2014	--	--	154,471	38,870	193,341	87,575	108,803	196,378	0
January	18	2014	--	--	154,444	38,885	193,329	0	194,955	194,955	0
January	19	2014	--	--	154,411	38,859	193,270	0	195,328	195,328	0
January	20	2014	--	--	154,450	38,906	193,356	0	191,897	191,898	0
January	21	2014	--	--	154,380	38,758	193,138	0	194,952	194,953	0
January	22	2014	--	--	154,280	38,892	193,172	0	195,126	195,126	0
January	23	2014	--	--	154,268	38,833	193,101	1	194,424	194,425	3,309
January	24	2014	--	--	154,290	38,854	193,144	0	192,728	192,728	0
January	25	2014	--	--	154,295	38,824	193,118	1	191,875	191,875	0
January	26	2014	--	--	154,266	38,871	193,138	0	192,321	192,322	0
January	27	2014	--	--	154,074	38,666	192,740	0	192,987	192,987	0
January	28	2014	--	--	151,939	37,798	189,737	0	193,174	193,174	0
January	29	2014	--	--	154,387	38,414	192,801	86,798	108,177	194,975	2,977
January	30	2014	--	--	153,220	38,730	191,950	195,385	19	195,404	0
January	31	2014	--	--	154,167	38,804	192,970	197,819	16	197,835	2,892
Total Monthly Volumes (gallons)			0	0	4,727,337	1,177,881	5,905,218	3,248,793	2,694,933	5,943,725	24,914
Average Pump/Injection Rates (gpm)			0.0	0.0	105.9	26.4	132.3	72.8	60.4	133.1	0.6

NOTES: gpm: gallons per minute RO: Reverse Osmosis

- a. Extraction wells TW-3D and PE-1 were operated during January 2014 at a target pump rate of 135 gpm excluding periods of planned and unplanned downtime. Extraction wells TW-2D and TW-2S were not operated during January 2014.
- b. Effluent was discharged into injection wells IW-02 and IW-03.
- c. The difference between influent flow rate and the sum of the effluent and reverse osmosis concentrate flow rates during January 2014 is approximately 1.07 percent. This percentage difference includes instrument noise in the system, but is within the accuracy of the flow meters. A well is considered to be offline if the daily reported flow is 140 gallons per day or less.

February 2014 Operational Data

IM-3 Groundwater Extraction and Treatment System

PG&E Topock Compressor Station, Needles, California

Month	Day	Year	Extraction Well System					Injection Well System			RO Brine
			TW-2S (gallons)	TW-2D (gallons)	TW-3D (gallons)	PE-1 (gallons)	Total (gallons)	IW-02 (gallons)	IW-03 (gallons)	Total (gallons)	(gallons)
February	1	2014	--	--	154,114	38,878	192,992	193,006	18	193,024	3,105
February	2	2014	--	--	154,080	38,743	192,823	189,226	18	189,244	3,042
February	3	2014	--	--	154,057	38,701	192,759	192,802	17	192,819	3,334
February	4	2014	--	--	153,982	38,837	192,819	190,583	24	190,607	1,951
February	5	2014	--	--	154,015	38,868	192,883	186,703	27	186,730	1,194
February	6	2014	--	--	145,118	36,630	181,748	178,673	20	178,693	2,816
February	7	2014	--	--	154,202	38,558	192,760	191,220	25	191,245	0
February	8	2014	--	--	154,100	38,618	192,718	194,824	22	194,846	0
February	9	2014	--	--	154,149	38,536	192,685	191,073	24	191,098	3,028
February	10	2014	--	--	150,151	37,524	187,676	191,851	16	191,867	0
February	11	2014	--	--	154,076	38,328	192,403	193,241	17	193,258	3,039
February	12	2014	--	--	138,100	34,597	172,696	169,681	19	169,700	0
February	13	2014	--	--	153,956	38,513	192,468	189,485	17	189,503	2,998
February	14	2014	--	--	150,756	38,185	188,941	190,494	21	190,515	0
February	15	2014	--	--	153,764	38,894	192,658	190,251	19	190,270	2,788
February	16	2014	--	--	153,700	38,865	192,565	194,472	17	194,489	3,282
February	17	2014	--	--	153,678	38,835	192,513	194,618	19	194,637	0
February	18	2014	--	--	154,215	38,794	193,009	191,672	16	191,687	0
February	19	2014	--	--	144,540	36,373	180,913	175,934	15	175,949	3,375
February	20	2014	--	--	154,417	38,703	193,119	190,981	19	191,001	0
February	21	2014	--	--	154,282	38,559	192,841	197,744	19	197,763	0
February	22	2014	--	--	154,288	38,517	192,805	195,039	18	195,057	3,212
February	23	2014	--	--	154,229	38,518	192,747	194,899	16	194,915	0
February	24	2014	--	--	154,184	38,568	192,753	191,740	11	191,751	3,066
February	25	2014	--	--	154,166	38,478	192,644	191,763	19	191,781	0
February	26	2014	--	--	154,493	38,553	193,046	191,962	22	191,984	0
February	27	2014	--	--	155,792	38,566	194,358	191,885	20	191,906	3,056
February	28	2014	--	--	156,283	38,516	194,799	191,601	26	191,627	0
Total Monthly Volumes (gallons)			0	0	4,276,887	1,072,255	5,349,142	5,327,424	544	5,327,968	43,284
Average Pump/Injection Rates (gpm)			0.0	0.0	106.1	26.6	132.7	132.1	0.0	132.1	1.1

NOTES: gpm: gallons per minute RO: Reverse Osmosis

- Extraction wells TW-3D and PE-1 were operated during February 2014 at a target pump rate of 135 gpm excluding periods of planned and unplanned downtime. Extraction wells TW-2D and TW-2S were not operated during February 2014.
- Effluent was discharged into injection wells IW-02 and IW-03.
- The difference between influent flow rate and the sum of the effluent and reverse osmosis concentrate flow rates during February 2014 is approximately 0.41 percent. This percentage difference includes instrument noise in the system, but is within the accuracy of the flow meters. A well is considered to be offline if the daily reported flow is 140 gallons per day or less.

March 2014 Operational Data

IM-3 Groundwater Extraction and Treatment System

PG&E Topock Compressor Station, Needles, California

Month	Day	Year	Extraction Well System					Injection Well System			RO Brine
			TW-2S (gallons)	TW-2D (gallons)	TW-3D (gallons)	PE-1 (gallons)	Total (gallons)	IW-02 (gallons)	IW-03 (gallons)	Total (gallons)	(gallons)
March	1	2014	--	--	156,184	38,510	194,694	197,436	17	197,453	2,708
March	2	2014	--	--	156,047	38,533	194,580	198,131	22	198,153	0
March	3	2014	--	--	156,048	38,453	194,501	192,603	20	192,623	0
March	4	2014	--	--	154,554	38,348	192,902	195,722	19	195,741	0
March	5	2014	--	--	152,767	38,503	191,270	188,780	13	188,793	3,340
March	6	2014	--	--	150,898	38,225	189,122	180,939	12	180,951	0
March	7	2014	--	--	152,671	38,495	191,166	201,213	21	201,234	0
March	8	2014	--	--	153,681	38,495	192,176	192,863	19	192,881	3,031
March	9	2014	--	--	153,180	38,466	191,646	194,102	19	194,121	0
March	10	2014	--	--	148,814	40,160	188,974	182,045	16	182,062	0
March	11	2014	--	--	152,037	42,115	194,152	195,543	21	195,563	0
March	12	2014	--	--	147,240	39,839	187,080	187,336	19	187,355	2,885
March	13	2014	--	--	153,322	41,799	195,121	195,145	22	195,167	0
March	14	2014	--	--	153,009	41,644	194,652	194,802	17	194,819	0
March	15	2014	--	--	152,796	41,533	194,330	193,448	19	193,467	3,093
March	16	2014	--	--	152,635	41,536	194,171	194,566	19	194,585	0
March	17	2014	--	--	152,344	41,568	193,912	197,596	22	197,618	2,412
March	18	2014	--	--	152,466	41,727	194,192	190,122	17	190,139	1,301
March	19	2014	--	--	152,433	41,750	194,183	189,883	25	189,909	2,751
March	20	2014	--	--	152,500	41,671	194,170	201,285	19	201,304	0
March	21	2014	--	--	152,460	41,635	194,094	192,192	17	192,209	2,876
March	22	2014	--	--	152,158	41,573	193,731	192,399	19	192,418	3,093
March	23	2014	--	--	152,180	41,631	193,811	192,462	18	192,480	0
March	24	2014	--	--	152,168	41,618	193,786	192,507	18	192,525	3,082
March	25	2014	--	--	151,963	41,517	193,480	192,363	23	192,386	2,921
March	26	2014	--	--	151,975	41,535	193,510	193,258	19	193,277	3,342
March	27	2014	--	--	151,538	41,555	193,093	192,383	19	192,402	0
March	28	2014	--	--	151,403	41,538	192,941	186,645	20	186,665	3,068
March	29	2014	--	--	151,114	41,530	192,644	183,371	18	183,389	2,871
March	30	2014	--	--	151,255	41,545	192,799	192,295	18	192,312	3,027
March	31	2014	--	--	34,881	9,601	44,482	54,843	17	54,860	0
Total Monthly Volumes (gallons)			0	0	4,608,719	1,226,649	5,835,368	5,828,276	582	5,828,858	45,802
Average Pump/Injection Rates (gpm)			0.0	0.0	103.2	27.5	130.7	130.6	0.0	130.6	1.0

NOTES: gpm: gallons per minute RO: Reverse Osmosis

- a. Extraction wells TW-3D and PE-1 were operated during March 2014 at a target pump rate of 135 gpm excluding periods of planned and unplanned downtime. Extraction wells TW-2D and TW-2S were not operated during March 2014.
- b. Effluent was discharged into injection wells IW-02 and IW-03.
- c. The difference between influent flow rate and the sum of the effluent and reverse osmosis concentrate flow rates during March 2014 is approximately 0.67 percent. This percentage difference includes instrument noise in the system, but is within the accuracy of the flow meters. A well is considered to be offline if the daily reported flow is 140 gallons per day or less.

April 2014 Operational Data

IM-3 Groundwater Extraction and Treatment System

PG&E Topock Compressor Station, Needles, California

Month	Day	Year	Extraction Well System					Injection Well System			RO Brine	
			TW-2S (gallons)	TW-2D (gallons)	TW-3D (gallons)	PE-1 (gallons)	Total (gallons)	IW-02 (gallons)	IW-03 (gallons)	Total (gallons)	(gallons)	
April	1	2014	--	--	0	0	0	0	0	0	0	0
April	2	2014	--	--	0	0	0	0	0	0	0	0
April	3	2014	--	--	0	0	0	17,092	0	17,092	0	0
April	4	2014	--	79,959	0	8,399	88,358	31,452	0	31,452	0	0
April	5	2014	--	46,800	113,792	37,456	198,048	171,528	0	171,528	3,423	3,423
April	6	2014	--	--	155,436	36,512	191,948	191,941	0	191,941	3,203	3,203
April	7	2014	--	--	156,238	37,521	193,759	189,736	0	189,736	3,332	3,332
April	8	2014	--	--	155,795	37,878	193,673	188,917	0	188,917	2,950	2,950
April	9	2014	--	--	156,281	36,688	192,970	177,530	0	177,530	13,855	13,855
April	10	2014	--	--	155,946	35,891	191,837	192,454	0	192,454	0	0
April	11	2014	--	--	156,948	34,310	191,258	194,017	0	194,017	0	0
April	12	2014	--	--	157,271	32,974	190,244	189,373	0	189,373	0	0
April	13	2014	--	--	157,206	32,662	189,868	192,473	0	192,473	3,087	3,087
April	14	2014	--	--	155,952	36,419	192,371	189,606	0	189,606	0	0
April	15	2014	--	--	155,443	38,258	193,701	192,393	0	192,393	0	0
April	16	2014	--	--	139,374	33,764	173,138	120,880	47,642	168,522	3,087	3,087
April	17	2014	--	--	157,281	36,996	194,276	0	192,165	192,165	0	0
April	18	2014	--	--	157,117	37,005	194,122	0	195,221	195,221	0	0
April	19	2014	--	--	156,665	36,367	193,032	0	194,822	194,822	3,231	3,231
April	20	2014	--	--	156,767	35,980	192,746	0	191,065	191,065	0	0
April	21	2014	--	--	156,868	35,522	192,389	0	192,724	192,724	3,425	3,425
April	22	2014	--	--	156,225	37,639	193,864	0	193,590	193,590	0	0
April	23	2014	--	--	156,320	37,237	193,556	75,704	118,435	194,139	2,893	2,893
April	24	2014	--	--	156,349	36,538	192,887	191,719	0	191,719	0	0
April	25	2014	--	--	156,566	37,443	194,009	199,257	0	199,257	2,857	2,857
April	26	2014	--	--	155,640	37,703	193,344	191,052	0	191,052	0	0
April	27	2014	--	--	155,493	36,736	192,229	191,529	0	191,529	2,899	2,899
April	28	2014	--	--	154,800	39,852	194,652	195,553	0	195,553	0	0
April	29	2014	--	--	154,142	40,890	195,033	190,135	0	190,135	2,868	2,868
April	30	2014	--	--	155,808	41,026	196,834	197,537	0	197,537	0	0
Total Monthly Volumes (gallons)			0	126,759	4,001,723	965,666	5,094,148	3,671,879	1,325,663	4,997,542	51,109	51,109
Average Pump/Injection Rates (gpm)			0.0	2.9	92.6	22.4	117.9	85.0	30.7	115.7	1.2	1.2

NOTES: gpm: gallons per minute RO: Reverse Osmosis

- Extraction wells TW-3D and PE-1 were operated during April 2014 at a target pump rate of 135 gpm excluding periods of planned and unplanned downtime. Extraction well TW-2S was not operated during April 2014. Extraction well TW-2D operated on April 4 and 5, 2014.
- Effluent was discharged into injection wells IW-02 and IW-03.
- The difference between influent flow rate and the sum of the effluent and reverse osmosis concentrate flow rates during April 2014 is approximately 0.89 percent. This percentage difference includes instrument noise in the system, but is within the accuracy of the flow meters. A well is considered to be offline if the daily reported flow is 140 gallons per day or less.
- In April 2014, data exclusion criteria for instrument noise were modified to exclude all extraction and injection well flow data less than 15 gpm.

May 2014 Operational Data

IM-3 Groundwater Extraction and Treatment System

PG&E Topock Compressor Station, Needles, California

Month	Day	Year	Extraction Well System					Injection Well System			RO Brine
			TW-2S (gallons)	TW-2D (gallons)	TW-3D (gallons)	PE-1 (gallons)	Total (gallons)	IW-02 (gallons)	IW-03 (gallons)	Total (gallons)	(gallons)
May	1	2014	--	--	154,896	41,610	196,506	195,769	0	195,769	0
May	2	2014	--	--	156,180	42,530	198,710	196,361	0	196,361	3,038
May	3	2014	--	--	155,270	42,132	197,402	201,982	0	201,982	0
May	4	2014	--	--	149,684	40,400	190,084	187,864	0	187,864	3,318
May	5	2014	--	--	158,234	42,430	200,664	193,251	0	193,251	0
May	6	2014	--	--	157,520	42,040	199,560	202,038	0	202,038	2,816
May	7	2014	--	--	152,695	40,388	193,083	191,360	0	191,360	0
May	8	2014	--	--	158,080	42,597	200,676	197,590	0	197,590	2,831
May	9	2014	--	--	156,744	42,115	198,860	139,037	60,859	199,895	0
May	10	2014	--	--	155,860	41,803	197,663	0	197,301	197,301	3,286
May	11	2014	--	--	155,665	41,717	197,382	0	192,488	192,488	3,345
May	12	2014	--	--	155,101	41,667	196,768	0	193,369	193,369	2,927
May	13	2014	--	--	154,203	41,683	195,886	0	197,064	197,064	0
May	14	2014	--	--	150,153	40,520	190,673	0	188,038	188,038	2,847
May	15	2014	--	--	156,423	42,424	198,848	0	193,854	193,854	2,782
May	16	2014	--	--	154,858	42,292	197,150	0	197,849	197,849	0
May	17	2014	--	--	151,771	41,562	193,334	0	195,970	195,970	0
May	18	2014	--	--	155,122	42,559	197,680	0	193,003	193,003	3,161
May	19	2014	--	--	154,866	42,089	196,955	0	198,123	198,123	0
May	20	2014	--	--	130,731	35,154	165,885	0	158,452	158,452	0
May	21	2014	--	--	150,152	40,288	190,440	0	197,322	197,322	0
May	22	2014	--	--	158,471	42,389	200,860	0	203,671	203,671	0
May	23	2014	--	--	157,169	42,039	199,208	0	199,024	199,024	3,223
May	24	2014	--	--	155,610	41,819	197,429	0	196,013	196,013	0
May	25	2014	--	--	155,038	41,682	196,720	0	194,811	194,811	0
May	26	2014	--	--	155,103	41,575	196,678	0	191,864	191,864	3,141
May	27	2014	--	--	154,806	41,482	196,288	0	194,090	194,090	0
May	28	2014	--	--	105,877	28,536	134,413	0	135,838	135,838	0
May	29	2014	--	--	155,940	43,000	198,940	0	203,027	203,027	0
May	30	2014	--	--	153,155	43,079	196,235	0	195,652	195,652	3,012
May	31	2014	--	--	152,665	42,942	195,606	0	195,082	195,082	0
Total Monthly Volumes (gallons)			0	0	4,728,042	1,278,543	6,006,584	1,705,251	4,272,762	5,978,013	39,727
Average Pump/Injection Rates (gpm)			0.0	0.0	105.9	28.6	134.6	38.2	95.7	133.9	0.9

NOTES: gpm: gallons per minute RO: Reverse Osmosis

- Extraction wells TW-3D and PE-1 were operated during May 2014 at a target pump rate of 135 gpm excluding periods of planned and unplanned downtime. Extraction wells TW-2D and TW-2S were not operated during May 2014.
- Effluent was discharged into injection wells IW-02 and IW-03.
- The difference between influent flow rate and the sum of the effluent and reverse osmosis concentrate flow rates during May 2014 is approximately 0.19 percent. This percentage difference includes instrument noise in the system, but is within the accuracy of the flow meters. A well is considered to be offline if the daily reported flow is 140 gallons per day or less.
- In April 2014, data exclusion criteria for instrument noise were modified to exclude all extraction and injection well flow data less than 15 gpm.

June 2014 Operational Data

IM-3 Groundwater Extraction and Treatment System

PG&E Topock Compressor Station, Needles, California

Month	Day	Year	Extraction Well System					Injection Well System			RO Brine
			TW-2S (gallons)	TW-2D (gallons)	TW-3D (gallons)	PE-1 (gallons)	Total (gallons)	IW-02 (gallons)	IW-03 (gallons)	Total (gallons)	(gallons)
June	1	2014	--	--	152,733	42,811	195,544	0	195,183	195,183	0
June	2	2014	--	--	151,771	42,711	194,481	0	195,169	195,169	0
June	3	2014	--	--	152,032	42,561	194,593	0	195,077	195,077	0
June	4	2014	--	--	151,250	42,546	193,796	0	189,387	189,387	2,908
June	5	2014	--	--	138,532	38,346	176,878	0	179,717	179,717	0
June	6	2014	--	--	153,267	42,499	195,766	0	197,281	197,281	0
June	7	2014	--	--	132,846	37,061	169,907	0	168,905	168,905	0
June	8	2014	--	--	153,067	42,962	196,029	0	200,183	200,183	0
June	9	2014	--	--	152,617	42,579	195,196	0	189,711	189,711	0
June	10	2014	--	--	152,004	42,282	194,286	27,225	168,552	195,777	0
June	11	2014	--	--	140,907	39,111	180,018	0	183,279	183,279	0
June	12	2014	--	--	152,415	42,330	194,746	0	193,654	193,654	0
June	13	2014	--	--	151,535	42,487	194,022	0	192,177	192,177	2,925
June	14	2014	--	--	150,634	42,642	193,276	0	188,850	188,850	0
June	15	2014	--	--	150,368	42,567	192,934	0	192,682	192,682	0
June	16	2014	--	--	150,235	42,369	192,604	0	191,339	191,339	0
June	17	2014	--	--	150,365	42,200	192,564	0	188,187	188,187	2,892
June	18	2014	--	--	129,927	35,599	165,526	0	170,821	170,821	0
June	19	2014	--	--	151,743	42,926	194,669	0	192,651	192,651	0
June	20	2014	--	--	150,562	42,836	193,398	0	197,218	197,218	0
June	21	2014	--	--	150,220	42,619	192,839	0	188,567	188,567	0
June	22	2014	--	--	149,614	42,602	192,217	84,367	110,731	195,098	2,887
June	23	2014	--	--	78,824	22,295	101,119	105,158	0	105,158	0
June	24	2014	--	15,022	5,132	16,623	36,777	31,875	26,652	58,527	0
June	25	2014	--	13,028	0	10,045	23,073	0	29,333	29,333	0
June	26	2014	--	31,881	55,817	42,605	130,303	95,622	68,848	164,470	0
June	27	2014	--	32,959	62,495	42,784	138,238	156,457	0	156,457	0
June	28	2014	--	--	153,225	42,561	195,786	195,632	0	195,632	2,732
June	29	2014	--	--	153,114	42,072	195,186	198,358	0	198,358	0
June	30	2014	--	--	153,102	41,878	194,979	194,111	0	194,111	0
Total Monthly Volumes (gallons)			0	92,891	3,930,353	1,177,507	5,200,751	1,088,805	4,194,152	5,282,957	14,344
Average Pump/Injection Rates (gpm)			0.0	2.2	91.0	27.3	120.4	25.2	97.1	122.3	0.3

NOTES: gpm: gallons per minute RO: Reverse Osmosis

- Extraction wells TW-3D and PE-1 were operated during June 2014 at a target pump rate of 135 gpm excluding periods of planned and unplanned downtime. Extraction well TW-2S was not operated during June 2014. Extraction well TW-2D operated on June 24, 25, 26 and 27, 2014.
- Effluent was discharged into injection wells IW-02 and IW-03.
- The difference between influent flow rate and the sum of the effluent and reverse osmosis concentrate flow rates during June 2014 is approximately 1.86 percent. This percentage difference includes instrument noise in the system, but is within the accuracy of the flow meters. A well is considered to be offline if the daily reported flow is 140 gallons per day or less.
- In April 2014, data exclusion criteria for instrument noise were modified to exclude all extraction and injection well flow data less than 15 gpm.

Appendix C
Flowmeter Calibration Records

Flow Calibration with Adjustment

30171212-1304705

WWRA-006931-F

Purchase order number

US-19068473-30 / Endress+Hauser Flowtec

Order N°/Manufacturer

23P50-AL1A1AA022AW

Order code

PROMAG 23 P 2"

Transmitter/Sensor

6C036F16000

Serial N°

FIT-1201

Tag N°

FCP-6.F

Calibration rig

155.6102 us.gal/min ($\pm 100\%$)

Calibrated full scale

Current 4 - 20 mA

Calibrated output

0.9101

Calibration factor

-34

Zero point

78.7 °F

Water temperature

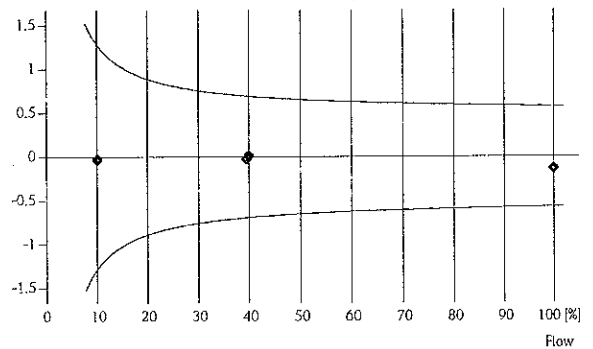
Flow [%]	Flow [us.gal/min]	Duration [s]	V target [us.gal]	V meas. [us.gal]	Δ o.r.* [%]	Outp.** [mA]
10.1	15.7	30.2	7.8942	7.8921	-0.03	5.61
39.5	61.5	30.2	30.956	30.950	-0.02	10.32
39.9	62.1	30.2	31.263	31.268	0.02	10.39
100.0	155.7	30.2	78.338	78.232	-0.14	19.98
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-

*o.r.: of rate

**Calculated value (4 - 20 mA)

Measured error % o.r.

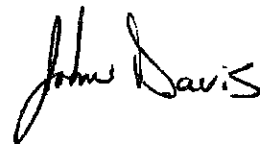
Tolerance limit: $\pm 0.5\%$ o.r.* \pm Zero stability



For detailed data concerning output specifications of the unit under test, see technical informations (TI), chapter Performance characteristics.

The calibration is traceable to the N.I.S.T. through standards certified at preset intervals.

Endress+Hauser Flowtec operates ISO/IEC 17025 accredited calibration facilities in Reinach (CH), Cemay (FR), Greenwood (USA), Aurangabad (IN) and Suzhou (CN).



John Davis

Operator

Certified acc. to
MIL-STD-45662A
ISO 9001, Reg.-N° 030502.2

08-06-2010

Date of calibration

Endress+Hauser Flowtec, Division USA
2330 Endress Place
Greenwood, IN 46143

Flow Calibration with Adjustment

10258001-1304700

4600091011

Purchase order number

US-3601523401-200 / Endress+Hauser Flowtec

Order N°/Manufacturer

23P50-AL1A1AA022AW

Order code

PROMAG 23 P 2"

Transmitter/Sensor

6C037316000

Serial N°

FIT-1205

Tag N°

FCP-7.1.E

Calibration rig

155.6102 us.gal/min ($\pm 100\%$)

Calibrated full scale

Current 4 - 20 mA

Calibrated output:

0.9145

Calibration factor

0

Zero point

70.5 °F

Water temperature

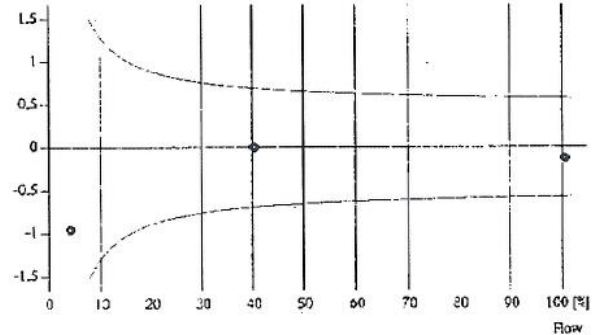
Flow P4	Flow [us.gal/min]	Duration [s]	V target [us.gal]	V meas. us.gal	Δ o.r.* [%]	Outp.** [mA]
4.0	6.27	55.2	5.7720	5.7163	-0.96	4.64
40.2	62.5	30.2	31.439	31.439	0.00	10.43
40.3	62.6	30.2	31.498	31.497	0.00	10.44
100.7	156.7	30.2	78.760	78.656	-0.13	20.09
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-

*Out of rate

**Calculated value (4 - 20 mA)

Measured error % o.r.


Tolerance limit: $\pm 0.5\%$ o.r.* \pm Zero stability



For detailed data concerning output specifications of the unit under test, see Technical Information (TI), chapter Performance characteristics.

The calibration is traceable to the N.I.S.T. through standards certified at preset intervals.

Endress+Hauser Flowtec operates ISO/IEC 17025 accredited calibration facilities in Reinach (CH), Cernay (FR), Greenwood (USA), Aurangabad (IN) and Suzhou (CN).



John Davis

Operator

Certified acc. to
ISO 9001, Reg.-N° 030502.2
ISO 14001, Reg.-N° EMS561046

01-07-2013

Date of calibration

Endress+Hauser Flowtec, Division USA
2330 Endress Place
Greenwood, IN 46143



People for Process Automation

Flow Calibration without Adjustment

92504354-1Z75191

4017515743

Purchase order number

US-3601525773-100 / Endress+Hauser Inc.

Order N°/Manufacturer

23P50-AL1A1RA022AW

Order code

PROMAG 23 P 2"

Transmitter/Sensor

6A022016000

Serial N°

FIT-101

Tag N°

FCP-8.2 US

Calibration rig

156 us.gal/min ($\pm 100\%$)

Calibrated full scale

Current 4 - 20 mA

Calibrated output

0.9207

Calibration factor

0

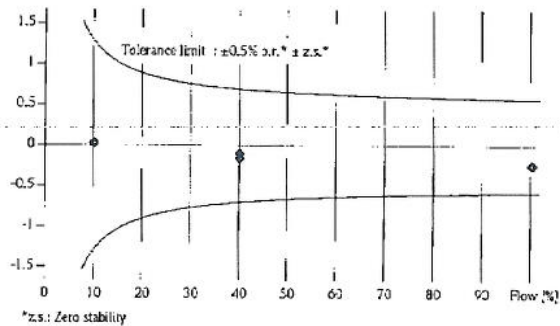
Zero point

72.6 °F

Water temperature

Flow [l]	Flow [us.gal/min]	Duration [sec]	V target [us.gal]	V meas. [us.gal]	Δ o.r.* [%]	Outp.** [mA]
10.0	15.661	60.0	15.672	15.677	0.03	5.61
40.1	62.621	60.0	62.668	62.570	-0.16	10.41
40.2	62.632	60.0	62.678	62.615	-0.10	10.42
100.4	156.615	60.0	156.730	156.360	-0.24	20.03
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-

Measured error % o.r.



*o.r.: of rate

**Calculated value (4 - 20 mA)

For detailed data concerning output specifications of the unit under test, see Technical Information (TI), chapter Performance characteristics. Traceability to the national standard for all test instruments used for the calibration is guaranteed.

Endress+Hauser Flowtec operates ISO/IEC 17025 accredited calibration facilities in Reinach (CH), Cernay (FR), Greenwood (USA), Aurangabad (IN) and Suzhou (CN).

Wesley Watkins

W. Watkins
Operator

09-20-2013

Date of calibration

Endress+Hauser Inc.
10057 Porter Road
La Porte, Texas 77571

Flow Calibration without Adjustment

92004350-1275192

4017515743

Purchase order number

US-3601525789-100 / Endress+Hauser Inc.

Order N°/Manufacturer

23P50-AL1A1RA022AW

Order code

PROMAG 23 P 2"

Transmitter/Sensor

6A022116000

Serial N°

FIT-102

Tag N°

FCP-8.2 US

Calibration rig

156 us.gal/min ($\pm 100\%$)

Calibrated full scale

Current 4 - 20 mA

Calibrated output

0.9082

Calibration factor

0

Zero point

72.3 °F

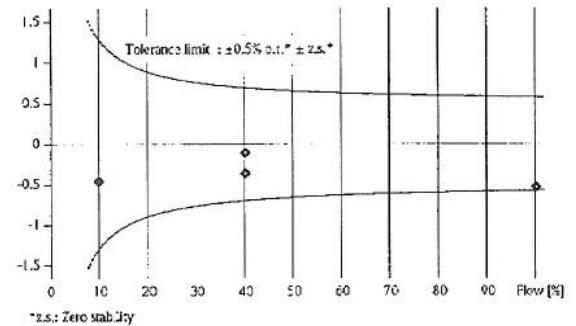
Water temperature

Flow [%]	Flow [us.gal/min]	Duration [sec]	V target [us.gal]	V meas. [us.gal]	Δ o.r.* [%]	Outp.** [mA]
10.0	15.643	60.0	15.654	15.582	-0.46	5.60
40.1	62.618	60.0	62.665	62.440	-0.36	10.40
40.2	62.628	60.0	62.673	62.607	-0.11	10.42
100.3	156.535	60.0	156.646	155.804	-0.54	19.97
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-

*o.r.: of race

**Calculated value (4 - 20 mA)

Measured error % o.r.



For detailed data concerning output specifications of the unit under test, see Technical Information (TI), chapter: Performance characteristics.
 Traceability to the national standard for all test instruments used for the calibration is guaranteed.

Endress+Hauser Flowtec operates ISO/IEC 17025 accredited calibration facilities in Reinach (CH), Cemay (FR), Greenwood (USA), Aurangabad (IN) and Suzhou (CN).

Wesley Watkins

W. Watkins
 Operator

09-20-2013
 Date of calibration

Endress+Hauser Inc.
 10057 Porter Road
 La Porte, Texas 77571

Endress+Hauser

People for Process Automation

Flow Calibration without Adjustment

92004352-1304708

4017515743

Purchase order number

US-3601525789-300 / Endress+Hauser Inc.

Order N°/Manufacturer

23P50-AL1A1AA022AW

Order code

PROMAG 23 P 2"

Transmitter/Sensor

6C037216000

Serial N°

FIT-1204

Tag N°

FCP-8.2 US

Calibration rig

156 us.gal/min ($\pm 100\%$)

Calibrated full scale

Current 4 - 20 mA

Calibrated output

0.9184

Calibration factor

20

Zero point

72.4 °F

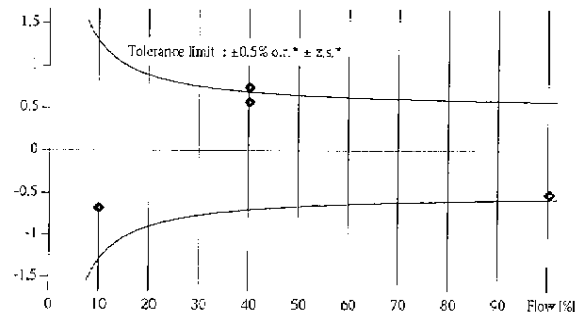
Water temperature

Flow [%]	Flow [us.gal/min]	Duration [sec]	V target [us.gal]	V meas. [us.gal]	Δ o.r.* [%]	Outp.** [mA]
10.0	15.636	60.0	15.646	15.540	-0.68	5.59
40.2	62.632	60.1	62.693	63.163	0.75	10.47
40.2	62.630	60.0	62.671	63.033	0.58	10.46
100.4	156.630	60.0	156.742	155.931	-0.52	19.98
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-

*o.r.: of rate

**Calculated value (4 - 20 mA)

Measured error % o.r.



For detailed data concerning output specifications of the unit under test, see Technical Information (TI), chapter Performance characteristics. Traceability to the national standard for all test instruments used for the calibration is guaranteed.

Endress+Hauser Flowtec operates ISO/IEC 17025 accredited calibration facilities in Reinach (CH), Cernay (FR), Greenwood (USA), Aurangabad (IN) and Suzhou (CN).

09-20-2013

Date of calibration

Endress+Hauser Inc.
10057 Porter Road
La Porte, Texas 77571



W. Watkins

Operator

Flow Calibration without Adjustment

92002720-1304700

4600082515

Purchase order number

US-3601521707-200 / Endress+Hauser Inc.

Order N°/Manufacturer

23P50-AL1A1AA022AW

Order code

PROMAG 23 P 2"

Transmitter/Sensor

6C037016000

Serial N°

FIT-1202

Tag N°

FCP-8.2 US

Calibration rig

155 us.gal/min ($\pm 100\%$)

Calibrated full scale

Current 4 - 20 mA

Calibrated output

0.9154

Calibration factor

0

Zero point

75.5 °F

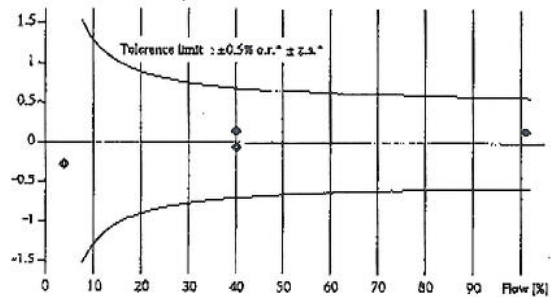
Water temperature

Flow [%]	Flow [us.gal/min]	Duration [sec]	V target [us.gal]	V meas. [us.gal]	Δ o.r.* [%]	Outp.** [mA]
4.0	6.12	60.0	6.1222	6.1053	-0.28	4.63
40.1	62.2	60.0	62.267	62.358	0.15	10.43
40.2	62.2	60.0	62.283	62.243	-0.06	10.42
101.1	156.7	60.0	156.766	156.998	0.15	20.20
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-

*o.r.: of rate

**Calculated value (4 - 20 mA)

Measured error % o.r.



*z.s.: Zero stability

For detailed data concerning output specifications of the unit under test, see Technical Information (TI), chapter Performance characteristics. Traceability to the national standard for all test instruments used for the calibration is guaranteed.

Endress+Hauser Flowtec operates ISO/IEC 17025 accredited calibration facilities in Reinach (CH), Cernay (FR), Greenwood (USA), Aurangabad (IN) and Suzhou (CN).

Wesley Watkins

W. Watkins
Operator

06-19-2012
Date of calibration

Endress+Hauser Inc.
10057 Porter Road
La Porte, Texas 77571

Flow Calibration with Adjustment

30202337-1 385113

WWRA008929F
Purchase order number
US-465002382-30 / Endress+Hauser Flowtec
Order N°/Manufacturer
23P80-AL1A1AA022AW
Order code
PROMAG 23 P 3"
Transmitter/Sensor
7700C616000
Serial N°
-
Tag N°

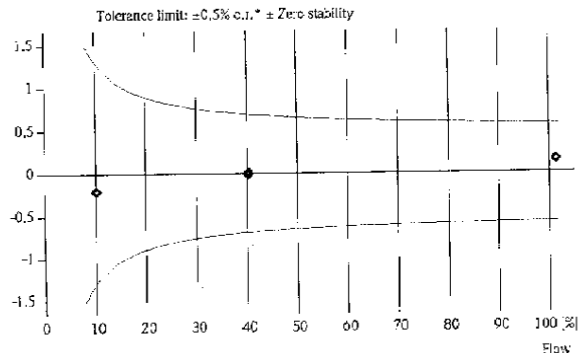
FCP-7.1.B
Calibration rig
398.3621 us.gal/min (± 100%)
Calibrated full scale
Current 4 - 20 mA
Calibrated output
1.1670
Calibration factor
35
Zero point
82.3 °F
Water temperature

Flow [%]	Flow [us.gal/min]	Duration [s]	V target [us.gal]	V meas. [us.gal]	Δ o.r.* [%]	Outp.** [mA]
10.1	40.0	60.1	40.074	39.992	-0.20	5.60
40.2	160.2	60.1	160.332	160.322	-0.01	10.43
40.2	160.2	60.1	160.400	160.424	0.01	10.44
101.4	404.0	60.1	404.438	405.041	0.15	20.25
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-

*o.r.: of rate

**Calculated value (4 - 20 mA)

Measured error % o.r.



For detailed data concerning output specifications of the unit under test, see technical informations (TI), chapter Performance characteristics.

The calibration is traceable to the N.I.S.T. through standards certified at preset intervals.

Endress+Hauser Flowtec operates ISO/IEC 17025 accredited calibration facilities in Reinach (CH), Cernay (FR), Greenwood (USA), Aurangabad (IN) and Suzhou (CN).

07-25-2011

Date of calibration

Endress+Hauser Flowtec, Division USA
2330 Endress Place
Greenwood, IN 46143



Taylor Shepard

Operator

Certified acc. to
ISO 9001, Reg-N° 030502.2
ISO 14001, Reg-N° EMS561046

Flow Calibration without Adjustment

92002718-1275190

4600082515

Purchase order number

US-3601521707-100 / Endress+Hauser Inc.

Order N°/Manufacturer

23P50-AL1A1RA022AW

Order code

PROMAG 23 P 2"

Transmitter/Sensor

6A021F16000

Serial N°

FIT-100

Tag N°

FCP-8.2 US

Calibration rtg

155 us.gal/min ($\pm 100\%$)

Calibrated full scale

Current 4 - 20 mA

Calibrated output

0.9178

Calibration factor

0

Zero point

75.3 °F

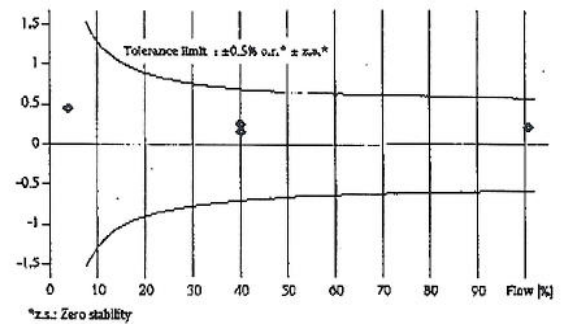
Water temperature

Flow (%)	Flow [us.gal/min]	Duration [sec]	V target [us.gal]	V meas. [us.gal]	Δ o.r.* (%)	Outp.** [mA]
4.0	6.14	60.0	6.1423	6.1699	0.45	4.64
40.2	62.3	60.0	62.353	62.512	0.26	10.45
40.2	62.3	60.0	62.361	62.460	0.16	10.44
100.8	156.3	60.0	156.354	156.703	0.22	20.17
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-

*o.r.: of rate

**Calculated value (4 - 20 mA)

Measured error % o.r.



For detailed data concerning output specifications of the unit under test, see Technical Information (TI), chapter Performance characteristics. Traceability to the national standard for all test instruments used for the calibration is guaranteed.

Endress+Hauser Flowtec operates ISO/IEC 17025 accredited calibration facilities in Reinach (CH), Cernay (FR), Greenwood (USA), Aurangabad (IN) and Suzhou (CN).

Wesley Watkins

W. Watkins
Operator

06-19-2012

Date of calibration

Endress+Hauser Inc.
10057 Porter Road
La Porte, Texas 77571

Appendix D
Second Quarter 2014
Laboratory Analytical Reports

April 21, 2014

Shawn P. Duffy
CH2M HILL
155 Grand Avenue, Suite 1000
Oakland, CA 94612

TEL: (530) 229-3303
FAX: (530) 339-3303

CA-ELAP No.: 2676
NV Cert. No.: NV-00922

Workorder No.: N012293

RE: PG&E Topock, 428648.IM.CS.EX.AC

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on April 05, 2014 by Advanced Technology Laboratories, Inc. . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

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

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

Sincerely,



Jose Tenorio Jr.
Laboratory Director

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

Advanced Technology Laboratories, Inc.
dba ASSET Laboratories

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

CLIENT: CH2M HILL
Project: PG&E Topock, 428648.IM.CS.EX.AC
Lab Order: N012293

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.

CLIENT: CH2M HILL
Project: PG&E Topock, 428648.IM.CS.EX.AC
Lab Order: N012293
Contract No: IM3Plant-WDR-

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N012293-001A	SC-700B-WDR-461	Water	4/5/2014 6:30:00 AM	4/5/2014	4/21/2014
N012293-001B	SC-700B-WDR-461	Water	4/5/2014 6:30:00 AM	4/5/2014	4/21/2014
N012293-001C	SC-700B-WDR-461	Water	4/5/2014 6:30:00 AM	4/5/2014	4/21/2014

CLIENT: CH2M HILL
Work Order: N012293
Project: PG&E Topock, 428648.IM.CS.EX.AC

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: N012293-001C-DUP	SampType: DUP	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:	RunNo: 92983						
Client ID: ZZZZZ	Batch ID: R92983	TestNo: EPA 120.1	Analysis Date: 4/5/2014	SeqNo: 1755545							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	6620.000	0.10						6640	0.302	10	

Qualifiers:

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

- E Value above quantitation range
- R RPD outside accepted recovery limits

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

CLIENT: CH2M HILL
Lab Order: N012293
Project: PG&E Topock, 428648.IM.CS.EX.AC
Lab ID: N012293-001

Client Sample ID: SC-700B-WDR-461
Collection Date: 4/5/2014 6:30:00 AM
Matrix: WATER

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

SM2540C

RunID: WETCHEM_140407A	QC Batch: 45367			PrepDate: 4/7/2014		Analyst: LCC	
Total Dissolved Solids (Residue, Filterable)	3800	50	50	mg/L	1	4/7/2014 01:43 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

Advanced Technology Laboratories, Inc.

dba **ASSET Laboratories**

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

CLIENT: CH2M HILL
Work Order: N012293
Project: PG&E Topock, 428648.IM.CS.EX.AC

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.1_2540C_W

Sample ID: MB-45367	SampType: MBLK	TestCode: 160.1_2540C_ Units: mg/L	Prep Date: 4/7/2014	RunNo: 93001							
Client ID: PBW	Batch ID: 45367	TestNo: SM2540C	Analysis Date: 4/7/2014	SeqNo: 1757111							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	ND	10									

Sample ID: LCS-45367	SampType: LCS	TestCode: 160.1_2540C_ Units: mg/L	Prep Date: 4/7/2014	RunNo: 93001							
Client ID: LCSW	Batch ID: 45367	TestNo: SM2540C	Analysis Date: 4/7/2014	SeqNo: 1757112							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	979.000	10	1000	0	97.9	80	120				

Sample ID: N012278-007D-DUP	SampType: DUP	TestCode: 160.1_2540C_ Units: mg/L	Prep Date: 4/7/2014	RunNo: 93001							
Client ID: ZZZZZ	Batch ID: 45367	TestNo: SM2540C	Analysis Date: 4/7/2014	SeqNo: 1757119							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	677.000	10						676.0	0.148	5	

Qualifiers:

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

E Value above quantitation range
 R RPD outside accepted recovery limits

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

Calculations are based on raw values
 3151 W. Post Rd, Las Vegas, NV 89118
 P: 702.307.2659 F: 702.307.2691
www.assetlaboratories.com

CLIENT: CH2M HILL
Lab Order: N012293
Project: PG&E Topock, 428648.IM.CS.EX.AC
Lab ID: N012293-001

Client Sample ID: SC-700B-WDR-461
Collection Date: 4/5/2014 6:30:00 AM
Matrix: WATER

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

TURBIDITY

EPA 180.1

RunID: WETCHEM_140405B	QC Batch: R92984	PrepDate:	Analyst: LCC
Turbidity	ND 0.10	0.10	NTU 1
			4/5/2014

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

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

Advanced Technology Laboratories, Inc.

dba **ASSET Laboratories**

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

CLIENT: CH2M HILL
Work Order: N012293
Project: PG&E Topock, 428648.IM.CS.EX.AC

ANALYTICAL QC SUMMARY REPORT

TestCode: 180.1_W

Sample ID: N012293-001C-DUP	SampType: DUP	TestCode: 180.1_W	Units: NTU	Prep Date:	RunNo: 92984						
Client ID: ZZZZZ	Batch ID: R92984	TestNo: EPA 180.1	Analysis Date: 4/5/2014	SeqNo: 1755547							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Turbidity	ND	0.10						0	0	30	

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

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

CLIENT: CH2M HILL
Lab Order: N012293
Project: PG&E Topock, 428648.IM.CS.EX.AC
Lab ID: N012293-001

Client Sample ID: SC-700B-WDR-461
Collection Date: 4/5/2014 6:30:00 AM
Matrix: WATER

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

ICPMS METALS

EPA 200.8

RunID: ICP7_140407A	QC Batch: 45356			PrepDate: 4/7/2014		Analyst: CEI
Manganese	ND	0.026	0.50	µg/L	1	4/7/2014 02:54 PM

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

Advanced Technology Laboratories, Inc.

dba **ASSET Laboratories**

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

CLIENT: CH2M HILL
Work Order: N012293
Project: PG&E Topock, 428648.IM.CS.EX.AC

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID: MB-45356	SampType: MBLK	TestCode: 200.8_W	Units: µg/L	Prep Date: 4/7/2014	RunNo: 92998						
Client ID: PBW	Batch ID: 45356	TestNo: EPA 200.8		Analysis Date: 4/7/2014	SeqNo: 1756980						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Sample ID: LCS-45356	SampType: LCS	TestCode: 200.8_W	Units: µg/L	Prep Date: 4/7/2014	RunNo: 92998						
Client ID: LCSW	Batch ID: 45356	TestNo: EPA 200.8		Analysis Date: 4/7/2014	SeqNo: 1756981						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	102.710	0.50	100.0	0	103	85	115				

Sample ID: N012251-001B-MS	SampType: MS	TestCode: 200.8_W	Units: µg/L	Prep Date: 4/7/2014	RunNo: 92998						
Client ID: ZZZZZ	Batch ID: 45356	TestNo: EPA 200.8		Analysis Date: 4/7/2014	SeqNo: 1756985						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	93.423	0.50	100.0	0	93.4	75	125				

Sample ID: N012251-001B-MSD	SampType: MSD	TestCode: 200.8_W	Units: µg/L	Prep Date: 4/7/2014	RunNo: 92998						
Client ID: ZZZZZ	Batch ID: 45356	TestNo: EPA 200.8		Analysis Date: 4/7/2014	SeqNo: 1756986						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	93.564	0.50	100.0	0	93.6	75	125	93.42	0.150	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

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

Calculations are based on raw values
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CLIENT: CH2M HILL	Client Sample ID: SC-700B-WDR-461
Lab Order: N012293	Collection Date: 4/5/2014 6:30:00 AM
Project: PG&E Topock, 428648.IM.CS.EX.AC	Matrix: WATER
Lab ID: N012293-001	

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

EPA 218.6

RunID: IC6_140406A	QC Batch: R92992	PrepDate:	Analyst: QBM
Hexavalent Chromium	0.45 0.016	0.20	µg/L 1 4/6/2014 09:32 AM

ICP-MS METALS

EPA 200.8

RunID: ICP7_140407A	QC Batch: 45356	PrepDate: 4/7/2014	Analyst: CEI
Chromium	ND 0.030	1.0	µg/L 1 4/7/2014 02:54 PM

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

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CLIENT: CH2M HILL
Work Order: N012293
Project: PG&E Topock, 428648.IM.CS.EX.AC

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W_CRPGE

Sample ID: MB-45356	SampType: MBLK	TestCode: 200.8_W_CR	Units: µg/L	Prep Date: 4/7/2014	RunNo: 92998
Client ID: PBW	Batch ID: 45356	TestNo: EPA 200.8	Analysis Date: 4/7/2014	SeqNo: 1757010	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Chromium	ND	1.0			

Sample ID: LCS-45356	SampType: LCS	TestCode: 200.8_W_CR	Units: µg/L	Prep Date: 4/7/2014	RunNo: 92998
Client ID: LCSW	Batch ID: 45356	TestNo: EPA 200.8	Analysis Date: 4/7/2014	SeqNo: 1757011	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Chromium	10.285	1.0	10.00	0	103 85 115

Sample ID: N012251-001B-MS	SampType: MS	TestCode: 200.8_W_CR	Units: µg/L	Prep Date: 4/7/2014	RunNo: 92998
Client ID: ZZZZZ	Batch ID: 45356	TestNo: EPA 200.8	Analysis Date: 4/7/2014	SeqNo: 1757015	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Chromium	11.081	1.0	10.00	1.286	98.0 75 125

Sample ID: N012251-001B-MSD	SampType: MSD	TestCode: 200.8_W_CR	Units: µg/L	Prep Date: 4/7/2014	RunNo: 92998
Client ID: ZZZZZ	Batch ID: 45356	TestNo: EPA 200.8	Analysis Date: 4/7/2014	SeqNo: 1757016	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Chromium	11.069	1.0	10.00	1.286	97.8 75 125 11.08 0.102 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
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N012293
Project: PG&E Topock, 428648.IM.CS.EX.AC

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: N012293-001A-MS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 92992						
Client ID: ZZZZZZ	Batch ID: R92992	TestNo: EPA 218.6		Analysis Date: 4/6/2014	SeqNo: 1756776						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	1.506	0.20	1.000	0.4526	105	90	110
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Sample ID: N012292-002A-MS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 92992						
Client ID: ZZZZZZ	Batch ID: R92992	TestNo: EPA 218.6		Analysis Date: 4/6/2014	SeqNo: 1756780						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	1.796	0.20	1.000	0.8239	97.2	90	110
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Sample ID: N012253-016A-MS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 92992						
Client ID: ZZZZZZ	Batch ID: R92992	TestNo: EPA 218.6		Analysis Date: 4/6/2014	SeqNo: 1756782						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	1.051	0.20	1.000	0.04320	101	90	110
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Sample ID: N012268-001A-MS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 92992						
Client ID: ZZZZZZ	Batch ID: R92992	TestNo: EPA 218.6		Analysis Date: 4/6/2014	SeqNo: 1756784						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	2.592	0.20	1.000	1.595	99.7	90	110
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Sample ID: N012268-002A-MS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 92992						
Client ID: ZZZZZZ	Batch ID: R92992	TestNo: EPA 218.6		Analysis Date: 4/6/2014	SeqNo: 1756786						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	4.670	0.20	1.000	3.705	96.5	90	110
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Qualifiers:

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

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CLIENT: CH2M HILL
Work Order: N012293
Project: PG&E Topock, 428648.IM.CS.EX.AC

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: N012268-003A-MS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 92992						
Client ID: ZZZZZZ	Batch ID: R92992	TestNo: EPA 218.6	Analysis Date: 4/6/2014	SeqNo: 1756788							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	2.435	0.20	1.000	1.436	99.9	90	110				

Sample ID: N012268-004A-MS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 92992						
Client ID: ZZZZZZ	Batch ID: R92992	TestNo: EPA 218.6	Analysis Date: 4/6/2014	SeqNo: 1756792							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	2.785	0.20	1.000	1.834	95.2	90	110				

Sample ID: N012268-005A-MS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 92992						
Client ID: ZZZZZZ	Batch ID: R92992	TestNo: EPA 218.6	Analysis Date: 4/6/2014	SeqNo: 1756794							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	2.163	0.20	1.000	1.195	96.8	90	110				

Sample ID: N012268-006A-MS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 92992						
Client ID: ZZZZZZ	Batch ID: R92992	TestNo: EPA 218.6	Analysis Date: 4/6/2014	SeqNo: 1756796							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	2.462	0.20	1.000	1.475	98.8	90	110				

Sample ID: N012268-007A-MS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 92992						
Client ID: ZZZZZZ	Batch ID: R92992	TestNo: EPA 218.6	Analysis Date: 4/6/2014	SeqNo: 1756798							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.938	0.20	1.000	3.951	98.8	90	110				

Qualifiers:

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

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Work Order: N012293
Project: PG&E Topock, 428648.IM.CS.EX.AC

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: N012268-008A-MS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 92992						
Client ID: ZZZZZZ	Batch ID: R92992	TestNo: EPA 218.6		Analysis Date: 4/6/2014	SeqNo: 1756800						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	1.699	0.20	1.000	0.6716	103	90	110
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Sample ID: N012268-009A-MS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 92992						
Client ID: ZZZZZZ	Batch ID: R92992	TestNo: EPA 218.6		Analysis Date: 4/6/2014	SeqNo: 1756804						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	2.758	0.20	1.000	1.782	97.6	90	110
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Sample ID: N012268-010A-MS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 92992						
Client ID: ZZZZZZ	Batch ID: R92992	TestNo: EPA 218.6		Analysis Date: 4/6/2014	SeqNo: 1756806						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	3.668	0.20	1.000	2.596	107	90	110
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Sample ID: N012268-011A-MS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 92992						
Client ID: ZZZZZZ	Batch ID: R92992	TestNo: EPA 218.6		Analysis Date: 4/6/2014	SeqNo: 1756808						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	2.739	0.20	1.000	1.652	109	90	110
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Sample ID: N012268-012A-MS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 92992						
Client ID: ZZZZZZ	Batch ID: R92992	TestNo: EPA 218.6		Analysis Date: 4/6/2014	SeqNo: 1756810						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	3.077	0.20	1.000	2.122	95.5	90	110
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Qualifiers:

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

Calculations are based on raw values
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CLIENT: CH2M HILL
Work Order: N012293
Project: PG&E Topock, 428648.IM.CS.EX.AC

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: N012268-013A-MS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 92992						
Client ID: ZZZZZZ	Batch ID: R92992	TestNo: EPA 218.6	Analysis Date: 4/6/2014	SeqNo: 1756812							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	2.255	0.20	1.000	1.215	104	90	110				

Sample ID: N012268-014A-MS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 92992						
Client ID: ZZZZZZ	Batch ID: R92992	TestNo: EPA 218.6	Analysis Date: 4/6/2014	SeqNo: 1756816							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.383	0.20	1.000	0.3566	103	90	110				

Sample ID: N012268-015A-MS	SampType: MS	TestCode: 218.6_WPGE	Units: µg/L	Prep Date:	RunNo: 92992						
Client ID: ZZZZZZ	Batch ID: R92992	TestNo: EPA 218.6	Analysis Date: 4/6/2014	SeqNo: 1756818							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.210	0.20	1.000	0.2217	98.9	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

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

Calculations are based on raw values
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WORKORDER: N012293

ANALYST LIST

NAME	TEST METHOD
Quennie Manimtim	EPA 218.6
Claire Ignacio	EPA 200.8
Luisa Cabasug	EPA 120.1, SM 2540C, EPA 180.1

Advanced Technology Laboratories, Inc.

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


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

Cooler Received/Opened On: 4/5/2014 Workorder: N012293
 Rep sample Temp (Deg C): 1.4 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 <input checked="" type="checkbox"/> | No <input type="checkbox"/> | Not Present <input type="checkbox"/> |
| 2. Custody seals intact, signed, dated on shipping container/cooler? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | Not Present <input checked="" type="checkbox"/> |
| 3. Custody seals intact on sample bottles? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | Not Present <input checked="" type="checkbox"/> |
| 4. Chain of custody present? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 5. Sampler's name present in COC? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 6. Chain of custody signed when relinquished and received? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 7. Chain of custody agrees with sample labels? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 8. Samples in proper container/bottle? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 9. Sample containers intact? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 10. Sufficient sample volume for indicated test? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 11. All samples received within holding time? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 12. Temperature of rep sample or Temp Blank within acceptable limit? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | NA <input type="checkbox"/> |
| 13. Water - VOA vials have zero headspace? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/> |
| 14. Water - pH acceptable upon receipt?
Example: pH > 12 for (CN,S); pH<2 for Metals | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | NA <input type="checkbox"/> |
| 15. Did the bottle labels indicate correct preservatives used? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | NA <input type="checkbox"/> |
| 16. Were there Non-Conformance issues at login? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/> |
| Was Client notified? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/> |

Comments:

Checklist Completed By For:  MBC 04/07/2014

Reviewed By:  04/08/14

SAMPLE CALCULATION

METHOD: SM 2540C

TEST NAME: Total Filterable Residue

MATRIX: Water

FORMULA:

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

$$\text{TDS, mg/L} = \frac{(A-B) * 1000000}{C}$$

Where:

A = weight in g of dish + residue after drying

B = weight of dish in g

C = volume of sample used in mL

For **N012293-001C**, TDS concentration in mg/L is calculated as follows:

$$\text{TDS, mg/L} = \frac{(64.0602 - 63.9836) * 1000000}{20}$$

3830 mg/L

Reporting result in two significant figures,

$$\text{TDS} = 3800 \text{ mg/L}$$


4/8/2014

TOTAL DISSOLVED SOLIDS, TDS

$$\text{TDS, mg/L} = (\text{A}-\text{B}) \times 1000000 / \text{C}$$

WHERE:

A = weight in grams of dish + residue after drying

B = weight of dish in grams

C = volume of sample used in mL

Date Started: 4/7/2014								TDS/CONDUCTIVITY
Date Finished: 4/8/2014	vol	initial	final	calc	prep fact	TDS, mg/L	CONDUCTIVITY	RATIO
MB-45367	100	61.3651	61.3658	7	1	7.00		
LCS-45367	100	63.52	63.6179	979	1	979.00		
N012278-007D	100	64.122	64.1896	676	1	676.00	1084	0.62
N012278-007D-DUP	100	64.2888	64.3565	677	1	677.00	1084	0.62
N012278-010D	100	62.1305	62.1831	526	1	526.00	848	0.62
N012279-001D	100	64.0018	64.0426	408	1	408.00	693	0.59
N012289-005E	100	63.3817	63.4136	319	1	319.00	522	0.61
N012289-006E	100	63.0051	63.0347	296	1	296.00	475	0.62
N012291-001C	100	63.8125	63.8823	698	1	698.00	1162	0.60
N012293-001C	20	63.9836	64.0602	766	5	3830.00	6660	0.58

gmer
4/8/2014

Sample Calculation

METHOD: EPA 200.8

TEST NAME: Heavy Metals by ICP-MS

MATRIX: Aqueous

FORMULA:

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

$$\text{Chromium, ug/L} = A * DF * PF$$

where:

A = ug/L, calculated concentration

DF = dilution factor

PF = Final Vol. of Digestate in mL / Vol. of Sample used in mL

For Sample **N012293-001B**, the concentration in ug/L is calculated as follows:

$$\begin{aligned} \text{Chromium, ug/L} &= 0.234763917800923 * 1 * (25/25) \\ &= 0.234763917800923 \end{aligned}$$

Reporting results in two significant figures,

$$\text{Chromium, ug/L} = 0.23$$

Since PQL of Chromium is 1.0 ug/L,

$$\text{Chromium, ug/L} = \text{ND}$$

Nancy 4/17/2014

Sample Calculation

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

FORMULA:

Calculate the Hexavalent Chromium concentration, in $\mu\text{g/L}$, in the original sample as follows:

$$\text{Cr}^{+6}, \mu\text{g/L} = A * \text{DF}$$

where:

A = $\mu\text{g/L}$, IC Cr^{+6} calculated concentration
DF = dilution factor

For **N012293-001A** concentration in $\mu\text{g/L}$ is calculated as follows:

$$\begin{aligned}\text{Cr}^{+6}, \mu\text{g/L} &= 0.4526 * 1 \\ &= 0.4526\end{aligned}$$

Reporting result in two significant figures,

$$\text{Cr}^{+6}, \mu\text{g/L} = 0.45$$

Moncy 4/17/2014

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April 28, 2014

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

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK IM3PLANT-WDR-462 PROJECT, GROUNDWATER
MONITORING,
TLI NO.: 812966

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-462 project groundwater monitoring. 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 have been included under Section 5.


The samples were received and delivered with the chain of custody on April 8, 2014, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.


The internal standard for sample SC-701-WDR-462 analyzed at dilutions of 2x and 10x for Total Beryllium, Cadmium, Cobalt, and Silver by EPA 200.8 were outside the recovery limits of 70% - 130% as a result of matrix interference. Therefore, the samples were re-analyzed at a 20x dilution. The internal standards were within acceptable limits. The internal standard for Total Mercury analyzed straight was outside the recovery limits and therefore was analyzed at a 2x dilution. Due to the dilutions, the reporting limits for these metals exceed the Contract Required Detection Limits. All other QA/QC were within acceptable limits.

No other violations or nonconformance actions occurred for this data package.

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

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.


Mona Nassimi
Manager, Analytical Services


Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING



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www.truesdail.com

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

Attention: Shawn Duffy

Sample: Three (3) Groundwaters

Project Name: PG&E Topock Project

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

Laboratory No.: 812966

Date: February 23, 2014

Collected: April 8, 2014

Received: April 8, 2014

ANALYST LIST

METHOD	PARAMETER	ANALYST
EPA 120.1	Specific Conductivity	Jenny Tankunakorn
SM 2540C	Total Dissolved Solids	Jenny Tankunakorn
SM 2130B	Turbidity	Felipe Mendoza
EPA 300.0	Anions	Giawad Ghenniwa
SM 4500-NH3 D	Ammonia	Himani Vaishnav / Maksim Grobunov
SM 4500-NO2 B	Nitrite as N	Jenny Tankunakorn
EPA 200.7	Metals by ICP	Ethel Suico
EPA 200.8	Metals by ICP/MS	Ethel Suico
EPA 218.6	Hexavalent Chromium	Naheed Eidinejad



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

Laboratory No.: 812966
Date Received: April 8, 2014

Attention: Shawn Duffy

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

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
812966-001	SC-700B-WDR-462	E120.1	NONE	4/8/2014	14:05	EC	6850	umhos/cm	2.00
812966-001	SC-700B-WDR-462	E200.7	NONE	4/8/2014	14:05	Aluminum	ND	ug/L	50.0
812966-001	SC-700B-WDR-462	E200.7	NONE	4/8/2014	14:05	BORON	936	ug/L	50.0
812966-001	SC-700B-WDR-462	E200.7	NONE	4/8/2014	14:05	Iron	ND	ug/L	20.0
812966-001	SC-700B-WDR-462	E200.7	NONE	4/8/2014	14:05	Zinc	ND	ug/L	20.0
812966-001	SC-700B-WDR-462	E200.8	NONE	4/8/2014	14:05	Antimony	ND	ug/L	2.0
812966-001	SC-700B-WDR-462	E200.8	NONE	4/8/2014	14:05	Arsenic	ND	ug/L	0.50
812966-001	SC-700B-WDR-462	E200.8	NONE	4/8/2014	14:05	Barium	12.0	ug/L	5.0
812966-001	SC-700B-WDR-462	E200.8	NONE	4/8/2014	14:05	Chromium	ND	ug/L	1.0
812966-001	SC-700B-WDR-462	E200.8	NONE	4/8/2014	14:05	Copper	ND	ug/L	1.0
812966-001	SC-700B-WDR-462	E200.8	NONE	4/8/2014	14:05	Lead	ND	ug/L	1.0
812966-001	SC-700B-WDR-462	E200.8	NONE	4/8/2014	14:05	Manganese	4.3	ug/L	0.50
812966-001	SC-700B-WDR-462	E200.8	NONE	4/8/2014	14:05	Molybdenum	18.7	ug/L	2.0
812966-001	SC-700B-WDR-462	E200.8	NONE	4/8/2014	14:05	Nickel	ND	ug/L	2.0
812966-001	SC-700B-WDR-462	E218.6	LABFLT	4/8/2014	14:05	Chromium, Hexavalent	ND	ug/L	0.20
812966-001	SC-700B-WDR-462	E300	NONE	4/8/2014	14:05	Fluoride	1.98	mg/L	0.500
812966-001	SC-700B-WDR-462	E300	NONE	4/8/2014	14:05	Nitrate as N	2.38	mg/L	0.500
812966-001	SC-700B-WDR-462	E300	NONE	4/8/2014	14:05	Sulfate	478	mg/L	25.0
812966-001	SC-700B-WDR-462	SM2130B	NONE	4/8/2014	14:05	Turbidity	ND	NTU	0.100
812966-001	SC-700B-WDR-462	SM2540C	NONE	4/8/2014	14:05	Total Dissolved Solids	4440	mg/L	125
812966-001	SC-700B-WDR-462	SM4500NH3D	NONE	4/8/2014	14:05	Ammonia-N	ND	mg/L	0.500
812966-001	SC-700B-WDR-462	SM4500NO2B	NONE	4/8/2014	14:05	Nitrite as N	ND	mg/L	0.0050

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Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
812966-002	SC-100B-WDR-462	E120.1	NONE	4/8/2014	14:18	EC	6910	umhos/cm	2.00
812966-002	SC-100B-WDR-462	E200.7	NONE	4/8/2014	14:18	Aluminum	ND	ug/L	50.0
812966-002	SC-100B-WDR-462	E200.7	NONE	4/8/2014	14:18	BORON	974	ug/L	50.0
812966-002	SC-100B-WDR-462	E200.7	NONE	4/8/2014	14:18	Iron	ND	ug/L	20.0
812966-002	SC-100B-WDR-462	E200.7	NONE	4/8/2014	14:18	Zinc	ND	ug/L	20.0
812966-002	SC-100B-WDR-462	E200.8	NONE	4/8/2014	14:18	Antimony	ND	ug/L	2.0
812966-002	SC-100B-WDR-462	E200.8	NONE	4/8/2014	14:18	Arsenic	3.4	ug/L	0.50
812966-002	SC-100B-WDR-462	E200.8	NONE	4/8/2014	14:18	Barium	27.6	ug/L	5.0
812966-002	SC-100B-WDR-462	E200.8	NONE	4/8/2014	14:18	Chromium	643	ug/L	5.0
812966-002	SC-100B-WDR-462	E200.8	NONE	4/8/2014	14:18	Copper	ND	ug/L	1.0
812966-002	SC-100B-WDR-462	E200.8	NONE	4/8/2014	14:18	Lead	ND	ug/L	1.0
812966-002	SC-100B-WDR-462	E200.8	NONE	4/8/2014	14:18	Manganese	6.6	ug/L	0.50
812966-002	SC-100B-WDR-462	E200.8	NONE	4/8/2014	14:18	Molybdenum	18.7	ug/L	2.0
812966-002	SC-100B-WDR-462	E200.8	NONE	4/8/2014	14:18	Nickel	ND	ug/L	2.0
812966-002	SC-100B-WDR-462	E218.6	LABFLT	4/8/2014	14:18	Chromium, Hexavalent	610	ug/L	5.0
812966-002	SC-100B-WDR-462	E300	NONE	4/8/2014	14:18	Fluoride	2.30	mg/L	0.500
812966-002	SC-100B-WDR-462	E300	NONE	4/8/2014	14:18	Nitrate as N	2.53	mg/L	0.500
812966-002	SC-100B-WDR-462	E300	NONE	4/8/2014	14:18	Sulfate	523	mg/L	50.0
812966-002	SC-100B-WDR-462	SM2130B	NONE	4/8/2014	14:18	Turbidity	ND	NTU	0.100
812966-002	SC-100B-WDR-462	SM2540C	NONE	4/8/2014	14:18	Total Dissolved Solids	4620	mg/L	125
812966-002	SC-100B-WDR-462	SM4500NH3D	NONE	4/8/2014	14:18	Ammonia-N	ND	mg/L	0.500
812966-002	SC-100B-WDR-462	SM4500NO2B	NONE	4/8/2014	14:18	Nitrite as N	ND	mg/L	0.0050



Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
812966-003	SC-701-WDR-462	E120.1	NONE	4/8/2014	14:09	EC	35900	umhos/cm	2.00
812966-003	SC-701-WDR-462	E200.7	NONE	4/8/2014	14:09	Zinc	ND	ug/L	20.0
812966-003	SC-701-WDR-462	E200.8	NONE	4/8/2014	14:09	Antimony	ND	ug/L	2.0
812966-003	SC-701-WDR-462	E200.8	NONE	4/8/2014	14:09	Arsenic	0.81	ug/L	0.50
812966-003	SC-701-WDR-462	E200.8	NONE	4/8/2014	14:09	Barium	80.5	ug/L	5.0
812966-003	SC-701-WDR-462	E200.8	NONE	4/8/2014	14:09	Beryllium	ND	ug/L	4.0
812966-003	SC-701-WDR-462	E200.8	NONE	4/8/2014	14:09	Cadmium	ND	ug/L	4.0
812966-003	SC-701-WDR-462	E200.8	NONE	4/8/2014	14:09	Chromium	1.6	ug/L	1.0
812966-003	SC-701-WDR-462	E200.8	NONE	4/8/2014	14:09	Cobalt	ND	ug/L	5.0
812966-003	SC-701-WDR-462	E200.8	NONE	4/8/2014	14:09	Copper	4.8	ug/L	2.0
812966-003	SC-701-WDR-462	E200.8	NONE	4/8/2014	14:09	Lead	ND	ug/L	1.0
812966-003	SC-701-WDR-462	E200.8	NONE	4/8/2014	14:09	Manganese	33.0	ug/L	1.0
812966-003	SC-701-WDR-462	E200.8	NONE	4/8/2014	14:09	Mercury	ND	ug/L	0.40
812966-003	SC-701-WDR-462	E200.8	NONE	4/8/2014	14:09	Molybdenum	118	ug/L	4.0
812966-003	SC-701-WDR-462	E200.8	NONE	4/8/2014	14:09	Nickel	9.4	ug/L	2.0
812966-003	SC-701-WDR-462	E200.8	NONE	4/8/2014	14:09	Selenium	24.6	ug/L	10.0
812966-003	SC-701-WDR-462	E200.8	NONE	4/8/2014	14:09	Silver	ND	ug/L	10.0
812966-003	SC-701-WDR-462	E200.8	NONE	4/8/2014	14:09	Thallium	ND	ug/L	1.0
812966-003	SC-701-WDR-462	E200.8	NONE	4/8/2014	14:09	Vanadium	ND	ug/L	5.0
812966-003	SC-701-WDR-462	E218.6	LABFLT	4/8/2014	14:09	Chromium, Hexavalent	ND	ug/L	2.0
812966-003	SC-701-WDR-462	E300	NONE	4/8/2014	14:09	Fluoride	12.6	mg/L	0.500
812966-003	SC-701-WDR-462	SM2540C	NONE	4/8/2014	14:09	Total Dissolved Solids	27500	mg/L	833

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: 428648.IM.CS.EX.AC

P.O. Number: PGEIM11111001

Release Number:

Laboratory No. 812966

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Printed 4/28/2014

Samples Received on 4/8/2014 8:05:00 PM

Field ID	Lab ID	Collected	Matrix
SC-700B-WDR-462	812966-001	04/08/2014 14:05	Water
SC-100B-WDR-462	812966-002	04/08/2014 14:18	Water
SC-701-WDR-462	812966-003	04/08/2014 14:09	Water

Anions By I.C. - EPA 300.0

Batch 04AN14H

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812966-001 Fluoride	mg/L	04/09/2014 09:51	5.00	0.104	0.500	1.98
Nitrate as Nitrogen	mg/L	04/09/2014 09:51	5.00	0.0415	0.500	2.38
Sulfate	mg/L	04/09/2014 12:20	50.0	1.54	25.0	478
812966-002 Fluoride	mg/L	04/09/2014 10:03	5.00	0.104	0.500	2.30
Nitrate as Nitrogen	mg/L	04/09/2014 10:03	5.00	0.0415	0.500	2.53
Sulfate	mg/L	04/09/2014 11:18	100	3.07	50.0	523
812966-003 Fluoride	mg/L	04/09/2014 10:40	5.00	0.104	0.500	12.6

Method Blank

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

Duplicate

Lab ID = 812942-004

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chloride	mg/L	25.0	84.2	86.2	2.37	0 - 20

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Client: E2 Consulting Engineers, Inc.

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

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Printed 4/28/2014

Duplicate Lab ID = 812966-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Fluoride	mg/L	5.00	2.27	2.30	1.44	0 - 20
Sulfate	mg/L	100	511	523	2.28	0 - 20
Nitrate as Nitrogen	mg/L	5.00	2.52	2.53	0.237	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chloride	mg/L	1.00	3.84	4.00	96.1	90 - 110
Fluoride	mg/L	1.00	3.97	4.00	99.2	90 - 110
Sulfate	mg/L	1.00	19.3	20.0	96.4	90 - 110
Nitrate as Nitrogen	mg/L	1.00	3.84	4.00	96.1	90 - 110

Matrix Spike Lab ID = 812942-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chloride	mg/L	25.0	185	186(100)	98.9	85 - 115

Matrix Spike Lab ID = 812966-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Fluoride	mg/L	5.00	21.8	22.3(20.0)	97.4	85 - 115
Sulfate	mg/L	100	1480	1520(1000)	95.4	85 - 115
Nitrate as Nitrogen	mg/L	5.00	22.0	22.5(20.0)	97.3	85 - 115

MRCSS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chloride	mg/L	1.00	4.02	4.00	100	90 - 110
Fluoride	mg/L	1.00	4.14	4.00	103	90 - 110
Sulfate	mg/L	1.00	20.0	20.0	100	90 - 110
Nitrate as Nitrogen	mg/L	1.00	4.03	4.00	101	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chloride	mg/L	1.00	2.87	3.00	95.7	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chloride	mg/L	1.00	3.26	3.00	108	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chloride	mg/L	1.00	3.12	3.00	104	90 - 110

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Client: E2 Consulting Engineers, Inc.

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

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Table with 7 columns: Parameter, Unit, Analyzed, DF, MDL, RL, Result. Rows include Nitrite SM 4500-NO2 B and two sample entries (812966-001, 812966-002).

Method Blank

Table with 4 columns: Parameter, Unit, DF, Result. Row: Nitrite as Nitrogen, mg/L, 1.00, ND.

Duplicate

Lab ID = 812966-002

Table with 7 columns: Parameter, Unit, DF, Result, Expected, RPD, Acceptance Range. Row: Nitrite as Nitrogen, mg/L, 1.00, ND, 0, 0, 0 - 20.

Lab Control Sample

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Row: Nitrite as Nitrogen, mg/L, 1.00, 0.0212, 0.0230, 92.2, 90 - 110.

Matrix Spike

Lab ID = 812966-002

Table with 7 columns: Parameter, Unit, DF, Result, Expected/Added, Recovery, Acceptance Range. Row: Nitrite as Nitrogen, mg/L, 1.00, 0.0231, 0.0230(0.0230), 100, 85 - 115.

MRCSS - Secondary

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Row: Nitrite as Nitrogen, mg/L, 1.00, 0.0212, 0.0230, 92.2, 90 - 110.

MRCVS - Primary

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Row: Nitrite as Nitrogen, mg/L, 1.00, 0.0185, 0.0200, 92.5, 90 - 110.

MRCVS - Primary

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Row: Nitrite as Nitrogen, mg/L, 1.00, 0.0185, 0.0200, 92.5, 90 - 110.



Client: E2 Consulting Engineers, Inc.

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

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Specific Conductivity - EPA 120.1		Batch 04EC14B				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
812966-001 Specific Conductivity	umhos/cm	04/11/2014	1.00	0.606	2.00	6850
812966-002 Specific Conductivity	umhos/cm	04/11/2014	1.00	0.606	2.00	6910
812966-003 Specific Conductivity	umhos/cm	04/11/2014	1.00	0.606	2.00	35900

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate

Lab ID = 812966-003

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	35800	35900	0.279	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	703	706	99.6	90 - 110

MRCSS - 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	1000	1000	100	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	1010	1000	101	90 - 110



Client: E2 Consulting Engineers, Inc.

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

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Printed 4/28/2014

Chrome VI by EPA 218.6

Batch 04CrH14 A

Table with 7 columns: Parameter, Unit, Analyzed, DF, MDL, RL, Result. Rows include 812966-001 Chromium, Hexavalent; 812966-002 Chromium, Hexavalent; 812966-003 Chromium, Hexavalent.

Method Blank

Table with 4 columns: Parameter, Unit, DF, Result. Row: Chromium, Hexavalent, ug/L, 1.00, ND.

Duplicate

Lab ID = 812967-015

Table with 7 columns: Parameter, Unit, DF, Result, Expected, RPD, Acceptance Range. Row: Chromium, Hexavalent, ug/L, 1.00, 19.8, 19.8, 0.00707, 0 - 20.

Low Level Calibration Verification

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Row: Chromium, Hexavalent, ug/L, 1.00, 0.198, 0.200, 99.2, 70 - 130.

Lab Control Sample

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Row: Chromium, Hexavalent, ug/L, 1.00, 5.04, 5.00, 101, 90 - 110.

Matrix Spike

Lab ID = 812966-001

Table with 7 columns: Parameter, Unit, DF, Result, Expected/Added, Recovery, Acceptance Range. Row: Chromium, Hexavalent, ug/L, 5.00, 5.35, 5.10(5.00), 105, 90 - 110.

Matrix Spike

Lab ID = 812966-001

Table with 7 columns: Parameter, Unit, DF, Result, Expected/Added, Recovery, Acceptance Range. Row: Chromium, Hexavalent, ug/L, 1.00, 1.17, 1.12(1.00), 105, 90 - 110.

Matrix Spike

Lab ID = 812966-002

Table with 7 columns: Parameter, Unit, DF, Result, Expected/Added, Recovery, Acceptance Range. Row: Chromium, Hexavalent, ug/L, 25.0, 1260, 1240(625), 104, 90 - 110.

Matrix Spike

Lab ID = 812966-003

Table with 7 columns: Parameter, Unit, DF, Result, Expected/Added, Recovery, Acceptance Range. Row: Chromium, Hexavalent, ug/L, 1.00, ND, 1.00(1.00), Recovery, 90 - 110.

Matrix Spike

Lab ID = 812966-003

Table with 7 columns: Parameter, Unit, DF, Result, Expected/Added, Recovery, Acceptance Range. Row: Chromium, Hexavalent, ug/L, 5.00, 5.86, 5.96(5.00), 98.1, 90 - 110.

Matrix Spike

Lab ID = 812966-003

Table with 7 columns: Parameter, Unit, DF, Result, Expected/Added, Recovery, Acceptance Range. Row: Chromium, Hexavalent, ug/L, 10.0, 11.6, 10.8(10.0), 107, 90 - 110.

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Client: E2 Consulting Engineers, Inc.

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

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Table with 7 columns: Parameter, Unit, Analyzed, DF, MDL, RL, Result. Rows include Metals by EPA 200.7, Total for Aluminum, Boron, Iron, and Zinc across three sample IDs (812966-001, 812966-002, 812966-003).

Method Blank

Table with 4 columns: Parameter, Unit, DF, Result. Rows for Aluminum, Iron, Zinc, and Boron.

Duplicate

Lab ID = 812966-002

Table with 7 columns: Parameter, Unit, DF, Result, Expected, RPD, Acceptance Range. Rows for Aluminum, Iron, Zinc, and Boron.

Lab Control Sample

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Rows for Aluminum, Iron, Zinc, and Boron.

Matrix Spike

Lab ID = 812966-002

Table with 7 columns: Parameter, Unit, DF, Result, Expected/Added, Recovery, Acceptance Range. Rows for Aluminum, Iron, Zinc, and Boron.

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Client: E2 Consulting Engineers, Inc.

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Matrix Spike Duplicate

Lab ID = 812966-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Aluminum	ug/L	1.00	1690	2000(2000)	84.6	75 - 125
Iron	ug/L	1.00	1800	2000(2000)	89.8	75 - 125
Zinc	ug/L	1.00	2200	2000(2000)	110	75 - 125
Boron	ug/L	1.00	2840	2970(2000)	93.2	75 - 125

MRCSS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Aluminum	ug/L	1.00	5070	5000	101	95 - 105
Iron	ug/L	1.00	5120	5000	102	95 - 105
Zinc	ug/L	1.00	5220	5000	104	95 - 105
Boron	ug/L	1.00	5130	5000	103	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Aluminum	ug/L	1.00	4730	5000	94.6	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Aluminum	ug/L	1.00	4920	5000	98.3	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	4920	5000	98.3	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
Zinc	ug/L	1.00	4960	5000	99.3	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Zinc	ug/L	1.00	5140	5000	103	90 - 110
Boron	ug/L	1.00	4930	5000	98.6	90 - 110

MRCVS - Primary

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

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Metals by EPA 200.8, Total		Batch 040914A					
Parameter	Unit	Analyzed	DF	MDL	RL	Result	
812966-001 Arsenic	ug/L	04/09/2014 18:23	2.00	0.100	0.50	ND	
Chromium	ug/L	04/09/2014 18:23	2.00	0.142	1.0	ND	
Nickel	ug/L	04/09/2014 18:23	2.00	0.480	2.0	ND	
812966-002 Arsenic	ug/L	04/09/2014 19:14	2.00	0.100	0.50	3.4	
Chromium	ug/L	04/09/2014 19:21	10.0	0.710	5.0	643	
Nickel	ug/L	04/09/2014 19:14	2.00	0.480	2.0	ND	
812966-003 Arsenic	ug/L	04/09/2014 19:34	2.00	0.100	0.50	0.81	
Chromium	ug/L	04/09/2014 19:34	2.00	0.142	1.0	1.6	
Manganese	ug/L	04/09/2014 19:34	2.00	0.120	1.0	33.0	
Nickel	ug/L	04/09/2014 19:34	2.00	0.480	2.0	9.4	
Vanadium	ug/L	04/09/2014 19:34	2.00	0.140	5.0	ND	

Method Blank

Parameter	Unit	DF	Result
Arsenic	ug/L	1.00	ND
Chromium	ug/L	1.00	ND
Nickel	ug/L	1.00	ND
Vanadium	ug/L	1.00	ND
Manganese	ug/L	1.00	ND

Duplicate

Lab ID = 812966-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Arsenic	ug/L	2.00	ND	0	0	0 - 20
Chromium	ug/L	2.00	ND	0	0	0 - 20
Nickel	ug/L	2.00	ND	0	0	0 - 20
Vanadium	ug/L	2.00	ND	0	0	0 - 20
Manganese	ug/L	2.00	3.92	4.18	6.39	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	0.218	0.200	109	70 - 130
Chromium	ug/L	1.00	0.532	0.500	106	70 - 130
Nickel	ug/L	1.00	1.12	1.00	112	70 - 130
Vanadium	ug/L	1.00	0.486	0.500	97.2	70 - 130
Manganese	ug/L	1.00	0.383	0.500	76.6	70 - 130

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Client: E2 Consulting Engineers, Inc.

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Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	2.00	48.6	50.0	97.3	85 - 115
Chromium	ug/L	2.00	48.9	50.0	97.9	85 - 115
Nickel	ug/L	2.00	47.4	50.0	94.9	85 - 115
Vanadium	ug/L	2.00	49.0	50.0	98.0	85 - 115
Manganese	ug/L	2.00	47.8	50.0	95.7	85 - 115

Matrix Spike

Lab ID = 812966-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	2.00	47.7	50.0(50.0)	95.5	75 - 125
Chromium	ug/L	2.00	46.2	50.0(50.0)	92.4	75 - 125
Nickel	ug/L	2.00	46.7	50.0(50.0)	93.4	75 - 125
Vanadium	ug/L	2.00	47.6	50.0(50.0)	95.1	75 - 125
Manganese	ug/L	2.00	49.0	54.2(50.0)	89.7	75 - 125

Matrix Spike Duplicate

Lab ID = 812966-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	2.00	47.2	50.0(50.0)	94.5	75 - 125
Chromium	ug/L	2.00	45.5	50.0(50.0)	90.9	75 - 125
Nickel	ug/L	2.00	43.9	50.0(50.0)	87.9	75 - 125
Vanadium	ug/L	2.00	47.4	50.0(50.0)	94.8	75 - 125
Manganese	ug/L	2.00	47.5	54.2(50.0)	86.6	75 - 125

MRCSS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	19.3	20.0	96.6	90 - 110
Chromium	ug/L	1.00	19.0	20.0	95.2	90 - 110
Nickel	ug/L	1.00	18.8	20.0	94.3	90 - 110
Vanadium	ug/L	1.00	19.2	20.0	96.2	90 - 110
Manganese	ug/L	1.00	19.1	20.0	95.5	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	20.6	20.0	103	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	20.2	20.0	101	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	20.4	20.0	102	90 - 110

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Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nickel	ug/L	1.00	20.8	20.0	104	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nickel	ug/L	1.00	19.3	20.0	96.6	80 - 120
Vanadium	ug/L	1.00	ND	0		

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Vanadium	ug/L	1.00	ND	0		

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	19.0	20.0	94.9	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	18.4	20.0	92.0	80 - 120

Serial Dilution

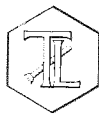
Lab ID = 812966-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	50.0	641	643	0.361	0 - 10

Serial Dilution

Lab ID = 812966-003

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Manganese	ug/L	10.0	35.6	33.0	7.59	0 - 10



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Metals by EPA 200.8, Total		Batch 041014A				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
812966-001 Antimony	ug/L	04/10/2014 13:09	2.00	0.0760	2.0	ND
Barium	ug/L	04/10/2014 13:09	2.00	0.594	5.0	12.0
Lead	ug/L	04/10/2014 13:09	2.00	0.286	1.0	ND
Manganese	ug/L	04/10/2014 13:09	2.00	0.120	0.50	4.3
Molybdenum	ug/L	04/10/2014 13:09	2.00	0.100	2.0	18.7
812966-002 Antimony	ug/L	04/10/2014 14:08	2.00	0.0760	2.0	ND
Barium	ug/L	04/10/2014 14:08	2.00	0.594	5.0	27.6
Lead	ug/L	04/10/2014 14:08	2.00	0.286	1.0	ND
Manganese	ug/L	04/10/2014 14:08	2.00	0.120	0.50	6.6
Molybdenum	ug/L	04/10/2014 14:08	2.00	0.100	2.0	18.7
812966-003 Antimony	ug/L	04/10/2014 18:20	2.00	0.0760	2.0	ND
Barium	ug/L	04/10/2014 18:20	2.00	0.594	5.0	80.5
Beryllium	ug/L	04/10/2014 14:21	20.0	0.720	4.0	ND
Cadmium	ug/L	04/10/2014 14:21	20.0	0.800	4.0	ND
Cobalt	ug/L	04/10/2014 14:21	20.0	0.800	5.0	ND
Copper	ug/L	04/10/2014 18:20	2.00	0.380	2.0	4.8
Lead	ug/L	04/10/2014 18:20	2.00	0.286	1.0	ND
Mercury	ug/L	04/10/2014 18:20	2.00	0.0800	0.40	ND
Molybdenum	ug/L	04/10/2014 14:21	20.0	1.00	4.0	118
Selenium	ug/L	04/10/2014 18:20	2.00	0.424	10.0	24.6
Silver	ug/L	04/10/2014 14:21	20.0	0.580	10.0	ND
Thallium	ug/L	04/10/2014 18:20	2.00	0.0600	1.0	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
Mercury	ug/L	1.00	ND
Selenium	ug/L	1.00	ND
Antimony	ug/L	1.00	ND
Copper	ug/L	1.00	ND
Lead	ug/L	1.00	ND
Silver	ug/L	1.00	ND
Thallium	ug/L	1.00	ND
Manganese	ug/L	1.00	ND
Molybdenum	ug/L	1.00	ND

Duplicate

Lab ID = 812966-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Barium	ug/L	2.00	11.9	12.0	1.16	0 - 20
Beryllium	ug/L	2.00	ND	0	0	0 - 20
Cadmium	ug/L	2.00	ND	0	0	0 - 20
Cobalt	ug/L	2.00	ND	0	0	0 - 20
Mercury	ug/L	2.00	ND	0	0	0 - 20
Selenium	ug/L	2.00	ND	4.20	0	0 - 20
Antimony	ug/L	2.00	ND	0	0	0 - 20
Copper	ug/L	2.00	ND	0	0	0 - 20
Lead	ug/L	2.00	ND	0	0	0 - 20
Silver	ug/L	2.00	ND	0	0	0 - 20
Thallium	ug/L	2.00	ND	0	0	0 - 20
Manganese	ug/L	2.00	4.37	4.31	1.36	0 - 20
Molybdenum	ug/L	2.00	18.1	18.7	3.02	0 - 20

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Client: E2 Consulting Engineers, Inc.

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Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Barium	ug/L	1.00	0.967	1.00	96.7	70 - 130
Beryllium	ug/L	1.00	0.220	0.200	110	70 - 130
Cadmium	ug/L	1.00	0.195	0.200	97.5	70 - 130
Cobalt	ug/L	1.00	0.203	0.200	102	70 - 130
Mercury	ug/L	1.00	0.204	0.200	102	70 - 130
Selenium	ug/L	1.00	1.52	2.00	75.8	70 - 130
Antimony	ug/L	1.00	0.200	0.200	100	70 - 130
Copper	ug/L	1.00	1.20	1.00	120	70 - 130
Lead	ug/L	1.00	0.469	0.500	93.8	70 - 130
Silver	ug/L	1.00	0.471	0.500	94.2	70 - 130
Thallium	ug/L	1.00	0.177	0.200	88.5	70 - 130
Manganese	ug/L	1.00	0.171	0.200	85.5	70 - 130
Molybdenum	ug/L	1.00	0.193	0.200	96.5	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Barium	ug/L	2.00	46.8	50.0	93.5	85 - 115
Beryllium	ug/L	2.00	47.2	50.0	94.4	85 - 115
Cadmium	ug/L	2.00	47.2	50.0	94.4	85 - 115
Cobalt	ug/L	2.00	46.9	50.0	93.7	85 - 115
Mercury	ug/L	2.00	4.76	5.00	95.1	85 - 115
Selenium	ug/L	2.00	47.4	50.0	94.8	85 - 115
Antimony	ug/L	2.00	47.0	50.0	94.0	85 - 115
Copper	ug/L	2.00	50.5	50.0	101	85 - 115
Lead	ug/L	2.00	46.9	50.0	93.8	85 - 115
Silver	ug/L	2.00	50.8	50.0	102	85 - 115
Thallium	ug/L	2.00	42.7	50.0	85.4	85 - 115
Manganese	ug/L	2.00	46.6	50.0	93.2	85 - 115
Molybdenum	ug/L	2.00	46.9	50.0	93.8	85 - 115

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Matrix Spike

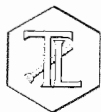
Lab ID = 812966-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Barium	ug/L	2.00	58.3	62.0(50.0)	92.7	75 - 125
Beryllium	ug/L	2.00	40.7	50.0(50.0)	81.4	75 - 125
Cadmium	ug/L	2.00	41.0	50.0(50.0)	82.0	75 - 125
Cobalt	ug/L	2.00	45.5	50.0(50.0)	91.0	75 - 125
Mercury	ug/L	2.00	4.37	5.00(5.00)	87.5	75 - 125
Selenium	ug/L	2.00	47.8	54.2(50.0)	87.3	75 - 125
Antimony	ug/L	2.00	47.2	50.0(50.0)	94.5	75 - 125
Copper	ug/L	2.00	46.0	50.0(50.0)	92.0	75 - 125
Lead	ug/L	2.00	42.4	50.0(50.0)	84.8	75 - 125
Silver	ug/L	2.00	42.9	50.0(50.0)	85.8	75 - 125
Thallium	ug/L	2.00	39.3	50.0(50.0)	78.6	75 - 125
Manganese	ug/L	2.00	48.0	54.3(50.0)	87.3	75 - 125
Molybdenum	ug/L	2.00	63.2	68.7(50.0)	89.0	75 - 125

Matrix Spike Duplicate

Lab ID = 812966-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Barium	ug/L	2.00	56.4	62.0(50.0)	88.8	75 - 125
Beryllium	ug/L	2.00	40.3	50.0(50.0)	80.5	75 - 125
Cadmium	ug/L	2.00	40.3	50.0(50.0)	80.6	75 - 125
Cobalt	ug/L	2.00	44.4	50.0(50.0)	88.8	75 - 125
Mercury	ug/L	2.00	4.28	5.00(5.00)	85.7	75 - 125
Selenium	ug/L	2.00	46.4	54.2(50.0)	84.4	75 - 125
Antimony	ug/L	2.00	45.9	50.0(50.0)	91.9	75 - 125
Copper	ug/L	2.00	47.6	50.0(50.0)	95.2	75 - 125
Lead	ug/L	2.00	41.2	50.0(50.0)	82.3	75 - 125
Silver	ug/L	2.00	41.8	50.0(50.0)	83.6	75 - 125
Thallium	ug/L	2.00	38.7	50.0(50.0)	77.5	75 - 125
Manganese	ug/L	2.00	48.6	54.3(50.0)	88.7	75 - 125
Molybdenum	ug/L	2.00	62.0	68.7(50.0)	86.7	75 - 125



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Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Silver	ug/L	1.00	19.4	20.0	97.0	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Thallium	ug/L	1.00	ND	0		

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Thallium	ug/L	1.00	ND	0		
Manganese	ug/L	1.00	19.1	20.0	95.5	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	20.9	20.0	105	80 - 120
Molybdenum	ug/L	1.00	ND	0		

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Molybdenum	ug/L	1.00	ND	0		

Serial Dilution

Lab ID = 812966-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Barium	ug/L	10.0	28.6	27.6	3.66	0 - 10

Serial Dilution

Lab ID = 812967-010

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Molybdenum	ug/L	25.0	29.1	29.0	0.327	0 - 10

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Metals by EPA 200.8, Total		Batch 042514A				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
812966-001 Copper	ug/L	04/25/2014 12:51	1.00	0.190	1.0	ND
812966-002 Copper	ug/L	04/25/2014 13:17	1.00	0.190	1.0	ND

Method Blank

Parameter	Unit	DF	Result
Copper	ug/L	1.00	ND

Duplicate

Lab ID = 812966-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Copper	ug/L	1.00	ND	0	0	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Copper	ug/L	1.00	0.763	1.00	76.3	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Copper	ug/L	1.00	50.3	50.0	101	85 - 115

Matrix Spike

Lab ID = 812966-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Copper	ug/L	1.00	49.8	50.0(50.0)	99.5	75 - 125

Matrix Spike Duplicate

Lab ID = 812966-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Copper	ug/L	1.00	42.0	50.0(50.0)	83.9	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Copper	ug/L	1.00	20.0	20.0	100.	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Copper	ug/L	1.00	18.9	20.0	94.5	90 - 110

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Copper	ug/L	1.00	ND	0		

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Copper	ug/L	1.00	ND	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.



Client: E2 Consulting Engineers, Inc.

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

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Interference Check Standard AB

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Row: Copper, ug/L, 1.00, 18.0, 20.0, 90.2, 80 - 120

Interference Check Standard AB

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Row: Copper, ug/L, 1.00, 19.5, 20.0, 97.3, 80 - 120

Total Dissolved Solids by SM 2540 C

Batch 04TDS14C

Table with 7 columns: Parameter, Unit, Analyzed, DF, MDL, RL, Result. Rows: 812966-001 Total Dissolved Solids, 812966-002 Total Dissolved Solids, 812966-003 Total Dissolved Solids

Method Blank

Table with 4 columns: Parameter, Unit, DF, Result. Row: Total Dissolved Solids, mg/L, 1.00, ND

Duplicate

Lab ID = 812966-001

Table with 7 columns: Parameter, Unit, DF, Result, Expected, RPD, Acceptance Range. Row: Total Dissolved Solids, mg/L, 1.00, 4330, 4440, 2.51, 0 - 10

Duplicate

Lab ID = 812966-003

Table with 7 columns: Parameter, Unit, DF, Result, Expected, RPD, Acceptance Range. Row: Total Dissolved Solids, mg/L, 1.00, 27900, 27500, 1.32, 0 - 10

Lab Control Sample

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Row: Total Dissolved Solids, mg/L, 1.00, 499, 500, 99.8, 90 - 110



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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

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Ammonia Nitrogen by SM4500-NH3D		Batch 04NH314A				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
812966-001 Ammonia as N	mg/L	04/16/2014	1.00	0.0318	0.500	ND
812966-002 Ammonia as N	mg/L	04/16/2014	1.00	0.0318	0.500	ND

Method Blank

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

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	8.72	8.00	109	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	8.32	8.00	104	90 - 110

Matrix Spike

Lab ID = 812967-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	9.80	10.0(10.0)	98.0	75 - 125

MRCSS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	5.98	6.00	99.7	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	6.17	6.00	103	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	6.42	6.00	107	90 - 110



Client: E2 Consulting Engineers, Inc.

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

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Turbidity by SM 2130 B		Batch 04TUB14F				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
812966-001 Turbidity	NTU	04/08/2014	1.00	0.0140	0.100	ND
812966-002 Turbidity	NTU	04/08/2014	1.00	0.0140	0.100	ND

Method Blank

Parameter	Unit	DF	Result
Turbidity	NTU	1.00	ND

Duplicate

Lab ID = 812956-004

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Turbidity	NTU	1.00	0.141	0.158	11.4	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	8.16	8.00	102	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	8.22	8.00	103	90 - 110

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

Mona Nassimi
for
Mona Nassimi
Manager, Analytical Services



e2

3

Total Dissolved Solids by SM 2540 C

Calculations

Batch: 04TDS14C
Date Analyzed: 4/14/2014

Laboratory Number	Sample volume, mL	Initial weight, g	1st Final weight, g	2nd Final weight, g	Weight Difference, g	Exceeds 0.5mg? Yes/No	Residue weight, g	Filterable residue, ppm	RL, ppm	Reported Value, ppm	DF
Blank	100	79.0554	79.0556	79.0555	0.0001	No	0.0001	1.0	25.0	ND	1
812966-1	20	28.8877	28.9770	28.9766	0.0004	No	0.0889	4445.0	125.0	4445.0	1
812966-2	20	30.5001	30.5926	30.5925	0.0001	No	0.0924	4620.0	125.0	4620.0	1
812966-3	3	29.2834	29.3661	29.3660	0.0001	No	0.0826	27533.3	833.3	27533.3	1
812967-1	20	28.8149	28.9058	28.9053	0.0005	No	0.0904	4520.0	125.0	4520.0	1
812967-2	20	28.5920	28.6805	28.6801	0.0004	No	0.0881	4405.0	125.0	4405.0	1
812967-3	20	28.8540	28.9420	28.9418	0.0002	No	0.0878	4390.0	125.0	4390.0	1
812967-4	20	29.3961	29.4832	29.4830	0.0002	No	0.0869	4345.0	125.0	4345.0	1
812967-5	20	28.4726	28.5611	28.5607	0.0004	No	0.0881	4405.0	125.0	4405.0	1
812967-6	20	29.3281	29.4189	29.4189	0.0000	No	0.0908	4540.0	125.0	4540.0	1
812967-7	20	28.8877	28.9826	28.9826	0.0000	No	0.0949	4745.0	125.0	4745.0	1
812966-1 Dup	20	29.3764	29.4633	29.4630	0.0003	No	0.0866	4330.0	125.0	4330.0	1
LCS	100	69.7928	69.8431	69.8427	0.0004	No	0.0499	499.0	25.0	499.0	1
812967-8	20	28.6296	28.7122	28.7120	0.0002	No	0.0824	4120.0	125.0	4120.0	1
812967-9	20	29.5519	29.6368	29.6368	0.0000	No	0.0849	4245.0	125.0	4245.0	1
812967-10	50	51.9142	51.9715	51.9712	0.0003	No	0.0570	1140.0	50.0	1140.0	1
812967-11	50	50.4824	50.6119	50.6118	0.0001	No	0.1294	2588.0	50.0	2588.0	1
812967-14	10	30.4193	30.4737	30.4735	0.0002	No	0.0542	5420.0	250.0	5420.0	1
812967-15	50	51.4982	51.5572	51.5569	0.0003	No	0.0587	1174.0	50.0	1174.0	1
812969-1	20	28.7834	28.8373	28.8373	0.0000	No	0.0539	2695.0	125.0	2695.0	1
812969-2	10	30.1415	30.1936	30.1936	0.0000	No	0.0521	5210.0	250.0	5210.0	1
813001-1	100	66.7875	66.8365	66.8362	0.0003	No	0.0487	487.0	25.0	487.0	1
813001-2	100	79.4964	79.5455	79.5453	0.0002	No	0.0489	489.0	25.0	489.0	1
812966-3 Dup	3	30.4361	30.5197	30.5197	0.0000	No	0.0836	27866.7	833.3	27866.7	1

Calculation as follows:

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

Where:

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

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

Laboratory Control Sample (LCS) Summary

QC Std I.D.	Measurd Value, ppm	Theoretical Value, ppm	Percent Rec	Acceptance Limit	QC Within Control?
LCS	499.0	500	99.8%	90-110%	Yes
LCS D					

LCS Recovery

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

P = Percent recovery.
 LC = Measured LCS value (ppm).
 LT = Theoretical LCS value (ppm).

Duplicate Determinations Difference Summary

Lab Number	Sample Weight, g	Sample Dup Weight, g	% RPD	Acceptance Limit	QC Within Control?
812966-1	0.0889	0.0866	1.3%	≤5%	Yes
812966-3	0.0826	0.0836	0.6%	≤5%	Yes

Duplicate Determination Difference

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

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

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

Jenny T.

Analyst Printed Name

Analyst Signature

Maksim G.

Reviewer Printed Name

Reviewer Signature

Total Dissolved Solids by SM 2540 C

TDS/EC CHECK

Batch: 04TDS14C
Date Analyzed: 4/14/2014

Laboratory Number	EC	TDS/EC Ratio: 0.55-0.90	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
812966-1	6850	0.65	4452.5	1.00
812966-2	6910	0.67	4491.5	1.03
812966-3	35900	0.77	23335	1.18
812967-1	6850	0.66	4452.5	1.02
812967-2	6680	0.66	4342	1.01
812967-3	6810	0.64	4426.5	0.99
812967-4	6810	0.64	4426.5	0.98
812967-5	6910	0.64	4491.5	0.98
812967-6	8220	0.55	5343	0.85
812967-7	6800	0.70	4420	1.07
812966-1 Dup	6850	0.63	4452.5	0.97
LCS				
812967-8	6510	0.63	4231.5	0.97
812967-9	5810	0.73	3776.5	1.12
812967-10	2050	0.56	1332.5	0.86
812967-11	3890	0.67	2528.5	1.02
812967-14	8260	0.66	5369	1.01
812967-15	2050	0.57	1332.5	0.88
812969-1	4150	0.65	2697.5	1.00
812969-2	7810	0.67	5076.5	1.03
813001-1	885	0.55	575.25	0.85
813001-2	827	0.59	537.55	0.91
812966-3 Dup	35900	0.78	23335	1.19




812966

Rec'd 04/07/14
812966



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-WDR-462]

TURNAROUND TIME 10 Days
 DATE 04/08/14 PAGE 1 OF 1

COMPANY				TESTS												COMMENTS			
CH2M HILL /E2				Cr(VI) (218.6) Lab Filtered	Title 22 Metals List (200.7, 200.8, 245.1)	EC (120.1)	TDS (2540 c)	Turb (2130)	Total Metals (200.7, 200.8) See List Below	Ammonia (4500-NH3)	Anions (300.0) F	Anions (300.0) F, NO3, SO4	TOC (5310 C)	Total Metals (200.8) Mn	NO2 (4500-NO2B)	NUMBER OF CONTAINERS			
PROJECT NAME				PHONE				ADDRESS				P.O. NUMBER				SAMPLERS (SIGNATURE)			
PG&E Topock IM3				530-229-3303 FAX 530-339-3303				155 Grand Ave Ste 1000 Oakland, CA 94612				428648.IM.CS.EX.AC							
SAMPLE I.D.	DATE	TIME	DESCRIPTION	Cr(VI)	Title 22	EC	TDS	Turb	Total Metals	Ammonia	Anions	Anions	TOC	Total Metals	NO2	Containers	Comments		
SC-700B-WDR-462	04/08/14	1405		X	X	X	X	X	X	X	X	X	X	X	X	4	PH = 2 } PH = 7 } 200.7/200.8 PH = 2 }		
SC-100B-WDR-462	04/08/14	1418		X	X	X	X	X	X	X	X	X	X	X	4				
SC-701-WDR-462	04/08/14	1409		X	X	X	X			X			X		4				
ALERT!! For Sample Conditions Level III QC See Form Attached																			
															12	TOTAL NUMBER OF CONTAINERS			

1
2
3

CHAIN OF CUSTODY SIGNATURE RECORD					SAMPLE CONDITIONS	
Signature (Relinquished)	Printed Name	Company/ Agency	Date/ Time	Signature (Received)	Printed Name	Company/ Agency
	Ryan Phelps	CH2MHILL	4-8-14 1528		THANK NGO	TRUESDAIL
Signature (Relinquished)	Printed Name	Company/ Agency	Date/ Time	Signature (Received)	Printed Name	Company/ Agency
	THANK NGO	TRUESDAIL	4-8-14 1530		THANK NGO	TRUESDAIL
Signature (Relinquished)	Printed Name	Company/ Agency	Date/ Time	Signature (Received)	Printed Name	Company/ Agency
	Meredith Brady	TLI	4/8/14 @ 2005		Meredith Brady	TLI
Signature (Received)	Printed Name	Company/ Agency	Date/ Time	SPECIAL REQUIREMENTS:		
				The metals include: Cr, Al, Sb, As, Ba, B, Cu, Pb, Mn, Mo, Ni, Fe, Zn		

RECEIVED COOL WARM 5.2 °C
 CUSTODY SEALED YES NO

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Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest (Y/N)	Time of Adjustment to pH 2	Date/Time of 2nd pH check	Comments
812829	>1	<2	4/3/14	KD	Yes			
812830	>1	<2	↓	↓	↓			
812833 (4)	>1	<2	↓	↓	↓			
812848	>1	<2	↓	↓	↓			
812849-4	>1	<2	↓	↓	↓			
812851 (1-2)	>1	<2	↓	↓	↓			
812852	>1	<2	↓	↓	↓			
812858	>1	<2	4/3/14	KD	Yes			
812870	>1	<2	↓	↓	↓			
812881	>1	<2	↓	↓	↓			
812883	<1	>2	↓	↓	NO	1110	4/4/14 12:30	pH <2
812859	<1	>2	4/4/14	KD	NO			
812872	>1	<2	↓	↓	Yes			
812866	>1	>2	↓	↓	Yes Yes			
812912	>1	<2	4/7/14	ES	Yes			
812922	<1	<2	↓	↓	↓			
812923 (1-4)	>1	<2	↓	↓	↓			
812929 (1-2)	>1	<2	4/8/14	ES	Yes			
812947-6	<1	>2	↓	↓	NO	10:15		
812947 (1,2,4)	<1	>2	4/8/14	KD	NO	1305		
812944	<1	<2	4/9/14	ES	Yes			
812945	↓	↓	↓	↓	↓			
812946	>1	↓	↓	↓	↓			
812947	↓	↓	↓	↓	↓			
812949	<1	↓	↓	↓	↓			
812950	↓	↓	↓	↓	↓			
812951	↓	↓	↓	↓	↓			
812952	↓	↓	↓	↓	↓			
812953	↓	↓	↓	↓	↓			
812954	↓	↓	↓	↓	↓			
812965 (1-2)	↓	>2	↓	↓	NO	11:00		
812967 (1-11,14,15)	<1	<2	4/9/14	ES	Yes			
812966 (1,3)	<1	<2	↓	↓	↓			
966-2	↓	>2	↓	↓	↓	1:00		pH <2
812969 (1-2)	↓	↓	↓	↓	↓	1:00		Filtered then acidify
812984 (10-12)	<1	>2	4/10/14	KD	NO	1220		
812991	>1	<2	↓	↓	Yes			
812992 (4)	>1	<2	↓	↓	Yes			
812993 (4)	>1	<2	↓	↓	Yes			
812986 (1,2)	>1	>2	↓	↓	NO	1220		
813007 (4)	<1	>2	↓	↓	NO	↓		
813002	<1	<2	↓	↓	Yes			
813001 (1,2)	>1	<2	↓	↓	Yes			
813004	<1	<2	↓	↓	Yes			

Notes:

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



Sample Integrity & Analysis Discrepancy Form

Client: E2

Lab # 812966

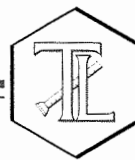
Date Delivered: 04/08/14 Time: 2:05 By: Mail Field Service Client

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)? 5.2 °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 l.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: Luda



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

April 29, 2014

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

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK IM3PLANT-WDR-462 PROJECT, SLUDGE
MONITORING,
TLI No.: 812968

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-462 project sludge monitoring. 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 have been included under Section 5.

The samples were received and delivered with the chain of custody on April 8, 2014, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

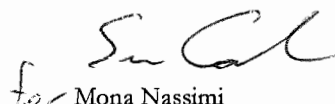
All final results and associated dilution factors are reported on a dry weight basis.


The internal standard for Total Beryllium by SW 6020A analyzed at a 5x dilution was outside the recovery limits of 70% - 130% as a result of matrix interference. Therefore, the result from the 2x dilution by SW 6010B was reported. Due to the dilution, the reporting limit for Total Beryllium exceeded the Contract Required Detection Limit and the result was below the reporting limit. All other QA/QC were within acceptable limits.

No other violations or nonconformance actions occurred for this data package.

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

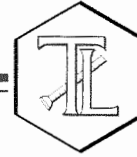
Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.


for Mona Nassimi
Manager, Analytical Services


Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING



Established 1931

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

Attention: Shawn Duffy

Sample: One (1) Soil Sample

Project Name: PG&E Topock Project

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

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

Laboratory No.: 812968

Date: April 29, 2014

Collected: April 8, 2014

Received: April 8, 2014

ANALYST LIST

METHOD	PARAMETER	ANALYST
EPA 300.0	Anions	Giawad Ghenniwa
SM 2540 B	% Moisture	Himani Vaishnav
SW 6010B	Metals by ICP	Ethel Suico
SW 6020A	Metals by ICP/MS	Ethel Suico
SW 7199	Hexavalent Chromium	Naheed Eidinejad



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

Laboratory No.: 812968
Date Received: April 8, 2014

Attention: Shawn Duffy

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

Analytical Results Summary

<u>Lab I.D.</u>	<u>Sample I.D.</u>	<u>Sample Time</u>	<u>SW 7199</u> Hexavalent Chromium <u>mg/kg</u>	<u>EPA 300.0</u> Fluoride <u>mg/kg</u>	<u>SM 2540 B</u> % Moisture <u>%</u>
812968	SC-Sludge-WDR-462	14:15	49.2	22.5	56.9

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.



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

Laboratory No.: 812968
Date Received: April 8, 2014

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

Analytical Results Summary

METALS ANALYSIS: Total Metal Analyses as Requested

Lab I.D.	Sample ID	Date of Analysis: Time Coll.	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead
			SW 6020A	SW 6010B	SW 6010B	SW 6010B	SW 6010B	SW 6010B	SW 6010B	SW 6010B	SW 6010B
			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
812968	SC-Sludge-WDR-462	14:15	ND	ND	59.2	ND	4.29	2480	ND	35.1	ND

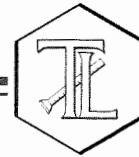
Lab I.D.	Sample ID	Date of Analysis: Time Coll.	Manganese	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
			SW 6010B	SW 6020A	SW 6010B	SW 6010B	SW 6010B	SW 6020A	SW 6020A	SW 6010B	SW 6010B
			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
812968	SC-Sludge-WDR-462	14:15	252	ND	ND	19.5	ND	ND	ND	30.7	24.9

NOTES:

ND: Not detected, or below limit of detection

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING



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REPORT

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

Attention: Shawn Duffy

Sample: One (1) Soil Sample

Project Name: PG&E Topock Project

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

P.O. No.: PGEIM11111001

Prep. Batch: 04CrH14B1

Laboratory No.: 812968

Date: April 29, 2014

Collected: April 8, 2014

Received: April 8, 2014

Prep/ Analyzed: April 25, 2014

Analytical Batch: 04CrH14B1

Investigation:

Hexavalent Chromium by IC Using Method SW 7199

Analytical Results Hexavalent Chromium

<u>TLI I.D.</u>	<u>Field I.D.</u>	<u>Sample Time</u>	<u>Run Time</u>	<u>Units</u>	<u>DF</u>	<u>RL</u>	<u>Results</u>
812968	SC-Sludge-WDR-462	14:15	12:45	mg/kg	5.00	4.64	49.2

QA/QC Summary

QC STD I.D.	Laboratory Number	Sample Concentration	Duplicate Concentration	Relative Percent Difference	Acceptance limits	QC Within Control
Duplicate	812968	49.2	48.9	0.59%	< 20%	Yes

QC Std I.D.	Lab Number	Conc. of unspiked sample	Dilution Factor	Added Spike Conc.	MS Amount	Measured Conc. of spiked sample	Theoretical Conc. of spiked sample	MS% Recovery	Acceptance limits	QC Within Control
MS	812968	49.2	10.0	18.6	18.6	70.2	67.7	113%	75-125%	Yes
IMS	812968	49.2	100	2746	2746	2600	2795	92.9%	75-125%	Yes
PDMS	812968	49.2	10.0	18.6	186	227	235	95.9%	85-115%	Yes

QC Std I.D.	Measured Concentration	Theoretical Concentration	Percent Recovery	Acceptance Limits	QC Within Control
Blank	ND	<0.400	---	<0.400	Yes
MRCSS	2.07	2.00	104%	90% - 110%	Yes
MRCVS#1	2.18	2.00	109%	90% - 110%	Yes
LLCS	0.0110	0.0100	110%	70% - 130%	Yes
LCS	2.10	2.00	105%	80% - 120%	Yes

ND: Below the reporting limit (Not Detected).

DF: Dilution Factor.

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

Mona Nassimi
for - Mona Nassimi, Manager
Analytical Services

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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

REPORT

Laboratory No.: 812968

Date: April 29, 2014

Sample: One (1) Soil Sample
Project Name: PG&E Topock Project
Project No.: 428648.IM.CS.EX.AC
P.O. No.: PGEIM11111001

Collected: April 8, 2014

Received: April 8, 2014

Prep/ Analyzed: April 15, 2014

Analytical Batch: 04SOLID14A

Investigation:

Total Solids by SM 2540 B

Analytical Results % Moisture

<u>TLI I.D.</u>	<u>Field I.D.</u>	<u>Sample Time</u>	<u>Units</u>	<u>Results</u>
812968	SC-Sludge-WDR-462	14:15	%	56.9

QA/QC Summary

<u>QC STD I.D.</u>	<u>Laboratory Number</u>	<u>Concentration</u>	<u>Duplicate Concentration</u>	<u>Relative Percent Difference</u>	<u>Acceptance limits</u>	<u>QC Within Control</u>
Duplicate	812968	56.9	55.6	2.21%	≤ 20%	Yes

ND: Below the reporting limit (Not Detected).

DF: Dilution Factor.

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.


for **Mona Nassimi, Manager**
Analytical Services

TRUESDAIL LABORATORIES, INC.

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REPORT

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

Attention: Shawn Duffy

Sample: One (1) Soil Sample

Project Name: PG&E Topock Project

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

P.O. No.: PGEIM11111001

Laboratory No.: 812968

Date: April 29, 2014

Collected: April 8, 2014

Received: April 8, 2014

Prep/ Analyzed: April 9, 2014

Analytical Batch: 04AN14H

Investigation: Fluoride by Ion Chromatography using EPA 300.0

Analytical Results Fluoride

<u>TLI I.D.</u>	<u>Field I.D.</u>	<u>Sample Time</u>	<u>Run Time</u>	<u>Units</u>	<u>DF</u>	<u>RL</u>	<u>Results</u>
812968	SC-Sludge-WDR-462	14:15	14:02	mg/kg	1.00	4.64	22.5

QA/QC Summary

QC STD I.D.	Laboratory Number	Concentration	Duplicate Concentration	Relative Percent Difference	Acceptance limits	QC Within Control
Duplicate	812966-2	2.30	2.27	1.66%	≤ 20%	Yes


QC Std I.D.	Lab Number	Conc. of unspiked sample	Dilution Factor	Added Spike Conc.	MS Amount	Measured Conc. of spiked sample	Theoretical Conc. of spiked sample	MS% Recovery	Acceptance limits	QC Within Control
MS	812966-2	2.30	5.00	4.00	20.0	21.8	22.3	97.4%	85-115%	Yes

QC Std I.D.	Measured Concentration	Theoretical Concentration	Percent Recovery	Acceptance Limits	QC Within Control
Blank	ND	<0.500	---	<0.500	Yes
MRCCS	4.14	4.00	103%	90% - 110%	Yes
MRCVS#1	3.04	3.00	101%	90% - 110%	Yes
MRCVS#2	3.05	3.00	102%	90% - 110%	Yes
MRCVS#3	3.03	3.00	101%	90% - 110%	Yes
MRCVS#4	3.05	3.00	102%	90% - 110%	Yes
MRCVS#5	3.08	3.00	103%	90% - 110%	Yes
MRCVS#6	3.05	3.00	102%	90% - 110%	Yes
LCS	3.97	4.00	99.2%	90% - 110%	Yes

ND: Below the reporting limit (Not Detected).

DF: Dilution Factor.

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.


for Mona Nassimi, Manager
Analytical Services

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REPORT

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

Attention: Shawn Duffy

Samples: One (1) Soil Sample
Project Name: PG&E Topock Project
Project No.: 428648.IM.CS.EX.AC
P.O. No.: PGEIM11111001

Investigation: Total Metal Analyses as Requested

Laboratory No.: 812968

Reported: April 29, 2014

Collected: April 8, 2014

Received: April 8, 2014

Analyzed: See Below

Analytical Results

SAMPLE ID: SC-Sludge-WDR-462		Time Collected: 14:15		LAB ID: 812968				
Parameter	Method	Reported Value	DF	Units	RL	Batch	Date Analyzed	Time Analyzed
Antimony	SW 6020A	ND	5.00	mg/kg	5.00	042414A	04/24/14	18:23
Arsenic	SW 6010B	ND	2.00	mg/kg	5.00	041514A-Th2	04/15/14	20:32
Barium	SW 6010B	59.2	2.00	mg/kg	10.0	041514A-Th2	04/15/14	20:32
Beryllium	SW 6010B	ND	2.00	mg/kg	2.15	041514A-Th2	04/15/14	20:32
Cadmium	SW 6010B	4.29	2.00	mg/kg	2.15	041514A-Th2	04/15/14	20:32
Chromium	SW 6010B	2480	5.0	mg/kg	5.37	041514A-Th2	04/15/14	19:08
Cobalt	SW 6010B	ND	5.00	mg/kg	10.0	041614A-Th2	04/16/14	14:32
Copper	SW 6010B	35.1	2.00	mg/kg	8.58	041514A-Th2	04/15/14	20:32
Lead	SW 6020A	ND	5.00	mg/kg	5.00	042414A	04/24/14	18:23
Manganese	SW 6010B	252	2.00	mg/kg	8.58	041514A-Th2	04/15/14	20:32
Mercury	SW 6020A	ND	5.00	mg/kg	0.107	041814A	04/18/14	19:50
Molybdenum	SW 6010B	ND	2.00	mg/kg	10.0	041514A-Th2	04/15/14	20:32
Nickel	SW 6010B	19.5	2.00	mg/kg	5.00	041514A-Th2	04/15/14	20:32
Selenium	SW 6010B	ND	2.00	mg/kg	5.00	041514A-Th2	04/15/14	20:32
Silver	SW 6020A	ND	5.00	mg/kg	5.00	042414A	04/24/14	18:23
Thallium	SW 6020A	ND	5.00	mg/kg	5.00	042414A	04/24/14	18:23
Vanadium	SW 6010B	30.7	2.00	mg/kg	5.00	041514A-Th2	04/15/14	20:32
Zinc	SW 6010B	24.9	5.00	mg/kg	10.7	041614A-Th2	04/16/14	14:32

NOTES:

Sample results and reporting limits reported on a dry weight basis.

ND: Not detected, or below limit of detection.

DF: Dilution factor.

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.


Mona Nassimi, Manager
Analytical Services

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

Attention: Shawn Duffy

Samples: One (1) Soil Sample

Project Name: PG&E Topock Project

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

P.O. No.: PGEIM11111001

Laboratory No.: 812968

Reported: April 29, 2014

Collected: April 8, 2014

Received: April 8, 2014

Quality Control/Quality Assurance Report

Parameter	Method	Batch	DIGESTED BLANK			MRCCS				MRCVS			
			Units	Blank	RL	Observed Value	TRUE Value	% Rec	Control Limits	Observed Value	TRUE Value	% Rec	Control Limits %
Antimony	SW 6020A	042414A	mg/kg	ND	5.00	0.0192	0.0200	96.1%	90-110%	0.0190	0.0200	95.1%	90-110%
Arsenic	SW 6010B	041514A-Th2	mg/kg	ND	5.00	5.15	5.00	103%	90-110%	4.69	5.00	93.8%	90-110%
Barium	SW 6010B	041514A-Th2	mg/kg	ND	10.0	4.93	5.00	98.6%	90-110%	5.19	5.00	104%	90-110%
Beryllium	SW 6010B	041514A-Th2	mg/kg	ND	1.00	5.02	5.00	100%	90-110%	4.98	5.00	99.6%	90-110%
Cadmium	SW 6010B	041514A-Th2	mg/kg	ND	1.00	5.23	5.00	105%	90-110%	4.88	5.00	97.5%	90-110%
Chromium	SW 6010B	041514A-Th2	mg/kg	ND	5.00	5.13	5.00	103%	90-110%	5.26	5.00	105%	90-110%
Cobalt	SW 6010B	041614A-Th2	mg/kg	ND	10.0	5.08	5.00	102%	90-110%	4.84	5.00	96.9%	90-110%
Copper	SW 6010B	041514A-Th2	mg/kg	ND	5.00	5.12	5.00	102%	90-110%	4.99	5.00	99.8%	90-110%
Lead	SW 6020A	042414A	mg/kg	ND	5.00	0.0198	0.0200	99.2%	90-110%	0.0198	0.0200	99.1%	90-110%
Manganese	SW 6010B	041514A-Th2	mg/kg	ND	4.00	5.05	5.00	101%	90-110%	4.99	5.00	99.8%	90-110%
Mercury	SW 6020A	041814A	mg/kg	ND	0.100	0.00192	0.00200	96.1%	90-110%	0.00198	0.00200	98.9%	90-110%
Molybdenum	SW 6010B	041514A-Th2	mg/kg	ND	10.0	5.00	5.00	99.9%	90-110%	5.16	5.00	103%	90-110%
Nickel	SW 6010B	041514A-Th2	mg/kg	ND	5.00	5.11	5.00	102%	90-110%	4.94	5.00	98.8%	90-110%
Selenium	SW 6010B	041514A-Th2	mg/kg	ND	5.00	5.22	5.00	104%	90-110%	5.02	5.00	100%	90-110%
Silver	SW 6020A	042414A	mg/kg	ND	5.00	0.0196	0.0200	97.9%	90-110%	0.0196	0.0200	98.0%	90-110%
Thallium	SW 6020A	042414A	mg/kg	ND	5.00	0.0198	0.0200	98.8%	90-110%	0.0200	0.0200	100%	90-110%
Vanadium	SW 6010B	041514A-Th2	mg/kg	ND	5.00	5.04	5.00	101%	90-110%	5.50	5.00	110%	90-110%
Zinc	SW 6010B	041614A-Th2	mg/kg	ND	10.0	5.22	5.00	104%	90-110%	4.96	5.00	99.3%	90-110%



INTERFERENCE CHECK STANDARD (ICS A+B #1)

INTERFERENCE CHECK STANDARD (ICS A+B #2)

Parameter	Method	Units	ICS	ICS	%	Control Limits	ICS	ICS	%	Control Limits
			Obs.	Theo.	Rec.		Obs.	Theo.	Rec.	
Arsenic	SW 6010B	mg/kg	2.01	2.00	101%	80-120%	1.88	2.00	94.2%	80-120%
Cadmium	SW 6010B	mg/kg	2.09	2.00	104%	80-120%	1.97	2.00	98.7%	80-120%
Chromium	SW 6010B	mg/kg	2.08	2.00	104%	80-120%	2.12	2.00	106%	80-120%
Cobalt	SW 6010B	mg/kg	2.04	2.00	102%	80-120%	2.04	2.00	102%	80-120%
Copper	SW 6010B	mg/kg	2.07	2.00	103%	80-120%	2.06	2.00	103%	80-120%
Manganese	SW 6010B	mg/kg	2.04	2.00	102%	80-120%	2.02	2.00	101%	80-120%
Mercury	SW 6020A	mg/kg	0.00194	0.00200	97.1%	80-120%	0.00193	0.00200	96.4%	80-120%
Nickel	SW 6010B	mg/kg	2.08	2.00	104%	80-120%	2.02	2.00	101%	80-120%
Silver	SW 6020A	mg/kg	0.0204	0.0200	102%	80-120%	0.0206	0.0200	103%	80-120%
Zinc	SW 6010B	mg/kg	2.09	2.00	105%	80-120%	2.15	2.00	108%	80-120%

LABORATORY CONTROL SAMPLES

SAMPLE DUPLICATES

Parameter	Method	Units	LCS	LCS	%	Control Limits	SAMPLE ID	SAMPLE RESULT	DUP RESULT	% RPD	Precision Control
			Obs.	Theo.	Rec.						Limits %
Antimony	SW 6020A	mg/kg	0.0481	0.0500	96.2%	85-115%	812968	ND	ND	0.00%	≤20
Arsenic	SW 6010B	mg/kg	1.99	2.00	99.6%	85-115%	812968	ND	ND	0.00%	≤20
Barium	SW 6010B	mg/kg	2.07	2.00	103%	85-115%	812968	59.2	59.5	0.63%	≤20
Beryllium	SW 6010B	mg/kg	2.05	2.00	103%	85-115%	812968	ND	ND	0.00%	≤20
Cadmium	SW 6010B	mg/kg	2.04	2.00	102%	85-115%	812968	4.29	4.30	0.11%	≤20
Chromium	SW 6010B	mg/kg	2.11	2.00	105%	85-115%	812968	2480	2440	1.63%	≤20
Cobalt	SW 6010B	mg/kg	2.09	2.00	105%	85-115%	812968	ND	ND	0.00%	≤20
Copper	SW 6010B	mg/kg	2.07	2.00	103%	85-115%	812968	35.1	33.4	4.87%	≤20
Lead	SW 6020A	mg/kg	0.0495	0.0500	98.9%	85-115%	812968	ND	ND	0.00%	≤20
Manganese	SW 6010B	mg/kg	2.06	2.00	103%	85-115%	812968	252	252	0.13%	≤20
Mercury	SW 6020A	mg/kg	0.00498	0.00500	99.6%	85-115%	812968	ND	ND	0.00%	≤20
Molybdenum	SW 6010B	mg/kg	2.04	2.00	102%	85-115%	812968	ND	ND	0.00%	≤20
Nickel	SW 6010B	mg/kg	2.03	2.00	102%	85-115%	812968	19.5	19.3	0.87%	≤20
Selenium	SW 6010B	mg/kg	2.09	2.00	105%	85-115%	812968	ND	ND	0.00%	≤20
Silver	SW 6020A	mg/kg	0.0486	0.0500	97.2%	85-115%	812968	ND	ND	0.00%	≤20
Thallium	SW 6020A	mg/kg	0.0494	0.0500	98.8%	85-115%	812968	ND	ND	0.00%	≤20
Vanadium	SW 6010B	mg/kg	2.14	2.00	107%	85-115%	812968	30.7	30.7	0.08%	≤20
Zinc	SW 6010B	mg/kg	2.12	2.00	106%	85-115%	812968	24.9	23.7	4.96%	≤20

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MATRIX SPIKE

Sample ID	Parameter	Method	Units	Sample Result	DF	Spike Level	Total Amt. of Spike	Theo. Value	MS Obs.	% Rec.	Accuracy Control Limits %
812968	Antimony	SW 6020A	mg/kg	0.00	5.00	1.10	5.48	5.48	5.86	107%	75-125%
812968	Arsenic	SW 6010B	mg/kg	0.00	2.00	90.2	180	180	161	89.4%	75-125%
812968	Barium	SW 6010B	mg/kg	59.2	2.00	90.2	180	240	258	110%	75-125%
812968	Beryllium	SW 6010B	mg/kg	0.00	2.00	90.2	180	180	202	112%	75-125%
812968	Cadmium	SW 6010B	mg/kg	4.29	2.00	90.2	180	185	162	87.4%	75-125%
812968	Chromium	SW 6010B	mg/kg	2480	5.00	215	1073	3553	3510	96.0%	75-125%
812968	Cobalt	SW 6010B	mg/kg	0.00	5.00	36.1	180	180	166	92.0%	75-125%
812968	Copper	SW 6010B	mg/kg	35.1	2.00	90.2	180	216	208	96.1%	75-125%
812968	Lead	SW 6020A	mg/kg	0.00	5.00	1.10	5.48	5.48	6.22	114%	75-125%
812968	Manganese	SW 6010B	mg/kg	252	2.00	90.2	180	432	411	88.0%	75-125%
812968	Mercury	SW 6020A	mg/kg	0.00	5.00	0.110	0.548	0.548	0.541	98.8%	75-125%
812968	Molybdenum	SW 6010B	mg/kg	0.00	2.00	90.2	180	180	185	103%	75-125%
812968	Nickel	SW 6010B	mg/kg	19.5	2.00	90.2	180	200	175	86.2%	75-125%
812968	Selenium	SW 6010B	mg/kg	0.00	2.00	90.2	182	182	157	86.5%	75-125%
812968	Silver	SW 6020A	mg/kg	0.00	5.00	1.10	5.48	5.48	5.29	96.6%	75-125%
812968	Thallium	SW 6020A	mg/kg	0.00	5.00	1.10	5.48	5.48	5.89	108%	75-125%
812968	Vanadium	SW 6010B	mg/kg	30.7	2.00	90.2	180	211	212	100%	75-125%
812968	Zinc	SW 6010B	mg/kg	24.9	5.00	36.1	180	205	203	98.9%	75-125%

MATRIX SPIKE DUPLICATE

Sample ID	Parameter	Method	Units	Sample Result	DF	Spike Level	Total Amt. of Spike	Theo. Value	MS Obs.	% Rec.	Accuracy Control Limits %
812968	Antimony	SW 6020A	mg/kg	0.00	5.00	0.863	4.31	4.31	4.58	106%	75-125%
812968	Lead	SW 6020A	mg/kg	0.00	5.00	0.863	4.31	4.31	4.85	112%	75-125%
812968	Mercury	SW 6020A	mg/kg	0.00	5.00	0.0863	0.431	0.431	0.453	105%	75-125%
812968	Silver	SW 6020A	mg/kg	0.00	5.00	0.863	4.31	4.31	4.15	96.3%	75-125%
812968	Thallium	SW 6020A	mg/kg	0.00	5.00	0.863	4.31	4.31	4.65	108%	75-125%

ND: Not detected, or below limit of detection.

DF: Dilution Factor

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

Mona Nassimi
Mona Nassimi, Manager
Analytical Services

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TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING



Established 1931

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

Dry Weight Calculations

Date Calculated: 4/29/2014
Sample I.D. 812968

	Sample Result Wet Weight mg/kg	Dilution Factor	% Moisture %	Sample Result Dry* Weight mg/kg	Reported Value mg/kg	Reporting Limit Wet Weight mg/kg	Reporting Limit Dry Weight mg/kg
Fluoride	9.720	---	56.9	22.5428	22.5	2.00	4.64
Hexavalent Chromium	21.2055	---	56.9	49.1802	49.2	2.00	4.64
Hexavalent Chromium - Dup	21.0817	---	56.9	48.8931	48.9	2.00	4.64
Hexavalent Chromium - MS	30.2577	---	56.9	70.174	70.2	4.00	9.28
Hexavalent Chromium - IMS	1119.574	---	56.9	2596.535	2600	40.0	92.8
Hexavalent Chromium - PDMS	97.9037	---	56.9	227.060	227	4.00	9.28
Antimony	ND	5.00	56.9	ND	ND	0.2313	5.00
Arsenic	ND	2.00	56.9	ND	ND	1.8507	5.00
Barium	25.51	2.00	56.9	59.1632	59.2	1.8507	10.0
Beryllium	0.6834	2.00	56.9	1.5850	ND	0.9253	2.15
Cadmium	1.850	2.00	56.9	4.2906	4.29	0.9253	2.15
Chromium	1071	5.00	56.9	2483.8814	2480	2.3133	5.37
Cobalt	1.218	5.00	56.9	2.8248	ND	2.3133	10.0
Copper	15.14	2.00	56.9	35.1129	35.1	3.7013	8.58
Lead	ND	5.00	56.9	ND	ND	0.2313	5.00
Manganese	108.9	2.00	56.9	252.5627	252	3.7013	8.58
Mercury	0.027250	5.00	56.9	0.06320	ND	0.04627	0.107
Molybdenum	3.399	2.00	56.9	7.8830	ND	3.7013	10.0
Nickel	8.408	2.00	56.9	19.5000	19.5	0.9253	5.00
Selenium	ND	2.00	56.9	ND	ND	0.9253	5.00
Silver	ND	5.00	56.9	ND	ND	0.2313	5.00
Thallium	0.246427	5.00	56.9	0.5715	ND	0.2313	5.00
Vanadium	13.22	2.00	56.9	30.6600	30.7	0.9253	5.00
Zinc	10.75	5.00	56.9	24.9316	24.9	4.6266	10.7

Sample Result in Dry Weight = [Sample_{ww} / (100-%Moisture)]*100

where:

Sample_{ww} = Sample result in wet weight



Dry Weight Calculations

Date Calculated: 4/29/2014

	Sample Result Wet Weight mg/kg	Dilution Factor	% Moisture %	Sample Result Dry* Weight mg/kg	Reported Value mg/kg	Reporting Limit Wet Weight mg/kg	Reporting Limit Dry Weight mg/kg
Sample Duplicate: 812968							
Antimony	ND	5.00	56.9	ND	ND	0.2311	5.00
Arsenic	ND	2.00	56.9	ND	ND	1.8486	5.00
Barium	25.67	2.00	56.9	59.5343	59.5	1.8486	10.0
Beryllium	0.8250	2.00	56.9	1.9134	ND	0.9243	2.14
Cadmium	1.852	2.00	56.9	4.2952	4.30	0.9243	2.14
Chromium	1051	5.00	56.9	2437.4971	2440	2.3107	5.36
Cobalt	0.9779	5.00	56.9	2.2680	ND	2.3107	10.0
Copper	14.42	2.00	56.9	33.4431	33.4	3.6972	8.57
Lead	ND	5.00	56.9	ND	ND	0.2311	5.00
Manganese	108.8	2.00	56.9	252.3308	252	3.6972	8.57
Mercury	0.026976	5.00	56.9	0.06256	ND	0.04621	0.107
Molybdenum	3.382	2.00	56.9	7.8436	ND	3.6972	10.0
Nickel	8.335	2.00	56.9	19.3307	19.3	0.9243	5.00
Selenium	ND	2.00	56.9	ND	ND	0.9243	5.00
Silver	ND	5.00	56.9	ND	ND	0.2311	5.00
Thallium	ND	5.00	56.9	ND	ND	0.2311	5.00
Vanadium	13.23	2.00	56.9	30.6832	30.7	0.9243	5.00
Zinc	10.23	5.00	56.9	23.7256	23.7	4.6215	10.7
Matrix Spike: 812968							
Antimony	2.52666	5.00	56.9	5.85987	5.86	0.2362	5.00
Arsenic	69.53	2.00	56.9	161.2552	161	1.5559	5.00
Barium	111.4	2.00	56.9	258.3608	258	1.5559	10.0
Beryllium	87.29	2.00	56.9	202.4445	202	0.7780	1.80
Cadmium	69.88	2.00	56.9	162.0669	162	0.7780	1.80
Chromium	1512	5.00	56.9	3506.6562	3510	2.3133	5.37
Cobalt	71.57	5.00	56.9	165.9864	166	1.9449	10.0
Copper	89.88	2.00	56.9	208.4512	208	3.1119	7.22
Lead	2.682943	5.00	56.9	6.22233	6.22	0.2362	5.00
Manganese	177.1	2.00	56.9	410.7333	411	3.1119	7.22
Mercury	0.233349	5.00	56.9	0.541187	0.541	0.0472	0.110
Molybdenum	79.75	2.00	56.9	184.9576	185	3.1119	10.0
Nickel	75.45	2.00	56.9	174.9847	175	0.7780	5.00
Selenium	67.91	2.00	56.9	157.4980	157	0.7780	5.00
Silver	2.28059	5.00	56.9	5.28918	5.29	0.2362	5.00
Thallium	2.540140	5.00	56.9	5.89114	5.89	0.2362	5.00
Vanadium	91.31	2.00	56.9	211.7677	212	0.7780	5.00
Zinc	87.70	5.00	56.9	203.3953	203	3.8898	10.0

Sample Result in Dry Weight = [Sample_{ww} / (100-%Moisture)]*100

where:

Sample_{ww} = Sample result in wet weight



Dry Weight Calculations

Date Calculated: 4/29/2014

	Sample Result Wet Weight mg/kg	Dilution Factor	% Moisture %	Sample Result Dry* Weight mg/kg	Reported Value mg/kg	Reporting Limit Wet Weight mg/kg	Reporting Limit Dry Weight mg/kg
Matrix Spike Duplicate: 812968							
Antimony	1.97346	5.00	56.9	4.57688	4.58	0.1860	5.00
Lead	2.092568	5.00	56.9	4.85312	4.85	0.1860	5.00
Mercury	0.195523	5.00	56.9	0.453460	0.453	0.0372	0.100
Silver	1.79101	5.00	56.9	4.15374	4.15	0.1860	5.00
Thallium	2.006353	5.00	56.9	4.65317	4.65	0.1860	5.00

Sample Result in Dry Weight = [Sample_{ww} / (100-%Moisture)]*100

where:

Sample_{ww} = Sample result in wet weight

812968

Rec'd 04/08/14
 S216 812968



TRUESDAIL LABORATORIES, INC.
 14201 Franklin Avenue, Tustin, CA 92780-7008
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CHAIN OF CUSTODY RECORD

[IM3plant-WDR-462]

TURNAROUND TIME 10 Days
 DATE 04/08/14 PAGE 1 OF 1

COMPANY CH2M HILL / E2				Anions (300.0) F Bioassay 96hr Acute Metals (6010B) Title 22, (includes Mercury) Cr6 (7199) Metals (6010B) Mn NUMBER OF CONTAINERS										COMMENTS								
PROJECT NAME PG&E Topock IM3																						
PHONE 530-229-3303		FAX 530-339-3303																				
ADDRESS 155 Grand Ave Ste 1000 Oakland, CA 94612																						
P.O. NUMBER 428648.IM.CS.EX.AC																						
SAMPLERS (SIGNATURE) <i>Chris Lane</i>																						
SAMPLE I.D.	DATE	TIME	DESCRIPTION	X	X	X	X															
SC-Sludge-WDR-462	04/08/14	1415	Sludge	X	X	X	X														4	
ALERT !! Level III QC				For Sample Conditions See Form Attached										TOTAL NUMBER OF CONTAINERS								

CHAIN OF CUSTODY SIGNATURE RECORD					SAMPLE CONDITIONS		
Signature (Relinquished) <i>Chris Lane</i>	Printed Name CHRIS LANE	Company/ Agency CH2MHILL	Date/ Time 4-8-14 1528	RECEIVED	COOL <input checked="" type="checkbox"/>	WARM <input type="checkbox"/>	5.7 °F
Signature (Received) <i>Shak Ngo</i>	Printed Name SHAK NGO	Company/ Agency TRUESDAIL	Date/ Time 4-8-14 1530	CUSTODY SEALED	YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>	
Signature (Relinquished) <i>Shak Ngo</i>	Printed Name SHAK NGO	Company/ Agency TRUESDAIL	Date/ Time 4-8-14 2000	SPECIAL REQUIREMENTS:			
Signature (Received) <i>Marchal Brady</i>	Printed Name Marchal Brady	Company/ Agency TL	Date/ Time 4/8/14 2005				
Signature (Relinquished)	Printed Name	Company/ Agency	Date/ Time				
Signature (Received)	Printed Name	Company/ Agency	Date/ Time				

052



Sample Integrity & Analysis Discrepancy Form

Client: E 2

Lab # 812968

Date Delivered: 04/08/14 Time: 20:05 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)? 5.2 °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 = _____ 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? Yes No N/A
Turn Around Time (TAT): RUSH Std

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

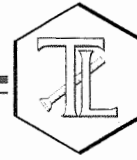
16. Comments: _____

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

ALERT !!
Level III QC

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April 30, 2014

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

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK IM3PLANT-WDR-463 PROJECT, GROUNDWATER MONITORING, TLI NO.: 813068

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-463 project groundwater monitoring for Hexavalent and Total Chromium, Total Manganese, Turbidity, Specific Conductivity, and Total Dissolved Solids. 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 have been included under Section 5.

The samples were received and delivered with the chain of custody on April 15, 2014, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.


Total Chromium and Total Manganese were analyzed by EPA 200.8 rather than EPA 200.7 as requested on the chain of custody with Mr. Duffy's approval.

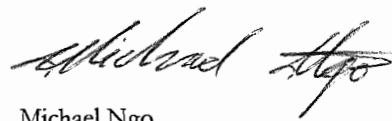
The straight runs for the sample and associated matrix spike on sample SC-700B-WDR-463 for Hexavalent Chromium analysis by EPA 218.6 were just outside the retention time window. Because the matrix spike recovery and all other QA/QC were within acceptable limits, the data from the straight run was reported.

No other violations or nonconformance actions occurred for this data package.

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

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

for 
Mona Nassimi
Manager, Analytical Services


Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.

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

Attention: Shawn Duffy

Sample: One (1) Groundwater Sample

Project Name: PG&E Topock Project

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

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

Laboratory No.: 813068

Date: April 30, 2014

Collected: April 15, 2014

Received: April 15, 2014

ANALYST LIST

METHOD	PARAMETER	ANALYST
EPA 120.1	Specific Conductivity	Maksim Gorbunov
SM 2540C	Total Dissolved Solids	Maksim Gorbunov
SM 2130B	Turbidity	Felipe Mendoza
EPA 200.8	Total Metals	Ethel Suico
EPA 218.6	Hexavalent Chromium	Naheed Eidinejad



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

Laboratory No.: 813068
Date Received: April 15, 2014

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

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
813068-001	SC-700B-WDR-463	E120.1	NONE	4/15/2014	8:40	EC	6590	umhos/cm	2.00
813068-001	SC-700B-WDR-463	E200.8	NONE	4/15/2014	8:40	Chromium	ND	ug/L	1.0
813068-001	SC-700B-WDR-463	E200.8	NONE	4/15/2014	8:40	Manganese	2.7	ug/L	0.50
813068-001	SC-700B-WDR-463	E218.6	LABFLT	4/15/2014	8:40	Chromium, Hexavalent	ND	ug/L	0.20
813068-001	SC-700B-WDR-463	SM2130B	NONE	4/15/2014	8:40	Turbidity	ND	NTU	0.100
813068-001	SC-700B-WDR-463	SM2540C	NONE	4/15/2014	8:40	Total Dissolved Solids	4390	mg/L	250

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: 428648.IM.CS.EX.AC

P.O. Number: PGEIM11111001

Release Number:

Laboratory No. 813068

Page 1 of 7

Printed 4/30/2014

Samples Received on 4/15/2014 6:00:00 PM

Field ID	Lab ID	Collected	Matrix
SC-700B-WDR-463	813068-001	04/15/2014 08:40	Water

Specific Conductivity - EPA 120.1

Batch 04EC14F

Parameter	Unit	Analyzed	DF	MDL	RL	Result
813068-001 Specific Conductivity	umhos/cm	04/30/2014	1.00	0.606	2.00	6590

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate

Lab ID = 813085-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	716	733	2.35	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	639	706	90.5	90 - 110

MRCSS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	665	706	94.2	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	935	1000	93.5	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	923	1000	92.3	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.

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Client: E2 Consulting Engineers, Inc.

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

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Printed 4/30/2014

Chrome VI by EPA 218.6		Batch 04CrH14 C				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
813068-001 Chromium, Hexavalent	ug/L	04/16/2014 12:58	1.00	0.00600	0.20	ND
Method Blank						
Parameter	Unit	DF	Result			
Chromium, Hexavalent	ug/L	1.00	ND			
Duplicate						Lab ID = 813068-001
Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	0.123	0.123	0.162	0 - 20
Low Level Calibration Verification						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.199	0.200	99.3	70 - 130
Lab Control Sample						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.03	5.00	101	90 - 110
Matrix Spike						Lab ID = 812967-008
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	10.0	9.52(5.00)	110	90 - 110
Matrix Spike						Lab ID = 812967-008
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	10.2	9.94(5.00)	104	90 - 110
Matrix Spike						Lab ID = 813068-001
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.18	1.12(1.00)	106	90 - 110
Matrix Spike						Lab ID = 813068-001
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.24	5.12(5.00)	102	90 - 110
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	9.87	10.0	98.7	95 - 105

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Client: E2 Consulting Engineers, Inc.

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

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Printed 4/30/2014

Metals by EPA 200.8, Total		Batch 041814A				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
813068-001 Chromium	ug/L	04/18/2014 18:06	2.00	0.142	1.0	ND
Manganese	ug/L	04/18/2014 18:06	2.00	0.120	0.50	2.7

Method Blank

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

Duplicate

Lab ID = 813068-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	2.00	ND	0	0	0 - 20
Manganese	ug/L	2.00	2.80	2.74	2.27	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.183	0.200	91.5	70 - 130
Manganese	ug/L	1.00	0.208	0.200	104	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	2.00	48.8	50.0	97.5	85 - 115
Manganese	ug/L	2.00	47.2	50.0	94.4	85 - 115

Matrix Spike

Lab ID = 813068-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	44.9	50.0(50.0)	89.8	75 - 125
Manganese	ug/L	2.00	48.1	52.7(50.0)	90.7	75 - 125

Matrix Spike Duplicate

Lab ID = 813068-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	45.6	50.0(50.0)	91.3	75 - 125
Manganese	ug/L	2.00	47.9	52.7(50.0)	90.3	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.9	20.0	99.5	90 - 110
Manganese	ug/L	1.00	19.6	20.0	98.0	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.5	20.0	97.6	90 - 110

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Client: E2 Consulting Engineers, Inc.

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

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Printed 4/30/2014

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	19.8	20.0	98.9	80 - 120

Total Dissolved Solids by SM 2540 C

Batch 04TDS14D

Parameter	Unit	Analyzed	DF	MDL	RL	Result
813068-001 Total Dissolved Solids	mg/L	04/17/2014	1.00	1.76	250	4390

Method Blank

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

Duplicate

Lab ID = 813007-004

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	620	610	1.63	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Dissolved Solids	mg/L	1.00	515	500	103	90 - 110

Turbidity by SM 2130 B

Batch 04TUB14I

Parameter	Unit	Analyzed	DF	MDL	RL	Result
813068-001 Turbidity	NTU	04/16/2014	1.00	0.0140	0.100	ND

Method Blank

Parameter	Unit	DF	Result
Turbidity	NTU	1.00	ND

Duplicate

Lab ID = 813077-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Turbidity	NTU	1.00	0.134	0.143	6.50	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	8.70	8.00	109	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	8.65	8.00	108	90 - 110



TRUESDAIL LABORATORIES, INC.


Report Continued

Client: E2 Consulting Engineers, Inc.

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

Page 7 of 7
Printed 4/30/2014

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.


for **Mona Nassimi**
Manager, Analytical Services



Total Dissolved Solids by SM 2540 C

Calculations

Batch: 04TDS14D
Date Analyzed: 4/17/2014

Laboratory Number	Sample volume, mL	Initial weight, g	1st Final weight, g	2nd Final weight, g	Weight Difference, g	Exceeds 0.5mg? Yes/No	Residue weight, g	Filterable residue, ppm	RL, ppm	Reported Value, ppm	DF
Blank	100	79.4941	79.4945	79.4944	0.0001	No	0.0003	3.0	25.0	ND	1
812989-1	100	78.9016	78.9514	78.9513	0.0001	No	0.0497	497.0	25.0	497.0	1
812989-2	100	69.4696	69.5061	69.5061	0.0000	No	0.0365	365.0	25.0	365.0	1
812989-3	100	74.6424	74.6794	74.6793	0.0001	No	0.0369	369.0	25.0	369.0	1
812989-4	100	75.2661	75.3036	75.3032	0.0004	No	0.0371	371.0	25.0	371.0	1
813007-1	50	47.9471	47.9980	47.9976	0.0004	No	0.0505	1010.0	50.0	1010.0	1
813007-2	100	78.7839	78.8369	78.8369	0.0000	No	0.0530	530.0	25.0	530.0	1
813007-3	100	76.8047	76.8639	76.8636	0.0003	No	0.0589	589.0	25.0	589.0	1
813007-4	50	51.0442	51.0747	51.0747	0.0000	No	0.0305	610.0	50.0	610.0	1
813032-1	100	78.3873	78.4330	78.4328	0.0002	No	0.0455	455.0	25.0	455.0	1
813032-2	100	67.4821	67.5305	67.5302	0.0003	No	0.0481	481.0	25.0	481.0	1
813007-4 Dup	50	50.9515	50.9829	50.9825	0.0004	No	0.0310	620.0	50.0	620.0	1
LCS	100	75.8067	75.8583	75.8582	0.0001	No	0.0515	515.0	25.0	515.0	1
813045-2	100	77.9016	77.9151	77.9151	0.0000	No	0.0135	135.0	25.0	135.0	1
813045-4	100	68.5444	68.5827	68.5823	0.0004	No	0.0379	379.0	25.0	379.0	1
813082-1	100	75.2758	75.3236	75.3236	0.0000	No	0.0478	478.0	25.0	478.0	1
813082-2	100	78.6069	78.6509	78.6509	0.0000	No	0.0440	440.0	25.0	440.0	1
813082-3	100	68.1109	68.1575	68.1575	0.0000	No	0.0466	466.0	25.0	466.0	1
813082-4	100	78.3634	78.4104	78.4104	0.0000	No	0.0470	470.0	25.0	470.0	1
813085-1	100	75.7485	75.7943	75.7943	0.0000	No	0.0458	458.0	25.0	458.0	1
813085-2	100	74.1463	74.1937	74.1937	0.0000	No	0.0474	474.0	25.0	474.0	1
813068	10	29.3200	29.3639	29.3639	0.0000	No	0.0439	4390.0	250.0	4390.0	1
813096	600	173.1990	173.1998	173.1998	0.0000	No	0.0008	1.3	4.2	ND	1
813045-4 Dup	100	75.7451	75.7826	75.7825	0.0001	No	0.0374	374.0	25.0	374.0	1

Calculation as follows:

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

Where:

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

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

Laboratory Control Sample (LCS) Summary

QC Std I.D.	Measured Value, ppm	Theoretical Value, ppm	Percent Rec	Acceptance Limit	QC Within Control?
LCS	515.0	500	103.0%	90-110%	Yes
LCSD					

LCS Recovery

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

P = Percent recovery.

LC = Measured LCS value (ppm).

LT = Theoretical LCS value (ppm).

Duplicate Determinations Difference Summary

Lab Number	Sample Weight, g	Sample Dup Weight, g	% RPD	Acceptance Limit	QC Within Control?
813007-4	0.0305	0.0310	0.8%	≤5%	Yes
813045-4	0.0379	0.0374	0.7%	≤5%	Yes

Duplicate Determination Difference

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

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

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

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

C = Average weight in (g).

Jenny T.

Analyst Printed Name

Analyst Signature

Maksim G.

Reviewer Printed Name

Maksim G.

Reviewer Signature

4-30018

Total Dissolved Solids by SM 2540 C

TDS/EC CHECK

Batch: 04TDS14D
Date Analyzed: 4/17/2014

Laboratory Number	EC	TDS/EC Ratio: 0.55-0.90	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
812989-1	850	0.58	552.5	0.90
812989-2	627	0.58	407.55	0.90
812989-3	628	0.59	408.2	0.90
812989-4	624	0.59	405.6	0.91
813007-1	1743	0.58	1132.95	0.89
813007-2	853	0.62	554.45	0.96
813007-3	929	0.63	603.85	0.98
813007-4	1036	0.59	673.4	0.91
813032-1	774	0.59	503.1	0.90
813032-2	758	0.63	492.7	0.98
813007-4 Dup	1036	0.60	673.4	0.92
LCS				
813045-2	261	0.52	169.65	0.80
813045-4	629	0.60	408.85	0.93
813082-1	812	0.59	527.8	0.91
813082-2	802	0.55	521.3	0.84
813082-3	830	0.56	539.5	0.86
813082-4	827	0.57	537.55	0.87
813085-1	833	0.55	541.45	0.85
813085-2	785	0.60	510.25	0.93
813068	6730	0.65	4374.5	1.00
813096	13	ND	8.45	ND
813045-4 Dup	629	0.59	408.85	0.91





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Rec'd 04/15/14
S22a 813068

CHAIN OF CUSTODY RECORD

[IM3Plant-WDR-463]

813068

COC Number

TURNAROUND TIME 10 Days

DATE 04/15/14 PAGE 1 OF 1

COMPANY <u>E2</u>				Cr6 (218.6) Lab Filtered Total Metals (200.8) Cr, Mn Specific Conductance (120.1) TDS (SM2540C) Turbidity (SM2130)										NUMBER OF CONTAINERS		COMMENTS		
PROJECT NAME <u>PG&E Topock</u>																		
PHONE <u>(530) 229-3303</u>		FAX <u>(530) 339-3303</u>																
ADDRESS <u>155 Grand Ave Ste 1000</u> <u>Oakland, CA 94612</u>																		
P.O. NUMBER <u>428648.IM.CS.EX.AC</u>		TEAM <u>1</u>																
SAMPLERS (SIGNATURE) <u>Chris Rene</u>																		
SAMPLE I.D.	DATE	TIME	DESCRIPTION															
SC-700B-WDR-463	04/15/14	8:40	Water	X	X	X	X	X										
																3	pH = 6 (200.8)	
																3	TOTAL NUMBER OF CONTAINERS	

Please Provide a preliminary Result for the TDS ASAP

ALERT !!
Level III QC

For Sample Conditions
See Form Attached

CHAIN OF CUSTODY SIGNATURE RECORD					SAMPLE CONDITIONS	
Signature (Relinquished) <u>Chris Rene</u>	Printed Name <u>CHRIS RENE</u>	Company/ Agency <u>CH2MHILL</u>	Date/ Time <u>4-15-14 12:55</u>	RECEIVED	COOL <input checked="" type="checkbox"/>	WARM <input type="checkbox"/> <u>4.3°C °F</u>
Signature (Received) <u>Mike Brunet</u>	Printed Name <u>MIKE BRUNET</u>	Company/ Agency <u>TLI</u>	Date/ Time <u>4.15.14 11:00</u>	CUSTODY SEALED YES <input type="checkbox"/> NO <input type="checkbox"/>		
Signature (Relinquished) <u>Mike Brunet</u>	Printed Name <u>MIKE BRUNET</u>	Company/ Agency <u>TLI</u>	Date/ Time <u>4.15.14 6:00</u>	SPECIAL REQUIREMENTS:		
Signature (Received) <u>[Signature]</u>	Printed Name <u>Luda</u>	Company/ Agency <u>TLI</u>	Date/ Time <u>4-15-14 6:00 pm</u>			
Signature (Relinquished)	Printed Name	Company/ Agency	Date/ Time			
Signature (Received)	Printed Name	Company/ Agency	Date/ Time			

036



Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest (Y/N)	Time of Adjustment to pH 2	Date/Time of 2nd pH check	Comments
813003	>1	<2	4/10/14	ED	Yes			
813006	>1	<2	↓	↓	Yes			
813013 (1-3)	<1	>2	4/11/14	ES	NO	3:00		
813014	>1	<2			Yes			
813019	↓	↓						
813021-4	<1	↓						
813022	>1	↓						
813023	↓	↓						
813016 (1-2)	SOLID							TFLC
813015	SOLID							↓
813074	<1	<2	4/11/14	ES	Yes			
812968	SLUDGE		4/14/14	ES	Yes			
812032 (1-2)	>1	<2	4/15/14	ES	Yes			
812036	<1	↓						
812078 (1-2)	<1	↓			NO			
813051	<1	>2	4/16/14	ED	Yes			Rush
813053	>1	<2			Yes			
813069	>1	>2						
813068	<1	>2				1230		CHZML
813075	>1	<2	4/16/14	KS	Yes			
813055 (1,2)	>1	<2	4/17/14	KS	Yes			
813045 (1,2,4)	<1	>2			NO	1245		
813063 (1,2,5,7,8)	<1	>2			NO			
813065 (1-3)	<1	>2			NO			
813078 (10-12)	<1	>2			NO			
813079 (1,2)	<1	>2			NO			
813079 (1,2)	-	-	4/18/14	ED	Yes			Solid
813097 (1,2)	-	-	↓	ED	Yes			Solid
813104	>1	<2	4/21/14	ED	Yes			
813107	<1	<2			Yes			
813108					Yes			
813110					Yes			
813111					Yes			
813121 (1,2)	>1	<2			Yes			
813124	>1	<2	4/21/14	ED	Yes			
813131	>1	>2	4/22/14	ED	NO	1145		Sday Rush
813140	<1	>2	4/22/14	ED	Yes	1000		CHZM
813139	<1	>2						Rush
813132 (-4)	>1	<2						
813133								
813134 (-4)								
813135 (-4)								
813136 (-4)								
813137								

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.



Sample Integrity & Analysis Discrepancy Form

Client: E2

Lab # 813 068

Date Delivered: 04/15/14 Time: 18:00 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.P. 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? 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: Luda

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
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May 7, 2014

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

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK IM3PLANT-WDR-464 PROJECT, GROUNDWATER
MONITORING, TLI NO.: 813140

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-464 project groundwater monitoring for Hexavalent and Total Chromium, Total Manganese, Turbidity, Specific Conductivity, and Total Dissolved Solids. 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 have been included under Section 5.

The samples were received and delivered with the chain of custody on April 22, 2014, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.


Total Chromium and Total Manganese were analyzed by EPA 200.8 rather than EPA 200.7 as requested on the chain of custody with Mr. Duffy's approval.

The straight runs for the sample and associated matrix spike on sample SC-700B-WDR-464 for Hexavalent Chromium analysis by EPA 218.6 were just outside the retention time window. Because the matrix spike recovery and all other QA/QC were within acceptable limits, the data from the straight run was reported.

No other violations or nonconformance actions occurred for this data package.

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

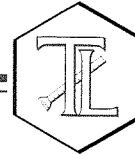
Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.


to - Mona Nassimi
Manager, Analytical Services


Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.

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

Attention: Shawn Duffy

Sample: One (1) Groundwater Sample

Project Name: PG&E Topock Project

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

Laboratory No.: 813140

Date: May 7, 2014

Collected: April 22, 2014

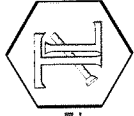
Received: April 22, 2014

ANALYST LIST

METHOD	PARAMETER	ANALYST
EPA 120.1	Specific Conductivity	Maksim Gorbunov
SM 2540C	Total Dissolved Solids	Kim Luck
SM 2130B	Turbidity	Felipe Mendoza
EPA 200.8	Total Metals	Ethel Suico
EPA 218.6	Hexavalent Chromium	Naheed Eidinejad

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

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

Laboratory No.: 813140
Date Received: April 22, 2014

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
813140-001	SC-700B-WDR-464	E120.1	NONE	4/22/2014	8:35	EC	6150	umhos/cm	2.00
813140-001	SC-700B-WDR-464	E200.8	NONE	4/22/2014	8:35	Chromium	ND	ug/L	1.0
813140-001	SC-700B-WDR-464	E200.8	NONE	4/22/2014	8:35	Manganese	0.90	ug/L	0.50
813140-001	SC-700B-WDR-464	E218.6	LABFLT	4/22/2014	8:35	Chromium, Hexavalent	ND	ug/L	0.20
813140-001	SC-700B-WDR-464	SM2130B	NONE	4/22/2014	8:35	Turbidity	0.283	NTU	0.100
813140-001	SC-700B-WDR-464	SM2540C	NONE	4/22/2014	8:35	Total Dissolved Solids	3940	mg/L	125

ND: Non Detected (below reporting limit)

mg/L: Milligrams per liter.

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

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

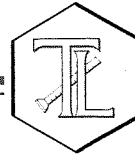
Result above or equal to 0.01ppm will have three (3) significant figures.

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

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

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REPORT

Client: CH2MHill
155 Grand Avenue, Suite 800
Oakland, CA 94612

Attention: Shawn Duffy

Project Name: PG&E Topock Project

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

P.O. Number: PGEIM11111001

Release Number:

Laboratory No. 813140

Page 1 of 6

Printed 5/7/2014

Samples Received on 4/22/2014 4:00:00 PM

Field ID	Lab ID	Collected	Matrix
SC-700B-WDR-464	813140-001	04/22/2014 08:35	Water

Specific Conductivity - EPA 120.1

Batch 04EC14E

Parameter	Unit	Analyzed	DF	MDL	RL	Result
813140-001 Specific Conductivity	umhos/cm	04/29/2014	1.00	0.606	2.00	6150

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	750	749	0.133	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	640	706	90.6	90 - 110

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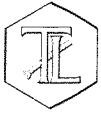
Client: CH2MHill

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

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Printed 5/7/2014

Chrome VI by EPA 218.6		Batch 04CrH14 D				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
813140-001 Chromium, Hexavalent	ug/L	04/23/2014 10:20	1.00	0.00600	0.20	ND
Method Blank						
Parameter	Unit	DF	Result			
Chromium, Hexavalent	ug/L	1.00	ND			
Duplicate					Lab ID = 813140-001	
Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	0.156	0.159	2.22	0 - 20
Low Level Calibration Verification						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.196	0.200	98.2	70 - 130
Lab Control Sample						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.02	5.00	100	90 - 110
Matrix Spike					Lab ID = 813140-001	
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.32	5.16(5.00)	103	90 - 110
Matrix Spike					Lab ID = 813140-001	
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.15	1.15(1.00)	100	90 - 110
MRCCS - Secondary						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.03	5.00	100	90 - 110
MRCVS - Primary						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.85	10.0	98.5	95 - 105

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Client: CH2MHill

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

Page 3 of 6
Printed 5/7/2014

Table with 7 columns: Parameter, Unit, Analyzed, DF, MDL, RL, Result. Rows include 813140-001 Chromium and Manganese.

Method Blank

Table with 4 columns: Parameter, Unit, DF, Result. Rows include Chromium and Manganese.

Duplicate Lab ID = 813140-001

Table with 7 columns: Parameter, Unit, DF, Result, Expected, RPD, Acceptance Range. Rows include Chromium and Manganese.

Low Level Calibration Verification

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Rows include Chromium and Manganese.

Lab Control Sample

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Rows include Chromium and Manganese.

Matrix Spike Lab ID = 813140-001

Table with 7 columns: Parameter, Unit, DF, Result, Expected/Added, Recovery, Acceptance Range. Rows include Chromium and Manganese.

Matrix Spike Duplicate Lab ID = 813140-001

Table with 7 columns: Parameter, Unit, DF, Result, Expected/Added, Recovery, Acceptance Range. Rows include Chromium and Manganese.

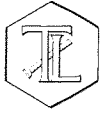
MRCCS - Secondary

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Rows include Chromium and Manganese.

MRCVS - Primary

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Rows include Chromium and Manganese.

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



Client: CH2MHill

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

Page 5 of 6
Printed 5/7/2014

Total Dissolved Solids by SM 2540 C		Batch 04TDS14E				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
813140-001 Total Dissolved Solids	mg/L	04/22/2014	1.00	1.76	125	3940
Method Blank						
Parameter	Unit	DF	Result			
Total Dissolved Solids	mg/L	1.00	ND			
Duplicate						Lab ID = 813140-001
Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	4250	3940	7.57	0 - 10
Lab Control Sample						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Dissolved Solids	mg/L	1.00	476	500	95.2	90 - 110

Turbidity by SM 2130 B		Batch 04TUB14L				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
813140-001 Turbidity	NTU	04/23/2014	1.00	0.0140	0.100	0.283
Method Blank						
Parameter	Unit	DF	Result			
Turbidity	NTU	1.00	ND			
Duplicate						Lab ID = 813147-009
Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Turbidity	NTU	1.00	0.189	0.167	12.4	0 - 20
Lab Control Sample						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	8.74	8.00	109	90 - 110
Lab Control Sample Duplicate						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	8.52	8.00	106	90 - 110

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TRUESDAIL LABORATORIES, INC.


Report Continued

Client: CH2MHill

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

Page 6 of 6
Printed 5/7/2014

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.


to - Mona Nassimi
Manager, Analytical Services



EL

Total Dissolved Solids by SM 2540 C

Calculations

Batch: 04TDS14E
Date Analyzed: 4/22/2014

Laboratory Number	Sample volume, mL	Initial weight, g	1st Final weight, g	2nd Final weight, g	Weight Difference, g	Exceeds 0.5mg? Yes/No	Residue weight, g	Filterable residue, ppm	RL, ppm	Reported Value, ppm	DF
Blank	100	51.2258	51.2259	51.2257	0.0002	No	-0.0001	-1.0	25.0	ND	1
813140	20	51.9254	52.0044	52.0041	0.0003	No	0.0787	3935.0	125.0	3935.0	1
813057	10	50.1513	50.2082	50.2079	0.0003	No	0.0566	5660.0	250.0	5660.0	1
813140 Dup	20	51.4853	51.5706	51.5703	0.0003	No	0.0850	4250.0	125.0	4250.0	1
LCS	100	72.6348	72.6826	72.6824	0.0002	No	0.0476	476.0	25.0	476.0	1

Calculation as follows:

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

Where:

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

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

Laboratory Control Sample (LCS) Summary

QC Std I.D.	Measurd Value, ppm	Theoretical Value, ppm	Percent Rec	Acceptance Limit	QC Within Control?
LCS	476.0	500	95.2%	90-110%	Yes
LCSD					

LCS Recovery

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

P = Percent recovery.

LC = Measured LCS value (ppm).

LT = Theoretical LCS value (ppm).

Duplicate Determinations Difference Summary

Lab Number	Sample Weight, g	Sample Dup Weight, g	% RPD	Acceptance Limit	QC Within Control?
813140	0.0787	0.0850	3.8%	≤5%	Yes

Duplicate Determination Difference

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

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

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

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

C = Average weight in (g).

KIM

Analyst Printed Name

[Signature]

Analyst Signature

Maksim G.

Reviewer Printed Name

[Signature]

Reviewer Signature

813140

CHAIN OF CUSTODY RECORD

TRUESDAIL LABORATORIES, INC.
14201 Franklin Avenue, Tustin, CA 92780-7008
(714)730-6239 FAX: (714) 730-6462
www.truesdail.com

COC Number

TURNAROUND TIME 10 Days

DATE 04/22/14 PAGE 1 OF 1

IM3Plant-WDR-464J

COMPANY E2	PROJECT NAME PG&E Topock	PHONE (530) 229-3303	FAX (530) 339-3303	ADDRESS 155 Grand Ave Ste 1000 Oakland, CA 94612	P.O. NUMBER 428648.IM.CS.EX.AC	TEAM 1	SAMPLERS (SIGNATURE) <i>Chris Lentz</i>	SAMPLE I.D. SC-700B-WDR-464	DATE 04/22/14	TIME 8:35	DESCRIPTION Water	C6 (218.6) Lab Filtered	X	Total Metals (200.8) Cr, Mn	X	Specific Conductance (120.1)	X	TDS (SM2540C)	X	Turbidity (SM2130)	X	NUMBER OF CONTAINERS	3	COMMENTS
																						TOTAL NUMBER OF CONTAINERS	3	

pH = 7 (500.5)

Please Provide a preliminary Result for the TDS ASAP

ALERT !!
Level III QC

For Sample Conditions
See Form Attached

CHAIN OF CUSTODY SIGNATURE RECORD				SAMPLE CONDITIONS			
Signature (Relinquished)	Printed Name	Company/ Agency	Date/ Time	RECEIVED	COOL	WARM	TEMP
<i>Chris Lentz</i>	CHRIS LENTZ	CH2M HILL	4/22/14 11:35	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4.3 °C
Signature (Received)	Printed Name	Company/ Agency	Date/ Time	CUSTODY SEALED			
<i>Mike Brunner</i>	Mike Brunner	TLL	4/22/14 11:35	YES	<input type="checkbox"/>	NO	<input checked="" type="checkbox"/>
Signature (Relinquished)	Printed Name	Company/ Agency	Date/ Time	SPECIAL REQUIREMENTS:			
<i>Mike Brunner</i>	Mike Brunner	TLL	4/22/14 4:00				
Signature (Received)	Printed Name	Company/ Agency	Date/ Time				
<i>Alexander Wood</i>	Alexander Wood	TLL	4/22/14 4:00				
Signature (Relinquished)	Printed Name	Company/ Agency	Date/ Time				
Signature (Received)	Printed Name	Company/ Agency	Date/ Time				

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
3/26/14	812753	7.00	2ml, 100ml	9.5	7:30	NE
4/9/14	812966-1	7.00	2ml, 100ml	9.5	7:20	NE
	↓ -2	↓	↓	↓	↓	↓
	↓ -3	↓	↓	↓	↓	↓
	812967-1	9.5	N/A	N/A	N/A	
	↓ -2					
	↓ -3					
	↓ -4					
	↓ -5					
	↓ -6					
	↓ -7					
	↓ -8					
	↓ -9					
	↓ -10					
	↓ -11					
	↓ -12					
	↓ -13					
	↓ -14					
	↓ -15					
	812968 (slug) ↓		↓	↓	↓	↓
	812969-1	7.00	2ml, 100ml	9.5	7:20	NE
↓	↓ -2	↓	↓	↓	↓	↓
4/16/14	813068	7.00	2ml, 100ml	9.5	7:40	NE
4/23/14	813140	7.00	2ml, 100ml	9.5	7:30	NE

NE
4/24/14



Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest (Y/N)	Time of Adjustment to pH 2	Date/Time of 2nd pH check	Comments
813003	>1	<2	4/10/14	ED	Yes			
813006	>1	<2	↓	↓	Yes			
813013 (1-3)	<1	>2	4/11/14	ES	NO	3:00		
813018	>1	<2	↓	↓	Yes			
813019	↓	↓	↓	↓	↓			
813021-4	<1	↓	↓	↓	↓			
813022	>1	↓	↓	↓	↓			
813023	↓	↓	↓	↓	↓			
813016 (1-2)	SOLID	↓	↓	↓	↓			TTL
813015	SOLID	↓	↓	↓	↓			↓
813024	<1	<2	4/14/14	ES	Yes			
812968	SLUDGE	↓	4/14/14	ES	Yes			
812032 (1-2)	>1	<2	4/15/14	ES	Yes			
812036	<1	↓	↓	↓	↓			
812078 (1-2)	<1	↓	↓	↓	↓			NO
813051	<1	>2	4/16/14	ED	Yes			Rush
813053	>1	<2	↓	↓	Yes			
813069	>1	>2	↓	↓	↓			
813068	<1	>2	↓	↓	↓	1230		CHZML
813075	>1	<2	4/16/14	ED	Yes			
813055 (1,2)	>1	<2	4/17/14	ED	Yes			
813045 (1,2,4)	<1	>2	↓	↓	NO	1245		
813063 (1,2,5,7,8)	<1	>2	↓	↓	NO	↓		
813065 (1-3)	<1	>2	↓	↓	NO	↓		
813078 (10-12)	<1	>2	↓	↓	NO	↓		
813079 (1,2)	<1	>2	↓	↓	NO	↓		
813029 (1,2)	-	-	4/18/14	ED	Yes	-		Solid
813097 (1,2)	-	-	↓	ED	Yes	-		Solid
813104	>1	<2	4/21/14	ED	Yes			
813107	<1	<2	↓	↓	Yes			
813108	↓	↓	↓	↓	Yes			
813110	↓	↓	↓	↓	Yes			
813111	↓	↓	↓	↓	Yes			
813121 (1,2)	>1	<2	↓	↓	Yes			
813124	>1	<2	4/21/14	ED	Yes			
813131	>1	<2	4/22/14	ED	NO	1145		Sday Rush
813140	<1	>2	4/22/14	ED	Yes	1000		CHZM
813139	<1	>2	↓	↓	↓			Rush
813132 (-4)	>1	<2	↓	↓	↓			
813133	↓	↓	↓	↓	↓			
813134 (-4)	↓	↓	↓	↓	↓			
813135 (-4)	↓	↓	↓	↓	↓			
813136 (-4)	↓	↓	↓	↓	↓			
813137	↓	↓	↓	↓	↓			

- 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

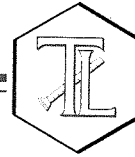
Lab # 813140

Date Delivered: 4/22/14 Time: 4:00 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: AW

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

May 12, 2014

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

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK IM3PLANT-WDR-465 PROJECT, GROUNDWATER
MONITORING, TLI NO.: 813212

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-465 project groundwater monitoring for Hexavalent and Total Chromium, Total Manganese, Turbidity, Specific Conductivity, and Total Dissolved Solids. 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 have been included under Section 5.


The samples were received and delivered with the chain of custody on April 29, 2014, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

The straight run for the matrix spike on sample SC-700B-WDR-465 for Hexavalent Chromium analysis by EPA 218.6 was just outside the retention time window. Because the matrix spike recovery and all other QA/QC were within acceptable limits, the data from the straight run was reported.

No other violations or nonconformance actions occurred for this data package.

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

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.


for Mona Nassimi
Manager, Analytical Services


Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.

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

Attention: Shawn Duffy

Sample: One (1) Groundwater Sample

Project Name: PG&E Topock Project

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

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Laboratory No.: 813212

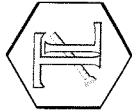
Date: May 12, 2014

Collected: April 29, 2014

Received: April 29, 2014

ANALYST LIST

METHOD	PARAMETER	ANALYST
EPA 120.1	Specific Conductivity	Maksim Gorbunov
SM 2540C	Total Dissolved Solids	Kim Luck
SM 2130B	Turbidity	Himani Vaishnav
EPA 200.8	Total Metals	Ethel Suico
EPA 218.6	Hexavalent Chromium	Naheed Eidinejad



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

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

Laboratory No.: 813212
Date Received: April 29, 2014

Analytical Results Summary

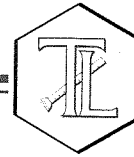
Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
813212-001	SC-700B-WDR-465	E120.1	NONE	4/29/2014	9:00	EC	6370	umhos/cm	2.00
813212-001	SC-700B-WDR-465	E200.8	NONE	4/29/2014	9:00	Chromium	ND	ug/L	1.0
813212-001	SC-700B-WDR-465	E200.8	NONE	4/29/2014	9:00	Manganese	1.0	ug/L	0.50
813212-001	SC-700B-WDR-465	E218.6	LABFLT	4/29/2014	9:00	Chromium, Hexavalent	ND	ug/L	0.20
813212-001	SC-700B-WDR-465	SM2130B	NONE	4/29/2014	9:00	Turbidity	0.136	NTU	0.100
813212-001	SC-700B-WDR-465	SM2540C	NONE	4/29/2014	9:00	Total Dissolved Solids	3800	mg/L	125

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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www.truesdail.com

REPORT

Client: E2 Consulting Engineers, Inc.

155 Grand Avenue, Suite 800

Oakland, CA 94612

Attention: Shawn Duffy

Project Name: PG&E Topock Project

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

P.O. Number: PGEIM11111001

Release Number:

Laboratory No. 813212

Page 1 of 6

Printed 5/12/2014

Samples Received on 4/29/2014 3:50:00 PM

Field ID	Lab ID	Collected	Matrix
SC-700B-WDR-465	813212-001	04/29/2014 09:00	Water

Specific Conductivity - EPA 120.1

Batch 04EC14F

Parameter	Unit	Analyzed	DF	MDL	RL	Result
813212-001 Specific Conductivity	umhos/cm	04/30/2014	1.00	0.606	2.00	6370

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate

Lab ID = 813085-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	716	733	2.35	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	639	706	90.5	90 - 110

MRCSS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	665	706	94.2	90 - 110

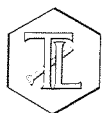
MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	935	1000	93.5	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	923	1000	92.3	90 - 110

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Client: E2 Consulting Engineers, Inc.

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

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Printed 5/12/2014

Chrome VI by EPA 218.6		Batch 04CrH14 E				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
813212-001 Chromium, Hexavalent	ug/L	04/30/2014 10:27	1.00	0.00600	0.20	ND
Method Blank						
Parameter	Unit	DF	Result			
Chromium, Hexavalent	ug/L	1.00	ND			
Duplicate						Lab ID = 813212-001
Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	0.146	0.149	2.03	0 - 20
Low Level Calibration Verification						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.203	0.200	102	70 - 130
Lab Control Sample						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.05	5.00	101	90 - 110
Matrix Spike						Lab ID = 813212-001
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.29	5.15(5.00)	103	90 - 110
Matrix Spike						Lab ID = 813212-001
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.20	1.15(1.00)	105	90 - 110
MRCCS - Secondary						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.05	5.00	101	90 - 110
MRCVS - Primary						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.92	10.0	99.2	95 - 105

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Client: E2 Consulting Engineers, Inc.

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

Page 3 of 6
Printed 5/12/2014

Table with 7 columns: Parameter, Unit, Analyzed, DF, MDL, RL, Result. Rows include 813212-001 Chromium and Manganese.

Method Blank section with 4 columns: Parameter, Unit, DF, Result. Rows for Chromium and Manganese.

Duplicate section with 7 columns: Parameter, Unit, DF, Result, Expected, RPD, Acceptance Range. Rows for Chromium and Manganese.

Low Level Calibration Verification section with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Rows for Chromium and Manganese.

Lab Control Sample section with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Rows for Chromium and Manganese.

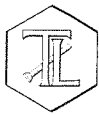
Matrix Spike section with 7 columns: Parameter, Unit, DF, Result, Expected/Added, Recovery, Acceptance Range. Rows for Chromium and Manganese.

Matrix Spike Duplicate section with 7 columns: Parameter, Unit, DF, Result, Expected/Added, Recovery, Acceptance Range. Rows for Chromium and Manganese.

MRCCS - Secondary section with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Rows for Chromium and Manganese.

MRCVS - Primary section with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Rows for Chromium and Manganese.

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



Client: E2 Consulting Engineers, Inc.

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

Page 5 of 6
Printed 5/12/2014

Table with 7 columns: Parameter, Unit, Analyzed, DF, MDL, RL, Result. Section: Total Dissolved Solids by SM 2540 C. Includes Method Blank, Duplicate, and Lab Control Sample data.

Table with 7 columns: Parameter, Unit, Analyzed, DF, MDL, RL, Result. Section: Turbidity by SM 2130 B. Includes Method Blank, Duplicate, Lab Control Sample, and Lab Control Sample Duplicate data.

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



TRUESDAIL LABORATORIES, INC.


Report Continued

Client: E2 Consulting Engineers, Inc.

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

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Printed 5/12/2014

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.


for **Mona Nassimi**
Manager, Analytical Services



Handwritten mark

Total Dissolved Solids by SM 2540 C

Calculations

Batch: 04TDS14F
Date Analyzed: 4/29/2014

Laboratory Number	Sample volume, mL	Initial weight, g	1st Final weight, g	2nd Final weight, g	Weight Difference, g	Exceeds 0.5mg? Yes/No	Residue weight, g	Filterable residue, ppm	RL, ppm	Reported Value, ppm	DF
Blank	100	109.3900	109.3904	109.3904	0.0000	No	0.0004	4.0	25.0	ND	1
813121-1	100	51.4350	51.4766	51.4766	0.0000	No	0.0416	416.0	25.0	416.0	1
813121-2	100	50.4947	50.5387	50.5381	0.0006	Yes	0.0434	434.0	25.0	434.0	1
813161-1	100	50.4947	50.5370	50.5369	0.0001	No	0.0422	422.0	25.0	422.0	1
813161-2	100	51.8320	51.8760	51.8756	0.0004	No	0.0436	436.0	25.0	436.0	1
813161-3	100	49.8779	49.9243	49.9241	0.0002	No	0.0462	462.0	25.0	462.0	1
813161-4	100	50.3945	50.4408	50.4405	0.0003	No	0.0460	460.0	25.0	460.0	1
813162-1	100	47.8427	47.8863	47.8861	0.0002	No	0.0434	434.0	25.0	434.0	1
813162-2	100	47.4805	47.5256	47.5254	0.0002	No	0.0449	449.0	25.0	449.0	1
813194-1	100	51.4553	51.4972	51.4970	0.0002	No	0.0417	417.0	25.0	417.0	1
813194-2	100	51.8105	51.8532	51.8528	0.0004	No	0.0423	423.0	25.0	423.0	1
813194-2 Dup	100	50.6338	50.6798	50.6794	0.0004	No	0.0456	456.0	25.0	456.0	1
LCS	100	51.0510	51.0989	51.0989	0.0000	No	0.0479	479.0	25.0	479.0	1
813199-2	100	51.1592	51.1686	51.1684	0.0002	No	0.0092	92.0	25.0	92.0	1
813199-4	100	48.5148	48.5445	48.5444	0.0001	No	0.0296	296.0	25.0	296.0	1
813212	20	50.7831	50.8592	50.8590	0.0002	No	0.0759	3795.0	125.0	3795.0	1

Calculation as follows:

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

Where:

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

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

Laboratory Control Sample (LCS) Summary

QC Std I.D.	Measurd Value, ppm	Theoretical Value, ppm	Percent Rec	Acceptance Limit	QC Within Control?
LCS	479.0	500	95.8%	90-110%	Yes
LCSD					

LCS Recovery

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

P = Percent recovery.
LC = Measured LCS value (ppm).
LT = Theoretical LCS value (ppm).

Duplicate Determinations Difference Summary

Lab Number	Sample Weight, g	Sample Dup Weight, g	% RPD	Acceptance Limit	QC Within Control?
813194-2	0.0423	0.0456	3.8%	≤5%	Yes

Duplicate Determination Difference

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

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

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

KIM

Analyst Printed Name

Handwritten Signature

Analyst Signature

Maksim G.

Reviewer Printed Name

Handwritten Signature

Reviewer Signature



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-WDR-465]

COC Number
TURNAROUND TIME 10 Days
DATE 04/29/14 PAGE 1 OF 1

813212

COMPANY E2	PROJECT NAME PG&E Topock	PHONE (530) 229-3303	FAX (530) 339-3303	P.O. NUMBER 428648.IM.CS.EX.AC	TEAM 1	SAMPLERS (SIGNATURE) <i>Chris Lee</i>	DATE 04/29/14	TIME 9:00	DESCRIPTION Water	C16 (218.6) Lab Filtered	X	Total Metals (200.8) Cr. Mn	X	Specific Conductance (120.1)	X	TDS (SM2540C)	X	Turbidity (SM2130)	X	NUMBER OF CONTAINERS	3	COMMENTS
																				TOTAL NUMBER OF CONTAINERS	3	PH=7 (200.8)

Please Provide a preliminary Result for the TDS ASAP

ALERT!!
Level III QC

For Sample Conditions
See Form Attached

CHAIN OF CUSTODY SIGNATURE RECORD										SAMPLE CONDITIONS				
Signature (Relinquished)	<i>Chris Lee</i>	Printed Name	CHRIS LEE	Company/ Agency	CH2M HILL	Date/ Time	4-29-14	11:00	RECEIVED	COOL	<input checked="" type="checkbox"/>	WARM	<input type="checkbox"/>	4.7 °C
Signature (Received)	<i>Mike Brunet</i>	Printed Name	MIKE BRUNET	Company/ Agency	TLI	Date/ Time	4-29-14	11:00	CUSTODY SEALED	YES	<input type="checkbox"/>	NO	<input checked="" type="checkbox"/>	
Signature (Relinquished)	<i>Mike Brunet</i>	Printed Name	MIKE BRUNET	Company/ Agency	TLI	Date/ Time	4-29-14	3:50	SPECIAL REQUIREMENTS:					
Signature (Received)	<i>Alexander Whit</i>	Printed Name	ALEXANDER WHIT	Company/ Agency	TLI	Date/ Time	4-29-14	3:50						
Signature (Relinquished)		Printed Name		Company/ Agency		Date/ Time								
Signature (Received)		Printed Name		Company/ Agency		Date/ Time								

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
3/26/14	812753	7.00	2ml/100ml	9.5	7:30	NE
4/9/14	812966-1	7.00	2ml/100ml	9.5	7:20	NE
	-2	↓	↓	↓	↓	↓
	✓ -3	↓	↓	↓	↓	↓
	812967-1	9.5	N/A	N/A	N/A	
	-2	↓	↓	↓	↓	↓
	-3	↓	↓	↓	↓	↓
	-4	↓	↓	↓	↓	↓
	-5	↓	↓	↓	↓	↓
	-6	↓	↓	↓	↓	↓
	-7	↓	↓	↓	↓	↓
	-8	↓	↓	↓	↓	↓
	-9	↓	↓	↓	↓	↓
	-10	↓	↓	↓	↓	↓
	-11	↓	↓	↓	↓	↓
	-12	↓	↓	↓	↓	↓
	-13	↓	↓	↓	↓	↓
	-14	↓	↓	↓	↓	↓
	✓ -15	↓	↓	↓	↓	↓
	812968 (slog) ✓	↓	↓	↓	↓	↓
	812969-1	7.00	2ml/100ml	9.5	7:20	NE
✓	↓ -2	↓	↓	↓	↓	↓
4/16/14	813068	7.00	2ml/100ml	9.5	7:40	NE
4/23/14	813140	7.00	2ml/100ml	9.5	7:30	NE
4/30/14	813212	7.00	2ml/100ml	9.5	7:30	NE

NE
4/30/14

per



Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest (Y/N)	Time of Adjustment to pH 2	Date/Time of 2nd pH check	Comments
813150	>1	<2	4/20/14	AD	YES			
813162(1,2)	>2 ^{sp}	<2						
813149(1,2)	<1	>2			NO	10:15	4/25/14 1:00	pH <2
813151(1-3)	<1	>2						
813154(10-12)	<1	>2						
813155(1,2)	<2 ^{sp}	>2						
813172	>1	<2	4/24/14	ES	YES			
413183-1	<1	>2	4/25/14	ES	NO	5:00	4/28/14 10:00	pH <2
813175-4	>1	<2	4/28/14	ES	YES			
813181(1-2)	<1	>2			YES			
-2	<1	>2			NO	1:00		
813194(1-2)	>1	<2			YES			
813196	<1	↓			↓			
813199(1-2,4)	<1	>2	4/21/14	ES	NO	2:00	4/30/14 10:00	pH <2
813203	<1	<2	4/30/14	ES	YES			
813207-4								
813209								
813211								
813215		↓						
813220		7			NO	11:00		
813212	↓	7			YES	11:00		
813231(1-3)	<1	>2	5/1/14	ES	NO	3:00		
813230(1-2)	>1	<2	↓	↓	YES			
813245(1-3)	<1	>2	5/5/14	ES	NO	10:00		
813244-16,23	↓	↓			↓	↓		
813251	↓	<2			YES			
813256	↓							
813257	>1	↓						
813263-2	↓	↓			↓			
813276	<1	<2	5/7/14	ES	YES			
813282(1-2)	↓							-1 71 TH
813286	>1							
813290	<1							
813291								
813294								
813295								
813296	↓							
813301-4	>1							
813302-4	<1							
813303	>1							
813304	<1							
813310	>1							
813314-6	>1	>2			NO	10:00		
813313	↓	↓			↓	↓		

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.

Analytical Bench Log Book

WDR pH Results

If the on site laboratory pH result for T-700 tank is less than pH 6.6 or greater than pH 8.3 the Injection well should be shut down until the problem is fixed.

Sample Name	Date of sampling	Time of sampling	Date of analysis	Time of analysis	pH Meter #1, #2, or #3 etc. See cover Sheet for Serial Number	Date pH meter Calibrated	Time pH meter Calibrated	Slope of the Curve	Analyst Name (for the pH result)	pH Result
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Notes:

SC-700B	4-5-14	0630	4-5-14	0631	METER #2	4-5-14	0100	-53.7	Jacob	6.9
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Notes:

SC-700B	4-8-14	1405	4-8-14	1417	METER #2	4-8-14	0420	-53.9	Ryan Phelps	6.9
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Notes:

SC-701	4-8-14	1409	4-8-14	1421	METER #2	4-8-14	0420	-53.9	Ryan Phelps	7.7
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Notes:

SC-700B	4-8-14	1418	4-8-14	1425	METER #2	4-8-14	0420	-53.9	Ryan Phelps	7.5
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Notes:

Reminder: WDR Required pH Range for the Effluent (SC-700B) is: 6.5 - 8.4

760 326 3328

CH2MHILL

11:13

Jun. 03. 2014

Analytical Bench Log Book

WDR pH Results

If the on site laboratory pH result for T-700 tank is less than pH 6.6 or greater than pH 8.3 the Injection well should be shut down until the problem is fixed.

Sample Name	Date of sampling	Time of sampling	Date of analysis	Time of analysis	pH Meter #1, #2, or #3 etc. See cover Sheet for Serial Number	Date pH meter Calibrated	Time pH meter Calibrated	Slope of the Curve	Analyst Name (for the pH result)	pH Result
SC-700B	4-15-14	8:40	4-15-14	8:50	METER #2	4-15-14	0425	-53.3	CHRIS LENTZ	6.8

Notes:

SC-700B	4-22-14	8:30	4-22-14	8:35	METER #2	4-22-14	0443	-54.8	CHRIS LENTZ	6.9
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Notes:

SC-700B	4-29-14	8:50	4-29-14	9:00	METER #2	4-29-14	0417	-53.6	CHRIS LENTZ	7.0
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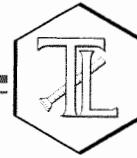
Notes:

Reminder: WDR Required pH Range for the Effluent (SC-700B) is: 6.5 - 8.4

PAGE. 1/ 2
760 326 3328
CH2MHILL
Jun.03.2014 11:13

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

May 30, 2014

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

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK IM3PLANT-WDR-466 PROJECT, GROUNDWATER
MONITORING,
TLI No.: 813315

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-466 project groundwater monitoring. 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 have been included under Section 5.

The samples were received and delivered with the chain of custody on May 6, 2014, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.


Total and Total Dissolved Metals were analyzed by EPA 200.8 and EPA 200.7 with Mr. Shawn Duffy's approval.


The straight runs for the sample and associated matrix spike on sample SC-700B-WDR-466 for Hexavalent Chromium analysis by EPA 218.6 were just outside the retention time window. Because the matrix spike recovery and all other QA/QC were within acceptable limits, the data from the straight run was reported.

No other violations or nonconformance actions occurred for this data package.

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

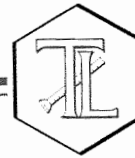
Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.


for Mona Nassimi
Manager, Analytical Services


Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.

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

Attention: Shawn Duffy

Sample: Two (2) Groundwaters

Project Name: PG&E Topock Project

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

Laboratory No.: 813315

Date: May 30, 2014

Collected: May 6, 2014

Received: May 6, 2014

ANALYST LIST

METHOD	PARAMETER	ANALYST
EPA 120.1	Specific Conductivity	Jenny Tankunakorn
SM 2540C	Total Dissolved Solids	Jenny Tankunakorn
SM 2320B	Total Alkalinity	Alex Luna
SM 4500-Si D	Soluble Silica	Jenny Tankunakorn
SM 4500-P B,E	Total Phosphorus	Jenny Tankunakorn
SM 5310C	Total Organic Carbon	Jenny Tankunakorn
SM 2130B	Turbidity	Jennine Ta
EPA 300.0	Anions	Giawad Ghenniwa
SM 4500-NH3 D	Ammonia	Felipe Mendoza
SM 4500-NO2 B	Nitrite as N	Jenny Tankunakorn
EPA 200.7	Metals by ICP	Ethel Suico
EPA 200.8	Metals by ICP/MS	Ethel Suico
EPA 218.6	Hexavalent Chromium	Naheed Eidinejad



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

Laboratory No.: 813315
Date Received: May 6, 2014

Attention: Shawn Duffy

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

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
813315-001	SC-700B-WDR-466	E120.1	NONE	5/6/2014	14:30	EC	7310	umhos/cm	2.00
813315-001	SC-700B-WDR-466	E200.7	NONE	5/6/2014	14:30	Aluminum	ND	ug/L	50.0
813315-001	SC-700B-WDR-466	E200.7	NONE	5/6/2014	14:30	BORON	945	ug/L	50.0
813315-001	SC-700B-WDR-466	E200.7	NONE	5/6/2014	14:30	Iron	ND	ug/L	20.0
813315-001	SC-700B-WDR-466	E200.7	NONE	5/6/2014	14:30	Zinc	ND	ug/L	20.0
813315-001	SC-700B-WDR-466	E200.8	NONE	5/6/2014	14:30	Antimony	ND	ug/L	2.0
813315-001	SC-700B-WDR-466	E200.8	NONE	5/6/2014	14:30	Arsenic	ND	ug/L	0.50
813315-001	SC-700B-WDR-466	E200.8	NONE	5/6/2014	14:30	Barium	10.2	ug/L	5.0
813315-001	SC-700B-WDR-466	E200.8	NONE	5/6/2014	14:30	Chromium	ND	ug/L	1.0
813315-001	SC-700B-WDR-466	E200.8	NONE	5/6/2014	14:30	Copper	ND	ug/L	1.0
813315-001	SC-700B-WDR-466	E200.8	NONE	5/6/2014	14:30	Lead	ND	ug/L	1.0
813315-001	SC-700B-WDR-466	E200.8	NONE	5/6/2014	14:30	Manganese	1.0	ug/L	0.50
813315-001	SC-700B-WDR-466	E200.8	NONE	5/6/2014	14:30	Molybdenum	21.0	ug/L	2.0
813315-001	SC-700B-WDR-466	E200.8	NONE	5/6/2014	14:30	Nickel	2.3	ug/L	2.0
813315-001	SC-700B-WDR-466	E218.6	LABFLT	5/6/2014	14:30	Chromium, Hexavalent	ND	ug/L	0.20
813315-001	SC-700B-WDR-466	E300	NONE	5/6/2014	14:30	Fluoride	2.00	mg/L	0.500
813315-001	SC-700B-WDR-466	E300	NONE	5/6/2014	14:30	Nitrate as N	2.60	mg/L	0.500
813315-001	SC-700B-WDR-466	E300	NONE	5/6/2014	14:30	Sulfate	500	mg/L	25.0
813315-001	SC-700B-WDR-466	SM2130B	NONE	5/6/2014	14:30	Turbidity	ND	NTU	0.100
813315-001	SC-700B-WDR-466	SM2540C	NONE	5/6/2014	14:30	Total Dissolved Solids	4410	mg/L	250
813315-001	SC-700B-WDR-466	SM4500NH3D	NONE	5/6/2014	14:30	Ammonia-N	ND	mg/L	0.500
813315-001	SC-700B-WDR-466	SM4500NO2B	NONE	5/6/2014	14:30	Nitrite as N	ND	mg/L	0.0050



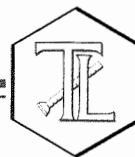
Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
813315-002	SC-100B-WDR-466	E120.1	NONE	5/6/2014	14:20	EC	7470	umhos/cm	2.00
813315-002	SC-100B-WDR-466	E200.7	NONE	5/6/2014	14:20	Aluminum	ND	ug/L	50.0
813315-002	SC-100B-WDR-466	E200.7	NONE	5/6/2014	14:20	BORON	979	ug/L	50.0
813315-002	SC-100B-WDR-466	E200.7	NONE	5/6/2014	14:20	Iron	ND	ug/L	20.0
813315-002	SC-100B-WDR-466	E200.7	LABFLT	5/6/2014	14:20	Iron	ND	ug/L	20.0
813315-002	SC-100B-WDR-466	E200.7	NONE	5/6/2014	14:20	Zinc	ND	ug/L	20.0
813315-002	SC-100B-WDR-466	E200.8	NONE	5/6/2014	14:20	Antimony	ND	ug/L	2.0
813315-002	SC-100B-WDR-466	E200.8	NONE	5/6/2014	14:20	Arsenic	3.6	ug/L	0.50
813315-002	SC-100B-WDR-466	E200.8	NONE	5/6/2014	14:20	Barium	26.2	ug/L	5.0
813315-002	SC-100B-WDR-466	E200.8	NONE	5/6/2014	14:20	Chromium	624	ug/L	1.0
813315-002	SC-100B-WDR-466	E200.8	NONE	5/6/2014	14:20	Copper	ND	ug/L	1.0
813315-002	SC-100B-WDR-466	E200.8	NONE	5/6/2014	14:20	Lead	ND	ug/L	1.0
813315-002	SC-100B-WDR-466	E200.8	NONE	5/6/2014	14:20	Manganese	7.8	ug/L	0.50
813315-002	SC-100B-WDR-466	E200.8	LABFLT	5/6/2014	14:20	Manganese	7.8	ug/L	0.50
813315-002	SC-100B-WDR-466	E200.8	NONE	5/6/2014	14:20	Molybdenum	21.3	ug/L	2.0
813315-002	SC-100B-WDR-466	E200.8	NONE	5/6/2014	14:20	Nickel	ND	ug/L	2.0
813315-002	SC-100B-WDR-466	E218.6	LABFLT	5/6/2014	14:20	Chromium, Hexavalent	575	ug/L	5.0
813315-002	SC-100B-WDR-466	E300	NONE	5/6/2014	14:20	Fluoride	2.34	mg/L	0.500
813315-002	SC-100B-WDR-466	E300	NONE	5/6/2014	14:20	Nitrate as N	2.64	mg/L	0.500
813315-002	SC-100B-WDR-466	E300	NONE	5/6/2014	14:20	Sulfate	512	mg/L	25.0
813315-002	SC-100B-WDR-466	SM2130B	NONE	5/6/2014	14:20	Turbidity	0.184	NTU	0.100
813315-002	SC-100B-WDR-466	SM2320B	NONE	5/6/2014	14:20	Alkalinity	155	mg/L	5.00
813315-002	SC-100B-WDR-466	SM2320B	NONE	5/6/2014	14:20	Alkalinity, Bicarbonate (As CaCO3)	155	mg/L	5.00
813315-002	SC-100B-WDR-466	SM2320B	NONE	5/6/2014	14:20	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
813315-002	SC-100B-WDR-466	SM2540C	NONE	5/6/2014	14:20	Total Dissolved Solids	4420	mg/L	250
813315-002	SC-100B-WDR-466	SM4500NH3D	NONE	5/6/2014	14:20	Ammonia-N	ND	mg/L	0.500
813315-002	SC-100B-WDR-466	SM4500NO2B	NONE	5/6/2014	14:20	Nitrite as N	ND	mg/L	0.0050
813315-002	SC-100B-WDR-466	SM4500-PB_E	NONE	5/6/2014	14:20	Total Phosphorous-P	ND	mg/L	0.0200
813315-002	SC-100B-WDR-466	SM4500SI	LABFLT	5/6/2014	14:20	Soluble Silica	18.3	mg/L	1.00
813315-002	SC-100B-WDR-466	SM5310C	NONE	5/6/2014	14:20	Total Organic Carbon	0.889	mg/L	0.300

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.

TRUESDAIL LABORATORIES, INC.

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REPORT

Client: E2 Consulting Engineers, Inc.

155 Grand Avenue, Suite 800

Oakland, CA 94612

Attention: Shawn Duffy

Project Name: PG&E Topock Project

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

P.O. Number: PGEIM11111001

Release Number:

Laboratory No. 813315

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Printed 5/30/2014

Samples Received on 5/6/2014 8:50:00 PM

Field ID	Lab ID	Collected	Matrix
SC-700B-WDR-466	813315-001	05/06/2014 14:30	Water
SC-100B-WDR-466	813315-002	05/06/2014 14:20	Water

Anions By I.C. - EPA 300.0

Batch 05AN14C

Parameter	Unit	Analyzed	DF	MDL	RL	Result
813315-001 Fluoride	mg/L	05/07/2014 13:31	5.00	0.104	0.500	2.00
Nitrate as Nitrogen	mg/L	05/07/2014 13:31	5.00	0.0415	0.500	2.60
Sulfate	mg/L	05/07/2014 14:35	50.0	1.54	25.0	500
813315-002 Fluoride	mg/L	05/07/2014 13:58	5.00	0.104	0.500	2.34
Nitrate as Nitrogen	mg/L	05/07/2014 13:58	5.00	0.0415	0.500	2.64
Sulfate	mg/L	05/07/2014 16:39	50.0	1.54	25.0	512

Method Blank

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

Duplicate

Lab ID = 813315-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Sulfate	mg/L	50.0	499	500	0.228	0 - 20

Duplicate

Lab ID = 813315-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Fluoride	mg/L	5.00	2.35	2.34	0.512	0 - 20
Nitrate as Nitrogen	mg/L	5.00	2.76	2.64	4.62	0 - 20

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Client: E2 Consulting Engineers, Inc.

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

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Duplicate

Lab ID = 813325-001

Table with 7 columns: Parameter, Unit, DF, Result, Expected, RPD, Acceptance Range. Row: Chloride, mg/L, 25.0, 81.3, 82.6, 1.55, 0 - 20

Lab Control Sample

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Rows: Chloride, Fluoride, Sulfate, Nitrate as Nitrogen

Matrix Spike

Lab ID = 813315-001

Table with 7 columns: Parameter, Unit, DF, Result, Expected/Added, Recovery, Acceptance Range. Row: Sulfate, mg/L, 50.0, 1010, 1000(500), 102, 85 - 115

Matrix Spike

Lab ID = 813315-002

Table with 7 columns: Parameter, Unit, DF, Result, Expected/Added, Recovery, Acceptance Range. Rows: Fluoride, Nitrate as Nitrogen

Matrix Spike

Lab ID = 813325-001

Table with 7 columns: Parameter, Unit, DF, Result, Expected/Added, Recovery, Acceptance Range. Row: Chloride, mg/L, 25.0, 177, 183(100), 94.2, 85 - 115

MRCSS - Secondary

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Rows: Chloride, Fluoride, Sulfate, Nitrate as Nitrogen

MRCVS - Primary

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Row: Chloride, mg/L, 1.00, 3.06, 3.00, 102, 90 - 110

MRCVS - Primary

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Row: Chloride, mg/L, 1.00, 3.02, 3.00, 101, 90 - 110

MRCVS - Primary

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Row: Chloride, mg/L, 1.00, 3.00, 3.00, 99.8, 90 - 110

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Client: E2 Consulting Engineers, Inc.

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

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Table with columns: Parameter, Unit, Analyzed, DF, MDL, RL, Result. Includes sections for Nitrite SM 4500-NO2 B, Method Blank, Duplicate, Lab Control Sample, Matrix Spike, MRCCS - Secondary, MRCVS - Primary.

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Client: E2 Consulting Engineers, Inc.

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

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Alkalinity by SM 2320B

Batch 05ALK14B

Table with 7 columns: Parameter, Unit, Analyzed, DF, MDL, RL, Result. Rows include Alkalinity as CaCO3, Bicarbonate (Calculated), and Carbonate (Calculated).

Method Blank

Table with 4 columns: Parameter, Unit, DF, Result. Row: Alkalinity as CaCO3, mg/L, 1.00, ND.

Duplicate

Lab ID = 813459-021

Table with 7 columns: Parameter, Unit, DF, Result, Expected, RPD, Acceptance Range. Row: Alkalinity as CaCO3, mg/L, 1.00, 110, 109, 0.913, 0 - 20.

Lab Control Sample

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Row: Alkalinity as CaCO3, mg/L, 1.00, 99.0, 100, 99.0, 90 - 110.

Lab Control Sample Duplicate

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Row: Alkalinity as CaCO3, mg/L, 1.00, 100, 100, 100, 90 - 110.

Matrix Spike

Lab ID = 813315-002

Table with 7 columns: Parameter, Unit, DF, Result, Expected/Added, Recovery, Acceptance Range. Row: Alkalinity as CaCO3, mg/L, 1.00, 251, 255(100), 96.0, 75 - 125.

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

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Table with columns: Parameter, Unit, Analyzed, DF, MDL, RL, Result. Includes sections for Specific Conductivity - EPA 120.1, Method Blank, Duplicate, Lab Control Sample, MRCCS - Secondary, MRCVS - Primary, and MRCVS - Primary.

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Client: E2 Consulting Engineers, Inc.

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

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Chrome VI by EPA 218.6

Batch 05CrH14 A

Table with 7 columns: Parameter, Unit, Analyzed, DF, MDL, RL, Result. Rows include 813315-001 Chromium, Hexavalent and 813315-002 Chromium, Hexavalent.

Method Blank

Table with 4 columns: Parameter, Unit, DF, Result. Row: Chromium, Hexavalent, ug/L, 1.00, ND.

Duplicate

Lab ID = 813315-002

Table with 7 columns: Parameter, Unit, DF, Result, Expected, RPD, Acceptance Range. Row: Chromium, Hexavalent, ug/L, 25.0, 577, 575, 0.292, 0 - 20.

Low Level Calibration Verification

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Row: Chromium, Hexavalent, ug/L, 1.00, 0.198, 0.200, 99.0, 70 - 130.

Lab Control Sample

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Row: Chromium, Hexavalent, ug/L, 1.00, 5.04, 5.00, 101, 90 - 110.

Matrix Spike

Lab ID = 813315-001

Table with 7 columns: Parameter, Unit, DF, Result, Expected/Added, Recovery, Acceptance Range. Row: Chromium, Hexavalent, ug/L, 5.00, 5.19, 5.15(5.00), 101, 90 - 110.

Matrix Spike

Lab ID = 813315-001

Table with 7 columns: Parameter, Unit, DF, Result, Expected/Added, Recovery, Acceptance Range. Row: Chromium, Hexavalent, ug/L, 1.00, 1.21, 1.15(1.00), 107, 90 - 110.

Matrix Spike

Lab ID = 813315-002

Table with 7 columns: Parameter, Unit, DF, Result, Expected/Added, Recovery, Acceptance Range. Row: Chromium, Hexavalent, ug/L, 25.0, 1210, 1200(625), 102, 90 - 110.

MRCCS - Secondary

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Row: Chromium, Hexavalent, ug/L, 1.00, 5.03, 5.00, 100, 90 - 110.

MRCVS - Primary

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Row: Chromium, Hexavalent, ug/L, 1.00, 10.2, 10.0, 102, 95 - 105.

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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

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Metals by EPA 200.7, Total		Batch 051314A-Th2				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
813315-001 Aluminum	ug/L	05/13/2014 17:46	1.00	7.20	50.0	ND
Boron	ug/L	05/13/2014 17:46	1.00	4.10	50.0	945
Iron	ug/L	05/13/2014 17:46	1.00	3.00	20.0	ND
Zinc	ug/L	05/13/2014 17:46	1.00	5.10	20.0	ND
813315-002 Aluminum	ug/L	05/13/2014 17:51	1.00	7.20	50.0	ND
Boron	ug/L	05/13/2014 17:51	1.00	4.10	50.0	979
Iron	ug/L	05/13/2014 17:51	1.00	3.00	20.0	ND
Zinc	ug/L	05/13/2014 17:51	1.00	5.10	20.0	ND

Method Blank

Parameter	Unit	DF	Result
Aluminum	ug/L	1.00	ND
Iron	ug/L	1.00	ND
Zinc	ug/L	1.00	ND
Boron	ug/L	1.00	ND

Duplicate

Lab ID = 813315-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Aluminum	ug/L	1.00	ND	0	0	0 - 20
Iron	ug/L	1.00	ND	0	0	0 - 20
Zinc	ug/L	1.00	ND	0	0	0 - 20
Boron	ug/L	1.00	986	979	0.753	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Aluminum	ug/L	1.00	2010	2000	101	85 - 115
Iron	ug/L	1.00	2130	2000	106	85 - 115
Zinc	ug/L	1.00	1980	2000	98.8	85 - 115
Boron	ug/L	1.00	2020	2000	101	85 - 115

Matrix Spike

Lab ID = 813315-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Aluminum	ug/L	1.00	1660	2000(2000)	83.0	75 - 125
Iron	ug/L	1.00	1970	2000(2000)	98.3	75 - 125
Zinc	ug/L	1.00	2170	2000(2000)	109	75 - 125
Boron	ug/L	1.00	2990	2980(2000)	100	75 - 125

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Client: E2 Consulting Engineers, Inc.

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

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Matrix Spike Duplicate

Lab ID = 813315-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Aluminum	ug/L	1.00	1670	2000(2000)	83.6	75 - 125
Iron	ug/L	1.00	1940	2000(2000)	96.8	75 - 125
Zinc	ug/L	1.00	2160	2000(2000)	108	75 - 125
Boron	ug/L	1.00	2940	2980(2000)	98.2	75 - 125

MRCSS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Aluminum	ug/L	1.00	4950	5000	99.0	95 - 105
Iron	ug/L	1.00	5050	5000	101	95 - 105
Zinc	ug/L	1.00	4960	5000	99.3	95 - 105
Boron	ug/L	1.00	5070	5000	101	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Aluminum	ug/L	1.00	4970	5000	99.4	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Aluminum	ug/L	1.00	5120	5000	102	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Aluminum	ug/L	1.00	5050	5000	101	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Aluminum	ug/L	1.00	5090	5000	102	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5120	5000	102	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5160	5000	103	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5400	5000	108	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5090	5000	102	90 - 110

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Client: E2 Consulting Engineers, Inc.

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

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Metals by EPA 200.8, Total		Batch 051214A				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
813315-001 Antimony	ug/L	05/12/2014 14:10	1.00	0.0350	2.0	ND
Arsenic	ug/L	05/12/2014 14:10	1.00	0.0500	0.50	ND
Barium	ug/L	05/12/2014 14:10	1.00	0.297	2.0	10.2
Chromium	ug/L	05/12/2014 14:10	1.00	0.0710	1.0	ND
Lead	ug/L	05/12/2014 14:10	1.00	0.143	1.0	ND
Manganese	ug/L	05/12/2014 14:10	1.00	0.0600	0.50	1.0
Molybdenum	ug/L	05/12/2014 14:10	1.00	0.0500	2.0	21.0
Nickel	ug/L	05/12/2014 14:10	1.00	0.240	2.0	2.3
813315-002 Antimony	ug/L	05/12/2014 14:49	1.00	0.0350	2.0	ND
Arsenic	ug/L	05/12/2014 14:49	1.00	0.0500	0.50	3.6
Barium	ug/L	05/12/2014 14:49	1.00	0.297	2.0	26.2
Chromium	ug/L	05/12/2014 15:02	10.0	0.710	5.0	624
Lead	ug/L	05/12/2014 14:49	1.00	0.143	1.0	ND
Manganese	ug/L	05/12/2014 14:49	1.00	0.0600	0.50	7.8
Molybdenum	ug/L	05/12/2014 14:49	1.00	0.0500	2.0	21.3
Nickel	ug/L	05/12/2014 14:49	1.00	0.240	2.0	ND

Method Blank

Parameter	Unit	DF	Result
Arsenic	ug/L	1.00	ND
Barium	ug/L	1.00	ND
Chromium	ug/L	1.00	ND
Nickel	ug/L	1.00	ND
Antimony	ug/L	1.00	ND
Lead	ug/L	1.00	ND
Manganese	ug/L	1.00	ND
Molybdenum	ug/L	1.00	ND

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Client: E2 Consulting Engineers, Inc.

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

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Printed 5/30/2014

Duplicate							Lab ID = 813315-001
Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range	
Arsenic	ug/L	1.00	ND	0	0	0 - 20	
Barium	ug/L	1.00	10.2	10.2	0.214	0 - 20	
Chromium	ug/L	1.00	ND	0	0	0 - 20	
Nickel	ug/L	1.00	ND	2.35	0	0 - 20	
Antimony	ug/L	1.00	ND	0	0	0 - 20	
Lead	ug/L	1.00	ND	0	0	0 - 20	
Manganese	ug/L	1.00	0.956	1.01	5.50	0 - 20	
Molybdenum	ug/L	1.00	21.8	21.0	3.69	0 - 20	
Low Level Calibration Verification							
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range	
Arsenic	ug/L	1.00	0.226	0.200	113	70 - 130	
Barium	ug/L	1.00	1.05	1.00	105	70 - 130	
Chromium	ug/L	1.00	0.558	0.500	112	70 - 130	
Nickel	ug/L	1.00	1.18	1.00	118	70 - 130	
Antimony	ug/L	1.00	0.214	0.200	107	70 - 130	
Lead	ug/L	1.00	0.494	0.500	98.9	70 - 130	
Manganese	ug/L	1.00	0.515	0.500	103	70 - 130	
Molybdenum	ug/L	1.00	0.236	0.200	118	70 - 130	
Lab Control Sample							
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range	
Arsenic	ug/L	1.00	50.5	50.0	101	85 - 115	
Barium	ug/L	1.00	47.3	50.0	94.6	85 - 115	
Chromium	ug/L	1.00	51.4	50.0	103	85 - 115	
Nickel	ug/L	1.00	50.8	50.0	102	85 - 115	
Antimony	ug/L	1.00	45.5	50.0	91.1	85 - 115	
Lead	ug/L	1.00	49.4	50.0	98.8	85 - 115	
Manganese	ug/L	1.00	49.6	50.0	99.3	85 - 115	
Molybdenum	ug/L	1.00	49.4	50.0	98.8	85 - 115	

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Client: E2 Consulting Engineers, Inc.

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

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Matrix Spike

Lab ID = 813315-001

Table with 7 columns: Parameter, Unit, DF, Result, Expected/Added, Recovery, Acceptance Range. Rows include Arsenic, Barium, Chromium, Nickel, Antimony, Lead, Manganese, Molybdenum.

Matrix Spike Duplicate

Lab ID = 813315-001

Table with 7 columns: Parameter, Unit, DF, Result, Expected/Added, Recovery, Acceptance Range. Rows include Arsenic, Barium, Chromium, Nickel, Antimony, Lead, Manganese, Molybdenum.

MRCCS - Secondary

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Rows include Arsenic, Barium, Chromium, Nickel, Antimony, Lead, Manganese, Molybdenum.

MRCVS - Primary

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Row includes Arsenic.

MRCVS - Primary

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Row includes Arsenic.

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Lead	ug/L	1.00	ND	0		

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	21.7	20.0	108	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	21.0	20.0	105	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Molybdenum	ug/L	1.00	ND	0		

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Molybdenum	ug/L	1.00	ND	0		

Serial Dilution

Lab ID = 813315-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Barium	ug/L	5.00	26.3	26.2	0.567	0 - 10
Chromium	ug/L	50.0	620	624	0.658	0 - 10

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Client: E2 Consulting Engineers, Inc.

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Metals by EPA 200.8, Total

Batch 051414A

Table with 7 columns: Parameter, Unit, Analyzed, DF, MDL, RL, Result. Rows include 813315-001 Copper and 813315-002 Copper.

Method Blank

Table with 4 columns: Parameter, Unit, DF, Result. Row for Copper.

Duplicate

Lab ID = 813315-001

Table with 7 columns: Parameter, Unit, DF, Result, Expected, RPD, Acceptance Range. Row for Copper.

Low Level Calibration Verification

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Row for Copper.

Lab Control Sample

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Row for Copper.

Matrix Spike

Lab ID = 813315-001

Table with 7 columns: Parameter, Unit, DF, Result, Expected/Added, Recovery, Acceptance Range. Row for Copper.

Matrix Spike Duplicate

Lab ID = 813315-001

Table with 7 columns: Parameter, Unit, DF, Result, Expected/Added, Recovery, Acceptance Range. Row for Copper.

MRCCS - Secondary

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Row for Copper.

MRCVS - Primary

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Row for Copper.

Interference Check Standard A

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Row for Copper.

Interference Check Standard A

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Row for Copper.

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Copper	ug/L	1.00	23.5	20.0	118	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Copper	ug/L	1.00	23.9	20.0	120	80 - 120

Reactive Silica by SM4500-Si D

Batch 05Si14A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
813315-002 Silica	mg/L	05/12/2014	25.0	0.252	1.00	18.3

Method Blank

Parameter	Unit	DF	Result
Silica	mg/L	1.00	ND

Duplicate

Lab ID = 813315-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Silica	mg/L	25.0	18.9	18.3	3.21	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Silica	mg/L	1.00	0.200	0.206	97.2	90 - 110

Matrix Spike

Lab ID = 813315-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Silica	mg/L	25.0	22.9	23.4(5.15)	90.3	75 - 125

MRCSS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Silica	mg/L	1.00	0.200	0.206	97.2	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Silica	mg/L	1.00	0.370	0.400	92.5	90 - 110

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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

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Total Dissolved Solids by SM 2540 C

Batch 05TDS14B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
813315-001 Total Dissolved Solids	mg/L	05/12/2014	1.00	1.76	250	4410
813315-002 Total Dissolved Solids	mg/L	05/12/2014	1.00	1.76	250	4420

Method Blank

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

Duplicate

Lab ID = 813315-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	4330	4410	1.83	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Dissolved Solids	mg/L	1.00	460	500	92.0	90 - 110

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Client: E2 Consulting Engineers, Inc.

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Table with 7 columns: Parameter, Unit, Analyzed, DF, MDL, RL, Result. Includes sections for Total Organic Carbon (T/DOC) SM 5310 C, Method Blank, Duplicate, Lab Control Sample, Matrix Spike, MRCCS - Secondary, MRCVS - Primary.

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Client: E2 Consulting Engineers, Inc.

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Total Phosphate, SM 4500-PB,E		Batch 05TP14A				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
813315-002 Phosphate, Total As P	mg/L	05/12/2014	1.00	0.00460	0.0200	ND
Method Blank						
Parameter	Unit	DF	Result			
Phosphate, Total As P	mg/L	1.00	ND			
Duplicate						Lab ID = 813315-002
Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Phosphate, Total As P	mg/L	1.00	ND	0	0	0 - 20
Lab Control Sample						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Phosphate, Total As P	mg/L	1.00	0.0703	0.0650	108	90 - 110
Matrix Spike						Lab ID = 813315-002
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Phosphate, Total As P	mg/L	1.00	0.0599	0.0650(0.0650)	92.2	75 - 125
MRCCS - Secondary						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Phosphate, Total As P	mg/L	1.00	0.0703	0.0650	108	90 - 110
MRCVS - Primary						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Phosphate, Total As P	mg/L	1.00	0.0671	0.0660	102	90 - 110

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project
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Ammonia Nitrogen by SM4500-NH3D

Batch 05NH314B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
813315-001 Ammonia as N	mg/L	05/28/2014	1.00	0.0318	0.500	ND
813315-002 Ammonia as N	mg/L	05/28/2014	1.00	0.0318	0.500	ND

Method Blank

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

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	7.46	8.00	93.2	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	7.53	8.00	94.2	90 - 110

Matrix Spike

Lab ID = 813315-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	8.79	10.0(10.0)	87.9	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	5.76	6.00	95.9	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	5.76	6.00	95.9	90 - 110

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Client: E2 Consulting Engineers, Inc.

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Metals by EPA 200.8, Dissolved

Batch 051314A

Table with 7 columns: Parameter, Unit, Analyzed, DF, MDL, RL, Result. Row 1: 813315-002 Manganese, ug/L, 05/13/2014 17:42, 1.00, 0.0600, 0.50, 7.8

Method Blank

Table with 4 columns: Parameter, Unit, DF, Result. Rows: Chromium (ug/L, 1.00, ND), Manganese (ug/L, 1.00, ND)

Duplicate

Lab ID = 813316-001

Table with 7 columns: Parameter, Unit, DF, Result, Expected, RPD, Acceptance Range. Rows: Chromium (4.48, 4.32, 3.59, 0-20), Manganese (75.2, 72.2, 4.08, 0-20)

Low Level Calibration Verification

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Rows: Chromium (0.544, 0.500, 109, 70-130), Manganese (0.460, 0.500, 91.9, 70-130)

Lab Control Sample

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Rows: Chromium (53.7, 50.0, 107, 85-115), Manganese (53.8, 50.0, 108, 85-115)

Matrix Spike

Lab ID = 813316-001

Table with 7 columns: Parameter, Unit, DF, Result, Expected/Added, Recovery, Acceptance Range. Rows: Chromium (55.0, 54.3(50.0), 101, 75-125), Manganese (126, 122(50.0), 107, 75-125)

Matrix Spike Duplicate

Lab ID = 813316-001

Table with 7 columns: Parameter, Unit, DF, Result, Expected/Added, Recovery, Acceptance Range. Rows: Chromium (54.3, 54.3(50.0), 100, 75-125), Manganese (123, 122(50.0), 102, 75-125)

MRCSS - Secondary

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Rows: Chromium (19.0, 20.0, 95.2, 90-110), Manganese (19.1, 20.0, 95.4, 90-110)

MRCVS - Primary

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Row: Chromium (20.6, 20.0, 103, 90-110)

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Client: E2 Consulting Engineers, Inc.

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

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Metals by 200.7, Dissolved

Batch 051314A-Th2

Table with 7 columns: Parameter, Unit, Analyzed, DF, MDL, RL, Result. Row 1: 813315-002 Iron, ug/L, 05/13/2014 17:07, 1.00, 3.00, 20.0, ND

Method Blank

Table with 4 columns: Parameter, Unit, DF, Result. Rows: Calcium (ug/L, 1.00, ND), Iron (ug/L, 1.00, ND), Sodium (ug/L, 1.00, ND), Magnesium (ug/L, 1.00, ND)

Duplicate

Lab ID = 813316-002

Table with 7 columns: Parameter, Unit, DF, Result, Expected, RPD, Acceptance Range. Rows: Calcium, Iron, Sodium, Magnesium

Lab Control Sample

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Rows: Calcium, Iron, Sodium, Magnesium

Matrix Spike

Lab ID = 813316-002

Table with 7 columns: Parameter, Unit, DF, Result, Expected/Added, Recovery, Acceptance Range. Rows: Calcium, Iron, Sodium, Magnesium

Matrix Spike Duplicate

Lab ID = 813316-002

Table with 7 columns: Parameter, Unit, DF, Result, Expected/Added, Recovery, Acceptance Range. Row: Iron

MRCCS - Secondary

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Rows: Calcium, Iron, Sodium, Magnesium

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Client: E2 Consulting Engineers, Inc.

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

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Interference Check Standard AB

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Row 1: Sodium, ug/L, 1.00, 1960, 2000, 98.0, 80 - 120

Interference Check Standard AB

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Row 1: Sodium, ug/L, 1.00, 1950, 2000, 97.7, 80 - 120. Row 2: Magnesium, ug/L, 1.00, 2130, 2000, 106, 80 - 120

Interference Check Standard AB

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Row 1: Magnesium, ug/L, 1.00, 2060, 2000, 103, 80 - 120

Turbidity by SM 2130 B

Batch 05TUB14C

Table with 7 columns: Parameter, Unit, Analyzed, DF, MDL, RL, Result. Row 1: 813315-001 Turbidity, NTU, 05/07/2014, 1.00, 0.0140, 0.100, ND. Row 2: 813315-002 Turbidity, NTU, 05/07/2014, 1.00, 0.0140, 0.100, 0.184

Method Blank

Table with 4 columns: Parameter, Unit, DF, Result. Row 1: Turbidity, NTU, 1.00, ND

Duplicate

Lab ID = 813314-020

Table with 7 columns: Parameter, Unit, DF, Result, Expected, RPD, Acceptance Range. Row 1: Turbidity, NTU, 1.00, ND, 0.110, 0, 0 - 20

Lab Control Sample

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Row 1: Turbidity, NTU, 1.00, 8.72, 8.00, 109, 90 - 110

Lab Control Sample Duplicate

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Row 1: Turbidity, NTU, 1.00, 8.51, 8.00, 106, 90 - 110

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

Signature of Mona Nassimi
Mona Nassimi
Manager, Analytical Services



ej

Total Dissolved Solids by SM 2540 C

Calculations

Batch: 05TDS14B
Date Analyzed: 5/12/2014

Laboratory Number	Sample volume, mL	Initial weight, g	1st Final weight, g	2nd Final weight, g	Weight Difference, g	Exceeds 0.5mg? Yes/No	Residue weight, g	Filterable residue, ppm	RL, ppm	Reported Value, ppm	DF
Blank	100	67.7776	67.7779	67.7779	0.0000	No	0.0003	3.0	25.0	ND	1
813315-1	10	30.0515	30.0959	30.0956	0.0003	No	0.0441	4410.0	250.0	4410.0	1
813315-2	10	29.5359	29.5803	29.5801	0.0002	No	0.0442	4420.0	250.0	4420.0	1
813316-1	20	29.2560	29.3098	29.3095	0.0003	No	0.0535	2675.0	125.0	2675.0	1
813316-2	10	29.4154	29.4639	29.4636	0.0003	No	0.0482	4820.0	250.0	4820.0	1
813325-7	100	70.8766	70.9345	70.9345	0.0000	No	0.0579	579.0	25.0	579.0	1
813329-1	100	72.5254	72.5585	72.5582	0.0003	No	0.0328	328.0	25.0	328.0	1
813334-1	100	76.7862	76.8368	76.8367	0.0001	No	0.0505	505.0	25.0	505.0	1
813334-2	100	74.7001	74.7506	74.7505	0.0001	No	0.0504	504.0	25.0	504.0	1
813334-3	100	73.4317	73.4811	73.4811	0.0000	No	0.0494	494.0	25.0	494.0	1
813334-4	100	76.2495	76.2993	76.2993	0.0000	No	0.0498	498.0	25.0	498.0	1
813315-1 Dup	10	30.4523	30.4960	30.4956	0.0004	No	0.0433	4330.0	250.0	4330.0	1
LCS	100	74.4535	74.4995	74.4995	0.0000	No	0.0460	460.0	25.0	460.0	1
813345-1	100	65.6719	65.7213	65.7213	0.0000	No	0.0494	494.0	25.0	494.0	1
813345-2	100	73.5706	73.6215	73.6212	0.0003	No	0.0506	506.0	25.0	506.0	1
813349-2	100	80.5714	80.5902	80.5902	0.0000	No	0.0188	188.0	25.0	188.0	1
813349-4	100	75.6057	75.6480	75.6480	0.0000	No	0.0423	423.0	25.0	423.0	1
813350-1	50	50.9271	50.9777	50.9777	0.0000	No	0.0506	1012.0	50.0	1012.0	1
813350-2	100	68.7237	68.7753	68.7753	0.0000	No	0.0516	516.0	25.0	516.0	1
813350-3	100	72.4021	72.4618	72.4616	0.0002	No	0.0595	595.0	25.0	595.0	1
813350-4	50	48.9740	49.0051	49.0050	0.0001	No	0.0310	620.0	50.0	620.0	1
813383-1	100	74.4531	74.4985	74.4985	0.0000	No	0.0454	454.0	25.0	454.0	1
813383-2	100	72.4800	72.5295	72.5293	0.0002	No	0.0493	493.0	25.0	493.0	1
813350-4 Dup	50	47.9106	47.9422	47.9422	0.0000	No	0.0316	632.0	50.0	632.0	1

Calculation as follows:

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

Where:

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

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

Laboratory Control Sample (LCS) Summary

QC Std I.D.	Measured Value, ppm	Theoretical Value, ppm	Percent Rec	Acceptance Limit	QC Within Control?
LCS	460.0	500	92.0%	90-110%	Yes
LCS D					

LCS Recovery

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

P = Percent recovery.
LC = Measured LCS value (ppm).
LT = Theoretical LCS value (ppm).

Duplicate Determinations Difference Summary

Lab Number	Sample Weight, g	Sample Dup Weight, g	% RPD	Acceptance Limit	QC Within Control?
813315-1	0.0441	0.0433	0.9%	≤5%	Yes
813350-4	0.0310	0.0316	1.0%	≤5%	Yes

Duplicate Determination Difference

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

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

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

Jenny T.

Analyst Printed Name

Jenny T.
Analyst Signature

Maksim G.

Reviewer Printed Name

Maksim G.
Reviewer Signature

Total Dissolved Solids by SM 2540 C

TDS/EC CHECK

Batch: 05TDS14B
Date Analyzed: 5/12/2014

Laboratory Number	EC	TDS/EC Ratio: 0.55-0.90	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
813315-1	7310	0.60	4751.5	0.93
813315-2	7470	0.59	4855.5	0.91
813316-1	4540	0.59	2951	0.91
813316-2	8270	0.58	5375.5	0.90
813325-7	920	0.63	598	0.97
813329-1	522	0.63	339.3	0.97
813334-1	903	0.56	586.95	0.86
813334-2	905	0.56	588.25	0.86
813334-3	903	0.55	586.95	0.84
813334-4	903	0.55	586.95	0.85
813315-1 Dup	7310	0.59	4751.5	0.91
LCS				
813345-1	893	0.55	580.45	0.85
813345-2	877	0.58	570.05	0.89
813349-2	306	0.61	198.9	0.95
813349-4	723	0.59	469.95	0.90
813350-1	1715	0.59	1114.75	0.91
813350-2	900	0.57	585	0.88
813350-3	990	0.60	643.5	0.92
813350-4	1090	0.57	708.5	0.88
813383-1	835	0.54	542.75	0.84
813383-2	832	0.59	540.8	0.91
813350-4 Dup	1090	0.58	708.5	0.89



Alkalinity by SM 2320B

Calculations

Analytical Batch: 05ALK14B
 Matrix: WATER
 Date of Analysis: 5/16/2014

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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 CaCO3 (ppm)	CO3 Alkalinity as CaCO3 (ppm)	OH Alkalinity as CaCO3 (ppm)	Low Alkalinity as CaCO3 (<20ppm)
BLANK	4.99	50	0.02	0.00	0.0	0.00		0.0	5	ND	ND	ND	ND	
813315-1	7.65	50	0.02	0.00	0.0	2.20		44.0	5	44.0	44.0	ND	ND	
813315-2	7.61	50	0.02	0.00	0.0	7.75		155.0	5	155.0	155.0	ND	ND	
813445-1	7.75	50	0.02	0.00	0.0	6.60		132.0	5	132.0	132.0	ND	ND	
813445-2	8.03	50	0.02	0.00	0.0	6.75		135.0	5	135.0	135.0	ND	ND	
813459-21	7.57	50	0.02	0.00	0.0	5.45		109.0	5	109.0	109.0	ND	ND	
813459-21 DUP	7.67	50	0.02	0.00	0.0	5.50		110.0	5	110.0	110.0	ND	ND	
QC-1	8.02	50	0.02	0.00	0.0	3.55		71.0	5	71.0	71.0	ND	ND	
QC-2	8.02	50	0.02	0.00	0.0	3.55		71.0	5	71.0	71.0	ND	ND	
PE-1	8.10	50	0.02	0.00	0.0	4.95		99.0	5	99.0	99.0	ND	ND	
PE-2	8.13	50	0.02	0.00	0.0	5.00		100.0	5	100.0	100.0	ND	ND	
QC-1 (LANG)	7.88	50	0.02	0.00	0.0	5.00		100.0	5	100.0	100.0	ND	ND	
LCS	10.22	50	0.02	2.0	39.0	4.95		99.0	5	99.0	21.0	78	ND	
LCSD	10.23	50	0.02	2.0	39.0	5.00		100.0	5	100.0	22.0	78	ND	
QC-2 (LANG)	7.92	50	0.02	0.0	0.0	5.05		101.0	5	101.0	101.0	ND	ND	
PE-1 (LANG)	8.24	50	0.02	0.0	0.0	9.25		185.0	5	185.0	185.0	ND	ND	
PE-2 (LANG)	8.26	50	0.02	0.0	0.0	9.30		186.0	5	186.0	186.0	ND	ND	
813315-2 MS	8.95	50	0.02	0.0	0.0	12.55		251.0	5	251.0	251.0	0	ND	

Calculations as follows:

T or P =

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

Where:

- T = Total Alkalinity, mg CaCO3/L
- P = Phenolphthalein Alkalinity, mg CaCO3/L
- A = mL standard acid used
- N = normality of standard acid

Low Alkalinity: = $\frac{(2 \times B - C) \times N \times 50000}{mL \text{ sample}}$
 as mg/L CaCO3

- Where: B = mL titrant to first recorded pH
- C = Total mL titrant to reach pH 0.3 unit lower
- N = Normality of standard acid
- LCS = Laboratory Control Standard/Duplicate
- MS/MSD = Matrix Spike/Duplicate
- ND = Not Detected (below the reporting limit)

Blank Summary

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

Laboratory Control Sample (LCS/LCSD) Summary

QC Std I.D.	Measured Value, ppm	Theoretical Value, ppm	% Recovery	Acceptance Limit	QC Within Control?
LCS	99	100	99.0%	90-110	Yes
LCSD	100	100	100.0%	90-110	Yes

Duplicate Determination Difference Summary

Lab Number I.D.	Measured Value, ppm	Dup Value, ppm	RPD	Acceptance Limit	QC Within Control?
813459-21	109	110	0.9%	≤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?
813315-2	155	1	100	100	251	255.00	96%	75-125	Yes			
				0								

ALEX L

Analyst Printed Name

Analyst Signature

Maksim Gorbunov

Reviewer Printed Name

Reviewer Signature

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813315



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-WDR-466]

COC Number _____
TURNAROUND TIME 10 Days
DATE 05/06/14 PAGE 1 OF 1

COMPANY				TESTS															COMMENTS
CH2M HILL /E2				Cr(VI) (218.6) Lab Filtered	Alkalinity (2320-B)	EC (120.1)	TDS (2540 c)	Turb (2130)	Total Metals (200.7) See List Below	Ammonia (4500-NH3)	Total P (4500-P)	Anions (300.0) F, NO3, SO4	TOC (5310 C)	Dissolved Metals (200.7) Fe, Mn lab filtered	Soluable Silica - Reactive (4500-Si CorD)	NO2 (4500-NO2B)	NUMBER OF CONTAINERS		
PROJECT NAME PG&E Topock IM3																			
PHONE 530-229-3303 FAX 530-339-3303																			
ADDRESS 155 Grand Ave Ste 1000 Oakland, CA 94612																			
P.O. NUMBER 428648.IM.CS.EX.AC																			
SAMPLERS (SIGNATURE) <i>Scott Donnell</i>																			
SAMPLE I.D.	DATE	TIME	DESCRIPTION	Cr(VI)	Alkalinity	EC	TDS	Turb	Total Metals	Ammonia	Total P	Anions	TOC	Dissolved Metals	Soluable Silica	NO2	CONTAINERS	COMMENTS	
SC-700B-WDR-466	05/06/14	1430		X	X	X	X	X	X	X	X	X					4	pH = 7 } 2/10.7	
SC-100B-WDR-466	05/06/14	1420		X	X	X	X	X	X	X	X	X	X	X	X	X	9	pH = 7	
<div style="border: 2px solid black; padding: 5px; display: inline-block;">ALERT !! Level III QC</div>				For Sample Conditions See Form Attached															
5 TOTAL NUMBER OF CONTAINERS																			

CHAIN OF CUSTODY SIGNATURE RECORD					SAMPLE CONDITIONS	
Signature (Relinquished) <i>Scott Donnell</i>	Printed Name Scott Donnell	Company/ Agency CH2M HILL	Date/ Time 5-6-14 1615	RECEIVED	COOL <input checked="" type="checkbox"/>	WARM <input type="checkbox"/> 3.4°C °F
Signature (Received) <i>Shakirgo</i>	Printed Name THAHK NEO	Company/ Agency TRUESDAIL	Date/ Time 5-6-14 1615	CUSTODY SEALED	YES <input type="checkbox"/>	NO <input type="checkbox"/>
Signature (Relinquished) <i>Shakirgo</i>	Printed Name THAHK NEO	Company/ Agency	Date/ Time 5-6-14 2050	SPECIAL REQUIREMENTS:		
Signature (Received) <i>Marched Brady</i>	Printed Name Marched Brady	Company/ Agency TLI	Date/ Time 5/6/14 @ 2050	The metals include: Cr, Al, Sb, As, Ba, B, Cu, Pb, Mn, Mo, Ni, Fe, Zn		
Signature (Relinquished)	Printed Name	Company/ Agency	Date/ Time			
Signature (Received)	Printed Name	Company/ Agency	Date/ Time			

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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
3/26/14	812753	7.00	2ml / 100ml	9.5	7:30	NE
4/9/14	812966-1	7.00	2ml / 100ml	9.5	7:20	NE
	↓ -2	↓	↓	↓	↓	↓
	√ -3	√	√	↓	↓	↓
	812967-1	9.5	N/A	N/A	N/A	
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
	-13					
	-14					
	√ -15					
	812968 (50g) √					
	812969-1	7.00	2ml / 100ml	9.5	7:20	NE
√	↓ -2	↓	↓	↓	↓	↓
4/16/14	813068	7.00	2ml / 100ml	9.5	7:40	NE
4/23/14	813140	7.00	2ml / 100ml	9.5	7:30	NE
4/30/14	813212	7.00	2ml / 100ml	9.5	7:30	NE
5/7/14	813315-1	7.00	2ml / 100ml	9.5	11:45	NE
	-2					
↓	813316-1					
√	-2					

NE
5/7/14



Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest (Y/N)	Time of Adjustment to pH 2	Date/Time of 2nd pH check	Comments
813336	<1	<2	5/11/14	ES	YES			
813341	↓	↓	↓	↓	↓			
813345(1-2)	↓	↓	↓	↓	↓			-1 TU > 1
813358	↓	↓	↓	↓	↓			
813346	↓	↓	↓	↓	↓			
813365	>1	↓	↓	↓	↓			
813325(4-6)	<1	7.2	↓	↓	NO	10:00	11:00 5/12/14	pH < 2
813326(1-3)	↓	↓	↓	↓	↓	↓	↓	↓
813327(10-12)	↓	↓	↓	↓	↓	↓	↓	↓
813324(1-2)	↓	↓	↓	↓	↓	↓	↓	↓
813349(1-2,4)	↓	↓	↓	↓	↓	↓	↓	↓
813350(1-4)	↓	↓	↓	↓	↓	↓	↓	↓
813315(1-2)	<1	7.2	5/12/14	ES	YES	10:00		TOTAL
-2	↓	↓	↓	↓	↓	↓		Filtered then
813316(1-2)	↓	↓	↓	↓	↓	↓		acidified
813383(1-2)	<1	<2	5/14/14	ES	YES			-1 TU > 1
813384	>1	↓	↓	↓	↓			
813394-4	<1	↓	↓	↓	↓			
813395	↓	↓	↓	↓	↓			
813407	↓	↓	↓	↓	↓			
813416	↓	↓	↓	↓	↓			
813417	↓	↓	↓	↓	↓			
813418	>1	↓	↓	↓	↓			
813419	↓	↓	↓	↓	↓			
813390(1-2,4)	<1	7.2	↓	↓	NO	10:00		
813406	↓	↓	↓	↓	↓	↓		
813434(1,2)	>1	<2	5/5/14	ES	YES			
813440	>1	<2	↓	↓	↓			
813415	<1	7.2	5/19/14	ES	YES	11:00		pH < 2
813429(10-12)	↓	↓	↓	↓	NO	11:00		
813442(1-2)	↓	↓	↓	↓	↓	↓		
813445(1-2)	↓	↓	↓	↓	↓	↓		
813434(1-2)	>1	↓	↓	↓	YES			
813444	<1	↓	↓	↓	↓			
813456	↓	↓	↓	↓	↓			
813474	↓	<	5/19/14	ES	YES			
813475	↓	↓	↓	↓	↓			
813482(1-2)	>1	<2	5/20/14	ES	YES			

Notes:

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



Sample Integrity & Analysis Discrepancy Form

Client: E 2

Lab # 813315

Date Delivered: 05/06/14 Time: 20:50 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)? 3.4 °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. qc. 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

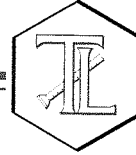
ALERT!!
Level III QC

16. Comments: _____

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

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Established 1931

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

May 28, 2014

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

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK IM3PLANT-WDR-467 PROJECT, GROUNDWATER
MONITORING, TLI NO.: 813415

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-467 project groundwater monitoring for Hexavalent and Total Chromium, Total Manganese, Turbidity, Specific Conductivity, and Total Dissolved Solids. 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 have been included under Section 5.


The samples were received and delivered with the chain of custody on May 13, 2014, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.


The straight run for sample SC-700B-WDR-467 for Hexavalent Chromium analysis by EPA 218.6 was just outside the retention time window. Because the matrix spike recovery and all other QA/QC were within acceptable limits, the data from the straight run was reported.

No other violations or nonconformance actions occurred for this data package.

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

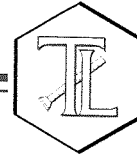
Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.


Mona Nassimi
Manager, Analytical Services


Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.

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

Attention: Shawn Duffy

Sample: One (1) Groundwater Sample

Project Name: PG&E Topock Project

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

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TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462
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Laboratory No.: 813415

Date: May 28, 2014

Collected: May 13, 2014

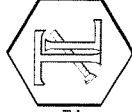
Received: May 13, 2014

ANALYST LIST

METHOD	PARAMETER	ANALYST
EPA 120.1	Specific Conductivity	Jenny Tankunakorn
SM 2540C	Total Dissolved Solids	Jenny Tankunakorn
SM 2130B	Turbidity	Jennine Ta
EPA 200.8	Total Metals	Ethel Suico
EPA 218.6	Hexavalent Chromium	Naheed Eidinejad

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

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

Laboratory No.: 813415
Date Received: May 13, 2014

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
813415-001	SC-700B-WDR-467	E120.1	NONE	5/13/2014	13:00	EC	7170	umhos/cm	2.00
813415-001	SC-700B-WDR-467	E200.8	NONE	5/13/2014	13:00	Chromium	ND	ug/L	1.0
813415-001	SC-700B-WDR-467	E200.8	NONE	5/13/2014	13:00	Manganese	4.2	ug/L	0.50
813415-001	SC-700B-WDR-467	E218.6	LABFLT	5/13/2014	13:00	Chromium, Hexavalent	ND	ug/L	0.20
813415-001	SC-700B-WDR-467	SM2130B	NONE	5/13/2014	13:00	Turbidity	ND	NTU	0.100
813415-001	SC-700B-WDR-467	SM2540C	NONE	5/13/2014	13:00	Total Dissolved Solids	4120	mg/L	250

ND: Non Detected (below reporting limit)

mg/L: Milligrams per liter.

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

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

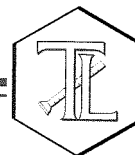
Result above or equal to 0.01ppm will have three (3) significant figures.

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

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

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REPORT

Client: E2 Consulting Engineers, Inc.

155 Grand Avenue, Suite 800

Oakland, CA 94612

Attention: Shawn Duffy

Project Name: PG&E Topock Project

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

P.O. Number: PGEIM11111001

Release Number:

Laboratory No. 813415

Page 1 of 6

Printed 5/28/2014

Samples Received on 5/13/2014 7:15:00 PM

Field ID	Lab ID	Collected	Matrix
SC-700B-WDR-467	813415-001	05/13/2014 13:00	Water

Specific Conductivity - EPA 120.1

Batch 05EC14C

Parameter	Unit	Analyzed	DF	MDL	RL	Result
813415-001 Specific Conductivity	umhos/cm	05/16/2014	1.00	0.606	2.00	7170

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	7130	7170	0.559	0 - 10

Lab ID = 813415-001

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	715	706	101	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	713	706	101	90 - 110

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	1060	1000	106	90 - 110

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008



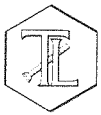
Client: E2 Consulting Engineers, Inc.

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

Page 2 of 6
Printed 5/28/2014

Table with columns: Parameter, Unit, Analyzed, DF, MDL, RL, Result. Includes sections for Chrome VI by EPA 218.6, Method Blank, Duplicate, Low Level Calibration Verification, Lab Control Sample, Matrix Spike, MRCCS - Secondary, and MRCVS - Primary.

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Client: E2 Consulting Engineers, Inc.

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

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Printed 5/28/2014

Metals by EPA 200.8, Total

Batch 051914A

Table with 7 columns: Parameter, Unit, Analyzed, DF, MDL, RL, Result. Rows include Chromium and Manganese with their respective units and results.

Method Blank

Table with 4 columns: Parameter, Unit, DF, Result. Rows for Chromium and Manganese showing ND results.

Duplicate

Lab ID = 813415-001

Table with 7 columns: Parameter, Unit, DF, Result, Expected, RPD, Acceptance Range. Rows for Chromium and Manganese duplicate analysis.

Low Level Calibration Verification

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Rows for Chromium and Manganese calibration verification.

Lab Control Sample

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Rows for Chromium and Manganese lab control sample.

Matrix Spike

Lab ID = 813415-001

Table with 7 columns: Parameter, Unit, DF, Result, Expected/Added, Recovery, Acceptance Range. Rows for Chromium and Manganese matrix spike.

Matrix Spike Duplicate

Lab ID = 813415-001

Table with 7 columns: Parameter, Unit, DF, Result, Expected/Added, Recovery, Acceptance Range. Rows for Chromium and Manganese matrix spike duplicate.

MRCSS - Secondary

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Rows for Chromium and Manganese secondary MRCSS.

MRCVS - Primary

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Row for Chromium primary MRCVS.

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Client: E2 Consulting Engineers, Inc.

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

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Printed 5/28/2014

Total Dissolved Solids by SM 2540 C

Batch 05TDS14C

Table with 7 columns: Parameter, Unit, Analyzed, DF, MDL, RL, Result. Row 1: 813415-001 Total Dissolved Solids, mg/L, 05/16/2014, 1.00, 1.76, 250, 4120

Method Blank

Table with 4 columns: Parameter, Unit, DF, Result. Row 1: Total Dissolved Solids, mg/L, 1.00, ND

Duplicate

Lab ID = 813415-001

Table with 7 columns: Parameter, Unit, DF, Result, Expected, RPD, Acceptance Range. Row 1: Total Dissolved Solids, mg/L, 1.00, 4070, 4120, 1.22, 0 - 10

Duplicate

Lab ID = 813434-002

Table with 7 columns: Parameter, Unit, DF, Result, Expected, RPD, Acceptance Range. Row 1: Total Dissolved Solids, mg/L, 1.00, 496, 489, 1.42, 0 - 10

Lab Control Sample

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Row 1: Total Dissolved Solids, mg/L, 1.00, 507, 500, 101, 90 - 110

Turbidity by SM 2130 B

Batch 05TUB14G

Table with 7 columns: Parameter, Unit, Analyzed, DF, MDL, RL, Result. Row 1: 813415-001 Turbidity, NTU, 05/14/2014, 1.00, 0.0140, 0.100, ND

Method Blank

Table with 4 columns: Parameter, Unit, DF, Result. Row 1: Turbidity, NTU, 1.00, ND

Duplicate

Lab ID = 813415-001

Table with 7 columns: Parameter, Unit, DF, Result, Expected, RPD, Acceptance Range. Row 1: Turbidity, NTU, 1.00, ND, 0, 0, 0 - 20

Lab Control Sample

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Row 1: Turbidity, NTU, 1.00, 8.55, 8.00, 107, 90 - 110

Lab Control Sample Duplicate

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Row 1: Turbidity, NTU, 1.00, 8.53, 8.00, 107, 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.



TRUESDAIL LABORATORIES, INC.

Report Continued

Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Page 6 of 6

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

Printed 5/28/2014

Respectfully submitted,

TRUESDAIL LABORATORIES, INC.

Mona Nassimi

Manager, Analytical Services



Total Dissolved Solids by SM 2540 C

Calculations

Batch: 05TDS14C
Date Analyzed: 5/16/2014

Laboratory Number	Sample volume, mL	Initial weight, g	1st Final weight, g	2nd Final weight, g	Weight Difference, g	Exceeds 0.5mg? Yes/No	Residue weight, g	Filterable residue, ppm	RL, ppm	Reported Value, ppm	DF
Blank	100	70.3826	70.3830	70.3830	0.0000	No	0.0004	4.0	25.0	ND	1
813415	10	29.5551	29.5965	29.5963	0.0002	No	0.0412	4120.0	250.0	4120.0	1
813390-2	100	75.4062	75.4262	75.4259	0.0003	No	0.0197	197.0	25.0	197.0	1
813390-4	100	76.5015	76.5424	76.5423	0.0001	No	0.0408	408.0	25.0	408.0	1
813408-1	50	50.4782	50.5367	50.5366	0.0001	No	0.0584	1168.0	50.0	1168.0	1
813408-2	50	49.6761	49.7065	49.7064	0.0001	No	0.0303	606.0	50.0	606.0	1
813408-3	50	49.4270	49.4777	49.4772	0.0005	No	0.0502	1004.0	50.0	1004.0	1
813408-4	50	50.7447	50.7941	50.7940	0.0001	No	0.0493	986.0	50.0	986.0	1
813408-5	50	50.5717	50.6141	50.6141	0.0000	No	0.0424	848.0	50.0	848.0	1
813408-6	50	49.1669	49.1970	49.1966	0.0004	No	0.0297	594.0	50.0	594.0	1
813408-7	50	48.4411	48.4908	48.4906	0.0002	No	0.0495	990.0	50.0	990.0	1
813415 Dup	10	29.3955	29.4365	29.4362	0.0003	No	0.0407	4070.0	250.0	4070.0	1
LCS	100	59.9004	59.9512	59.9511	0.0001	No	0.0507	507.0	25.0	507.0	1
813408-8	50	46.9747	47.0344	47.0340	0.0004	No	0.0593	1186.0	50.0	1186.0	1
813408-9	50	51.5639	51.6101	51.6100	0.0001	No	0.0461	922.0	50.0	922.0	1
813408-10	50	50.7505	50.8028	50.8024	0.0004	No	0.0519	1038.0	50.0	1038.0	1
14E0049-1	100	67.0356	67.0850	67.0850	0.0000	No	0.0494	494.0	25.0	494.0	1
14E0049-2	100	76.1726	76.2221	76.2221	0.0000	No	0.0495	495.0	25.0	495.0	1
14E0049-3	100	76.2714	76.3208	76.3207	0.0001	No	0.0493	493.0	25.0	493.0	1
14E0049-4	100	73.1685	73.2178	73.2178	0.0000	No	0.0493	493.0	25.0	493.0	1
14E0050-1	100	75.1510	75.1995	75.1995	0.0000	No	0.0485	485.0	25.0	485.0	1
14E0050-2	100	71.9563	72.0055	72.0052	0.0003	No	0.0489	489.0	25.0	489.0	1
14E0050-2 Dup	100	60.0624	60.1123	60.1120	0.0003	No	0.0496	496.0	25.0	496.0	1

Calculation as follows:

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

Where:

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

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

Laboratory Control Sample (LCS) Summary

QC Std I.D.	Measured Value, ppm	Theoretical Value, ppm	Percent Rec	Acceptance Limit	QC Within Control?
LCS	507.0	500	101.4%	90-110%	Yes
LCSD					

LCS Recovery

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

P = Percent recovery.
LC = Measured LCS value (ppm).
LT = Theoretical LCS value (ppm).

Duplicate Determinations Difference Summary

Lab Number	Sample Weight, g	Sample Dup Weight, g	% RPD	Acceptance Limit	QC Within Control?
813415	0.0412	0.0407	0.6%	≤5%	Yes
14E0050-2	0.0489	0.0496	0.7%	≤5%	Yes

Duplicate Determination Difference

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

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

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

Jenny T.

Analyst Printed Name

Analyst Signature

Maksim G.

Reviewer Printed Name

Reviewer Signature

Total Dissolved Solids by SM 2540 C

TDS/EC CHECK

Batch: 05TDS14C
Date Analyzed: 5/16/2014

Laboratory Number	EC	TDS/EC Ratio: 0.55-0.90	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
813415	7170	0.57	4660.5	0.88
813390-2	335	0.59	217.75	0.90
813390-4	713	0.57	463.45	0.88
813408-1	1681	0.69	1092.65	1.07
813408-2	1013	0.60	658.45	0.92
813408-3	1464	0.69	951.6	1.06
813408-4	1482	0.67	963.3	1.02
813408-5	1318	0.64	856.7	0.99
813408-6	975	0.61	633.75	0.94
813408-7	1388	0.71	902.2	1.10
813415 Dup	7170	0.57	4660.5	0.87
LCS				
813408-8	1677	0.71	1090.05	1.09
813408-9	1433	0.64	931.45	0.99
813408-10	1551	0.67	1008.15	1.03
14E0049-1	896	0.55	582.4	0.85
14E0049-2	899	0.55	584.35	0.85
14E0049-3	898	0.55	583.7	0.84
14E0049-4	898	0.55	583.7	0.84
14E0050-1	886	0.55	575.9	0.84
14E0050-2	857	0.57	557.05	0.88
14E0050-2 Dup	857	0.58	557.05	0.89

J
Me



TRUESDAIL LABORATORIES, INC.
 14201 Franklin Avenue, Tustin, CA 92780-7008
 (714)730-6239 FAX: (714) 730-6462
 www.truesdail.com

CHAIN OF CUSTODY RECORD

[IM3]Plant-WDR-467]

813415

COC Number

TURNAROUND TIME 10 Days

DATE 05/13/14

PAGE 1 OF 1

COMPANY E2	PROJECT NAME PG&E Topock	PHONE (530) 229-3303	FAX (530) 339-3303	ADDRESS 155 Grand Ave Ste 1000 Oakland, CA 94612	P.O. NUMBER 428648.IM.CSEX.AC	TEAM 1	SAMPLERS (SIGNATURE) <i>[Signature]</i>	DATE 05/13/14	TIME 13:00	DESCRIPTION Water	Cr6 (218.6) Lab Filtered Total Metals (200.8) Cr, Mn Specific Conductance (120.1) TDS (SM2540C) Turbidity (SM2130)	NUMBER OF CONTAINERS COMMENTS
SAMPLE I.D. SC-700B-WDR-467	DATE 05/13/14	TIME 13:00	DESCRIPTION Water	Cr6 (218.6) Lab Filtered Total Metals (200.8) Cr, Mn Specific Conductance (120.1) TDS (SM2540C) Turbidity (SM2130)		NUMBER OF CONTAINERS COMMENTS	TOTAL NUMBER OF CONTAINERS 3					

Please Provide a preliminary Result for the TDS ASAP

ALERT!!
 Level III QC

For Sample Conditions
 See Form Attached

CHAIN OF CUSTODY SIGNATURE RECORD

Signature (Relinquished)	<i>[Signature]</i>	Printed Name	CHRIS LENTZ	Company/ Agency	CH2M HILL	Date/ Time	5-13-14 14:52
Signature (Received)	<i>[Signature]</i>	Printed Name	THANH NGO	Company/ Agency	TRUESDAIL	Date/ Time	5-13-14 19:15
Signature (Relinquished)	<i>[Signature]</i>	Printed Name	THANH NGO	Company/ Agency	TRUESDAIL	Date/ Time	5-13-14 19:15
Signature (Received)	<i>[Signature]</i>	Printed Name	Michael Ngo	Company/ Agency	TLI	Date/ Time	5/13/14 19:15
Signature (Relinquished)		Printed Name		Company/ Agency		Date/ Time	
Signature (Received)		Printed Name		Company/ Agency		Date/ Time	

SAMPLE CONDITIONS

RECEIVED COOL WARM
 CUSTODY SEALED YES NO

3.2°C

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
3/26/14	812753	7.00	2ml / 100ml	9.5	7:30	NE
4/9/14	812966-1	7.00	2ml / 100ml	9.5	7:20	NE
	-2	↓	↓	↓	↓	↓
	✓ -3	↓	↓	↓	↓	↓
	812967-1	9.5	N/A	N/A	N/A	
	-2	↓	↓	↓	↓	↓
	-3	↓	↓	↓	↓	↓
	-4	↓	↓	↓	↓	↓
	-5	↓	↓	↓	↓	↓
	-6	↓	↓	↓	↓	↓
	-7	↓	↓	↓	↓	↓
	-8	↓	↓	↓	↓	↓
	-9	↓	↓	↓	↓	↓
	-10	↓	↓	↓	↓	↓
	-11	↓	↓	↓	↓	↓
	-12	↓	↓	↓	↓	↓
	-13	↓	↓	↓	↓	↓
	-14	↓	↓	↓	↓	↓
	✓ -15	↓	↓	↓	↓	↓
	812968 (5 ug) ✓	↓	↓	↓	↓	↓
	812969-1	7.00	2ml / 100ml	9.5	7:20	NE
↓	↓ -2	↓	↓	↓	↓	↓
4/16/14	813068	7.00	2ml / 100ml	9.5	7:40	NE
4/23/14	813140	7.00	2ml / 100ml	9.5	7:30	NE
4/29/14	813212	7.00	2ml / 100ml	9.5	7:30	NE
5/7/14	813315-1	7.00	2ml / 100ml	9.5	11:45	NE
↓	-2	↓	↓	↓	↓	↓
↓	813316-1	↓	↓	↓	↓	↓
↓	-2	↓	↓	↓	↓	↓
5/14/14	813415	7.00	2ml / 100ml	9.5	7:30	NE

NE
mu 5/14/14



Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest (Y/N)	Time of Adjustment to pH 2	Date/Time of 2nd pH check	Comments
813336	<1	<2	5/11/14	ES	Yes			
813341	↓	↓	↓	↓	↓			
813345(1-2)	↓	↓	↓	↓	↓			-1 TU > 1
813358	↓	↓	↓	↓	↓			
813346	↓	↓	↓	↓	↓			
813365	>1	↓	↓	↓	↓			
813325(4-6)	<1	7.2	↓	↓	NO	10:00	11:00 5/12/14	pH < 2
813326(1-3)	↓	↓	↓	↓	↓	↓	↓	↓
813327(10-16)	↓	↓	↓	↓	↓	↓	↓	↓
813324(1-2)	↓	↓	↓	↓	↓	↓	↓	↓
813349(1-2,4)	↓	↓	↓	↓	↓	↓	↓	↓
813350(1-4)	↓	↓	↓	↓	↓	↓	↓	↓
813315(1-2)	<1	7.2	5/12/14	ES	yes	10:00		TOTAL
-2	↓	↓	↓	↓	↓	↓		Filtered then
813316(1-2)	↓	↓	↓	↓	↓	↓		acidified
813383(1-2)	<1	<2	5/14/14	ES	yes			-1 TU > 1
813384	>1	↓	↓	↓	↓			
813394-4	<1	↓	↓	↓	↓			
813395	↓	↓	↓	↓	↓			
813407	↓	↓	↓	↓	↓			
813416	↓	↓	↓	↓	↓			
813417	↓	↓	↓	↓	↓			
813418	>1	↓	↓	↓	↓			
813419	↓	↓	↓	↓	↓			
813390(1-2,4)	<1	7.2	↓	↓	no	10:00		
813406	↓	↓	↓	↓	↓	↓		
813434(1,2)	>1	<2	5/5/14	ES	YES			
813443	>1	<2	↓	↓	↓			
813415	<1	7.2	5/19/14	ES	Yes	11:00		pH < 2
813429(10-12)	↓	↓	↓	↓	NO	11:00		
813442(1-2)	↓	↓	↓	↓	↓	↓		
813445(1-2)	↓	↓	↓	↓	↓	↓		
813434(1-2)	>1	↓	↓	↓	Yes			
813444	<1	↓	↓	↓	↓			
813456	↓	↓	↓	↓	↓			
813474	↓	<	5/19/14	ES	Yes			
813475	↓	↓	↓	↓	↓			
813482(1-2)	>1	<2	5/20/14	ES	Yes			
813489	<1	<2	5/21/14	ES	Yes			
813490	↓	↓	↓	↓	↓			
813491	↓	↓	↓	↓	↓			
813492	↓	↓	↓	↓	↓			
813493	↓	↓	↓	↓	↓			
813516	↓	↓	↓	↓	↓			

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.



Sample Integrity & Analysis Discrepancy Form

Client: E 2

Lab # 813415

Date Delivered: 5/13/14 Time: 19:15 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. 2 °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 = Hel. e. e. 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: Linda

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

June 3, 2014

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

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK IM3PLANT-WDR-468 PROJECT, GROUNDWATER MONITORING, TLI NO.: 813517


Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-468 project groundwater monitoring for Hexavalent and Total Chromium, Total Manganese, Turbidity, Specific Conductivity, and Total Dissolved Solids. 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 have been included under Section 5.


The samples were received and delivered with the chain of custody on May 20, 2014, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

No violations or nonconformance actions occurred for this data package.

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

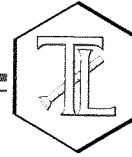
Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.


for Mona Nassimi
Manager, Analytical Services


Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.

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

Attention: Shawn Duffy

Sample: One (1) Groundwater Sample

Project Name: PG&E Topock Project

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

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TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462
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Laboratory No.: 813517

Date: June 3, 2014

Collected: May 20, 2014

Received: May 20, 2014

ANALYST LIST

METHOD	PARAMETER	ANALYST
EPA 120.1	Specific Conductivity	Jenny Tankunakorn
SM 2540C	Total Dissolved Solids	Jenny Tankunakorn
SM 2130B	Turbidity	Jennine Ta
EPA 200.8	Total Metals	Ethel Suico
EPA 218.6	Hexavalent Chromium	Naheed Eidinejad



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

Project Name: PG&E Topock Project
Project No.: 428648.IM.CS.EX.AC
P.O. No.: PGEIM1111001

Laboratory No.: 813517
Date Received: May 20, 2014

Analytical Results Summary

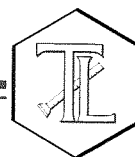
Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
813517-001	SC-700B-WDR-468	E120.1	NONE	5/20/2014	14:50	EC	7640	umhos/cm	2.00
813517-001	SC-700B-WDR-468	E200.8	NONE	5/20/2014	14:50	Chromium	ND	ug/L	1.0
813517-001	SC-700B-WDR-468	E200.8	NONE	5/20/2014	14:50	Manganese	4.1	ug/L	0.50
813517-001	SC-700B-WDR-468	E218.6	LABFLT	5/20/2014	14:50	Chromium, Hexavalent	0.35	ug/L	0.20
813517-001	SC-700B-WDR-468	SM2130B	NONE	5/20/2014	14:50	Turbidity	0.125	NTU	0.100
813517-001	SC-700B-WDR-468	SM2540C	NONE	5/20/2014	14:50	Total Dissolved Solids	4210	mg/L	250

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.

TRUESDAIL LABORATORIES, INC.

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REPORT

Client: E2 Consulting Engineers, Inc.

155 Grand Avenue, Suite 800

Oakland, CA 94612

Attention: Shawn Duffy

Project Name: PG&E Topock Project

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

P.O. Number: PGEIM11111001

Release Number:

Laboratory No. 813517

Page 1 of 6

Printed 6/3/2014

Samples Received on 5/20/2014 8:45:00 PM

Field ID	Lab ID	Collected	Matrix
SC-700B-WDR-468	813517-001	05/20/2014 14:50	Water

Specific Conductivity - EPA 120.1

Batch 05EC14D

Parameter	Unit	Analyzed	DF	MDL	RL	Result
813517-001 Specific Conductivity	umhos/cm	05/22/2014	1.00	0.606	2.00	7640

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate

Lab ID = 813518-009

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	686	691	0.726	0 - 10

Lab Control Sample

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

MRCSS - Secondary

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

MRCVS - Primary

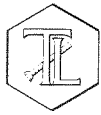
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	1010	1000	101	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	1010	1000	101	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.

009



Client: E2 Consulting Engineers, Inc.

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

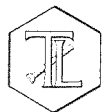
Page 2 of 6
Printed 6/3/2014

Chrome VI by EPA 218.6

Batch 05CrH14 G

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Rows include 813517-001 Chromium, Hexavalent, Method Blank, Duplicate, Low Level Calibration Verification, Lab Control Sample, Matrix Spike, MRCCS - Secondary, and MRCVS - Primary.

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



Client: E2 Consulting Engineers, Inc.

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

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Metals by EPA 200.8, Total

Batch 052714A

Table with 7 columns: Parameter, Unit, Analyzed, DF, MDL, RL, Result. Rows include Chromium and Manganese with values like ug/L, 05/27/2014 17:25, 1.00, 0.0710, 1.0, ND.

Method Blank

Table with 4 columns: Parameter, Unit, DF, Result. Rows for Chromium and Manganese, both showing ND results.

Duplicate

Lab ID = 813555-001

Table with 7 columns: Parameter, Unit, DF, Result, Expected, RPD, Acceptance Range. Rows for Chromium and Manganese with numerical values.

Low Level Calibration Verification

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Rows for Chromium and Manganese.

Lab Control Sample

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Rows for Chromium and Manganese.

Matrix Spike

Lab ID = 813555-001

Table with 7 columns: Parameter, Unit, DF, Result, Expected/Added, Recovery, Acceptance Range. Rows for Chromium and Manganese.

Matrix Spike Duplicate

Lab ID = 813555-001

Table with 7 columns: Parameter, Unit, DF, Result, Expected/Added, Recovery, Acceptance Range. Row for Chromium.

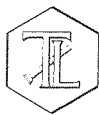
MRCCS - Secondary

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Rows for Chromium and Manganese.

MRCVS - Primary

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Row for Chromium.

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Client: E2 Consulting Engineers, Inc.

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

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Interference Check Standard AB

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Row 1: Chromium, ug/L, 1.00, 19.9, 20.0, 99.4, 80 - 120

Interference Check Standard AB

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Row 1: Manganese, ug/L, 1.00, 18.9, 20.0, 94.7, 80 - 120

Interference Check Standard AB

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Row 1: Manganese, ug/L, 1.00, 20.1, 20.0, 101, 80 - 120

Serial Dilution

Lab ID = 813555-001

Table with 7 columns: Parameter, Unit, DF, Result, Expected, RPD, Acceptance Range. Rows: Chromium (10.0 DF, 96.4 Result, 91.9 Expected, 4.76 RPD, 0-10 Range), Manganese (500 DF, 1970 Result, 1830 Expected, 7.21 RPD, 0-10 Range)

Total Dissolved Solids by SM 2540 C

Batch 05TDS14D

Table with 7 columns: Parameter, Unit, Analyzed, DF, MDL, RL, Result. Row 1: 813517-001 Total Dissolved Solids, mg/L, 05/22/2014, 1.00, 1.76, 250, 4210

Method Blank

Table with 4 columns: Parameter, Unit, DF, Result. Row 1: Total Dissolved Solids, mg/L, 1.00, ND

Duplicate

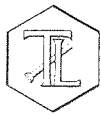
Lab ID = 813517-001

Table with 7 columns: Parameter, Unit, DF, Result, Expected, RPD, Acceptance Range. Row 1: Total Dissolved Solids, mg/L, 1.00, 4210, 4210, 0, 0 - 10

Lab Control Sample

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Row 1: Total Dissolved Solids, mg/L, 1.00, 503, 500, 101, 90 - 110

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



Client: E2 Consulting Engineers, Inc.

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

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Turbidity by SM 2130 B

Batch 05TUB14M

Parameter	Unit	Analyzed	DF	MDL	RL	Result
813517-001 Turbidity	NTU	05/21/2014	1.00	0.0140	0.100	0.125

Method Blank

Parameter	Unit	DF	Result
Turbidity	NTU	1.00	ND

Duplicate

Lab ID = 813495-023

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Turbidity	NTU	1.00	ND	0	0	0 - 20


Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	8.68	8.00	108	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	8.51	8.00	106	90 - 110

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.


for - Mona Nassimi
Manager, Analytical Services



Total Dissolved Solids by SM 2540 C

Calculations

Batch: 05TDS14D
Date Analyzed: 5/22/2014

Laboratory Number	Sample volume, mL	Initial weight, g	1st Final weight, g	2nd Final weight, g	Weight Difference, g	Exceeds 0.5mg? Yes/No	Residue weight, g	Filterable residue, ppm	RL, ppm	Reported Value, ppm	DF
Blank	100	72.4799	72.4810	72.4806	0.0004	No	0.0007	7.0	25.0	ND	1
813445-1	100	78.7934	78.8259	78.8257	0.0002	No	0.0323	323.0	25.0	323.0	1
813445-2	100	72.7584	72.7915	72.7911	0.0004	No	0.0327	327.0	25.0	327.0	1
813517	10	30.3852	30.4277	30.4273	0.0004	No	0.0421	4210.0	250.0	4210.0	1
QC9053-51	100	80.8574	80.9047	80.9047	0.0000	No	0.0473	473.0	25.0	473.0	1
QC9053-51	100	69.7614	69.8079	69.8079	0.0000	No	0.0465	465.0	25.0	465.0	1
PE9056-51	100	77.4787	77.5179	77.5179	0.0000	No	0.0392	392.0	25.0	392.0	1
PE9056-51	100	71.2977	71.3373	71.3369	0.0004	No	0.0392	392.0	25.0	392.0	1
QC9051-67	100	74.2178	74.2558	74.2554	0.0004	No	0.0376	376.0	25.0	376.0	1
QC9051-67	100	78.2414	78.2785	78.2785	0.0000	No	0.0371	371.0	25.0	371.0	1
PE9056-67	100	74.8856	74.9302	74.9302	0.0000	No	0.0446	446.0	25.0	446.0	1
813517 Dup	10	28.9677	29.0100	29.0098	0.0002	No	0.0421	4210.0	250.0	4210.0	1
LCS	100	79.7970	79.8473	79.8473	0.0000	No	0.0503	503.0	25.0	503.0	1
PE9056-67	100	75.1517	75.1964	75.1964	0.0000	No	0.0447	447.0	25.0	447.0	1
14E075-01	100	69.1827	69.2327	69.2326	0.0001	No	0.0499	499.0	25.0	499.0	1
14E075-02	100	74.6957	74.7454	74.7452	0.0002	No	0.0495	495.0	25.0	495.0	1
14E121-01	100	74.5076	74.5601	74.5600	0.0001	No	0.0524	524.0	25.0	524.0	1
14E121-02	100	74.0346	74.0854	74.0850	0.0004	No	0.0504	504.0	25.0	504.0	1
14E122-01	100	66.8770	66.9272	66.9272	0.0000	No	0.0502	502.0	25.0	502.0	1
14E122-02	100	70.3793	70.4284	70.4284	0.0000	No	0.0491	491.0	25.0	491.0	1
14E122-03	100	76.6603	76.7125	76.7124	0.0001	No	0.0521	521.0	25.0	521.0	1
14E122-04	100	75.2604	75.3136	75.3136	0.0000	No	0.0532	532.0	25.0	532.0	1
14E125-01	3	29.5841	29.6538	29.6538	0.0000	No	0.0697	23233.3	833.3	23233.3	1
14E125-01 Dup	3	28.8323	28.9009	28.9008	0.0001	No	0.0685	22833.3	833.3	22833.3	1

Calculation as follows:

Filterable residue (TDS), mg/L =

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

Where:

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

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

Laboratory Control Sample (LCS) Summary

QC Std I.D.	Measured Value, ppm	Theoretical Value, ppm	Percent Rec	Acceptance Limit	QC Within Control?
LCS	503.0	500	100.6%	90-110%	Yes
LCSD					

LCS Recovery

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

P = Percent recovery.
LC = Measured LCS value (ppm).
LT = Theoretical LCS value (ppm).

Duplicate Determinations Difference Summary

Lab Number	Sample Weight, g	Sample Dup Weight, g	% RPD	Acceptance Limit	QC Within Control?
813517	0.0421	0.0421	0.0%	≤5%	Yes
14E125-01	0.0697	0.0685	0.9%	≤5%	Yes

Duplicate Determination Difference

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

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

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

Jenny T.

Analyst Printed Name

Analyst Signature

Maksim G.

Reviewer Printed Name

Reviewer Signature

Total Dissolved Solids by SM 2540 C

TDS/EC CHECK

Batch: 05TDS14D
Date Analyzed: 5/22/2014

Laboratory Number	EC	TDS/EC Ratio: 0.55-0.90	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
813445-1	557	0.58	362.05	0.89
813445-2	556	0.59	361.4	0.90
813517	7640	0.55	4966	0.85
QC9053-51	704	0.67	457.6	1.03
QC9053-51	704	0.66	457.6	1.02
PE9056-51	644	0.61	418.6	0.94
PE9056-51	644	0.61	418.6	0.94
QC9051-67	561	0.67	364.65	1.03
QC9051-67	561	0.66	364.65	1.02
PE9056-67	688	0.65	447.2	1.00
813517 Dup	7640	0.55	4966	0.85
LCS				
PE9056-67	688	0.65	447.2	1.00
14E075-01	908	0.55	590.2	0.85
14E075-02	869	0.57	564.85	0.88
14E121-01	960	0.55	624	0.84
14E121-02	888	0.57	577.2	0.87
14E122-01	899	0.56	584.35	0.86
14E122-02	895	0.55	581.75	0.84
14E122-03	896	0.58	582.4	0.89
14E122-04	895	0.59	581.75	0.91
14E125-01	35300	0.66	22945	1.01
14E125-01 Dup	35300	0.65	22945	1.00

J
Me



Advanced Technology Laboratories
 3151 W. Post Road, Las Vegas, NV 89118
 (702) 307-2659 FAX: (702) 307-2691

813517

CHAIN OF CUSTODY RECORD

[IM3Plant-WDR-468]

Rec'd 05/20/14

COC Number **SAB 13517**

TURNAROUND TIME 10 Days

DATE 05/20/14

PAGE 1 OF 1

COMPANY	CH2M HILL	DATE		05/20/14	TIME	14:50	DESCRIPTION	Water
PROJECT NAME	PG&E Topock	SAMPLERS (SIGNATURE)		TEAM		1		
PHONE	(530) 229-3303 FAX (530) 339-3303	P.O. NUMBER		428648.IM.CS.EX.AC				
ADDRESS	155 Grand Ave Ste 1000 Oakland, CA 94612	SAMPLERS (SIGNATURE)		TEAM		1		
SAMPLE I.D.		SC-700B-WDR-468	DATE	05/20/14	TIME	14:50	DESCRIPTION	Water
C6 (218.6) Lab Filtered		X	Total Metals (EPA 200.8) Cr, Mn	X	X	X	X	X
Specific Conductance (120.1)		X	TDS (SM2540C)	X	X	X	X	X
Turbidity (SM2130)		X						
NUMBER OF CONTAINERS		3	PH# 7 (200, 8)					
TOTAL NUMBER OF CONTAINERS		3						
COMMENTS								

Please Provide a preliminary Result for the TDS ASAP

**ALERT!!
Level III QC**

For Sample Conditions
See Form Attached


CHAIN OF CUSTODY SIGNATURE RECORD				SAMPLE CONDITIONS	
Signature (Relinquished)	Printed Name	Company/ Agency	Date/ Time	RECEIVED	COOL <input checked="" type="checkbox"/> WARM <input type="checkbox"/>
	Chris Lane	Ch2M Hill	5-20-14 15:40	CUSTODY SEALED	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>
Signature (Received)	Printed Name	Company/ Agency	Date/ Time	SPECIAL REQUIREMENTS:	
	Lea Brady	PG&E	5-20-14 15:40		
Signature (Relinquished)	Printed Name	Company/ Agency	Date/ Time		
	Lea Brady	PG&E	5-20-14 8:45		
Signature (Received)	Printed Name	Company/ Agency	Date/ Time		
	Yand M. B...	PG&E	5/20/14 20:45		
Signature (Relinquished)	Printed Name	Company/ Agency	Date/ Time		
	Yand M. B...	PG&E	5/20/14 20:45		
Signature (Received)	Printed Name	Company/ Agency	Date/ Time		
	Yand M. B...	PG&E	5/20/14 20:45		

4.2 °C

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
3/26/14	812753	7.00	2ml / 100ml	9.5	7:30	NE
4/9/14	812966-1	7.00	2ml / 100ml	9.5	7:20	NE
	-2	↓	↓	↓	↓	↓
	-3	↓	↓	↓	↓	↓
	812967-1	9.5	N/A	N/A	N/A	
	-2	↓	↓	↓	↓	↓
	-3	↓	↓	↓	↓	↓
	-4	↓	↓	↓	↓	↓
	-5	↓	↓	↓	↓	↓
	-6	↓	↓	↓	↓	↓
	-7	↓	↓	↓	↓	↓
	-8	↓	↓	↓	↓	↓
	-9	↓	↓	↓	↓	↓
	-10	↓	↓	↓	↓	↓
	-11	↓	↓	↓	↓	↓
	-12	↓	↓	↓	↓	↓
	-13	↓	↓	↓	↓	↓
	-14	↓	↓	↓	↓	↓
	-15	↓	↓	↓	↓	↓
	812968 (slog)	↓	↓	↓	↓	↓
	812969-1	7.00	2ml / 100ml	9.5	7:20	NE
↓	-2	↓	↓	↓	↓	↓
4/16/14	813068	7.00	2ml / 100ml	9.5	7:40	NE
4/23/14	813140	7.00	2ml / 100ml	9.5	7:30	NE
4/30/14	813212	7.00	2ml / 100ml	9.5	7:30	NE
5/7/14	813315-1	7.00	2ml / 100ml	9.5	11:45	NE
	-2	↓	↓	↓	↓	↓
	813316-1	↓	↓	↓	↓	↓
↓	-2	↓	↓	↓	↓	↓
5/14/14	813415	7.00	2ml / 100ml	9.5	7:30	NE
5/20/14	813517	↓	↓	↓	7:40	NE



 NE
 5/27/14



Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest (Y/N)	Time of Adjustment to pH 2	Date/Time of 2nd pH check	Comments
813517	<1	7.2	5/22/14	ES	Yes	1:00		pH < 2
813555 (1-8)	↓	4.2	↓	↓	Yes			-7.8 THT
813508 (1-2,4)	<1	7.2	5/23/14	ES	No	9:30		
813512 (1-3)	↓	↓	↓	↓	↓	↓		
813543 (10-12)	↓	↓	↓	↓	↓	↓		
813553	>1	<2	↓	↓	Yes			
813544 (1-2)	<1	7.2	↓	↓	Yes	9:10		
813552 (1-2)	>1	<2	↓	↓	Yes			
813623	>1	<2	5/29/14	MS	Yes			
813624	>1	<2	↓	↓	↓			
813627	>1	<2	↓	↓	↓			
813628	>1	<2	↓	↓	↓			
813629	>1	<2	↓	↓	↓			
813630	>1	<2	↓	↓	↓			
813647	>1	<2	↓	↓	↓			
813651	>1	<2	↓	↓	↓			
813652	>1	<2	↓	↓	↓			
813618	<1	>2	5/29/14	MS	Yes	12:20		CHEM
813568 (1-5)	>1	<2	↓	↓	↓			CHEM Carbon
813557 (1,2)	-	-	5/30/14	MS	Yes			Solid
813473 (1-3)	-	-	↓	↓	↓			↓
813576	-	-	↓	↓	↓			↓

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.



Sample Integrity & Analysis Discrepancy Form

Client: E2

Lab # 813517

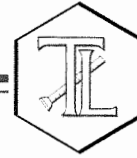
Date Delivered: 05/20/14 Time: 10:45 By: Mail Field Service Client

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)? 4.2 °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 = all 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: Linda

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

June 17, 2014

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

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK IM3PLANT-WDR-469 PROJECT, GROUNDWATER
MONITORING, TLI NO.: 813618

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-469 project groundwater monitoring for Hexavalent and Total Chromium, Total Manganese, Turbidity, Specific Conductivity, and Total Dissolved Solids. 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 have been included under Section 5.

The samples were received and delivered with the chain of custody on May 27, 2014, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.


Sample SC-700B-WDR-469 was analyzed as sample I.D. 813618 or 14E0176 in the raw data but is reported as 813618 in all final report pages.

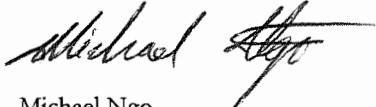
The straight run for sample SC-700B-WDR-469 for Hexavalent Chromium analysis by EPA 218.6 was just outside the retention time window. Because the matrix spike recovery and all other QA/QC were within acceptable limits, the data from the straight run was reported.

No other violations or nonconformance 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.


f.s. 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: One (1) Groundwater Sample

Project Name: PG&E Topock Project

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

Laboratory No.: 813618

Date: June 17, 2014

Collected: May 27, 2014

Received: May 27, 2014

ANALYST LIST

METHOD	PARAMETER	ANALYST
EPA 120.1	Specific Conductivity	Jenny Tankunakorn
SM 2540C	Total Dissolved Solids	Jenny Tankunakorn
SM 2130B	Turbidity	Jennine Ta
EPA 200.8	Total Metals	Ethel Suico
EPA 218.6	Hexavalent Chromium	Naheed Eidinejad



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

Attention: Shawn Duffy

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

Laboratory No.: 813618
Date Received: May 27, 2014

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
813618-001	SC-700B-WDR-469	E120.1	NONE	5/27/2014	10:00	EC	7170	umhos/cm	2.00
813618-001	SC-700B-WDR-469	E200.8	NONE	5/27/2014	10:00	Chromium	ND	ug/L	1.0
813618-001	SC-700B-WDR-469	E200.8	NONE	5/27/2014	10:00	Manganese	1.5	ug/L	0.50
813618-001	SC-700B-WDR-469	E218.6	LABFLT	5/27/2014	10:00	Chromium, Hexavalent	0.21	ug/L	0.20
813618-001	SC-700B-WDR-469	SM2130B	NONE	5/27/2014	10:00	Turbidity	ND	NTU	0.100
813618-001	SC-700B-WDR-469	SM2540C	NONE	5/27/2014	10:00	Total Dissolved Solids	4340	mg/L	250

ND: Non Detected (below reporting limit)

mg/L: Milligrams per liter.

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

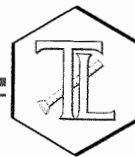
Results below 0.01ppm will have two (2) significant figures.

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: 428648.IM.CS.EX.AC

P.O. Number: PGEIM11111001

Release Number:

Laboratory No. 813618

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Printed 6/17/2014

Samples Received on 5/27/2014 7:10:00 PM

Field ID	Lab ID	Collected	Matrix
SC-700B-WDR-469	813618-001	05/27/2014 10:00	Water

Specific Conductivity - EPA 120.1

Batch 05EC14E

Parameter	Unit	Analyzed	DF	MDL	RL	Result
813618-001 Specific Conductivity	umhos/cm	05/27/2014	1.00	0.606	2.00	7170

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate

Lab ID = 813548-004

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	895	895	0	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	738	706	104	90 - 110

MRCSS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	738	706	104	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	998	1000	99.8	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	993	1000	99.3	90 - 110

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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

Printed 6/17/2014

Chrome VI by EPA 218.6		Batch 1406028				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
813618-001 Chromium, Hexavalent	ug/L	06/04/2014 12:00	1.00	0.00600	0.20	0.21
Method Blank						
Parameter	Unit	DF	Result			
Chromium, Hexavalent	ug/L	1.00	ND			
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	5.02	5.00	100	90 - 110
Matrix Spike Lab ID = 813618-001						
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.26	5.22(5.00)	101	90 - 110
Matrix Spike Lab ID = 813618-001						
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.27	1.21(1.00)	106	90 - 110
MRCSS - Secondary						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.99	5.00	99.8	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

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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

Printed 6/17/2014

Metals by EPA 200.8, Total		Batch 053014A				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
813618-001 Chromium	ug/L	05/30/2014 16:50	1.00	0.0710	1.0	ND
Manganese	ug/L	05/30/2014 16:50	1.00	0.0600	0.50	1.5

Method Blank

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

Duplicate

Lab ID = 813568-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	10.0	244	239	2.16	0 - 20
Manganese	ug/L	2.00	ND	0	0	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.230	0.200	115	70 - 130
Manganese	ug/L	1.00	0.542	0.500	108	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	47.9	50.0	95.7	85 - 115
Manganese	ug/L	1.00	47.3	50.0	94.7	85 - 115

Matrix Spike

Lab ID = 813568-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	10.0	692	739(500)	90.5	75 - 125
Manganese	ug/L	2.00	45.8	50.0(50.0)	91.7	75 - 125

Matrix Spike Duplicate

Lab ID = 813568-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Manganese	ug/L	2.00	46.9	50.0(50.0)	93.9	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.8	20.0	99.0	90 - 110
Manganese	ug/L	1.00	19.5	20.0	97.5	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

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Report Continued

Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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

Printed 6/17/2014

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	20.1	20.0	101	80 - 120

Total Dissolved Solids by SM 2540 C

Batch 05TDS14E

Parameter	Unit	Analyzed	DF	MDL	RL	Result
813618-001 Total Dissolved Solids	mg/L	05/27/2014	1.00	1.76	250	4340

Method Blank

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

Duplicate

Lab ID = 813518-003

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	109000	110000	1.00	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Dissolved Solids	mg/L	1.00	497	500	99.4	90 - 110

Turbidity by SM 2130 B

Batch 05TUB14P

Parameter	Unit	Analyzed	DF	MDL	RL	Result
813618-001 Turbidity	NTU	05/28/2014	1.00	0.0140	0.100	ND

Method Blank

Parameter	Unit	DF	Result
Turbidity	NTU	1.00	ND

Duplicate

Lab ID = 813602-023

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Turbidity	NTU	1.00	ND	0	0	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	8.80	8.00	110	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	8.50	8.00	106	90 - 110

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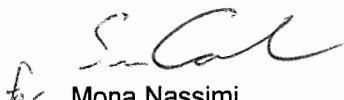


Client: E2 Consulting Engineers, Inc.

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

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Printed 6/17/2014

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.


Mona Nassimi
Manager, Analytical Services



Total Dissolved Solids by SM 2540 C

Calculations

Batch: 05TDS14E
Date Analyzed: 5/27/2014

Laboratory Number	Sample volume, mL	Initial weight, g	1st Final weight, g	2nd Final weight, g	Weight Difference, g	Exceeds 0.5mg? Yes/No	Residue weight, g	Filterable residue, ppm	RL, ppm	Reported Value, ppm	DF
Blank	100	69.4842	69.4852	69.4852	0.0000	No	0.0010	10.0	25.0	ND	1
813518-1	0.5	29.4835	29.6758	29.6757	0.0001	No	0.1922	384400.0	5000.0	384400.0	1
813518-2	2	28.7551	28.8390	28.8389	0.0001	No	0.0838	41900.0	1250.0	41900.0	1
813518-3	1	29.3560	29.4665	29.4664	0.0001	No	0.1104	110400.0	2500.0	110400.0	1
813518-4	0.5	29.3259	29.4267	29.4265	0.0002	No	0.1006	201200.0	5000.0	201200.0	1
813518-5	100	76.0252	76.1032	76.1031	0.0001	No	0.0779	779.0	25.0	779.0	1
813518-6	50	58.9425	58.9874	58.9870	0.0004	No	0.0445	890.0	50.0	890.0	1
813518-7	50	60.0624	60.0964	60.0961	0.0003	No	0.0337	674.0	50.0	674.0	1
813518-8	50	51.3346	51.3886	51.3882	0.0004	No	0.0536	1072.0	50.0	1072.0	1
813518-9	100	77.7687	77.8138	77.8137	0.0001	No	0.0450	450.0	25.0	450.0	1
813518-10	100	67.8053	67.8612	67.8609	0.0003	No	0.0556	556.0	25.0	556.0	1
813518-3 Dup	1	29.4769	29.5858	29.5858	0.0000	No	0.1089	108900.0	2500.0	108900.0	1
LCS	100	76.5285	76.5785	76.5782	0.0003	No	0.0497	497.0	25.0	497.0	1
813518-11	50	62.6251	62.6602	62.6600	0.0002	No	0.0349	698.0	50.0	698.0	1
813518-12	50	49.1109	49.1625	49.1624	0.0001	No	0.0515	1030.0	50.0	1030.0	1
14E0172-01	100	77.1107	77.1591	77.1591	0.0000	No	0.0484	484.0	25.0	484.0	1
14E0172-02	100	77.0659	77.1172	77.1172	0.0000	No	0.0513	513.0	25.0	513.0	1
14E0176-01/ 313018-1	10	29.3290	29.3727	29.3724	0.0003	No	0.0434	4340.0	250.0	4340.0	1
14E0172-01 Dup	100	50.7205	50.7707	50.7705	0.0002	No	0.0500	500.0	25.0	500.0	1

Calculation as follows:

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

Where:

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

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

Laboratory Control Sample (LCS) Summary

QC Std I.D.	Measured Value, ppm	Theoretical Value, ppm	Percent Rec	Acceptance Limit	QC Within Control?
LCS	497.0	500	99.4%	90-110%	Yes
LCSD					

LCS Recovery

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

P = Percent recovery.

LC = Measured LCS value (ppm).

LT = Theoretical LCS value (ppm).

Duplicate Determinations Difference Summary

Lab Number	Sample Weight, g	Sample Dup Weight, g	% RPD	Acceptance Limit	QC Within Control?
813518-3	0.1104	0.1089	0.7%	≤5%	Yes
14E0172-01	0.0484	0.0500	1.6%	≤5%	Yes

Duplicate Determination Difference

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

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

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

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

C = Average weight in (g).

Jenny T.

Analyst Printed Name

Analyst Signature

Maksim G.

Reviewer Printed Name

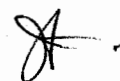
Reviewer Signature

Total Dissolved Solids by SM 2540 C

TDS/EC CHECK

Batch: 05TDS14E
Date Analyzed: 5/27/2014

Laboratory Number	EC	TDS/EC Ratio: 0.55-0.90	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
813518-1	169900	2.26	110435	3.48
813518-2	48500	0.86	31525	1.33
813518-3	109300	1.01	71045	1.55
813518-4	153600	1.31	99840	2.02
813518-5	928	0.84	603.2	1.29
813518-6	1189	0.75	772.85	1.15
813518-7	1004	0.67	652.6	1.03
813518-8	1645	0.65	1069.25	1.00
813518-9	691	0.65	449.15	1.00
813518-10	924	0.60	600.6	0.93
813518-3 Dup	109300	1.00	71045	1.53
LCS				
813518-11	1198	0.58	778.7	0.90
813518-12	1633	0.63	1061.45	0.97
14E0172-01	869	0.56	564.85	0.86
14E0172-02	843	0.61	547.95	0.94
14E0176-01/ 817619-1	7170	0.61	4660.5	0.93
14E0172-01 Dup	843	0.59	547.95	0.91






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CHAIN OF CUSTODY RECORD **19E0176/**
813618

COC Number
 TURNAROUND TIME 10 Days
 DATE 05/27/14 PAGE 1 OF 1

COMPANY <u>E2</u>				Cr6 (218.6) Lab Filtered Total Metals (200.8) Cr, Mn Specific Conductance (120.1) TDS (SM2540C) Turbidity (SM2130) NUMBER OF CONTAINERS										COMMENTS
PROJECT NAME <u>PG&E Topock</u>														
PHONE <u>(530) 229-3303</u>		FAX <u>(530) 339-3303</u>												
ADDRESS <u>155 Grand Ave Ste 1000</u> <u>Oakland, CA 94612</u>														
P.O. NUMBER <u>428648.IM.CS.EX.AC</u>		TEAM <u>1</u>												
SAMPLERS (SIGNATURE)														
SAMPLE I.D.	DATE	TIME	DESCRIPTION	Cr6	Total Metals	Specific Conductance	TDS	Turbidity				NUMBER OF CONTAINERS	COMMENTS	
SC-700B-WDR-469	05/27/14	10:00	Water	x	x	x	x	x				3	pH = 6 (200.9)	
												3	TOTAL NUMBER OF CONTAINERS	

Please Provide a preliminary Result for the TDS ASAP

ALERT !!
Level III QC

For Sample Conditions
 See Form Attached

Rec'd 05/27/14
 S2c 813618

CHAIN OF CUSTODY SIGNATURE RECORD					SAMPLE CONDITIONS	
Signature (Relinquished)	Printed Name <u>Tom P. [unclear]</u>	Company/ Agency <u>OMI</u>	Date/ Time <u>5-27-14 1515</u>	RECEIVED	COOL <input checked="" type="checkbox"/>	WARM <input type="checkbox"/> <u>4.1°C</u> °F
Signature (Received)	Printed Name <u>TRUESDAIL</u>	Company/ Agency <u>TRUESDAIL</u>	Date/ Time <u>5-27-14 1515</u>	CUSTODY SEALED	YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>
Signature (Relinquished)	Printed Name <u>THANH NGO</u>	Company/ Agency	Date/ Time <u>5-27-14 1910</u>	SPECIAL REQUIREMENTS:		
Signature (Received)	Printed Name <u>Leo Brady</u>	Company/ Agency <u>TLB</u>	Date/ Time <u>5-27-14 1910</u>			
Signature (Relinquished)	Printed Name	Company/ Agency	Date/ Time			
Signature (Received)	Printed Name	Company/ Agency	Date/ Time			

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
5/20/14	813518-1	7.00	15 ml / 25 ml	9.5	17:00	NE
	-2	↓	↓	↓	↓	↓
	-3	↓	↓	↓	↓	↓
	-4	↓	↓	↓	↓	↓
	-5	7.00	1 ml / 50 ml	9.5	16:30	NE
	-6	↓	↓	↓	↓	↓
	-7	↓	↓	↓	↓	↓
	-8	↓	↓	↓	↓	↓
	-9	↓	↓	↓	↓	↓
	-10	↓	↓	↓	↓	↓
	-11	↓	↓	↓	↓	↓
↓	↓ -12	↓	↓	↓	↓	↓
5/21/14	813555-1	7.00	1 ml / 50 ml	9.5	17:30	NE
	-2	↓	↓	↓	↓	↓
	-3	↓	↓	↓	↓	↓
	-4	↓	↓	↓	↓	↓
	-5	↓	↓	↓	↓	↓
	-6	↓	↓	↓	↓	↓
	-7	↓	↓	↓	↓	↓
↓	↓ -8	↓	↓	↓	↓	↓
5/22/14	813568-1	7.00	1 ml / 50 ml	9.5	17:30	NE
	-2	↓	↓	↓	↓	↓
	-3	↓	↓	↓	↓	↓
	-4	↓	↓	↓	↓	↓
↓	↓ -5	↓	↓	↓	↓	↓
5/28/14	813618	7.00	2 ml / 100 ml	9.5	7:45	NE



Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest (Y/N)	Time of Adjustment to pH 2	Date/Time of 2nd pH check	Comments
813517	<1	7.2	5/22/14	ES	Yes	1:00		pH < 2
813555 (1-8)	↓	7.2	↓	↓	Yes			-7.8 TWT
813508 (1-2,4)	<1	7.2	5/23/14	ES	No	9:30	5/26/14 10:00	pH < 2
813512 (1-3)	↓	↓	↓	↓	↓	↓	↓	↓
813543 (10-12)	↓	↓	↓	↓	↓	↓	↓	↓
813553	>1	<2	↓	↓	Yes			
813544 (1-2)	<1	7.2	↓	↓	Yes	9:40		
813552 (1-2)	>1	<2	↓	↓	Yes			
813623	>1	<2	5/29/14	ES	Yes			
813624	>1	<2	↓	↓	↓			
813627	>1	<2	↓	↓	↓			
813628	>1	<2	↓	↓	↓			
813629	>1	<2	↓	↓	↓			
813630	>1	<2	↓	↓	↓			
813647	>1	<2	↓	↓	↓			
813651	>1	<2	↓	↓	↓			
813652	>1	<2	↓	↓	↓			
813618	<1	>2	5/29/14	ES	Yes	12:20		CH2M
813568 (1-5)	>1	<2	↓	↓	↓			CH2M Cations
813557 (1,2)	-	-	5/30/14	ES	Yes			Solid
813575 (1-3)	-	-	↓	↓	↓			↓
813576	-	-	↓	↓	↓			↓
14F0030	>1	>2	6/4/14	ES	Yes	12:30		CH2M
14F0026 (1,2)	<1	>2	↓	↓	↓			
14F0004 (1,2)	>1	<2	↓	↓	↓			
14F0006	↓	↓	↓	↓	↓			
14F0007	↓	↓	↓	↓	↓			
14F0032	↓	↓	↓	↓	↓			
14F0033	↓	↓	↓	↓	↓			
14F0034	↓	↓	↓	↓	↓			
14F0035	↓	↓	↓	↓	↓			
14F0036	↓	↓	↓	↓	↓			
14F0044	↓	↓	↓	↓	↓			
14F0055	↓	↓	↓	↓	↓			
14F0056	↓	↓	↓	↓	↓			
14F0061	↓	↓	↓	↓	↓			
14F0075 (1-2)	<1	>2	6/10/14	ES	Yes	11:50		Filtered thru acidif. fgs
14F0076 - 2	↓	↓	↓	↓	↓	↓		↓
14F0070 (1-2)	>1	<2	6/10/14	ES	Yes			
14F0074	↓	↓	↓	↓	↓			
14F0075	↓	↓	↓	↓	↓			
14F0084	<1	↓	↓	↓	↓			
14F0090	>1	↓	↓	↓	↓			
14F0091	<1	↓	↓	↓	↓			

Notes:

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



Sample Integrity & Analysis Discrepancy Form

Client: E2

Lab # 813618

Date Delivered: 5/27/14 Time: 10:10 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 l.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: Luda

Analytical Bench Log Book

WDR pH Results

If the on site laboratory pH result for T-700 tank is less than pH 6.6 or greater than pH 8.3 the Injection well should be shut down until the problem is fixed.

Sample Name	Date of sampling	Time of sampling	Date of analysis	Time of analysis	pH Meter #1, #2, or #3 etc. See cover Sheet for Serial Number	Date pH meter Calibrated	Time pH meter Calibrated	Slope of the Curve	Analyst Name (for the pH result)	pH Result
-------------	------------------	------------------	------------------	------------------	---	--------------------------	--------------------------	--------------------	----------------------------------	-----------

Notes:

SC-700B	5-6-14	14:26	5-6-14	14:48	METER #2	5-6-14	0412	-53.2	SCOTT O'DONNELL	7.1
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Notes:

SC-100B	5-6-14	14:48	5-6-14	14:48	METER #2	5-6-14	0412	-53.2	SCOTT O'DONNELL	7.1
---------	--------	-------	--------	-------	----------	--------	------	-------	-----------------	-----

Notes:

SC-700B	5-13-14	1300	5-13-14	1305	METER #2	5-13-14	0414	-53.1	CHRIS LENTZ	7.0
---------	---------	------	---------	------	----------	---------	------	-------	-------------	-----

Notes:

SC-700B	5-20-14	1445	5-20-14	1450	METER #2	5-20-14	00:55	-53.4	CHRIS LENTZ	7.1
---------	---------	------	---------	------	----------	---------	-------	-------	-------------	-----

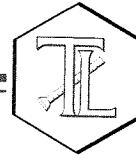
Notes:

8 SC-700B	5-22-14	10:00	5-22-14	10:05	METER #2	5-21-14	00:55	-54.1	HOW PHELPS	7.1
-----------	---------	-------	---------	-------	----------	---------	-------	-------	------------	-----

Reminder: WDR Required pH Range for the Effluent (SC-700B) is: 6.5 - 8.4

TRUESDAIL LABORATORIES, INC.

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

July 2, 2014

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

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK IM3PLANT-WDR-470 PROJECT, GROUNDWATER
MONITORING,
TLI NO.: 814026

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-470 project groundwater monitoring. 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 have been included under Section 5.

The samples were received and delivered with the chain of custody on June 3, 2014, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

Samples were analyzed and recorded in the raw data as SDG 14F0026 but are reported as SDG 814026 in all final report pages.

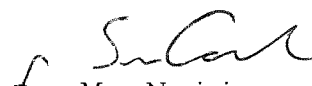
Total and Total Dissolved Metals were analyzed by EPA 200.8 and EPA 200.7 with Mr. Shawn Duffy's approval.

The straight runs for the sample and associated matrix spike on sample SC-700B-WDR-470 for Hexavalent Chromium analysis by EPA 218.6 were just outside the retention time window. Because the matrix spike recovery and all other QA/QC were within acceptable limits, the data from the straight run was reported.

No other violations or nonconformance actions occurred for this data package.

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

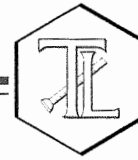
Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.


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) Groundwaters

Project Name: PG&E Topock Project

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

Laboratory No.: 814026

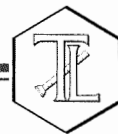
Date: June 30, 2014

Collected: June 6, 2014

Received: June 6, 2014

ANALYST LIST

METHOD	PARAMETER	ANALYST
EPA 120.1	Specific Conductivity	Jenny Tankunakorn
SM 2540C	Total Dissolved Solids	Jenny Tankunakorn
SM 2320B	Total Alkalinity	Alex Luna / Jennine Ta
SM 4500-Si D	Soluble Silica	Jenny Tankunakorn
SM 4500-P B,E	Total Phosphorus	Jenny Tankunakorn
SM 5310C	Total Organic Carbon	Jenny Tankunakorn
SM 2130B	Turbidity	Jennine Ta
EPA 300.0	Anions	Giawad Ghenniwa
SM 4500-NH3 D	Ammonia	Maksim Gorbunov
SM 4500-NO2 B	Nitrite as N	Jenny Tankunakorn
EPA 200.7	Metals by ICP	Ethel Suico
EPA 200.8	Metals by ICP/MS	Ethel Suico
EPA 218.6	Hexavalent Chromium	Naheed Eidinejad



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

Laboratory No.: 814026
Date Received: June 6, 2014

Attention: Shawn Duffy

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

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
814026-001	SC-700B-WDR-470	E120.1	NONE	6/3/2014	9:00	EC	7490	umhos/cm	2.00
814026-001	SC-700B-WDR-470	E200.7	NONE	6/3/2014	9:00	Aluminum	ND	ug/L	50.0
814026-001	SC-700B-WDR-470	E200.7	NONE	6/3/2014	9:00	BORON	970	ug/L	50.0
814026-001	SC-700B-WDR-470	E200.7	NONE	6/3/2014	9:00	Iron	ND	ug/L	20.0
814026-001	SC-700B-WDR-470	E200.7	NONE	6/3/2014	9:00	Zinc	ND	ug/L	20.0
814026-001	SC-700B-WDR-470	E200.8	NONE	6/3/2014	9:00	Antimony	ND	ug/L	2.0
814026-001	SC-700B-WDR-470	E200.8	NONE	6/3/2014	9:00	Arsenic	ND	ug/L	0.50
814026-001	SC-700B-WDR-470	E200.8	NONE	6/3/2014	9:00	Barium	10.0	ug/L	5.0
814026-001	SC-700B-WDR-470	E200.8	NONE	6/3/2014	9:00	Chromium	ND	ug/L	1.0
814026-001	SC-700B-WDR-470	E200.8	NONE	6/3/2014	9:00	Copper	ND	ug/L	1.0
814026-001	SC-700B-WDR-470	E200.8	NONE	6/3/2014	9:00	Lead	ND	ug/L	1.0
814026-001	SC-700B-WDR-470	E200.8	NONE	6/3/2014	9:00	Manganese	3.0	ug/L	0.50
814026-001	SC-700B-WDR-470	E200.8	NONE	6/3/2014	9:00	Molybdenum	19.9	ug/L	2.0
814026-001	SC-700B-WDR-470	E200.8	NONE	6/3/2014	9:00	Nickel	2.1	ug/L	2.0
814026-001	SC-700B-WDR-470	E218.6	LABFLT	6/3/2014	9:00	Chromium, Hexavalent	ND	ug/L	0.20
814026-001	SC-700B-WDR-470	E300	NONE	6/3/2014	9:00	Fluoride	2.13	mg/L	0.500
814026-001	SC-700B-WDR-470	E300	NONE	6/3/2014	9:00	Nitrate as N	2.68	mg/L	0.500
814026-001	SC-700B-WDR-470	E300	NONE	6/3/2014	9:00	Sulfate	506	mg/L	25.0
814026-001	SC-700B-WDR-470	SM2130B	NONE	6/3/2014	9:00	Turbidity	ND	NTU	0.100
814026-001	SC-700B-WDR-470	SM2540C	NONE	6/3/2014	9:00	Total Dissolved Solids	4360	mg/L	250
814026-001	SC-700B-WDR-470	SM4500NH3D	NONE	6/3/2014	9:00	Ammonia-N	ND	mg/L	0.500
814026-001	SC-700B-WDR-470	SM4500NO2B	NONE	6/3/2014	9:00	Nitrite as N	ND	mg/L	0.0050

005



Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
814026-002	SC-100B-WDR-470	E120.1	NONE	6/3/2014	9:00	EC	7380	umhos/cm	2.00
814026-002	SC-100B-WDR-470	E200.7	NONE	6/3/2014	9:00	Aluminum	ND	ug/L	50.0
814026-002	SC-100B-WDR-470	E200.7	NONE	6/3/2014	9:00	BORON	1010	ug/L	50.0
814026-002	SC-100B-WDR-470	E200.7	LABFLT	6/3/2014	9:00	Iron	ND	ug/L	20.0
814026-002	SC-100B-WDR-470	E200.7	NONE	6/3/2014	9:00	Iron	ND	ug/L	20.0
814026-002	SC-100B-WDR-470	E200.7	NONE	6/3/2014	9:00	Zinc	ND	ug/L	20.0
814026-002	SC-100B-WDR-470	E200.8	NONE	6/3/2014	9:00	Antimony	ND	ug/L	2.0
814026-002	SC-100B-WDR-470	E200.8	NONE	6/3/2014	9:00	Arsenic	3.9	ug/L	0.50
814026-002	SC-100B-WDR-470	E200.8	NONE	6/3/2014	9:00	Barium	24.4	ug/L	5.0
814026-002	SC-100B-WDR-470	E200.8	NONE	6/3/2014	9:00	Chromium	575	ug/L	2.0
814026-002	SC-100B-WDR-470	E200.8	NONE	6/3/2014	9:00	Copper	ND	ug/L	1.0
814026-002	SC-100B-WDR-470	E200.8	NONE	6/3/2014	9:00	Lead	ND	ug/L	1.0
814026-002	SC-100B-WDR-470	E200.8	LABFLT	6/3/2014	9:00	Manganese	6.4	ug/L	0.50
814026-002	SC-100B-WDR-470	E200.8	NONE	6/3/2014	9:00	Manganese	6.9	ug/L	0.50
814026-002	SC-100B-WDR-470	E200.8	NONE	6/3/2014	9:00	Molybdenum	19.8	ug/L	2.0
814026-002	SC-100B-WDR-470	E200.8	NONE	6/3/2014	9:00	Nickel	ND	ug/L	2.0
814026-002	SC-100B-WDR-470	E218.6	LABFLT	6/3/2014	9:00	Chromium, Hexavalent	516	ug/L	5.0
814026-002	SC-100B-WDR-470	E300	NONE	6/3/2014	9:00	Fluoride	2.41	mg/L	0.500
814026-002	SC-100B-WDR-470	E300	NONE	6/3/2014	9:00	Nitrate as N	2.60	mg/L	0.500
814026-002	SC-100B-WDR-470	E300	NONE	6/3/2014	9:00	Sulfate	513	mg/L	25.0
814026-002	SC-100B-WDR-470	SM2130B	NONE	6/3/2014	9:00	Turbidity	0.177	NTU	0.100
814026-002	SC-100B-WDR-470	SM2320B	NONE	6/3/2014	9:00	Alkalinity	170	mg/L	5.00
814026-002	SC-100B-WDR-470	SM2320B	NONE	6/3/2014	9:00	Alkalinity, Bicarbonate (As CaCO3)	170	mg/L	5.00
814026-002	SC-100B-WDR-470	SM2320B	NONE	6/3/2014	9:00	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
814026-002	SC-100B-WDR-470	SM2540C	NONE	6/3/2014	9:00	Total Dissolved Solids	4250	mg/L	250
814026-002	SC-100B-WDR-470	SM4500NH3D	NONE	6/3/2014	9:00	Ammonia-N	ND	mg/L	0.500
814026-002	SC-100B-WDR-470	SM4500NO2B	NONE	6/3/2014	9:00	Nitrite as N	ND	mg/L	0.0050
814026-002	SC-100B-WDR-470	SM4500-PB_E	NONE	6/3/2014	9:00	Total Phosphorous-P	ND	mg/L	0.0200
814026-002	SC-100B-WDR-470	SM4500SI	LABFLT	6/3/2014	9:00	Soluble Silica	21.2	mg/L	1.00
814026-002	SC-100B-WDR-470	SM5310C	NONE	6/3/2014	9:00	Total Organic Carbon	0.867	mg/L	0.300

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: 428648.IM.CS.EX.AC

P.O. Number: PGEIM11111001

Release Number:

Laboratory No. 814026

Page 1 of 35

Printed 7/2/2014

Samples Received on 6/3/2014 2:00:00 PM

Field ID	Lab ID	Collected	Matrix
SC-700B-WDR-470	814026-001	06/03/2014 09:00	Water
SC-100B-WDR-470	814026-002	06/03/2014 09:00	Water

Anions By I.C. - EPA 300.0

Batch 1406066

Parameter	Unit	Analyzed	DF	MDL	RL	Result
814026-001 Fluoride	mg/L	06/04/2014 13:17	5.00	0.104	0.500	2.13
Nitrate as Nitrogen	mg/L	06/04/2014 13:17	5.00	0.0415	0.500	2.68
Sulfate	mg/L	06/04/2014 14:06	50.0	1.54	25.0	506
814026-002 Fluoride	mg/L	06/04/2014 13:29	5.00	0.104	0.500	2.41
Nitrate as Nitrogen	mg/L	06/04/2014 13:29	5.00	0.0415	0.500	2.60
Sulfate	mg/L	06/04/2014 14:43	50.0	1.54	25.0	513

Method Blank

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

Duplicate

Lab ID = 814025-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chloride	mg/L	500	1080	1140	5.38	0 - 20

Duplicate

Lab ID = 814026-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Sulfate	mg/L	50.0	503	506	0.621	0 - 20

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

015



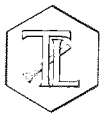
Client: E2 Consulting Engineers, Inc.

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

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Printed 7/2/2014

Duplicate							Lab ID = 814026-002
Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range	
Fluoride	mg/L	5.00	2.54	2.41	5.41	0 - 20	
Nitrate as Nitrogen	mg/L	5.00	2.57	2.60	1.20	0 - 20	
Lab Control Sample							
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range	
Chloride	mg/L	1.00	4.06	4.00	101	90 - 110	
Fluoride	mg/L	1.00	4.21	4.00	105	90 - 110	
Sulfate	mg/L	1.00	20.7	20.0	104	90 - 110	
Nitrate as Nitrogen	mg/L	1.00	4.06	4.00	102	90 - 110	
Matrix Spike							Lab ID = 814025-001
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range	
Chloride	mg/L	500	3190	3140(2000)	102	85 - 115	
Matrix Spike							Lab ID = 814026-001
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range	
Sulfate	mg/L	50.0	700	706(200)	97.2	85 - 115	
Matrix Spike							Lab ID = 814026-002
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range	
Fluoride	mg/L	5.00	22.9	22.4(20.0)	102	85 - 115	
Nitrate as Nitrogen	mg/L	5.00	22.8	22.6(20.0)	101	85 - 115	
MRCCS - Secondary							
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range	
Chloride	mg/L	1.00	4.00	4.00	100	90 - 110	
Fluoride	mg/L	1.00	4.22	4.00	105	90 - 110	
Sulfate	mg/L	1.00	20.5	20.0	102	90 - 110	
Nitrate as Nitrogen	mg/L	1.00	4.05	4.00	101	90 - 110	
MRCVS - Primary							
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range	
Chloride	mg/L	1.00	3.06	3.00	102	90 - 110	
MRCVS - Primary							
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range	
Chloride	mg/L	1.00	3.02	3.00	100	90 - 110	
Fluoride	mg/L	1.00	3.15	3.00	105	90 - 110	

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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

Printed 7/2/2014

Nitrite SM 4500-NO2 B		Batch 1406037				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
814026-001 Nitrite as Nitrogen	mg/L	06/04/2014 15:02	1.00	0.000630	0.0050	ND
814026-002 Nitrite as Nitrogen	mg/L	06/04/2014 15:07	1.00	0.000630	0.0050	ND
Method Blank						
Parameter	Unit	DF	Result			
Nitrite as Nitrogen	mg/L	1.00	ND			
Duplicate						Lab ID = 814026-001
Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Nitrite as Nitrogen	mg/L	1.00	ND	0	0	0 - 20
Lab Control Sample						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrite as Nitrogen	mg/L	1.00	0.0209	0.0230	90.9	90 - 110
Matrix Spike						Lab ID = 814026-001
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Nitrite as Nitrogen	mg/L	1.00	0.0208	0.0230(0.0230)	90.4	85 - 115
MRCCS - Secondary						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrite as Nitrogen	mg/L	1.00	0.0209	0.0230	90.9	90 - 110
MRCVS - Primary						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrite as Nitrogen	mg/L	1.00	0.0189	0.0200	94.5	90 - 110
MRCVS - Primary						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrite as Nitrogen	mg/L	1.00	0.0189	0.0200	94.5	90 - 110

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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

Printed 7/2/2014

Alkalinity by SM 2320B		Batch 1406157				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
814026-002 Alkalinity as CaCO3	mg/L	06/10/2014	1.00	1.68	5.00	170
Bicarbonate (Calculated)	mg/L	06/10/2014	1.00	1.68	5.00	170
Carbonate (Calculated)	mg/L	06/10/2014	1.00	1.68	5.00	ND
Method Blank						
Parameter	Unit	DF	Result			
Alkalinity as CaCO3	mg/L	1.00	ND			
Carbonate (Calculated)	mg/L	1.00	ND			
Bicarbonate (Calculated)	mg/L	1.00	ND			
Duplicate						Lab ID = 814089-021
Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Alkalinity as CaCO3	mg/L	1.00	120	119	0.837	0 - 20
Lab Control Sample						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Alkalinity as CaCO3	mg/L	1.00	100	100	100	90 - 110
Lab Control Sample Duplicate						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Alkalinity as CaCO3	mg/L	1.00	102	100	102	90 - 110
Matrix Spike						Lab ID = 814025-001
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Alkalinity as CaCO3	mg/L	1.00	313	324(100)	89.0	75 - 125

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Specific Conductivity - EPA 120.1

Batch 1406070

Table with 7 columns: Parameter, Unit, Analyzed, DF, MDL, RL, Result. Rows include 814026-001 and 814026-002 Specific Conductivity.

Method Blank

Table with 4 columns: Parameter, Unit, DF, Result. Row: Specific Conductivity, umhos, 1.00, ND.

Duplicate

Lab ID = 814026-001

Table with 7 columns: Parameter, Unit, DF, Result, Expected, RPD, Acceptance Range. Row: Specific Conductivity, umhos, 1.00, 7510, 7490, 0.267, 0 - 10.

Lab Control Sample

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Row: Specific Conductivity, umhos, 1.00, 707, 706, 100, 90 - 110.

MRCCS - Secondary

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Row: Specific Conductivity, umhos, 1.00, 707, 706, 100, 90 - 110.

MRCVS - Primary

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Row: Specific Conductivity, umhos, 1.00, 1060, 1000, 106, 90 - 110.

MRCVS - Primary

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Row: Specific Conductivity, umhos, 1.00, 1060, 1000, 106, 90 - 110.

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Chrome VI by EPA 218.6

Batch 1406028

Parameter	Unit	Analyzed	DF	MDL	RL	Result
814026-001 Chromium, Hexavalent	ug/L	06/04/2014 15:35	1.00	0.00600	0.20	ND
814026-002 Chromium, Hexavalent	ug/L	06/04/2014 15:46	25.0	0.150	5.0	516

Method Blank

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

Duplicate

Lab ID = 814025-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	3.76	3.74	0.464	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	5.02	5.00	100	90 - 110

Matrix Spike

Lab ID = 813618-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.26	5.22(5.00)	101	90 - 110

Matrix Spike

Lab ID = 813618-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.27	1.21(1.00)	106	90 - 110

Matrix Spike

Lab ID = 814025-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	8.71	8.74(5.00)	99.3	90 - 110

Matrix Spike

Lab ID = 814026-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.26	5.21(5.00)	101	90 - 110

Matrix Spike

Lab ID = 814026-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.18	1.16(1.00)	102	90 - 110

Matrix Spike

Lab ID = 814026-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	1200	1140(625)	109	90 - 110

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Printed 7/2/2014

Metals by EPA 200.7, Total		Batch 060614A-Th2					
Parameter	Unit	Analyzed	DF	MDL	RL	Result	
814026-001 Aluminum	ug/L	06/06/2014 13:37	1.00	7.20	50.0	ND	
Boron	ug/L	06/06/2014 13:37	1.00	4.10	50.0	970	
Iron	ug/L	06/06/2014 13:37	1.00	3.00	20.0	ND	
Zinc	ug/L	06/06/2014 13:37	1.00	5.10	20.0	ND	
814026-002 Aluminum	ug/L	06/06/2014 14:17	1.00	7.20	50.0	ND	
Boron	ug/L	06/06/2014 14:17	1.00	4.10	50.0	1010	
Iron	ug/L	06/06/2014 14:17	1.00	3.00	20.0	ND	
Zinc	ug/L	06/06/2014 14:17	1.00	5.10	20.0	ND	

Method Blank

Parameter	Unit	DF	Result
Aluminum	ug/L	1.00	ND
Iron	ug/L	1.00	ND
Zinc	ug/L	1.00	ND
Boron	ug/L	1.00	ND

Duplicate

Lab ID = 814026-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Aluminum	ug/L	1.00	ND	0	0	0 - 20
Iron	ug/L	1.00	ND	0	0	0 - 20
Zinc	ug/L	1.00	ND	0	0	0 - 20
Boron	ug/L	1.00	982	970	1.26	0 - 20

Lab Control Sample

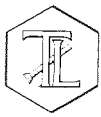
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Aluminum	ug/L	1.00	1990	2000	99.6	85 - 115
Iron	ug/L	1.00	2070	2000	104	85 - 115
Zinc	ug/L	1.00	2090	2000	104	85 - 115
Boron	ug/L	1.00	2020	2000	101	85 - 115

Matrix Spike

Lab ID = 814026-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Aluminum	ug/L	1.00	1780	2000(2000)	88.8	75 - 125
Iron	ug/L	1.00	1890	2000(2000)	94.4	75 - 125
Zinc	ug/L	1.00	2170	2000(2000)	109	75 - 125
Boron	ug/L	1.00	2910	2970(2000)	96.8	75 - 125

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Matrix Spike Duplicate

Lab ID = 814026-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Aluminum	ug/L	1.00	1750	2000(2000)	87.4	75 - 125
Iron	ug/L	1.00	1860	2000(2000)	92.8	75 - 125
Zinc	ug/L	1.00	2140	2000(2000)	107	75 - 125
Boron	ug/L	1.00	2920	2970(2000)	97.6	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Aluminum	ug/L	1.00	5140	5000	103	95 - 105
Iron	ug/L	1.00	5130	5000	103	95 - 105
Zinc	ug/L	1.00	5260	5000	105	95 - 105
Boron	ug/L	1.00	5070	5000	101	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Aluminum	ug/L	1.00	5090	5000	102	90 - 110
Iron	ug/L	1.00	5120	5000	102	90 - 110
Zinc	ug/L	1.00	5120	5000	102	90 - 110
Boron	ug/L	1.00	5040	5000	101	90 - 110

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Aluminum	ug/L	1.00	1990	2000	99.6	80 - 120

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Aluminum	ug/L	1.00	1980	2000	99.2	80 - 120
Iron	ug/L	1.00	2140	2000	107	80 - 120

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2170	2000	108	80 - 120
Zinc	ug/L	1.00	ND	0		

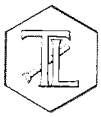
Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Zinc	ug/L	1.00	ND	0		
Boron	ug/L	1.00	ND	0		

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Boron	ug/L	1.00	ND	0		

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Metals by EPA 200.8, Total		Batch 060614A					
Parameter	Unit	Analyzed	DF	MDL	RL	Result	
814026-001 Antimony	ug/L	06/06/2014 13:18	2.00	0.0700	2.0	ND	
Arsenic	ug/L	06/06/2014 13:18	2.00	0.100	0.50	ND	
Barium	ug/L	06/06/2014 13:18	2.00	0.594	5.0	10.0	
Chromium	ug/L	06/06/2014 13:18	2.00	0.142	1.0	ND	
Lead	ug/L	06/06/2014 13:18	2.00	0.286	1.0	ND	
Manganese	ug/L	06/06/2014 13:18	2.00	0.120	0.50	3.0	
Molybdenum	ug/L	06/06/2014 13:18	2.00	0.100	2.0	19.9	
Nickel	ug/L	06/06/2014 13:18	2.00	0.480	2.0	2.1	
814026-002 Antimony	ug/L	06/06/2014 14:16	2.00	0.0700	2.0	ND	
Arsenic	ug/L	06/06/2014 14:16	2.00	0.100	0.50	3.9	
Barium	ug/L	06/06/2014 14:16	2.00	0.594	5.0	24.4	
Chromium	ug/L	06/06/2014 14:23	10.0	0.710	2.0	575	
Lead	ug/L	06/06/2014 14:16	2.00	0.286	1.0	ND	
Manganese	ug/L	06/06/2014 14:16	2.00	0.120	0.50	6.9	
Molybdenum	ug/L	06/06/2014 14:16	2.00	0.100	2.0	19.8	
Nickel	ug/L	06/06/2014 14:16	2.00	0.480	2.0	ND	

Method Blank

Parameter	Unit	DF	Result
Arsenic	ug/L	1.00	ND
Barium	ug/L	1.00	ND
Cadmium	ug/L	1.00	ND
Chromium	ug/L	1.00	ND
Nickel	ug/L	1.00	ND
Antimony	ug/L	1.00	ND
Lead	ug/L	1.00	ND
Manganese	ug/L	1.00	ND
Molybdenum	ug/L	1.00	ND

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Duplicate

Lab ID = 814026-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Arsenic	ug/L	2.00	ND	0	0	0 - 20
Barium	ug/L	2.00	10.0	10.0	0.230	0 - 20
Cadmium	ug/L	2.00	ND	0	0	0 - 20
Chromium	ug/L	2.00	ND	0	0	0 - 20
Nickel	ug/L	2.00	2.22	2.13	3.96	0 - 20
Antimony	ug/L	2.00	ND	0	0	0 - 20
Lead	ug/L	2.00	ND	0	0	0 - 20
Manganese	ug/L	2.00	2.82	2.98	5.52	0 - 20
Molybdenum	ug/L	2.00	20.2	19.9	1.62	0 - 20

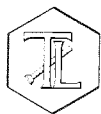
Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	0.254	0.200	127	70 - 130
Barium	ug/L	1.00	0.948	1.00	94.8	70 - 130
Cadmium	ug/L	1.00	0.193	0.200	96.5	70 - 130
Chromium	ug/L	1.00	0.235	0.200	118	70 - 130
Nickel	ug/L	1.00	1.11	1.00	111	70 - 130
Antimony	ug/L	1.00	0.238	0.200	119	70 - 130
Lead	ug/L	1.00	0.460	0.500	92.0	70 - 130
Manganese	ug/L	1.00	0.222	0.200	111	70 - 130
Molybdenum	ug/L	1.00	0.483	0.500	96.6	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	51.2	50.0	102	85 - 115
Barium	ug/L	1.00	47.4	50.0	94.7	85 - 115
Cadmium	ug/L	1.00	47.3	50.0	94.6	85 - 115
Chromium	ug/L	1.00	51.4	50.0	103	85 - 115
Nickel	ug/L	1.00	51.2	50.0	102	85 - 115
Antimony	ug/L	1.00	47.7	50.0	95.3	85 - 115
Lead	ug/L	1.00	47.8	50.0	95.6	85 - 115
Manganese	ug/L	1.00	51.4	50.0	103	85 - 115
Molybdenum	ug/L	1.00	47.2	50.0	94.4	85 - 115

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Matrix Spike

Lab ID = 814026-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	2.00	49.6	50.0(50.0)	99.1	75 - 125
Barium	ug/L	2.00	52.8	60.0(50.0)	85.6	75 - 125
Cadmium	ug/L	2.00	40.3	50.0(50.0)	80.6	75 - 125
Chromium	ug/L	2.00	47.4	50.0(50.0)	94.8	75 - 125
Nickel	ug/L	2.00	47.5	52.1(50.0)	90.8	75 - 125
Antimony	ug/L	2.00	44.8	50.0(50.0)	89.6	75 - 125
Lead	ug/L	2.00	41.0	50.0(50.0)	82.0	75 - 125
Manganese	ug/L	2.00	48.7	53.0(50.0)	91.4	75 - 125
Molybdenum	ug/L	2.00	64.4	69.9(50.0)	89.0	75 - 125

Matrix Spike Duplicate

Lab ID = 814026-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	2.00	49.8	50.0(50.0)	99.6	75 - 125
Barium	ug/L	2.00	52.4	60.0(50.0)	84.8	75 - 125
Cadmium	ug/L	2.00	39.9	50.0(50.0)	79.8	75 - 125
Chromium	ug/L	2.00	47.2	50.0(50.0)	94.4	75 - 125
Nickel	ug/L	2.00	47.2	52.1(50.0)	90.2	75 - 125
Antimony	ug/L	2.00	43.8	50.0(50.0)	87.7	75 - 125
Lead	ug/L	2.00	40.5	50.0(50.0)	81.0	75 - 125
Manganese	ug/L	2.00	49.5	53.0(50.0)	93.1	75 - 125
Molybdenum	ug/L	2.00	64.2	69.9(50.0)	88.6	75 - 125

MRCSS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	20.2	20.0	101	90 - 110
Barium	ug/L	1.00	18.5	20.0	92.5	90 - 110
Cadmium	ug/L	1.00	18.7	20.0	93.3	90 - 110
Chromium	ug/L	1.00	20.1	20.0	100	90 - 110
Nickel	ug/L	1.00	19.9	20.0	99.7	90 - 110
Antimony	ug/L	1.00	19.0	20.0	94.8	90 - 110
Lead	ug/L	1.00	18.7	20.0	93.3	90 - 110
Manganese	ug/L	1.00	20.0	20.0	99.9	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	20.3	20.0	101	90 - 110

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Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Molybdenum	ug/L	1.00	ND	0		

Serial Dilution

Lab ID = 814026-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Barium	ug/L	10.0	24.1	24.4	1.08	0 - 10
Chromium	ug/L	50.0	596	575	3.65	0 - 10

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Client: E2 Consulting Engineers, Inc.

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Metals by EPA 200.8, Total

Batch 060514A-ICPMS-1

Parameter	Unit	Analyzed	DF	MDL	RL	Result
814026-001 Copper	ug/L	06/05/2014 16:35	2.00	0.380	1.0	ND
814026-002 Copper	ug/L	06/05/2014 17:03	2.00	0.380	1.0	ND

Method Blank

Parameter	Unit	DF	Result
Copper	ug/L	1.00	ND

Duplicate

Lab ID = 814026-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Copper	ug/L	2.00	ND	0	0	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Copper	ug/L	1.00	0.504	0.500	101	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Copper	ug/L	1.00	47.9	50.0	95.7	85 - 115

Matrix Spike

Lab ID = 814026-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Copper	ug/L	2.00	41.2	50.0(50.0)	82.5	75 - 125

Matrix Spike Duplicate

Lab ID = 814026-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Copper	ug/L	2.00	41.1	50.0(50.0)	82.1	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Copper	ug/L	1.00	19.8	20.0	98.8	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Copper	ug/L	1.00	19.8	20.0	99.1	90 - 110

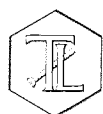
Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Copper	ug/L	1.00	ND	0		

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Copper	ug/L	1.00	ND	0		

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Client: E2 Consulting Engineers, Inc.

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Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Copper	ug/L	1.00	18.4	20.0	92.0	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Copper	ug/L	1.00	20.1	20.0	100	80 - 120

Reactive Silica by SM4500-Si D

Batch 1406110

Parameter	Unit	Analyzed	DF	MDL	RL	Result
814026-002 Silica	mg/L	06/09/2014	25.0	0.252	1.00	21.2

Method Blank

Parameter	Unit	DF	Result
Silica	mg/L	1.00	ND

Duplicate

Lab ID = 814026-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Silica	mg/L	25.0	21.2	21.2	0.0392	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Silica	mg/L	1.00	0.203	0.206	98.5	90 - 110

Matrix Spike

Lab ID = 814026-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Silica	mg/L	25.0	27.1	26.4(5.15)	114	75 - 125

MRCSS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Silica	mg/L	1.00	0.203	0.206	98.5	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Silica	mg/L	1.00	0.415	0.400	104	90 - 110

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Client: E2 Consulting Engineers, Inc.

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Total Dissolved Solids by SM 2540 C		Batch 1406069				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
814026-001 Total Dissolved Solids	mg/L	06/03/2014	1.00	1.76	250	4360
814026-002 Total Dissolved Solids	mg/L	06/03/2014	1.00	1.76	250	4250

Method Blank

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

Duplicate

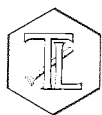
Lab ID = 814025-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	2610	2610	0	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Dissolved Solids	mg/L	1.00	517	500	103	90 - 110

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Total Organic Carbon (T/DOC) SM 5310 C		Batch 1406043				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
814026-002 Total Organic Carbon	mg/L	06/05/2014 14:08	1.00	0.0877	0.300	0.867

Method Blank

Parameter	Unit	DF	Result
Total Organic Carbon	mg/L	1.00	ND

Duplicate

Lab ID = 813567-020

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Organic Carbon	mg/L	1.00	2.34	2.35	0.341	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Organic Carbon	mg/L	1.00	8.44	8.56	98.6	85 - 115

Matrix Spike

Lab ID = 814026-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Total Organic Carbon	mg/L	1.00	15.1	18.0(17.1)	83.0	75 - 125

MRCSS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Organic Carbon	mg/L	1.00	8.67	8.56	101	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Organic Carbon	mg/L	1.00	9.91	10.0	99.1	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Organic Carbon	mg/L	1.00	10.0	10.0	100	90 - 110

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Total Phosphate, SM 4500-PB,E		Batch 1406155				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
814026-002 Phosphate, Total As P	mg/L	06/11/2014	1.00	0.00460	0.0200	ND
Method Blank						
Parameter	Unit	DF	Result			
Phosphate, Total As P	mg/L	1.00	ND			
Duplicate						Lab ID = 814026-002
Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Phosphate, Total As P	mg/L	1.00	ND	0	0	0 - 20
Lab Control Sample						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Phosphate, Total As P	mg/L	1.00	0.0628	0.0650	96.6	90 - 110
Matrix Spike						Lab ID = 814026-002
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Phosphate, Total As P	mg/L	1.00	0.0628	0.0650(0.0650)	96.6	75 - 125
MRCCS - Secondary						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Phosphate, Total As P	mg/L	1.00	0.0628	0.0650	96.6	90 - 110
MRCVS - Primary						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Phosphate, Total As P	mg/L	1.00	0.0647	0.0660	98.0	90 - 110

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Ammonia Nitrogen by SM4500-NH3D			Batch 06NH314A			
Parameter	Unit	Analyzed	DF	MDL	RL	Result
814026-001 Ammonia as N	mg/L	06/30/2014	1.00	0.0318	0.500	ND
814026-002 Ammonia as N	mg/L	06/30/2014	1.00	0.0318	0.500	ND
Method Blank						
Parameter	Unit	DF	Result			
Ammonia as N	mg/L	1.00	ND			
Duplicate						Lab ID = 814026-001
Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Ammonia as N	mg/L	1.00	ND	0	0	0 - 20
Lab Control Sample						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	8.34	8.00	104	90 - 110
Matrix Spike						Lab ID = 814026-001
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	10.6	10.0(10.0)	106	75 - 125
MRCCS - Secondary						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	6.15	6.00	102	90 - 110
MRCVS - Primary						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	6.17	6.00	103	90 - 110

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Metals by EPA 200.8, Dissolved		Batch 061014A				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
814026-002 Manganese	ug/L	06/10/2014 16:56	2.00	0.120	0.50	6.4

Method Blank

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

Duplicate

Lab ID = 814025-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	2.00	4.06	4.13	1.66	0 - 20
Manganese	ug/L	2.00	69.4	68.7	0.991	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.545	0.500	109	70 - 130
Manganese	ug/L	1.00	0.221	0.200	110	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	54.6	50.0	109	85 - 115
Manganese	ug/L	1.00	54.1	50.0	108	85 - 115

Matrix Spike

Lab ID = 814025-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	51.0	54.1(50.0)	93.7	75 - 125
Manganese	ug/L	2.00	115	119(50.0)	93.2	75 - 125

Matrix Spike Duplicate

Lab ID = 814025-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	50.6	54.1(50.0)	92.9	75 - 125
Manganese	ug/L	2.00	114	119(50.0)	90.8	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.0	20.0	94.9	90 - 110
Manganese	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	20.0	20.0	99.8	90 - 110

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Metals by 200.7, Dissolved

Batch 061114A-Th2

Table with 7 columns: Parameter, Unit, Analyzed, DF, MDL, RL, Result. Row: 814026-002 Iron, ug/L, 06/11/2014 16:54, 1.00, 3.00, 20.0, ND

Method Blank

Table with 4 columns: Parameter, Unit, DF, Result. Rows: Calcium (ug/L, 1.00, ND), Iron (ug/L, 1.00, ND), Sodium (ug/L, 1.00, ND), Magnesium (ug/L, 1.00, ND)

Duplicate

Lab ID = 814025-002

Table with 7 columns: Parameter, Unit, DF, Result, Expected, RPD, Acceptance Range. Rows: Calcium, Iron, Sodium, Magnesium

Lab Control Sample

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Rows: Calcium, Iron, Sodium, Magnesium

Matrix Spike

Lab ID = 814025-002

Table with 7 columns: Parameter, Unit, DF, Result, Expected/Added, Recovery, Acceptance Range. Rows: Calcium, Iron, Sodium, Magnesium

Matrix Spike Duplicate

Lab ID = 814025-002

Table with 7 columns: Parameter, Unit, DF, Result, Expected/Added, Recovery, Acceptance Range. Row: Iron

MRCCS - Secondary

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Rows: Calcium, Iron, Sodium, Magnesium

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Client: E2 Consulting Engineers, Inc.

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

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Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sodium	ug/L	1.00	1930	2000	96.6	80 - 120
Magnesium	ug/L	1.00	2120	2000	106	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Magnesium	ug/L	1.00	1940	2000	96.8	80 - 120

Turbidity by SM 2130 B

Batch 1406032

Parameter	Unit	Analyzed	DF	MDL	RL	Result
814026-001 Turbidity	NTU	06/04/2014	1.00	0.0140	0.100	ND
814026-002 Turbidity	NTU	06/04/2014	1.00	0.0140	0.100	0.177

Method Blank

Parameter	Unit	DF	Result
Turbidity	NTU	1.00	ND

Duplicate

Lab ID = 814027-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Turbidity	NTU	1.00	0.135	0.127	6.11	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	8.42	8.00	105	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	8.34	8.00	104	90 - 110

Respectfully submitted,

TRUESDAIL LABORATORIES, INC.

Mona Nassimi

Mona Nassimi

Manager, Analytical Services



Alkalinity by SM 2320B

Calculations

Analytical Batch: 1406157
 Matrix: WATER
 Date of Analysis: 6/10/2014

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 CaCO3 (ppm)	CO3 Alkalinity as CaCO3 (ppm)	OH Alkalinity as CaCO3 (ppm)	Low Alkalinity as CaCO3 (<20ppm)
BLANK	5.45	50	0.02	0.00	0.0	0.00		0.0	5	ND	ND	ND	ND	
14F0025-01	7.91	50	0.02	0.00	0.0	11.20		224.0	5	224.0	224.0	ND	ND	
14F0026-02	7.33	50	0.02	0.00	0.0	8.50		170.0	5	170.0	170.0	ND	ND	
14F0065-01	7.89	50	0.02	0.00	0.0	6.00		120.0	5	120.0	120.0	ND	ND	
14F0089-17	7.70	50	0.02	0.00	0.0	5.45		109.0	5	109.0	109.0	ND	ND	
14F0089-21	7.87	50	0.02	0.00	0.0	5.95		119.0	5	119.0	119.0	ND	ND	
14F0089-21 DUP	7.92	50	0.02	0.00	0.0	6.00		120.0	5	120.0	120.0	ND	ND	
LCS	10.25	50	0.02	2.00	40.0	5.00		100.0	5	100.0	20.0	80	ND	
LCSD	10.18	50	0.02	2.00	40.0	5.10		102.0	5	102.0	22.0	80	ND	
LCS-3	10.22	50	0.02	2.00	40.0	5.05		101.0	5	101.0	21.0	80	ND	
LCS-4	10.25	50	0.02	2.00	40.0	5.10		102.0	5	102.0	22.0	80	ND	
14F0025-01 MS	9.05	50	0.02	0.00	0.0	15.65		313.0	5	313.0	313.0	0	ND	

Calculations as follows:

T or P =

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

Where:

T = Total Alkalinity, mg CaCO3/L
 P = Phenolphthalein Alkalinity, mg CaCO3/L
 A = mL standard acid used
 N = normality of standard acid

Low Alkalinity: = $\frac{(2 \times B - C) \times N \times 50000}{mL \text{ sample}}$
 as mg/L CaCO3

Where: B = mL titrant to first recorded pH
 C = Total mL titrant to reach pH 0.3 unit lower
 N = Normality of standard acid
 LCS = Laboratory Control Standard/Duplicate
 MS/MSD = Matrix Spike/Duplicate
 ND = Not Detected (below the reporting limit)

Blank Summary

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

Laboratory Control Sample (LCS/LCSD) Summary

QC Std I.D.	Measured Value, ppm	Theoretical Value, ppm	% Recovery	Acceptance Limit	QC Within Control?
LCS	100	100	100.0%	90-110	Yes
LCSD	102	100	102.0%	90-110	Yes

Duplicate Determination Difference Summary

Lab Number I.D.	Measured Value, ppm	Dup Value, ppm	RPD	Acceptance Limit	QC Within Control?
14F0089-	119	120	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?
14F0025-01	224	1	100	100	313	324.00	89%	75-125	Yes			
				0								

ALEX JENNINE
 Analyst Printed Name

Analyst Signature

Maksim Gorbunov
 Reviewer Printed Name

Reviewer Signature

814026 / 14F0026



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-WDR-470]

COC Number _____
TURNAROUND TIME 10 Days
DATE 06/03/14 PAGE 1 OF 1

COMPANY				TEST PARAMETERS													COMMENTS
CH2M HILL /E2				Cr(VI) (218.6) Lab Filtered	Alkalinity (2320-B)	EC (120.1)	TDS (2540 c)	Turb (2130)	Total Metals (200.7)	Ammonia (4500-NH3)	Total P (4500-P)	Anions (300.0) F, NO3, SO4	TOC (5310 C)	Dissolved Metals (200.7) Fe, Mn ^{lab filtered}	NO2 (4500-NO2B)	NUMBER OF CONTAINERS	
PROJECT NAME PG&E Topock IM3																	
PHONE 530-229-3303 FAX 530-339-3303																	
ADDRESS 155 Grand Ave Ste 1000 Oakland, CA 94612																	
P.O. NUMBER 428648.IM.CS.EX.AC																	
SAMPLERS (SIGNATURE) <i>Chris Lane</i>																	
SAMPLE I.D.	DATE	TIME	DESCRIPTION	Cr(VI)	Alkalinity	EC	TDS	Turb	Total Metals	Ammonia	Total P	Anions	TOC	Dissolved Metals	NO2	CONTAINERS	COMMENTS
1 SC-700B-WDR-470	06/03/14	09:00		X		X	X	X	X		X				X	4	6 pu=7 (200.8)
2 SC-100B-WDR-470	06/03/14	09:00		X	X	X	X	X	X	X	X	X	X	X	X	9	200.7)
ALERT!!																	
Level III QC																	
13 TOTAL NUMBER OF CONTAINERS																	

125

CHAIN OF CUSTODY SIGNATURE RECORD					SAMPLE CONDITIONS	
Signature (Relinquished) <i>Chris Lane</i>	Printed Name CHRIS LANE	Company/ Agency CH2M HILL	Date/ Time 6-3-14 10:10	RECEIVED	COOL <input checked="" type="checkbox"/>	WARM <input type="checkbox"/> 3.9°C
Signature (Received) <i>Thanh Ngo</i>	Printed Name THANH NGO	Company/ Agency TRUESDAIL	Date/ Time 6-3-14 10:10	CUSTODY SEALED	YES <input type="checkbox"/>	NO <input type="checkbox"/>
Signature (Relinquished) <i>Alexander Wood</i>	Printed Name ALEXANDER WOOD	Company/ Agency TEL	Date/ Time 6-3-14 14:00	SPECIAL REQUIREMENTS:		
Signature (Received) _____	Printed Name _____	Company/ Agency _____	Date/ Time _____	The metals include: Cr, Al, Sb, As, Ba, B, Cu, Pb, Mn, Mo, Ni, Fe, Zn		
Signature (Relinquished) _____	Printed Name _____	Company/ Agency _____	Date/ Time _____			
Signature (Received) _____	Printed Name _____	Company/ Agency _____	Date/ Time _____			



Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest (Y/N)	Time of Adjustment to pH 2	Date/Time of 2nd pH check	Comments
813517	<1	7.2	5/22/14	ES	Yes	1:00		pH < 2
813555 (1-8)	↓	7.2	↓	↓	Yes			-7.8 TU 71
813502 (1-2,4)	<1	7.2	5/23/14	ES	No	9:30	5/26/14 10:30	pH < 2
813512 (1-3)	↓	↓	↓	↓	↓	↓	↓	↓
813543 (10-12)	↓	↓	↓	↓	↓	↓	↓	↓
813553	>1	<2	↓	↓	Yes			
813544 (1-2)	<1	7.2	↓	↓	Yes	9:30		
813552 (1-2)	>1	<2	↓	↓	Yes			
813623	>1	<2	5/29/14	ES	Yes			
813624	>1	<2	↓	↓	↓			
813627	>1	<2	↓	↓	↓			
813628	>1	<2	↓	↓	↓			
813629	>1	<2	↓	↓	↓			
813630	>1	<2	↓	↓	↓			
813647	>1	<2	↓	↓	↓			
813651	>1	<2	↓	↓	↓			
813652	>1	5/29/14 7.2 <2	↓	↓	↓			
813618	<1	5/29/14 7.2	5/29/14	ES	Yes	12:20		CHEM
813568 (1-5)	>1	<2	↓	↓	↓			CHEM Cations
813557 (1,2)	-	-	5/30/14	ES	Yes			Solid
813475 (1-3)	-	-	↓	↓	↓			↓
813576	-	-	↓	↓	↓			↓
14F0030	>1	6/4/14 7.2	6/4/14	ES	Yes	6/4/14 12:30		CHEM
14F0026 (1,2)	<1	7.2	↓	↓	↓			
14F0004 (1,2)	>1	<2	↓	↓	↓			
14F0006	↓	↓	↓	↓	↓			
14F0007	↓	↓	↓	↓	↓			
14F0032	↓	↓	↓	↓	↓			
14F0033	↓	↓	↓	↓	↓			
14F0034 - 01/26/14	↓	↓	↓	↓	↓			
14F0035 - 01/26/14	↓	↓	↓	↓	↓			
14F0036	↓	↓	↓	↓	↓			
14F0044	↓	↓	↓	↓	↓			
14F0035	↓	↓	↓	↓	↓			
14F0056	↓	↓	↓	↓	↓			
14F0061	↓	↓	↓	↓	↓			
14F0025 (1-2)	<1	7.2	6/10/14	ES	Yes	11:00		Filtered then acidified
14F0026 - 2	↓	↓	↓	↓	↓	↓		↓
14F0070 (1-2)	>1	<2	6/10/14	ES	Yes			
14F0074 -	↓	↓	↓	↓	↓			
14F0075	↓	↓	↓	↓	↓			
14F0054	<1	↓	↓	↓	↓			
14F0090	>1	↓	↓	↓	↓			
14F0091	<1	↓	↓	↓	↓			

Notes:

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



Sample Integrity & Analysis Discrepancy Form

Client: E 2

Lab # 14F0026

Date Delivered: 06/03/14 Time: 14:00 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)? 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 p.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: Luola

ALERT !!
Level III QC

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

July 2, 2014

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

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK IM3PLANT-WDR-471 PROJECT, GROUNDWATER
MONITORING, TLI NO.: 814170

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-471 project groundwater monitoring for Hexavalent and Total Chromium, Total Manganese, Turbidity, Specific Conductivity, and Total Dissolved Solids. 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 have been included under Section 5.

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

Sample SC-700B-WDR-471 was analyzed as sample I.D. 14F0170 in the raw data but is reported as 814170 in all final report pages.

The straight run for the sample and associated matrix spike on SC-700B-WDR-471 for Hexavalent Chromium analysis by EPA 218.6 were just outside the retention time window. Because the matrix spike recovery and all other QA/QC were within acceptable limits, the data from the straight run was reported.

No other violations or nonconformance actions occurred for this data package.

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

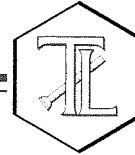
Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.

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

Attention: Shawn Duffy

Sample: One (1) Groundwater Sample

Project Name: PG&E Topock Project

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

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Laboratory No.: 814170

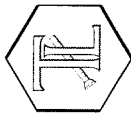
Date: July 2, 2014

Collected: June 10, 2014

Received: June 10, 2014

ANALYST LIST

METHOD	PARAMETER	ANALYST
EPA 120.1	Specific Conductivity	Jenny Tankunakorn
SM 2540C	Total Dissolved Solids	Jenny Tankunakorn
SM 2130B	Turbidity	Jennine Ta
EPA 200.8	Total Metals	Ethel Suico
EPA 218.6	Hexavalent Chromium	Naheed Eidinejad



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

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

Laboratory No.: 814170
Date Received: June 10, 2014

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
814170-001	SC-700B-WDR-471	E120.1	NONE	6/10/2014	9:00	EC	7360	umhos/cm	2.00
814170-001	SC-700B-WDR-471	E200.8	NONE	6/10/2014	9:00	Chromium	ND	ug/L	1.0
814170-001	SC-700B-WDR-471	E200.8	NONE	6/10/2014	9:00	Manganese	1.1	ug/L	0.50
814170-001	SC-700B-WDR-471	E218.6	LABFLT	6/10/2014	9:00	Chromium, Hexavalent	ND	ug/L	0.20
814170-001	SC-700B-WDR-471	SM2130B	NONE	6/10/2014	9:00	Turbidity	ND	NTU	0.100
814170-001	SC-700B-WDR-471	SM2540C	NONE	6/10/2014	9:00	Total Dissolved Solids	4230	mg/L	250

ND: Non Detected (below reporting limit)

mg/L: Milligrams per liter.

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

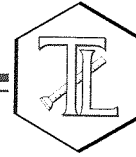
Results below 0.01ppm will have two (2) significant figures.

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: 428648.IM.CS.EX.AC

P.O. Number: PGEIM11111001

Release Number:

Laboratory No. 814170

Page 1 of 6

Printed 7/2/2014

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

Field ID	Lab ID	Collected	Matrix
SC-700B-WDR-471	814170-001	06/10/2014 09:00	Water

Specific Conductivity - EPA 120.1

Batch 1406120

Parameter	Unit	Analyzed	DF	MDL	RL	Result
814170-001 Specific Conductivity	umhos/cm	06/11/2014	1.00	0.606	2.00	7360

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate

Lab ID = 814125-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	1030	1030	0.0970	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	746	706	106	90 - 110

MRCSS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	745	706	106	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	1020	1000	102	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	1020	1000	102	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.

008



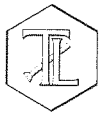
Client: E2 Consulting Engineers, Inc.

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

Page 2 of 6
Printed 7/2/2014

Chrome VI by EPA 218.6		Batch 1406140				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
814170-001 Chromium, Hexavalent	ug/L	06/11/2014 11:25	1.00	0.00600	0.20	ND
Method Blank						
Parameter	Unit	DF	Result			
Chromium, Hexavalent	ug/L	1.00	ND			
Duplicate						Lab ID = 814170-001
Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	0.141	0.117	18.6	0 - 20
Low Level Calibration Verification						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.205	0.200	102	70 - 130
Lab Control Sample						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.01	5.00	100	90 - 110
Matrix Spike						Lab ID = 814170-001
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.13	1.07(1.00)	106	90 - 110
Matrix Spike						Lab ID = 814170-001
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.36	5.12(5.00)	105	90 - 110
MRCCS - Secondary						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.99	5.00	99.8	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

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Client: E2 Consulting Engineers, Inc.

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

Page 3 of 6
Printed 7/2/2014

Metals by EPA 200.8, Total

Batch 061814A-ICPMS-1

Table with 7 columns: Parameter, Unit, Analyzed, DF, MDL, RL, Result. Rows include Chromium and Manganese.

Method Blank

Table with 4 columns: Parameter, Unit, DF, Result. Rows include Chromium and Manganese.

Duplicate

Lab ID = 814170-001

Table with 7 columns: Parameter, Unit, DF, Result, Expected, RPD, Acceptance Range. Rows include Chromium and Manganese.

Low Level Calibration Verification

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Rows include Chromium and Manganese.

Lab Control Sample

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Rows include Chromium and Manganese.

Matrix Spike

Lab ID = 814170-001

Table with 7 columns: Parameter, Unit, DF, Result, Expected/Added, Recovery, Acceptance Range. Rows include Chromium and Manganese.

Matrix Spike Duplicate

Lab ID = 814170-001

Table with 7 columns: Parameter, Unit, DF, Result, Expected/Added, Recovery, Acceptance Range. Rows include Chromium and Manganese.

MRCSS - Secondary

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Rows include Chromium and Manganese.

MRCVS - Primary

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Row includes Chromium.

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.



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Page 5 of 6

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

Printed 7/2/2014

Total Dissolved Solids by SM 2540 C		Batch 1406122				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
814170-001 Total Dissolved Solids	mg/L	06/11/2014	1.00	1.76	250	4230
Method Blank						
Parameter	Unit	DF	Result			
Total Dissolved Solids	mg/L	1.00	ND			
Duplicate						Lab ID = 814142-004
Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	585	547	6.71	0 - 10
Lab Control Sample						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Dissolved Solids	mg/L	1.00	492	500	98.4	90 - 110

Turbidity by SM 2130 B		Batch 1406129				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
814170-001 Turbidity	NTU	06/10/2014	1.00	0.0140	0.100	ND
Method Blank						
Parameter	Unit	DF	Result			
Turbidity	NTU	1.00	ND			
Duplicate						Lab ID = 814154-003
Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Turbidity	NTU	1.00	0.109	0.119	8.77	0 - 20
Lab Control Sample						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	8.29	8.00	104	90 - 110
Lab Control Sample Duplicate						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	8.76	8.00	110	90 - 110

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Page 6 of 6

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

Printed 7/2/2014

Respectfully submitted,

TRUESDAIL LABORATORIES, INC.

f - 

Mona Nassimi
Manager, Analytical Services



Total Dissolved Solids by SM 2540 C

Calculations

1406122

Batch: 10/29/5749
Date Analyzed: 6/11/2014

Laboratory Number	Sample volume, mL	Initial weight, g	1st Final weight, g	2nd Final weight, g	Weight Difference, g	Exceeds 0.5mg? Yes/No	Residue weight, g	Filterable residue, ppm	RL, ppm	Reported Value, ppm	DF
Blank	100	112.9387	112.9390	112.9390	0.0000	No	0.0003	3.0	25.0	ND	1
14F0070-01D	100	72.0800	72.1297	72.1297	0.0000	No	0.0497	497.0	25.0	497.0	1
14F0070-02D	100	68.3649	68.4148	68.4148	0.0000	No	0.0499	499.0	25.0	499.0	1
14F0071-01C	100	74.4515	74.5033	74.5031	0.0002	No	0.0516	516.0	25.0	516.0	1
14F0071-02C	100	72.4774	72.5285	72.5285	0.0000	No	0.0511	511.0	25.0	511.0	1
14F0071-03C	100	75.2627	75.3138	75.3137	0.0001	No	0.0510	510.0	25.0	510.0	1
14F0071-04C	100	69.1809	69.2316	69.2315	0.0001	No	0.0506	506.0	25.0	506.0	1
14F0085-01B	50	51.3328	51.3699	51.3695	0.0004	No	0.0367	734.0	50.0	734.0	1
14F0085-02B	100	62.6202	62.6725	62.6723	0.0002	No	0.0521	521.0	25.0	521.0	1
14F0085-03B	100	80.8544	80.9155	80.9152	0.0003	No	0.0608	608.0	25.0	608.0	1
14F0085-04B	50	49.1115	49.1436	49.1432	0.0004	No	0.0317	634.0	50.0	634.0	1
14F0085-04 Dup	50	58.9435	58.9757	58.9756	0.0001	No	0.0321	642.0	50.0	642.0	1
LCS	100	77.0666	77.1160	77.1158	0.0002	No	0.0492	492.0	25.0	492.0	1
14F0089-17F	50	50.7191	50.7544	50.7543	0.0001	No	0.0352	704.0	50.0	704.0	1
14F0120-01C	100	67.9611	68.0186	68.0182	0.0004	No	0.0571	571.0	25.0	571.0	1
14F0125-01D	100	75.1503	75.1687	75.1683	0.0004	No	0.0180	180.0	25.0	180.0	1
14F0125-02D	100	66.8796	66.9203	66.9199	0.0004	No	0.0403	403.0	25.0	403.0	1
14F0142-02B	50	60.0619	60.0915	60.0915	0.0000	No	0.0296	592.0	50.0	592.0	1
14F0142-04B	100	77.1102	77.1650	77.1649	0.0001	No	0.0547	547.0	25.0	547.0	1
14F0170-01B	10	29.3788	29.4215	29.4211	0.0004	No	0.0423	4230.0	250.0	4230.0	1
14F0142-04 Dup	100	78.2401	78.2986	78.2986	0.0000	No	0.0585	585.0	25.0	585.0	1

Calculation as follows:

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

Where:

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

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

Laboratory Control Sample (LCS) Summary

QC Std I.D.	Measurd Value, ppm	Theoretical Value, ppm	Percent Rec	Acceptance Limit	QC Within Control?
LCS	492.0	500	98.4%	90-110%	Yes
LCSD					

LCS Recovery

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

P = Percent recovery.

LC = Measured LCS value (ppm).

LT = Theoretical LCS value (ppm).

Duplicate Determinations Difference Summary

Lab Number	Sample Weight, g	Sample Dup Weight, g	% RPD	Acceptance Limit	QC Within Control?
14F0085-04	0.0317	0.0321	0.6%	≤5%	Yes
14F0142-04	0.0547	0.0585	3.4%	≤5%	Yes

Duplicate Determination Difference

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

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

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

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

C = Average weight in (g).

Jenny T.

Analyst Printed Name

Analyst Signature

Maksim G.

Reviewer Printed Name

Reviewer Signature

Total Dissolved Solids by SM 2540 C

TDS/EC CHECK

1406122

Batch: 10/29/5749

Date Analyzed: 6/11/2014

Laboratory Number	EC	TDS/EC Ratio: 0.55-0.90	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
14F0070-01D	900	0.55	585	0.85
14F0070-02D	870	0.57	565.5	0.88
14F0071-01C	915	0.56	594.75	0.87
14F0071-02C	923	0.55	599.95	0.85
14F0071-03C	926	0.55	601.9	0.85
14F0071-04C	918	0.55	596.7	0.85
14F0085-01B	1265	0.58	822.25	0.89
14F0085-02B	899	0.58	584.35	0.89
14F0085-03B	994	0.61	646.1	0.94
14F0085-04B	1092	0.58	709.8	0.89
14F0085-04 Dup	1092	0.59	709.8	0.90
LCS				
14F0089-17F	1172	0.60	761.8	0.92
14F0120-01C	920	0.62	598	0.95
14F0125-01D	323	0.56	209.95	0.86
14F0125-02D	729	0.55	473.85	0.85
14F0142-02B	1031	0.57	670.15	0.88
14F0142-04B	964	0.57	626.6	0.87
14F0170-01B	7360	0.57	4784	0.88
14F0142-04 Dup	964	0.61	626.6	0.93





TRUESDAIL LABORATORIES, INC.
 14201 Franklin Avenue, Tustin, CA 92780-7008
 (714) 730-6239 FAX: (714) 730-6462
 www.truesdail.com

CHAIN OF CUSTODY RECORD 8/14/170/
 [IM3Plant-WDR-471] 14F0170

COC Number _____
 TURNAROUND TIME 10 Days
 DATE 06/10/14 PAGE 1 OF 1

COMPANY E2		PROJECT NAME PG&E Topock		PHONE (530) 229-3303 FAX (530) 339-3303		ADDRESS 155 Grand Ave Ste 1000 Oakland, CA 94612		P.O. NUMBER 428648.IM.CS.EX.AC TEAM 1		SAMPLERS (SIGNATURE) 												
SAMPLE I.D. SC-700B-WDR-471	DATE 06/10/14	TIME 7:20	DESCRIPTION Water	C6 (218.6) Lab Filtered	X	Total Metals (200.8) Cr. Mn	X	Specific Conductance (120.1)	X	TDS (SM2540C)	X	Turbidity (SM2130)	X	COMMENTS								
<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:10%; text-align: center;">3</td> <td style="width:10%; text-align: center;">3</td> <td style="width:10%; text-align: center;">DH=6 (200.8)</td> <td style="width:10%; text-align: center;">NUMBER OF CONTAINERS</td> <td style="width:10%; text-align: center;">COMMENTS</td> </tr> <tr> <td colspan="4" style="text-align: center;">TOTAL NUMBER OF CONTAINERS</td> <td></td> </tr> </table>													3	3	DH=6 (200.8)	NUMBER OF CONTAINERS	COMMENTS	TOTAL NUMBER OF CONTAINERS				
3	3	DH=6 (200.8)	NUMBER OF CONTAINERS	COMMENTS																		
TOTAL NUMBER OF CONTAINERS																						

Please Provide a preliminary Result for the TDS ASAP

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Level III QC

CHAIN OF CUSTODY SIGNATURE RECORD				SAMPLE CONDITIONS			
Signature (Relinquished)	Printed Name	Company/ Agency	Date/ Time	RECEIVED	COOL <input checked="" type="checkbox"/>	WARM <input type="checkbox"/>	3.82 °F
	Paul Hayes	MI	6-10-14 15:00	CUSTODY SEALED	YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>	
Signature (Received)	Printed Name	Company/ Agency	Date/ Time	SPECIAL REQUIREMENTS:			
	THANH NGO	TRUESDAIL	6-10-14 15:00				
Signature (Relinquished)	Printed Name	Company/ Agency	Date/ Time				
	THANH NGO	TRUESDAIL	6-10-14 19:00				
Signature (Received)	Printed Name	Company/ Agency	Date/ Time				
	Makim Gorbunov	Tuesday	6/10/14 19:00				
Signature (Relinquished)	Printed Name	Company/ Agency	Date/ Time				
Signature (Received)	Printed Name	Company/ Agency	Date/ Time				

14F0170

Truesdail Laboratories, Inc

Client: E2 Consulting Engineers, Inc. Project: Topock IM3Plant	Project Manager: Sean Condon Project Number: Topock IM3Plant
---	---

Report To:
 E2 Consulting Engineers, Inc.
 Christi Gitlin
 1900 Powell Street, Suite 250
 Emeryville, CA 94608
 Phone: 510-428-4728
 Fax: 510-652-5604

Invoice To:
 E2 Consulting Engineers, Inc.
 Christi Gitlin
 1900 Powell Street, Suite 250
 Emeryville, CA 94608
 Phone :510-428-4728
 Fax: 510-652-5604

Date Due: 06/20/2014 16:30 (7 day TAT)	
Received By: Maksim Gorbunov	Date Received: 06/10/2014 19:00
Logged In By: Luda Shabunina	Date Logged In: 06/11/2014 07:02

Samples Received at:	3.8°C		
Chain of Custody re	Yes	Samples intact?	Yes
Letter (if sent) matc	No	Custody seals (if an	No
Requested analyses	Yes	Analyses within hol	Yes
Samples received in	Yes		

Analysis	Due	TAT	Expires	Comments
14F0170-01 SC-700B-WDR-471 [Water] Sampled 06/10/2014 09:00 Pacific				
Turbidity	06/20/2014 12:00	7	06/12/2014 09:00	
TDS	06/20/2014 12:00	7	06/17/2014 09:00	
Specific Conductivity	06/20/2014 12:00	7	07/08/2014 09:00	
Mn-200.8	06/20/2014 12:00	7	12/07/2014 09:00	
Cr-200.8	06/20/2014 12:00	7	12/07/2014 09:00	
Cr VI-218.6	06/20/2014 12:00	7	07/08/2014 09:00	

ALERT!!

Level III QC

 Reviewed By

 Date



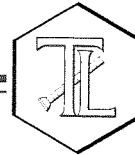
Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest (Y/N)	Time of Adjustment to pH 2	Date/Time of 2nd pH check	Comments
14F0254	<1	<2	6/17/14	ES	yes			
14F0255	↓	↓	↓	↓	↓			
14F0256	>1	↓	↓	↓	↓			
14F0170-01	<1	>2	6/18/14	ES	yes	1:00		pH <2
14F0272-01	↓	↓	↓	↓	↓	↓		↓
14F0293-2	>1	>2	6/18/14	ES	yes			
14F0266	<1	<2						
14F0267	>1							
14F0268	↓							
14F0269	<1							
14F0271	↓							
14F0278(1-2,5,7)	↓	>2			NO	3:00	6/19/14 2:00	pH <2
14F0270(1-3)	↓							
14F0291(10-12)	↓							
14F0293(1,3,7)	↓							
14F0309	SOLID		6/19/14	ES	yes			TTC
14F0326	SOLID		6/20/14	ES	yes			
14F0265(1-2)	>1	<2	6/23/14	ES	yes			
14F0298	↓							
14F0302	↓							
14F0325	<1							
14F0351(1-2)	<1	>2	6/24/14	ES	NO	1:00		
14F0372(1-2)	↓					↓		
14F0371(1-3)	↓							
14F0343(1-2)	>1	<2			yes			
14F0348	↓							
14F0349	↓							
14F0356	↓	>2						
14F0358	<1	<2						
14F0383(10-15)	<1	>2	6/25/14	ES	NO			
14F0394(1-3)	↓	↓	↓	↓	↓			
14F0391(1-2)	SOLID		6/25/14	ES	yes			TTC
14F0363(1-4)	<1	<2	6/26/14	ES	yes			
14F0376	↓	>2				10:00		pH <2
14F0377(1-7)	↓	<2						
14F0394(1-2)	↓							
14F0395(1-4)	↓							
14F0425-01	>1	>2	7/1/14	ES	yes	11:00		pH <2
14F404(1-6)	<1	<2	1	1	1			

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

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING



Established 1931

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

July 2, 2014

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

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK IM3PLANT-WDR-472 PROJECT, GROUNDWATER
MONITORING, TLI NO.: 814272

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-472 project groundwater monitoring for Hexavalent and Total Chromium, Total Manganese, Turbidity, Specific Conductivity, and Total Dissolved Solids. 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 have been included under Section 5.

The samples were received and delivered with the chain of custody on June 17, 2014, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.


Sample SC-700B-WDR-472 was analyzed as sample I.D. 14F0272 in the raw data but is reported as 814272 in all final report pages.


The straight run for the sample and associated matrix spike on SC-700B-WDR-472 for Hexavalent Chromium analysis by EPA 218.6 was just outside the retention time window. Because the matrix spike recovery and all other QA/QC were within acceptable limits, the data from the straight run was reported.

No other violations or nonconformance actions occurred for this data package.

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

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.


for Mona Nassimi
Manager, Analytical Services


Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.

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

Attention: Shawn Duffy

Sample: One (1) Groundwater Sample

Project Name: PG&E Topock Project

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

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

Laboratory No.: 814272

Date: July 2, 2014

Collected: June 17, 2014

Received: June 17, 2014

ANALYST LIST

METHOD	PARAMETER	ANALYST
EPA 120.1	Specific Conductivity	Jenny Tankunakorn
SM 2540C	Total Dissolved Solids	Jenny Tankunakorn
SM 2130B	Turbidity	Jennine Ta
EPA 200.8	Total Metals	Ethel Suico
EPA 218.6	Hexavalent Chromium	Naheed Eidinejad



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

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

Laboratory No.: 814272
Date Received: June 17, 2014

Analytical Results Summary

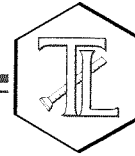
Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
814272-001	SC-700B-WDR-472	E120.1	NONE	6/17/2014	14:05	EC	7330	umhos/cm	2.00
814272-001	SC-700B-WDR-472	E200.8	NONE	6/17/2014	14:05	Chromium	ND	ug/L	1.0
814272-001	SC-700B-WDR-472	E200.8	NONE	6/17/2014	14:05	Manganese	3.2	ug/L	0.50
814272-001	SC-700B-WDR-472	E218.6	LABFLT	6/17/2014	14:05	Chromium, Hexavalent	ND	ug/L	0.20
814272-001	SC-700B-WDR-472	SM2130B	NONE	6/17/2014	14:05	Turbidity	ND	NTU	0.100
814272-001	SC-700B-WDR-472	SM2540C	NONE	6/17/2014	14:05	Total Dissolved Solids	4380	mg/L	250

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.

TRUESDAIL LABORATORIES, INC.

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REPORT

Client: E2 Consulting Engineers, Inc.

155 Grand Avenue, Suite 800

Oakland, CA 94612

Attention: Shawn Duffy

Project Name: PG&E Topock Project

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

P.O. Number: PGEIM11111001

Release Number:

Laboratory No. 814272

Page 1 of 6

Printed 7/2/2014

Samples Received on 6/17/2014 7:40:00 PM

Field ID	Lab ID	Collected	Matrix
SC-700B-WDR-472	814272-001	06/17/2014 14:05	Water

Specific Conductivity - EPA 120.1

Batch 1406259

Parameter	Unit	Analyzed	DF	MDL	RL	Result
814272-001 Specific Conductivity	umhos/cm	06/19/2014	1.00	0.606	2.00	7330

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate

Lab ID = 814272-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	7330	7330	0	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	756	706	107	90 - 110

MRCSS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	756	706	107	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	1040	1000	104	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	1050	1000	105	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.

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Client: E2 Consulting Engineers, Inc.

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

Page 2 of 6
Printed 7/2/2014

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Rows include: Chrome VI by EPA 218.6 (Batch 1406228), Method Blank, Duplicate, Low Level Calibration Verification, Lab Control Sample, Matrix Spike (twice), MRCCS - Secondary, and MRCVS - Primary.

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



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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

Printed 7/2/2014

Metals by EPA 200.8, Total		Batch 061814A-ICPMS-1				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
814272-001 Chromium	ug/L	06/18/2014 19:01	1.00	0.0710	1.0	ND
Manganese	ug/L	06/18/2014 19:01	1.00	0.0600	0.50	3.2

Method Blank

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

Duplicate

Lab ID = 814170-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	1.00	ND	0	0	0 - 20
Manganese	ug/L	1.00	1.04	1.07	2.65	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.171	0.200	85.5	70 - 130
Manganese	ug/L	1.00	0.192	0.200	96.2	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	48.3	50.0	96.6	85 - 115
Manganese	ug/L	1.00	50.9	50.0	102	85 - 115

Matrix Spike

Lab ID = 814170-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	1.00	50.9	50.0(50.0)	102	75 - 125
Manganese	ug/L	1.00	53.7	51.1(50.0)	105	75 - 125

Matrix Spike Duplicate

Lab ID = 814170-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	1.00	50.8	50.0(50.0)	102	75 - 125
Manganese	ug/L	1.00	52.8	51.1(50.0)	104	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.5	20.0	103	90 - 110
Manganese	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	18.8	20.0	94.0	90 - 110

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



Client: E2 Consulting Engineers, Inc.

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

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Table with 7 columns: Parameter, Unit, Analyzed, DF, MDL, RL, Result. Section: Total Dissolved Solids by SM 2540 C. Includes Method Blank, Duplicate, and Lab Control Sample data.

Table with 7 columns: Parameter, Unit, Analyzed, DF, MDL, RL, Result. Section: Turbidity by SM 2130 B. Includes Method Blank, Duplicate, Lab Control Sample, and Lab Control Sample Duplicate data.

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



TRUESDAIL LABORATORIES, INC.

Report Continued

Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Page 6 of 6

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

Printed 7/2/2014

Respectfully submitted,

TRUESDAIL LABORATORIES, INC.

for 

Mona Nassimi

Manager, Analytical Services



Total Dissolved Solids by SM 2540 C

1406233

Calculations

Batch: 21475750

Date Analyzed: 6/18/2014

Laboratory Number	Sample volume, mL	Initial weight, g	1st Final weight, g	2nd Final weight, g	Weight Difference, g	Exceeds 0.5mg? Yes/No	Residue weight, g	Filterable residue, ppm	RL, ppm	Reported Value, ppm	DF
Blank	100	75.1517	75.1519	75.1519	0.0000	No	0.0002	2.0	25.0	ND	1
14F0197-01C	100	76.5276	76.5789	76.5788	0.0001	No	0.0512	512.0	25.0	512.0	1
14F0197-02C	100	74.8835	74.9359	74.9357	0.0002	No	0.0522	522.0	25.0	522.0	1
14F0197-03C	100	79.4425	79.4946	79.4944	0.0002	No	0.0519	519.0	25.0	519.0	1
14F0197-04C	100	76.6620	76.7151	76.7150	0.0001	No	0.0530	530.0	25.0	530.0	1
14F0194-01D	100	70.3755	70.4282	70.4281	0.0001	No	0.0526	526.0	25.0	526.0	1
14F0194-02D	100	74.6936	74.7508	74.7507	0.0001	No	0.0571	571.0	25.0	571.0	1
14F0227-01D	1000	158.8727	158.8765	158.8765	0.0000	No	0.0038	3.8	2.5	3.8	1
14F0228-01D	100	76.0239	76.0695	76.0693	0.0002	No	0.0454	454.0	25.0	454.0	1
14F0228-02	100	79.7960	79.8451	79.8450	0.0001	No	0.0490	490.0	25.0	490.0	1
14F0247-02C	100	77.4765	77.4930	77.4929	0.0001	No	0.0164	164.0	25.0	164.0	1
14F0247-02 Dup	100	74.0317	74.0480	74.0480	0.0000	No	0.0163	163.0	25.0	163.0	1
LCS	100	74.5101	74.5599	74.5598	0.0001	No	0.0497	497.0	25.0	497.0	1
14F0247-04C	100	77.7684	77.8105	77.8104	0.0001	No	0.0420	420.0	25.0	420.0	1
14F0272-01B	10	29.4896	29.5334	29.5334	0.0000	No	0.0438	4380.0	250.0	4380.0	1
813518-5 RR	100	71.2982	71.3409	71.3405	0.0004	No	0.0423	423.0	25.0	423.0	1
14F0285-01D	100	76.2679	76.3174	76.3170	0.0004	No	0.0491	491.0	25.0	491.0	1
14F0285-02D	100	74.2145	74.2641	74.2637	0.0004	No	0.0492	492.0	25.0	492.0	1
14F0290-01B	100	69.7589	69.8114	69.8114	0.0000	No	0.0525	525.0	25.0	525.0	1
14F0290-02B	100	67.8061	67.8583	67.8578	0.0005	No	0.0517	517.0	25.0	517.0	1
14F0290-03B	100	67.0315	67.0849	67.0847	0.0002	No	0.0532	532.0	25.0	532.0	1
14F0290-04B	100	76.1676	76.2197	76.2197	0.0000	No	0.0521	521.0	25.0	521.0	1
14F0272-01 Dup	10	49.2702	49.3139	49.3139	0.0000	No	0.0437	4370.0	250.0	4370.0	1

Calculation as follows:

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

Where:

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

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

Laboratory Control Sample (LCS) Summary

QC Std I.D.	Measured Value, ppm	Theoretical Value, ppm	Percent Rec	Acceptance Limit	QC Within Control?
LCS	497.0	500	99.4%	90-110%	Yes
LCSD					

LCS Recovery

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

P = Percent recovery.
 LC = Measured LCS value (ppm).
 LT = Theoretical LCS value (ppm).

Duplicate Determinations Difference Summary

Lab Number	Sample Weight, g	Sample Dup Weight, g	% RPD	Acceptance Limit	QC Within Control?
14F0247-02	0.0164	0.0163	0.3%	≤5%	Yes
14F0272-01	0.0438	0.0437	0.1%	≤5%	Yes

Duplicate Determination Difference

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

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

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

Jenny T.

Analyst Printed Name

Analyst Signature

Maksim G.

Reviewer Printed Name

Reviewer Signature

Total Dissolved Solids by SM 2540 C

TDS/EC CHECK

1406233

Batch: 2475750

Date Analyzed: 6/18/2014

Laboratory Number	EC	TDS/EC Ratio: 0.55-0.90	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
14F0197-01C	932	0.55	605.8	0.85
14F0197-02C	935	0.56	607.75	0.86
14F0197-03C	944	0.55	613.6	0.85
14F0197-04C	945	0.56	614.25	0.86
14F0194-01D	1030	0.51	669.5	0.79
14F0194-02D	972	0.59	631.8	0.90
14F0227-01D	5.02	0.76	3.263	1.16
14F0228-01D	819	0.55	532.35	0.85
14F0228-02	818	0.60	531.7	0.92
14F0247-02C	294	0.56	191.1	0.86
14F0247-02 Dup	294	0.55	191.1	0.85
LCS				
14F0247-04C	702	0.60	456.3	0.92
14F0272-01B	7330	0.60	4764.5	0.92
813518-5 RR	776	0.55	504.4	0.84
14F0285-01D	839	0.59	545.35	0.90
14F0285-02D	901	0.55	585.65	0.84
14F0290-01B	933	0.56	606.45	0.87
14F0290-02B	944	0.55	613.6	0.84
14F0290-03B	943	0.56	612.95	0.87
14F0290-04B	946	0.55	614.9	0.85
14F0272-01 Dup	7330	0.60	4764.5	0.92



Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest (Y/N)	Time of Adjustment to pH 2	Date/Time of 2nd pH check	Comments
14F0254	<1	<2	6/17/14	ES	yes			
14F0255	↓	↓	↓	↓	↓			
14F0256	>1	↓	↓	↓	↓			
14F0170-01	<1	>2	6/18/14	ES	yes	1:00		pH <2
14F0272-01	↓	↓	↓	↓	↓	↓		↓
14F0293-2	>1	>2	6/18/14	ES	yes			
14F0266	<1	<2	↓	↓	↓			
14F0267	>1	↓	↓	↓	↓			
14F0268	↓	↓	↓	↓	↓			
14F0269	<1	↓	↓	↓	↓			
14F0271	↓	↓	↓	↓	↓			
14F0278(1-2,5,7,8)	↓	7.2	↓	↓	NO	3:00	6/19/14 2:00	pH <2
14F0270(1-3)	↓	↓	↓	↓	↓	↓	↓	↓
14F0291(10-12)	↓	↓	↓	↓	↓	↓	↓	↓
14F0293(1,3,7)	↓	↓	↓	↓	↓	↓	↓	↓
14F0309	SOLID	↓	6/19/14	ES	yes			TRC
14F0326	SOLID	↓	6/20/14	ES	yes			
14F0265(1-2)	>1	<2	6/23/14	ES	yes			
14F0268	↓	↓	↓	↓	↓			
14F0302	↓	↓	↓	↓	↓			
14F0325	<1	↓	↓	↓	↓			
14F0351(1-2)	<1	>2	6/24/14	ES	NO	1:00		
14F0372(1-2)	↓	↓	↓	↓	↓	↓		
14F0371(1-3)	↓	↓	↓	↓	↓	↓		
14F0343(1-2)	>1	<2	↓	↓	yes			
14F0348	↓	↓	↓	↓	↓			
14F0349	↓	↓	↓	↓	↓			
14F0356	↓	7.2	↓	↓	↓			
14F0358	<1	<2	↓	↓	↓			
14F0383(10-15)	<1	>2	6/25/14	ES	NO			
14F0394(1-3)	↓	↓	↓	↓	↓			
14F0391(1-2)	SOLID	↓	6/25/14	ES	yes			TRC
14F0363(1-4)	<1	<2	6/26/14	ES	yes			
14F0376	↓	7.2	↓	↓	↓	10:00		pH <2
14F0377(1-7)	↓	<2	↓	↓	↓			
14F0394(1-2)	↓	↓	↓	↓	↓			
14F0395(1-4)	↓	↓	↓	↓	↓			
14F0425-01	>1	>2	7/1/14	ES	yes	11:00		pH <2
14F404(1-6)	<1	<2	↓	↓	↓			

Notes:

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

14F0272

Truesdail Laboratories, Inc

Client: E2 Consulting Engineers, Inc. Project: Topock IM3Plant	Project Manager: Sean Condon Project Number: Topock IM3Plant
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Report To:
 E2 Consulting Engineers, Inc.
 Christi Gitlin
 1900 Powell Street, Suite 250
 Emeryville, CA 94608
 Phone: 510-428-4728
 Fax: 510-652-5604

Invoice To:
 E2 Consulting Engineers, Inc.
 Christi Gitlin
 1900 Powell Street, Suite 250
 Emeryville, CA 94608
 Phone :510-428-4728
 Fax: 510-652-5604

Date Due: 06/27/2014 16:30 (7 day TAT)	
Received By: Alexander Luna	Date Received: 06/17/2014 19:40
Logged In By: Luda Shabunina	Date Logged In: 06/18/2014 06:59

Samples Received at: 3.6°C			
Chain of Custody re	Yes	Samples intact?	Yes
Letter (if sent) matc	No	Custody seals (if an	No
Requested analyses	Yes	Analyses within hol	Yes
Samples received in	Yes		

Analysis	Due	TAT	Expires	Comments
14F0272-01 SC-700B-WDR-472 [Water] Sampled 06/17/2014 14:05 Pacific				
Turbidity	06/27/2014 12:00	7	06/19/2014 14:05	
TDS	06/27/2014 12:00	7	06/24/2014 14:05	
Specific Conductivity	06/27/2014 12:00	7	07/15/2014 14:05	
Mn-200.8	06/27/2014 12:00	7	12/14/2014 14:05	
Cr-200.8	06/27/2014 12:00	7	12/14/2014 14:05	
Cr VI-218.6	06/27/2014 12:00	7	07/15/2014 14:05	

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

July 2, 2014

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

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK IM3PLANT-WDR-473 PROJECT, GROUNDWATER MONITORING, TLI NO.: 814376

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-473 project groundwater monitoring for Hexavalent and Total Chromium, Total Manganese, Turbidity, Specific Conductivity, and Total Dissolved Solids. 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 have been included under Section 5.

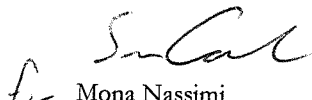
The samples were received and delivered with the chain of custody on June 24, 2014, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

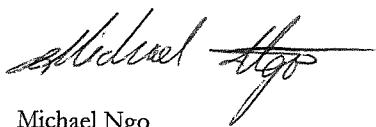
Sample SC-700B-WDR-473 was analyzed as sample I.D. 14F0376 in the raw data but is reported as 814376 in all final report pages.

No other violations or nonconformance actions occurred for this data package.

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

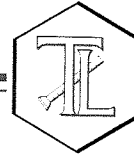
Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.


Mona Nassimi
Manager, Analytical Services


Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.

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

Attention: Shawn Duffy

Sample: One (1) Groundwater Sample

Project Name: PG&E Topock Project

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

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Laboratory No.: 814376

Date: July 2, 2014

Collected: June 24, 2014

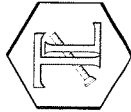
Received: June 24, 2014

ANALYST LIST

METHOD	PARAMETER	ANALYST
EPA 120.1	Specific Conductivity	Jenny Tankunakorn
SM 2540C	Total Dissolved Solids	Jenny Tankunakorn
SM 2130B	Turbidity	Jennine Ta
EPA 200.8	Total Metals	Ethel Suico
EPA 218.6	Hexavalent Chromium	Naheed Eidinejad

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

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

Laboratory No.: 814376
Date Received: June 24, 2014

Analytical Results Summary

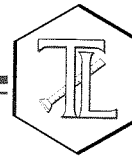
Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
814376-001	SC-700B-WDR-473	E120.1	NONE	6/24/2014	10:30	EC	7800	umhos/cm	2.00
814376-001	SC-700B-WDR-473	E200.8	NONE	6/24/2014	10:30	Chromium	3.4	ug/L	1.0
814376-001	SC-700B-WDR-473	E200.8	NONE	6/24/2014	10:30	Manganese	31.4	ug/L	0.50
814376-001	SC-700B-WDR-473	E218.6	LABFLT	6/24/2014	10:30	Chromium, Hexavalent	1.5	ug/L	1.0
814376-001	SC-700B-WDR-473	SM2130B	NONE	6/24/2014	10:30	Turbidity	0.150	NTU	0.100
814376-001	SC-700B-WDR-473	SM2540C	NONE	6/24/2014	10:30	Total Dissolved Solids	4510	mg/L	250

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: 428648.IM.CS.EX.AC

P.O. Number: PGEIM11111001

Release Number:

Laboratory No. 814376

Page 1 of 6

Printed 7/2/2014

Samples Received on 6/24/2014 7:00:00 PM

Field ID	Lab ID	Collected	Matrix
SC-700B-WDR-473	814376-001	06/24/2014 10:30	Water

Specific Conductivity - EPA 120.1

Batch 1406388

Parameter	Unit	Analyzed	DF	MDL	RL	Result
814376-001 Specific Conductivity	umhos/cm	06/27/2014	1.00	0.606	2.00	7800

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate

Lab ID = 814376-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	7800	7800	0	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	714	706	101	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	714	706	101	90 - 110

MRCVS - Primary

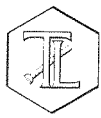
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	1000	1000	100	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	1000	1000	100	90 - 110

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008



Client: E2 Consulting Engineers, Inc.

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

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Printed 7/2/2014

Chrome VI by EPA 218.6		Batch 1406334				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
814376-001 Chromium, Hexavalent	ug/L	06/25/2014 11:37	5.00	0.0300	1.0	1.5
Method Blank						
Parameter	Unit	DF	Result			
Chromium, Hexavalent	ug/L	1.00	ND			
Duplicate						Lab ID = 814377-006
Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	1000	984	1.96	0 - 20
Low Level Calibration Verification						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.187	0.200	93.6	70 - 130
Lab Control Sample						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.91	5.00	98.2	90 - 110
Matrix Spike						Lab ID = 814376-001
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	6.69	6.54(5.00)	103	90 - 110
Matrix Spike						Lab ID = 814376-001
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	2.54	2.56(1.00)	98.5	90 - 110
MRCCS - Secondary						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.94	5.00	98.8	90 - 110
MRCVS - Primary						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.99	10.0	99.9	95 - 105
MRCVS - Primary						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	10.0	10.0	100	95 - 105

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

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Metals by EPA 200.8, Total		Batch 062714A				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
814376-001 Chromium	ug/L	06/27/2014 13:41	1.00	0.0710	1.0	3.4
Manganese	ug/L	06/27/2014 13:41	1.00	0.0600	0.50	31.4

Method Blank

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

Duplicate

Lab ID = 814376-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	1.00	3.41	3.39	0.676	0 - 20
Manganese	ug/L	1.00	32.6	31.4	3.81	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.247	0.200	124	70 - 130
Manganese	ug/L	1.00	0.581	0.500	116	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	50.5	50.0	101	85 - 115
Manganese	ug/L	1.00	51.2	50.0	102	85 - 115

Matrix Spike

Lab ID = 814376-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	1.00	51.6	53.4(50.0)	96.4	75 - 125
Manganese	ug/L	1.00	81.4	81.4(50.0)	99.9	75 - 125

Matrix Spike Duplicate

Lab ID = 814376-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	1.00	50.9	53.4(50.0)	95.0	75 - 125
Manganese	ug/L	1.00	81.2	81.4(50.0)	99.6	75 - 125

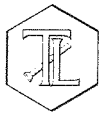
MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.9	20.0	94.4	90 - 110
Manganese	ug/L	1.00	19.0	20.0	94.8	90 - 110

MRCVS - Primary

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

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Client: E2 Consulting Engineers, Inc.

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

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Printed 7/2/2014

Interference Check Standard AB

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Row 1: Chromium, ug/L, 1.00, 20.5, 20.0, 102, 80 - 120

Interference Check Standard AB

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Row 1: Manganese, ug/L, 1.00, 19.8, 20.0, 99.3, 80 - 120

Interference Check Standard AB

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Row 1: Manganese, ug/L, 1.00, 20.0, 20.0, 100, 80 - 120

Serial Dilution

Lab ID = 814376-001

Table with 7 columns: Parameter, Unit, DF, Result, Expected, RPD, Acceptance Range. Row 1: Manganese, ug/L, 5.00, 32.0, 31.4, 2.02, 0 - 10

Total Dissolved Solids by SM 2540 C

Batch 1406370

Table with 7 columns: Parameter, Unit, Analyzed, DF, MDL, RL, Result. Row 1: 814376-001 Total Dissolved Solids, mg/L, 06/27/2014, 1.00, 1.76, 250, 4510

Method Blank

Table with 4 columns: Parameter, Unit, DF, Result. Row 1: Total Dissolved Solids, mg/L, 1.00, ND

Duplicate

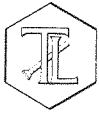
Lab ID = 814376-001

Table with 7 columns: Parameter, Unit, DF, Result, Expected, RPD, Acceptance Range. Row 1: Total Dissolved Solids, mg/L, 1.00, 4550, 4510, 0.883, 0 - 10

Lab Control Sample

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Row 1: Total Dissolved Solids, mg/L, 1.00, 488, 500, 97.6, 90 - 110

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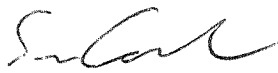
Client: E2 Consulting Engineers, Inc.

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

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Printed 7/2/2014

Turbidity by SM 2130 B		Batch 1406354				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
814376-001 Turbidity	NTU	06/26/2014	1.00	0.0140	0.100	0.150
Method Blank						
Parameter	Unit	DF	Result			
Turbidity	NTU	1.00	ND			
Duplicate						Lab ID = 814384-001
Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Turbidity	NTU	1.00	16.4	13.9	16.5	0 - 20
Lab Control Sample						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	8.69	8.00	109	90 - 110
Lab Control Sample Duplicate						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	8.68	8.00	108	90 - 110

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.


for Mona Nassimi
Manager, Analytical Services

914376 / 14F0376

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-WDR-473]

COC Number _____
 TURNAROUND TIME 5 Days
 DATE 06/24/14 PAGE 1 OF 1

COMPANY E2	PROJECT NAME PG&E Topock	PHONE (530) 229-3303	FAX (530) 339-3303
ADDRESS 155 Grand Ave Ste 1000 Oakland, CA 94612	P.O. NUMBER 428648.IM.CS.EX.AC	TEAM 1	
SAMPLERS (SIGNATURE) <i>[Signature]</i>	DATE 06/24/14	TIME 10:30	DESCRIPTION Water
SAMPLE I.D. SC-700B-WDR-473			

TEST	Cr6 (218.6) Lab Filtered	Total Metals (200.8) Cr, Mn	Specific Conductance (120.1)	TDS (SM2540C)	Turbidity (SM2130)
	X	X	X	X	X

NUMBER OF CONTAINERS
 3
 TOTAL NUMBER OF CONTAINERS
 3

COMMENTS
 DU = 6 (200.8)

Please Provide a preliminary Result for the TDS ASAP

RUSH
ALERT!!
Level III QC

CHAIN OF CUSTODY SIGNATURE RECORD				SAMPLE CONDITIONS	
Signature (Relinquished)	Printed Name	Company/ Agency	Date/ Time	RECEIVED	COOL <input checked="" type="checkbox"/> WARM <input type="checkbox"/>
<i>[Signature]</i>	Tom Phelps	CPMI	6-24-14 13:55	CUSTODY SEALED	YES <input type="checkbox"/> NO <input type="checkbox"/>
Signature (Received)	Printed Name	Company/ Agency	Date/ Time	SPECIAL REQUIREMENTS:	
<i>[Signature]</i>	THANK NEO	TRUESDAIL	6-24-14		
Signature (Relinquished)	Printed Name	Company/ Agency	Date/ Time		
<i>[Signature]</i>	THANK NEO	TRUESDAIL	6-24-14		
Signature (Received)	Printed Name	Company/ Agency	Date/ Time		
<i>[Signature]</i>	Mickim	Truesdail	6/24/14 19:00		
Signature (Relinquished)	Printed Name	Company/ Agency	Date/ Time		
<i>[Signature]</i>					
Signature (Received)	Printed Name	Company/ Agency	Date/ Time		
<i>[Signature]</i>					

030

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
5/20/14	813518-1	7.00	5 ml / 25 ml	9.5	17:00	NE
↓	↓ -2	↓	↓	↓	↓	↓
↓	↓ -3	↓	↓	↓	↓	↓
↓	↓ -4	↓	↓	↓	↓	↓
↓	↓ -5	7.00	1 ml / 50 ml	9.5	16:30	NR
↓	↓ -6	↓	↓	↓	↓	↓
↓	↓ -7	↓	↓	↓	↓	↓
↓	↓ -8	↓	↓	↓	↓	↓
↓	↓ -9	↓	↓	↓	↓	↓
↓	↓ -10	↓	↓	↓	↓	↓
↓	↓ -11	↓	↓	↓	↓	↓
↓	↓ -12	↓	↓	↓	↓	↓
5/21/14	813553-1	7.00	1 ml / 50 ml	9.5	17:30	NE
↓	↓ -2	↓	↓	↓	↓	↓
↓	↓ -3	↓	↓	↓	↓	↓
↓	↓ -4	↓	↓	↓	↓	↓
↓	↓ -5	↓	↓	↓	↓	↓
↓	↓ -6	↓	↓	↓	↓	↓
↓	↓ -7	↓	↓	↓	↓	↓
↓	↓ -8	↓	↓	↓	↓	↓
5/22/14	813568-1	7.00	1 ml / 50 ml	9.5	17:30	NR
↓	↓ -2	↓	↓	↓	↓	↓
↓	↓ -3	↓	↓	↓	↓	↓
↓	↓ -4	↓	↓	↓	↓	↓
↓	↓ -5	↓	↓	↓	↓	↓
5/28/14	813618	7.00	2 ml / 100 ml	9.5	7:45	NE
6/24/14	14F0373-1	9.5	N/A	N/A	N/A	NR
↓	↓ -2	↓	↓	↓	↓	↓
↓	↓ -3	↓	↓	↓	↓	↓
↓	↓ -4	↓	↓	↓	↓	↓
6/25/14	14F0376-01	7.00	2 ml / 100 ml	9.5	7:50	NR



Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest (Y/N)	Time of Adjustment to pH 2	Date/Time of 2nd pH check	Comments
14F0254	<1	<2	6/17/14	ES	yes			
14F0255	↓	↓	↓	↓	↓			
14F0256	>1	↓	↓	↓	↓			
14F0170-01	<1	>2	6/18/14	ES	yes	1:00		pH <2
14F0272-01	↓	↓	↓	↓	↓	↓		↓
14F0293-2	>1	>2	6/18/14	ES	yes			
14F0266	<1	<2	↓	↓	↓			
14F0267	>1	↓	↓	↓	↓			
14F0268	↓	↓	↓	↓	↓			
14F0269	<1	↓	↓	↓	↓			
14F0271	↓	↓	↓	↓	↓			
14F0278(1-2,5,7,8)	↓	>2	↓	↓	NO	3:00	6/19/14 2:00	pH <2
14F0270(1-3)	↓	↓	↓	↓	↓	↓	↓	↓
14F0291(10-12)	↓	↓	↓	↓	↓	↓	↓	↓
14F0293(1,3,7)	↓	↓	↓	↓	↓	↓	↓	↓
14F0309	SOLID	↓	6/19/14	ES	yes			TTC
14F0328	SOLID	↓	6/20/14	ES	yes			
14F0285(1-2)	>1	<2	6/23/14	ES	yes			
14F0298	↓	↓	↓	↓	↓			
14F0302	↓	↓	↓	↓	↓			
14F0325	<1	↓	↓	↓	↓			
14F0351(1-2)	<1	>2	6/24/14	ES	NO	1:00		
14F0372(1-2)	↓	↓	↓	↓	↓	↓		
14F0371(1-3)	↓	↓	↓	↓	↓	↓		
14F0343(1-2)	>1	<2	↓	↓	yes			
14F0348	↓	↓	↓	↓	↓			
14F0349	↓	↓	↓	↓	↓			
14F0356	↓	>2	↓	↓	↓			
14F0358	<1	<2	↓	↓	↓			
14F0383(10-15)	<1	>2	6/25/14	ES	NO			
14F0394(1-3)	↓	↓	↓	↓	↓			
14F0391(1-2)	SOLID	↓	6/25/14	ES	yes			TTC
14F0363(1-4)	<1	<2	6/26/14	ES	yes			
14F0376	↓	>2	↓	↓	↓	10:00		pH <2
14F0377(1-7)	↓	<2	↓	↓	↓			
14F0394(1-2)	↓	↓	↓	↓	↓			
14F0395(1-4)	↓	↓	↓	↓	↓			
14F0425-01	>1	>2	7/1/14	ES	yes	11:00		pH <2
14F404(1-6)	<1	<2	↓	↓	↓			

Notes:

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

WORK ORDER

Printed: 6/25/14 7:23:38AM

14F0376

Truesdail Laboratories, Inc

Client: E2 Consulting Engineers, Inc. Project: Topock IM3Plant	Project Manager: Sean Condon Project Number: Topock IM3Plant
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Report To:
 E2 Consulting Engineers, Inc.
 Christi Gitlin
 1900 Powell Street, Suite 250
 Emeryville, CA 94608
 Phone: 510-428-4728
 Fax: 510-652-5604

Invoice To:
 E2 Consulting Engineers, Inc.
 Christi Gitlin
 1900 Powell Street, Suite 250
 Emeryville, CA 94608
 Phone :510-428-4728
 Fax: 510-652-5604

Date Due: 07/02/2014 16:30 (5 day TAT)	Date Received: 06/24/2014 19:00
Received By: Maksim Gorbunov	Date Logged In: 06/25/2014 07:17
Logged In By: Luda Shabunina	

Samples Received at: 3.7°C
Chain of Custody re Yes Samples intact? Yes
Letter (if sent) matc No Custody seals (if an No
Requested analyses Yes Analyses within hol Yes
Samples received in Yes

Analysis	Due	TAT	Expires	Comments
14F0376-01 SC-700B-WDR-473 [Water] Sampled 06/24/2014 10:30 Pacific				
Turbidity	07/02/2014 13:00	5	06/26/2014 10:30	
TDS	07/02/2014 13:00	5	07/01/2014 10:30	
Specific Conductivity	07/02/2014 13:00	5	07/22/2014 10:30	
Mn-200.8	07/02/2014 13:00	5	12/21/2014 10:30	
Cr-200.8	07/02/2014 13:00	5	12/21/2014 10:30	
Cr VI-218.6	07/02/2014 13:00	5	07/22/2014 10:30	

ALERT !!
 Level III QC

RUSH

Reviewed By

Date

Analytical Bench Log Book

WDR pH Results

If the on site laboratory pH result for T-700 tank is less than pH 6.6 or greater than pH 8.3 the Injection well should be shut down until the problem is fixed.

Sample Name	Date of sampling	Time of sampling	Date of analysis	Time of analysis	pH Meter #1, #2, or #3 etc. See cover Sheet for Serial Number	Date pH meter Calibrated	Time pH meter Calibrated	Slope of the Curve	Analyst Name (for the pH result)	pH Result
SC-100B	6-3-14	08:45	6-3-14	9:00	METER #2	6-3-14	04:44	-52.9	CHRIS LENTZ	7.1

Notes:

SC-700B	6-3-14	08:45	6-3-14	9:00	METER #2	6-3-14	04:44	-52.9	CHRIS LENTZ	6.8
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Notes:

SC-700B	6-10-14	9:00	6-10-14	9:10	METER #2	6-10-14	03:54	-52.9	HOW PHILLIPS	7.1
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Notes:

SL-700B	6-17-14	1400	6-17-14	1405	METER #2	6-17-14	04:25	-54.6	CHRIS LENTZ	6.9
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Notes:

SC-700B	6-24-14	1030	6-24-14	1032	METER #2	6-24-14	3:40	-53.2	HOW PHILLIPS	6.8
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Notes:

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Notes:

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Notes:

Reminder: WDR Required pH Range for the Effluent (SC-700B) is: 6.5 - 8.4

