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July 15, 2013

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Colorado River Basin Region
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Subject: Topock IM-3 Combined Second Quarter 2013 Monitoring and Semiannual January – June 2013 Operation and Maintenance Report
PG&E Topock Compressor Station, Needles, California
Interim Measure No. 3 Groundwater Treatment System
(Document ID: PGE20130715B)

Dear Ms. Innis and Mr. Perdue:

Enclosed is the Second Quarter 2013 Monitoring and Semiannual January – June 2013 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 524,338,259 gallons of water and removed approximately 5,810 pounds of total chromium from August 1, 2005 through June 30, 2013.

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 2013 Monitoring and January – June 2013 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

Document Title: Topock IM-3 Second Quarter 2013 Monitoring and Semiannual January – June 2013 Operation and Maintenance Report Submitting Agency/Authored by: U.S. Department of the Interior and Regional Water Quality Control Board Final Document? ☒ Yes ☐ No	Date of Document: July 15, 2013 Who Created this Document?: (i.e. PG&E, DTSC, DOI, Other) PG&E Document ID Number: PGE20130715B
Priority Status: ☐ HIGH ☐ MED ☒ LOW Is this time critical? ☐ Yes ☒ No Type of Document: ☐ Draft ☒ Report ☐ Letter ☐ Memo ☐ Other / Explain:	Action Required: ☒ Information Only ☐ Review & Comment Return to: _____ By Date:_____ ☐ Other / Explain:
What does this information pertain to? ☐ Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA)/Preliminary Assessment (PA) ☐ RCRA Facility Investigation (RFI)/Remedial Investigation (RI) (including Risk Assessment) ☐ Corrective Measures Study (CMS)/Feasibility Study (FS) ☐ Corrective Measures Implementation (CMI)/Remedial Action ☐ California Environmental Quality Act (CEQA)/Environmental Impact Report (EIR) ☒ Interim Measures ☐ Other / Explain:	Is this a Regulatory Requirement? ☒ Yes ☐ No If no, why is the document needed?
What is the consequence of NOT doing this item? What is the consequence of DOING this item? Submittal of this report is a compliance requirement of the ARARs for waste discharge as documented in Attachment A to the Letter Agreement issued July 26, 2011.	Other Justification/s: ☐ Permit ☐ Other / Explain:

Brief Summary of attached document:

This report covers the Interim Measures No. 3 (IM-3) groundwater treatment system monitoring activities during the Second Quarter 2013 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

Recommendations:
This report is for your information only.

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

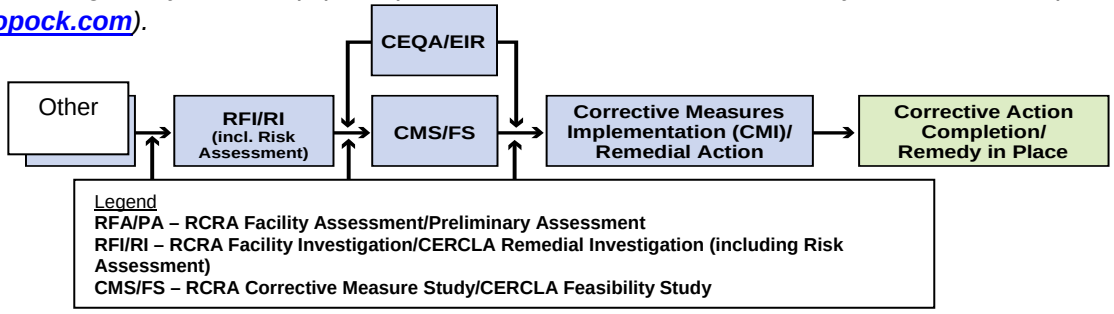
The Topock IM-3 Second Quarter 2013 Monitoring Report is related to the Interim Measure. PG&E is currently operating the IM-3 groundwater treatment system as authorized by the U.S. Department of the Interior (DOI) Waste Discharge Applicable or Relevant and Appropriate Requirements (ARARs) as documented 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.

Other requirements of this information?

None.

Related Reports and Documents:

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



Legend
RFA/PA – RCRA Facility Assessment/Preliminary Assessment
RFI/RI – RCRA Facility Investigation/CERCLA Remedial Investigation (including Risk Assessment)
CMS/FS – RCRA Corrective Measure Study/CERCLA Feasibility Study

Version 9

Combined Second Quarter 2013 Monitoring and Semiannual January – June 2013 Operation and Maintenance Report

Interim Measure No. 3 Groundwater Treatment System

Document ID: PGE20130715B

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, 2013

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

Combined Second Quarter 2013 Monitoring and January – June 2013 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, 2013

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
D Second Quarter 2013 Laboratory Analytical Reports

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 2013 and the operation and maintenance activities during the January 1, 2013 to June 30, 2013 semiannual period (First and Second Quarters 2013). 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.

SECTION 3

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 2013 monitoring activities and the January 1, 2013 through June 30, 2013 (First and Second Quarters) operation and maintenance activities related to the IM-3 groundwater treatment system. IM-3 monitoring activities from January 1, 2013 through March 31, 2013 (First Quarter monitoring) were presented in the following monitoring report:

- *Topock IM-3 First Quarter 2013 Monitoring Report,* submitted to the DOI and Regional Water Board April 15, 2013.

This report, therefore, also serves as the Semiannual January - June 2013 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 2013

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 (that together resulted in approximately 5.4 percent downtime during Second Quarter 2013) 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 2013 through March 2013 were originally reported in the *First Quarter 2013 Monitoring Report for Interim Measure No. 3 Groundwater Treatment System,*

PG&E Topock Compressor Station, Needles, CA, published April 15, 2013, 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 2013, 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 operated on April 4 and 5, 2013 for a total of 2 hours, 18 minutes. Extraction well TW-2S was not operated during Second Quarter 2013. The operational run time for the IM groundwater extraction system (combined or individual pumping), by month, was approximately:

- 86.3 percent during April 2013
- 99.5 percent during May 2013
- 98.3 percent during June 2013

The Second Quarter 2013 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 16,792,273 gallons of extracted groundwater during Second Quarter 2013.

In addition to extracted groundwater, during Second Quarter 2013 the IM-3 facility treated 2,490 gallons of water generated from the groundwater monitoring program and 47,750 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 16,591,760 gallons of treatment system effluent during Second Quarter 2013. 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 223,566 gallons of RO concentrate during Second Quarter 2013. 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. Seven sludge containers were shipped offsite from the IM-3 facility during Second Quarter 2013. 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.

During the Second Quarter 2013, 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 2013 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 between January 1, 2013 and March 31, 2013 were included in the First Quarter 2013 Monitoring Report submitted to the DOI and Regional Water Board on April 15, 2013.

Laboratory reports for samples collected in Second Quarter 2013 were prepared by certified analytical laboratories, and are presented in Appendix D. The Second Quarter 2013 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 2012 sample, and the results were presented in the Third Quarter 2012 Monitoring Report submitted to the DOI and the Regional Water Board on October 15, 2012. The 2013 sludge aquatic bioassay test for IM-3 will be conducted in the second half of the year.

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, 2013 through June 30, 2013.

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	6C037216000	7/15/11	12/13/11
Extraction well TW-3D	FIT-102	6C037116000	7/15/11	12/13/11
Extraction well TW-2D[a]	FIT-101	6A022116000	1/7/13	5/16/13
Extraction well TW-2S[b]	FIT-100	6C037316000	1/7/13	5/23/13
Injection well IW-02	FIT-1202	6C036F16000	8/6/10	1/5/11
Injection well IW-03	FIT-1203	6A037016000	6/19/12	7/12/12
Combined IW-02 and IW-03	FIT-700	7700C616000	7/25/11	12/13/11
Reverse osmosis concentrate	FIT-701	6A021F16000	6/19/12	7/14/12

Notes:
[a] TW-2D is a backup extraction well only operated for brief testing and sampling periods since January 2006.
[b] TW-2S is a backup extraction well only operated for brief testing and sampling periods since October 2005.

5.2 Volumes of Groundwater Treated

Data regarding daily volumes of groundwater treated between January 1, 2013 and June 30, 2013 are provided in Appendix B. The daily volumes of groundwater treated from January 1, 2013 through March 31, 2013 were reported in the First Quarter 2013 Monitoring Report, submitted April 15, 2013.

Approximately 33,988,672 gallons of groundwater were extracted and treated between January 1, 2013 and June 30, 2013. Treatment of this water at the IM-3 facility is being performed in accordance with the conditions of ARARs.

Additionally, approximately 5,600 gallons of well purge water (generated during well development, monitoring well sampling, and/or aquifer testing), 62,250 gallons of injection well re-development water, and approximately 350 gallons of rainwater that accumulated in the secondary containment around the MW-20 Bench were treated at the IM-3 facility during the January 1, 2013 through June 30, 2013 semiannual period.

A total of approximately 33,731,540 gallons of treated groundwater were injected back into the Alluvial Aquifer between January 1, 2013 and June 30, 2013.

5.3 Residual Solids Generated (Sludge)

During the January 1, 2013 through June 30, 2013 reporting period, 15 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 January 1, 2013 through June 30, 2013 reporting period is provided below.

Date Sludge Bin Removed from Site	Approximate Quantity from Waste Manifests (cubic yards)	Type of Shipment
1/14/2013	8	Non-RCRA hazardous waste
1/14/2013	8	Non-RCRA hazardous waste
2/4/2013	8	Non-RCRA hazardous waste
2/4/2013	8	Non-RCRA hazardous waste
3/4/2013	8	Non-RCRA hazardous waste
3/4/2013	8	Non-RCRA hazardous waste
3/25/2013	8	Non-RCRA hazardous waste
3/25/2013	8	Non-RCRA hazardous waste
4/22/2013	8	Non-RCRA hazardous waste
4/22/2013	8	Non-RCRA hazardous waste
4/30/2013	8	Non-RCRA hazardous waste
5/13/2013	8	Non-RCRA hazardous waste
5/13/2013	8	Non-RCRA hazardous waste
6/20/2013	8	Non-RCRA hazardous waste
6/20/2013	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, 2013 through June 30, 2013, approximately 421,101 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, 2013 through June 30, 2013 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, 2013 through June 30, 2013 semiannual reporting period.

Activities during the Second Quarter 2013 included one extended shutdown. The extraction system downtime was 3 days, 23 hours, 46 minutes, and it occurred from April 1 to 5, 2013 due to scheduled biannual facility maintenance.

5.7 Treatment Facility Modifications

No major IM-3 treatment facility modifications that affected the quality or quantity of treated effluent were performed during the January 1, 2013 through June 30, 2013 semiannual period.

SECTION 6

Conclusions

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

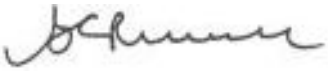
In addition, no incidents of non-compliance were identified during the reporting period. No events that caused an immediate or potential threat to human health or the environment, and no new releases of hazardous waste or hazardous waste constituents, or new solid waste management units, were identified 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, 2013

Tables

TABLE 1
Sampling Station Descriptions
Second Quarter 2013 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 2013 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 2013 Average Monthly Flowrate	117.9	117.4	1.9
May 2013 Average Monthly Flowrate	134.4	134.2	1.7
June 2013 Average Monthly Flowrate	131.9	128.0	1.5

Notes:

gpm: gallons per minute

[a] Extraction wells TW-3D and PE-1 were operated during the Second Quarter 2013. Extraction well TW-2D operated on April 4 and 5, 2013 for a total of 2 hours, 18 minutes. Extraction well TW-2S was not operated during the Second Quarter 2013.

[b] The difference between influent flow rate and the sum of the effluent and reverse osmosis concentrate flow rates during the Second Quarter 2013 is approximately 5.26 percent.

TABLE 3
Sample Collection Dates
Second Quarter 2013 Monitoring Report for Interim Measure No. 3 Groundwater Treatment System

Parameter	Sample Collection Dates	Results
Influent	April 1, 2013	See Table 4
	May 7, 2013	
	June 4, 2013	
Effluent	April 1, 2013	See Table 5
	April 5, 2013	
	April 9, 2013	
	April 16, 2013	
	April 23, 2013	
	May 1, 2013	
	May 7, 2013	
	May 14, 2013	
	May 21, 2013	
	May 29, 2013	
	June 4, 2013	
	June 11, 2013	
	June 18, 2013	
	June 25, 2013	
Reverse Osmosis Concentrate	April 1, 2013	See Table 6
Sludge[a]	First Quarter Composite	See Table 7
	sent to lab April 1, 2013	

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 2013 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

Sampling Frequency		Monthly																						
Analytes		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
Units [b]		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
MDL		1.76	0.0140	0.116	---	0.180	0.460	10.0	0.0318	0.330	0.100	0.190	0.0060	0.260	0.104	0.0740	0.0860	0.210	0.790	0.0415	0.00063	0.768	9.50	7.00
Sample ID	**Date**																							
SC-100B-WDR-407a	**4/1/2013**	**4200**	**0.177**	**7380**	**7.4**	**684**	**685**	**ND (50.0)**	**ND (0.500)**	**ND (2.00)**	**3.40**	**25.4**	**1.04**	**ND (5.00)**	**2.52**	**ND (1.00)**	**4.90**	**19.5**	**ND (2.00)**	**3.14**	**ND (0.0050)**	**539**	**ND (20.0)**	**ND (20.0)**
RL		250	0.100	2.00	---	1.00	10.0	50.0	0.500	2.00	0.500	5.00	0.200	5.00	0.500	1.00	0.500	2.00	2.00	0.500	0.0050	12.5	20.0	20.0
SC-100B-WDR-412	**5/7/2013**	**4730**	**ND (0.100)**	**7270**	**7.3**	**686**	**658**	**ND (50.0)**	**ND (0.500)**	**ND (2.00)**	**3.80**	**26.2**	**0.912**	**ND (5.00)**	**2.58**	**ND (1.00)**	**5.30**	**20.1**	**ND (2.00)**	**2.97**	**ND (0.0050)**	**536**	**ND (20.0)**	**ND (20.0)**
RL		250	0.100	2.00	---	2.00	10.0	50.0	0.500	2.00	0.500	5.00	0.200	5.00	0.500	1.00	0.500	2.00	2.00	0.500	0.0050	50.0	20.0	20.0
SC-100B-WDR-416	**6/4/2013**	**4410**	**0.132**	**7010**	**7.4**	**666**	**672**	**ND (50.0)**	**ND (0.500)**	**ND (2.00)**	**3.50**	**24.6**	**0.995**	**ND (5.00)**	**2.36**	**ND (1.00)**	**4.90**	**20.1**	**ND (2.00)**	**2.86**	**ND (0.0050)**	**543**	**ND (20.0)**	**ND (20.0)**
RL		250	0.100	2.00	---	2.00	10.0	50.0	0.500	2.00	0.500	5.00	0.200	5.00	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
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 2013 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	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	NA
Sampling Frequency				**Weekly**												**Monthly**									
	Analytes	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
	Units[c]	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
	MDL[d]	0.757	0.0140	0.116	---	0.0920	0.0092	10.0	0.0318	0.330	0.100	0.190	0.0060	0.260	0.104	0.0740	0.0860	0.210	0.790	0.0415	0.00063	0.768	9.50	7.00
Sample ID	**Date**																								
SC-700B-WDR-407a	**4/1/2013**	**4230**	**ND (0.100)**	**6920**	**7.30**	**ND (1.00)**	**ND (0.200)**	**ND (50.0)**	**ND (0.500)**	**ND (2.00)**	**ND (0.500)**	**13.9**	**0.955**	**ND (5.00)**	**2.14**	**ND (1.00)**	**1.20**	**17.2**	**ND (2.00)**	**2.84**	**ND (0.0050)**	**501**	**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	0.200	5.00	0.500	1.00	0.500	2.00	2.00	0.500	0.0050	12.5	20.0	20.0
SC-700B-WDR-407b	**4/5/2013**	**4190**	**ND (0.100)J**	**6980**	**7.30**	**ND (1.00)**	**ND (0.200)**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**9.70**	**---**	**---**	**---**	**---**	**---**	**---**	**---**
RL		250	0.100	2.00	---	1.00	0.200	---	---	---	---	---	---	---	---	---	0.500	---	---	---	---	---	---	---
SC-700B-WDR-408	**4/9/2013**	**4370**	**ND (0.100)**	**6970**	**7.00**	**ND (1.00)**	**ND (1.00)**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**2.20**	**---**	**---**	**---**	**---**	**---**	**---**	**---**
RL		250	0.100	2.00	---	1.00	1.00	---	---	---	---	---	---	---	---	---	0.500	---	---	---	---	---	---	---
SC-700B-WDR-409	**4/16/2013**	**4220**	**ND (0.100)**	**7080**	**7.00**	**ND (1.00)**	**ND (0.200)**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**7.50**	**---**	**---**	**---**	**---**	**---**	**---**	**---**
RL		250	0.100	2.00	---	1.00	0.200	---	---	---	---	---	---	---	---	---	0.500	---	---	---	---	---	---	---
SC-700B-WDR-410	**4/23/2013**	**4350**	**ND (0.100)**	**6960**	**7.10**	**ND (1.00)**	**ND (0.200)**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**2.60**	**---**	**---**	**---**	**---**	**---**	**---**	**---**
RL		250	0.100	2.00	---	1.00	0.200	---	---	---	---	---	---	---	---	---	0.500	---	---	---	---	---	---	---
SC-700B-WDR-411	**5/1/2013**	**4170**	**ND (0.100)**	**6820**	**7.20**	**ND (1.00)**	**ND (0.200)**	**ND (50.0)**	**ND (0.500)**	**ND (2.00)**	**ND (0.500)**	**12.8**	**0.888**	**ND (5.00)**	**2.28**	**ND (1.00)**	**2.90**	**19.1**	**ND (2.00)**	**2.81**	**ND (0.0050)**	**483**	**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	0.200	5.00	0.500	1.00	0.500	2.00	2.00	0.500	0.0050	25.0	20.0	20.0
SC-700B-WDR-412	**5/7/2013**	**4060**	**ND (0.100)**	**6980**	**7.00**	**ND (1.00)**	**ND (1.00)**	**ND (50.0)**	**ND (0.500)**	**ND (2.00)**	**0.510**	**12.3**	**0.887**	**ND (5.00)**	**2.22**	**ND (1.00)**	**2.20**	**18.6**	**ND (2.00)**	**2.84**	**ND (0.0050)**	**496**	**ND (20.0)**	**ND (20.0)**
RL		250	0.100	2.00	---	1.00	1.00	50.0	0.500	2.00	0.500	5.00	0.200	5.00	0.500	1.00	0.500	2.00	2.00	0.500	0.0050	25.0	20.0	20.0
SC-700B-WDR-413	**5/14/2013**	**4110**	**ND (0.100)**	**6600**	**6.90**	**ND (1.00)**	**ND (0.200)**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**1.60**	**---**	**---**	**---**	**---**	**---**	**---**	**---**
RL		250	0.100	2.00	---	1.00	0.200	---	---	---	---	---	---	---	---	---	0.500	---	---	---	---	---	---	---
SC-700B-WDR-414	**5/21/2013**	**4270**	**ND (0.100)**	**6540**	**6.90**	**ND (1.00)**	**ND (0.200)**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**4.00**	**---**	**---**	**---**	**---**	**---**	**---**	**---**
RL		250	0.100	2.00	---	1.00	0.200	---	---	---	---	---	---	---	---	---	1.00	---	---	---	---	---	---	---
SC-700B-WDR-415	**5/29/2013**	**4200**	**ND (0.100)**	**6970**	**7.60**	**ND (1.00)**	**ND (1.00)**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**1.20**	**---**	**---**	**---**	**---**	**---**	**---**	**---**
RL		250	0.100	2.00	---	1.00	1.00	---	---	---	---	---	---	---	---	---	0.500	---	---	---	---	---	---	---
SC-700B-WDR-416	**6/4/2013**	**3990**	**ND (0.100)**	**6600**	**7.10**	**ND (1.00)**	**ND (0.200)**	**ND (50.0)**	**0.599**	**ND (2.00)**	**ND (0.500)**	**9.70**	**0.966**	**ND (5.00)**	**1.87**	**ND (1.00)**	**0.530**	**18.7**	**ND (2.00)**	**2.72**	**ND (0.0050)**	**510**	**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	0.200	5.00	0.500	1.00	0.500	2.00	2.00	0.500	0.0050	25.0	20.0	20.0
SC-700B-WDR-417	**6/11/2013**	**4170**	**ND (0.100)**	**6710**	**7.00**	**ND (1.00)**	**0.210**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**0.840**	**---**	**---**	**---**	**---**	**---**	**---**	**---**
RL		250	0.100	2.00	---	1.00	0.200	---	---	---	---	---	---	---	---	---	0.500	---	---	---	---	---	---	---
SC-700B-WDR-418	**6/18/2013**	**4240**	**ND (0.100)**	**6340**	**6.80**	**ND (1.00)**	**ND (0.200)**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**0.770**	**---**	**---**	**---**	**---**	**---**	**---**	**---**
RL		250	0.100	2.00	---	1.00	0.200	---	---	---	---	---	---	---	---	---	0.500	---	---	---	---	---	---	---
SC-700B-WDR-419	**6/25/2013**	**4150**	**ND (0.100)**	**6340**	**6.80**	**ND (1.00)**	**ND (0.200)**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**2.70**	**---**	**---**	**---**	**---**	**---**	**---**	**---**
RL		250	0.100	2.00	---	1.00	0.200	---	---	---	---	---	---	---	---	---	0.500	---	---	---	---	---	---	---

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 2013 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

Sampling Frequency		Quarterly																					
Analytes		TDS	Specific Conductance	Field pH [c]	Chromium	Hexavalent Chromium	Antimony	Arsenic	Barium	Beryllium	Cadmium	Cobalt	Copper	Fluoride	Lead	Molybdenum	Mercury	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
Units [b]		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
MDL		1.76	0.116	---	0.00018	0.000092	0.0017	0.00020	0.00094	0.000060	0.00017	0.00016	0.00051	0.104	0.00037	0.00041	0.00020	0.00079	0.00016	0.00011	0.00056	0.00036	0.0139
Sample ID	**Date**																						
SC-701-WDR-407a	**4/1/2013**	**30400**	**41700**	**8.0**	**0.00140**	**ND (0.0020)**	**ND (0.0050)**	**0.00130**	**0.0978**	**ND (0.00050)**	**ND (0.0010)**	**ND (0.0050)**	**ND (0.0050)**	**15.4**	**ND (0.0010)**	**0.127**	**ND (0.0010)**	**0.00430**	**0.0286**	**ND (0.0050)**	**ND (0.0020)**	**ND (0.0050)**	**ND (0.0400)**
RL		1250	2.00	---	0.0010	0.0020	0.0050	0.00050	0.0050	0.00050	0.0010	0.0050	0.0050	0.500	0.0010	0.0020	0.0010	0.0020	0.0050	0.0050	0.0020	0.0050	0.0400

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 2013 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

Sampling Frequency		Quarterly																		
Analytes		Chromium	Hexavalent Chromium	Antimony	Arsenic	Barium	Beryllium	Cadmium	Cobalt	Copper	Fluoride	Lead	Molybdenum	Mercury	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
Units[b]		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
MDL		0.0240	0.0225	0.0236	0.0275	0.0107	0.0103	0.0024	0.0027	0.0051	0.0209	0.0088	0.0400	0.00020	0.0039	0.0067	0.0018	0.0052	0.0022	0.0139
Sample ID	**Date**																			
SC-Sludge-WDR-407a	**4/1/2013**	**4370**	**46.2**	**55.2**	**ND (5.00)**	**69.2**	**ND (4.95)**	**6.94**	**ND (10.0)**	**23.0**	**27.2**	**ND (5.00)**	**ND (10.0)**	**0.156**	**16.9**	**ND (5.00)**	**ND (5.00)**	**ND (5.00)**	**45.2**	**39.4**
RL		9.90	10.6	9.90	5.00	10.0	4.95	1.98	10.0	5.00	5.31	5.00	10.0	0.100	5.00	5.00	5.00	5.00	5.00	10.0

NOTES:

(---) = not required by the ARARs Monitoring and Reporting Program
mg/kg = milligrams per killogram
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 2013 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-407a	Ryan Phelps	4/1/2013	7:45:00 AM	TLI	EPA 120.1	SC	4/2/2013	Gautam Savani
					TLI	EPA 200.7	AL	4/11/2013	Denise Chauv
					TLI	EPA 200.7	B	4/11/2013	Denise Chauv
					TLI	EPA 200.7	FE	4/11/2013	Denise Chauv
					TLI	EPA 200.7	ZN	4/8/2013	Denise Chauv
					TLI	EPA 200.8	AS	4/3/2013	Bita Emami
					TLI	EPA 200.8	BA	4/3/2013	Bita Emami
					TLI	EPA 200.8	CR	4/3/2013	Bita Emami
					TLI	EPA 200.8	CU	4/3/2013	Bita Emami
					TLI	EPA 200.8	MN	4/3/2013	Bita Emami
					TLI	EPA 200.8	MO	4/3/2013	Bita Emami
					TLI	EPA 200.8	NI	4/3/2013	Bita Emami
					TLI	EPA 200.8	PB	4/3/2013	Bita Emami
					TLI	EPA 200.8	SB	4/3/2013	Bita Emami
					TLI	EPA 218.6	CR6	4/3/2013	Tom Martinez
					TLI	EPA 300.0	FL	4/2/2013	Giawad Ghenniwa
					TLI	EPA 300.0	NO3N	4/2/2013	Giawad Ghenniwa
					TLI	EPA 300.0	SO4	4/2/2013	Giawad Ghenniwa
					FIELD	HACH	PH	4/1/2013	Ryan Phelps
					TLI	SM2130B	TRB	4/2/2013	Gautam Savani
					TLI	SM2540C	TDS	4/3/2013	Jenny Tankunakorn
					TLI	SM4500NH3D	NH3N	4/12/2013	Melissa Scharfe
					TLI	SM4500NO2B	NO2N	4/2/2013	Jenny Tankunakorn
SC-100B	SC-100B-WDR-412	Chris Lentz	5/7/2013	10:30:00 AM	TLI	EPA 120.1	SC	5/8/2013	Gautam Savani
					TLI	EPA 200.7	AL	5/10/2013	Denise Chauv
					TLI	EPA 200.7	B	5/13/2013	Denise Chauv
					TLI	EPA 200.7	FE	5/10/2013	Denise Chauv
					TLI	EPA 200.7	FETD	5/15/2013	Denise Chauv
					TLI	EPA 200.7	ZN	5/10/2013	Denise Chauv
					TLI	EPA 200.8	AS	5/10/2013	Bita Emami
					TLI	EPA 200.8	BA	5/10/2013	Bita Emami
					TLI	EPA 200.8	CR	5/10/2013	Bita Emami
					TLI	EPA 200.8	CU	5/10/2013	Bita Emami
					TLI	EPA 200.8	MN	5/10/2013	Bita Emami
					TLI	EPA 200.8	MND	5/10/2013	Bita Emami
					TLI	EPA 200.8	MO	5/10/2013	Bita Emami

TABLE 8
Topock IM-3 Waste Discharge Applicable or Relevant and Appropriate Requirements (ARARs)
Monitoring Information
Second Quarter 2013 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-412	Chris Lentz	5/7/2013	10:30:00 AM	TLI	EPA 200.8	NI	5/29/2013	Bita Emami
					TLI	EPA 200.8	PB	5/10/2013	Bita Emami
					TLI	EPA 200.8	SB	5/10/2013	Bita Emami
					TLI	EPA 218.6	CR6	5/9/2013	Tom Martinez
					TLI	EPA 300.0	FL	5/8/2013	Giawad Ghenniwa
					TLI	EPA 300.0	NO3N	5/8/2013	Giawad Ghenniwa
					TLI	EPA 300.0	SO4	5/8/2013	Giawad Ghenniwa
					FIELD	HACH	PH	5/7/2013	Chris Lentz
					TLI	SM 2320B	ALKB	5/10/2013	Melissa Scharge
					TLI	SM 2320B	ALKC	5/10/2013	Melissa Scharge
					TLI	SM2130B	TRB	5/8/2013	Gautam Savani
					TLI	SM2540C	TDS	5/9/2013	Jenny Tankunakorn
					TLI	SM4500NH3D	NH3N	5/10/2013	Melissa Scharfe
					TLI	SM4500NO2B	NO2N	5/8/2013	Jenny Tankunakorn
SC-100B	SC-100B-WDR-416	Chris Lentz	6/4/2013	1:30:00 PM	TLI	EPA 120.1	SC	6/5/2013	Gautam Savani
					TLI	EPA 200.7	AL	6/10/2013	Denise Chauv
					TLI	EPA 200.7	B	6/10/2013	Denise Chauv
					TLI	EPA 200.7	FE	6/10/2013	Denise Chauv
					TLI	EPA 200.7	FETD	6/10/2013	Denise Chauv
					TLI	EPA 200.7	ZN	6/10/2013	Denise Chauv
					TLI	EPA 200.8	AS	6/6/2013	Bita Emami
					TLI	EPA 200.8	BA	6/6/2013	Bita Emami
					TLI	EPA 200.8	CR	6/6/2013	Bita Emami
					TLI	EPA 200.8	CU	6/6/2013	Bita Emami
					TLI	EPA 200.8	MN	6/6/2013	Bita Emami
					TLI	EPA 200.8	MND	6/6/2013	Bita Emami
					TLI	EPA 200.8	MO	6/6/2013	Bita Emami
					TLI	EPA 200.8	NI	6/6/2013	Bita Emami
					TLI	EPA 200.8	PB	6/6/2013	Bita Emami
					TLI	EPA 200.8	SB	6/6/2013	Bita Emami
					TLI	EPA 218.6	CR6	6/5/2013	Tom Martinez
					TLI	EPA 300.0	FL	6/5/2013	Giawad Ghenniwa
					TLI	EPA 300.0	NO3N	6/5/2013	Giawad Ghenniwa
					TLI	EPA 300.0	SO4	6/5/2013	Giawad Ghenniwa
					FIELD	HACH	PH	6/4/2013	Chris Lentz
					TLI	SM 2320B	ALKB	6/12/2013	Melissa Scharfe

TABLE 8
Topock IM-3 Waste Discharge Applicable or Relevant and Appropriate Requirements (ARARs)
Monitoring Information
Second Quarter 2013 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-416	Chris Lentz	6/4/2013	1:30:00 PM	TLI	SM 2320B	ALKC	6/12/2013	Melissa Scharfe
					TLI	SM2130B	TRB	6/5/2013	Gautam Savani
					TLI	SM2540C	TDS	6/7/2013	Jenny Tankunakorn
					TLI	SM4500NH3D	NH3N	6/12/2013	Melissa Scharfe
					TLI	SM4500NO2B	NO2N	6/6/2013	Jenny Tankunakorn
SC-700B	SC-700B-WDR-407a	Ryan Phelps	4/1/2013	7:30:00 AM	TLI	EPA 120.1	SC	4/2/2013	Gautam Savani
					TLI	EPA 200.7	AL	4/11/2013	Denise Chauv
					TLI	EPA 200.7	B	4/11/2013	Denise Chauv
					TLI	EPA 200.7	FE	4/11/2013	Denise Chauv
					TLI	EPA 200.7	ZN	4/8/2013	Denise Chauv
					TLI	EPA 200.8	AS	4/3/2013	Bita Emami
					TLI	EPA 200.8	BA	4/3/2013	Bita Emami
					TLI	EPA 200.8	CR	4/3/2013	Bita Emami
					TLI	EPA 200.8	CU	4/3/2013	Bita Emami
					TLI	EPA 200.8	MN	4/3/2013	Bita Emami
					TLI	EPA 200.8	MO	4/3/2013	Bita Emami
					TLI	EPA 200.8	NI	4/3/2013	Bita Emami
					TLI	EPA 200.8	PB	4/3/2013	Bita Emami
					TLI	EPA 200.8	SB	4/3/2013	Bita Emami
					TLI	EPA 218.6	CR6	4/3/2013	Tom Martinez
					TLI	EPA 300.0	FL	4/2/2013	Giawad Ghenniwa
					TLI	EPA 300.0	NO3N	4/2/2013	Giawad Ghenniwa
					TLI	EPA 300.0	SO4	4/2/2013	Giawad Ghenniwa
					FIELD	HACH	PH	4/1/2013	Ryan Phelps
					TLI	SM2130B	TRB	4/2/2013	Gautam Savani
					TLI	SM2540C	TDS	4/3/2013	Jenny Tankunakorn
					TLI	SM4500NH3D	NH3N	4/12/2013	Melissa Scharfe
					TLI	SM4500NO2B	NO2N	4/2/2013	Jenny Tankunakorn
SC-700B	SC-700B-WDR-407b	J.Aide	4/5/2013		TLI	EPA 120.1	SC	4/8/2013	Gautam Savani
					TLI	EPA 200.8	CR	4/9/2013	Bita Emami
					TLI	EPA 200.8	MN	4/9/2013	Bita Emami
					TLI	EPA 218.6	CR6	4/8/2013	Tom Martinez
					FIELD	HACH	PH	4/5/2013	J.Aide
					TLI	SM2130B	TRB	4/8/2013	Gautam Savani
					TLI	SM2540C	TDS	4/10/2013	Jenny Tankunakorn

TABLE 8
Topock IM-3 Waste Discharge Applicable or Relevant and Appropriate Requirements (ARARs)
Monitoring Information
Second Quarter 2013 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-408	George Gloria	4/9/2013	2:55:00 PM	TLI	EPA 120.1	SC	4/12/2013	Gautam Savani
					TLI	EPA 200.8	CR	4/10/2013	Bita Emami
					TLI	EPA 200.8	MN	4/10/2013	Bita Emami
					TLI	EPA 218.6	CR6	4/10/2013	Tom Martinez
					FIELD	HACH	PH	4/9/2013	G.Gloria
					TLI	SM2130B	TRB	4/10/2013	Gautam Savani
					TLI	SM2540C	TDS	4/10/2013	Jenny Tankunakorn
SC-700B	SC-700B-WDR-409	George Gloria	4/16/2013	1:49:00 PM	TLI	EPA 120.1	SC	4/17/2013	Gautam Savani
					TLI	EPA 200.8	CR	4/19/2013	Bita Emami
					TLI	EPA 200.8	MN	4/19/2013	Bita Emami
					TLI	EPA 218.6	CR6	4/17/2013	Tom Martinez
					FIELD	HACH	PH	4/16/2013	G.Gloria
					TLI	SM2130B	TRB	4/17/2013	Gautam Savani
					TLI	SM2540C	TDS	4/18/2013	Jenny Tankunakorn
SC-700B	SC-700B-WDR-410	Ryan Phelps	4/23/2013	2:22:00 PM	TLI	EPA 120.1	SC	4/24/2013	Gautam Savani
					TLI	EPA 200.8	CR	4/25/2013	Bita Emami
					TLI	EPA 200.8	MN	4/25/2013	Bita Emami
					TLI	EPA 218.6	CR6	4/25/2013	Tom Martinez
					FIELD	HACH	PH	4/23/2013	Ryan Phelps
					TLI	SM2130B	TRB	4/24/2013	Gautam Savani
					TLI	SM2540C	TDS	4/26/2013	Jenny Tankunakorn
SC-700B	SC-700B-WDR-411	Ryan Phelps	5/1/2013	1:49:00 PM	TLI	EPA 120.1	SC	5/2/2013	Gautam Savani
					TLI	EPA 200.7	AL	5/10/2013	Denise Chauv
					TLI	EPA 200.7	B	5/13/2013	Denise Chauv
					TLI	EPA 200.7	FE	5/10/2013	Denise Chauv
					TLI	EPA 200.7	ZN	5/10/2013	Denise Chauv
					TLI	EPA 200.8	AS	5/3/2013	Bita Emami
					TLI	EPA 200.8	BA	5/3/2013	Bita Emami
					TLI	EPA 200.8	CR	5/3/2013	Bita Emami
					TLI	EPA 200.8	CU	5/3/2013	Bita Emami
					TLI	EPA 200.8	MN	5/3/2013	Bita Emami
					TLI	EPA 200.8	MO	5/3/2013	Bita Emami
					TLI	EPA 200.8	NI	5/29/2013	Bita Emami
					TLI	EPA 200.8	PB	5/3/2013	Bita Emami
					TLI	EPA 200.8	SB	5/3/2013	Bita Emami

TABLE 8
Topock IM-3 Waste Discharge Applicable or Relevant and Appropriate Requirements (ARARs)
Monitoring Information
Second Quarter 2013 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-411	Ryan Phelps	5/1/2013	1:49:00 PM	TLI	EPA 218.6	CR6	5/2/2013	Tom Martinez
					TLI	EPA 300.0	FL	5/2/2013	Giawad Ghenniwa
					TLI	EPA 300.0	NO3N	5/2/2013	Giawad Ghenniwa
					TLI	EPA 300.0	SO4	5/2/2013	Giawad Ghenniwa
					FIELD	HACH	PH	5/1/2013	J.Aide
					TLI	SM2130B	TRB	5/2/2013	Gautam Savani
					TLI	SM2540C	TDS	5/2/2013	Jenny Tankunakorn
					TLI	SM4500NH3D	NH3N	5/10/2013	Melissa Scharfe
					TLI	SM4500NO2B	NO2N	5/2/2013	Jenny Tankunakorn
SC-700B	SC-700B-WDR-412	Chris Lentz	5/7/2013	10:40:00 AM	TLI	EPA 120.1	SC	5/8/2013	Gautam Savani
					TLI	EPA 200.7	AL	5/10/2013	Denise Chauv
					TLI	EPA 200.7	B	5/13/2013	Denise Chauv
					TLI	EPA 200.7	FE	5/10/2013	Denise Chauv
					TLI	EPA 200.7	ZN	5/10/2013	Denise Chauv
					TLI	EPA 200.8	AS	5/10/2013	Bita Emami
					TLI	EPA 200.8	BA	5/10/2013	Bita Emami
					TLI	EPA 200.8	CR	5/10/2013	Bita Emami
					TLI	EPA 200.8	CU	5/10/2013	Bita Emami
					TLI	EPA 200.8	MN	5/10/2013	Bita Emami
					TLI	EPA 200.8	MO	5/10/2013	Bita Emami
					TLI	EPA 200.8	NI	5/29/2013	Bita Emami
					TLI	EPA 200.8	PB	5/10/2013	Bita Emami
					TLI	EPA 200.8	SB	5/10/2013	Bita Emami
					TLI	EPA 218.6	CR6	5/9/2013	Tom Martinez
					TLI	EPA 300.0	FL	5/8/2013	Giawad Ghenniwa
					TLI	EPA 300.0	NO3N	5/8/2013	Giawad Ghenniwa
					TLI	EPA 300.0	SO4	5/8/2013	Giawad Ghenniwa
					FIELD	HACH	PH	5/7/2013	Chris Lentz
					TLI	SM2130B	TRB	5/8/2013	Gautam Savani
					TLI	SM2540C	TDS	5/9/2013	Jenny Tankunakorn
					TLI	SM4500NH3D	NH3N	5/10/2013	Melissa Scharfe
					TLI	SM4500NO2B	NO2N	5/8/2013	Jenny Tankunakorn
SC-700B	SC-700B-WDR-413	George Gloria	5/14/2013	4:10:00 PM	TLI	EPA 120.1	SC	5/17/2013	Gautam Savani
					TLI	EPA 200.8	CR	5/20/2013	Bita Emami
					TLI	EPA 200.8	MN	5/20/2013	Bita Emami
					TLI	EPA 218.6	CR6	5/22/2013	Tom Martinez

TABLE 8
Topock IM-3 Waste Discharge Applicable or Relevant and Appropriate Requirements (ARARs)
Monitoring Information
Second Quarter 2013 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-413	George Gloria	5/14/2013	4:10:00 PM	FIELD	HACH	PH	5/14/2013	George Gloria
					TLI	SM2130B	TRB	5/15/2013	Gautam Savani
					TLI	SM2540C	TDS	5/17/2013	Jenny Tankunakorn
SC-700B	SC-700B-WDR-414	Ryan Phelps	5/21/2013	1:05:00 PM	TLI	EPA 120.1	SC	5/24/2013	Gautam Savani
					TLI	EPA 200.8	CR	5/28/2013	Ethel Suico
					TLI	EPA 200.8	MN	5/28/2013	Ethel Suico
					TLI	EPA 218.6	CR6	5/24/2013	Tom Martinez
					FIELD	HACH	PH	5/21/2013	Ryan Phelps
					TLI	SM2130B	TRB	5/22/2013	Gautam Savani
					TLI	SM2540C	TDS	5/23/2013	Jenny Tankunakorn
SC-700B	SC-700B-WDR-415	Ryan Phelps	5/29/2013	7:40:00 AM	TLI	EPA 120.1	SC	5/30/2013	Gautam Savani
					TLI	EPA 200.8	CR	5/31/2013	Ethel Suico
					TLI	EPA 200.8	MN	5/31/2013	Ethel Suico
					TLI	EPA 218.6	CR6	5/30/2013	Tom Martinez
					FIELD	HACH	PH	5/29/2013	Ryan Phelps
					TLI	SM2130B	TRB	5/30/2013	Gautam Savani
					TLI	SM2540C	TDS	6/3/2013	Jenny Tankunakorn
SC-700B	SC-700B-WDR-416	Chris Lentz	6/4/2013	1:30:00 PM	TLI	EPA 120.1	SC	6/5/2013	Gautam Savani
					TLI	EPA 200.7	AL	6/10/2013	Denise Chauv
					TLI	EPA 200.7	B	6/10/2013	Denise Chauv
					TLI	EPA 200.7	FE	6/10/2013	Denise Chauv
					TLI	EPA 200.7	ZN	6/10/2013	Denise Chauv
					TLI	EPA 200.8	AS	6/6/2013	Bita Emami
					TLI	EPA 200.8	BA	6/6/2013	Bita Emami
					TLI	EPA 200.8	CR	6/6/2013	Bita Emami
					TLI	EPA 200.8	CU	6/6/2013	Bita Emami
					TLI	EPA 200.8	MN	6/6/2013	Bita Emami
					TLI	EPA 200.8	MO	6/6/2013	Bita Emami
					TLI	EPA 200.8	NI	6/6/2013	Bita Emami
					TLI	EPA 200.8	PB	6/6/2013	Bita Emami
					TLI	EPA 200.8	SB	6/6/2013	Bita Emami
					TLI	EPA 218.6	CR6	6/5/2013	Tom Martinez
					TLI	EPA 300.0	FL	6/5/2013	Giawad Ghenniwa
					TLI	EPA 300.0	NO3N	6/5/2013	Giawad Ghenniwa
					TLI	EPA 300.0	SO4	6/5/2013	Giawad Ghenniwa

TABLE 8
Topock IM-3 Waste Discharge Applicable or Relevant and Appropriate Requirements (ARARs)
Monitoring Information
Second Quarter 2013 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-416	Chris Lentz	6/4/2013	1:30:00 PM	FIELD	HACH	PH	6/4/2013	Chris Lentz
					TLI	SM2130B	TRB	6/5/2013	Gautam Savani
					TLI	SM2540C	TDS	6/7/2013	Jenny Tankunakorn
					TLI	SM4500NH3D	NH3N	6/12/2013	Melissa Scharfe
					TLI	SM4500NO2B	NO2N	6/6/2013	Jenny Tankunakorn
SC-700B	SC-700B-WDR-417	Chris Lentz	6/11/2013	1:15:00 PM	TLI	EPA 120.1	SC	6/12/2013	Gautam Savani
					TLI	EPA 200.8	CR	6/12/2013	Ethel Suico
					TLI	EPA 200.8	MN	6/12/2013	Ethel Suico
					TLI	EPA 218.6	CR6	6/12/2013	Naheed Eidinejad
					FIELD	HACH	PH	6/11/2013	Chris Lentz
					TLI	SM2130B	TRB	6/12/2013	Gautam Savani
					TLI	SM2540C	TDS	6/13/2013	Jenny Tankunakorn
SC-700B	SC-700B-WDR-418	Chris Lentz	6/18/2013	11:15:00 AM	TLI	EPA 120.1	SC	6/19/2013	Gautam Savani
					TLI	EPA 200.8	CR	6/19/2013	Ethel Suico
					TLI	EPA 200.8	MN	6/19/2013	Ethel Suico
					TLI	EPA 218.6	CR6	6/24/2013	Tom Martinez
					FIELD	HACH	PH	6/18/2013	Chris Lentz
					TLI	SM2130B	TRB	6/19/2013	Gautam Savani
					TLI	SM2540C	TDS	6/19/2013	Jenny Tankunakorn
SC-700B	SC-700B-WDR-419	J.Aide	6/25/2013	2:30:00 PM	TLI	EPA 120.1	SC	6/26/2013	Gautam Savani
					TLI	EPA 200.8	CR	6/27/2013	Bita Emami
					TLI	EPA 200.8	MN	6/27/2013	Bita Emami
					TLI	EPA 218.6	CR6	6/27/2013	Naheed Eidinejad
					FIELD	HACH	PH	6/25/2013	G. Gloria
					TLI	SM2130B	TRB	6/26/2013	Gautam Savani
					TLI	SM2540C	TDS	6/26/2013	Jenny Tankunakorn
SC-701	SC-701-WDR-407a	Ryan Phelps	4/1/2013	7:40:00 AM	TLI	EPA 120.1	SC	4/2/2013	Gautam Savani
					TLI	EPA 200.7	ZN	4/8/2013	Denise Chauv
					TLI	EPA 200.8	AG	4/3/2013	Bita Emami
					TLI	EPA 200.8	AS	4/3/2013	Bita Emami
					TLI	EPA 200.8	BA	4/3/2013	Bita Emami
					TLI	EPA 200.8	BE	4/3/2013	Bita Emami
					TLI	EPA 200.8	CD	4/3/2013	Bita Emami
					TLI	EPA 200.8	CO	4/3/2013	Bita Emami
					TLI	EPA 200.8	CR	4/3/2013	Bita Emami

TABLE 8
Topock IM-3 Waste Discharge Applicable or Relevant and Appropriate Requirements (ARARs)
Monitoring Information
Second Quarter 2013 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-701	SC-701-WDR-407a	Ryan Phelps	4/1/2013	7:40:00 AM	TLI	EPA 200.8	CU	4/3/2013	Bita Emami
					TLI	EPA 200.8	HG	4/3/2013	Bita Emami
					TLI	EPA 200.8	MN	4/3/2013	Bita Emami
					TLI	EPA 200.8	MO	4/3/2013	Bita Emami
					TLI	EPA 200.8	NI	4/3/2013	Bita Emami
					TLI	EPA 200.8	PB	4/3/2013	Bita Emami
					TLI	EPA 200.8	SB	4/3/2013	Bita Emami
					TLI	EPA 200.8	SE	4/3/2013	Bita Emami
					TLI	EPA 200.8	TL	4/3/2013	Bita Emami
					TLI	EPA 200.8	V	4/3/2013	Bita Emami
					TLI	EPA 218.6	CR6	4/3/2013	Tom Martinez
					TLI	EPA 300.0	FL	4/2/2013	Giawad Ghenniwa
					FIELD	HACH	PH	4/1/2013	Ryan Phelps
					TLI	SM2540C	TDS	4/3/2013	Jenny Tankunakorn
Phase Separator	SC-Sludge-WDR-407a	Ryan Phelps	4/1/2013	7:30:00 AM	TLI	EPA 300.0	FL	4/2/2013	Giawad Ghenniwa
					TLI	EPA 300.0	NO3N	4/2/2013	Giawad Ghenniwa
					TLI	EPA 6010B	AG	5/7/2013	Denise Chauv/Ethel Suico
					TLI	EPA 6010B	AS	4/29/2013	Denise Chauv/Ethel Suico
					TLI	EPA 6010B	BA	4/15/2013	Denise Chauv/Ethel Suico
					TLI	EPA 6010B	BE	4/29/2013	Denise Chauv/Ethel Suico
					TLI	EPA 6010B	CD	4/15/2013	Denise Chauv/Ethel Suico
					TLI	EPA 6010B	CO	4/15/2013	Denise Chauv/Ethel Suico
					TLI	EPA 6010B	CR	4/15/2013	Denise Chauv/Ethel Suico
					TLI	EPA 6010B	MN	4/15/2013	Denise Chauv/Ethel Suico
					TLI	EPA 6010B	MO	4/18/2013	Denise Chauv/Ethel Suico
					TLI	EPA 6010B	NI	4/15/2013	Denise Chauv/Ethel Suico
					TLI	EPA 6010B	PB	5/7/2013	Denise Chauv/Ethel Suico
					TLI	EPA 6010B	SB	4/29/2013	Denise Chauv/Ethel Suico
					TLI	EPA 6010B	SE	4/15/2013	Denise Chauv/Ethel Suico
					TLI	EPA 6010B	TL	4/15/2013	Denise Chauv/Ethel Suico
					TLI	EPA 6010B	V	4/15/2013	Denise Chauv/Ethel Suico
					TLI	EPA 6010B	ZN	4/15/2013	Denise Chauv/Ethel Suico
					TLI	SM2540B	MOIST	4/4/2013	Gautam Savani
					TLI	SW 6020A	CU	4/17/2013	Ethel Suico
					TLI	SW 6020A	HG	4/15/2013	Ethel Suico
					TLI	SW 7199	CR6	4/11/2013	Himani Vaishnav

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

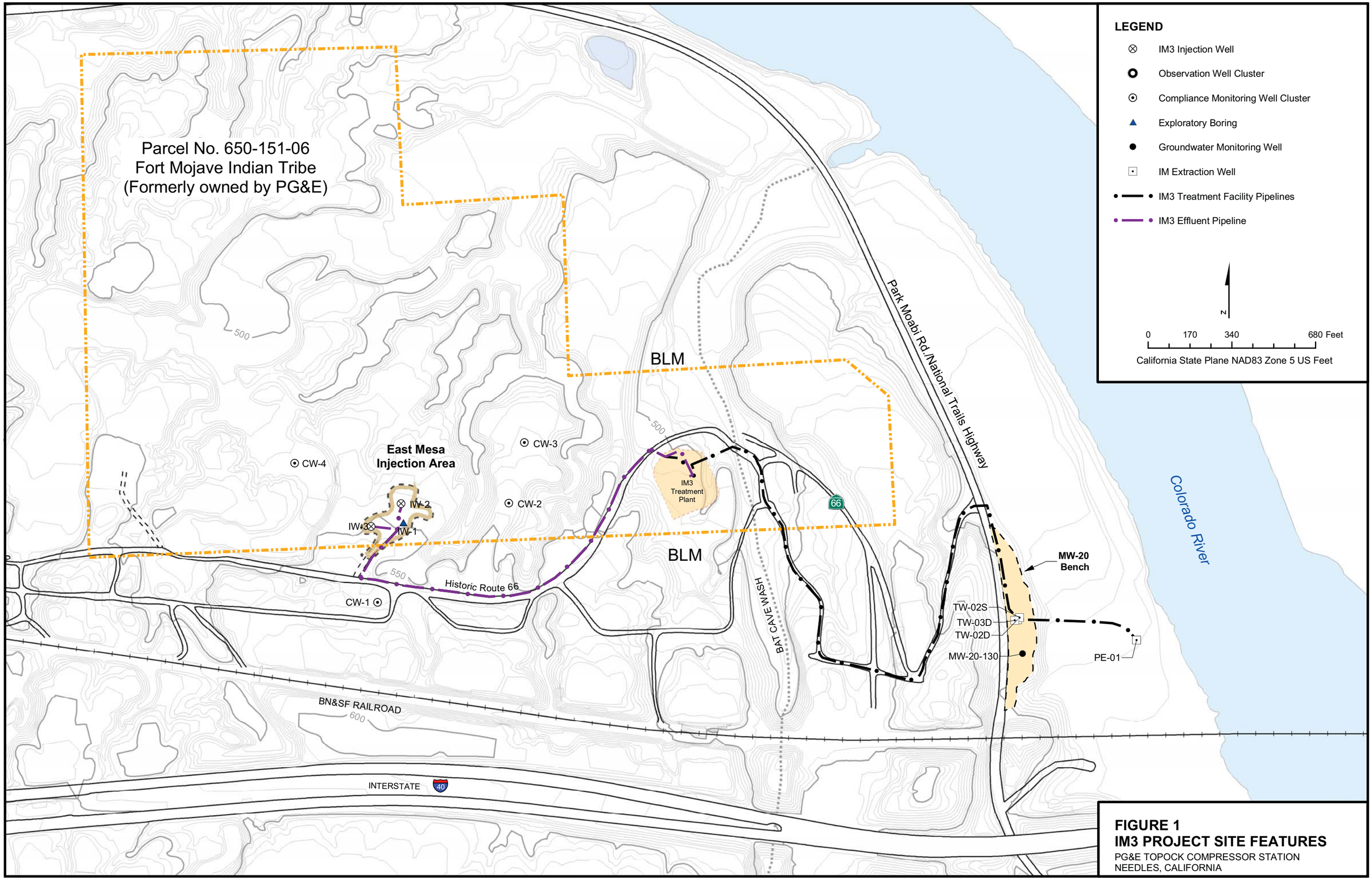
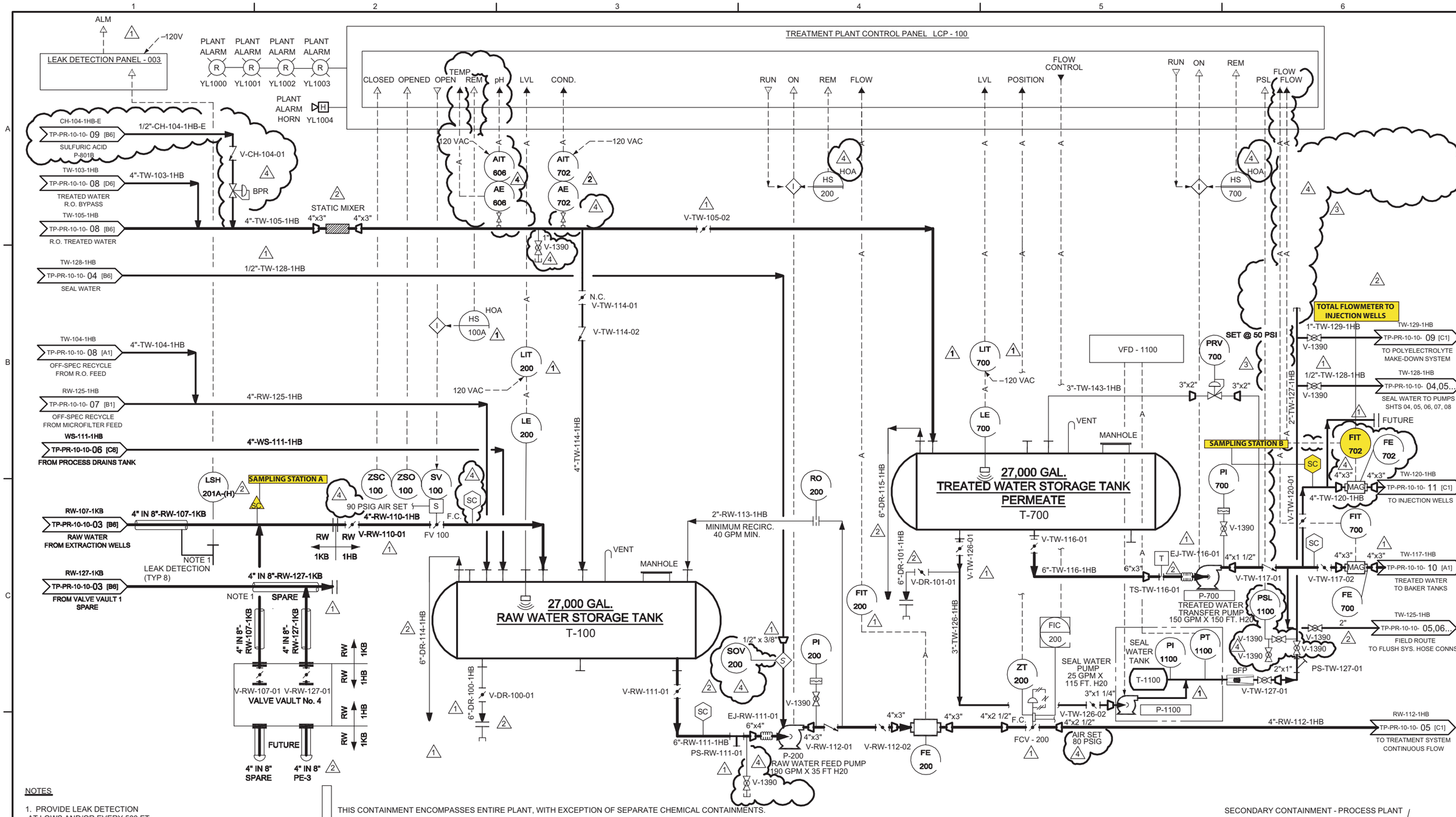


FIGURE 1
IM3 PROJECT SITE FEATURES
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

\\ZINFANDEL\PROJ\PACIFICGASELECTRICCO\TOPOCKPROGRAM\GIS\MAPFILES\2010\IM3\IM3_PROJECT_AREA_APRIL10.MXD JLAMANTI 10/8/2010 12:12:30



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NO.	DATE	REVISION	BY	CHK
D	07/28/04	FOR INTERNAL REVIEW	EFC	AJ
0	09/03/04	APPROVED FOR CONSTRUCTION	EFC	AJ
1	10/13/04	REVISED AND APPROVED FOR CONSTRUCTION	EFC	AJ
2	01/23/05	REVISED AND APPROVED FOR CONSTRUCTION	EFC	AJ
3	02/14/05	ADDED RECIRC. LINE AND PRV VALVE TO T-700 - APPROVED FOR CONSTRUCTION	EFC	AJ
4	09/21/05	REVISED PER AS-BUILT CONDITIONS	EFC	AJ

REVISION APPROVAL		REV 4	DATE 09/21/05	PRINT DISTRIBUTION
DISCIPLINE	REVIEWED	DISCIPLINE	REVIEWED	DATE
CIVIL		ELECTRICAL		STATUS
STRUCTURAL		INST & CONTROL		REV.
MECHANICAL		ARCHITECTURAL		CLIENT
PROCESS		ENVIRONMENTAL		FIELD
PIPING		GEN. ARRANG.		INTRA CO.

RESPONSIBLE ENGINEER: Kenneth L. Martins CH4876 Exp. 6-30-05 PE #

STATUS	REV	DATE	SDE	PEM
ISSUED				
PRELIMINARY				
FOR REVIEW AND APPROVAL	D	07/28/04		
APPROVED FOR CONSTRUCTION	0	09/03/04	KLM	TP
REVISED & APPROVED FOR CONSTRUCTION	4	/ /		

SCALE NONE

PACIFIC GAS & ELECTRIC CO.
TOPOCK COMPRESSOR STATION
INTERIM MEASURE 3
EXPANDED GROUNDWATER EXTRACTION AND TREATMENT SYSTEM

PROJ NO. 315994

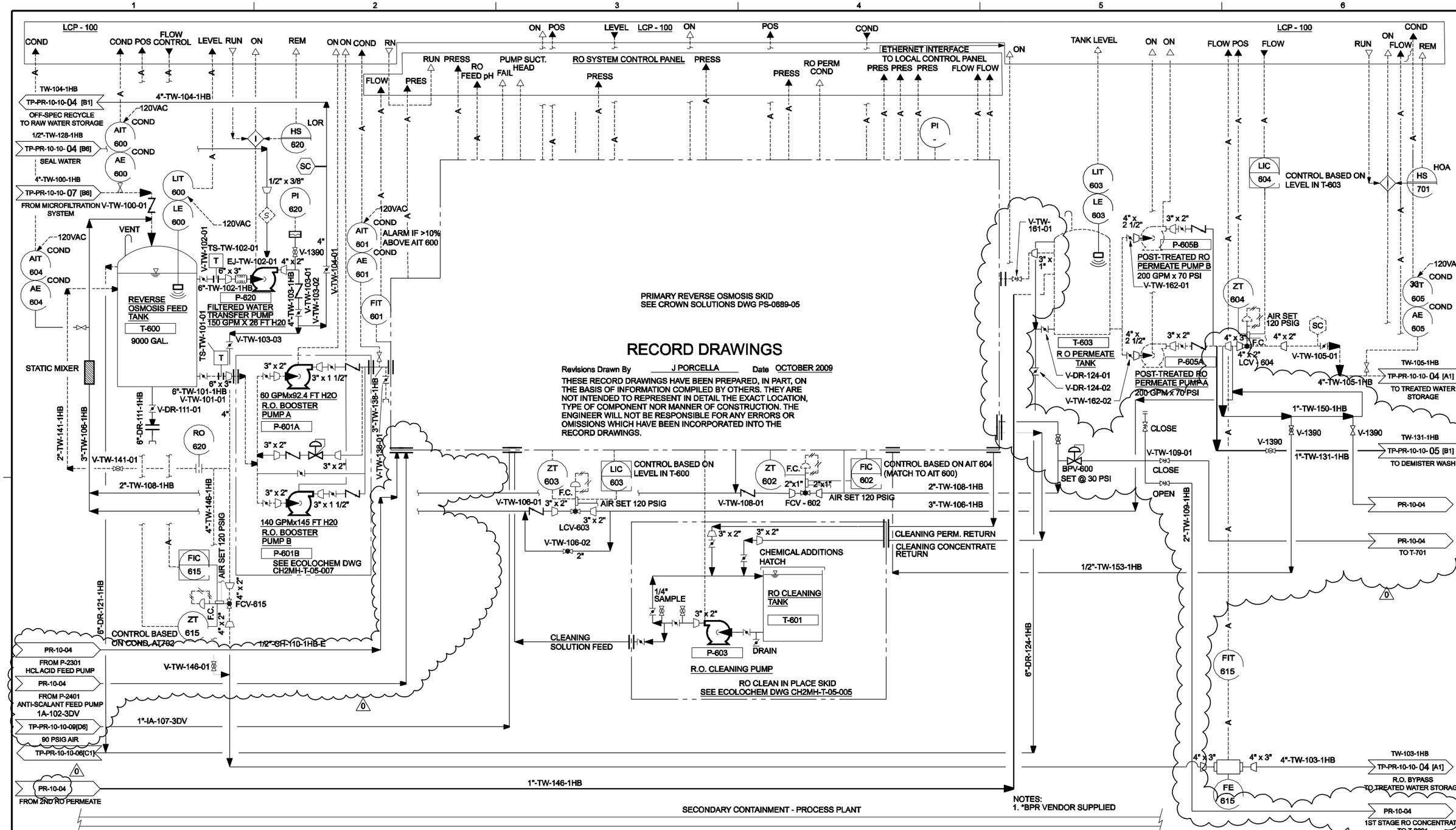
CH2MHILL

PROCESS AND INSTRUMENTATION DIAGRAM
SHEET 04
STORAGE AREA

DWG. NO. TP-PR-10-10-04 REV. 4

BAR IS ONE INCH ON ORIGINAL DRAWING

FILENAME: tppr101004.dwg PLOT DATE: 21-SEP-2005 PLOT TIME:



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REUSE OF DOCUMENTS:

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

RESPONSIBLE ENGINEER: John Porcella C70145 Exp. 9-30-10 PE#

NO.	DATE	REVISION	BY	CHK
A	2/12/09	INTERNAL REVIEW		
B	2/12/09	CLIENT REVIEW		
C	4/01/09	FOR REVIEW AND APPROVAL	JR	JP
0	11/17/09	FINAL RECORD ISSUE	JR	JP

REVISION APPROVAL		REV 0	DATE 10/02/09
DISCIPLINE	REVIEWED	DISCIPLINE	REVIEWED
CIVIL	SJ	ELECTRICAL	FH
STRUCTURAL		INST & CONTROL	JG
MECHANICAL	SJ	ARCHITECTURAL	
PROCESS	DF	ENVIRONMENTAL	
PIPING	SJ	GEN. ARRANG.	SJ

PRINT DISTRIBUTION
DATE
STATUS
REV.
CLIENT
FIELD
INTRA CO.

STATUS				
ISSUED	REV	DATE	SDE	PEM
PRELIMINARY	A	2/12/09	JP	JP
FOR REVIEW AND APPROVAL	C	4/01/09	JP	JP
APPROVED FOR CONSTRUCTION				
REVISED & APPROVED FOR CONSTRUCTION	0	10/02/09	JP	JP

SCALE NONE

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

PROJ NO. 362032

CH2MHILL

PROCESS AND INSTRUMENTATION DIAGRAM
REVERSE OSMOSIS SYSTEM
SHEET ONE OF TWO

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

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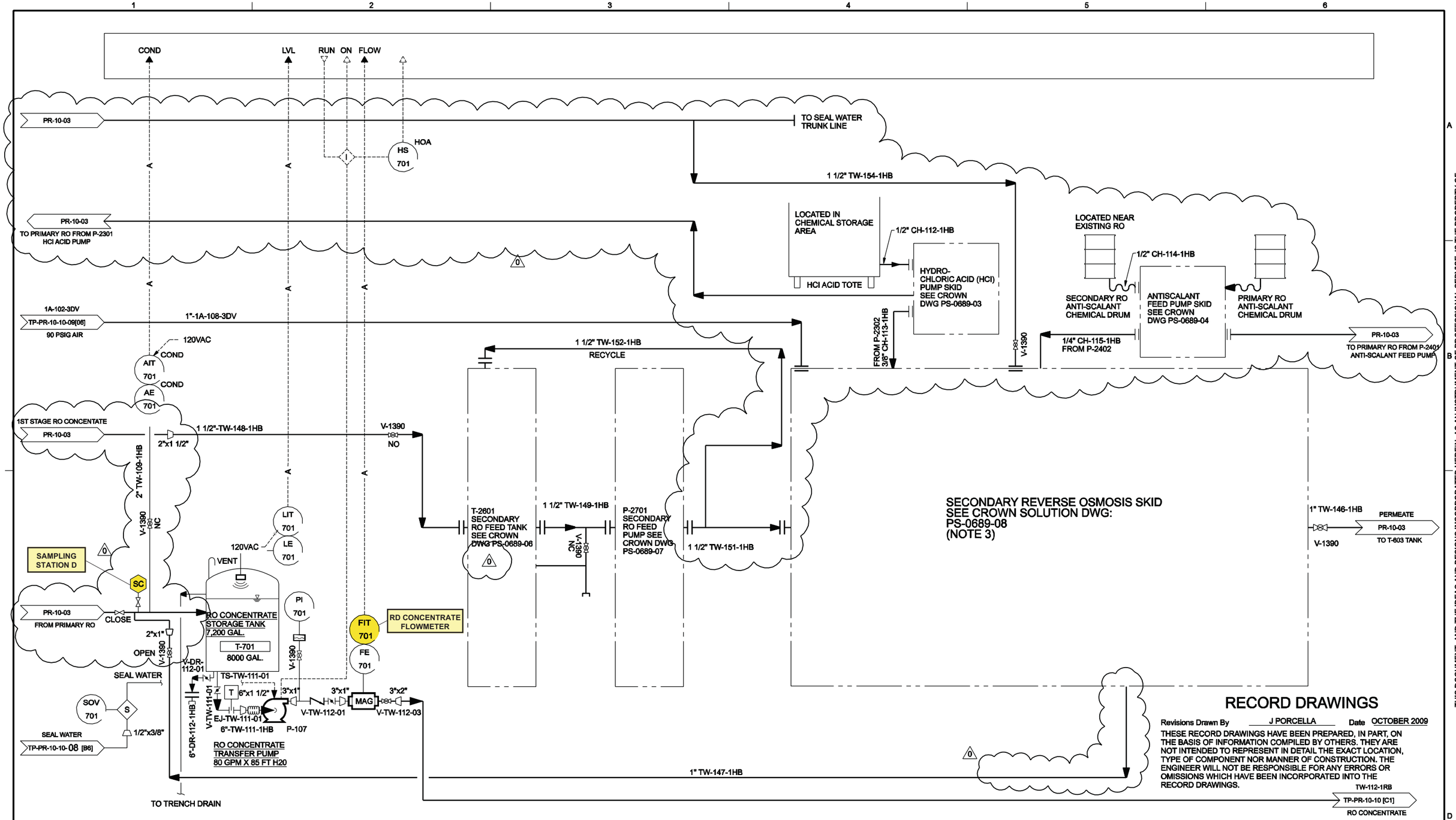

RECORD DRAWINGS

Revisions Drawn By J PORCELLA Date OCTOBER 2009

THESE RECORD DRAWINGS HAVE BEEN PREPARED, IN PART, ON THE BASIS OF INFORMATION COMPILED BY OTHERS. THEY ARE NOT INTENDED TO REPRESENT IN DETAIL THE EXACT LOCATION, TYPE OF COMPONENT NOR MANNER OF CONSTRUCTION. THE ENGINEER WILL NOT BE RESPONSIBLE FOR ANY ERRORS OR OMISSIONS WHICH HAVE BEEN INCORPORATED INTO THE RECORD DRAWINGS.

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RESPONSIBLE ENGINEER: John Porcella C70145 Exp. 9-30-10

PE#

NO.	DATE	REVISION	BY	CHK
A	2/12/09	INTERNAL REVIEW		
B	2/12/09	CLIENT REVIEW		
C	4/01/09	FOR REVIEW AND APPROVAL	JR	JP
0	11/17/09	FINAL RECORD ISSUE	JR	JP

REVISION APPROVAL				REV 0	DATE 10/02/09
DISCIPLINE	REVIEWED	DISCIPLINE	REVIEWED		
CIVIL	SJ	ELECTRICAL	FH		
STRUCTURAL		INST & CONTROL	JG		
MECHANICAL	SJ	ARCHITECTURAL			
PROCESS	DF	ENVIRONMENTAL			
PIPING	SJ	GEN. ARRANG.	SJ		

PRINT DISTRIBUTION	
DATE	
STATUS	
REV.	
CLIENT	
FIELD	
INTRA CO.	

STATUS				
ISSUED	REV	DATE	SDE	PEM
PRELIMINARY	A	2/12/09	JP	JP
FOR REVIEW AND APPROVAL	C	4/01/09	JP	JP
APPROVED FOR CONSTRUCTION				
REVISED & APPROVED FOR CONSTRUCTION	0	10/02/09	JP	JP

SCALE NONE

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

PROJ NO. 362032

CH2MHILL

PROCESS AND INSTRUMENTATION DIAGRAM
REVERSE OSMOSIS SYSTEM
SHEET TWO OF TWO

DWG. NO. PR-10-04 REV. 0

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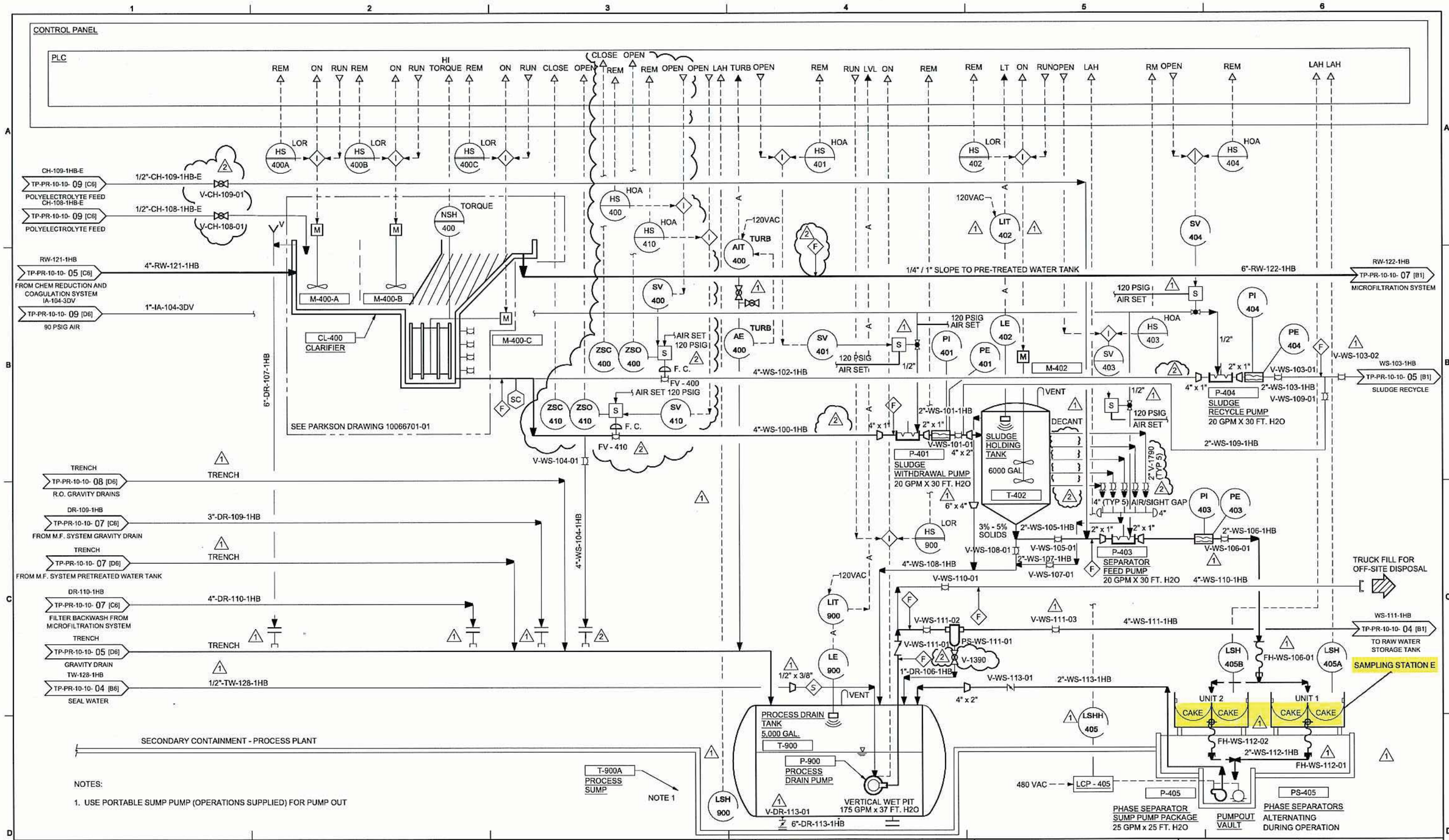

NOTES:

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

NO.	DATE	REVISION	BY	CHK
0	07/28/04	FOR INTERNAL REVIEW	EFC	AJ
0	09/03/04	APPROVED FOR CONSTRUCTION	EFC	AJ
1	10/13/04	REVISED AND APPROVED FOR CONSTRUCTION	EFC	AJ
2	01/23/05	REVISED AND APPROVED FOR CONSTRUCTION	EFC	AJ

REVISION APPROVAL		REV 2	DATE 01/23/05
DISCIPLINE	REVIEWED	DISCIPLINE	REVIEWED
CIVIL		ELECTRICAL	
STRUCTURAL		INST & CONTROL	
MECHANICAL		ARCHITECTURAL	
PROCESS		ENVIRONMENTAL	
PIPING		GEN. ARRANG.	

PRINT DISTRIBUTION: DATE, STATUS, REV., CLIENT, FIELD, INTRA CO.

STATUS	REV	DATE	SDE	PEM
PRELIMINARY				
FOR REVIEW AND APPROVAL	D	07/28/04		
APPROVED FOR CONSTRUCTION	0	09/03/04	KLM	TP
REVISED & APPROVED FOR CONSTRUCTION	2	01/23/05		

SCALE NONE

RESPONSIBLE ENGINEER: Kenneth L. Martins PE # CH4876 Exp. 6-30-05

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 06
CLARIFICATION AND SLUDGE REMOVAL

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

FILENAME: tppr101006.dwg PLOT DATE: 23-JAN-2005 PLOT TIME:

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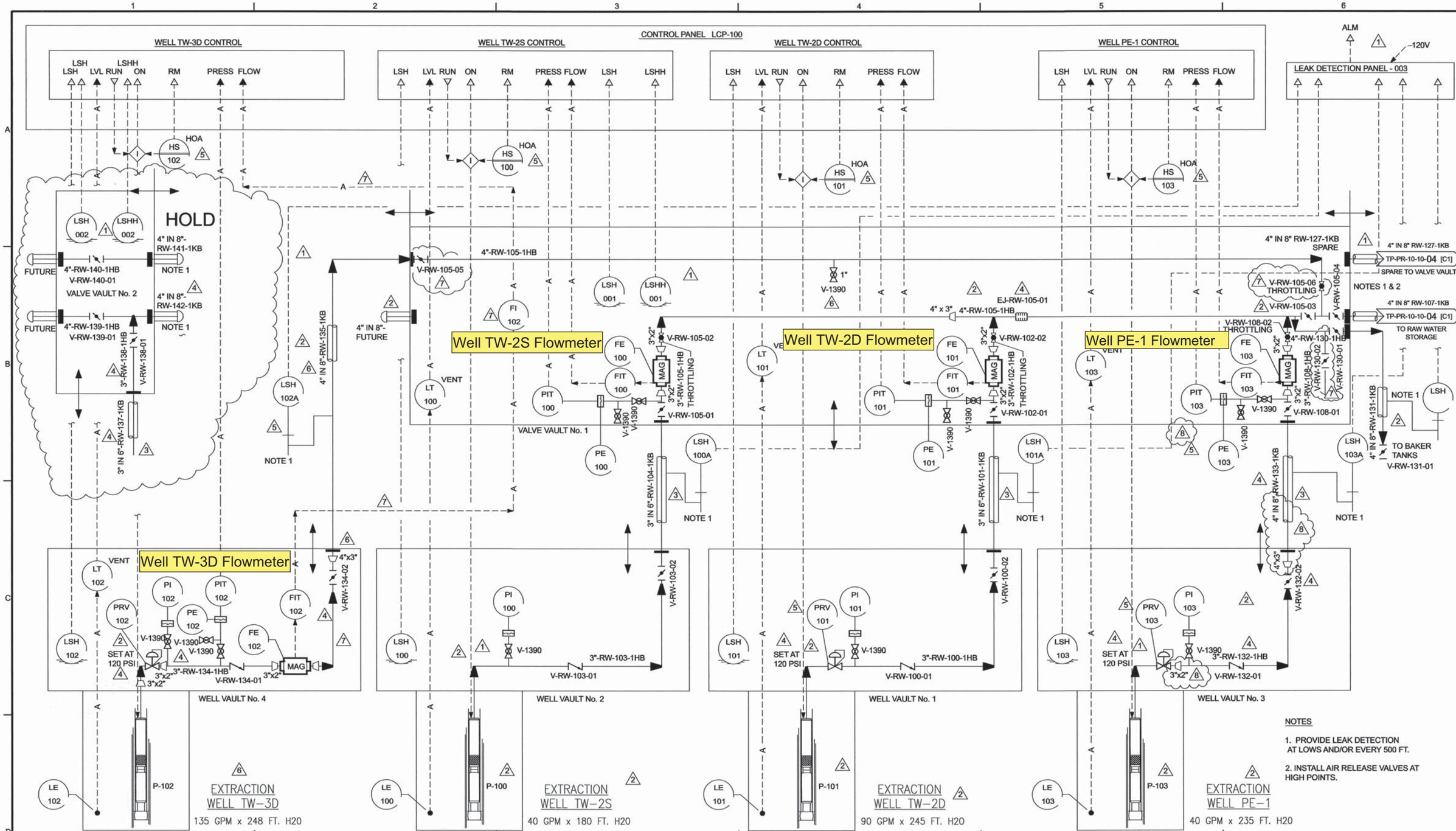

NOTES

1. PROVIDE LEAK DETECTION AT LOWS AND/OR EVERY 500 FT.
2. INSTALL AIR RELEASE VALVES AT HIGH POINTS.

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REGISTERED PROFESSIONAL ENGINEER — KENNETH L. MARTINS — No. CH4876 — Exp. 6-30-06 — CIVIL — STATE OF CALIFORNIA

RESPONSIBLE ENGINEER: Kenneth L. Martins
PE # CH4876 Exp. 6-30-06

NO.	DATE	REVISION	BY	CHK
8	12/07/05	REMOVED PE-1 HOLDS	JBW	SDH
1	10/13/04	REVISED AND APPROVED FOR CONSTRUCTION	EFC	AJ
2	01/23/05	REVISED AND APPROVED FOR CONSTRUCTION	EFC	AJ
3	03/16/05	DELETED NOTES. APPROVED FOR CONSTRUCTION	EFC	AJ
4	07/20/05	RELIEF VALVE SETTINGS. WELL PE-1 LINE TAGS. HOLDS REMOVED. APPROVED FOR CONSTRUCTION	EFC	AJ
5	09/27/05	FINAL RECORD ISSUE	EFC	AJ
6	10/06/05	REVISED FINAL RECORD - ADDED TW-3D	EFC	AJ
7	10/19/05	REVISED AS NOTED	EFC	AJ

REVISION APPROVAL		REV 8	DATE 12/06/05
DISCIPLINE	REVIEWED	DISCIPLINE	REVIEWED
CIVIL	—	ELECTRICAL	—
STRUCTURAL	—	INST & CONTROL	—
MECHANICAL	AJ	ARCHITECTURAL	—
PROCESS	—	ENVIRONMENTAL	—
PIPING	SDH	GEN. ARRANG.	—

PRINT DISTRIBUTION	
DATE	
STATUS	
REV.	
CLIENT	
FIELD	
INTRA CO.	

STATUS				
ISSUED	REV	DATE	SDE	PEM
PRELIMINARY				
FOR REVIEW AND APPROVAL	D	07/28/04		
APPROVED FOR CONSTRUCTION	0	09/03/04	KLM	TP
REVISED & APPROVED FOR CONSTRUCTION	7	12/19/05	AJ for KLM	AJ

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 03
EXTRACTION WELLS
PE-1, TW-2D, TW-2S AND TW-3D

DWG. NO. TP-PR-10-10-03 REV. 8

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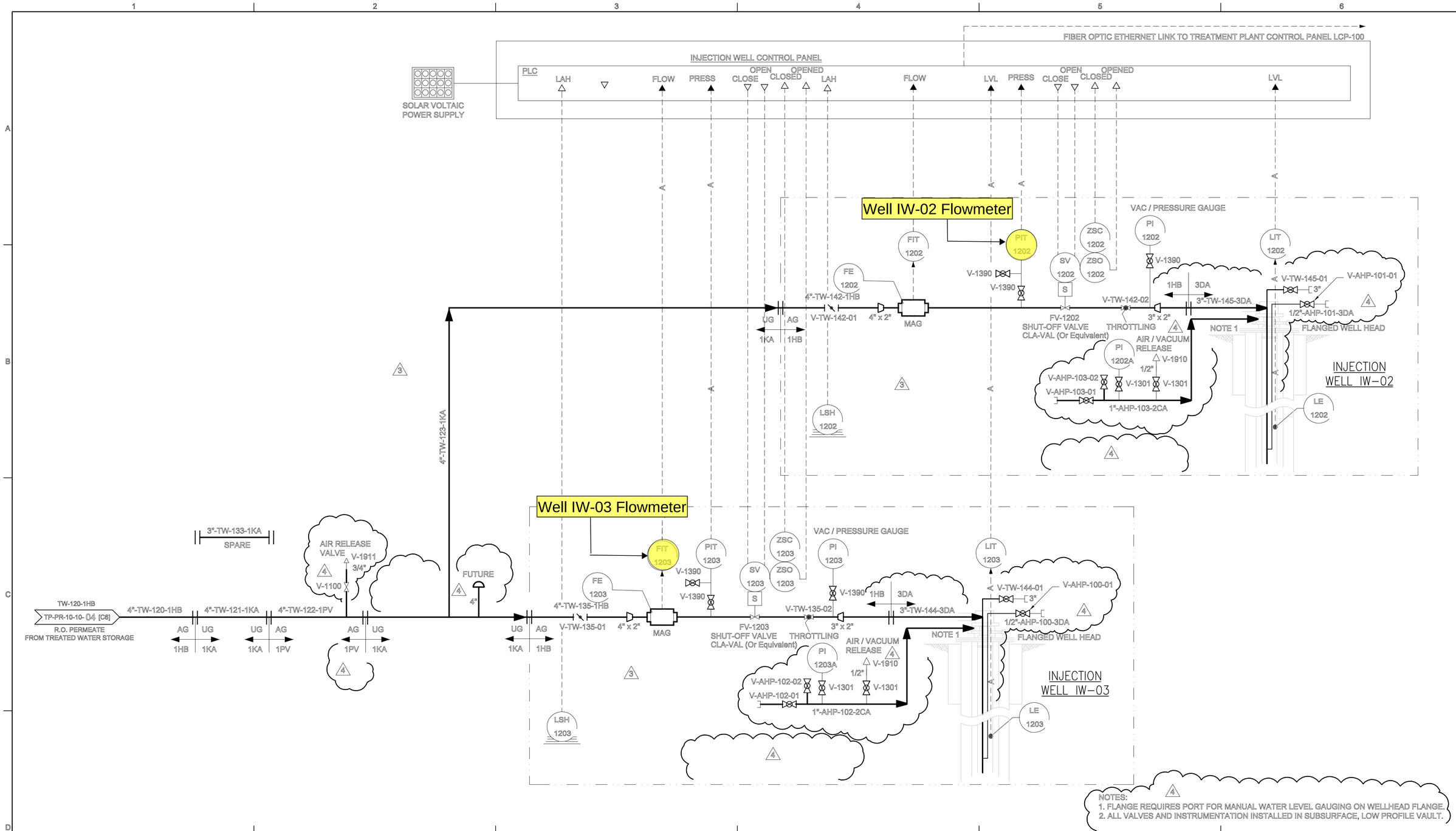
FILENAME: tppr101003.dwg PLOT DATE: 19-OCT-2005 PLOT TIME:



NO.	DATE	REVISION	BY	CHK	REVISION APPROVAL		REV 4	DATE 03/10/05		PRINT DISTRIBUTION
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.

RESPONSIBLE ENGINEER: Kenneth L. Martins CH4876 Exp. 6-30-05 PE #

STATUS				
ISSUED	REV	DATE	SDE	PEM
PRELIMINARY				
FOR REVIEW AND APPROVAL	A	07/28/04		
APPROVED FOR CONSTRUCTION	0	09/03/04	KLM	TP
REVISED & APPROVED FOR CONSTRUCTION	4	/ /		

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 11
INJECTION WELLS

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

FILENAME: tppr101011.dwg PLOT DATE: 10-MAR-2005 PLOT TIME:

BAR IS ONE INCH ON ORIGINAL DRAWING. 0 1"

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Appendix A
Semiannual Operations and Maintenance Log, January 1, 2013 through June 30, 2013

APPENDIX A

Semiannual Operations and Maintenance Log, January 1, 2013 through June 30, 2013

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 here. The times shown are in Pacific Standard Time to be consistent with other data collected at the site.

January 2013

- **January 2, 2013 (planned):** The extraction well system was offline from 10:54 a.m. to 10:56 a.m., from 11:34 a.m. to 11:36 a.m., from 11:40 a.m. to 11:42 a.m., and from 11:46 a.m. to 11:48 a.m. due to testing of critical alarms and leak detection system. Extraction system downtime was 8 minutes.
- **January 2, 2013 (unplanned):** The extraction well system was offline from 1:16 p.m. to 1:46 p.m. for clarifier feed pump P-400 maintenance. Extraction system downtime was 30 minutes.
- **January 3, 2013 (unplanned):** The extraction well system was offline from 10:54 a.m. to 12:28 p.m. for clarifier feed pump P-400 replacement. Extraction system downtime was 1 hour, 34 minutes.
- **January 23, 2013 (planned):** The extraction well system was offline from 7:26 a.m. to 6:46 p.m. for cleaning of the Iron Oxidation Tanks T-301A, T-301B, and T-301C. Extraction system downtime was 11 hours, 20 minutes.
- **January 24, 2013 (unplanned):** The extraction well system was offline from 9:16 a.m. to 10:30 a.m. due to a high level alarm in the raw water tank T-100. Extraction system downtime was 1 hour, 14 minutes.

February 2013

- **February 2, 2013 (unplanned):** The extraction well system was offline from 10:06 p.m. to 10:08 p.m. due to loss of power from Needles Power. Extraction system downtime was 2 minutes.
- **February 6, 2013 (planned):** The extraction well system was offline from 10:38 a.m. to 1:52 p.m. to replace the primary RO membranes. Extraction system downtime was 3 hours, 14 minutes.
- **February 6, 2013 (planned):** The extraction well system was offline from 2:56 p.m. to 3:02 p.m. and from 3:08 p.m. to 3:36 p.m. due to testing of critical alarms and leak detection system. Extraction system downtime was 34 minutes.
- **February 10, 2013 (unplanned):** The extraction well system was offline 6:08 a.m. to 7:26 a.m. due to reduced mircofilter performance. Extraction system downtime was 1 hour, 18 minutes.
- **February 11 to 12, 2013 (unplanned):** The extraction well system was offline from 10:18 p.m. to 9:40 a.m. due to microfilter maintenance. Extraction system downtime was 13 hours, 22 minutes.
- **February 12, 2013 (unplanned):** The extraction well system was offline from 1:04 p.m. to 5:22 p.m. due to microfilter maintenance. Extraction system downtime was 4 hours, 18 minutes.

March 2013

- **March 6, 2013 (planned):** The extraction well system was offline from 10:12 a.m. to 10:22 a.m., from 10:54 a.m. to 10:56 a.m., from 11:02 a.m. to 11:04 a.m., from 11: 12 a.m. to 11:14 a.m., from 11:20 a.m. to 11:22 a.m., from 11:26 a.m. to 11:28 a.m., and from 11:34 a.m. to 11:36 a.m. due to testing of critical alarms and leak detection system. Extraction system downtime was 22 minutes.

- **March 11, 2013 (unplanned):** The extraction well system was offline 10:26 p.m. to 11:32 p.m. for cleaning of the Raw Water Storage Tank and Process Drain Tank strainers. Extraction system downtime was 1 hour, 6 minutes.
- **March 13, 2013 (unplanned):** The extraction well system was offline from 7:02 a.m. to 3:28 p.m. due to maintenance on the injection water transfer piping. Extraction system downtime was 8 hours, 26 minutes.
- **March 13, 2013 (unplanned):** The extraction well system was offline from 7:50 p.m. to 7:54 p.m. due to loss of power from Needles Power. Extraction system downtime was 4 minutes.
- **March 15, 2013 (unplanned):** The extraction well system was offline from 1:00 p.m. to 2:26 p.m. and 3:20 p.m. to 3:40 p.m. for the engineer to upload new human-machine interface (HMI) software. Extraction system downtime was 1 hour, 46 minutes.
- **March 18, 2013 (unplanned):** The extraction well system was offline from 9:30 a.m. to 9:36 a.m. due to loss of power from Needles Power. Extraction system downtime was 6 minutes.
- **March 19, 2013 (unplanned):** The extraction well system was offline from 11:08 a.m. to 11:18 a.m. due to "Brine Test." Extraction system downtime was 10 minutes.
- **March 26, 2013 (unplanned):** The extraction well system was offline from 10:04 p.m. to 10:16 p.m. due to "training." Extraction system downtime was 12 minutes.

April 2013

- **April 1-5, 2013 (planned):** The extraction well system was offline from 7:36 a.m. on April 1 to 3:06 p.m. on April 4, from 5:32 p.m. on April 4 to 5:32 a.m. on April 5, from 7:30 a.m. to 10:54 a.m. on April 5, and from 11:44 a.m. to 12:36 p.m. on April 5 for semiannual scheduled maintenance. Extraction system downtime was 3 days, 23 hours, 46 minutes.
- **April 8, 2013 (unplanned):** The extraction well system was offline from 1:18 p.m. to 4:44 p.m. to clean the chemical loop recirculation line. Extraction system downtime was 3 hours, 26 minutes.
- **April 10, 2013 (planned):** The extraction well system was offline from 12:50 p.m. to 12:56 p.m. and from 1:02 p.m. to 1:04 p.m. due to testing of critical alarms and leak detection system. Extraction system downtime was 8 minutes.
- **April 14, 2013 (unplanned):** The extraction well system was offline from 5:44 p.m. to 7:06 p.m. for repair of the air compressor belt. Extraction system downtime was 1 hour, 22 minutes.
- **April 23, 2013 (unplanned):** The extraction well system was offline from 9:14 a.m. to 10:30 a.m. and from 11:32 a.m. to 11:42 a.m. due to performance high alarm in T-100. Extraction system downtime was 1 hour, 26 minutes.
- **April 23, 2013 (unplanned):** The extraction well system was offline from 6:50 p.m. to 6:56 p.m. due to loss of power from Needles Power. Extraction system downtime was 6 minutes.

May 2013

- **May 9, 2013 (planned):** The extraction well system was offline from 12:06 p.m. to 12:20 p.m., from 12:42 p.m. to 12:44 p.m., from 12:46 p.m. to 12:48 p.m., from 12:50 p.m. to 12:52 p.m., from 12:56 p.m. to 1:08 p.m., and from 1:10 p.m. to 1:16 p.m. due to testing of critical alarms and leak detection system. Extraction system downtime was 38 minutes.
- **May 13, 2013 (unplanned):** The extraction well system was offline from 7:12 p.m. to 7:14 p.m. due to the blower overheating. Extraction system downtime was 2 minutes.

- **May 16, 2013 (planned):** The extraction well system was offline from 9:16 p.m. to 9:36 p.m. due to replacement of the flow meters on wells TW-2D and IW-2. Extraction system downtime was 20 minutes.
- **May 29, 2013 (planned):** The extraction well system was offline from 11:58 a.m. to 2:54 p.m. to perform general plant maintenance. Extraction system downtime was 2 hours, 56 minutes.

June 2013

- **June 23, 2013 (unplanned):** The extraction well system was offline from 7:56 p.m. to 8:00 p.m., from 8:16 p.m. to 8:22 p.m., and from 8:24 p.m. to 8:38 p.m. due to a loss of power from Needles Power. Extraction system downtime was 24 minutes.
- **June 24, 2013 (unplanned):** The extraction well system was offline from 6:42 a.m. to 9:34 a.m. for Needles Power to change out the meter. Extraction system downtime was 2 hours, 50 minutes.
- **June 26, 2013 (planned):** The extraction well system was offline from 7:46 a.m. to 12:20 p.m. for routine maintenance on the injection line. Extraction system downtime was 4 hours, 34 minutes.
- **June 27, 2013 (unplanned):** The extraction system was turned off from 9:16 a.m. to 1:12 p.m. due to the plant reaching full capacity when both injection wells were off for backwashing. Extraction system downtime was 3 hours, 56 minutes.
- **June 28, 2013 (planned):** The extraction well system was 1:36 p.m. to 1:54 p.m. due to cleaning of the microfilter membranes. Extraction system downtime was 18 minutes.
- **June 30, 2013 (unplanned):** The extraction well system was offline from 11:54 p.m. to 11:56 p.m. due to loss of power from Needles Power. Extraction system downtime was 2 minutes.

Appendix B
Daily Volumes of Groundwater Treated

January 2013 Operational Data

IM-3 Groundwater Extraction and Treatment System

PG&E Topock Compressor Station, Needles, California

			Extraction Well System					Injection Well System			RO Brine
Month	**Day**	**Year**	**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	2013	--	--	154,921	37,588	192,508	39	189,127	189,167	3,103
January	2	2013	--	--	150,523	36,611	187,134	5	185,294	185,298	3,090
January	3	2013	--	--	144,611	35,474	180,085	24	184,974	184,998	6
January	4	2013	--	--	154,664	38,563	193,227	10	188,515	188,525	3,092
January	5	2013	--	--	154,714	38,444	193,159	19	193,363	193,382	3,192
January	6	2013	--	--	154,751	38,265	193,016	22	188,657	188,679	5
January	7	2013	--	--	154,733	38,103	192,836	15	191,325	191,339	3,032
January	8	2013	--	--	154,739	38,059	192,798	10	192,661	192,671	2,961
January	9	2013	--	--	154,736	38,085	192,821	6	195,309	195,315	3,484
January	10	2013	--	--	154,359	37,960	192,319	11	194,867	194,878	6
January	11	2013	--	--	154,783	37,786	192,569	23	187,766	187,789	2,973
January	12	2013	--	--	154,771	37,623	192,394	31	198,612	198,644	3,099
January	13	2013	--	--	154,726	37,917	192,643	38	184,995	185,033	2,821
January	14	2013	--	--	154,335	40,070	194,404	35	190,320	190,355	2,963
January	15	2013	--	--	154,337	39,822	194,159	18	192,756	192,774	5
January	16	2013	--	--	154,377	39,911	194,289	18,257	175,413	193,669	3,085
January	17	2013	--	--	154,358	39,932	194,291	28	193,507	193,535	5,926
January	18	2013	--	--	154,347	39,827	194,174	36	192,987	193,023	3,219
January	19	2013	--	--	154,415	39,594	194,009	6	194,496	194,503	116
January	20	2013	--	--	154,463	39,503	193,966	33	193,305	193,338	2,993
January	21	2013	--	--	154,415	39,397	193,812	8	188,841	188,848	3,217
January	22	2013	--	--	154,483	39,402	193,885	35	193,831	193,865	4
January	23	2013	--	--	81,394	21,089	102,483	19	102,845	102,864	2,975
January	24	2013	--	--	146,282	38,344	184,626	33	186,226	186,259	5
January	25	2013	--	--	154,427	40,265	194,692	13	190,565	190,578	3,084
January	26	2013	--	--	154,513	40,131	194,644	14	197,196	197,210	3,076
January	27	2013	--	--	154,553	39,976	194,529	22	195,569	195,591	4
January	28	2013	--	--	154,542	39,843	194,386	2	192,397	192,399	3,220
January	29	2013	--	--	154,632	38,950	193,581	15	195,194	195,209	3,088
January	30	2013	--	--	154,751	38,331	193,082	28	190,827	190,856	2,970
January	31	2013	--	--	154,780	38,254	193,035	30	194,540	194,571	6
Total Monthly Volumes (gal)			**0**	**0**	**4,696,435**	**1,183,120**	**5,879,555**	**18,885**	**5,836,278**	**5,855,164**	**70,817**
Average Pump/Injection Rates (gpm)			**0.0**	**0.0**	**105.2**	**26.5**	**131.7**	**0.4**	**130.7**	**131.2**	**1.6**

NOTES: gal: gallons gpm: gallons per minute RO: Reverse Osmosis

a. Extraction wells TW-3D and PE-1 were operated during January 2013 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 2013.

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 2013 is approximately 0.79 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 2013 Operational Data

IM-3 Groundwater Extraction and Treatment System

PG&E Topock Compressor Station, Needles, California

			Extraction Well System					Injection Well System			RO Brine
Month	**Day**	**Year**	**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	2013	--	--	154,777	38,232	193,009	0	189,708	189,708	3,202
February	2	2013	--	--	154,594	38,213	192,807	0	192,498	192,498	3,095
February	3	2013	--	--	154,905	38,290	193,194	0	192,088	192,088	2
February	4	2013	--	--	154,889	38,214	193,103	0	190,754	190,754	3,060
February	5	2013	--	--	154,749	38,336	193,085	0	194,713	194,713	3,241
February	6	2013	--	--	129,578	33,234	162,812	0	164,781	164,781	3
February	7	2013	--	--	155,292	39,945	195,237	0	186,546	186,546	2,851
February	8	2013	--	--	156,516	39,922	196,438	0	191,460	191,460	2,978
February	9	2013	--	--	156,544	39,838	196,382	0	192,713	192,713	5
February	10	2013	--	--	147,837	37,994	185,831	0	194,882	194,882	3,021
February	11	2013	--	--	132,268	33,930	166,198	0	164,989	164,989	2,959
February	12	2013	--	--	65,153	17,023	82,176	0	78,765	78,765	5
February	13	2013	--	--	156,279	40,493	196,772	0	198,486	198,486	7
February	14	2013	--	--	156,374	40,208	196,582	0	198,724	198,724	3,220
February	15	2013	--	--	156,476	39,886	196,362	0	198,336	198,336	2,961
February	16	2013	--	--	156,465	39,884	196,349	0	196,651	196,651	4
February	17	2013	--	--	156,516	39,781	196,296	0	193,364	193,364	2,955
February	18	2013	--	--	156,439	39,695	196,134	0	198,057	198,057	3,115
February	19	2013	--	--	156,469	39,616	196,085	0	196,769	196,769	3
February	20	2013	--	--	156,400	39,611	196,011	0	193,263	193,263	2,977
February	21	2013	--	--	157,379	39,771	197,151	0	196,155	196,155	4
February	22	2013	--	--	157,726	39,608	197,334	0	196,584	196,584	3,091
February	23	2013	--	--	157,684	39,513	197,196	0	196,705	196,705	3,086
February	24	2013	--	--	157,652	39,437	197,090	0	196,935	196,935	5
February	25	2013	--	--	157,716	39,487	197,203	0	197,032	197,032	3,177
February	26	2013	--	--	157,696	39,475	197,171	0	196,934	196,934	3
February	27	2013	--	--	157,685	39,322	197,007	0	196,765	196,765	3,893
February	28	2013	--	--	157,654	39,460	197,114	0	194,577	194,577	3,105
Total Monthly Volumes (gal)			**0**	**0**	**4,229,713**	**1,068,417**	**5,298,130**	**0**	**5,279,234**	**5,279,234**	**56,028**
Average Pump/Injection Rates (gpm)			**0.0**	**0.0**	**104.9**	**26.5**	**131.4**	**0.0**	**130.9**	**130.9**	**1.4**

NOTES: gal: gallons gpm: gallons per minute RO: Reverse Osmosis

a. Extraction wells TW-3D and PE-1 were operated during February 2013 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 2013.

b. Effluent was discharged into injection well IW-03.

c. The difference between influent flow rate and the sum of the effluent and reverse osmosis concentrate flow rates during February 2013 is approximately 0.7 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 2013 Operational Data

IM-3 Groundwater Extraction and Treatment System

PG&E Topock Compressor Station, Needles, California

			Extraction Well System					Injection Well System			RO Brine
Month	**Day**	**Year**	**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	2013	--	--	157,673	39,420	197,093	35	194,584	194,619	4
March	2	2013	--	--	157,695	39,505	197,200	41	198,531	198,572	3,056
March	3	2013	--	--	157,770	39,577	197,347	4	195,297	195,300	3,092
March	4	2013	--	--	157,668	39,530	197,197	8	193,914	193,922	7
March	5	2013	--	--	157,668	39,583	197,251	112,931	82,923	195,854	2,997
March	6	2013	--	--	154,775	39,176	193,950	201,754	23	201,777	3,130
March	7	2013	--	--	157,571	39,744	197,315	193,016	12	193,028	3,242
March	8	2013	--	--	157,569	39,707	197,276	193,473	17	193,490	3
March	9	2013	--	--	157,569	39,581	197,150	195,794	15	195,809	2,984
March	10	2013	--	--	157,553	39,530	197,083	195,895	18	195,913	3,103
March	11	2013	--	--	149,796	38,478	188,274	189,334	18	189,351	3,207
March	12	2013	--	--	157,520	40,042	197,561	199,591	17	199,608	3,100
March	13	2013	--	--	101,619	26,043	127,662	131,001	10	131,011	2
March	14	2013	--	--	157,418	40,193	197,611	99,974	86,727	186,701	3,101
March	15	2013	--	--	145,752	37,271	183,023	0	188,694	188,695	3,194
March	16	2013	--	--	158,007	40,343	198,349	0	196,239	196,240	1
March	17	2013	--	--	158,130	40,392	198,522	0	195,840	195,840	0
March	18	2013	--	--	157,024	39,933	196,957	1	197,220	197,220	1
March	19	2013	--	--	156,259	39,869	196,128	10	200,520	200,530	2,982
March	20	2013	--	--	157,429	40,098	197,527	35,033	165,147	200,180	2,985
March	21	2013	--	--	157,423	39,989	197,412	41	198,828	198,870	3,254
March	22	2013	--	--	157,382	39,956	197,338	0	192,391	192,391	3,114
March	23	2013	--	--	157,402	39,937	197,339	7	196,173	196,181	3,121
March	24	2013	--	--	157,457	39,901	197,359	17	196,709	196,726	3,096
March	25	2013	--	--	157,387	39,870	197,258	11	196,933	196,944	3,104
March	26	2013	--	--	155,703	39,626	195,328	12	196,174	196,185	3
March	27	2013	--	--	157,258	40,130	197,387	25,435	171,413	196,848	3,257
March	28	2013	--	--	157,238	39,995	197,232	27	196,938	196,966	3,269
March	29	2013	--	--	157,158	39,891	197,049	2	197,144	197,145	3,123
March	30	2013	--	--	157,131	39,847	196,979	6	197,261	197,267	2,061
March	31	2013	--	--	156,948	40,612	197,559	7	196,193	196,199	3,096
Total Monthly Volumes (gal)			**0**	**0**	**4,800,946**	**1,217,768**	**6,018,714**	**1,773,459**	**4,231,923**	**6,005,382**	**70,689**
Average Pump/Injection Rates (gpm)			**0.0**	**0.0**	**107.5**	**27.3**	**134.8**	**39.7**	**94.8**	**134.5**	**1.6**

NOTES: gal: gallons gpm: gallons per minute RO: Reverse Osmosis

a. Extraction wells TW-3D and PE-1 were operated during March 2013 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 2013.

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 2013 is approximately 0.95 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 2013 Operational Data

IM-3 Groundwater Extraction and Treatment System

PG&E Topock Compressor Station, Needles, California

			Extraction Well System					Injection Well System			RO Brine
Month	Day	Year	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	2013	--	8	49,732	12,909	62,648	8	70,410	70,418	4
April	2	2013	--	4	25	3	32	3	22	25	2
April	3	2013	--	6	18	2	27	17	18	35	2
April	4	2013	--	9,428	18	4,063	13,510	4	18	22	2
April	5	2013	--	10,530	75,643	23,132	109,306	6	111,283	111,289	3,119
April	6	2013	--	10	159,001	38,296	197,307	23	202,780	202,803	3
April	7	2013	--	8	159,157	38,123	197,288	74,121	123,015	197,137	3,111
April	8	2013	--	6	136,451	33,070	169,527	177,176	17	177,193	2,998
April	9	2013	--	7	159,294	39,121	198,422	196,110	16	196,126	2,955
April	10	2013	--	8	155,643	38,990	194,641	195,583	1,653	197,236	3
April	11	2013	--	9	158,812	40,201	199,022	186,731	25	186,756	3,238
April	12	2013	--	9	158,741	39,944	198,694	200,807	28	200,835	3,119
April	13	2013	--	8	158,635	39,929	198,572	199,587	19	199,606	2,996
April	14	2013	--	11	149,552	37,952	187,514	182,627	17	182,644	3
April	15	2013	--	9	157,402	40,432	197,842	202,213	15	202,227	3,129
April	16	2013	--	7	158,767	40,609	199,383	202,665	15	202,680	3,129
April	17	2013	--	11	158,611	40,318	198,940	197,000	21	197,021	2,867
April	18	2013	--	7	158,554	40,197	198,758	194,502	23	194,525	2,991
April	19	2013	--	9	158,656	40,275	198,939	194,524	19	194,543	3
April	20	2013	--	9	158,672	40,254	198,935	202,603	15	202,618	3,093
April	21	2013	--	12	158,737	40,252	199,000	198,373	15	198,388	2,863
April	22	2013	--	18	158,708	40,205	198,930	198,627	14	198,641	2,977
April	23	2013	--	8	149,267	38,323	187,598	184,685	14	184,699	2,952
April	24	2013	--	7	158,809	40,399	199,215	197,645	13	197,658	8,401
April	25	2013	--	7	158,623	40,391	199,022	201,644	14	201,658	13,658
April	26	2013	--	10	158,607	40,286	198,902	195,577	12	195,588	2,493
April	27	2013	--	10	158,519	40,070	198,598	199,852	14	199,866	2,349
April	28	2013	--	8	158,539	39,932	198,479	198,643	21	198,664	3,132
April	29	2013	--	7	155,573	39,974	195,554	191,029	13	191,042	3,130
April	30	2013	--	16	156,479	40,267	196,762	191,261	19	191,280	2,824
Total Monthly Volumes (gal)			**0**	**20,206**	**4,043,244**	**1,027,918**	**5,091,368**	**4,563,647**	**509,575**	**5,073,222**	**81,547**
Average Pump/Injection Rates (gpm)			**0.0**	**0.5**	**93.6**	**23.8**	**117.9**	**105.6**	**11.8**	**117.4**	**1.9**

NOTES: gal: gallons gpm: gallons per minute RO: Reverse Osmosis

a. Extraction wells TW-3D and PE-1 were operated during April 2013 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, 2013. Extraction well TW-2S was not operated during April 2013.

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 April 2013 is approximately 1.25 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.

May 2013 Operational Data

IM-3 Groundwater Extraction and Treatment System

PG&E Topock Compressor Station, Needles, California

			Extraction Well System					Injection Well System			RO Brine
Month	**Day**	**Year**	**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	2013	--	--	152,162	40,402	192,564	199,106	15	199,121	4
May	2	2013	--	--	155,473	40,221	195,694	194,168	16	194,184	4,305
May	3	2013	--	--	155,442	40,035	195,476	196,530	13	196,543	4
May	4	2013	--	--	155,346	40,118	195,464	196,406	15	196,420	3,147
May	5	2013	--	--	155,432	40,160	195,591	194,392	13	194,405	2,971
May	6	2013	--	--	155,483	40,125	195,607	195,509	14	195,523	3
May	7	2013	--	--	155,466	40,055	195,521	195,437	20	195,456	3,103
May	8	2013	--	--	155,444	40,074	195,519	187,885	17	187,902	3,508
May	9	2013	--	--	151,190	38,640	189,830	192,994	1,805	194,800	2,973
May	10	2013	--	--	155,396	39,594	194,990	179,834	10,352	190,186	3,527
May	11	2013	--	--	155,271	39,439	194,710	197,396	18	197,414	5
May	12	2013	--	--	155,316	39,515	194,830	193,873	11	193,884	3,055
May	13	2013	--	--	149,050	37,916	186,965	181,137	15	181,152	8,064
May	14	2013	--	--	155,286	39,454	194,740	194,881	16	194,897	3,823
May	15	2013	--	--	155,214	39,286	194,500	194,143	17	194,160	4
May	16	2013	--	--	152,919	39,026	191,945	129,431	59,476	188,907	3,202
May	17	2013	--	--	155,090	39,955	195,045	198,504	13	198,517	2,857
May	18	2013	--	--	155,029	39,844	194,873	189,541	19	189,560	3,165
May	19	2013	--	--	155,071	39,898	194,969	196,911	15	196,926	2,999
May	20	2013	--	--	155,090	39,731	194,821	193,289	12	193,302	2
May	21	2013	--	--	155,107	39,829	194,937	189,481	16	189,497	3,232
May	22	2013	--	--	154,970	39,648	194,618	116,547	77,493	194,039	3,086
May	23	2013	--	--	155,017	39,516	194,532	17	197,820	197,837	3,122
May	24	2013	--	--	154,925	39,649	194,574	15	196,009	196,024	3,003
May	25	2013	--	--	154,805	39,564	194,369	15	196,566	196,582	3
May	26	2013	--	--	154,805	39,511	194,316	15	196,013	196,028	3,144
May	27	2013	--	--	154,942	39,625	194,567	15	193,801	193,816	2,985
May	28	2013	--	--	155,070	39,712	194,781	17	194,681	194,698	3
May	29	2013	--	--	135,822	34,939	170,761	19	165,161	165,180	5,168
May	30	2013	--	--	155,172	39,988	195,160	14	195,246	195,260	45
May	31	2013	--	--	154,896	39,780	194,676	13	197,383	197,396	3,305
Total Monthly Volumes (gal)			**0**	**0**	**4,775,700**	**1,225,247**	**6,000,947**	**4,107,534**	**1,882,079**	**5,989,613**	**77,816**
Average Pump/Injection Rates (gpm)			**0.0**	**0.0**	**107.0**	**27.4**	**134.4**	**92.0**	**42.2**	**134.2**	**1.7**

NOTES: gal: gallons gpm: gallons per minute RO: Reverse Osmosis

a. Extraction wells TW-3D and PE-1 were operated during May 2013 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 2013.

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 May 2013 is approximately 1.11 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.

June 2013 Operational Data

IM-3 Groundwater Extraction and Treatment System

PG&E Topock Compressor Station, Needles, California

			Extraction Well System					Injection Well System			RO Brine
Month	**Day**	**Year**	**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	2013	--	--	148,687	37,915	186,602	13	189,058	189,072	3,498
June	2	2013	--	--	148,734	37,933	186,667	19	186,328	186,347	35
June	3	2013	--	--	148,811	38,005	186,815	16	186,375	186,391	3,200
June	4	2013	--	--	148,742	38,109	186,851	14	186,525	186,539	3,899
June	5	2013	--	--	154,676	39,585	194,261	3,384	187,385	190,769	1,102
June	6	2013	--	--	154,996	39,420	194,416	20	192,395	192,415	3,373
June	7	2013	--	--	154,892	39,325	194,217	14	194,444	194,457	2
June	8	2013	--	--	154,770	39,315	194,084	19	196,674	196,693	2,867
June	9	2013	--	--	154,873	39,422	194,295	14	195,853	195,867	2,986
June	10	2013	--	--	154,941	39,509	194,450	19	188,460	188,478	2
June	11	2013	--	--	154,909	39,472	194,381	21	195,645	195,666	2,979
June	12	2013	--	--	154,905	39,376	194,281	37,244	152,313	189,557	2,988
June	13	2013	--	--	154,793	39,285	194,078	16	202,859	202,875	3,111
June	14	2013	--	--	154,716	39,273	193,989	14	196,631	196,646	2
June	15	2013	--	--	154,609	39,140	193,749	12	192,078	192,090	3,245
June	16	2013	--	--	154,648	39,134	193,782	20	190,347	190,367	4
June	17	2013	--	--	154,746	39,229	193,976	22	192,713	192,734	3,115
June	18	2013	--	--	154,681	39,223	193,905	16	190,031	190,046	2,986
June	19	2013	--	--	154,784	39,175	193,959	16	193,122	193,138	3
June	20	2013	--	--	154,734	39,165	193,899	19	196,584	196,603	3,119
June	21	2013	--	--	154,692	39,164	193,856	18	196,754	196,771	3,126
June	22	2013	--	--	154,615	39,158	193,773	16	193,053	193,069	3,039
June	23	2013	--	--	151,731	38,710	190,442	20	184,640	184,660	2
June	24	2013	--	--	136,400	35,572	171,971	88,510	84,437	172,946	3,126
June	25	2013	--	--	154,861	40,200	195,061	190,554	30	190,583	3,117
June	26	2013	--	--	125,045	32,603	157,649	74,775	95,248	170,023	3
June	27	2013	--	--	129,340	33,804	163,144	16	77,470	77,486	3,122
June	28	2013	--	--	152,684	39,788	192,472	111,144	0	111,144	3,003
June	29	2013	--	--	154,648	40,013	194,661	193,647	0	193,647	3,141
June	30	2013	--	--	154,445	39,828	194,273	191,844	0	191,844	7
Total Monthly Volumes (gal)			**0**	**0**	**4,540,111**	**1,159,847**	**5,699,957**	**891,474**	**4,637,451**	**5,528,925**	**64,203**
Average Pump/Injection Rates (gpm)			**0.0**	**0.0**	**105.1**	**26.8**	**131.9**	**20.6**	**107.3**	**128.0**	**1.5**

NOTES: gal: gallons gpm: gallons per minute RO: Reverse Osmosis

a. Extraction wells TW-3D and PE-1 were operated during June 2013 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 June 2013.

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 June 2013 is approximately 1.87 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.

Appendix C
Flowmeter Calibration Records

Endress+Hauser

People for Process Automation

Flow Calibration with Adjustment

30201334-1304708

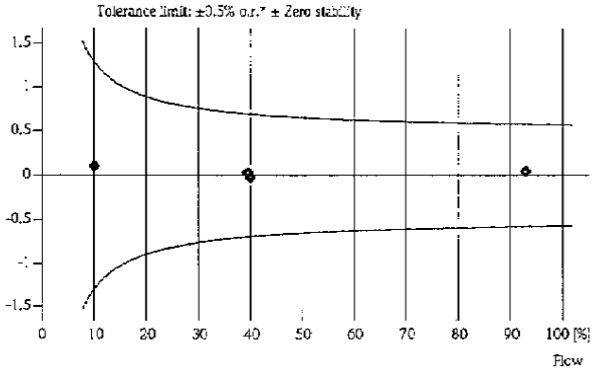
WWRA-008929F	FCP-6.F
Purchase order number	Calibration rig
US-465002381-20 / Endress+Hauser Flowtec	155.6102 us.gal/min (≙ 100%)
Order N°/Manufacturer	Calibrated full scale
23P50-AL1A1AA022AW	Current 4 - 20 mA
Order code	Calibrated output
PROMAG 23 P 2"	0.9184
Transmitter/Sensor	Calibration factor
6C037216000	20
Serial N°	Zero point
FIT-1204	76.8 °F
Tag N°	Water temperature

Flow [%]	Flow [us.gal/min]	Duration [s]	V target [us.gal]	V meas. [us.gal]	Δ o.r.* [%]	Outp.** [mA]
9.9	15.4	30.2	7.7528	7.7611	0.11	5.59
39.5	61.4	30.2	30.907	30.917	0.03	10.32
39.9	62.1	30.2	31.246	31.239	-0.02	10.38
93.0	144.7	30.2	72.803	72.836	0.05	18.88
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-

*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).

Leonard L. McGee

07-15-2011

Date of calibration

Leonard McGee

Operator

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

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

Endress+Hauser

People for Process Automation

Flow Calibration without Adjustment

30201330-1304708

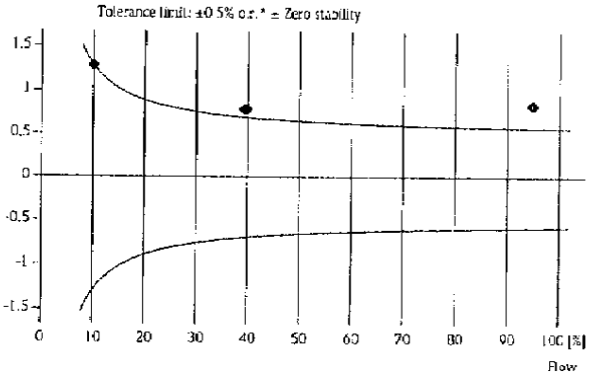
WWRA-008929F Purchase order number	FCP-6.F Calibration rig
US-465002381-20 / Endress+Hauser Flowtec Order N°/Manufacturer	155.6102 us.gal/min (≙ 100%) Calibrated full scale
23P50-AL1A1AA022AW Order code	Current 4 - 20 mA Calibrated output
PROMAG 23 P 2" Transmitter/Sensor	0.9258 Calibration factor
6C037216000 Serial N°	20 Zero point
FIT-1204 Tag N°	75.9 °F Water temperature

Flow [%]	Flow [us.gal/min]	Duration [s]	V target [us.gal]	V meas. [us.gal]	Δ o.r.* [%]	Outp.** [mA]
9.9	15.4	30.2	7.7490	7.8501	1.31	5.60
39.3	61.1	30.2	30.760	31.006	0.80	10.34
39.7	61.8	30.2	31.109	31.358	0.80	10.41
94.9	147.7	30.2	74.312	74.944	0.85	19.31
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-

*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).

07-15-2011

Date of calibration

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

Leonard McGee

Operator

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

Flow Calibration with Adjustment

30201328-1304707

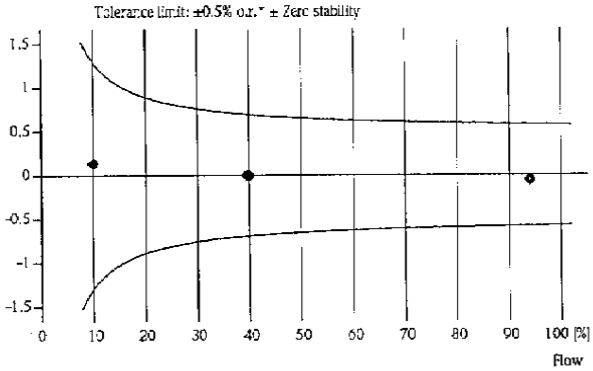
WWRA008929F Purchase order number	FCP-6.F Calibration rig
US-465002380-10 / Endress+Hauser Flowtec Order N°/Manufacturer	155.6102 us.gal/min (≙ 100%) Calibrated full scale
23P50-AL1A1AA022AW Order code	Current 4 - 20 mA Calibrated output
PROMAG 23 P 2" Transmitter/Sensor	0.9106 Calibration factor
6C037116000 Serial N°	0 Zero point
FIT-1203 Tag N°	75.4 °F Water temperature

Flow [%]	Flow [us.gal/min]	Duration [s]	V target [us.gal]	V meas. [us.gal]	Δ o.r.* [%]	Outp.** [mA]
9.9	15.4	30.2	7.7531	7.7639	0.14	5.59
39.4	61.4	30.2	30.874	30.873	0.00	10.31
39.9	62.1	30.2	31.207	31.206	0.00	10.38
94.1	146.4	30.2	73.642	73.601	-0.05	19.04
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-

*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).

Leonard J. McGee

07-15-2011
Date of calibration

Leonard McGee
Operator

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

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

Endress+Hauser

People for Process Automation

Flow Calibration without Adjustment

30201327-1304707

WWRA008929F Purchase order number	FCP-6.F Calibration rig
US-465002380-10 / Endress+Hauser Flowtec Order N°/Manufacturer	155.6102 us.gal/min (≙ 100%) Calibrated full scale
23P50-AL1A1AA022AW Order code	Current 4 - 20 mA Calibrated output
PROMAG 23 P 2" Transmitter/Sensor	0.9195 Calibration factor
6C037116000 Serial N°	0 Zero point
FIT-1203 Tag N°	74.9 °F Water temperature

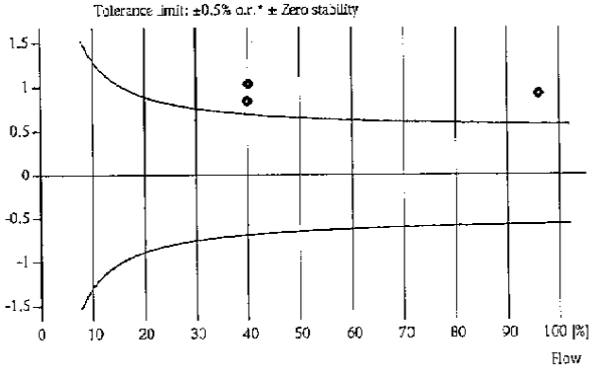
Flow [%]	Flow [us.gal/min]	Duration [s]	V target [us.gal]	V meas. [us.gal]	Δ o.r.* [%]	Outp.** [mA]
10.0	15.5	30.2	7.7934	7.9184	1.60	5.62
39.8	61.9	30.2	31.146	31.410	0.85	10.42
40.0	62.2	30.2	31.325	31.654	1.05	10.47
96.0	149.4	30.2	75.197	75.894	0.93	19.51
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-

*o.r.: of rate

**Calculated value (4 - 20 mA)

Measured error % o.r.

Tolerance limit: ±0.5% o.r.* ± 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), Cernay (FR), Greenwood (USA), Aurangabad (IN) and Suzhou (CN).

07-15-2011

Date of calibration

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

Leonard McGee

Operator

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

Endress+Hauser
People for Process Automation

Flow Calibration without Adjustment

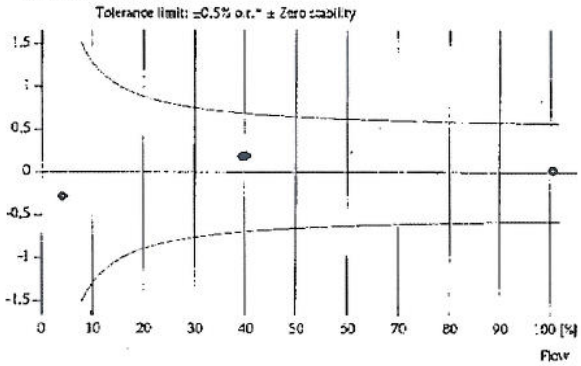
30258093-1275192

4600091011	FCP-7.1.E
Purchase order number	Calibration rig
US-3601523401-100 / Endress+Hauser Flowtec	155.6102 us.gal/min (≙ 100%)
Order N°/Manufacturer	Calibrated full scale
23P50-AL1A1RA022AW	Current 4 - 20 mA
Order code	Calibrated output
PROMAG 23 P 2"	0.9047
Transmitter/Sensor	Calibration factor
6A022116000	0
Serial N°	Zero point
FIT-102	70.2 °F
Tag N°	Water temperature

Flow [%]	Flow [us.gal/min]	Duration [s]	V target [us.gal]	V meas. [us.gal]	Δ o.r.* [%]	Outp.** [mA]
4.0	6.21	55.2	5.7091	5.6929	-0.28	4.64
39.4	61.3	30.2	30.828	30.887	0.19	10.32
40.1	62.3	30.2	31.329	31.390	0.20	10.42
100.5	156.4	30.2	78.641	78.660	0.02	20.09
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-

*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.

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

01-07-2013
Date of calibration

John Davis
Operator

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

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

Endress+Hauser

People for Process Automation

Flow Calibration with Adjustment

30258091-1304700

4600091011	FCP-7.1.E
Purchase order number	Calibration rig
US-3601523401-200 / Endress+Hauser Flowtec	155.6102 us.gal/min (≙ 100%)
Order N°/Manufacturer	Calibrated full scale
23P50-AL1A1AA022AW	Current 4 - 20 mA
Order code	Calibrated output
PROMAG 23 P 2"	0.9145
Transmitter/Sensor	Calibration factor
6C037316000	0
Serial N°	Zero point
FIT-1205	70.5 °F
Tag N°	Water temperature

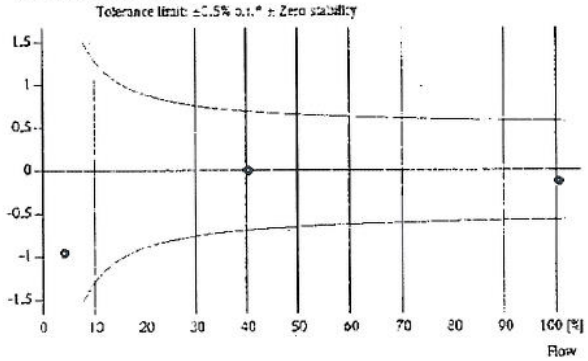
Flow [%]	Flow [us.gal/min]	Duration [s]	V target [us.gal]	V meas. [us.gal]	Δ o.r.* [%]	Outp.** [mA]
4.0	6.27	55.2	5.7720	5.7163	-0.96	4.64
40.2	62.5	30.2	31.439	31.439	0.00	10.43
40.3	62.6	30.2	31.498	31.497	0.00	10.44
100.7	156.7	30.2	78.760	78.656	-0.13	20.09
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-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

*o.r.: of rate

**Calculated value (4 - 20 mA)

Measured error % o.r.

Tolerance limit: ±0.5% o.r.* ± 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

01-07-2013

Date of calibration

John Davis

Operator

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

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

Endress+Hauser

People for Process Automation

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 (≙ 100%)
Calibrated full scale

Current 4 - 20 mA
Calibrated output

0.9101
Calibration factor

-34
Zero point

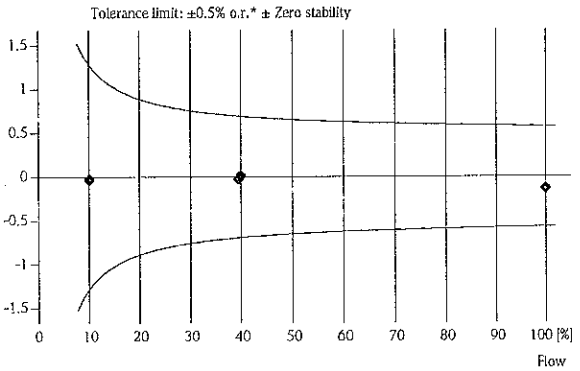
78.7 °F
Water temperature

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.



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).

John Davis

08-06-2010
Date of calibration

John Davis
Operator

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

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

Endress+Hauser

People for Process Automation

Flow Calibration without Adjustment

92002720-1304706

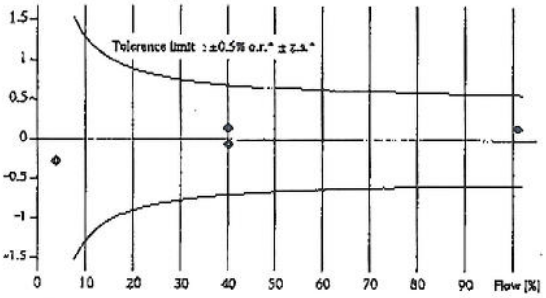
4600082515	FCP-8.2 US
Purchase order number	Calibration rig
US-3601521707-200 / Endress+Hauser Inc.	155 us.gal/min (≙ 100%)
Order N°/Manufacturer	Calibrated full scale
23P50-AL1A1AA022AW	Current 4 - 20 mA
Order code	Calibrated output
PROMAG 23 P 2"	0.9154
Transmitter/Sensor	Calibration factor
6C037016000	0
Serial N°	Zero point
FIT-1202	75.5 °F
Tag N°	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

Endress+Hauser

People for Process Automation

Flow Calibration with Adjustment

30202337-1385113

WWRA008929F Purchase order number	FCP-7.1.B Calibration rig
US-465002382-30 / Endress+Hauser Flowtec Order N°/Manufacturer	398.3621 us.gal/min (≙ 100%) Calibrated full scale
23P80-AL1A1AA022AW Order code	Current 4 - 20 mA Calibrated output
PROMAG 23 P 3" Transmitter/Sensor	1.1670 Calibration factor
7700C616000 Serial N°	35 Zero point
– Tag N°	82.3 °F Water temperature

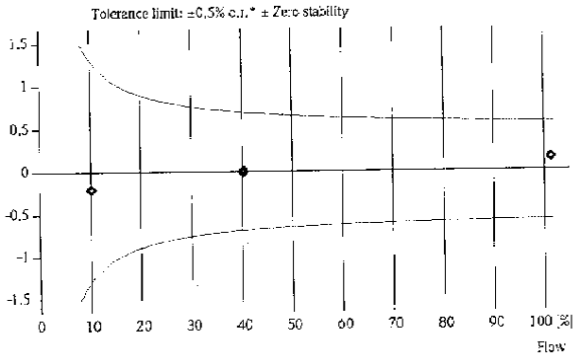
Flow [%]	Flow [us.gal/min]	Duration [s]	V target [us.gal]	V meas. [us.gal]	Δ o.r.* [%]	Outp.** [mA]
10.1	40.0	60.1	40.074	39.992	-0.20	5.60
40.2	160.2	60.1	160.332	160.322	-0.01	10.43
40.2	160.2	60.1	160.400	160.424	0.01	10.44
101.4	404.0	60.1	404.438	405.041	0.15	20.25
–	–	–	–	–	–	–
–	–	–	–	–	–	–
–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

*o.r. of rate

**Calculated value (4 - 20 mA)

Measured error % o.r.

Tolerance limit: ±0.5% o.r.* ± 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), 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

Endress+Hauser

People for Process Automation

Flow Calibration without Adjustment

92002718-1275190

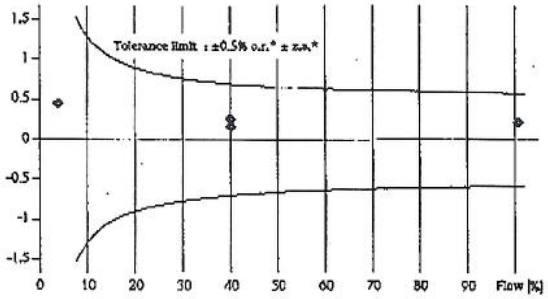
4600082515	FCP-8.2 US
Purchase order number	Calibration rig
US-3601521707-100 / Endress+Hauser Inc.	155 us.gal/min (≙ 100%)
Order N°/Manufacturer	Calibrated full scale
23P50-AL1A1RA022AW	Current 4 - 20 mA
Order code	Calibrated output
PROMAG 23 P 2"	0.9178
Transmitter/Sensor	Calibration factor
6A021F16000	0
Serial N°	Zero point
FIT-100	75.3 °F
Tag N°	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	0.1423	0.1699	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.



*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

06-19-2012
Date of calibration

W. Watkins
Operator

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

Appendix D
Second Quarter 2013
Laboratory Analytical Reports

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 28, 2013

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

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK IM3PLANT-WDR-407A PROJECT, GROUNDWATER MONITORING,

TLI NO.: 807141

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-407a 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 1, 2013, 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 Metals were analyzed by EPA 200.8 and EPA 200.7 with Mr. Shawn Duffy's approval.

The internal standard for sample SC-701-WDR-407a analyzed at a 2x dilution for Total Mercury and Thallium by EPA 200.8 and straight for Total Zinc by EPA 200.7 were outside the recovery limits of 70% - 130% as a result of matrix interference. Therefore, the samples were re-analyzed at 5x and 2x dilutions, respectively. The internal standards were within acceptable limits. 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.

for Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

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www.truesdail.com

Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy
Sample: Three (3) Groundwaters
Project Name: PG&E Topock Project
Project No.: 456827.01.DM

Laboratory No.: 807141
Date: April 28, 2013
Collected: April 1, 2013
Received: April 1, 2013

ANALYST LIST

METHOD	PARAMETER	ANALYST
EPA 120.1	Specific Conductivity	Gautam Savani
SM 2540C	Total Dissolved Solids	Jenny Tankunakorn
SM 2130B	Turbidity	Gautam Savani
EPA 300.0	Anions	Giawad Ghenniwa
SM 4500-NH3 D	Ammonia	Melissa Scharfe
SM 4500-NO2 B	Nitrite as N	Jenny Tankunakorn
EPA 200.7	Metals by ICP	Denise Chauv
EPA 200.8	Metals by ICP/MS	Bita Emami
EPA 218.6	Hexavalent Chromium	Tom Martinez

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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

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

Laboratory No.: 807141
Date Received: April 1, 2013

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
807141-001	SC-700B-WDR-407a	E120.1	NONE	4/1/2013	7:30	EC	6920	umhos/cm	2.00
807141-001	SC-700B-WDR-407a	E200.7	NONE	4/1/2013	7:30	Aluminum	ND	ug/L	50.0
807141-001	SC-700B-WDR-407a	E200.7	NONE	4/1/2013	7:30	BORON	955	ug/L	200
807141-001	SC-700B-WDR-407a	E200.7	NONE	4/1/2013	7:30	Iron	ND	ug/L	20.0
807141-001	SC-700B-WDR-407a	E200.7	NONE	4/1/2013	7:30	Zinc	ND	ug/L	20.0
807141-001	SC-700B-WDR-407a	E200.8	NONE	4/1/2013	7:30	Antimony	ND	ug/L	2.0
807141-001	SC-700B-WDR-407a	E200.8	NONE	4/1/2013	7:30	Arsenic	ND	ug/L	0.50
807141-001	SC-700B-WDR-407a	E200.8	NONE	4/1/2013	7:30	Barium	13.9	ug/L	5.0
807141-001	SC-700B-WDR-407a	E200.8	NONE	4/1/2013	7:30	Chromium	ND	ug/L	1.0
807141-001	SC-700B-WDR-407a	E200.8	NONE	4/1/2013	7:30	Copper	ND	ug/L	5.0
807141-001	SC-700B-WDR-407a	E200.8	NONE	4/1/2013	7:30	Lead	ND	ug/L	1.0
807141-001	SC-700B-WDR-407a	E200.8	NONE	4/1/2013	7:30	Manganese	1.2	ug/L	0.50
807141-001	SC-700B-WDR-407a	E200.8	NONE	4/1/2013	7:30	Molybdenum	17.2	ug/L	2.0
807141-001	SC-700B-WDR-407a	E200.8	NONE	4/1/2013	7:30	Nickel	ND	ug/L	2.0
807141-001	SC-700B-WDR-407a	E218.6	LABFLT	4/1/2013	7:30	Chromium, Hexavalent	ND	ug/L	0.20
807141-001	SC-700B-WDR-407a	E300	NONE	4/1/2013	7:30	Fluoride	2.14	mg/L	0.500
807141-001	SC-700B-WDR-407a	E300	NONE	4/1/2013	7:30	Nitrate as N	2.84	mg/L	0.500
807141-001	SC-700B-WDR-407a	E300	NONE	4/1/2013	7:30	Sulfate	501	mg/L	12.5
807141-001	SC-700B-WDR-407a	SM2130B	NONE	4/1/2013	7:30	Turbidity	ND	NTU	0.100
807141-001	SC-700B-WDR-407a	SM2540C	NONE	4/1/2013	7:30	Total Dissolved Solids	4230	mg/L	250
807141-001	SC-700B-WDR-407a	SM4500NH3D	NONE	4/1/2013	7:30	Ammonia-N	ND	mg/L	0.500
807141-001	SC-700B-WDR-407a	SM4500NO2B	NONE	4/1/2013	7:30	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
807141-002	SC-100B-WDR-407a	E120.1	NONE	4/1/2013	7:45	EC	7380	umhos/cm	2.00
807141-002	SC-100B-WDR-407a	E200.7	NONE	4/1/2013	7:45	Aluminum	ND	ug/L	50.0
807141-002	SC-100B-WDR-407a	E200.7	NONE	4/1/2013	7:45	BORON	1040	ug/L	200
807141-002	SC-100B-WDR-407a	E200.7	NONE	4/1/2013	7:45	Iron	ND	ug/L	20.0
807141-002	SC-100B-WDR-407a	E200.7	NONE	4/1/2013	7:45	Zinc	ND	ug/L	20.0
807141-002	SC-100B-WDR-407a	E200.8	NONE	4/1/2013	7:45	Antimony	ND	ug/L	2.0
807141-002	SC-100B-WDR-407a	E200.8	NONE	4/1/2013	7:45	Arsenic	3.4	ug/L	0.50
807141-002	SC-100B-WDR-407a	E200.8	NONE	4/1/2013	7:45	Barium	25.4	ug/L	5.0
807141-002	SC-100B-WDR-407a	E200.8	NONE	4/1/2013	7:45	Chromium	684	ug/L	1.0
807141-002	SC-100B-WDR-407a	E200.8	NONE	4/1/2013	7:45	Copper	ND	ug/L	5.0
807141-002	SC-100B-WDR-407a	E200.8	NONE	4/1/2013	7:45	Lead	ND	ug/L	1.0
807141-002	SC-100B-WDR-407a	E200.8	NONE	4/1/2013	7:45	Manganese	4.9	ug/L	0.50
807141-002	SC-100B-WDR-407a	E200.8	NONE	4/1/2013	7:45	Molybdenum	19.5	ug/L	2.0
807141-002	SC-100B-WDR-407a	E200.8	NONE	4/1/2013	7:45	Nickel	ND	ug/L	2.0
807141-002	SC-100B-WDR-407a	E218.6	LABFLT	4/1/2013	7:45	Chromium, Hexavalent	685	ug/L	10.0
807141-002	SC-100B-WDR-407a	E300	NONE	4/1/2013	7:45	Fluoride	2.52	mg/L	0.500
807141-002	SC-100B-WDR-407a	E300	NONE	4/1/2013	7:45	Nitrate as N	3.14	mg/L	0.500
807141-002	SC-100B-WDR-407a	E300	NONE	4/1/2013	7:45	Sulfate	539	mg/L	12.5
807141-002	SC-100B-WDR-407a	SM2130B	NONE	4/1/2013	7:45	Turbidity	0.177	NTU	0.100
807141-002	SC-100B-WDR-407a	SM2540C	NONE	4/1/2013	7:45	Total Dissolved Solids	4200	mg/L	250
807141-002	SC-100B-WDR-407a	SM4500NH3D	NONE	4/1/2013	7:45	Ammonia-N	ND	mg/L	0.500
807141-002	SC-100B-WDR-407a	SM4500NO2B	NONE	4/1/2013	7:45	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
807141-003	SC-701-WDR-407a	E120.1	NONE	4/1/2013	7:40	EC	41700	umhos/cm	2.00
807141-003	SC-701-WDR-407a	E200.7	NONE	4/1/2013	7:40	Zinc	ND	ug/L	40.0
807141-003	SC-701-WDR-407a	E200.8	NONE	4/1/2013	7:40	Antimony	ND	ug/L	5.0
807141-003	SC-701-WDR-407a	E200.8	NONE	4/1/2013	7:40	Arsenic	1.3	ug/L	0.50
807141-003	SC-701-WDR-407a	E200.8	NONE	4/1/2013	7:40	Barium	97.8	ug/L	5.0
807141-003	SC-701-WDR-407a	E200.8	NONE	4/1/2013	7:40	Beryllium	ND	ug/L	0.50
807141-003	SC-701-WDR-407a	E200.8	NONE	4/1/2013	7:40	Cadmium	ND	ug/L	1.0
807141-003	SC-701-WDR-407a	E200.8	NONE	4/1/2013	7:40	Chromium	1.4	ug/L	1.0
807141-003	SC-701-WDR-407a	E200.8	NONE	4/1/2013	7:40	Cobalt	ND	ug/L	5.0
807141-003	SC-701-WDR-407a	E200.8	NONE	4/1/2013	7:40	Copper	ND	ug/L	5.0
807141-003	SC-701-WDR-407a	E200.8	NONE	4/1/2013	7:40	Lead	ND	ug/L	1.0
807141-003	SC-701-WDR-407a	E200.8	NONE	4/1/2013	7:40	Manganese	6.2	ug/L	0.50
807141-003	SC-701-WDR-407a	E200.8	NONE	4/1/2013	7:40	Mercury	ND	ug/L	1.0
807141-003	SC-701-WDR-407a	E200.8	NONE	4/1/2013	7:40	Molybdenum	127	ug/L	2.0
807141-003	SC-701-WDR-407a	E200.8	NONE	4/1/2013	7:40	Nickel	4.3	ug/L	2.0
807141-003	SC-701-WDR-407a	E200.8	NONE	4/1/2013	7:40	Selenium	28.6	ug/L	5.0
807141-003	SC-701-WDR-407a	E200.8	NONE	4/1/2013	7:40	Silver	ND	ug/L	5.0
807141-003	SC-701-WDR-407a	E200.8	NONE	4/1/2013	7:40	Thallium	ND	ug/L	2.0
807141-003	SC-701-WDR-407a	E200.8	NONE	4/1/2013	7:40	Vanadium	ND	ug/L	5.0
807141-003	SC-701-WDR-407a	E218.6	LABFLT	4/1/2013	7:40	Chromium, Hexavalent	ND	ug/L	2.0
807141-003	SC-701-WDR-407a	E300	NONE	4/1/2013	7:40	Fluoride	15.4	mg/L	0.500
807141-003	SC-701-WDR-407a	SM2540C	NONE	4/1/2013	7:40	Total Dissolved Solids	30400	mg/L	1250

ND: Non Detected (below reporting limit)
mg/L: Milligrams per liter.

Note: The following "Significant Figures" rule has been applied to all results:
Results below 0.01ppm will have two (2) significant figures.
Result above or equal to 0.01ppm will have three (3) significant figures.
Quality Control data will always have three (3) significant figures.

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REPORT

Client: **E2 Consulting Engineers, Inc.**
155 Grand Avenue, Suite 800
Oakland, CA 94612
Attention: Shawn Duffy
Project Name: PG & E Topock
Project Number: 456827.01.DM
P.O. Number: 456827.01.DM
Release Number:

Laboratory No. 807141

Printed 4/28/2013

Samples Received on 4/1/2013 9:00:00 PM

Field ID	Lab ID	Collected	Matrix
SC-700B-WDR-407a	807141-001	04/01/2013 07:30	Water
SC-100B-WDR-407a	807141-002	04/01/2013 07:45	Water
SC-701-WDR-407a	807141-003	04/01/2013 07:40	Water

Anions By I.C. - EPA 300.0 Batch 04AN13B

Parameter		Unit	Analyzed	DF	MDL	RL	Result
807141-001	Fluoride	mg/L	04/02/2013 11:31	5.00	0.104	0.500	2.14
	Nitrate as Nitrogen	mg/L	04/02/2013 11:31	5.00	0.0415	0.500	2.84
	Sulfate	mg/L	04/02/2013 16:39	25.0	0.768	12.5	501
807141-002	Fluoride	mg/L	04/02/2013 11:42	5.00	0.104	0.500	2.52
	Nitrate as Nitrogen	mg/L	04/02/2013 11:42	5.00	0.0415	0.500	3.14
	Sulfate	mg/L	04/02/2013 16:50	25.0	0.768	12.5	539
807141-003	Fluoride	mg/L	04/02/2013 12:16	5.00	0.104	0.500	15.4

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 = 807137-004

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chloride	mg/L	25.0	72.9	73.5	0.847	0 - 20
Sulfate	mg/L	25.0	92.0	90.3	1.85	0 - 20

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Duplicate — Lab ID = 807141-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Fluoride	mg/L	5.00	2.57	2.52	1.92	0 - 20
Nitrate as Nitrogen	mg/L	5.00	3.08	3.14	2.09	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chloride	mg/L	1.00	4.01	4.00	100	90 - 110
Fluoride	mg/L	1.00	4.14	4.00	104	90 - 110
Sulfate	mg/L	1.00	20.1	20.0	100	90 - 110
Nitrate as Nitrogen	mg/L	1.00	4.02	4.00	100	90 - 110

Matrix Spike — Lab ID = 807137-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chloride	mg/L	25.0	181	174(100)	108	85 - 115
Sulfate	mg/L	25.0	196	190(100)	106	85 - 115

Matrix Spike — Lab ID = 807141-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Fluoride	mg/L	5.00	23.4	22.5(20.0)	104	85 - 115
Nitrate as Nitrogen	mg/L	5.00	23.9	23.1(20.0)	104	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	4.13	4.00	103	90 - 110
Sulfate	mg/L	1.00	20.1	20.0	100	90 - 110
Nitrate as Nitrogen	mg/L	1.00	4.00	4.00	100	90 - 110

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chloride	mg/L	1.00	3.03	3.00	101	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chloride	mg/L	1.00	3.07	3.00	102	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chloride	mg/L	1.00	2.97	3.00	99.1	90 - 110

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Nitrite SM 4500-NO2 B Batch 04NO213A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807141-001 Nitrite as Nitrogen	mg/L	04/02/2013 14:56	1.00	0.000630	0.0050	ND
807141-002 Nitrite as Nitrogen	mg/L	04/02/2013 14:57	1.00	0.000630	0.0050	ND

Method Blank

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

Duplicate — Lab ID = 807135-024

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	0.0278	0.0280	99.3	90 - 110

Matrix Spike — Lab ID = 807135-024

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Nitrite as Nitrogen	mg/L	1.00	0.0269	0.0280(0.0280)	96.1	85 - 115

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrite as Nitrogen	mg/L	1.00	0.0278	0.0280	99.3	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrite as Nitrogen	mg/L	1.00	0.0203	0.0200	102	90 - 110

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Client: E2 Consulting Engineers, Inc.

Project Name: PG & E Topock
Project Number: 456827.01.DM

Printed 4/28/2013

Specific Conductivity - EPA 120.1

Batch 04EC13A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807141-001 Specific Conductivity	umhos/cm	04/02/2013	1.00	0.116	2.00	6920
807141-002 Specific Conductivity	umhos/cm	04/02/2013	1.00	0.116	2.00	7380
807141-003 Specific Conductivity	umhos/cm	04/02/2013	1.00	0.116	2.00	41700

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate — Lab ID = 807142-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	8100	8110	0.123	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	690	706	97.7	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	686	706	97.2	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	960	998	96.2	90 - 110

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Chrome VI by EPA 218.6

Batch 04CrH13A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807141-001 Chromium, Hexavalent	ug/L	04/03/2013 10:12	1.00	0.00920	0.20	ND
807141-002 Chromium, Hexavalent	ug/L	04/03/2013 12:31	50.0	0.460	10.0	685
807141-003 Chromium, Hexavalent	ug/L	04/03/2013 16:41	10.0	0.0920	2.0	ND

Method Blank

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

Duplicate — Lab ID = 807141-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	683	685	0.326	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.193	0.200	96.7	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.90	5.00	98.1	90 - 110

Matrix Spike — Lab ID = 807141-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.80	5.05(5.00)	95.0	90 - 110

Matrix Spike — Lab ID = 807141-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.991	1.04(1.00)	94.6	90 - 110

Matrix Spike — Lab ID = 807141-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	1410	1440(750)	96.4	90 - 110

Matrix Spike — Lab ID = 807141-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	10.0	10.3	10.6(10.0)	97.0	90 - 110

Matrix Spike — Lab ID = 807144-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.58	1.62(1.00)	96.1	90 - 110

Matrix Spike — Lab ID = 807144-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.962	1.01(1.00)	95.0	90 - 110

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Metals by EPA 200.7, Total

Batch 040813B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807141-001 Zinc	ug/L	04/08/2013 14:30	1.00	6.95	20.0	ND
807141-002 Zinc	ug/L	04/08/2013 14:36	1.00	6.95	20.0	ND
807141-003 Zinc	ug/L	04/08/2013 14:52	2.00	13.9	40.0	ND

Method Blank

Parameter	Unit	DF	Result
Zinc	ug/L	1.00	ND

Duplicate — Lab ID = 807147-001

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

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Zinc	ug/L	1.00	2040	2000	102	85 - 115

Matrix Spike — Lab ID = 807147-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Zinc	ug/L	1.00	1870	2000(2000)	93.5	75 - 125

Matrix Spike Duplicate — Lab ID = 807147-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Zinc	ug/L	1.00	1840	2000(2000)	92.2	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Zinc	ug/L	1.00	5200	5000	104	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Zinc	ug/L	1.00	4900	5000	98.0	90 - 110

MRCVS - Primary

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

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
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		

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Metals by EPA 200.7, Total

Batch 041113A-Th2

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807141-001 Aluminum	ug/L	04/11/2013 12:48	1.00	10.0	50.0	ND
Boron	ug/L	04/11/2013 12:48	1.00	6.00	200	955
Iron	ug/L	04/11/2013 12:48	1.00	9.50	20.0	ND
807141-002 Aluminum	ug/L	04/11/2013 13:13	1.00	10.0	50.0	ND
Boron	ug/L	04/11/2013 13:13	1.00	6.00	200	1040
Iron	ug/L	04/11/2013 13:13	1.00	9.50	20.0	ND

Method Blank

Parameter	Unit	DF	Result
Aluminum	ug/L	1.00	ND
Iron	ug/L	1.00	ND
Boron	ug/L	1.00	ND

Duplicate

Lab ID = 807141-001

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
Boron	ug/L	1.00	985	955	3.07	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Aluminum	ug/L	1.00	2040	2000	102	85 - 115
Iron	ug/L	1.00	2130	2000	106	85 - 115
Boron	ug/L	1.00	2060	2000	103	85 - 115

Matrix Spike

Lab ID = 807141-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Aluminum	ug/L	1.00	1650	2000(2000)	82.6	75 - 125
Iron	ug/L	1.00	1840	2000(2000)	92.0	75 - 125
Boron	ug/L	1.00	2910	2960(2000)	97.8	75 - 125

Matrix Spike Duplicate

Lab ID = 807141-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Aluminum	ug/L	1.00	1640	2000(2000)	82.2	75 - 125
Iron	ug/L	1.00	1880	2000(2000)	94.0	75 - 125
Boron	ug/L	1.00	2960	2960(2000)	100	75 - 125

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Metals by EPA 200.8, Total Batch 040313A

Parameter		Unit	Analyzed	DF	MDL	RL	Result
807141-001	Antimony	ug/L	04/03/2013 11:46	2.00	0.664	2.0	ND
	Arsenic	ug/L	04/03/2013 11:46	2.00	0.200	0.50	ND
	Barium	ug/L	04/03/2013 11:46	2.00	0.376	5.0	13.9
	Chromium	ug/L	04/03/2013 11:46	2.00	0.184	1.0	ND
	Copper	ug/L	04/03/2013 11:46	2.00	0.514	5.0	ND
	Lead	ug/L	04/03/2013 11:46	2.00	0.148	1.0	ND
	Manganese	ug/L	04/03/2013 11:46	2.00	0.172	0.50	1.2
	Molybdenum	ug/L	04/03/2013 11:46	2.00	0.414	2.0	17.2
807141-002	Antimony	ug/L	04/03/2013 11:53	2.00	0.664	2.0	ND
	Arsenic	ug/L	04/03/2013 11:53	2.00	0.200	0.50	3.4
	Barium	ug/L	04/03/2013 11:53	2.00	0.376	5.0	25.4
	Chromium	ug/L	04/03/2013 12:19	2.00	0.184	1.0	684
	Copper	ug/L	04/03/2013 11:53	2.00	0.514	5.0	ND
	Lead	ug/L	04/03/2013 11:53	2.00	0.148	1.0	ND
	Manganese	ug/L	04/03/2013 11:53	2.00	0.172	0.50	4.9
	Molybdenum	ug/L	04/03/2013 11:53	2.00	0.414	2.0	19.5
807141-003	Antimony	ug/L	04/03/2013 12:31	5.00	1.66	5.0	ND
	Arsenic	ug/L	04/03/2013 11:59	2.00	0.200	0.50	1.3
	Barium	ug/L	04/03/2013 12:31	5.00	0.940	5.0	97.8
	Cadmium	ug/L	04/03/2013 11:59	2.00	0.174	1.0	ND
	Chromium	ug/L	04/03/2013 11:59	2.00	0.184	1.0	1.4
	Cobalt	ug/L	04/03/2013 11:59	2.00	0.158	5.0	ND
	Copper	ug/L	04/03/2013 11:59	2.00	0.514	5.0	ND
	Lead	ug/L	04/03/2013 12:31	5.00	0.370	1.0	ND
	Manganese	ug/L	04/03/2013 11:59	2.00	0.172	0.50	6.2
	Mercury	ug/L	04/03/2013 12:31	5.00	0.200	1.0	ND
	Molybdenum	ug/L	04/03/2013 11:59	2.00	0.414	2.0	127
	Selenium	ug/L	04/03/2013 11:59	2.00	0.160	5.0	28.6
	Thallium	ug/L	04/03/2013 12:31	5.00	0.565	2.0	ND
	Vanadium	ug/L	04/03/2013 11:59	2.00	0.362	5.0	ND

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Method Blank

Parameter	Unit	DF	Result
Arsenic	ug/L	1.00	ND
Barium	ug/L	1.00	ND
Cadmium	ug/L	1.00	ND
Cobalt	ug/L	1.00	ND
Chromium	ug/L	1.00	ND
Mercury	ug/L	1.00	ND
Selenium	ug/L	1.00	ND
Antimony	ug/L	1.00	ND
Copper	ug/L	1.00	ND
Lead	ug/L	1.00	ND
Thallium	ug/L	1.00	ND
Uranium	ug/L	1.00	ND
Vanadium	ug/L	1.00	ND
Manganese	ug/L	1.00	ND
Molybdenum	ug/L	1.00	ND

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	0.200	0.200	100	70 - 130

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Barium	ug/L	1.00	1.14	1.00	114	70 - 130

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Cadmium	ug/L	1.00	0.194	0.200	97.2	70 - 130
Cobalt	ug/L	1.00	0.202	0.200	101	70 - 130
Chromium	ug/L	1.00	0.193	0.200	96.5	70 - 130
Mercury	ug/L	1.00	0.236	0.200	118	70 - 130

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Selenium	ug/L	1.00	0.549	0.500	110	70 - 130

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Antimony	ug/L	1.00	1.03	1.00	103	70 - 130
Copper	ug/L	1.00	1.03	1.00	103	70 - 130

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Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Lead	ug/L	1.00	0.208	0.200	104	70 - 130

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Thallium	ug/L	1.00	0.425	0.400	106	70 - 130

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Uranium	ug/L	1.00	0.194	0.200	97.0	70 - 130

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Vanadium	ug/L	1.00	0.593	0.500	119	70 - 130

Low Level Calibration Verification

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

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Molybdenum	ug/L	1.00	1.07	1.00	107	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	2.00	45.9	50.0	91.8	85 - 115
Barium	ug/L	2.00	45.3	50.0	90.6	85 - 115
Cadmium	ug/L	2.00	44.8	50.0	89.6	85 - 115
Cobalt	ug/L	2.00	44.2	50.0	88.5	85 - 115
Chromium	ug/L	2.00	45.5	50.0	91.0	85 - 115
Mercury	ug/L	2.00	5.25	5.00	105	85 - 115
Selenium	ug/L	2.00	45.6	50.0	91.1	85 - 115
Antimony	ug/L	2.00	47.4	50.0	94.7	85 - 115
Copper	ug/L	2.00	45.6	50.0	91.2	85 - 115
Lead	ug/L	2.00	44.3	50.0	88.6	85 - 115
Thallium	ug/L	2.00	44.1	50.0	88.2	85 - 115
Uranium	ug/L	2.00	50.2	50.0	100	85 - 115
Vanadium	ug/L	2.00	45.4	50.0	90.8	85 - 115
Manganese	ug/L	2.00	45.9	50.0	91.7	85 - 115
Molybdenum	ug/L	2.00	46.7	50.0	93.4	85 - 115

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Matrix Spike Lab ID = 807147-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	2.00	46.0	50.0(50.0)	92.1	75 - 125
Barium	ug/L	2.00	125	128(50.0)	94.6	75 - 125
Cadmium	ug/L	2.00	45.6	50.0(50.0)	91.2	75 - 125
Cobalt	ug/L	2.00	42.5	50.0(50.0)	85.0	75 - 125
Chromium	ug/L	2.00	44.9	50.0(50.0)	89.9	75 - 125
Mercury	ug/L	2.00	5.21	5.00(5.00)	104	75 - 125
Selenium	ug/L	2.00	45.1	50.0(50.0)	90.2	75 - 125
Antimony	ug/L	2.00	48.3	50.0(50.0)	96.6	75 - 125
Copper	ug/L	2.00	45.5	50.0(50.0)	91.0	75 - 125
Lead	ug/L	2.00	45.9	51.4(50.0)	89.1	75 - 125
Thallium	ug/L	2.00	42.7	50.0(50.0)	85.4	75 - 125
Uranium	ug/L	2.00	50.3	50.0(50.0)	100	75 - 125
Vanadium	ug/L	2.00	46.5	50.0(50.0)	93.0	75 - 125
Manganese	ug/L	2.00	45.3	50.7(50.0)	89.2	75 - 125
Molybdenum	ug/L	2.00	47.6	50.0(50.0)	95.2	75 - 125

Matrix Spike Duplicate Lab ID = 807147-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	2.00	45.9	50.0(50.0)	91.8	75 - 125
Barium	ug/L	2.00	123	128(50.0)	90.0	75 - 125
Cadmium	ug/L	2.00	44.8	50.0(50.0)	89.5	75 - 125
Cobalt	ug/L	2.00	42.3	50.0(50.0)	84.6	75 - 125
Chromium	ug/L	2.00	44.9	50.0(50.0)	89.9	75 - 125
Mercury	ug/L	2.00	5.22	5.00(5.00)	104	75 - 125
Selenium	ug/L	2.00	44.2	50.0(50.0)	88.4	75 - 125
Antimony	ug/L	2.00	47.7	50.0(50.0)	95.4	75 - 125
Copper	ug/L	2.00	45.7	50.0(50.0)	91.4	75 - 125
Lead	ug/L	2.00	45.5	51.4(50.0)	88.4	75 - 125
Thallium	ug/L	2.00	43.0	50.0(50.0)	86.1	75 - 125
Uranium	ug/L	2.00	50.6	50.0(50.0)	101	75 - 125
Vanadium	ug/L	2.00	47.2	50.0(50.0)	94.4	75 - 125
Manganese	ug/L	2.00	45.2	50.7(50.0)	89.1	75 - 125
Molybdenum	ug/L	2.00	47.1	50.0(50.0)	94.1	75 - 125

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Client: E2 Consulting Engineers, Inc. Project Name: PG & E Topock Page 28 of 34
Project Number: 456827.01.DM Printed 4/28/2013

Serial Dilution Lab ID = 807141-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Barium	ug/L	10.0	27.5	25.4	8.06	0 - 10
Chromium	ug/L	50.0	660	684	3.50	0 - 10

Serial Dilution Lab ID = 807141-003

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Selenium	ug/L	10.0	27.1	28.6	5.29	0 - 10
Molybdenum	ug/L	10.0	125	127	1.73	0 - 10

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Metals by EPA 200.8, Total Batch 040313B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807141-001 Nickel	ug/L	04/03/2013 16:29	1.00	0.786	2.0	ND
807141-002 Nickel	ug/L	04/03/2013 16:35	1.00	0.786	2.0	ND
807141-003 Beryllium	ug/L	04/03/2013 17:17	2.00	0.0600	0.50	ND
Nickel	ug/L	04/03/2013 16:41	1.00	0.786	2.0	4.3
Silver	ug/L	04/03/2013 17:17	2.00	0.108	5.0	ND

Method Blank

Parameter	Unit	DF	Result
Beryllium	ug/L	1.00	ND
Nickel	ug/L	1.00	ND
Silver	ug/L	1.00	ND

Duplicate — Lab ID = 807147-001

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

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Beryllium	ug/L	1.00	0.202	0.200	101	70 - 130

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nickel	ug/L	1.00	1.98	2.00	98.8	70 - 130

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Silver	ug/L	1.00	0.258	0.200	129	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Beryllium	ug/L	1.00	45.9	50.0	91.8	85 - 115
Nickel	ug/L	1.00	46.7	50.0	93.3	85 - 115
Silver	ug/L	1.00	49.4	50.0	98.9	85 - 115

Matrix Spike — Lab ID = 807147-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Beryllium	ug/L	1.00	51.0	50.0(50.0)	102	75 - 125
Nickel	ug/L	1.00	48.6	50.0(50.0)	97.2	75 - 125
Silver	ug/L	1.00	39.2	50.0(50.0)	78.4	75 - 125

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Matrix Spike Duplicate Lab ID = 807147-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Beryllium	ug/L	1.00	51.0	50.0(50.0)	102	75 - 125
Nickel	ug/L	1.00	49.2	50.0(50.0)	98.4	75 - 125
Silver	ug/L	1.00	39.2	50.0(50.0)	78.5	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Beryllium	ug/L	1.00	19.3	20.0	96.4	90 - 110
Nickel	ug/L	1.00	20.2	20.0	101	90 - 110
Silver	ug/L	1.00	20.5	20.0	102	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Beryllium	ug/L	1.00	18.8	20.0	94.1	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Beryllium	ug/L	1.00	18.9	20.0	94.3	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nickel	ug/L	1.00	19.0	20.0	94.9	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nickel	ug/L	1.00	19.4	20.0	97.2	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Silver	ug/L	1.00	18.9	20.0	94.3	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Silver	ug/L	1.00	19.9	20.0	99.5	90 - 110

Interference Check Standard A

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

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Beryllium	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.

Total Dissolved Solids by SM 2540 C Batch 04TDS13A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807141-001 Total Dissolved Solids	mg/L	04/03/2013	1.00	1.76	250	4230
807141-002 Total Dissolved Solids	mg/L	04/03/2013	1.00	1.76	250	4200
807141-003 Total Dissolved Solids	mg/L	04/03/2013	1.00	1.76	1250	30400

Method Blank

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

Duplicate — Lab ID = 807144-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	320	315	1.57	0 - 10

Duplicate — Lab ID = 807145-012

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	348	342	1.74	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Dissolved Solids	mg/L	1.00	489	500	97.8	90 - 110

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Ammonia Nitrogen by SM4500-NH3D

Batch 04NH313A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807141-001 Ammonia as N	mg/L	04/12/2013	1.00	0.0318	0.500	ND
807141-002 Ammonia as N	mg/L	04/12/2013	1.00	0.0318	0.500	ND

Method Blank

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

Duplicate — Lab ID = 807141-002

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	8.09	8.00	101	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	8.15	8.00	102	90 - 110

Matrix Spike — Lab ID = 807141-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	7.94	8.00(8.00)	99.2	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	6.46	6.00	108	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	6.37	6.00	106	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	6.46	6.00	108	90 - 110

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Client: E2 Consulting Engineers, Inc. Project Name: PG & E Topock
Project Number: 456827.01.DM

Printed 4/28/2013

Turbidity by SM 2130 B Batch 04TUC13A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807141-001 Turbidity	NTU	04/02/2013	1.00	0.0140	0.100	ND
807141-002 Turbidity	NTU	04/02/2013	1.00	0.0140	0.100	0.177

Method Blank

Parameter	Unit	DF	Result
Turbidity	NTU	1.00	ND

Duplicate — Lab ID = 807141-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Turbidity	NTU	1.00	0.179	0.177	1.12	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	8.53	8.00	107	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	8.33	8.00	104	90 - 110

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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

e2

Truesdail Laboratories, Inc.

Total Dissolved Solids by SM 2540 C

4

Calculations

Batch: 04TDS13A
Date Analyzed: 4/3/13

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	75.4399	75.4400	75.4399	0.0001	No	0.0000	0.0	25.0	ND	1
807136-1	50	51.0519	51.1017	51.1013	0.0004	No	0.0494	988.0	50.0	988.0	1
807136-2	50	50.503	50.5294	50.5294	0.0000	No	0.0264	528.0	50.0	528.0	1
807136-3	50	49.3483	49.3775	49.3772	0.0003	No	0.0289	578.0	50.0	578.0	1
807136-4	50	50.83	50.861	50.8606	0.0004	No	0.0306	612.0	50.0	612.0	1
807141-1	10	51.4585	51.5009	51.5008	0.0001	No	0.0423	4230.0	250.0	4230.0	1
807141-2	10	51.8809	51.9229	51.9229	0.0000	No	0.0420	4200.0	250.0	4200.0	1
807141-3	2	51.8552	51.9161	51.9161	0.0000	No	0.0609	30450.0	1250.0	30450.0	1
807142-1	20	51.4288	51.4844	51.4844	0.0000	No	0.0556	2780.0	125.0	2780.0	1
807142-2	10	50.5572	50.6087	50.6086	0.0001	No	0.0514	5140.0	250.0	5140.0	1
807144-1	100	75.2770	75.3085	75.3085	0.0000	No	0.0315	315.0	25.0	315.0	1
807144-1D	100	78.3689	78.4013	78.4009	0.0004	No	0.0320	320.0	25.0	320.0	1
LCS	100	74.6691	74.718	74.718	0.0000	No	0.0489	489.0	25.0	489.0	1
807145-3	50	46.9796	47.0555	47.0555	0.0000	No	0.0759	1518.0	50.0	1518.0	1
807145-4	50	50.6959	50.7812	50.7812	0.0000	No	0.0853	1706.0	50.0	1706.0	1
807145-5	50	51.8810	52.0201	52.0201	0.0000	No	0.1391	2782.0	50.0	2782.0	1
807145-6	50	47.7614	47.8065	47.8062	0.0003	No	0.0448	896.0	50.0	896.0	1
807145-7	50	49.1798	49.2254	49.225	0.0004	No	0.0452	904.0	50.0	904.0	1
807145-8	50	49.4983	49.5549	49.5549	0.0000	No	0.0566	1132.0	50.0	1132.0	1
807145-9	100	75.2727	75.3011	75.3009	0.0002	No	0.0282	282.0	25.0	282.0	1
807145-10	100	73.5910	73.6187	73.6184	0.0003	No	0.0274	274.0	25.0	274.0	1
807145-11	100	77.7796	77.8138	77.8134	0.0004	No	0.0338	338.0	25.0	338.0	1
807145-12	100	66.9068	66.9413	66.941	0.0003	No	0.0342	342.0	25.0	342.0	1
807145-12D	100	73.4420	73.4769	73.4768	0.0001	No	0.0348	348.0	25.0	348.0	1

Calculation as follows:

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

Where:

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

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

Laboratory Control Sample (LCS) Summary

QC Std I.D.	Measurd Value, ppm	Theoretical Value, ppm	Percent Rec	Acceptance Limit	QC Within Control?
LCS1	489	500	97.8%	90-110%	Yes
LCSD					

LCS Recovery

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

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

Duplicate Determinations Difference Summary

Lab Number	Sample Weight, g	Sample Dup Weight, g	% RPD	Acceptance Limit	QC Within Control?
807144-1	0.0315	0.032	0.8%	≤5%	Yes
807145-12	0.0342	0.0348	0.9%	5%	Yes

Duplicate Determination Difference

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

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

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

Jenny T.
Analyst Printed Name

Analyst Signature

Maksim G.
Reviewer Printed Name

Reviewer Signature

WetChem TDS_2012.xls

Total Dissolved Solids by SM 2540 C

TDS/EC CHECK

Batch: 04TDS13A
Date Analyzed: 4/3/13

Laboratory Number	EC	TDS/EC Ratio: 0.55-.9	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
807136-1	1728	0.57	1123.2	0.88
807136-2	903	0.58	586.95	0.90
807136-3	923	0.63	599.95	0.96
807136-4	1015	0.60	659.75	0.93
807141-1	6920	0.61	4498	0.94
807141-2	7380	0.57	4797	0.88
807141-3	41700	0.73	27105	1.12
807142-1	4540	0.61	2951	0.94
807142-2	8110	0.63	5271.5	0.98
807144-1	484	0.65	314.6	1.00
807144-1D	484	0.66	314.6	1.02
LCS				
807145-3	2140	0.71	1391	1.09
807145-4	2400	0.71	1560	1.09
807145-5	3860	0.72	2509	1.11
807145-6	1340	0.67	871	1.03
807145-7	1340	0.67	871	1.04
807145-8	1610	0.70	1046.5	1.08
807145-9	442	0.64	287.3	0.98
807145-10	438	0.63	284.7	0.96
807145-11	510	0.66	331.5	1.02
807145-12	506	0.68	328.9	1.04
807145-12D	506	0.69	328.9	1.06

Rec'd 04/01/13

S3c 807141

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-407a] 807141

TURNAROUND TIME 10 Days

DATE 04/01/13 PAGE 1 OF 1

COMPANY: CH2M HILL /E2

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: 408401.01.DM

SAMPLERS (SIGNATURE

	SAMPLE I.D.	DATE	TIME	DESCRIPTION	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) See List Below	Ammonia (4500-NH3)	Anions (300.0) F	Anions (300.0) F, NO3, SO4	TOC (5310 C)	Total Metals (200.7) Mn	NO2 (4500-NO2B)			NUMBER OF CONTAINERS	COMMENTS
-1	SC-700B-WDR-407a	04/01/13	730		X		X	X	X	X	X		X			X			4	pH = 2
-2	SC-100B-WDR-407a	04/01/13	745		X		X	X	X	X	X		X			X			4	pH = 7
-3	SC-701-WDR-407a	04/01/13	740		X	X	X	X				X			X				4	pH = 2
																			12	TOTAL NUMBER OF CONTAINERS

ALERT !!
Level III QC

For Sample Conditions
See Form Attached

CHAIN OF CUSTODY SIGNATURE RECORD

	Signature	Printed Name	Company/ Agency	Date/ Time
	(Relinquished)	Ryan Phelps	CH2M	4-1-13 15:13
	(Received)	Hipolito	TLI	4-1-13 15:13
	(Relinquished)	Hipolito	TLI	4-1-13 21:00
	(Received)	Shabunina	TLI	4/1/13 21:00
113	(Relinquished)			
	(Received)			

SAMPLE CONDITIONS

RECEIVED COOL ☑ WARM ☐ 3.4 °C

CUSTODY SEALED YES ☐ NO ☑

SPECIAL REQUIREMENTS:

The metals include: Cr, Al, Sb, As, Ba, B, Cu, Pb, Mn, Mo, Ni, Fe, Zn

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
3/18/13	806910 -5	9.5	N/A	N/A	N/A	RB
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
3/18/13	806921-1	7.0	2mL /100mL	9.5	16:00	RB
	-2					
03/19/13	806943-1	7	2ml /100 ml	9.5	16:30	HAV
	-2				16:40	
03/20/13	806965-1	7	2mL / 100mL	9.5	9:45	RB
03/20/13	806966-1	9.5	N/A	N/A	N/A	RB
	-2					
	-3					
03/20/13	806977	7.	2ml/100mL	9.5	16:00	RB
03/25/13	807046	7.0	2ml /100mL	9.5	16:45	TM
3/27/13	807068	7.0	2mL /100mL	9.5	8:30	TM
03/27/13	806670-1	7.0	2mL /100mL	9.5	9:30	TM
04/02/13	807141 -1	7.0	2mL /100mL	9.5	7:25	TM
	-2					
	-3					
04/02/13	807142 -1	7.0	2mL /100mL	9.5	7:30	TM
	-2					
04/2/13	807144 -1	9.5	N/A	N/A	N/A	TM
	-2					
04/02/13	807145-1	9.5	N/A	N/A	N/A	TM
	-2					
	-3					
	-4					

TM 4/6/13

04/08/13

TRUESDAIL LABORATORIES, INC.

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
807023-1	<1	<2	3/25/13	DC	yes			
807025-	<1	>2	↓	↓	yes	12:50		
807038 (1-4)	<1	>2	3-25-13	BE	No	9:00 AM		
807065	<1	>2	3/26/13	DC	NO	17:00	4-1-13	PH<2
807042	↓	<2	↓	↓	yes			
807043	↓	↓	↓	↓	↓			
807052	↓	↓	↓	↓	↓			
807088	<1	>2	3-27-13	BE	yes	8:00 AM		
807075	>1	<2	↓	DC	yes			
807071	<1	>2	↓	DC	NO	12:40	4-1-13	PH<1
807085	<1	>2	↓	DC	yes	15:30		
807083 (10-12)	<1	>2	↓	↓	NO	18:00	04-01	PH<2
807100 (1-7)	<1	<2	3-28-13	BE	yes			
807099 (1-5)	↓	↓	3-28-13	↓	↓			
807106 (1-3)	<1	>2	3-29-13	↓	NO	8:00AM	4-1	PH<2
807110 (1-5)	<1	<2	4-1-13	BE	yes			
807137 (1-2,4)	↓	>2	4-2-13	↓	NO	7:30AM		
807136 (1-4)	↓	↓	↓	↓	↓	7:3AM		
803117	<1	<2	4/2/13	ES	yes			
803138	↓	↓	↓	↓	↓			
803139	↓	↓	↓	↓	↓			
807141 (1-3)	<1	1/3 <2	4-2-13	BE	yes	-2/8:30		
807142 (1-2)	<1	>2	↓	↓	↓			
807144 (DOT)	<1	<2	↓	↓	↓			
D 807145 (1-12	<1	<2	↓	↓	↓			
T 807145 (9-12)	↓	↓	↓	↓	↓			
807147 (1-5)	↓	↓	↓	↓	↓			
807150	>2	↓	↓	↓	↓			
807151	↓	↓	↓	↓	↓			
807152	↓	↓	↓	↓	↓			
807153	↓	↓	↓	↓	↓			
807154	↓	↓	↓	↓	↓			
807155	↓	↓	↓	↓	↓			
807191 (1-9)	<1	<2	4/3/13	ES	yes			
807218 (1-9)	<1	<2	4-4-13	BE	yes			Acid filtering metal sample
807215 (11-14)	<1	>2	↓	↓	↓			
807214 (1-10)	<1	<2	↓	↓	↓			
807165 (16,23)	<1	>2	4/4/13	ES	NO	4:00		
807188	↓	↓	↓	↓	↓	↓		
807208 (10-12)	↓	↓	↓	↓	↓	↓		
807222 (1-3)	↓	↓	↓	↓	↓	↓		
807209-4	↓	<2	↓	↓	yes	↓		
807216	↓	↓	↓	↓	↓	↓		
807217-4	↓	↓	↓	↓	↓	↓		

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

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: E2 **Lab #** 807141

Date Delivered: 04 / 01 / 13 **Time:** 21:00 **By:** ☐Mail ☑Field Service ☐Client

1. Was a Chain of Custody received and signed? ☑Yes ☐No ☐N/A
2. Does Customer require an acknowledgement of the COC? ☐Yes ☐No ☑N/A
3. Are there any special requirements or notes on the COC? ☐Yes ☐No ☑N/A
4. If a letter was sent with the COC, does it match the COC? ☐Yes ☐No ☑N/A
5. Were all requested analyses understood and acceptable? ☑Yes ☐No ☐N/A
6. Were samples received in a chilled condition? ☑Yes ☐No ☐N/A
   Temperature (if yes)? 3.4 °C
7. Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)? ☑Yes ☐No ☐N/A
8. Were sample custody seals intact? ☐Yes ☐No ☑N/A
9. Does the number of samples received agree with COC? ☑Yes ☐No ☐N/A
10. Did sample labels correspond with the client ID's? ☑Yes ☐No ☐N/A
11. Did sample labels indicate proper preservation? ☑Yes ☐No ☐N/A
    Preserved (if yes) by: ☐Truesdail ☒Client
12. Were samples pH checked? pH = see c.o.c ☑Yes ☐No ☐N/A
13. Were all analyses within holding time at time of receipt? ☑Yes ☐No ☐N/A
    If not, notify Project Manager.
14. Have Project due dates been checked and accepted? ☑Yes ☐No ☐N/A
    Turn Around Time (TAT): ☐ RUSH ☑ Std
15. **Sample Matrix:** ☐Liquid ☐Drinking Water ☐Ground Water ☐Waste Water ☐Sludge ☐Soil ☐Wipe ☐Paint ☐Solid ☒Other Water
16. Comments: _____
17. Sample Check-In completed by Truesdail Log-In/Receiving: L. Shabunina

ALERT !!
Level III QC

C:\Users\Test\Desktop\Forms A - D\Discrp.FormBlank.doc

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

May 8, 2013

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

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK IM3PLANT-WDR-407A PROJECT, SLUDGE MONITORING,

TLI NO.: 807143

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-407a 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 1, 2013, 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 6010B analyzed at a 2x dilution was outside the recovery limits of 70% - 130% as a result of matrix interference. Therefore, the samples were re-analyzed at 5x dilution and the internal standard was within acceptable limits. Due to the dilution, the reporting limit for Total Beryllium exceed the Contract Required Detection 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

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

Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy
Sample: One (1) Soil Sample
Project Name: PG&E Topock Project
Project No.: 456827.01.DM

Laboratory No.: 807143
Date: May 8, 2013
Collected: April 1, 2013
Received: April 1, 2013

ANALYST LIST

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

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Attention: Shawn Duffy

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

Laboratory No.: 807143
Date Received: April 1, 2013

Analytical Results Summary

Lab I.D.	Sample I.D.	Sample Time	SW 7199 Hexavalent Chromium	EPA 300.0 Fluoride	EPA 300.0 Nitrate as N	SM 2540 B % Moisture
			mg/kg	mg/kg	mg/kg	%
807143	SC-Sludge-WDR-407a	07:30	46.2	27.2	13.5	62.4

ND: Non Detected (below reporting limit)
mg/L: Milligrams per liter.

Note: The following "Significant Figures" rule has been applied to all results:
Results below 0.01ppm will have two (2) significant figures.
Result above or equal to 0.01ppm will have three (3) significant figures.
Quality Control data will always have three (3) significant figures.

005

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

Laboratory No.: 807143
Date Received: April 1, 2013

Analytical Results Summary

METALS ANALYSIS: **Total Metal Analyses as Requested**

Lab I.D.	Sample ID	Date of Analysis: Time Coll.	Antimony SW 6010B 04/29/13 mg/kg	Arsenic SW 6010B 04/29/13 mg/kg	Barium SW 6010B 04/15/13 mg/kg	Beryllium SW 6010B 04/29/13 mg/kg	Cadmium SW 6010B 04/15/13 mg/kg	Chromium SW 6010B 04/15/13 mg/kg	Cobalt SW 6010B 04/15/13 mg/kg	Copper SW 6020A 04/17/13 mg/kg	Lead SW 6010B 05/07/13 mg/kg
807143	SC-Sludge-WDR-407a	07:30	55.2	ND	69.2	ND	6.94	4370	ND	23.0	ND

Lab I.D.	Sample ID	Date of Analysis: Time Coll.	Manganese SW 6010B 04/15/13 mg/kg	Mercury SW 6020A 04/15/13 mg/kg	Molybdenum SW 6010B 04/18/13 mg/kg	Nickel SW 6010B 04/15/13 mg/kg	Selenium SW 6010B 04/15/13 mg/kg	Silver SW 6010B 05/07/13 mg/kg	Thallium SW 6010B 04/15/13 mg/kg	Vanadium SW 6010B 04/15/13 mg/kg	Zinc SW 6010B 04/15/13 mg/kg
807143	SC-Sludge-WDR-407a	07:30	268	0.156	ND	16.9	ND	ND	ND	45.2	39.4

NOTES:
ND: Not detected, or below limit of detection

006

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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.: 456827.01.DM
P.O. No.: 456827.01.DM
Prep. Batch: 04CrH13H

Laboratory No.: 807143
Date: May 8, 2013
Collected: April 1, 2013
Received: April 1, 2013
Prep/ Analyzed: April 11, 2013
Analytical Batch: 04CrH13H

Investigation: **Hexavalent Chromium by IC Using Method SW 7199**

Analytical Results Hexavalent Chromium

TLI I.D.	Field I.D.	Sample Time	Run Time	Units	DF	RL	Results
807143	SC-Sludge-WDR-407a	07:30	16:20	mg/kg	10.0	10.6	46.2

QA/QC Summary

QC STD I.D.	Laboratory Number	Sample Concentration	Duplicate Concentration	Relative Percent Difference	Acceptance limits	QC Within Control
Duplicate	807143	46.2	40.2	13.8%	≤ 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	807143	46.2	10.0	21.2	212	248	258	95.2%	75-125%	Yes
IMS	807143	46.2	100	32.6	3265	3350	3311	101%	75-125%	Yes
PDMS	807143	46.2	100	4.23	423	490	470	105%	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
MRCCS	2.19	2.00	110%	90% - 110%	Yes
MRCVS#1	2.01	2.00	101%	90% - 110%	Yes
LLCS	0.00969	0.0100	96.9%	70% - 130%	Yes
LCS	2.28	2.00	114%	80% - 120%	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
Sample: One (1) Soil Sample
Project Name: PG&E Topock Project
Project No.: 456827.01.DM
P.O. No.: 456827.01.DM

Laboratory No.: **807143**
Date: May 8, 2013
Collected: April 1, 2013
Received: April 1, 2013
Prep/ Analyzed: April 4, 2013
Analytical Batch: 04SOLID13C

Investigation: **Total Solids by SM 2540 B**

Analytical Results % Moisture

TLI I.D.	Field I.D.	Sample Time	Units	Results
807143	SC-Sludge-WDR-407a	07:30	%	62.4

QA/QC Summary

QC STD I.D.	Laboratory Number	Concentration	Duplicate Concentration	Relative Percent Difference	Acceptance limits	QC Within Control
Duplicate	807143	62.4	62.5	0.24%	≤ 20%	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
Sample: One (1) Soil Sample
Project Name: PG&E Topock Project
Project No.: 456827.01.DM
P.O. No.: 456827.01.DM

Laboratory No.: 807143
Date: May 8, 2013
Collected: April 1, 2013
Received: April 1, 2013
Prep/ Analyzed: April 2, 2013
Analytical Batch: 04AN13B

Investigation: **Fluoride by Ion Chromatography using EPA 300.0**

Analytical Results Fluoride

TLI I.D.	Field I.D.	Sample Time	Run Time	Units	DF	RL	Results
807143	SC-Sludge-WDR-407a	07:30	18:22	mg/kg	1.00	5.31	27.2

QA/QC Summary

QC STD I.D.	Laboratory Number	Concentration	Duplicate Concentration	Relative Percent Difference	Acceptance limits	QC Within Control
Duplicate	807141-2	2.52	2.57	2.01%	≤ 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	807141-2	2.52	5.00	4.00	20.0	23.4	22.5	105%	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	4.13	4.00	103%	90% - 110%	Yes
MRCVS#1	3.16	3.00	105%	90% - 110%	Yes
MRCVS#2	3.16	3.00	105%	90% - 110%	Yes
MRCVS#3	3.24	3.00	108%	90% - 110%	Yes
MRCVS#4	3.23	3.00	108%	90% - 110%	Yes
LCS	4.14	4.00	104%	90% - 110%	Yes

ND: Below the reporting limit (Not Detected).
DF: Dilution Factor.

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

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Analytical Services

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REPORT

Client: E2 Consulting Engineers, Inc.
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Attention: Shawn Duffy
Sample: One (1) Soil Sample
Project Name: PG&E Topock Project
Project No.: 456827.01.DM
P.O. No.: 456827.01.DM

Laboratory No.: 807143
Date: May 8, 2013
Collected: April 1, 2013
Received: April 1, 2013
Prep/ Analyzed: April 2, 2013
Analytical Batch: 04AN13B

Investigation: **Nitrate as N by Ion Chromatography using EPA 300.0**

Analytical Results Nitrate as N

TLI I.D.	Field I.D.	Sample Time	Run Time	Units	DF	RL	Results
807143	SC-Sludge-WDR-407a	07:30	18:22	mg/kg	1.00	5.31	13.5

QA/QC Summary

QC STD I.D.	Laboratory Number	Concentration	Duplicate Concentration	Relative Percent Difference	Acceptance limits	QC Within Control
Duplicate	807141-2	3.14	3.08	1.96%	≤ 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	807141-2	3.14	5.00	4.00	20.0	23.9	23.1	104%	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	4.00	4.00	100%	90% - 110%	Yes
MRCVS#1	3.02	3.00	101%	90% - 110%	Yes
MRCVS#2	3.01	3.00	100%	90% - 110%	Yes
MRCVS#3	3.08	3.00	103%	90% - 110%	Yes
MRCVS#4	3.06	3.00	102%	90% - 110%	Yes
LCS	4.02	4.00	100%	90% - 110%	Yes

ND: Below the reporting limit (Not Detected).
DF: Dilution Factor.

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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.: 456827.01.DM
P.O. No.: 456827.01.DM
Investigation: Total Metal Analyses as Requested

Laboratory No.: 807143
Reported: May 8, 2013
Collected: April 1, 2013
Received: April 1, 2013
Analyzed: See Below

Analytical Results

SAMPLE ID: SC-Sludge-WDR-407a **Time Collected:** 07:30 **LAB ID:** 807143

Parameter	Method	Reported Value	DF	Units	RL	Batch	Date Analyzed	Time Analyzed
Antimony	SW 6010B	55.2	5.00	mg/kg	9.90	042913A	04/29/13	14:59
Arsenic	SW 6010B	ND	5.00	mg/kg	5.00	042913A	04/29/13	14:59
Barium	SW 6010B	69.2	2.00	mg/kg	10.0	041513A	04/15/13	15:17
Beryllium	SW 6010B	ND	5.00	mg/kg	4.95	042913A	04/29/13	14:59
Cadmium	SW 6010B	6.94	2.00	mg/kg	1.98	041513A	04/15/13	15:17
Chromium	SW 6010B	4370	10.0	mg/kg	9.90	041513A	04/15/13	15:17
Cobalt	SW 6010B	ND	2.00	mg/kg	10.0	041513A	04/15/13	15:17
Copper	SW 6020A	23.0	20.0	mg/kg	5.00	041713A-ICPMS-1	04/17/13	13:00
Lead	SW 6010B	ND	2.00	mg/kg	5.00	050713A-Th2	05/07/13	14:52
Manganese	SW 6010B	268	2.00	mg/kg	1.98	041513A	04/15/13	15:17
Mercury	SW 6020A	0.156	5.00	mg/kg	0.100	041513A-ICPMS-1	04/15/13	15:28
Molybdenum	SW 6010B	ND	10.0	mg/kg	10.0	041813A-Th2	04/18/13	13:17
Nickel	SW 6010B	16.9	2.00	mg/kg	5.00	041513A	04/15/13	15:17
Selenium	SW 6010B	ND	2.00	mg/kg	5.00	041513A	04/15/13	15:17
Silver	SW 6010B	ND	2.00	mg/kg	5.00	050713A-Th2	05/07/13	14:52
Thallium	SW 6010B	ND	2.00	mg/kg	5.00	041513A	04/15/13	15:17
Vanadium	SW 6010B	45.2	2.00	mg/kg	5.00	041513A	04/15/13	15:17
Zinc	SW 6010B	39.4	2.00	mg/kg	10.0	041513A	04/15/13	15:17

NOTES:

Sample results and reporting limits reported on a dry weight basis.
ND: Not detected,or below limit of detection.
DF: Dilution factor.

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Analytical Services

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Samples: One (1) Soil Sample
Project Name: PG&E Topock Project
Project No.: 456827.01.DM
P.O. No.: 456827.01.DM

Laboratory No.: 807143
Reported: May 8, 2013
Collected: April 1, 2013
Received: April 1, 2013

Quality Control/Quality Assurance Report

				DIGESTED BLANK		MRCCS				MRCVS			
Parameter	Method	Batch	Units	Blank	RL	Observed Value	TRUE Value	% Rec	Control Limits	Observed Value	TRUE Value	% Rec	Control Limits %
Antimony	SW 6010B	042913A	mg/kg	ND	5.00	4.71	5.00	94.2%	90-110%	5.47	5.00	109%	90-110%
Arsenic	SW 6010B	042913A	mg/kg	ND	5.00	4.79	5.00	95.7%	90-110%	5.35	5.00	107%	90-110%
Barium	SW 6010B	041513A	mg/kg	ND	10.0	4.91	5.00	98.2%	90-110%	4.86	5.00	97.3%	90-110%
Beryllium	SW 6010B	042913A	mg/kg	ND	1.00	4.72	5.00	94.4%	90-110%	5.10	5.00	102%	90-110%
Cadmium	SW 6010B	041513A	mg/kg	ND	1.00	5.11	5.00	102%	90-110%	5.08	5.00	102%	90-110%
Chromium	SW 6010B	041513A	mg/kg	ND	5.00	5.27	5.00	105%	90-110%	5.16	5.00	103%	90-110%
Cobalt	SW 6010B	041513A	mg/kg	ND	10.0	4.82	5.00	96.3%	90-110%	4.85	5.00	97.0%	90-110%
Copper	SW 6020A	·1713A-ICPMS	mg/kg	ND	5.00	0.0218	0.0200	109%	90-110%	0.0208	0.0200	104%	90-110%
Lead	SW 6010B	050713A-Th2	mg/kg	ND	5.00	5.45	5.00	109%	90-110%	4.84	5.00	96.8%	90-110%
Manganese	SW 6010B	041513A	mg/kg	ND	1.00	5.09	5.00	102%	90-110%	4.92	5.00	98.5%	90-110%
Mercury	SW 6020A	·1513A-ICPMS	mg/kg	ND	0.100	0.00205	0.00200	103%	90-110%	0.00206	0.00200	103%	90-110%
Molybdenum	SW 6010B	041813A-Th2	mg/kg	ND	10.0	4.95	5.00	99.0%	90-110%	5.20	5.00	104%	90-110%
Nickel	SW 6010B	041513A	mg/kg	ND	5.00	4.84	5.00	96.7%	90-110%	4.88	5.00	97.6%	90-110%
Selenium	SW 6010B	041513A	mg/kg	ND	5.00	4.91	5.00	98.2%	90-110%	4.97	5.00	99.3%	90-110%
Silver	SW 6010B	050713A-Th2	mg/kg	ND	5.00	5.34	5.00	107%	90-110%	5.02	5.00	100%	90-110%
Thallium	SW 6010B	041513A	mg/kg	ND	5.00	5.03	5.00	101%	90-110%	5.03	5.00	101%	90-110%
Vanadium	SW 6010B	041513A	mg/kg	ND	5.00	5.37	5.00	107%	90-110%	5.23	5.00	105%	90-110%
Zinc	SW 6010B	041513A	mg/kg	ND	10.0	5.09	5.00	102%	90-110%	5.12	5.00	102%	90-110%

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			INTERFERENCE CHECK STANDARD (ICS A+B #1)				INTERFERENCE CHECK STANDARD (ICS A+B #2)			
Parameter	**Method**	**Units**	**ICS Obs.**	**ICS Theo.**	**% Rec.**	**Control Limits**	**ICS Obs.**	**ICS Theo.**	**% Rec.**	**Control Limits**
Arsenic	SW 6010B	mg/kg	1.97	2.00	98.6%	80-120%	2.15	2.00	107%	80-120%
Cadmium	SW 6010B	mg/kg	2.09	2.00	104%	80-120%	2.05	2.00	103%	80-120%
Chromium	SW 6010B	mg/kg	2.16	2.00	108%	80-120%	2.13	2.00	107%	80-120%
Cobalt	SW 6010B	mg/kg	1.99	2.00	99.5%	80-120%	1.98	2.00	98.8%	80-120%
Copper	SW 6020A	mg/kg	0.0197	0.0200	98.5%	80-120%	0.0192	0.0200	96.1%	80-120%
Manganese	SW 6010B	mg/kg	2.06	2.00	103%	80-120%	2.00	2.00	99.9%	80-120%
Mercury	SW 6020A	mg/kg	0.00199	0.00200	99.3%	80-120%	0.00207	0.00200	104%	80-120%
Nickel	SW 6010B	mg/kg	2.00	2.00	99.8%	80-120%	2.01	2.00	100%	80-120%
Silver	SW 6010B	mg/kg	2.01	2.00	100%	80-120%	1.93	2.00	96.4%	80-120%
Zinc	SW 6010B	mg/kg	2.12	2.00	106%	80-120%	2.13	2.00	106%	80-120%

			LABORATORY CONTROL SAMPLES				SAMPLE DUPLICATES				
Parameter	**Method**	**Units**	**LCS Obs.**	**LCS Theo.**	**% Rec.**	**Control Limits**	**SAMPLE ID**	**SAMPLE RESULT**	**DUP RESULT**	**% RPD**	**Precision Control Limits %**
Antimony	SW 6010B	mg/kg	1.91	2.00	95.4%	85-115%	807143	55.2	56.6	2.57%	≤20
Arsenic	SW 6010B	mg/kg	1.92	2.00	95.8%	85-115%	807143	ND	ND	0.00%	≤20
Barium	SW 6010B	mg/kg	1.87	2.00	93.6%	85-115%	807143	69.2	68.7	0.77%	≤20
Beryllium	SW 6010B	mg/kg	1.88	2.00	94.2%	85-115%	807143	ND	ND	0.00%	≤20
Cadmium	SW 6010B	mg/kg	1.86	2.00	93.2%	85-115%	807143	6.94	6.69	3.70%	≤20
Chromium	SW 6010B	mg/kg	1.92	2.00	96.0%	85-115%	807143	4370	4110	6.13%	≤20
Cobalt	SW 6010B	mg/kg	1.77	2.00	88.3%	85-115%	807143	ND	ND	0.00%	≤20
Copper	SW 6020A	mg/kg	0.0514	0.0500	103%	85-115%	807143	23.0	22.3	2.85%	≤20
Lead	SW 6010B	mg/kg	2.08	2.00	104%	85-115%	807143	ND	ND	0.00%	≤20
Manganese	SW 6010B	mg/kg	1.85	2.00	92.6%	85-115%	807143	268	267	0.29%	≤20
Mercury	SW 6020A	mg/kg	0.00495	0.00500	99.0%	85-115%	807143	0.156	0.144	7.78%	≤20
Molybdenum	SW 6010B	mg/kg	2.02	2.00	101%	85-115%	807143	ND	ND	0.00%	≤20
Nickel	SW 6010B	mg/kg	1.79	2.00	89.3%	85-115%	807143	16.9	16.4	2.66%	≤20
Selenium	SW 6010B	mg/kg	1.97	2.00	98.6%	85-115%	807143	ND	ND	0.00%	≤20
Silver	SW 6010B	mg/kg	1.95	2.00	97.7%	85-115%	807143	ND	ND	0.00%	≤20
Thallium	SW 6010B	mg/kg	1.89	2.00	94.7%	85-115%	807143	ND	ND	0.00%	≤20
Vanadium	SW 6010B	mg/kg	1.92	2.00	96.1%	85-115%	807143	45.2	43.6	3.77%	≤20
Zinc	SW 6010B	mg/kg	1.90	2.00	94.8%	85-115%	807143	39.4	38.1	3.42%	≤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 %
807143	Antimony	SW 6010B	mg/kg	55.2	5.00	198	990	1045	1190	115%	75-125%
807143	Arsenic	SW 6010B	mg/kg	0.00	5.00	198	990	990	1110	112%	75-125%
807143	Barium	SW 6010B	mg/kg	69.2	2.00	97.5	195	264	276	106%	75-125%
807143	Beryllium	SW 6010B	mg/kg	0.00	5.00	198	990	990	1200	121%	75-125%
807143	Cadmium	SW 6010B	mg/kg	6.94	2.00	97.5	195	202	194	95.9%	75-125%
807143	Chromium	SW 6010B	mg/kg	4370	10.0	195	1951	6321	6240	95.9%	75-125%
807143	Cobalt	SW 6010B	mg/kg	0.00	2.00	97.5	195	195	181	92.8%	75-125%
807143	Copper	SW 6020A	mg/kg	23.0	20.0	2.47	49.5	72.5	69.9	94.9%	75-125%
807143	Lead	SW 6010B	mg/kg	0.00	2.00	97.5	195	195	159	81.5%	75-125%
807143	Manganese	SW 6010B	mg/kg	268	2.00	97.5	195	463	437	86.6%	75-125%
807143	Mercury	SW 6020A	mg/kg	0.156	5.00	0.0851	0.425	0.581	0.509	83.0%	75-125%
807143	Molybdenum	SW 6010B	mg/kg	0.00	10.0	19.5	195	195	212	109%	75-125%
807143	Nickel	SW 6010B	mg/kg	16.9	2.00	97.5	195	212	194	90.6%	75-125%
807143	Selenium	SW 6010B	mg/kg	0.00	2.00	97.5	195	195	159	81.5%	75-125%
807143	Silver	SW 6010B	mg/kg	0.00	2.00	97.5	195	195	149	76.4%	75-125%
807143	Thallium	SW 6010B	mg/kg	0.00	2.00	97.5	195	195	157	80.7%	75-125%
807143	Vanadium	SW 6010B	mg/kg	45.2	2.00	97.5	195	240	220	89.6%	75-125%
807143	Zinc	SW 6010B	mg/kg	39.4	2.00	97.5	195	235	236	101%	75-125%

ND: Not detected, or below limit of detection.
DF: Dilution Factor

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi, Manager
Analytical Services

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Dry Weight Calculations

Date Calculated: 5/8/2013

	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	10.241	---	62.4	27.2041	27.2	2.00	5.31
Nitrate as N	5.077	---	62.4	13.4865	13.5	2.00	5.31
Hexavalent Chromium	17.3870	---	62.4	46.1869	46.2	3.9841	10.6
Hexavalent Chromium - Dup	15.1394	---	62.4	40.2162	40.2	3.9841	10.6
Hexavalent Chromium - MS	93.2815	---	62.4	247.793	248	3.9841	10.6
Hexavalent Chromium - IMS	1261.168	---	62.4	3350.160	3350	39.8406	106
Hexavalent Chromium - PDMS	184.6680	---	62.4	490.551	490	39.8406	106
Antimony	20.78	5.00	62.4	55.1999	55.2	3.7255	9.90
Arsenic	ND	5.00	62.4	ND	ND	1.8628	5.00
Barium	26.06	2.00	62.4	69.22566	69.2	1.4902	10.0
Beryllium	ND	5.00	62.4	ND	ND	1.8628	4.95
Cadmium	2.613	2.00	62.4	6.9412	6.94	0.7451	1.98
Chromium	1645	10.0	62.4	4369.7702	4370	3.7255	9.90
Cobalt	1.858	2.00	62.4	4.9356	ND	0.7451	10.0
Copper	8.648	20.0	62.4	22.9725	23.0	0.7451	5.00
Lead	1.256	2.00	62.4	3.3364	ND	0.7451	5.00
Manganese	101.1	2.00	62.4	268.5616	268	0.7451	1.98
Mercury	0.058620	5.00	62.4	0.15572	0.156	0.0373	0.100
Molybdenum	3.730	10.0	62.4	9.9084	ND	3.7255	10.0
Nickel	6.359	2.00	62.4	16.8920	16.9	0.7451	5.00
Selenium	ND	2.00	62.4	ND	ND	1.4902	5.00
Silver	ND	2.00	62.4	ND	ND	0.7451	5.00
Thallium	ND	2.00	62.4	ND	ND	0.7451	5.00
Vanadium	17.03	2.00	62.4	45.2384	45.2	0.7451	5.00
Zinc	14.85	2.00	62.4	39.4475	39.4	1.4902	10.0

TRUESDAIL LABORATORIES, INC.

Dry Weight Calculations

Date Calculated: 5/8/2013

	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: 807143							
Antimony	21.32	5.00	62.4	56.6343	56.6	3.7628	10.0
Arsenic	ND	5.00	62.4	ND	ND	1.8814	5.00
Barium	25.86	2.00	62.4	68.69438	68.7	1.5051	10.0
Beryllium	ND	5.00	62.4	ND	ND	1.8814	5.00
Cadmium	2.518	2.00	62.4	6.6888	6.69	0.7526	2.00
Chromium	1549	10.0	62.4	4114.7563	4110	3.7628	10.0
Cobalt	1.816	2.00	62.4	4.8240	ND	0.7526	10.0
Copper	8.405	20.0	62.4	22.3270	22.3	0.7526	5.00
Lead	1.41	2.00	62.4	3.7482	ND	0.7526	5.00
Manganese	100.6	2.00	62.4	267.2334	267	0.7526	2.00
Mercury	0.05423	5.00	62.4	0.14406	0.144	0.0376	0.100
Molybdenum	3.324	10.0	62.4	8.8299	ND	3.7628	10.0
Nickel	6.192	2.00	62.4	16.4484	16.4	0.7526	5.00
Selenium	ND	2.00	62.4	ND	ND	1.5051	5.00
Silver	ND	2.00	62.4	ND	ND	0.7526	5.00
Thallium	ND	2.00	62.4	ND	ND	0.7526	5.00
Vanadium	16.40	2.00	62.4	43.5649	43.6	0.7526	5.00
Zinc	14.35	2.00	62.4	38.1193	38.1	1.5051	10.0
Matrix Spike: 807143							
Antimony	447.6	5.00	62.4	1189.0025	1190	3.7255	9.90
Arsenic	417.3	5.00	62.4	1108.5137	1110	1.8628	5.00
Barium	103.9	2.00	62.4	275.9995	276	1.4688	10.0
Beryllium	453.9	5.00	62.4	1205.7378	1200	1.8628	4.95
Cadmium	73.05	2.00	62.4	194.0497	194	0.7344	1.95
Chromium	2349	10.0	62.4	6239.8725	6240	3.6719	9.75
Cobalt	68.12	2.00	62.4	180.9536	181	0.7344	10.0
Copper	26.320	20.0	62.4	69.9163	69.9	0.7451	5.00
Lead	59.85	2.00	62.4	158.9853	159	0.7344	5.00
Manganese	164.5	2.00	62.4	436.9770	437	0.7344	1.95
Mercury	0.1916	5.00	62.4	0.5090	0.509	0.0320	0.100
Molybdenum	79.79	10.0	62.4	211.9538	212	3.6719	10.0
Nickel	72.87	2.00	62.4	193.5715	194	0.7344	5.00
Selenium	59.82	2.00	62.4	158.9056	159	1.4688	5.00
Silver	56.13	2.00	62.4	149.1035	149	0.7344	5.00
Thallium	59.29	2.00	62.4	157.4977	157	0.7344	5.00
Vanadium	83.02	2.00	62.4	220.5339	220	0.7344	5.00
Zinc	88.69	2.00	62.4	235.5957	236	1.4688	10.0
Matrix Spike Duplicate: 807143							
Mercury	0.2486	5.00	62.4	0.6604	0.660	0.0465	0.124

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

where:

$Sample_{ww}$ = Sample result in wet weight

ed

TRUESDAIL LABORATORIES, INC.

TOTAL SOLIDS BY SM 2540 B

Date of Analysis: 04/04/13

Analytical Batch: 04SOLID13C
Oven Temp, °C: 105

Lab No.	Dish Number	Weight of dish, g	**Wt of wet sample, g**	Wt of wet sample+ dish, g	Wt of dried residue+dish,g	**Wt of dried residue, g**	% Total Solids	% Moisture
807143	1	1.3427	2.055	3.3977	2.1163	0.7736	37.645	62.355
807143D	2	1.3328	2.0479	3.3807	2.1007	0.7679	37.497	62.503

Relative Percent Difference			
Sample ID	Sample	Sample Dup	RPD
807143	62.355	62.503	0.2

$$\% \text{ Total Solids} = \frac{(A - B) * 100}{C - B} = \frac{\text{Weight of dried residue} \times 100}{\text{Weight of wet sample}}$$

Where:
A = Weight of dried Residue + Dish, g
B = Weight of dish, g
C = Weight of wet sample + Dish, g

G. Savani
Analyst Name

Analyst Signature

Reviewer Name

Reviewer Signature

TS_%M_10A4/5/13

Rec'd 04/01/13
S 807143

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CHAIN OF CUSTODY RECORD

[IM3plant-WDR-407a] 807143

TURNAROUND TIME 10 Days
DATE 04/01/13 PAGE 1 OF 1

COMPANY: CH2M HILL / E2
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: 424973.01.DM
SAMPLERS (SIGNATURE

SAMPLE I.D.	DATE	TIME	DESCRIPTION	Anions (300.0) F, NO3	Bioassay 96hr Acute	Metals (6010B) Title 22, (includes Mercury)	Cr6 (7199)	Metals (6010B) Mn										NUMBER OF CONTAINERS	COMMENTS
SC-Sludge-WDR-407a	04/01/13	730	Sludge	X		X	X	X										4	
																		4	TOTAL NUMBER OF CONTAINERS

ALERT !!
Level III QC

For Sample Conditions
See Form Attached

CHAIN OF CUSTODY SIGNATURE RECORD

	Printed Name	Company/ Agency	Date/ Time
Signature (Relinquished)	Ryan Phelps	CH2M	4-1-13 15:15
Signature (Received)	Hipolito	TL	4-1-13 15:15
Signature (Relinquished)	Hipolito	TL	4-1-13 21:00
Signature (Received)	Linda Shabunina	TL	4/1/13 21:00
Signature (Relinquished)			
Signature (Received)			

SAMPLE CONDITIONS
RECEIVED COOL ☑ WARM ☐ 3.4 °C
CUSTODY SEALED YES ☐ NO ☑
SPECIAL REQUIREMENTS:

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: E2 **Lab #** 807143

Date Delivered: 4/01/13 **Time:** 21:00 **By:** ☐Mail ☑Field Service ☐Client

1. Was a Chain of Custody received and signed? ☑Yes ☐No ☐N/A
2. Does Customer require an acknowledgement of the COC? ☐Yes ☐No ☑N/A
3. Are there any special requirements or notes on the COC? ☐Yes ☐No ☑N/A
4. If a letter was sent with the COC, does it match the COC? ☐Yes ☐No ☑N/A
5. Were all requested analyses understood and acceptable? ☑Yes ☐No ☐N/A
6. Were samples received in a chilled condition? ☑Yes ☐No ☐N/A
   Temperature (if yes)? 3.4 °C
7. Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)? ☑Yes ☐No ☐N/A
8. Were sample custody seals intact? ☐Yes ☐No ☑N/A
9. Does the number of samples received agree with COC? ☑Yes ☐No ☐N/A
10. Did sample labels correspond with the client ID's? ☑Yes ☐No ☐N/A
11. Did sample labels indicate proper preservation? ☐Yes ☐No ☑N/A
    Preserved (if yes) by: ☐Truesdail ☐Client
12. Were samples pH checked? pH = _____ ☐Yes ☐No ☑N/A
13. Were all analyses within holding time at time of receipt? ☑Yes ☐No ☐N/A
    If not, notify Project Manager.
14. Have Project due dates been checked and accepted? ☑Yes ☐No ☐N/A
    Turn Around Time (TAT): ☐ RUSH ☑ Std
15. **Sample Matrix:** ☐Liquid ☐Drinking Water ☐Ground Water ☐Waste Water ☑Sludge ☐Soil ☐Wipe ☐Paint ☐Solid ☐Other_____
16. Comments: _____
17. Sample Check-In completed by Truesdail Log-In/Receiving: L. Shabinnine

ALERT !!
Level III QC

C:\Users\Test\Desktop\Forms A - D\Discrp.FormBlank.doc

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April 26, 2013

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

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK IM3PLANT-WDR-407B PROJECT, GROUNDWATER MONITORING, TLI NO.: 807268

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-407b 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 5, 2013, 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 sample collection time was not recorded on the chain of custody. After discussing this with Mr. Duffy, the sample collection time of 13:30 from the sample containers was used in the report.

Due to the late Friday arrival of the samples, the sample for Turbidity by SM 2130B was analyzed on April 8, 2013, which was past the 48-hour holding time. Mr. Duffy was notified.

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.

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.: 456827.01.DM

Laboratory No.: 807268
Date: April 26, 2013
Collected: April 5, 2013
Received: April 5, 2013

ANALYST LIST

METHOD	PARAMETER	ANALYST
EPA 120.1	Specific Conductivity	Gautam Savani
SM 2540C	Total Dissolved Solids	Jenny Tankunakorn
SM 2130B	Turbidity	Gautam Savani
EPA 200.8	Total Metals	Bita Emami
EPA 218.6	Hexavalent Chromium	Tom Martinez

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

Laboratory No.: 807268
Date Received: April 5, 2013

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

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
807268-001	SC-700B-WDR-407b	E120.1	NONE	4/5/2013	13:30	EC	6980	umhos/cm	2.00
807268-001	SC-700B-WDR-407b	E200.8	NONE	4/5/2013	13:30	Chromium	ND	ug/L	1.0
807268-001	SC-700B-WDR-407b	E200.8	NONE	4/5/2013	13:30	Manganese	9.7	ug/L	0.50
807268-001	SC-700B-WDR-407b	E218.6	LABFLT	4/5/2013	13:30	Chromium, Hexavalent	ND	ug/L	0.20
807268-001	SC-700B-WDR-407b	SM2130B	NONE	4/5/2013	13:30	Turbidity	ND J	NTU	0.100
807268-001	SC-700B-WDR-407b	SM2540C	NONE	4/5/2013	13:30	Total Dissolved Solids	4190	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: 456827.01.DM
P.O. Number: 456827.01.DM
Release Number:

Laboratory No. 807268

Printed 4/26/2013

Samples Received on 4/5/2013 9:30:00 PM

Field ID	Lab ID	Collected	Matrix
SC-700B-WDR-407b	807268-001	04/05/2013 13:30	Water

Specific Conductivity - EPA 120.1 Batch 04EC13C

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807268-001 Specific Conductivity	umhos/cm	04/08/2013	1.00	0.116	2.00	6980

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate — Lab ID = 807241-007

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	2920	2910	0.343	0 - 10

Duplicate — Lab ID = 807241-012

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	2490	2480	0.402	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	680	706	96.3	90 - 110

Lab Control Sample Duplicate

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

MRCCS - Secondary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	948	998	95.0	90 - 110

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Chrome VI by EPA 218.6

Batch 04CrH13D

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807268-001 Chromium, Hexavalent	ug/L	04/08/2013 15:52	1.00	0.00920	0.20	ND

Method Blank

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

Duplicate — Lab ID = 807241-006

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	3.51	3.49	0.668	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.198	0.200	99.2	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.88	5.00	97.6	90 - 110

Matrix Spike — Lab ID = 807241-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.25	1.32(1.00)	92.5	90 - 110

Matrix Spike — Lab ID = 807241-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.04	1.11(1.00)	93.0	90 - 110

Matrix Spike — Lab ID = 807241-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.10	1.16(1.00)	93.3	90 - 110

Matrix Spike — Lab ID = 807241-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	8.22	8.49(5.00)	94.7	90 - 110

Matrix Spike — Lab ID = 807241-007

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.87	1.80(1.00)	107	90 - 110

Matrix Spike — Lab ID = 807241-008

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.68	1.73(1.00)	94.4	90 - 110

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Matrix Spike — Lab ID = 807268-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.07	1.12(1.00)	95.3	90 - 110

Matrix Spike — Lab ID = 807268-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.82	5.13(5.00)	93.9	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.89	5.00	97.8	90 - 110

MRCVS - Primary

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

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.90	10.0	99.0	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.88	10.0	98.8	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.87	10.0	98.7	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.96	10.0	99.6	95 - 105

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Metals by EPA 200.8, Total

Batch 040913B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807268-001 Chromium	ug/L	04/09/2013 14:12	2.00	0.184	1.0	ND
Manganese	ug/L	04/09/2013 14:12	2.00	0.172	0.50	9.7

Method Blank

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

Duplicate — Lab ID = 807268-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	2.00	ND	0	0	0 - 20
Manganese	ug/L	2.00	9.28	9.74	4.81	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.217	0.200	108	70 - 130
Manganese	ug/L	1.00	0.206	0.200	103	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	2.00	50.3	50.0	100	85 - 115
Manganese	ug/L	2.00	50.2	50.0	100	85 - 115

Matrix Spike — Lab ID = 807268-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	53.4	50.0(50.0)	107	75 - 125
Manganese	ug/L	2.00	62.9	59.7(50.0)	106	75 - 125

Matrix Spike Duplicate — Lab ID = 807268-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	52.1	50.0(50.0)	104	75 - 125
Manganese	ug/L	2.00	61.2	59.7(50.0)	103	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.8	20.0	98.8	90 - 110
Manganese	ug/L	1.00	19.5	20.0	97.6	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.5	20.0	97.4	90 - 110
Manganese	ug/L	1.00	19.8	20.0	99.0	90 - 110

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Total Dissolved Solids by SM 2540 C

Batch 04TDS13D

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807268-001 Total Dissolved Solids	mg/L	04/10/2013	1.00	1.76	250	4190

Method Blank

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

Duplicate — Lab ID = 807268-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	4080	4190	2.66	0 - 10

Duplicate — Lab ID = 807346-012

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	1190	1200	0.501	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Dissolved Solids	mg/L	1.00	499	500	99.8	90 - 110

Turbidity by SM 2130 B

Batch 04TUC13D

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807268-001 Turbidity	NTU	04/08/2013	1.00	0.0140	0.100	ND J

Method Blank

Parameter	Unit	DF	Result
Turbidity	NTU	1.00	ND

Duplicate — Lab ID = 807268-001

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	8.26	8.00	103	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	8.10	8.00	101	90 - 110

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Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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e7

Truesdail Laboratories, Inc.

Total Dissolved Solids by SM 2540 C

Calculations

Batch: 04TDS13D
Date Analyzed: 4/10/13

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	74.7013	74.7025	74.7025	0.0000	No	0.0012	12.0	25.0	ND	1
807216	200	92.0914	92.1127	92.1125	0.0002	No	0.0211	105.5	12.5	105.5	1
807268	10	51.9196	51.9617	51.9615	0.0002	No	0.0419	4190.0	250.0	4190.0	1
807286-1	50	50.749	50.8559	50.8558	0.0001	No	0.1068	2136.0	50.0	2136.0	1
807286-2	50	75.7554	75.8606	75.8606	0.0000	No	0.1052	2104.0	50.0	2104.0	1
807286-3	50	76.1858	76.2382	76.2379	0.0003	No	0.0521	1042.0	50.0	1042.0	1
807286-5	50	78.8031	78.8588	78.8585	0.0003	No	0.0554	1108.0	50.0	1108.0	1
807286-7	50	68.768	68.8216	68.8213	0.0003	No	0.0533	1066.0	50.0	1066.0	1
807287-1	50	72.0861	72.1204	72.12	0.0004	No	0.0339	678.0	50.0	678.0	1
807287-3	100	72.7656	72.8048	72.8048	0.0000	No	0.0392	392.0	25.0	392.0	1
807287-4	50	74.5267	74.6311	74.6307	0.0004	No	0.1040	2080.0	50.0	2080.0	1
807268D	10	48.0235	48.0643	48.0643	0.0000	No	0.0408	4080.0	250.0	4080.0	1
LCS	100	75.0185	75.0684	75.0684	0.0000	No	0.0499	499.0	25.0	499.0	1
807287-5	100	72.4126	72.465	72.4646	0.0004	No	0.0520	520.0	25.0	520.0	1
807288-6	100	77.2414	77.2777	77.2776	0.0001	No	0.0362	362.0	25.0	362.0	1
807288-7	50	69.1989	69.2695	69.2692	0.0003	No	0.0703	1406.0	50.0	1406.0	1
807341	10	47.8540	47.8977	47.8977	0.0000	No	0.0437	4370.0	250.0	4370.0	1
807344-1	20	51.8004	51.8637	51.8634	0.0003	No	0.0630	3150.0	125.0	3150.0	1
807345-2	50	66.7994	66.8899	66.8897	0.0002	No	0.0903	1806.0	50.0	1806.0	1
807346-10	100	76.5367	76.5772	76.5772	0.0000	No	0.0405	405.0	25.0	405.0	1
807346-11	100	69.4807	69.5218	69.5218	0.0000	No	0.0411	411.0	25.0	411.0	1
807346-12	50	76.5052	76.5654	76.5653	0.0001	No	0.0601	1202.0	50.0	1202.0	1
807359-7	100	67.0467	67.0938	67.0938	0.0000	No	0.0471	471.0	25.0	471.0	1
807346-12D	50	71.3212	71.3809	71.3809	0.0000	No	0.0597	1194.0	50.0	1194.0	1

Calculation as follows:

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

Where:

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

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

Laboratory Control Sample (LCS) Summary

QC Std I.D.	Measurd Value, ppm	Theoretical Value, ppm	Percent Rec	Acceptance Limit	QC Within Control?
LCS1	499	500	99.8%	90-110%	Yes
LCSD					

LCS Recovery

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

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

Duplicate Determinations Difference Summary

Lab Number	Sample Weight, g	Sample Dup Weight, g	% RPD	Acceptance Limit	QC Within Control?
807268	0.0419	0.0408	1.3%	≤5%	Yes
807346-12	0.0601	0.0597	0.3%	5%	Yes

Duplicate Determination Difference

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

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

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

Jenny T.
Analyst Printed Name

Analyst Signature

Maksim G.
Reviewer Printed Name

Reviewer Signature

WetChem TDS_2012.xls

Total Dissolved Solids by SM 2540 C

TDS/EC CHECK

Batch: 04TDS13D
Date Analyzed: 4/10/13

Laboratory Number	EC	TDS/EC Ratio: 0.55-.9	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
807216	158	0.67	102.7	1.03
807268	7100	0.59	4615	0.91
807286-1	2840	0.75	1846	1.16
807286-2	2820	0.75	1833	1.15
807286-3	1498	0.70	973.7	1.07
807286-5	1623	0.68	1054.95	1.05
807286-7	1548	0.69	1006.2	1.06
807287-1	1008	0.67	655.2	1.03
807287-3	624	0.63	405.6	0.97
807287-4	2910	0.71	1891.5	1.10
807268D	7100	0.57	4615	0.88
LCS				
807287-5	847	0.61	550.55	0.94
807288-6	550	0.66	357.5	1.01
807288-7	1998	0.70	1298.7	1.08
807341	7040	0.62	4576	0.95
807344-1	4200	0.75	2730	1.15
807345-2	2550	0.71	1657.5	1.09
807346-10	585	0.69	380.25	1.07
807346-11	600	0.69	390	1.05
807346-12	1707	0.70	1109.55	1.08
807359	751	0.63	488.15	0.96
807346-12D	1707	0.70	1109.55	1.08

807268

Rec'd 04/05/13

S 807268

COC Number

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-407b]

TURNAROUND TIME 10 Days

DATE 04/05/13 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 456827.01.DM TEAM 1

SAMPLERS (SIGNATURE

SAMPLE I.D.	DATE	TIME	DESCRIPTION	Cr6 (218.6) Lab Filtered	Total Metals (200.7) Cr, Mn	Specific Conductance (120.1)	TDS (SM2540C)	Turbidity (SM2130)								NUMBER OF CONTAINERS	COMMENTS
SC-700B-WDR-407b	04/05/13		Water	x	x	x	x		x							3	pH = 6 (200.7)
																3	TOTAL NUMBER OF CONTAINERS

ALERT !!
Level III QC

For Sample Conditions
See Form Attached

CHAIN OF CUSTODY SIGNATURE RECORD

	Signature	Printed Name	Company/ Agency	Date/ Time
Signature (Relinquished)		J. Hide	E2	4/5/13 1330
Signature (Received)	Rafael Davila	Rafael	T.L.I	4-5-13 15:30
Signature (Relinquished)	Rafael Davila	Rafael	T.L.I	4-5-13 21:30
Signature (Received)	Linda	Shakunma	TLI	4/5/13 21:30
Signature (Relinquished)				
Signature (Received)				

SAMPLE CONDITIONS

RECEIVED COOL ☑ WARM ☐ 4.1 °C

CUSTODY SEALED YES ☐ NO ☑

SPECIAL REQUIREMENTS:

04-1

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
4/6/13	807268	7.0	2mL/100mL	9.5	9:00	TM
4/8/13	807286-1	9.5	N/A	N/A	N/A	NE
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
4/8/13	807287-1	9.5	N/A	N/A	N/A	NE
	-2					
	-3					
	-4					
	-5					
~~4/8/13~~ ~~807288~~						
~~4/8/13~~ 04/08/13	807288-1	9.5	N/A	N/A	N/A	NE
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9	7.0	5 drops 25% NaOH/100mL	9.5	10:00	

TM
4/9/13

04/10/13

TRUESDAIL LABORATORIES, INC.

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
807242(1-6)	<1	<2	4-5-13	BZ	yes			
807241 (3-12)	|	|	|	|	|			
807238(1-3	<1	<2	|	|	no	11:00 AM		
807268	|	|	4-8-13	|	yes			
802939	>1	>2	|	|	|			
803012	|	|	|	|	|			
797182	|	|	|	|	|			
798148	|	|	|	|	|			
798168	|	|	|	|	|			
797190	|	|	|	|	|			
798143	|	|	|	|	|			
804084	|	|	|	|	|			
801345	|	|	|	|	|			
801338	|	|	|	|	|			
801296	|	|	|	|	|			
803434	|	|	|	|	|			
803441	|	|	|	|	|			
803442	|	|	|	|	|			
803274	|	|	|	|	|			
803299	|	|	|	|	|			
803300	|	|	|	|	|			
803459	|	|	|	|	|			
803489	|	|	|	|	|			
803626	|	|	|	|	|			
803650	|	|	|	|	|			
803656	|	|	|	|	|			
803659	|	|	|	|	|			
807243(1-7)	<1	<2	4-8-13	ES	yes			
807215 (11-14)	<1	>2	4-9-13	ES	yes	11:00 am		Filtered then acidified
807241 (3-12)	↓	↓	↓	↓	↓	↓		↓
807143		SLUDGE 4/9/13		ES	yes			
807286(1-7)	<1	<2	BZ 4/10/13	BZ	yes			
807287(1,3-5)	|	|	4-10-13	|	|			
807288(1-7)	↓	↓	↓	↓	↓			
807341	|	>2 BZ	|	|	|	9:00 AM		
807245	<1	<2	4/10/13	BZ	yes			
807295	|	|	|	|	|			
807292	|	|	|	|	|			
807284	|	|	|	|	|			
807300	|	|	|	|	|			
807291	|	|	|	|	|			
807285	|	|	|	|	|			
807212-4	|	|	|	|	|			
807266	↓	↓	↓	↓	↓			

Racing sample

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

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: E2 **Lab #** 807268

Date Delivered: 04/05/13 **Time:** 21:30 **By:** ☐Mail ☑Field Service ☐Client

1. Was a Chain of Custody received and signed? ☑Yes ☐No ☐N/A
2. Does Customer require an acknowledgement of the COC? ☐Yes ☐No ☑N/A
3. Are there any special requirements or notes on the COC? ☐Yes ☐No ☑N/A
4. If a letter was sent with the COC, does it match the COC? ☐Yes ☐No ☑N/A
5. Were all requested analyses understood and acceptable? ☑Yes ☐No ☐N/A
6. Were samples received in a chilled condition? ☑Yes ☐No ☐N/A
   Temperature (if yes)? 4.1 °C
7. Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)? ☑Yes ☐No ☐N/A
8. Were sample custody seals intact? ☐Yes ☐No ☑N/A
9. Does the number of samples received agree with COC? ☑Yes ☐No ☐N/A
10. Did sample labels correspond with the client ID's? ☑Yes ☐No ☐N/A
11. Did sample labels indicate proper preservation? ☐Yes ☐No ☑N/A
    Preserved (if yes) by: ☐Truesdail ☐Client
12. Were samples pH checked? pH = see c.o.c ☑Yes ☐No ☐N/A
13. Were all analyses within holding time at time of receipt? ☑Yes ☐No ☐N/A
    If not, notify Project Manager.
14. Have Project due dates been checked and accepted? ☑Yes ☐No ☐N/A
    Turn Around Time (TAT): ☐ RUSH ☑ Std
15. **Sample Matrix:** ☐Liquid ☐Drinking Water ☐Ground Water ☐Waste Water ☐Sludge ☐Soil ☐Wipe ☐Paint ☐Solid ☑Other Water
16. Comments: _____
17. Sample Check-In completed by Truesdail Log-In/Receiving: J. Shakeenna

ALERT !!
Level III QC

C:\Users\Test\Desktop\Forms A - D\Discrp.FormBlank.doc

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

April 26, 2013

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

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK IM3PLANT-WDR-408 PROJECT, GROUNDWATER MONITORING, TLI NO.: 807341

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-408 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 9, 2013, 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. Shawn Duffy's approval.

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

Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy
Sample: One (1) Groundwater Sample
Project Name: PG&E Topock Project
Project No.: 456827.01.DM

Laboratory No.: 807341
Date: April 26, 2013
Collected: April 9, 2013
Received: April 9, 2013

ANALYST LIST

METHOD	PARAMETER	ANALYST
EPA 120.1	Specific Conductivity	Gautam Savani
SM 2540C	Total Dissolved Solids	Jenny Tankunakorn
SM 2130B	Turbidity	Gautam Savani
EPA 200.8	Total Metals	Bita Emami
EPA 218.6	Hexavalent Chromium	Tom Martinez

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155 Grand Ave. Suite 1000
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Attention: Shawn Duffy

Laboratory No.: 807341
Date Received: April 9, 2013

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

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
807341-001	SC-700B-WDR-408	E120.1	NONE	4/9/2013	14:55	EC	6970	umhos/cm	2.00
807341-001	SC-700B-WDR-408	E200.8	NONE	4/9/2013	14:55	Chromium	ND	ug/L	1.0
807341-001	SC-700B-WDR-408	E200.8	NONE	4/9/2013	14:55	Manganese	2.2	ug/L	0.50
807341-001	SC-700B-WDR-408	E218.6	LABFLT	4/9/2013	14:55	Chromium, Hexavalent	ND	ug/L	1.0
807341-001	SC-700B-WDR-408	SM2130B	NONE	4/9/2013	14:55	Turbidity	ND	NTU	0.100
807341-001	SC-700B-WDR-408	SM2540C	NONE	4/9/2013	14:55	Total Dissolved Solids	4370	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: 456827.01.DM
P.O. Number: 456827.01.DM
Release Number:

Laboratory No. 807341

Printed 4/26/2013

Samples Received on 4/9/2013 10:30:00 PM

Field ID	Lab ID	Collected	Matrix
SC-700B-WDR-408	807341-001	04/09/2013 14:55	Water

Specific Conductivity - EPA 120.1 Batch 04EC13D

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807341-001 Specific Conductivity	umhos/cm	04/12/2013	1.00	0.116	2.00	6970

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate — Lab ID = 807342-011

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	7140	7150	0.140	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	683	706	96.7	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	692	706	98.0	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	694	706	98.3	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	971	998	97.3	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	977	998	97.9	90 - 110

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Chrome VI by EPA 218.6 Batch 04CrH13F

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807341-001 Chromium, Hexavalent	ug/L	04/10/2013 12:43	5.00	0.0460	1.0	ND

Method Blank

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

Duplicate — Lab ID = 807287-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	496	507	2.13	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.198	0.200	98.9	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.97	5.00	99.4	90 - 110

Matrix Spike — Lab ID = 807287-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.957	1.02(1.00)	94.0	90 - 110

Matrix Spike — Lab ID = 807287-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	8.05	8.40(5.00)	93.1	90 - 110

Matrix Spike — Lab ID = 807287-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	6.14	6.31(5.00)	96.6	90 - 110

Matrix Spike — Lab ID = 807287-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	6.08	6.35(5.00)	94.6	90 - 110

Matrix Spike — Lab ID = 807287-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.52	9.92(5.00)	92.0	90 - 110

Matrix Spike — Lab ID = 807287-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.946	1.00(1.00)	94.6	90 - 110

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Matrix Spike — Lab ID = 807341-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.85	5.07(5.00)	95.6	90 - 110

Matrix Spike — Lab ID = 807341-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.00	1.06(1.00)	94.1	90 - 110

Matrix Spike — Lab ID = 807343-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.946	1.00(1.00)	94.6	90 - 110

Matrix Spike — Lab ID = 807343-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	12.3	12.6(5.00)	95.0	90 - 110

Matrix Spike — Lab ID = 807343-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.92	1.96(1.00)	95.5	90 - 110

Matrix Spike — Lab ID = 807343-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.90	1.95(1.00)	95.0	90 - 110

Matrix Spike — Lab ID = 807343-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	6.52	6.69(5.00)	96.5	90 - 110

Matrix Spike — Lab ID = 807343-007

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	7.45	7.59(5.00)	97.1	90 - 110

Matrix Spike — Lab ID = 807343-008

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	6.37	6.50(5.00)	97.4	90 - 110

Matrix Spike — Lab ID = 807343-009

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	7.88	8.00(5.00)	97.6	90 - 110

Matrix Spike — Lab ID = 807343-010

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.989	1.00(1.00)	98.9	90 - 110

Matrix Spike — Lab ID = 807344-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	6.94	7.04(5.00)	98.0	90 - 110

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Metals by EPA 200.8, Total

Batch 041013B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807341-001 Chromium	ug/L	04/10/2013 17:09	2.00	0.184	1.0	ND
Manganese	ug/L	04/10/2013 17:09	2.00	0.172	0.50	2.2

Method Blank

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

Duplicate

Lab ID = 807341-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	2.00	ND	0	0	0 - 20
Manganese	ug/L	2.00	2.26	2.17	3.89	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.206	0.200	103	70 - 130
Manganese	ug/L	1.00	0.202	0.200	101	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	2.00	48.4	50.0	96.8	85 - 115
Manganese	ug/L	2.00	48.0	50.0	96.0	85 - 115

Matrix Spike

Lab ID = 807341-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	47.8	50.0(50.0)	95.6	75 - 125
Manganese	ug/L	2.00	49.6	52.2(50.0)	94.8	75 - 125

Matrix Spike Duplicate

Lab ID = 807341-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	49.6	50.0(50.0)	99.3	75 - 125
Manganese	ug/L	2.00	50.9	52.2(50.0)	97.5	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.4	20.0	96.9	90 - 110
Manganese	ug/L	1.00	19.4	20.0	96.8	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	21.6	20.0	108	90 - 110

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Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.4	20.0	96.8	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	19.3	20.0	96.5	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	19.4	20.0	96.8	80 - 120

Total Dissolved Solids by SM 2540 C

Batch 04TDS13D

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807341-001 Total Dissolved Solids	mg/L	04/10/2013	1.00	1.76	250	4370

Method Blank

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

Duplicate — Lab ID = 807268-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	4080	4190	2.66	0 - 10

Duplicate — Lab ID = 807346-012

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	1190	1200	0.501	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Dissolved Solids	mg/L	1.00	499	500	99.8	90 - 110

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project
Project Number: 456827.01.DM

Printed 4/26/2013

Turbidity by SM 2130 B Batch 04TUC13I

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807341-001 Turbidity	NTU	04/10/2013	1.00	0.0140	0.100	ND

Method Blank

Parameter	Unit	DF	Result
Turbidity	NTU	1.00	ND

Duplicate — Lab ID = 807342-011

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	7.90	8.00	98.8	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	7.77	8.00	97.1	90 - 110

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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Truesdail Laboratories, Inc.

Total Dissolved Solids by SM 2540 C

Calculations

Batch: 04TDS13D
Date Analyzed: 4/10/13

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	74.7013	74.7025	74.7025	0.0000	No	0.0012	12.0	25.0	ND	1
807216	200	92.0914	92.1127	92.1125	0.0002	No	0.0211	105.5	12.5	105.5	1
807268	10	51.9196	51.9617	51.9615	0.0002	No	0.0419	4190.0	250.0	4190.0	1
807286-1	50	50.749	50.8559	50.8558	0.0001	No	0.1068	2136.0	50.0	2136.0	1
807286-2	50	75.7554	75.8606	75.8606	0.0000	No	0.1052	2104.0	50.0	2104.0	1
807286-3	50	76.1858	76.2382	76.2379	0.0003	No	0.0521	1042.0	50.0	1042.0	1
807286-5	50	78.8031	78.8588	78.8585	0.0003	No	0.0554	1108.0	50.0	1108.0	1
807286-7	50	68.768	68.8216	68.8213	0.0003	No	0.0533	1066.0	50.0	1066.0	1
807287-1	50	72.0861	72.1204	72.12	0.0004	No	0.0339	678.0	50.0	678.0	1
807287-3	100	72.7656	72.8048	72.8048	0.0000	No	0.0392	392.0	25.0	392.0	1
807287-4	50	74.5267	74.6311	74.6307	0.0004	No	0.1040	2080.0	50.0	2080.0	1
807268D	10	48.0235	48.0643	48.0643	0.0000	No	0.0408	4080.0	250.0	4080.0	1
LCS	100	75.0185	75.0684	75.0684	0.0000	No	0.0499	499.0	25.0	499.0	1
807287-5	100	72.4126	72.465	72.4646	0.0004	No	0.0520	520.0	25.0	520.0	1
807288-6	100	77.2414	77.2777	77.2776	0.0001	No	0.0362	362.0	25.0	362.0	1
807288-7	50	69.1989	69.2695	69.2692	0.0003	No	0.0703	1406.0	50.0	1406.0	1
807341	10	47.8540	47.8977	47.8977	0.0000	No	0.0437	4370.0	250.0	4370.0	1
807344-1	20	51.8004	51.8637	51.8634	0.0003	No	0.0630	3150.0	125.0	3150.0	1
807345-2	50	66.7994	66.8899	66.8897	0.0002	No	0.0903	1806.0	50.0	1806.0	1
807346-10	100	76.5367	76.5772	76.5772	0.0000	No	0.0405	405.0	25.0	405.0	1
807346-11	100	69.4807	69.5218	69.5218	0.0000	No	0.0411	411.0	25.0	411.0	1
807346-12	50	76.5052	76.5654	76.5653	0.0001	No	0.0601	1202.0	50.0	1202.0	1
807359-7	100	67.0467	67.0938	67.0938	0.0000	No	0.0471	471.0	25.0	471.0	1
807346-12D	50	71.3212	71.3809	71.3809	0.0000	No	0.0597	1194.0	50.0	1194.0	1

Calculation as follows:

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

Where:

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

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

Laboratory Control Sample (LCS) Summary

QC Std I.D.	Measurd Value, ppm	Theoretical Value, ppm	Percent Rec	Acceptance Limit	QC Within Control?
LCS1	499	500	99.8%	90-110%	Yes
LCSD					

LCS Recovery

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

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

Duplicate Determinations Difference Summary

Lab Number	Sample Weight, g	Sample Dup Weight, g	% RPD	Acceptance Limit	QC Within Control?
807268	0.0419	0.0408	1.3%	≤5%	Yes
807346-12	0.0601	0.0597	0.3%	5%	Yes

Duplicate Determination Difference

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

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

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

Jenny T.
Analyst Printed Name

Analyst Signature

Maksim G.
Reviewer Printed Name

Reviewer Signature

WetChem TDS_2012.xls

Total Dissolved Solids by SM 2540 C

TDS/EC CHECK

Batch: 04TDS13D
Date Analyzed: 4/10/13

Laboratory Number	EC	TDS/EC Ratio: 0.55-.9	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
807216	158	0.67	102.7	1.03
807268	7100	0.59	4615	0.91
807286-1	2840	0.75	1846	1.16
807286-2	2820	0.75	1833	1.15
807286-3	1498	0.70	973.7	1.07
807286-5	1623	0.68	1054.95	1.05
807286-7	1548	0.69	1006.2	1.06
807287-1	1008	0.67	655.2	1.03
807287-3	624	0.63	405.6	0.97
807287-4	2910	0.71	1891.5	1.10
807268D	7100	0.57	4615	0.88
LCS				
807287-5	847	0.61	550.55	0.94
807288-6	550	0.66	357.5	1.01
807288-7	1998	0.70	1298.7	1.08
807341	7040	0.62	4576	0.95
807344-1	4200	0.75	2730	1.15
807345-2	2550	0.71	1657.5	1.09
807346-10	585	0.69	380.25	1.07
807346-11	600	0.69	390	1.05
807346-12	1707	0.70	1109.55	1.08
807359	751	0.63	488.15	0.96
807346-12D	1707	0.70	1109.55	1.08

Rec'd 4/9/13

S4c 807341

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

[IM3Plant-WDR-408]

807341

COC Number

TURNAROUND TIME 10 Days

DATE 04/09/13 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: 456827.01.DM TEAM: 1

SAMPLERS (SIGNATURE): [signature]

SAMPLE I.D.	DATE	TIME	DESCRIPTION	Cr6 (218.6) Lab Filtered	Total Metals (200.7) Cr, Mn	Specific Conductance (120.1)	TDS (SM2540C)	Turbidity (SM2130)								NUMBER OF CONTAINERS	COMMENTS
SC-700B-WDR-408	04/09/13	14:55	Water	X	X	X	X		X							3	pH=6 (200.7)
																3	TOTAL NUMBER OF CONTAINERS

ALERT !!
Level III QC

Sample Condition Form Attached

CHAIN OF CUSTODY SIGNATURE RECORD

	Printed Name	Company/ Agency	Date/ Time
Signature (Relinquished) [signature]	George Gloria	E-2	04-09-13 14:55
Signature (Received) Rafael David	Rafael	T.h.I	4-9-13 15:00
Signature (Relinquished) Rafael David	Rafael	T.h.I	4-9-13 22:30
Signature (Received) Linda	Shabunina	TLI	4/9/13 22:30
Signature (Relinquished)			
Signature (Received)			

SAMPLE CONDITIONS

RECEIVED COOL ☑ WARM ☐ 3.6 °C

CUSTODY SEALED YES ☐ NO ☑

SPECIAL REQUIREMENTS:

042

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
4/6/13	807268	7.0	2mL/100mL	9.5	9:00	TM
4/8/13	807286-1	9.5	N/A	N/A	N/A	NE
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
4/8/13	807287-1	9.5	N/A	N/A	N/A	NE
	-2					
	-3					
	-4					
	-5					
4/10/13	807288-1	9.5	N/A	N/A	N/A	NE
04/08/13	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9	7.0	5drops 25% NaOH/100mL	9.5	10:00	
4/10/13	807287-6	9.5	N/A	N/A	N/A	
4/9/13	807341	7.0	2mL / 100mL	9.5	09:00	NE
4/9/13	807342-1	9.5	N/A	N/A	N/A	NE
	-2					
	-3					
	-4					
	-5					

04/15/13 TM 4/13/13

TRUESDAIL LABORATORIES, INC.

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
807242(1-6)	<1	<2	4-5-13	BZ	yes			
807241 (3-12)	|	|	|	|	|			
807238(1-3	<1	<2	|	|	no	11:00 AM		
807268	|	|	4-8-13	|	yes			
802939	>1	>2	|	|	|			
803012	|	|	|	|	|			
797182	|	|	|	|	|			
798148	|	|	|	|	|			
798168	|	|	|	|	|			
797190	|	|	|	|	|			
798143	|	|	|	|	|			
804084	|	|	|	|	|			
801345	|	|	|	|	|			
801338	|	|	|	|	|			
801296	|	|	|	|	|			
803434	|	|	|	|	|			
803441	|	|	|	|	|			
803442	|	|	|	|	|			
803274	|	|	|	|	|			
803299	|	|	|	|	|			
803300	|	|	|	|	|			
803459	|	|	|	|	|			
803489	|	|	|	|	|			
803626	|	|	|	|	|			
803650	|	|	|	|	|			
803656	|	|	|	|	|			
803659	|	|	|	|	|			
807243(1-7)	<1	<2	4-8-13	ES	yes			
807215 (11-14)	<1	>2	4-9-13	ES	yes	11:00 AM		Filtered then acidified
807241 (3-12)	↓	↓	↓	↓	↓	↓		↓
807143		SLURGE 4/9/13		ES	yes			
807286(1-7)	<1	<2	BZ 4/10/13	BZ	yes			
807287(193-5)	|	|	4-10-13	|	|			
807288(1-7)	↓	↓	↓	↓	↓			
807341	|	>2 BZ	|	|	|	9:00 AM		
807245	<1	<2	4/10/13	BZ	yes			
807295	|	|	|	|	|			
807292	|	|	|	|	|			
807284	|	|	|	|	|			
807300	|	|	|	|	|			
807291	|	|	|	|	|			
807285	|	|	|	|	|			
807212-4	|	|	|	|	|			
807266	↓	↓	↓	↓	↓			

Racing sample

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

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: E2 **Lab #** 807341

Date Delivered: 04/09/13 **Time:** 22:30 **By:** ☐Mail ☑Field Service ☐Client

1. Was a Chain of Custody received and signed? ☑Yes ☐No ☐N/A
2. Does Customer require an acknowledgement of the COC? ☐Yes ☐No ☑N/A
3. Are there any special requirements or notes on the COC? ☐Yes ☐No ☑N/A
4. If a letter was sent with the COC, does it match the COC? ☐Yes ☐No ☑N/A
5. Were all requested analyses understood and acceptable? ☑Yes ☐No ☐N/A
6. Were samples received in a chilled condition? ☑Yes ☐No ☐N/A
   Temperature (if yes)? 3.6 °C
7. Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)? ☑Yes ☐No ☐N/A
8. Were sample custody seals intact? ☐Yes ☐No ☑N/A
9. Does the number of samples received agree with COC? ☑Yes ☐No ☐N/A
10. Did sample labels correspond with the client ID's? ☑Yes ☐No ☐N/A
11. Did sample labels indicate proper preservation? ☐Yes ☐No ☑N/A
    Preserved (if yes) by: ☐Truesdail ☐Client
12. Were samples pH checked? pH = See c.o.c ☑Yes ☐No ☐N/A
13. Were all analyses within holding time at time of receipt? ☑Yes ☐No ☐N/A
    If not, notify Project Manager.
14. Have Project due dates been checked and accepted? ☑Yes ☐No ☐N/A
    Turn Around Time (TAT): ☐ RUSH ☑ Std
15. **Sample Matrix:** ☐Liquid ☐Drinking Water ☐Ground Water ☐Waste Water ☐Sludge ☐Soil ☐Wipe ☐Paint ☐Solid ☑Other Water
16. Comments: _____
17. Sample Check-In completed by Truesdail Log-In/Receiving: Linda

ALERT Level III QC

C:\Users\Test\Desktop\Forms A - D\Discrp.FormBlank.doc

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

April 26, 2013

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

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK IM3PLANT-WDR-409 PROJECT, GROUNDWATER MONITORING, TLI NO.: 807485

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-409 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 16, 2013, 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. Shawn Duffy's approval.

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

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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.: 456827.01.DM

Laboratory No.: 807485
Date: April 26, 2013
Collected: April 16, 2013
Received: April 16, 2013

ANALYST LIST

METHOD	PARAMETER	ANALYST
EPA 120.1	Specific Conductivity	Gautam Savani
SM 2540C	Total Dissolved Solids	Jenny Tankunakorn
SM 2130B	Turbidity	Gautam Savani
EPA 200.8	Total Metals	Bita Emami
EPA 218.6	Hexavalent Chromium	Tom Martinez

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

Laboratory No.: 807485
Date Received: April 16, 2013

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

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
807485-001	SC-700B-WDR-409	E120.1	NONE	4/16/2013	13:49	EC	7080	umhos/cm	2.00
807485-001	SC-700B-WDR-409	E200.8	NONE	4/16/2013	13:49	Chromium	ND	ug/L	1.0
807485-001	SC-700B-WDR-409	E200.8	NONE	4/16/2013	13:49	Manganese	7.5	ug/L	0.50
807485-001	SC-700B-WDR-409	E218.6	LABFLT	4/16/2013	13:49	Chromium, Hexavalent	ND	ug/L	0.20
807485-001	SC-700B-WDR-409	SM2130B	NONE	4/16/2013	13:49	Turbidity	ND	NTU	0.100
807485-001	SC-700B-WDR-409	SM2540C	NONE	4/16/2013	13:49	Total Dissolved Solids	4220	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: 456827.01.DM
P.O. Number: 456827.01.DM
Release Number:

Laboratory No. 807485

Printed 4/26/2013

Samples Received on 4/16/2013 9:30:00 PM

Field ID	Lab ID	Collected	Matrix
SC-700B-WDR-409	807485-001	04/16/2013 13:49	Water

Specific Conductivity - EPA 120.1 Batch 04EC13G

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807485-001 Specific Conductivity	umhos/cm	04/17/2013	1.00	0.116	2.00	7080

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate — Lab ID = 807485-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	7080	7080	0	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	688	706	97.4	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	692	706	98.0	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	941	998	94.3	90 - 110

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Chrome VI by EPA 218.6

Batch 04CrH13L

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807485-001 Chromium, Hexavalent	ug/L	04/17/2013 14:48	1.00	0.00920	0.20	ND

Method Blank

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

Duplicate — Lab ID = 807376-003

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	2.51	2.55	1.72	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.205	0.200	103	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.95	5.00	98.9	90 - 110

Matrix Spike — Lab ID = 807375-008

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.99	6.30(5.00)	93.9	90 - 110

Matrix Spike — Lab ID = 807375-009

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.98	6.30(5.00)	93.7	90 - 110

Matrix Spike — Lab ID = 807375-010

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	6.95	7.27(5.00)	93.6	90 - 110

Matrix Spike — Lab ID = 807375-011

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.85	6.15(5.00)	94.1	90 - 110

Matrix Spike — Lab ID = 807375-012

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.965	1.00(1.00)	96.5	90 - 110

Matrix Spike — Lab ID = 807375-013

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	6.47	6.76(5.00)	94.2	90 - 110

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Matrix Spike — Lab ID = 807376-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.975	1.01(1.00)	96.5	90 - 110

Matrix Spike — Lab ID = 807376-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	7.28	7.57(5.00)	94.2	90 - 110

Matrix Spike — Lab ID = 807376-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	7.16	7.55(5.00)	92.2	90 - 110

Matrix Spike — Lab ID = 807376-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	7.04	7.30(5.00)	94.9	90 - 110

Matrix Spike — Lab ID = 807376-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.91	6.19(5.00)	94.4	90 - 110

Matrix Spike — Lab ID = 807376-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.99	6.25(5.00)	94.8	90 - 110

Matrix Spike — Lab ID = 807376-007

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	7.10	7.35(5.00)	95.1	90 - 110

Matrix Spike — Lab ID = 807376-008

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	6.75	6.98(5.00)	95.4	90 - 110

Matrix Spike — Lab ID = 807376-009

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	6.54	6.75(5.00)	95.8	90 - 110

Matrix Spike — Lab ID = 807376-010

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.78	1.82(1.00)	96.0	90 - 110

Matrix Spike — Lab ID = 807376-011

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.975	1.00(1.00)	97.5	90 - 110

Matrix Spike — Lab ID = 807485-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.07	1.10(1.00)	96.4	90 - 110

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Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project
Project Number: 456827.01.DM Printed 4/26/2013

Matrix Spike Lab ID = 807485-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.03	5.11(5.00)	98.5	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.94	5.00	98.7	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.79	10.0	97.9	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.75	10.0	97.5	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.64	10.0	96.4	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.68	10.0	96.8	95 - 105

MRCVS - Primary

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

MRCVS - Primary

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

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Metals by EPA 200.8, Total

Batch 041913A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807485-001 Chromium	ug/L	04/19/2013 11:18	2.00	0.184	1.0	ND
Manganese	ug/L	04/19/2013 11:18	2.00	0.172	0.50	7.5

Method Blank

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

Duplicate

Lab ID = 807412-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	2.00	ND	0	0	0 - 20
Uranium	ug/L	2.00	ND	0	0	0 - 20
Manganese	ug/L	2.00	1.87	1.83	2.06	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.242	0.200	121	70 - 130
Uranium	ug/L	1.00	0.248	0.200	124	70 - 130
Manganese	ug/L	1.00	0.249	0.200	124	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	2.00	49.1	50.0	98.2	85 - 115
Uranium	ug/L	2.00	48.8	50.0	97.5	85 - 115
Manganese	ug/L	2.00	49.1	50.0	98.2	85 - 115

Matrix Spike

Lab ID = 807412-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	49.8	50.0(50.0)	99.5	75 - 125
Uranium	ug/L	2.00	55.0	50.0(50.0)	110	75 - 125
Manganese	ug/L	2.00	51.3	51.8(50.0)	99.0	75 - 125

Matrix Spike Duplicate

Lab ID = 807412-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	50.2	50.0(50.0)	100	75 - 125
Uranium	ug/L	2.00	53.5	50.0(50.0)	107	75 - 125
Manganese	ug/L	2.00	51.7	51.8(50.0)	99.8	75 - 125

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Total Dissolved Solids by SM 2540 C

Batch 04TDS13G

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807485-001 Total Dissolved Solids	mg/L	04/18/2013	1.00	1.76	250	4220

Method Blank

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

Duplicate — Lab ID = 807451-006

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	712	722	1.39	0 - 10

Duplicate — Lab ID = 807491-010

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	620	598	3.61	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Dissolved Solids	mg/L	1.00	494	500	98.8	90 - 110

Turbidity by SM 2130 B

Batch 04TUC13L

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807485-001 Turbidity	NTU	04/17/2013	1.00	0.0140	0.100	ND

Method Blank

Parameter	Unit	DF	Result
Turbidity	NTU	1.00	ND

Duplicate — Lab ID = 807485-001

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	8.47	8.00	106	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	8.20	8.00	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.

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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Truesdail Laboratories, Inc.

5

Total Dissolved Solids by SM 2540 C

Calculations

Batch: 04TDS13G
Date Analyzed: 4/18/13

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	72.4116	72.4123	72.4123	0.0000	No	0.0007	7.0	25.0	ND	1
807448-3	100	75.7544	75.7948	75.7944	0.0004	No	0.0400	400.0	25.0	400.0	1
807448-4	100	69.4823	69.5138	69.5134	0.0004	No	0.0311	311.0	25.0	311.0	1
807448-5	100	76.5061	76.5434	76.543	0.0004	No	0.0369	369.0	25.0	369.0	1
807448-6	100	78.8026	78.8521	78.852	0.0001	No	0.0494	494.0	25.0	494.0	1
807451-1	50	52.041	52.1235	52.1235	0.0000	No	0.0825	1650.0	50.0	1650.0	1
807451-2	50	51.0479	51.1007	51.1007	0.0000	No	0.0528	1056.0	50.0	1056.0	1
807451-3	50	47.9478	48.0149	48.0148	0.0001	No	0.0670	1340.0	50.0	1340.0	1
807451-4	50	50.7622	50.89	50.8896	0.0004	No	0.1274	2548.0	50.0	2548.0	1
807451-5	50	49.3473	49.463	49.4626	0.0004	No	0.1153	2306.0	50.0	2306.0	1
807451-6	50	51.8377	51.8742	51.8738	0.0004	No	0.0361	722.0	50.0	722.0	1
807451-6D	50	51.3488	51.3845	51.3844	0.0001	No	0.0356	712.0	50.0	712.0	1
LCS	100	72.0849	72.1344	72.1343	0.0001	No	0.0494	494.0	25.0	494.0	1
807451-7	50	50.1527	50.2048	50.2045	0.0003	No	0.0518	1036.0	50.0	1036.0	1
807451-8	50	46.9789	47.0401	47.0397	0.0004	No	0.0608	1216.0	50.0	1216.0	1
807485	10	49.4008	49.4432	49.443	0.0002	No	0.0422	4220.0	250.0	4220.0	1
807488-1	20	77.9925	78.0792	78.0788	0.0004	No	0.0863	4315.0	125.0	4315.0	1
807488-2	20	77.7780	77.8288	77.8292	-0.0004	No	0.0512	2560.0	125.0	2560.0	1
807488-3	20	76.6735	76.7271	76.7271	0.0000	No	0.0536	2680.0	125.0	2680.0	1
807488-4	20	74.3950	74.4543	74.4543	0.0000	No	0.0593	2965.0	125.0	2965.0	1
807489	50	50.7252	50.7909	50.7909	0.0000	No	0.0657	1314.0	50.0	1314.0	1
807491-7	50	51.8798	51.9399	51.9399	0.0000	No	0.0601	1202.0	50.0	1202.0	1
807491-10	50	49.4980	49.5282	49.5279	0.0003	No	0.0299	598.0	50.0	598.0	1
807491-10D	50	50.8287	50.86	50.8597	0.0003	No	0.0310	620.0	50.0	620.0	1

Calculation as follows:

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

Where:

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

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

Laboratory Control Sample (LCS) Summary

QC Std I.D.	Measurd Value, ppm	Theoretical Value, ppm	Percent Rec	Acceptance Limit	QC Within Control?
LCS1	494	500	98.8%	90-110%	Yes
LCSD					

LCS Recovery

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

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

Duplicate Determinations Difference Summary

Lab Number	Sample Weight, g	Sample Dup Weight, g	% RPD	Acceptance Limit	QC Within Control?
807451-6	0.0361	0.0356	0.7%	≤5%	Yes
807491-10	0.0299	0.031	1.8%	5%	Yes

Duplicate Determination Difference

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

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

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

Jenny T.
Analyst Printed Name

Analyst Signature

Maksim G.
Reviewer Printed Name

Reviewer Signature

WetChem TDS_2012.xls

Total Dissolved Solids by SM 2540 C

TDS/EC CHECK

Batch: 04TDS13G
Date Analyzed: 4/18/13

Laboratory Number	EC	TDS/EC Ratio: 0.55-.9	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
807448-3	593	0.67	385.45	1.04
807448-4	495	0.63	321.75	0.97
807448-5	544	0.68	353.6	1.04
807448-6	764	0.65	496.6	0.99
807451-1	2220	0.74	1443	1.14
807451-2	1520	0.69	988	1.07
807451-3	1950	0.69	1267.5	1.06
807451-4	3310	0.77	2151.5	1.18
807451-5	3070	0.75	1995.5	1.16
807451-6	1050	0.69	682.5	1.06
807451-6D	1050	0.68	682.5	1.04
LCS				
807451-7	1500	0.69	975	1.06
807451-8	1690	0.72	1098.5	1.11
807485	7080	0.60	4602	0.92
807488-1	5480	0.79	3562	1.21
807488-2	3800	0.67	2470	1.04
807488-3	3680	0.73	2392	1.12
807488-4	3790	0.78	2463.5	1.20
807489	1800	0.73	1170	1.12
807491-7	1720	0.70	1118	1.08
807491-10	943	0.63	612.95	0.98
807491-10D	943	0.66	612.95	1.01

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CHAIN OF CUSTODY RECORD

[IM3Plant-WDR-409] 807485

COC Number

TURNAROUND TIME 10 Days

DATE 04/16/13 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: 456827.01.DM TEAM: 1

SAMPLERS (SIGNATURE): [signature]

SAMPLE I.D.	DATE	TIME	DESCRIPTION	Cr6 (218.6) Lab Filtered	Total Metals (200.7) Cr, Mn	Specific Conductance (120.1)	TDS (SM2540C)	Turbidity (SM2130)								NUMBER OF CONTAINERS	COMMENTS
SC-700B-WDR-409	04/16/13	13:49	Water	X	X	X	X		X							3	pH = 5 (200.7)
																3	TOTAL NUMBER OF CONTAINERS

Rec'd 04/16/13

Sc 807485

ALERT !!
Level III QC

CHAIN OF CUSTODY SIGNATURE RECORD

	Signature	Printed Name	Company/ Agency	Date/ Time
Signature (Relinquished)	[signature]	GEORGE GLORIA	E-2	15:00
Signature (Received)	Rafael Davila	Rafael	T.L.I	4-16-13 15:30
Signature (Relinquished)	Rafael Davila	Rafael	T.L.I	4-16-13 21:30
Signature (Received)	Shabunina	Luda	TLI	4/16/13 21:30
Signature (Relinquished)				
Signature (Received)				

SAMPLE CONDITIONS

RECEIVED COOL ☑ WARM ☐ 3.2 °C

CUSTODY SEALED YES ☐ NO ☑

SPECIAL REQUIREMENTS:

042

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
04/16/13	807449-3	9.5	N/A	N/A	9:15	NE
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	807450-1					
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	807451-1					
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
4/16/13	807455-1	7.0	2mL/100mL	9.5	11:30	TM
	-2					
4/17/13	805485	7.0	2mL/100mL	9.5	8:30	NE
4/17/13	805486-1	9.5	N/A	N/A	8:15	NE

04/22/13

TM 4/19/13

C:\My Documents\Templates\Hexavalent Chromium\Cr6+ pH Log

TRUESDAIL LABORATORIES, INC.

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
807428	<1	<2	4/17/13	RC	yes			
807431	>1	↓	↓	↓	↓			
807434	<1	↓	↓	↓	↓			
807435	↓	↓	↓	↓	↓			
807436	↓	↓	↓	↓	↓			
807453	>1	>2	↓	↓	↓	11:00		
807455 1,2	<1	↓	↓	↓	↓	↓	4-17	<2
807363 1-4	↓	<2	↓	↓	↓			
807502	↓	>2	↓	↓	↓	11:00		
807412 (1-3)	<1	<2	4-18-13	BE	yes			
807452 (1-6)	↓	↓	↓	↓	↓			
807485	↓	>2 / BE	↓	↓	↓	7:00		
807486 (1,2,5-8)	↓	<2 BE	↓	↓	↓			
807488 (1-4)	↓	↓	↓	↓	↓			
807489	↓	↓	↓	↓	↓			
807490 (1-4)	↓	↓	↓	↓	↓			
807490 (1-4	↓	↓	↓	↓	↓			
807491 (1-8,10)	↓	↓	↓	↓	↓			
807523	↓	↓	↓	↓	↓			
807522 (1-2)	↓	↓	↓	↓	↓			
807493 (1-9)	↓	↓	↓	↓	↓			
807472 (1,3-4)	<1	>2	4/18/13	ES	NO	10:00	4-19	<2
807463 (1-3)	↓	↓	↓	↓	↓	↓	4-19	<2
807515 (10-12)	↓	↓	↓	↓	↓	↓	4-19-13	<2
807494 (1,3-10)	<1	<2	4/18/13	ES	Yes			
807495 (1-15)	↓	↓	↓	↓	↓			
807520 (1-11)	↓	↓	↓	↓	↓			
807276 (1-6	<1	<2	4-19-13	BE	yes			
807551 (1-4)	↓	↓	↓	↓	↓			
807521 (1-11)	↓	↓	↓	↓	↓			
807546 ~~807546~~ BE	↓	↓	↓	↓	↓			
807547	↓	↓	↓	↓	↓			
807543 (1-2)	<1	>2	4-19-13	BE	NO	1:30		
807564 (1-8)	<1	<2	4/22/13	RC	yes			1,2,7 >1 NTU
807544	>1	<2	↓	↓	↓			
807562	↓	↓	↓	↓	↓			
807542	↓	↓	↓	↓	↓			
807530	↓	↓	↓	↓	↓			
807548	↓	↓	↓	↓	↓			
807464	↓	↓	↓	↓	↓			
807465	↓	↓	↓	↓	↓			
807466	↓	↓	↓	↓	↓			
807467	↓	↓	↓	↓	↓			
807468	↓	↓	↓	↓	↓			

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

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: E2 **Lab #** 807485

Date Delivered: 04 / 16 / 13 **Time:** 21:30 **By:** ☐Mail ☑Field Service ☐Client

1. Was a Chain of Custody received and signed? ☑Yes ☐No ☐N/A
2. Does Customer require an acknowledgement of the COC? ☐Yes ☐No ☑N/A
3. Are there any special requirements or notes on the COC? ☐Yes ☐No ☑N/A
4. If a letter was sent with the COC, does it match the COC? ☐Yes ☐No ☑N/A
5. Were all requested analyses understood and acceptable? ☑Yes ☐No ☐N/A
6. Were samples received in a chilled condition? ☑Yes ☐No ☐N/A
   Temperature (if yes)? 3.2 °C
7. Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)? ☑Yes ☐No ☐N/A
8. Were sample custody seals intact? ☐Yes ☐No ☑N/A
9. Does the number of samples received agree with COC? ☑Yes ☐No ☐N/A
10. Did sample labels correspond with the client ID's? ☑Yes ☐No ☐N/A
11. Did sample labels indicate proper preservation? ☐Yes ☐No ☑N/A
    Preserved (if yes) by: ☐Truesdail ☐Client
12. Were samples pH checked? pH = see c.o.c ☑Yes ☐No ☐N/A
13. Were all analyses within holding time at time of receipt? ☑Yes ☐No ☐N/A
    If not, notify Project Manager.
14. Have Project due dates been checked and accepted? ☑Yes ☐No ☐N/A
    Turn Around Time (TAT): ☐ RUSH ☑ Std
15. **Sample Matrix:** ☐Liquid ☐Drinking Water ☐Ground Water ☐Waste Water ☐Sludge ☐Soil ☐Wipe ☐Paint ☐Solid ☑Other Water
16. Comments:
17. Sample Check-In completed by Truesdail Log-In/Receiving: Linda

ALERT!! LOG-IN QC

C:\Users\Test\Desktop\Forms A - D\Discrp.FormBlank.doc

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May 6, 2013

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

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK IM3PLANT-WDR-410 PROJECT, GROUNDWATER MONITORING, TLI NO.: 807603

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-410 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 23, 2013, 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 sample collection time was not recorded on the chain of custody. The sample collection time of 14:13 from the sample containers was used in the report.

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. Shawn Duffy's approval.

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

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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.: 456827.01.DM

Laboratory No.: 807603
Date: May 6, 2013
Collected: April 23, 2013
Received: April 23, 2013

ANALYST LIST

METHOD	PARAMETER	ANALYST
EPA 120.1	Specific Conductivity	Gautam Savani
SM 2540C	Total Dissolved Solids	Jenny Tankunakorn
SM 2130B	Turbidity	Gautam Savani
EPA 200.8	Total Metals	Bita Emami
EPA 218.6	Hexavalent Chromium	Tom Martinez

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

Laboratory No.: 807603
Date Received: April 23, 2013

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

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
807603-001	SC-700B-WDR-410	E120.1	NONE	4/23/2013	14:22	EC	6960	umhos/cm	2.00
807603-001	SC-700B-WDR-410	E200.8	NONE	4/23/2013	14:22	Chromium	ND	ug/L	1.0
807603-001	SC-700B-WDR-410	E200.8	NONE	4/23/2013	14:22	Manganese	2.6	ug/L	0.50
807603-001	SC-700B-WDR-410	E218.6	LABFLT	4/23/2013	14:22	Chromium, Hexavalent	ND	ug/L	0.20
807603-001	SC-700B-WDR-410	SM2130B	NONE	4/23/2013	14:22	Turbidity	ND	NTU	0.100
807603-001	SC-700B-WDR-410	SM2540C	NONE	4/23/2013	14:22	Total Dissolved Solids	4350	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: 456827.01.DM
P.O. Number: 456827.01.DM
Release Number:

Laboratory No. 807603

Printed 5/6/2013

Samples Received on 4/23/2013 9:30:00 PM

Field ID	Lab ID	Collected	Matrix
SC-700B-WDR-410	807603-001	04/23/2013 14:22	Water

Specific Conductivity - EPA 120.1 Batch 04EC13K

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807603-001 Specific Conductivity	umhos/cm	04/24/2013	1.00	0.116	2.00	6960

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate — Lab ID = 807603-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	6960	6960	0	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	688	706	97.4	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	692	706	98.0	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	955	998	95.7	90 - 110

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Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project
Project Number: 456827.01.DM Printed 5/6/2013

Chrome VI by EPA 218.6

Batch 04CrH13W

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807603-001 Chromium, Hexavalent	ug/L	04/25/2013 07:41	1.00	0.00920	0.20	ND

Method Blank

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

Duplicate — Lab ID = 807520-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	2.29	2.35	2.67	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.194	0.200	96.8	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.95	5.00	99.0	90 - 110

Matrix Spike — Lab ID = 807520-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	7.21	7.35(5.00)	97.2	90 - 110

Matrix Spike — Lab ID = 807520-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.33	1.33(1.00)	99.7	90 - 110

Matrix Spike — Lab ID = 807520-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.05	1.06(1.00)	98.8	90 - 110

Matrix Spike — Lab ID = 807520-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.46	1.50(1.00)	96.0	90 - 110

Matrix Spike — Lab ID = 807520-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	6.19	6.40(5.00)	95.8	90 - 110

Matrix Spike — Lab ID = 807520-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	6.88	7.11(5.00)	95.4	90 - 110

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Matrix Spike — Lab ID = 807520-007

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	6.87	7.12(5.00)	95.0	90 - 110

Matrix Spike — Lab ID = 807520-008

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	7.74	8.08(5.00)	93.2	90 - 110

Matrix Spike — Lab ID = 807520-009

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	7.73	8.04(5.00)	93.8	90 - 110

Matrix Spike — Lab ID = 807520-010

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.985	1.00(1.00)	98.5	90 - 110

Matrix Spike — Lab ID = 807520-011

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.973	1.00(1.00)	97.3	90 - 110

Matrix Spike — Lab ID = 807520-012

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.993	1.00(1.00)	99.3	90 - 110

Matrix Spike — Lab ID = 807603-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.11	1.13(1.00)	98.2	90 - 110

Matrix Spike — Lab ID = 807603-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.91	5.17(5.00)	94.9	90 - 110

Matrix Spike — Lab ID = 807606-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.937	1.00(1.00)	93.7	90 - 110

Matrix Spike — Lab ID = 807606-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.79	5.00(5.00)	95.8	90 - 110

Matrix Spike — Lab ID = 807606-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.01	1.03(1.00)	98.3	90 - 110

Matrix Spike — Lab ID = 807606-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	37.9	40.4(25.0)	90.2	90 - 110

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Metals by EPA 200.8, Total

Batch 042513B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807603-001 Chromium	ug/L	04/25/2013 14:00	2.00	0.184	1.0	ND
Manganese	ug/L	04/25/2013 14:00	2.00	0.172	0.50	2.6

Method Blank

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

Duplicate

Lab ID = 807603-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	2.00	ND	0	0	0 - 20
Uranium	ug/L	2.00	3.25	3.27	0.586	0 - 20
Manganese	ug/L	2.00	3.12	2.63	17.1	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.216	0.200	108	70 - 130
Uranium	ug/L	1.00	0.222	0.200	111	70 - 130
Manganese	ug/L	1.00	0.220	0.200	110	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	2.00	49.8	50.0	99.6	85 - 115
Uranium	ug/L	2.00	48.4	50.0	96.8	85 - 115
Manganese	ug/L	2.00	48.6	50.0	97.2	85 - 115

Matrix Spike

Lab ID = 807603-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	48.6	50.0(50.0)	97.2	75 - 125
Uranium	ug/L	2.00	51.8	53.3(50.0)	97.2	75 - 125
Manganese	ug/L	2.00	49.7	52.6(50.0)	94.1	75 - 125

Matrix Spike Duplicate

Lab ID = 807603-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	52.0	50.0(50.0)	104	75 - 125
Uranium	ug/L	2.00	55.7	53.3(50.0)	105	75 - 125
Manganese	ug/L	2.00	53.0	52.6(50.0)	101	75 - 125

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Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.7	20.0	103	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	21.8	20.0	109	80 - 120
Uranium	ug/L	1.00	ND	0		

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Uranium	ug/L	1.00	ND	0		
Manganese	ug/L	1.00	20.0	20.0	100	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	21.3	20.0	107	80 - 120

Total Dissolved Solids by SM 2540 C

Batch 04TDS13J

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807603-001 Total Dissolved Solids	mg/L	04/26/2013	1.00	1.76	250	4350

Method Blank

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

Duplicate — Lab ID = 807603-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	4400	4350	1.14	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Dissolved Solids	mg/L	1.00	512	500	102	90 - 110

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Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project
Project Number: 456827.01.DM

Printed 5/6/2013

Turbidity by SM 2130 B Batch 04TUC13P

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807603-001 Turbidity	NTU	04/24/2013	1.00	0.0140	0.100	ND

Method Blank

Parameter	Unit	DF	Result
Turbidity	NTU	1.00	ND

Duplicate — Lab ID = 807603-001

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	8.44	8.00	106	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	8.10	8.00	101	90 - 110

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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

e2

Truesdail Laboratories, Inc.

Total Dissolved Solids by SM 2540 C 2

Calculations

Batch: 04TDS13J
Date Analyzed: 4/26/13

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	69.4833	69.4837	69.4837	0.0000	No	0.0004	4.0	25.0	ND	1
807603	10	51.8911	51.9347	51.9346	0.0001	No	0.0435	4350.0	250.0	4350.0	1
807623-1	50	51.8786	51.9219	51.9216	0.0003	No	0.0430	860.0	50.0	860.0	1
807623-2	50	47.4294	47.473	47.4729	0.0001	No	0.0435	870.0	50.0	870.0	1
807623-3	50	47.5132	47.5572	47.5569	0.0003	No	0.0437	874.0	50.0	874.0	1
807623-4	50	49.4966	49.5838	49.5837	0.0001	No	0.0871	1742.0	50.0	1742.0	1
807623-5	50	51.0459	51.0956	51.0954	0.0002	No	0.0495	990.0	50.0	990.0	1
807613-2	100	76.1845	76.2206	76.2205	0.0001	No	0.0360	360.0	25.0	360.0	1
807603D	10	47.9969	48.0413	48.0409	0.0004	No	0.0440	4400.0	250.0	4400.0	1
LCS	100	69.3359	69.3873	69.3871	0.0002	No	0.0512	512.0	25.0	512.0	1

Calculation as follows:

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

Where:

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

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

Laboratory Control Sample (LCS) Summary

QC Std I.D.	Measurd Value, ppm	Theoretical Value, ppm	Percent Rec	Acceptance Limit	QC Within Control?
LCS1	512	500	102.4%	90-110%	Yes
LCSD					

LCS Recovery

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

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

Duplicate Determinations Difference Summary

Lab Number	Sample Weight, g	Sample Dup Weight, g	% RPD	Acceptance Limit	QC Within Control?
807603	0.0435	0.044	0.6%	≤5%	Yes

Duplicate Determination Difference

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

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

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

Jenny T.
Analyst Printed Name

Analyst Signature

Maksim G.
Reviewer Printed Name

Reviewer Signature

WetChem TDS_2012.xls

Total Dissolved Solids by SM 2540 C

TDS/EC CHECK

Batch: 04TDS13J
Date Analyzed: 4/26/13

Laboratory Number	EC	TDS/EC Ratio: 0.55-.9	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
807603	6960	0.63	4524	0.96
807623-1	1190	0.72	773.5	1.11
807623-2	1100	0.79	715	1.22
807623-3	1200	0.73	780	1.12
807623-4	2300	0.76	1495	1.17
807623-5	1380	0.72	897	1.10
807613-2	827	0.44	537.55	0.67
807603D	6960	0.63	4524	0.97
LCS				

For Sample Conditions
See Form Attached

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-410]

807603

COC Number

TURNAROUND TIME 10 Days

DATE 04/23/13 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: 456827.01.DM TEAM: 1

SAMPLERS (SIGNATURE):

SAMPLE I.D.	DATE	TIME	DESCRIPTION	Cr6 (218.6) Lab Filtered	Total Metals (200.7) Cr, Mn	Specific Conductance (120.1)	TDS (SM2540C)	Turbidity (SM2130)									NUMBER OF CONTAINERS	COMMENTS
SC-700B-WDR-410	04/23/13		Water	x	x	x	x		x								3	PH=6 (200.7)
																		TOTAL NUMBER OF CONTAINERS

ALERT !!
Level III QC

CHAIN OF CUSTODY SIGNATURE RECORD

	Printed Name	Company/ Agency	Date/ Time
Signature (Relinquished)	Ryan Phelps	CH2MHILL	4-23-13 15:00
Signature (Received) Rafael Davila	Rafael	T.L.I	4-23-13 15:00
Signature (Relinquished) Rafael Davila	Rafael	T.L.I	4-23-13 9:30
Signature (Received) Shakemina	Luder	TLI	4/23/13 21:30
Signature (Relinquished)			
Signature (Received)			

SAMPLE CONDITIONS

RECEIVED COOL ☑ WARM ☐ 3.7 °C

CUSTODY SEALED YES ☐ NO ☐

SPECIAL REQUIREMENTS:

042

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
4/19/13	807547	9.5	N/A	N/A	N/A	TM
4/19/13	807561-1	9.5	N/A	N/A	N/A	TM
	-2					
	-3					
	-4					
04/24/13	807603	7.0	2 ml	9.5	13:15	NE
04/24/13	807604-1	9.5	N/A	N/A	N/A	NE
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
04/24/13	807605-1	9.5	N/A	N/A	N/A	NE
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
04/24/13	807606-1	9.5	N/A	N/A	N/A	NE
	-2					
	-3					
	-4					
	-5					
	-6					

TM 4/26/13

04/26/13

TRUESDAIL LABORATORIES, INC.

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
807561 (1,3,34)	<1	<2	4-23-12	BE	yes			
807585 (1-5)			4-24-13					
~~807603~~						BE		
807604 (1-10)		<2						
807605 (1-7)								
807606 (1-5)								
807572 (1-2)		STLC	4/24/13	ES	yes			
807570	<1	<2						
807571								
807582								
807587								
807592 (1-2)	<1	>2			No	9:00		
807596 (1-3)								
807603	<1	>2	4/24/13	ES	yes	11:00		
~~807604 (1,4,7,10)~~	~~<1~~	~~<2~~					ES 4/24/13	
~~807605 (1,4,7,9)~~								
~~807606 (1-5)~~								
~~805585 (1-5)~~								
807612	>1	>2	4/24/13	DL	yes	16:30		
807613-2	>1	<2	4/25/13	DL	yes			
807614-10-712	<1	>2			NO	11:30		
807630		<2		DL	yes			
807631								
807626 (1-6)	<1	<2	4-26-13	BE	yes			
807640 (1-6)								
807666	<1	>2	4-30-13	BE	No	10:30		
807683 (1-3)	<1	>2	5/1/13	DL	NO	14:30		
807692 (1,2)								
807696 (1-3)								
807704 (10-12	<1	>2	5-2-13	BE	NO	7:00		
807662	<1	<2	5/2/13	DL	yes			
807663								
807699								
807705	>1							
807716 (3,4,5-15, 17-23)	<1	<2	5-2-13	BE	yes			
807716 (26-30, 32, 35-37)								
807717 (1-2)		>2				11:30	After filter	
807718		<2						
T 807719 (1-2)		>2				11:30		
D 807719-2		>2				11:30	After filter	
807720 (1-4		<2						

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

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: E2 **Lab #** 807603

Date Delivered: 04/23/13 **Time:** 21:30 **By:** ☐Mail ☒Field Service ☐Client

1. Was a Chain of Custody received and signed? ☒Yes ☐No ☐N/A
2. Does Customer require an acknowledgement of the COC? ☐Yes ☐No ☒N/A
3. Are there any special requirements or notes on the COC? ☐Yes ☐No ☒N/A
4. If a letter was sent with the COC, does it match the COC? ☐Yes ☐No ☒N/A
5. Were all requested analyses understood and acceptable? ☒Yes ☐No ☐N/A
6. Were samples received in a chilled condition? ☒Yes ☐No ☐N/A
   Temperature (if yes)? 3.7 °C
7. Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)? ☒Yes ☐No ☐N/A
8. Were sample custody seals intact? ☐Yes ☐No ☒N/A
9. Does the number of samples received agree with COC? ☒Yes ☐No ☐N/A
10. Did sample labels correspond with the client ID's? ☒Yes ☐No ☐N/A
11. Did sample labels indicate proper preservation? ☐Yes ☐No ☒N/A
    Preserved (if yes) by: ☐Truesdail ☐Client
12. Were samples pH checked? pH = See C.O.C ☒Yes ☐No ☐N/A
13. Were all analyses within holding time at time of receipt? ☒Yes ☐No ☐N/A
    If not, notify Project Manager.
14. Have Project due dates been checked and accepted? ☒Yes ☐No ☐N/A
    Turn Around Time (TAT): ☐ RUSH ☒Std
15. **Sample Matrix:** ☐Liquid ☐Drinking Water ☐Ground Water ☐Waste Water ☐Sludge ☐Soil ☐Wipe ☐Paint ☐Solid ☒Other Water
16. Comments: ALERT! Level III QC
17. Sample Check-In completed by Truesdail Log-In/Receiving: Linda

C:\Users\Test\Desktop\Forms A - D\Discrp.FormBlank.doc

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
1	SC-700B	3-26-13	13:15	3-26-13	13:19	Meter # 1	3-26-13	00:08	-53.9	[illegible]	6.9
Notes:											
2	SC-100B	4-1-13	7:45	4-1-13	7:50	METER #1	4-1-13	7:33	-53.2	Ryan Phelps	7.4
Notes:											
3	SC-700B	4-1-13	7:30	4-1-13	7:52	METER #1	4-1-13	7:33	-53.2	Ryan Phelps	7.3
Notes:											
4	SC-701	4-1-13	7:40	4-1-13	7:55	METER #1	4-1-13	7:33	-53.2	Ryan Phelps	8.0
Notes:											
5	SC-700B	4/5-13	1330 ~~0900~~	4/5-13	1340 ~~0910~~	TRANSCRIBED FROM WORK PAPER METER #1	4/5-13	0830	-53.2	[illegible]	7.8
Notes:											
6	SC-700B	04-09-13	14:40	04-09-13	14:45	METER #1	04-09-13	00:24	-53.2	G. GLORIA	7.0
Notes											
7	SC-700B	04-16-13	13:44	04-16-13	13:46	METER #1	04-16-13	00:30	-53.2	G. GLORIA	7.0
Notes:											

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

Analytical Bench Log Book

WDR pH Results

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	4-23-13	14:13	4-23-13	14:22	METER #1	4-23-13	00:25	-53.1	Ryan Phelps	7.1

Notes:

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

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

May 30, 2013

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

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK IM3PLANT-WDR-411 PROJECT, GROUNDWATER MONITORING, TLI NO.: 807719

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-411 groundwater-monitoring project. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, quality control data and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data have been included under Section 5.

The samples were received and delivered with the chain of custody on May 1, 2013, 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 Metals were analyzed by EPA 200.8 and EPA 200.7 with Mr. Shawn Duffy's approval.

On May 3, 2013, Mr. Duffy canceled all analyses for sample SC-100B-WDR-411.

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

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

Laboratory No.: 807719
Date: May 30, 2013
Collected: May 1, 2013
Received: May 1, 2013

ANALYST LIST

METHOD	PARAMETER	ANALYST
EPA 120.1	Specific Conductivity	Gautam Savani
SM 2540C	Total Dissolved Solids	Jenny Tankunakorn
SM 2130B	Turbidity	Gautam Savani
EPA 300.0	Anions	Giawad Ghenniwa
SM 4500-NH3 D	Ammonia	Melissa Scharfe
SM 4500-NO2 B	Nitrite as N	Jenny Tankunakorn
EPA 200.7	Metals by ICP	Denise Chauv
EPA 200.8	Metals by ICP/MS	Bita Emami
EPA 218.6	Hexavalent Chromium	Tom Martinez

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155 Grand Ave. Suite 1000
Oakland, CA 94612

Attention: Shawn Duffy

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

Laboratory No.: 807719
Date Received: May 1, 2013

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
807719-001	SC-700B-WDR-411	E120.1	NONE	5/1/2013	13:49	EC	6820	umhos/cm	2.00
807719-001	SC-700B-WDR-411	E200.7	NONE	5/1/2013	13:49	Aluminum	ND	ug/L	50.0
807719-001	SC-700B-WDR-411	E200.7	NONE	5/1/2013	13:49	BORON	888	ug/L	200
807719-001	SC-700B-WDR-411	E200.7	NONE	5/1/2013	13:49	Iron	ND	ug/L	20.0
807719-001	SC-700B-WDR-411	E200.7	NONE	5/1/2013	13:49	Zinc	ND	ug/L	20.0
807719-001	SC-700B-WDR-411	E200.8	NONE	5/1/2013	13:49	Antimony	ND	ug/L	2.0
807719-001	SC-700B-WDR-411	E200.8	NONE	5/1/2013	13:49	Arsenic	ND	ug/L	0.50
807719-001	SC-700B-WDR-411	E200.8	NONE	5/1/2013	13:49	Barium	12.8	ug/L	5.0
807719-001	SC-700B-WDR-411	E200.8	NONE	5/1/2013	13:49	Chromium	ND	ug/L	1.0
807719-001	SC-700B-WDR-411	E200.8	NONE	5/1/2013	13:49	Copper	ND	ug/L	5.0
807719-001	SC-700B-WDR-411	E200.8	NONE	5/1/2013	13:49	Lead	ND	ug/L	1.0
807719-001	SC-700B-WDR-411	E200.8	NONE	5/1/2013	13:49	Manganese	2.9	ug/L	0.50
807719-001	SC-700B-WDR-411	E200.8	NONE	5/1/2013	13:49	Molybdenum	19.1	ug/L	2.0
807719-001	SC-700B-WDR-411	E200.8	NONE	5/1/2013	13:49	Nickel	ND	ug/L	2.0
807719-001	SC-700B-WDR-411	E218.6	LABFLT	5/1/2013	13:49	Chromium, Hexavalent	ND	ug/L	0.20
807719-001	SC-700B-WDR-411	E300	NONE	5/1/2013	13:49	Fluoride	2.28	mg/L	0.500
807719-001	SC-700B-WDR-411	E300	NONE	5/1/2013	13:49	Nitrate as N	2.81	mg/L	0.500
807719-001	SC-700B-WDR-411	E300	NONE	5/1/2013	13:49	Sulfate	483	mg/L	25.0
807719-001	SC-700B-WDR-411	SM2130B	NONE	5/1/2013	13:49	Turbidity	ND	NTU	0.100
807719-001	SC-700B-WDR-411	SM2540C	NONE	5/1/2013	13:49	Total Dissolved Solids	4170	mg/L	250

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Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
807719-001	SC-700B-WDR-411	SM4500NH3D	NONE	5/1/2013	13:49	Ammonia-N	ND	mg/L	0.500
807719-001	SC-700B-WDR-411	SM4500NO2B	NONE	5/1/2013	13:49	Nitrite as N	ND	mg/L	0.0050

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: 456827.01.DM
P.O. Number: 456827.01.DM
Release Number:

Laboratory No. 807719

Printed 5/30/2013

Samples Received on 5/1/2013 10:30:00 PM

Field ID	Lab ID	Collected	Matrix
SC-700B-WDR-411	807719-001	05/01/2013 13:49	Water
SC-100B-WDR-411	807719-002	05/01/2013 13:33	Water

Anions By I.C. - EPA 300.0

Batch 05AN13A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807719-001 Fluoride	mg/L	05/02/2013 10:10	5.00	0.104	0.500	2.28
Nitrate as Nitrogen	mg/L	05/02/2013 10:10	5.00	0.0415	0.500	2.81
Sulfate	mg/L	05/02/2013 13:35	50.0	1.54	25.0	483

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 = 807701-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chloride	mg/L	10.0	34.9	35.0	0.315	0 - 20

Duplicate — Lab ID = 807719-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Fluoride	mg/L	5.00	2.69	2.76	2.64	0 - 20
Sulfate	mg/L	100	531	538	1.23	0 - 20
Nitrate as Nitrogen	mg/L	5.00	2.95	2.98	1.15	0 - 20

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Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project
Project Number: 456827.01.DM

Lab Control Sample

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	4.18	4.00	104	90 - 110
Sulfate	mg/L	1.00	20.4	20.0	102	90 - 110
Nitrate as Nitrogen	mg/L	1.00	4.07	4.00	102	90 - 110

Matrix Spike — Lab ID = 807701-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chloride	mg/L	10.0	77.2	75.0(40.0)	105	85 - 115

Matrix Spike — Lab ID = 807719-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Fluoride	mg/L	5.00	22.8	22.8(20.0)	100	85 - 115
Sulfate	mg/L	100	1590	1540(1000)	106	85 - 115
Nitrate as Nitrogen	mg/L	5.00	23.4	23.0(20.0)	102	85 - 115

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chloride	mg/L	1.00	3.99	4.00	99.6	90 - 110
Fluoride	mg/L	1.00	4.13	4.00	103	90 - 110
Sulfate	mg/L	1.00	20.3	20.0	101	90 - 110
Nitrate as Nitrogen	mg/L	1.00	4.04	4.00	101	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chloride	mg/L	1.00	2.96	3.00	98.8	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chloride	mg/L	1.00	2.99	3.00	99.8	90 - 110

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chloride	mg/L	1.00	2.97	3.00	99.0	90 - 110

MRCVS - Primary

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

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project
Project Number: 456827.01.DM

Nitrite SM 4500-NO2 B Batch 05NO213A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807719-001 Nitrite as Nitrogen	mg/L	05/02/2013 14:18	1.00	0.000630	0.0050	ND

Method Blank

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

Duplicate — Lab ID = 807719-001

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	0.0283	0.0280	101	90 - 110

Matrix Spike — Lab ID = 807719-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Nitrite as Nitrogen	mg/L	1.00	0.0266	0.0280(0.0280)	95.0	85 - 115

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrite as Nitrogen	mg/L	1.00	0.0283	0.0280	101	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrite as Nitrogen	mg/L	1.00	0.0203	0.0200	102	90 - 110

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project
Project Number: 456827.01.DM

Specific Conductivity - EPA 120.1

Batch 05EC13A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807719-001 Specific Conductivity	umhos/cm	05/02/2013	1.00	0.116	2.00	6820

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate — Lab ID = 807719-002

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	690	706	97.7	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	695	706	98.4	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	696	706	98.6	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	940	998	94.2	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	953	998	95.5	90 - 110

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Chrome VI by EPA 218.6

Batch 05CrH13A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807719-001 Chromium, Hexavalent	ug/L	05/02/2013 16:16	1.00	0.00920	0.20	ND

Method Blank

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

Duplicate — Lab ID = 807716-008

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	25.3	25.4	0.521	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.199	0.200	99.6	70 - 130

Lab Control Sample

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

Matrix Spike — Lab ID = 807716-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.957	1.00(1.00)	95.7	90 - 110

Matrix Spike — Lab ID = 807716-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.943	1.00(1.00)	94.3	90 - 110

Matrix Spike — Lab ID = 807716-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.961	1.00(1.00)	96.1	90 - 110

Matrix Spike — Lab ID = 807716-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	81.6	84.3(50.0)	94.6	90 - 110

Matrix Spike — Lab ID = 807716-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	38.1	39.0(25.0)	96.4	90 - 110

Matrix Spike — Lab ID = 807716-007

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	33.7	35.2(25.0)	94.1	90 - 110

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Matrix Spike — Lab ID = 807716-008

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	74.3	75.4(50.0)	97.8	90 - 110

Matrix Spike — Lab ID = 807716-009

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	76.0	77.4(50.0)	97.3	90 - 110

Matrix Spike — Lab ID = 807716-010

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	7.86	7.90(5.00)	99.2	90 - 110

Matrix Spike — Lab ID = 807717-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	14.4	15.0(10.0)	93.8	90 - 110

Matrix Spike — Lab ID = 807718-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	29.0	31.0(25.0)	92.1	90 - 110

Matrix Spike — Lab ID = 807719-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.06	1.09(1.00)	97.0	90 - 110

Matrix Spike — Lab ID = 807719-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.90	5.10(5.00)	95.9	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.91	5.00	98.3	90 - 110

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.73	10.0	97.3	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.89	10.0	98.9	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.96	10.0	99.6	95 - 105

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Metals by EPA 200.7, Total

Batch 051313B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807719-001 Boron	ug/L	05/13/2013 14:39	1.00	6.47	200	888

Method Blank

Parameter	Unit	DF	Result
Boron	ug/L	1.00	ND

Duplicate — Lab ID = 807719-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Boron	ug/L	1.00	883	888	0.565	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Boron	ug/L	1.00	2220	2000	111	85 - 115

Matrix Spike — Lab ID = 807719-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Boron	ug/L	1.00	3040	2890(2000)	108	75 - 125

Matrix Spike Duplicate — Lab ID = 807719-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Boron	ug/L	1.00	2770	2890(2000)	94.0	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Boron	ug/L	1.00	5200	5000	104	95 - 105

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Boron	ug/L	1.00	5290	5000	106	90 - 110

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
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 200.7, Total

Batch 051013B-Th2

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807719-001 Aluminum	ug/L	05/10/2013 15:55	1.00	10.0	50.0	ND
Iron	ug/L	05/10/2013 15:55	1.00	9.50	20.0	ND
Zinc	ug/L	05/10/2013 15:55	1.00	7.00	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

Duplicate

Lab ID = 807719-001

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

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Aluminum	ug/L	1.00	2200	2000	110	85 - 115
Iron	ug/L	1.00	2010	2000	101	85 - 115
Zinc	ug/L	1.00	2130	2000	107	85 - 115

Matrix Spike

Lab ID = 807719-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Aluminum	ug/L	1.00	1600	2000(2000)	80.2	75 - 125
Iron	ug/L	1.00	1720	2000(2000)	86.2	75 - 125
Zinc	ug/L	1.00	2130	2000(2000)	106	75 - 125

Matrix Spike Duplicate

Lab ID = 807719-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Aluminum	ug/L	1.00	1620	2000(2000)	81.2	75 - 125
Iron	ug/L	1.00	1740	2000(2000)	87.2	75 - 125
Zinc	ug/L	1.00	2160	2000(2000)	108	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Aluminum	ug/L	1.00	5190	5000	104	95 - 105
Iron	ug/L	1.00	5060	5000	101	95 - 105
Zinc	ug/L	1.00	5170	5000	103	95 - 105

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project
Project Number: 456827.01.DM

Metals by EPA 200.8, Total

Batch 050313A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807719-001 Antimony	ug/L	05/03/2013 10:18	2.00	0.664	2.0	ND
Arsenic	ug/L	05/03/2013 10:18	2.00	0.200	0.50	ND
Barium	ug/L	05/03/2013 10:18	2.00	0.376	5.0	12.8
Chromium	ug/L	05/03/2013 10:18	2.00	0.184	1.0	ND
Copper	ug/L	05/03/2013 10:18	2.00	0.514	5.0	ND
Lead	ug/L	05/03/2013 10:18	2.00	0.148	1.0	ND
Manganese	ug/L	05/03/2013 10:18	2.00	0.172	0.50	2.9
Molybdenum	ug/L	05/03/2013 10:18	2.00	0.414	2.0	19.1

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
Copper	ug/L	1.00	ND
Lead	ug/L	1.00	ND
Uranium	ug/L	1.00	ND
Manganese	ug/L	1.00	ND
Molybdenum	ug/L	1.00	ND

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	0.235	0.200	118	70 - 130
Barium	ug/L	1.00	0.496	0.500	99.2	70 - 130
Chromium	ug/L	1.00	0.523	0.500	105	70 - 130
Nickel	ug/L	1.00	1.93	2.00	96.7	70 - 130
Antimony	ug/L	1.00	0.985	1.00	98.5	70 - 130
Copper	ug/L	1.00	0.868	1.00	86.8	70 - 130
Lead	ug/L	1.00	0.247	0.200	124	70 - 130
Uranium	ug/L	1.00	0.248	0.200	124	70 - 130
Manganese	ug/L	1.00	0.221	0.200	110	70 - 130
Molybdenum	ug/L	1.00	0.513	0.500	103	70 - 130

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Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project
Project Number: 456827.01.DM Printed 5/30/2013

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	2.00	48.2	50.0	96.4	85 - 115
Barium	ug/L	2.00	48.3	50.0	96.6	85 - 115
Chromium	ug/L	2.00	49.1	50.0	98.2	85 - 115
Nickel	ug/L	2.00	48.8	50.0	97.6	85 - 115
Antimony	ug/L	2.00	48.6	50.0	97.2	85 - 115
Copper	ug/L	2.00	49.8	50.0	99.5	85 - 115
Lead	ug/L	2.00	50.1	50.0	100	85 - 115
Uranium	ug/L	2.00	49.9	50.0	99.9	85 - 115
Manganese	ug/L	2.00	48.8	50.0	97.6	85 - 115
Molybdenum	ug/L	2.00	47.9	50.0	95.9	85 - 115

Matrix Spike Lab ID = 807720-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	2.00	50.9	50.6(50.0)	100	75 - 125
Barium	ug/L	2.00	102	101(50.0)	102	75 - 125
Chromium	ug/L	2.00	50.5	50.0(50.0)	101	75 - 125
Nickel	ug/L	2.00	49.8	50.0(50.0)	99.6	75 - 125
Antimony	ug/L	2.00	50.6	50.0(50.0)	101	75 - 125
Copper	ug/L	2.00	52.3	50.0(50.0)	105	75 - 125
Lead	ug/L	2.00	51.9	51.4(50.0)	101	75 - 125
Uranium	ug/L	2.00	53.9	50.0(50.0)	108	75 - 125
Manganese	ug/L	2.00	54.7	55.5(50.0)	98.4	75 - 125
Molybdenum	ug/L	2.00	51.9	50.0(50.0)	104	75 - 125

Matrix Spike Duplicate Lab ID = 807720-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	2.00	50.2	50.6(50.0)	99.2	75 - 125
Barium	ug/L	2.00	102	101(50.0)	102	75 - 125
Chromium	ug/L	2.00	50.6	50.0(50.0)	101	75 - 125
Nickel	ug/L	2.00	49.7	50.0(50.0)	99.3	75 - 125
Antimony	ug/L	2.00	50.4	50.0(50.0)	101	75 - 125
Copper	ug/L	2.00	52.0	50.0(50.0)	104	75 - 125
Lead	ug/L	2.00	52.2	51.4(50.0)	102	75 - 125
Manganese	ug/L	2.00	55.3	55.5(50.0)	99.6	75 - 125
Molybdenum	ug/L	2.00	51.4	50.0(50.0)	103	75 - 125

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Metals by EPA 200.8, Total

Batch 052913B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807719-001 Nickel	ug/L	05/29/2013 16:12	1.00	0.786	2.0	ND

Method Blank

Parameter	Unit	DF	Result
Nickel	ug/L	1.00	ND

Duplicate

Lab ID = 807720-001

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

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nickel	ug/L	1.00	1.64	2.00	81.8	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nickel	ug/L	1.00	49.7	50.0	99.4	85 - 115

Matrix Spike

Lab ID = 807720-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Nickel	ug/L	1.00	48.0	50.0(50.0)	96.0	75 - 125

Matrix Spike Duplicate

Lab ID = 807720-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Nickel	ug/L	1.00	47.9	50.0(50.0)	95.7	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nickel	ug/L	1.00	18.4	20.0	92.1	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nickel	ug/L	1.00	19.1	20.0	95.7	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nickel	ug/L	1.00	19.4	20.0	97.2	90 - 110

Interference Check Standard A

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

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Interference Check Standard A

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

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nickel	ug/L	1.00	18.9	20.0	94.7	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nickel	ug/L	1.00	18.9	20.0	94.7	80 - 120

Total Dissolved Solids by SM 2540 C

Batch 05TDS13A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807719-001 Total Dissolved Solids	mg/L	05/02/2013	1.00	1.76	250	4170

Method Blank

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

Duplicate — Lab ID = 807719-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	4690	4690	0	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Dissolved Solids	mg/L	1.00	495	500	99.0	90 - 110

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project
Project Number: 456827.01.DM

Ammonia Nitrogen by SM4500-NH3D

Batch 05NH313A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807719-001 Ammonia as N	mg/L	05/10/2013	1.00	0.0318	0.500	ND

Method Blank

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

Duplicate

Lab ID = 807719-001

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	7.93	8.00	99.1	90 - 110

Matrix Spike

Lab ID = 807817-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	7.56	8.00(8.00)	94.5	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	5.72	6.00	95.4	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	6.01	6.00	100	90 - 110

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project
Project Number: 456827.01.DM

Printed 5/30/2013

Turbidity by SM 2130 B

Batch 05TUC13A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807719-001 Turbidity	NTU	05/02/2013	1.00	0.0140	0.100	ND

Method Blank

Parameter	Unit	DF	Result
Turbidity	NTU	1.00	ND

Duplicate — Lab ID = 807719-002

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	8.42	8.00	105	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	8.18	8.00	102	90 - 110

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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Truesdail Laboratories, Inc.

Total Dissolved Solids by SM 2540 C

Calculations

Batch: 05TDS13A
Date Analyzed: 5/2/13

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	73.1756	73.1759	73.1759	0.0000	No	0.0003	3.0	25.0	ND	1
807683-1	800	158.8953	158.8994	158.8994	0.0000	No	0.0041	5.1	3.1	5.1	1
807683-2	1000	174.8043	174.8105	174.8105	0.0000	No	0.0062	6.2	2.5	6.2	1
807683-3	765	173.2384	173.2416	173.2416	0.0000	No	0.0032	4.2	3.3	4.2	1
807701-1	100	78.3931	78.4194	78.4192	0.0002	No	0.0261	261.0	25.0	261.0	1
807717-1	20	47.8481	47.9034	47.9033	0.0001	No	0.0552	2760.0	125.0	2760.0	1
807717-2	10	49.1798	49.2298	49.2297	0.0001	No	0.0499	4990.0	250.0	4990.0	1
807719-1	10	50.5797	50.6217	50.6214	0.0003	No	0.0417	4170.0	250.0	4170.0	1
807719-2	10	51.2491	51.296	51.296	0.0000	No	0.0469	4690.0	250.0	4690.0	1
QC1512+156	100	77.9903	78.0173	78.0172	0.0001	No	0.0269	269.0	25.0	269.0	1
QC1512+156	100	74.6017	74.6295	74.6295	0.0000	No	0.0278	278.0	25.0	278.0	1
907701-1D	100	66.7026	66.7288	66.7288	0.0000	No	0.0262	262.0	25.0	262.0	1
LCS	100	75.7573	75.807	75.8068	0.0002	No	0.0495	495.0	25.0	495.0	1
PE1512+1569	100	76.2771	76.3009	76.3009	0.0000	No	0.0238	238.0	25.0	238.0	1
PE1512+1569	100	73.4399	73.4644	73.4644	0.0000	No	0.0245	245.0	25.0	245.0	1
807719-2D	10	50.7476	50.7948	50.7945	0.0003	No	0.0469	4690.0	250.0	4690.0	1

Calculation as follows:

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

Where:

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

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

Laboratory Control Sample (LCS) Summary

QC Std I.D.	Measurd Value, ppm	Theoretical Value, ppm	Percent Rec	Acceptance Limit	QC Within Control?
LCS1	495	500	99.0%	90-110%	Yes
LCSD					

LCS Recovery

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

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

Duplicate Determinations Difference Summary

Lab Number	Sample Weight, g	Sample Dup Weight, g	% RPD	Acceptance Limit	QC Within Control?
807701-1	0.0261	0.0262	0.2%	≤5%	Yes
807719-2	0.0469	0.0469	0.0%	5%	Yes

Duplicate Determination Difference

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

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

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

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: 05TDS13A
Date Analyzed: 5/2/13

Laboratory Number	EC	TDS/EC Ratio: 0.55-.9	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
807683-1	7.53	0.68	4.8945	1.05
807683-2	8.26	0.75	5.369	1.15
807683-3	7.32	0.57	4.758	0.88
807701-1	418	0.62	271.7	0.96
807717-1	4540	0.61	2951	0.94
807717-2	8040	0.62	5226	0.95
807719-1	6820	0.61	4433	0.94
807719-2	7330	0.64	4764.5	0.98
QC1512+1569				
QC1512+1569				
907701-1D	418	0.63	271.7	0.96
LCS				
PE1512+1569				
PE1512+1569				
807719-2D	7330	0.64	4764.5	0.98

807719

Rec'd 5/1/13

S 807719

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-411]

COC Number

TURNAROUND TIME 10 Days

DATE 5/01/13 PAGE 1 OF 1

COMPANY: CH2M HILL /E2

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: 456827.01.DM

SAMPLERS (SIGNATURE

	SAMPLE I.D.	DATE	TIME	DESCRIPTION	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	COMMENTS
1	SC-700B-WDR-411	5/01/13	1349		X		X	X	X	X	X		X				X		5	pH=7 } metals
2	SC-100B-WDR-411	5/01/13	1333		X	X	X	X	X	X	X	X	X	X	X	X	X		8	pH=7 }
																			13	TOTAL NUMBER OF CONTAINERS

ALERT !!
Level III QC

For Sample Conditions
See Form Attached

CHAIN OF CUSTODY SIGNATURE RECORD

	Signature	Printed Name	Company/ Agency	Date/ Time
Signature (Relinquished)		Ryan Phelps	CH2MHill	5-1-13 14:30
Signature (Received)	Rafael Davila	Rafael	T.L.I	5-1-13 16:30
Signature (Relinquished)	Rafael Davila	Rafael	T.L.I	5-1-13 22:30
Signature (Received)		Alex	TL	5-1-13 22:30
Signature (Relinquished)		Printed Name	Company/ Agency	Date/ Time
Signature (Received)		Printed Name	Company/ Agency	Date/ Time

SAMPLE CONDITIONS

RECEIVED COOL ☑ WARM ☐ 4.0°C

CUSTODY SEALED YES ☐ NO ☑

SPECIAL REQUIREMENTS:

The metals include: Cr, Al, Sb, As, Ba, B, Cu, Pb, Mn, Mo, Ni, Fe, Zn

094

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
5/2/13	807716-21	9.5	N/A	N/A	N/A	NE
	-22					
	-23					
	-24					
	-25					
	-26					
	-27					
	-28					
	-29					
	-30					
	-31					
	-32					
	-33					
	-34					
	-35					
	-36					
	-37					
	-38					
	-39					
	807717-1	7.0	2 ml / 100 ml	9.5	9:30	NE
	-2					
	807718	9.5	N/A	N/A	N/A	NE
	807719-1	7.0	2 ml / 100 ml	9.5	9:30	
	-2					
5/6/13	807753	7.0	40 mL / 250 mL	9.5	14:36	TM

NE 5/8/13

05/08/13

TRUESDAIL LABORATORIES, INC.

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
807561 (1,3,4)	<1	<2	4-23-13	BE	yes			
807585 (1-5)	↓	↓	4-24-13	↓	↓			
~~807603~~						BE		
807604 (1-10)	↓	<2	↓	↓	↓			
807605 (1-7)	↓	↓	↓	↓	↓			
807606 (1-5)	↓	↓	↓	↓	↓			
807572 (1-2)		STLC	4/24/13	ES	yes			
807570	<1	<2	↓	↓	↓			
807571	↓	↓	↓	↓	↓			
807582	↓	↓	↓	↓	↓			
807587	↓	↓	↓	↓	↓			
807592 (1-2)	<1	>2	↓	↓	No	11:00		
807596 (1-3)	↓	↓	↓	↓	↓	↓		
807603	<1	>2	4/24/13	ES	yes	11:00		
~~807604 (1,4,7,10)~~	~~<1~~	~~<2~~	↓	↓	↓		ES 4/24/13	
~~807605 (1,4,7,9)~~	↓	↓	↓	↓	↓			
~~807606 (1-5)~~	↓	↓	↓	↓	↓			
~~805585 (1-5)~~	↓	↓	↓	↓	↓			
807612	>1	>2	4/24/13	DL	yes	16:20		
807613-2	>1	<2	4/25/13	DL	yes			
807614-10,12	<1	>2	↓	↓	NO	11:30		
807630	↓	<2	↓	DL	yes			
807631	↓	↓	↓	↓	↓			
807627 (1,3,4,6) BE	<1	<2	4-26-13	BE	yes			
807640 (1-6)	↓	↓	↓	↓	↓			
807668	<1	>2	4-30-13	BE	NO	10:30		
807683 (1-3)	<1	>2	5/1/13	DL	NO	14:30		
807692 (1,2)	↓	↓	↓	↓	↓	↓		
807696 (1-3)	↓	↓	↓	↓	↓	↓		
807704 (10-12	<1	>2	5-2-13	BE	NO	7:00		
807662	<1	<2	5/2/13	DL	yes			
807663	↓	↓	↓	↓	↓			
807699	↓	↓	↓	↓	↓			
807705	>1	↓	↓	↓	↓			
807716 (3,5-15, 17-23)	<1	<2	5-2-13	BE	yes			
807716 (26-30, 32, 35-37)	↓	↓	↓	↓	↓			
807717 (1-2)	↓	>2	↓	↓	↓	11:30	After Filter	
807718	↓	<2	↓	↓	↓			
T 807719 (1-2)	↓	>2	↓	↓	↓	11:30		
D 807719-2	↓	>2	↓	↓	↓	11:30	After Filter	
807720 (1-4)	↓	<2	↓	↓	↓			
807753	<1	>2	5-7-13	BE	NO	11:00	5-8-13	<2
807759-24,17	↓	↓	↓	↓	↓	↓		
807769-8	↓	↓	↓	↓	↓	↓		

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

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: E2 **Lab #** 807719

Date Delivered: 05/09/13 **Time:** 22:30 **By:** ☐Mail ☑Field Service ☐Client

1. Was a Chain of Custody received and signed? ☑Yes ☐No ☐N/A
2. Does Customer require an acknowledgement of the COC? ☐Yes ☐No ☑N/A
3. Are there any special requirements or notes on the COC? ☐Yes ☐No ☑N/A
4. If a letter was sent with the COC, does it match the COC? ☐Yes ☐No ☑N/A
5. Were all requested analyses understood and acceptable? ☑Yes ☐No ☐N/A
6. Were samples received in a chilled condition? ☑Yes ☐No ☐N/A
   Temperature (if yes)? 4.0 °C
7. Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)? ☑Yes ☐No ☐N/A
8. Were sample custody seals intact? ☐Yes ☐No ☑N/A
9. Does the number of samples received agree with COC? ☑Yes ☐No ☐N/A
10. Did sample labels correspond with the client ID's? ☑Yes ☐No ☐N/A
11. Did sample labels indicate proper preservation? ☐Yes ☐No ☑N/A
    Preserved (if yes) by: ☐Truesdail ☐Client
12. Were samples pH checked? pH = See C.O.C ☑Yes ☐No ☐N/A
13. Were all analyses within holding time at time of receipt? ☑Yes ☐No ☐N/A
    If not, notify Project Manager.
14. Have Project due dates been checked and accepted? ☑Yes ☐No ☐N/A
    Turn Around Time (TAT): ☐ RUSH ☑ Std
15. **Sample Matrix:** ☐Liquid ☐Drinking Water ☐Ground Water ☐Waste Water ☐Sludge ☐Soil ☐Wipe ☐Paint ☐Solid ☑Other Water
16. Comments: _____
17. Sample Check-In completed by Truesdail Log-In/Receiving: L. Shakeeme

ALERT!! Level III QC

C:\Users\Test\Desktop\Forms A - D\Discrp.FormBlank.doc

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

May 30, 2013

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

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK IM3PLANT-WDR-412 PROJECT, GROUNDWATER MONITORING,

TLI NO.: 807817

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-412 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 7, 2013, 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 Metals were analyzed by EPA 200.8 and EPA 200.7 with Mr. Shawn Duffy's approval.

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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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.: 456827.01.DM

Laboratory No.: 807817
Date: May 30, 2013
Collected: May 7, 2013
Received: May 7, 2013

ANALYST LIST

METHOD	PARAMETER	ANALYST
EPA 120.1	Specific Conductivity	Gautam Savani
SM 2540C	Total Dissolved Solids	Jenny Tankunakorn
SM 2320B	Total Alkalinity	Melissa Scharfe
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	Gautam Savani
EPA 300.0	Anions	Giawad Ghenniwa
SM 4500-NH3 D	Ammonia	Melissa Scharfe
SM 4500-NO2 B	Nitrite as N	Jenny Tankunakorn
EPA 200.7	Metals by ICP	Denise Chauv
EPA 200.8	Metals by ICP/MS	Bita Emami
EPA 218.6	Hexavalent Chromium	Tom Martinez

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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

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

Laboratory No.: 807817
Date Received: May 7, 2013

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
807817-001	SC-700B-WDR-412	E120.1	NONE	5/7/2013	10:40	EC	6980	umhos/cm	2.00
807817-001	SC-700B-WDR-412	E200.7	NONE	5/7/2013	10:40	Aluminum	ND	ug/L	50.0
807817-001	SC-700B-WDR-412	E200.7	NONE	5/7/2013	10:40	BORON	887	ug/L	200
807817-001	SC-700B-WDR-412	E200.7	NONE	5/7/2013	10:40	Iron	ND	ug/L	20.0
807817-001	SC-700B-WDR-412	E200.7	NONE	5/7/2013	10:40	Zinc	ND	ug/L	20.0
807817-001	SC-700B-WDR-412	E200.8	NONE	5/7/2013	10:40	Antimony	ND	ug/L	2.0
807817-001	SC-700B-WDR-412	E200.8	NONE	5/7/2013	10:40	Arsenic	0.51	ug/L	0.50
807817-001	SC-700B-WDR-412	E200.8	NONE	5/7/2013	10:40	Barium	12.3	ug/L	5.0
807817-001	SC-700B-WDR-412	E200.8	NONE	5/7/2013	10:40	Chromium	ND	ug/L	1.0
807817-001	SC-700B-WDR-412	E200.8	NONE	5/7/2013	10:40	Copper	ND	ug/L	5.0
807817-001	SC-700B-WDR-412	E200.8	NONE	5/7/2013	10:40	Lead	ND	ug/L	1.0
807817-001	SC-700B-WDR-412	E200.8	NONE	5/7/2013	10:40	Manganese	2.2	ug/L	0.50
807817-001	SC-700B-WDR-412	E200.8	NONE	5/7/2013	10:40	Molybdenum	18.6	ug/L	2.0
807817-001	SC-700B-WDR-412	E200.8	NONE	5/7/2013	10:40	Nickel	ND	ug/L	2.0
807817-001	SC-700B-WDR-412	E218.6	LABFLT	5/7/2013	10:40	Chromium, Hexavalent	ND	ug/L	1.0
807817-001	SC-700B-WDR-412	E300	NONE	5/7/2013	10:40	Fluoride	2.22	mg/L	0.500
807817-001	SC-700B-WDR-412	E300	NONE	5/7/2013	10:40	Nitrate as N	2.84	mg/L	0.500
807817-001	SC-700B-WDR-412	E300	NONE	5/7/2013	10:40	Sulfate	496	mg/L	25.0
807817-001	SC-700B-WDR-412	SM2130B	NONE	5/7/2013	10:40	Turbidity	ND	NTU	0.100
807817-001	SC-700B-WDR-412	SM2540C	NONE	5/7/2013	10:40	Total Dissolved Solids	4060	mg/L	250
807817-001	SC-700B-WDR-412	SM4500NH3D	NONE	5/7/2013	10:40	Ammonia-N	ND	mg/L	0.500
807817-001	SC-700B-WDR-412	SM4500NO2B	NONE	5/7/2013	10:40	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
807817-002	SC-100B-WDR-412	E120.1	NONE	5/7/2013	10:30	EC	7270	umhos/cm	2.00
807817-002	SC-100B-WDR-412	E200.7	NONE	5/7/2013	10:30	Aluminum	ND	ug/L	50.0
807817-002	SC-100B-WDR-412	E200.7	NONE	5/7/2013	10:30	BORON	912	ug/L	200
807817-002	SC-100B-WDR-412	E200.7	NONE	5/7/2013	10:30	Iron	ND	ug/L	20.0
807817-002	SC-100B-WDR-412	E200.7	LABFLT	5/7/2013	10:30	Iron	ND	ug/L	20.0
807817-002	SC-100B-WDR-412	E200.7	NONE	5/7/2013	10:30	Zinc	ND	ug/L	20.0
807817-002	SC-100B-WDR-412	E200.8	NONE	5/7/2013	10:30	Antimony	ND	ug/L	2.0
807817-002	SC-100B-WDR-412	E200.8	NONE	5/7/2013	10:30	Arsenic	3.8	ug/L	0.50
807817-002	SC-100B-WDR-412	E200.8	NONE	5/7/2013	10:30	Barium	26.2	ug/L	5.0
807817-002	SC-100B-WDR-412	E200.8	NONE	5/7/2013	10:30	Chromium	686	ug/L	2.0
807817-002	SC-100B-WDR-412	E200.8	NONE	5/7/2013	10:30	Copper	ND	ug/L	5.0
807817-002	SC-100B-WDR-412	E200.8	NONE	5/7/2013	10:30	Lead	ND	ug/L	1.0
807817-002	SC-100B-WDR-412	E200.8	NONE	5/7/2013	10:30	Manganese	5.3	ug/L	0.50
807817-002	SC-100B-WDR-412	E200.8	LABFLT	5/7/2013	10:30	Manganese	5.3	ug/L	0.50
807817-002	SC-100B-WDR-412	E200.8	NONE	5/7/2013	10:30	Molybdenum	20.1	ug/L	2.0
807817-002	SC-100B-WDR-412	E200.8	NONE	5/7/2013	10:30	Nickel	ND	ug/L	2.0
807817-002	SC-100B-WDR-412	E218.6	LABFLT	5/7/2013	10:30	Chromium, Hexavalent	658	ug/L	10.0
807817-002	SC-100B-WDR-412	E300	NONE	5/7/2013	10:30	Fluoride	2.58	mg/L	0.500
807817-002	SC-100B-WDR-412	E300	NONE	5/7/2013	10:30	Nitrate as N	2.97	mg/L	0.500
807817-002	SC-100B-WDR-412	E300	NONE	5/7/2013	10:30	Sulfate	536	mg/L	50.0
807817-002	SC-100B-WDR-412	SM2130B	NONE	5/7/2013	10:30	Turbidity	ND	NTU	0.100
807817-002	SC-100B-WDR-412	SM2320B	NONE	5/7/2013	10:30	Alkalinity	148	mg/L	5.00
807817-002	SC-100B-WDR-412	SM2320B	NONE	5/7/2013	10:30	Alkalinity, Bicarbonate (As CaCO3)	148	mg/L	5.00
807817-002	SC-100B-WDR-412	SM2320B	NONE	5/7/2013	10:30	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
807817-002	SC-100B-WDR-412	SM2540C	NONE	5/7/2013	10:30	Total Dissolved Solids	4730	mg/L	250
807817-002	SC-100B-WDR-412	SM4500NH3D	NONE	5/7/2013	10:30	Ammonia-N	ND	mg/L	0.500
807817-002	SC-100B-WDR-412	SM4500NO2B	NONE	5/7/2013	10:30	Nitrite as N	ND	mg/L	0.0050
807817-002	SC-100B-WDR-412	SM4500-PB_E	NONE	5/7/2013	10:30	Total Phosphorous-P	ND	mg/L	0.0200
807817-002	SC-100B-WDR-412	SM4500SI	LABFLT	5/7/2013	10:30	Soluble Silica	18.4	mg/L	1.00
807817-002	SC-100B-WDR-412	SM5310C	NONE	5/7/2013	10:30	Total Organic Carbon	1.00	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: 456827.01.DM
P.O. Number: 456827.01.DM
Release Number:

Laboratory No. 807817

Printed 5/30/2013

Samples Received on 5/7/2013 9:30:00 PM

Field ID	Lab ID	Collected	Matrix
SC-700B-WDR-412	807817-001	05/07/2013 10:40	Water
SC-100B-WDR-412	807817-002	05/07/2013 10:30	Water

Anions By I.C. - EPA 300.0 Batch 05AN13E

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807817-001 Fluoride	mg/L	05/08/2013 11:10	5.00	0.104	0.500	2.22
Nitrate as Nitrogen	mg/L	05/08/2013 11:10	5.00	0.0415	0.500	2.84
Sulfate	mg/L	05/08/2013 13:27	50.0	1.54	25.0	496
807817-002 Fluoride	mg/L	05/08/2013 11:56	5.00	0.104	0.500	2.58
Nitrate as Nitrogen	mg/L	05/08/2013 11:56	5.00	0.0415	0.500	2.97
Sulfate	mg/L	05/08/2013 12:30	100	3.07	50.0	536

Method Blank

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

Duplicate — Lab ID = 807817-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Fluoride	mg/L	5.00	2.54	2.58	1.40	0 - 20
Sulfate	mg/L	100	535	536	0.126	0 - 20
Nitrate as Nitrogen	mg/L	5.00	2.93	2.97	1.32	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Fluoride	mg/L	1.00	4.18	4.00	104	90 - 110
Sulfate	mg/L	1.00	20.3	20.0	102	90 - 110
Nitrate as Nitrogen	mg/L	1.00	4.05	4.00	101	90 - 110

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project
Project Number: 456827.01.DM

Matrix Spike — Lab ID = 807817-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Fluoride	mg/L	5.00	22.6	22.6(20.0)	100	85 - 115
Sulfate	mg/L	100	1590	1540(1000)	105	85 - 115
Nitrate as Nitrogen	mg/L	5.00	23.0	23.0(20.0)	100	85 - 115

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Fluoride	mg/L	1.00	4.11	4.00	103	90 - 110
Sulfate	mg/L	1.00	20.2	20.0	101	90 - 110
Nitrate as Nitrogen	mg/L	1.00	4.04	4.00	101	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Fluoride	mg/L	1.00	3.18	3.00	106	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Fluoride	mg/L	1.00	3.16	3.00	105	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Fluoride	mg/L	1.00	3.19	3.00	106	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sulfate	mg/L	1.00	15.5	15.0	103	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sulfate	mg/L	1.00	15.2	15.0	101	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sulfate	mg/L	1.00	15.1	15.0	101	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sulfate	mg/L	1.00	15.2	15.0	102	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrate as Nitrogen	mg/L	1.00	3.02	3.00	100	90 - 110

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MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrate as Nitrogen	mg/L	1.00	3.02	3.00	100	90 - 110

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrate as Nitrogen	mg/L	1.00	3.02	3.00	101	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrate as Nitrogen	mg/L	1.00	3.02	3.00	101	90 - 110

Nitrite SM 4500-NO2 B

Batch 05NO213D

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807817-001 Nitrite as Nitrogen	mg/L	05/08/2013 16:38	1.00	0.000630	0.0050	ND
807817-002 Nitrite as Nitrogen	mg/L	05/08/2013 16:39	1.00	0.000630	0.0050	ND

Method Blank

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

Duplicate — Lab ID = 807817-002

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	0.0284	0.0280	101	90 - 110

Matrix Spike — Lab ID = 807817-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Nitrite as Nitrogen	mg/L	1.00	0.0286	0.0280(0.0280)	102	85 - 115

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrite as Nitrogen	mg/L	1.00	0.0284	0.0280	101	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrite as Nitrogen	mg/L	1.00	0.0201	0.0200	100	90 - 110

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project
Project Number: 456827.01.DM

Printed 5/30/2013

Alkalinity by SM 2320B

Batch 05ALK13E

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807817-002 Alkalinity as CaCO3	mg/L	05/10/2013	1.00	1.68	5.00	148
Bicarbonate (Calculated)	mg/L	05/10/2013	1.00	1.68	5.00	148
Carbonate (Calculated)	mg/L	05/10/2013	1.00	1.68	5.00	ND

Method Blank

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

Duplicate — Lab ID = 807817-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Alkalinity as CaCO3	mg/L	1.00	145	148	2.05	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	101	100	101	90 - 110

Matrix Spike — Lab ID = 807817-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Alkalinity as CaCO3	mg/L	1.00	248	248(100)	100	75 - 125

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project
Project Number: 456827.01.DM

Specific Conductivity - EPA 120.1

Batch 05EC13B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807817-001 Specific Conductivity	umhos/cm	05/08/2013	1.00	0.116	2.00	6980
807817-002 Specific Conductivity	umhos/cm	05/08/2013	1.00	0.116	2.00	7270

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate

Lab ID = 807817-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	7270	7270	0	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	713	706	101	90 - 110

Lab Control Sample Duplicate

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	712	706	101	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	951	998	95.3	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	940	998	94.2	90 - 110

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project
Project Number: 456827.01.DM

Chrome VI by EPA 218.6

Batch 05CrH13F

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807817-001 Chromium, Hexavalent	ug/L	05/09/2013 12:29	5.00	0.0460	1.0	ND
807817-002 Chromium, Hexavalent	ug/L	05/09/2013 12:18	50.0	0.460	10.0	658

Method Blank

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

Duplicate — Lab ID = 807819-007

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.0759	0.0767	1.05	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.199	0.200	99.6	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.88	5.00	97.6	90 - 110

Matrix Spike — Lab ID = 807716-026

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.20	1.00(1.00)	120	90 - 110

Matrix Spike — Lab ID = 807817-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.88	5.16(5.00)	94.4	90 - 110

Matrix Spike — Lab ID = 807817-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.08	1.13(1.00)	94.5	90 - 110

Matrix Spike — Lab ID = 807817-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	1380	1410(750)	95.9	90 - 110

Matrix Spike — Lab ID = 807819-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.969	1.03(1.00)	93.4	90 - 110

Matrix Spike — Lab ID = 807819-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.75	5.00(5.00)	94.9	90 - 110

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project
Project Number: 456827.01.DM

Metals by EPA 200.7, Total

Batch 051313B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807817-001 Boron	ug/L	05/13/2013 15:26	1.00	6.47	200	887
807817-002 Boron	ug/L	05/13/2013 15:33	1.00	6.47	200	912

Method Blank

Parameter	Unit	DF	Result
Boron	ug/L	1.00	ND

Duplicate — Lab ID = 807719-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Boron	ug/L	1.00	883	888	0.565	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Boron	ug/L	1.00	2220	2000	111	85 - 115

Matrix Spike — Lab ID = 807719-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Boron	ug/L	1.00	3040	2890(2000)	108	75 - 125

Matrix Spike Duplicate — Lab ID = 807719-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Boron	ug/L	1.00	2770	2890(2000)	94.0	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Boron	ug/L	1.00	5200	5000	104	95 - 105

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Boron	ug/L	1.00	5290	5000	106	90 - 110

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
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 200.7, Total

Batch 051013B-Th2

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807817-001 Aluminum	ug/L	05/10/2013 16:26	1.00	10.0	50.0	ND
Iron	ug/L	05/10/2013 16:26	1.00	9.50	20.0	ND
Zinc	ug/L	05/10/2013 16:26	1.00	7.00	20.0	ND
807817-002 Aluminum	ug/L	05/10/2013 16:33	1.00	10.0	50.0	ND
Iron	ug/L	05/10/2013 16:33	1.00	9.50	20.0	ND
Zinc	ug/L	05/10/2013 16:33	1.00	7.00	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

Duplicate

Lab ID = 807719-001

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

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Aluminum	ug/L	1.00	2200	2000	110	85 - 115
Iron	ug/L	1.00	2010	2000	101	85 - 115
Zinc	ug/L	1.00	2130	2000	107	85 - 115

Matrix Spike

Lab ID = 807719-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Aluminum	ug/L	1.00	1600	2000(2000)	80.2	75 - 125
Iron	ug/L	1.00	1720	2000(2000)	86.2	75 - 125
Zinc	ug/L	1.00	2130	2000(2000)	106	75 - 125

Matrix Spike Duplicate

Lab ID = 807719-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Aluminum	ug/L	1.00	1620	2000(2000)	81.2	75 - 125
Iron	ug/L	1.00	1740	2000(2000)	87.2	75 - 125
Zinc	ug/L	1.00	2160	2000(2000)	108	75 - 125

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project
Project Number: 456827.01.DM

Metals by EPA 200.8, Total

Batch 051013A

Parameter		Unit	Analyzed	DF	MDL	RL	Result
807817-001	Antimony	ug/L	05/10/2013 10:09	2.00	0.664	2.0	ND
	Arsenic	ug/L	05/10/2013 10:09	2.00	0.200	0.50	0.51
	Barium	ug/L	05/10/2013 10:09	2.00	0.376	5.0	12.3
	Chromium	ug/L	05/10/2013 10:09	2.00	0.184	1.0	ND
	Copper	ug/L	05/10/2013 10:09	2.00	0.514	5.0	ND
	Lead	ug/L	05/10/2013 10:09	2.00	0.148	1.0	ND
	Manganese	ug/L	05/10/2013 10:09	2.00	0.172	0.50	2.2
	Molybdenum	ug/L	05/10/2013 10:09	2.00	0.414	2.0	18.6
807817-002	Antimony	ug/L	05/10/2013 10:22	2.00	0.664	2.0	ND
	Arsenic	ug/L	05/10/2013 10:22	2.00	0.200	0.50	3.8
	Barium	ug/L	05/10/2013 10:22	2.00	0.376	5.0	26.2
	Chromium	ug/L	05/10/2013 10:16	10.0	0.920	2.0	686
	Copper	ug/L	05/10/2013 10:22	2.00	0.514	5.0	ND
	Lead	ug/L	05/10/2013 10:22	2.00	0.148	1.0	ND
	Manganese	ug/L	05/10/2013 10:22	2.00	0.172	0.50	5.3
	Molybdenum	ug/L	05/10/2013 10:22	2.00	0.414	2.0	20.1

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
Copper	ug/L	1.00	ND
Lead	ug/L	1.00	ND
Uranium	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: 456827.01.DM

Duplicate — Lab ID = 807825-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Arsenic	ug/L	2.00	54.9	55.3	0.648	0 - 20
Barium	ug/L	2.00	42.5	43.0	1.09	0 - 20
Chromium	ug/L	2.00	ND	0	0	0 - 20
Nickel	ug/L	2.00	1.55	0	0	0 - 20
Antimony	ug/L	2.00	ND	0	0	0 - 20
Copper	ug/L	2.00	6.27	6.59	5.04	0 - 20
Lead	ug/L	2.00	ND	0	0	0 - 20
Uranium	ug/L	2.00	ND	0	0	0 - 20
Manganese	ug/L	2.00	ND	0	0	0 - 20
Molybdenum	ug/L	2.00	1.62	1.68	3.33	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	0.246	0.200	123	70 - 130
Barium	ug/L	1.00	0.564	0.500	113	70 - 130
Chromium	ug/L	1.00	0.223	0.200	112	70 - 130
Nickel	ug/L	1.00	2.06	2.00	103	70 - 130
Antimony	ug/L	1.00	1.05	1.00	105	70 - 130
Copper	ug/L	1.00	1.11	1.00	111	70 - 130
Lead	ug/L	1.00	0.225	0.200	112	70 - 130
Uranium	ug/L	1.00	0.213	0.200	106	70 - 130
Manganese	ug/L	1.00	0.227	0.200	114	70 - 130
Molybdenum	ug/L	1.00	0.526	0.500	105	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	2.00	51.4	50.0	103	85 - 115
Barium	ug/L	2.00	51.3	50.0	102	85 - 115
Chromium	ug/L	2.00	52.2	50.0	104	85 - 115
Nickel	ug/L	2.00	51.8	50.0	104	85 - 115
Antimony	ug/L	2.00	49.8	50.0	99.7	85 - 115
Copper	ug/L	2.00	52.3	50.0	105	85 - 115
Lead	ug/L	2.00	50.9	50.0	102	85 - 115
Uranium	ug/L	2.00	52.3	50.0	104	85 - 115
Manganese	ug/L	2.00	51.5	50.0	103	85 - 115
Molybdenum	ug/L	2.00	49.5	50.0	99.0	85 - 115

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project
Project Number: 456827.01.DM

Interference Check Standard AB

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

Serial Dilution — Lab ID = 807817-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	50.0	702	686	2.31	0 - 10

Serial Dilution — Lab ID = 807825-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Arsenic	ug/L	10.0	55.3	55.3	0.0651	0 - 10
Barium	ug/L	10.0	42.6	43.0	0.991	0 - 10

Serial Dilution — Lab ID = 807825-003

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Uranium	ug/L	10.0	28.1	28.1	0.135	0 - 10

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Metals by EPA 200.8, Total

Batch 052913B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807817-001 Nickel	ug/L	05/29/2013 17:06	1.00	0.786	2.0	ND
807817-002 Nickel	ug/L	05/29/2013 17:12	1.00	0.786	2.0	ND

Method Blank

Parameter	Unit	DF	Result
Nickel	ug/L	1.00	ND

Duplicate

Lab ID = 807825-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Nickel	ug/L	1.00	0.825	0	0	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nickel	ug/L	1.00	1.64	2.00	81.8	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nickel	ug/L	1.00	50.8	50.0	102	85 - 115

Matrix Spike

Lab ID = 807825-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Nickel	ug/L	1.00	48.7	50.0(50.0)	97.4	75 - 125

Matrix Spike Duplicate

Lab ID = 807825-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Nickel	ug/L	1.00	48.0	50.0(50.0)	96.0	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nickel	ug/L	1.00	18.4	20.0	92.1	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nickel	ug/L	1.00	19.1	20.0	95.7	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nickel	ug/L	1.00	19.4	20.0	97.2	90 - 110

Interference Check Standard A

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

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Interference Check Standard A

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

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nickel	ug/L	1.00	18.9	20.0	94.7	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nickel	ug/L	1.00	18.9	20.0	94.7	80 - 120

Reactive Silica by SM4500-Si D

Batch 05Si13A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807817-002 Silica	mg/L	05/08/2013	25.0	0.252	1.00	18.4

Method Blank

Parameter	Unit	DF	Result
Silica	mg/L	1.00	ND

Duplicate — Lab ID = 807817-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Silica	mg/L	25.0	20.4	18.4	10.3	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Silica	mg/L	1.00	0.190	0.206	92.3	90 - 110

Matrix Spike — Lab ID = 807729-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Silica	mg/L	1.00	0.198	0.206(0.206)	96.2	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Silica	mg/L	1.00	0.190	0.206	92.3	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Silica	mg/L	1.00	0.383	0.400	95.7	90 - 110

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project
Project Number: 456827.01.DM

Total Dissolved Solids by SM 2540 C

Batch 05TDS13D

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807817-001 Total Dissolved Solids	mg/L	05/09/2013	1.00	1.76	250	4060
807817-002 Total Dissolved Solids	mg/L	05/09/2013	1.00	1.76	250	4730

Method Blank

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

Duplicate

Lab ID = 807813-010

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	3990	3950	1.01	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Dissolved Solids	mg/L	1.00	494	500	98.8	90 - 110

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Total Organic Carbon (T/DOC) SM 5310 C Batch 05TOC13J

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807817-002 Total Organic Carbon	mg/L	05/28/2013 13:38	1.00	0.0309	0.300	1.00

Method Blank

Parameter	Unit	DF	Result
Total Organic Carbon	mg/L	1.00	ND

Duplicate Lab ID = 807868-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Organic Carbon	mg/L	1.00	0.753	0.730	3.08	0 - 25

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Organic Carbon	mg/L	1.00	10.3	10.0	103	90 - 110

Matrix Spike Lab ID = 807868-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Total Organic Carbon	mg/L	1.00	10.4	10.7(10.0)	96.4	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Organic Carbon	mg/L	1.00	10.3	10.0	103	85 - 115

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Organic Carbon	mg/L	1.00	9.21	10.0	92.1	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Organic Carbon	mg/L	1.00	9.69	10.0	96.9	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Organic Carbon	mg/L	1.00	9.65	10.0	96.5	90 - 110

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Total Phosphate, SM 4500-PB,E Batch 05TP13A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807817-002 Phosphate, Total As P	mg/L	05/09/2013	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 = 807817-002

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	0.0606	0.0650	93.2	90 - 110

Matrix Spike — Lab ID = 807817-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Phosphate, Total As P	mg/L	1.00	0.0674	0.0650(0.0650)	104	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Phosphate, Total As P	mg/L	1.00	0.0606	0.0650	93.2	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Phosphate, Total As P	mg/L	1.00	0.0642	0.0660	97.3	90 - 110

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project
Project Number: 456827.01.DM

Ammonia Nitrogen by SM4500-NH3D

Batch 05NH313A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807817-001 Ammonia as N	mg/L	05/10/2013	1.00	0.0318	0.500	ND
807817-002 Ammonia as N	mg/L	05/10/2013	1.00	0.0318	0.500	ND

Method Blank

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

Duplicate — Lab ID = 807719-001

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	7.93	8.00	99.1	90 - 110

Matrix Spike — Lab ID = 807817-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	7.56	8.00(8.00)	94.5	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	5.72	6.00	95.4	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	6.01	6.00	100	90 - 110

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Metals by EPA 200.8, Dissolved

Batch 051013A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807817-002 Manganese	ug/L	05/10/2013 13:03	2.00	0.172	0.50	5.3

Method Blank

Parameter	Unit	DF	Result
Manganese	ug/L	1.00	ND

Duplicate — Lab ID = 807814-005

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

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	0.227	0.200	114	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	2.00	51.5	50.0	103	85 - 115

Matrix Spike — Lab ID = 807814-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Manganese	ug/L	2.00	52.3	50.0(50.0)	104	75 - 125

Matrix Spike Duplicate — Lab ID = 807814-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Manganese	ug/L	2.00	50.3	50.0(50.0)	101	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	19.7	20.0	98.6	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	20.9	20.0	104	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	20.9	20.0	104	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	20.6	20.0	103	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: 456827.01.DM

Metals by 200.7, Dissolved

Batch 051513A-Th2-2

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807817-002 Iron	ug/L	05/15/2013 13:58	1.00	9.50	20.0	ND

Method Blank

Parameter	Unit	DF	Result
Iron	ug/L	1.00	ND

Duplicate — Lab ID = 807814-005

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

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	56.8	50.0	114	85 - 115

Matrix Spike — Lab ID = 807814-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	57.4	50.0(50.0)	115	75 - 125

Matrix Spike Duplicate — Lab ID = 807814-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	56.5	50.0(50.0)	113	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5080	5000	102	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5300	5000	106	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5220	5000	104	90 - 110

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2200	2000	110	80 - 120

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2150	2000	107	80 - 120

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Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2180	2000	109	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2180	2000	109	80 - 120

Turbidity by SM 2130 B

Batch 05TUC13F

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807817-001 Turbidity	NTU	05/08/2013	1.00	0.0140	0.100	ND
807817-002 Turbidity	NTU	05/08/2013	1.00	0.0140	0.100	ND

Method Blank

Parameter	Unit	DF	Result
Turbidity	NTU	1.00	ND

Duplicate — Lab ID = 807817-002

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	8.40	8.00	105	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	8.35	8.00	104	90 - 110

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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

Truesdail Laboratories, Inc.

Total Dissolved Solids by SM 2540 C

Calculations

Batch: 05TDS13D
Date Analyzed: 5/9/13

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	72.4176	72.4179	72.4179	0.0000	No	0.0003	3.0	25.0	ND	1
807813-1	20	47.9414	48.0311	48.0311	0.0000	No	0.0897	4485.0	125.0	4485.0	1
807813-2	100	67.6549	67.7097	67.7097	0.0000	No	0.0548	548.0	25.0	548.0	1
807813-3	50	51.9203	52.0150	52.0146	0.0004	No	0.0943	1886.0	50.0	1886.0	1
807813-4	100	78.3692	78.4017	78.4013	0.0004	No	0.0321	321.0	25.0	321.0	1
807813-5	20	47.2186	47.2848	47.2848	0.0000	No	0.0662	3310.0	125.0	3310.0	1
807813-6	20	50.5588	50.6269	50.6269	0.0000	No	0.0681	3405.0	125.0	3405.0	1
807813-7	20	51.1618	51.2274	51.2274	0.0000	No	0.0656	3280.0	125.0	3280.0	1
807813-8	20	50.7615	50.8406	50.8403	0.0003	No	0.0788	3940.0	125.0	3940.0	1
807813-9	20	52.0702	52.1501	52.1501	0.0000	No	0.0799	3995.0	125.0	3995.0	1
807813-10	20	50.6120	50.6912	50.691	0.0002	No	0.0790	3950.0	125.0	3950.0	1
807813-10D	20	49.3984	49.4782	49.4782	0.0000	No	0.0798	3990.0	125.0	3990.0	1
LCS	100	68.1236	68.173	68.173	0.0000	No	0.0494	494.0	25.0	494.0	1
807814-1	50	51.8289	51.95	51.95	0.0000	No	0.1211	2422.0	50.0	2422.0	1
807814-2	100	51.3489	51.3776	51.3774	0.0002	No	0.0285	285.0	25.0	285.0	1
807814-3	100	70.8879	70.9204	70.92	0.0004	No	0.0321	321.0	25.0	321.0	1
807814-4	100	72.4992	72.531	72.531	0.0000	No	0.0318	318.0	25.0	318.0	1
807814-5	100	75.4396	75.4738	75.4738	0.0000	No	0.0342	342.0	25.0	342.0	1
807816-1	50	51.8385	51.9023	51.9018	0.0005	No	0.0633	1266.0	50.0	1266.0	1
807816-2	50	50.1529	50.2045	50.2044	0.0001	No	0.0515	1030.0	50.0	1030.0	1
807817-1	10	50.7264	50.7673	50.767	0.0003	No	0.0406	4060.0	250.0	4060.0	1
807817-2	10	52.0417	52.0891	52.089	0.0001	No	0.0473	4730.0	250.0	4730.0	1
807759-17	50	50.4023	50.4353	50.4352	0.0001	No	0.0329	658.0	50.0	658.0	1
807759-17D	50	50.5019	50.5347	50.5344	0.0003	No	0.0325	650.0	50.0	650.0	1

Calculation as follows:

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

Where:

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

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

Laboratory Control Sample (LCS) Summary

QC Std I.D.	Measurd Value, ppm	Theoretical Value, ppm	Percent Rec	Acceptance Limit	QC Within Control?
LCS1	494	500	98.8%	90-110%	Yes
LCSD					

LCS Recovery

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

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

Duplicate Determinations Difference Summary

Lab Number	Sample Weight, g	Sample Dup Weight, g	% RPD	Acceptance Limit	QC Within Control?
807813-10	0.079	0.0798	0.5%	≤5%	Yes
807759-17	0.0329	0.0325	0.6%	5%	Yes

Duplicate Determination Difference

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

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

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

Jenny T.
Analyst Printed Name

Analyst Signature

Maksim G.
Reviewer Printed Name

Reviewer Signature

WetChem TDS_2012.xls

Total Dissolved Solids by SM 2540 C

TDS/EC CHECK

Batch: 05TDS13D
Date Analyzed: 5/9/13

Laboratory Number	EC	TDS/EC Ratio: 0.55-.9	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
807813-1	5190	0.86	3373.5	1.33
807813-2	864	0.63	561.6	0.98
807813-3	2440	0.77	1586	1.19
807813-4	469	0.68	304.85	1.05
807813-5	4080	0.81	2652	1.25
807813-6	4230	0.80	2749.5	1.24
807813-7	4160	0.79	2704	1.21
807813-8	4800	0.82	3120	1.26
807813-9	4920	0.81	3198	1.25
807813-10	4880	0.81	3172	1.25
807813-10D	4880	0.82	3172	1.26
LCS				
807814-1	3220	0.75	2093	1.16
807814-2	435	0.66	282.75	1.01
807814-3	484	0.66	314.6	1.02
807814-4	461	0.69	299.65	1.06
807814-5	481	0.71	312.65	1.09
807816-1	1711	0.74	1112.15	1.14
807816-2	1463	0.70	950.95	1.08
807817-1	6980	0.58	4537	0.89
807817-2	7270	0.65	4725.5	1.00
807759-17	1042	0.63	677.3	0.97
807759-17D	1042	0.62	677.3	0.96

TRUESDAIL LABORATORIES, INC.

Alkalinity by SM 2320B

2

Calculations

Analytical Batch: 05ALK13E
Matrix: WATER
Date of Analysis: 5/10/13

Lab ID	Sample pH	Sample Volume (ml)	N of HCL	Titrant Volume to reach pH 8.3	P Alkalinity as CaCO3	Titrant Volume to reach pH 4.5	Total mL titrant to reach pH 0.3 unit lower	Total Alkalinity as CaCO3	RL, ppm	Total Alkalinity Reported Value	HCO3 Conc. as $CaCO_3$ (ppm)	CO3 Alkalinity as $CaCO_3$ (ppm)	OH Alkalinity as $CaCO_3$ (ppm)	Low Alkalinity as $CaCO_3$ (<20ppm)
BLANK	6.91	50	0.02		0.0	0.00		0.0	5	ND	ND	ND	ND	
807759-17	7.72	50	0.02		0.0	5.25		105.0	5	105.0	105.0	ND	ND	
807759-21	8.13	50	0.02		0.0	5.00		100.0	5	100.0	100.0	ND	ND	
807817-2	7.55	50	0.02		0.0	7.40		148.0	5	148.0	148.0	ND	ND	
807817-2 DUP	7.54	50	0.02		0.0	7.25		145.0	5	145.0	145.0	ND	ND	
807817-2 MS	9.06	50	0.02	1.85	37.0	12.40		248.0	5	248.0	174.0	74	ND	
807833-1	8.12	50	0.02		0.0	5.25		105.0	5	105.0	105.0	ND	ND	
LCS	10.24	50	0.02	2.40	48.0	5.00		100.0	5	100.0	4.0	96	ND	
LCSD	10.28	50	0.02	2.35	47.0	5.05		101.0	5	101.0	7.0	94	ND	

Calculations as follows:

T or P = $\left(\frac{A \times N \times 50000}{mL\ sample}\right)$

Where:
T = Total Alkalinity, mg CaCO3/L
P = Phenolphthalein Alkalinity, mg CaCO3/L
A = mL standard acid used
N = normality of standard acid

Low Alkalinity: as mg/L CaCO3 = $\frac{(2 \times B - C) \times N \times 50000}{mL\ sample}$

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

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

Blank Summary

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

Laboratory Control Sample (LCS/LCSD) Summary

QC Std I.D.	Measured Value, ppm	Theoretical Value, ppm	% Recovery	Accetance Limit	QC Within Control?
LCS	100	100	100.0%	90-110	Yes
LCSD	101	100	101.0%	90-110	Yes

Duplicate Determination Difference Summary

Lab Number I.D.	Measured Value, ppm	Dup Value, ppm	RPD	Accetance Limit	QC Within Control?
807817-2	148	145	2.0%	20%	Yes

Sample Matrix Spike (MS/MSD) Summary

Lab Number	Conc of Unspk spl	Dil Factor	Added Spk Conc	MS/MSD Amt	Measrd Conc of Spk Spl	Theor Conc of Spk Spl	MS/MSD % Rec	MS Accept Limit	QC Within Control?	RPD	RPD Accept Limit	QC Within Control?
807817-2	148	1	100	100	248	248.00	100%	75-125	Yes			
		1	100	100								

Melissa S
Analyst Printed Name

Analyst Signature

Maksim G.
Reviewer Printed Name

Reviewer Signature

051013e

055

ep

Rec'd 05/07/13
S 807817

ALERT !!
Level III QC

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-412]

COC Number 807817

TURNAROUND TIME 10 Days

DATE 5/07/13 PAGE 1 OF 1

COMPANY: CH2M HILL /E2

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: 456827.01.DM

SAMPLERS (SIGNATURE): Chris Lest

	SAMPLE I.D.	DATE	TIME	DESCRIPTION	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	COMMENTS
1	SC-700B-WDR-412	5/07/13	10:40		X		X	X	X	X	X		X				X		5	pH = 6 } 2002.7
2	SC-100B-WDR-412	5/07/13	10:30		X	X	X	X	X	X	X	X	X	X	X	X	X		9	pH = 7 }
																			14	TOTAL NUMBER OF CONTAINERS

CHAIN OF CUSTODY SIGNATURE RECORD

	Signature	Printed Name	Company/ Agency	Date/ Time
Signature (Relinquished)	Chris Lest	CHRIS LEST	CH2M HILL	5-7-13 16:30
Signature (Received)	Rafael Davila	Rafael	T.L.I	5-7-13 15:30
Signature (Relinquished)	Rafael Davila	Rafael	T.L.I	5-7-13 21:30
Signature (Received)	Linda	Shabenine	TLI	5/7/13 21:30
Signature (Relinquished)				
Signature (Received)				

SAMPLE CONDITIONS

RECEIVED COOL ☑ WARM ☐ 3.2 °C

CUSTODY SEALED YES ☐ NO ☑

SPECIAL REQUIREMENTS:

The metals include: Cr, Al, Sb, As, Ba, B, Cu, Pb, Mn, Mo, Ni, Fe, Zn

For Sample Conditions See Form Attached

135

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
5/8/13	807813-7	9.5	N/A	N/A	N/A	TM
	-8					
	-9					
	-10					
5/8/13	807814-1	9.5	N/A	N/A	N/A	TM
	-2					
	-3					
	-4					
	-5					
5/8/13	807815-1	9.5	N/A	N/A	N/A	TM
	-2					
	-3					
5/8/13	807816-1	9.5	N/A	N/A	N/A	TM
	-2					
5/8/13	807817-1	7.0	2mL/100mL	9.5	9:55	TM
	-2					
5/8/13	807818-1	9.5	N/A	N/A	N/A	TM
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
	-13					
	-14					

05/16/13

TM 5/14/13

TRUESDAIL LABORATORIES, INC.

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
807748	<1	<2	5/8/13	DR	yes			
807749								
807750								
807755								
807756								
807732-4	>1							
807788-1→4								
807765-1,2								
807766	<1							
T 807817 (1-2)	<1	>2	5-8-13	BE	yes	14:00	<2	
D 807817 (-2)						14:00	<2	acidified after filt.
807825 (1-3)		<2						
807814 (1-5)								
807815 (1-2)								
807816 (1-2)								
807813 (1-10)								
807812								
807811								
807801-1,2	<1	>2		DR	NO	15:30		
807833-4,5,6	<1							
807836-11-13								
807837-1→7								
807834	>1				yes			
807846	<1	<2	5-9-13	BE	yes			
807849 (1-5)								
807819 (1,4-6,8-11)								
807818 (3-9, 12-14)								
807828 (1-2	>1	<2			yes			
807771								
807772								
807773								
807774								
807775								
807778 (1-3)								
807779								
807780 (1-4)								
807782 (1-2)								
807791								
807847								
807855								
807867 (1-3)	<1	~~>~~ 2 BE	5-10-13	BE	NO	14:00		
807857	>1	<2	5/13/13	ES	yes			
807863								
807872								

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

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: E2 **Lab #** 807817

Date Delivered: 05/07/13 **Time:** 21:30 **By:** ☐Mail ☒Field Service ☐Client

1. Was a Chain of Custody received and signed? ☒Yes ☐No ☐N/A
2. Does Customer require an acknowledgement of the COC? ☐Yes ☐No ☒N/A
3. Are there any special requirements or notes on the COC? ☐Yes ☐No ☒N/A
4. If a letter was sent with the COC, does it match the COC? ☐Yes ☐No ☒N/A
5. Were all requested analyses understood and acceptable? ☒Yes ☐No ☐N/A
6. Were samples received in a chilled condition? ☒Yes ☐No ☐N/A
   Temperature (if yes)? 3.2°C
7. Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)? ☒Yes ☐No ☐N/A
8. Were sample custody seals intact? ☐Yes ☐No ☒N/A
9. Does the number of samples received agree with COC? ☒Yes ☐No ☐N/A
10. Did sample labels correspond with the client ID's? ☒Yes ☐No ☐N/A
11. Did sample labels indicate proper preservation? ☐Yes ☐No ☒N/A
    Preserved (if yes) by: ☐Truesdail ☐Client
12. Were samples pH checked? pH = see c.o.c ☒Yes ☐No ☐N/A
13. Were all analyses within holding time at time of receipt? ☒Yes ☐No ☐N/A
    If not, notify Project Manager.
14. Have Project due dates been checked and accepted? ☒Yes ☐No ☐N/A
    Turn Around Time (TAT): ☐ RUSH ☒ Std
15. **Sample Matrix:** ☐Liquid ☐Drinking Water ☐Ground Water ☐Waste Water ☐Sludge ☐Soil ☐Wipe ☐Paint ☐Solid ☒Other Water
16. Comments: _____
17. Sample Check-In completed by Truesdail Log-In/Receiving: Linda

ALERT !! Level III QC

C:\Users\Test\Desktop\Forms A - D\Discrp.FormBlank.doc

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

May 28, 2013

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

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK IM3PLANT-WDR-413 PROJECT, GROUNDWATER MONITORING, TLI NO.: 807947

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-413 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 14, 2013, 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. Shawn Duffy's approval.

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

Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy
Sample: One (1) Groundwater Sample
Project Name: PG&E Topock Project
Project No.: 456827.01.DM

Laboratory No.: 807947
Date: May 28, 2013
Collected: May 14, 2013
Received: May 14, 2013

ANALYST LIST

METHOD	PARAMETER	ANALYST
EPA 120.1	Specific Conductivity	Gautam Savani
SM 2540C	Total Dissolved Solids	Jenny Tankunakorn
SM 2130B	Turbidity	Gautam Savani
EPA 200.8	Total Metals	Bita Emami
EPA 218.6	Hexavalent Chromium	Tom Martinez

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

Laboratory No.: 807947
Date Received: May 14, 2013

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

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
807947-001	SC-700B-WDR-413	E120.1	NONE	5/14/2013	16:10	EC	6600	umhos/cm	2.00
807947-001	SC-700B-WDR-413	E200.8	NONE	5/14/2013	16:10	Chromium	ND	ug/L	1.0
807947-001	SC-700B-WDR-413	E200.8	NONE	5/14/2013	16:10	Manganese	1.6	ug/L	0.50
807947-001	SC-700B-WDR-413	E218.6	LABFLT	5/14/2013	16:10	Chromium, Hexavalent	ND	ug/L	0.20
807947-001	SC-700B-WDR-413	SM2130B	NONE	5/14/2013	16:10	Turbidity	ND	NTU	0.100
807947-001	SC-700B-WDR-413	SM2540C	NONE	5/14/2013	16:10	Total Dissolved Solids	4110	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: 456827.01.DM
P.O. Number: 456827.01.DM
Release Number:

Laboratory No. 807947

Printed 5/28/2013

Samples Received on 5/14/2013 11:00:00 PM

Field ID	Lab ID	Collected	Matrix
SC-700B-WDR-413	807947-001	05/14/2013 16:10	Water

Specific Conductivity - EPA 120.1 Batch 05EC13G

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807947-001 Specific Conductivity	umhos/cm	05/17/2013	1.00	0.116	2.00	6600

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate — Lab ID = 807947-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	6600	6600	0	0 - 10

Duplicate — Lab ID = 807948-008

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	1510	1520	0.660	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	644	706	91.2	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	641	706	90.8	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	647	706	91.6	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	953	998	95.5	90 - 110

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project
Project Number: 456827.01.DM

Chrome VI by EPA 218.6

Batch 05CrH13L

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807947-001 Chromium, Hexavalent	ug/L	05/22/2013 11:01	1.00	0.00920	0.20	ND

Method Blank

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

Duplicate — Lab ID = 807949-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.0593	0.0582	1.87	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	4.92	5.00	98.3	90 - 110

Matrix Spike — Lab ID = 807947-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.16	1.12(1.00)	104	90 - 110

Matrix Spike — Lab ID = 807949-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.07	1.06(1.00)	101	90 - 110

Matrix Spike — Lab ID = 807949-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	1480	1480(750)	98.9	90 - 110

Matrix Spike — Lab ID = 807949-004

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

Matrix Spike — Lab ID = 807949-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.615	1.00(1.00)	61.5	90 - 110

Matrix Spike — Lab ID = 807949-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	100	4440	4550(2500)	95.6	90 - 110

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Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project
Project Number: 456827.01.DM

Metals by EPA 200.8, Total

Batch 052013A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807947-001 Chromium	ug/L	05/20/2013 13:41	2.00	0.184	1.0	ND
Manganese	ug/L	05/20/2013 13:41	2.00	0.172	0.50	1.6

Method Blank

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

Duplicate

Lab ID = 807997-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	2.00	ND	0	0	0 - 20
Uranium	ug/L	2.00	ND	0	0	0 - 20
Manganese	ug/L	2.00	4.71	4.46	5.46	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.225	0.200	113	70 - 130
Uranium	ug/L	1.00	0.198	0.200	99.0	70 - 130
Manganese	ug/L	1.00	0.231	0.200	116	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	2.00	51.1	50.0	102	85 - 115
Uranium	ug/L	2.00	47.5	50.0	95.1	85 - 115
Manganese	ug/L	2.00	51.2	50.0	102	85 - 115

Matrix Spike

Lab ID = 807997-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	51.4	50.0(50.0)	103	75 - 125
Uranium	ug/L	2.00	49.6	50.0(50.0)	99.3	75 - 125
Manganese	ug/L	2.00	54.8	54.5(50.0)	101	75 - 125

Matrix Spike Duplicate

Lab ID = 807997-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	53.2	50.0(50.0)	106	75 - 125
Uranium	ug/L	2.00	50.6	50.0(50.0)	101	75 - 125
Manganese	ug/L	2.00	56.6	54.5(50.0)	104	75 - 125

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Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.7	20.0	104	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.3	20.0	101	80 - 120
Uranium	ug/L	1.00	ND	0		

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Uranium	ug/L	1.00	ND	0		
Manganese	ug/L	1.00	20.6	20.0	103	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	20.2	20.0	101	80 - 120

Total Dissolved Solids by SM 2540 C

Batch 05TDS13F

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807947-001 Total Dissolved Solids	mg/L	05/17/2013	1.00	0.757	250	4110

Method Blank

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

Duplicate — Lab ID = 807948-009

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	405	409	0.983	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Dissolved Solids	mg/L	1.00	510	500	102	90 - 110

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project
Project Number: 456827.01.DM

Turbidity by SM 2130 B Batch 05TUC13M

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807947-001 Turbidity	NTU	05/15/2013	1.00	0.0140	0.100	ND

Method Blank

Parameter	Unit	DF	Result
Turbidity	NTU	1.00	ND

Duplicate — Lab ID = 807947-001

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	7.75	8.00	96.9	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	7.84	8.00	98.0	90 - 110

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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Truesdail Laboratories, Inc.

2

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Total Dissolved Solids by SM 2540 C

Calculations

Batch: 05TDS13F
Date Analyzed: 5/17/13

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	77.2421	77.2436	77.2434	0.0002	No	0.0013	13.0	25.0	ND	1
807947	10	46.9781	47.0192	47.0192	0.0000	No	0.0411	4110.0	250.0	4110.0	1
807948-1	0.5	51.8548	52.0186	52.0182	0.0004	No	0.1634	326800.0	5000.0	326800.0	1
807948-2	0.5	50.6967	50.7067	50.7067	0.0000	No	0.0100	20000.0	5000.0	20000.0	1
807948-3	0.5	51.8005	51.982	51.982	0.0000	No	0.1815	363000.0	5000.0	363000.0	1
807948-4	0.5	51.4579	51.4711	51.4707	0.0004	No	0.0128	25600.0	5000.0	25600.0	1
807948-5	100	78.6140	78.6579	78.6578	0.0001	No	0.0438	438.0	25.0	438.0	1
807948-6	50	47.8475	47.8822	47.882	0.0002	No	0.0345	690.0	50.0	690.0	1
807948-7	50	51.2486	51.2778	51.2778	0.0000	No	0.0292	584.0	50.0	584.0	1
807948-8	50	49.4978	49.547	49.547	0.0000	No	0.0492	984.0	50.0	984.0	1
807948-9	100	73.7946	73.8355	73.8355	0.0000	No	0.0409	409.0	25.0	409.0	1
807948-9D	100	74.7220	74.7625	74.7625	0.0000	No	0.0405	405.0	25.0	405.0	1
LCS	100	74.3923	74.4436	74.4433	0.0003	No	0.0510	510.0	25.0	510.0	1
807948-10	100	66.8941	66.9488	66.9485	0.0003	No	0.0544	544.0	25.0	544.0	1
807948-11	50	73.4395	73.4795	73.4792	0.0003	No	0.0397	794.0	50.0	794.0	1
807948-12	50	75.7560	75.8056	75.8056	0.0000	No	0.0496	992.0	50.0	992.0	1
807991-1	50	50.7478	50.784	50.784	0.0000	No	0.0362	724.0	50.0	724.0	1
807991-6	50	51.8917	51.9282	51.9282	0.0000	No	0.0365	730.0	50.0	730.0	1
807948-1	1	47.5142	47.8344	47.8343	0.0001	No	0.3201	320100.0	2500.0	320100.0	1
807948-3	1	50.5792	50.9504	50.9504	0.0000	No	0.3712	371200.0	2500.0	371200.0	1
807991-6D	50	51.8795	51.9165	51.9164	0.0001	No	0.0369	738.0	50.0	738.0	1

Calculation as follows:

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

Where:

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

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

Laboratory Control Sample (LCS) Summary

QC Std I.D.	Measurd Value, ppm	Theoretical Value, ppm	Percent Rec	Acceptance Limit	QC Within Control?
LCS1	510	500	102.0%	90-110%	Yes
LCSD					

LCS Recovery

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

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

Duplicate Determinations Difference Summary

Lab Number	Sample Weight, g	Sample Dup Weight, g	% RPD	Acceptance Limit	QC Within Control?
807948-9	0.0409	0.0405	0.5%	≤5%	Yes
807991-6	0.0365	0.0369	0.5%	5%	Yes

Duplicate Determination Difference

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

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

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

Jenny T.
Analyst Printed Name

Analyst Signature

Maksim G.
Reviewer Printed Name

Reviewer Signature

WetChem TDS_2012.xls

Total Dissolved Solids by SM 2540 C

TDS/EC CHECK

Batch: 05TDS13F
Date Analyzed: 5/17/13

Laboratory Number	EC	TDS/EC Ratio: 0.55-.9	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
807947	6600	0.62	4290	0.96
807948-1	186400	1.75	121160	2.70
807948-2	26800	0.75	17420	1.15
807948-3	182100	1.99	118365	3.07
807948-4	32900	0.78	21385	1.20
807948-5	736	0.60	478.4	0.92
807948-6	1110	0.62	721.5	0.96
807948-7	924	0.63	600.6	0.97
807948-8	1520	0.65	988	1.00
807948-9	635	0.64	412.75	0.99
807948-9D	635	0.64	412.75	0.98
LCS				
807948-10	876	0.62	569.4	0.96
807948-11	1120	0.71	728	1.09
807948-12	1510	0.66	981.5	1.01
807991-1	1310	0.55	851.5	0.85
807991-6	1090	0.67	708.5	1.03
807948-1	186400	1.72	121160	2.64
807948-3	182100	2.04	118365	3.14
807991-6D	1090	0.68	708.5	1.04

TRUESDAIL LABORATORIES, INC.
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CHAIN OF CUSTODY RECORD

807947

[IM3Plant-WDR-413]

COC Number

TURNAROUND TIME 10 Days

DATE 05/14/13 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: 456827.01.DM TEAM: 1

SAMPLERS (SIGNATURE): [signature]

SAMPLE I.D.	DATE	TIME	DESCRIPTION	Cr6 (218.6) Lab Filtered	Total Metals (200.7) Cr, Mn	Specific Conductance (120.1)	TDS (SM2540C)	Turbidity (SM2130)								NUMBER OF CONTAINERS	COMMENTS
SC-700B-WDR-413	05/14/13	16:10	Water	x	x	x	x		x							3	PU-b (200.7)
																TOTAL NUMBER OF CONTAINERS	

ALERT !!
Level III QC

For Sample Conditions
See Form Attached

CHAIN OF CUSTODY SIGNATURE RECORD

	Signature	Printed Name	Company/ Agency	Date/ Time
Signature (Relinquished)	[signature]	GEORGE GIORIA	E.2	05-14-13 16:20
Signature (Received)	Rafael Davila	Rafael	T.L.I	5-14-13 16:20
Signature (Relinquished)	Rafael Davila	Rafael	T.L.I	5-14-13 23:00
Signature (Received)	Shakeema	Linda	TLI	5/14/13 23:00
Signature (Relinquished)				
Signature (Received)				

SAMPLE CONDITIONS

RECEIVED COOL ☑ WARM ☐ 3.6 °C

CUSTODY SEALED YES ☐ NO ☑

SPECIAL REQUIREMENTS:

044

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
5/15/13	807949-18	9.5	N/A	N/A	N/A	AF
	-19					
	-20					
	-21					
	-22					
	-23					
	-24					
	-25					
5/15/13	807947	7.0	2mL/100mL	9.5	7:45am	TM
05/15/13	807948 -1	8.0	0.3mL / 25mL	9.5	7:15 am	TM
	-2	9.7	N/A	N/A	N/A	
	-3	8.0	0.5mL / 25mL	~~8~~ 9.5	7:15 am	
	-4	9.5	N/A	N/A	N/A	
	-5	7.0	2mL/100mL	9.5mL	7:20 am	
	-6				7:25	
	-7				7:25	
	-8				7:30	
	-9				7:30	
	-10				7:30	
	-11				7:35	
	-12				7:35	
5/22/13	808083	6.0	2mL/100mL	9.5	10:15	TM
5/22/13	808084 -1	9.5	N/A	N/A	N/A	TM
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
5/22/13	808085 -1	9.5	N/A	N/A	N/A	TM
	-2					

TM 5/23/13

05/24/13

TRUESDAIL LABORATORIES, INC.

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
807886	<1	<2	5/13/13	ES	yes			
807887	↓	↓	↓	↓	↓			
807889	↓	>2	↓	↓	No	11:00		
807894	↓	<2	↓	BE	yes			
807893	↓	↓	↓	↓	↓			
807871 (1-10)	<1	<2	5-14-15	BE	yes			
807897 (1-4)	<1	>2	↓	↓	No	11:00		
807901 (1-3)	↓	↓	↓	↓	↓	↓		
807911	<1	<2	5/14/13	m	yes			
807912	↓	↓	↓	↓	↓			
807913								
807914								
807915								
807916								
807917								
807918	<1	>2	5-15-13	BE	No	8:00		
807949 (1-2, 10-13, 15)	↓	<2	↓	↓	yes			
807949 (17-22, 24-25)	↓	↓	↓	↓	↓			
807941 (1-2)	<1	>2	↓	↓	No	13:00		
807970 (10-12)	<1	>2	5-16-13	BE	No	8:00		
807969 (1-3	↓	↓	↓	↓	↓	↓		
807991 (1-6)	>1	<2	5-17-13	BE	yes			
807993 (1-4)	↓	↓	↓	↓	↓			
807994								
807995 (1-4)	↓	↓	↓	↓	↓			
807997 (1-4)	<1	<2	5-17-13	BE	yes			
807947 BE	↓	>2 BE	↓	↓	↓	11:00		
808020	>1	>2	5-20-13	BE	yes	7:00		
808021-1	>1	<2	5-21-13	ES	yes			
-6	↓	↓	↓	↓	↓			
808022-(1-6)	<1							
023	↓	↓	↓	↓	↓			
024								
028 (1-6)								
094								
051								
052								
053								
054								
055	↓	↓	↓	↓	↓			
808059 (1-6)	<1	<2	5/22/13	ES	yes			
808036 (1-4)	<1	<2	↓	↓	↓			
808083	<1	>2				10:00		
808084 (1-7)	<1	<2	↓	↓	↓			

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

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: E 2 **Lab #** 807997

Date Delivered: 05/14/13 **Time:** 23:00 **By:** ☐Mail ☒Field Service ☐Client

1. Was a Chain of Custody received and signed? ☒Yes ☐No ☐N/A
2. Does Customer require an acknowledgement of the COC? ☐Yes ☐No ☒N/A
3. Are there any special requirements or notes on the COC? ☐Yes ☐No ☒N/A
4. If a letter was sent with the COC, does it match the COC? ☐Yes ☐No ☒N/A
5. Were all requested analyses understood and acceptable? ☒Yes ☐No ☐N/A
6. Were samples received in a chilled condition? ☒Yes ☐No ☐N/A
   Temperature (if yes)? 3.6 °C
7. Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)? ☒Yes ☐No ☐N/A
8. Were sample custody seals intact? ☐Yes ☐No ☒N/A
9. Does the number of samples received agree with COC? ☒Yes ☐No ☐N/A
10. Did sample labels correspond with the client ID's? ☒Yes ☐No ☐N/A
11. Did sample labels indicate proper preservation? ☐Yes ☐No ☒N/A
    Preserved (if yes) by: ☐Truesdail ☐Client
12. Were samples pH checked? pH = see c.o.c ☒Yes ☐No ☐N/A
13. Were all analyses within holding time at time of receipt? ☒Yes ☐No ☐N/A
    If not, notify Project Manager.
14. Have Project due dates been checked and accepted? ☒Yes ☐No ☐N/A
    Turn Around Time (TAT): ☐ RUSH ☒ Std
15. **Sample Matrix:** ☐Liquid ☐Drinking Water ☐Ground Water ☐Waste Water ☐Sludge ☐Soil ☐Wipe ☐Paint ☐Solid ☒Other Water
16. Comments:
17. Sample Check-In completed by Truesdail Log-In/Receiving: Linda

ALERT !! Level III QC

C:\Users\Test\Desktop\Forms A - D\Discrp.FormBlank.doc

TRUESDAIL LABORATORIES, INC.

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Established 1931

14201 FRANKLIN AVENUE
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(714) 730-6239 · FAX (714) 730-6462
www.truesdail.com

June 3, 2013

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

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK IM3PLANT-WDR-414 PROJECT, GROUNDWATER MONITORING, TLI NO.: 808083

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-414 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 21, 2013, 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. Shawn Duffy's approval.

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

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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.: 456827.01.DM

Laboratory No.: 808083
Date: June 3, 2013
Collected: May 21, 2013
Received: May 21, 2013

ANALYST LIST

METHOD	PARAMETER	ANALYST
EPA 120.1	Specific Conductivity	Gautam Savani
SM 2540C	Total Dissolved Solids	Jenny Tankunakorn
SM 2130B	Turbidity	Gautam Savani
EPA 200.8	Total Metals	Ethel Suico
EPA 218.6	Hexavalent Chromium	Tom Martinez

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

Laboratory No.: 808083
Date Received: May 21, 2013

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

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
808083-001	SC-700B-WDR-414	E120.1	NONE	5/21/2013	13:05	EC	6540	umhos/cm	2.00
808083-001	SC-700B-WDR-414	E200.8	NONE	5/21/2013	13:05	Chromium	ND	ug/L	1.0
808083-001	SC-700B-WDR-414	E200.8	NONE	5/21/2013	13:05	Manganese	4.0	ug/L	1.0
808083-001	SC-700B-WDR-414	E218.6	LABFLT	5/21/2013	13:05	Chromium, Hexavalent	ND	ug/L	0.20
808083-001	SC-700B-WDR-414	SM2130B	NONE	5/21/2013	13:05	Turbidity	ND	NTU	0.100
808083-001	SC-700B-WDR-414	SM2540C	NONE	5/21/2013	13:05	Total Dissolved Solids	4270	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: 456827.01.DM
P.O. Number: 456827.01.DM
Release Number:

Laboratory No. 808083

Printed 6/3/2013

Samples Received on 5/21/2013 11:00:00 PM

Field ID	Lab ID	Collected	Matrix
SC-700B-WDR-414	808083-001	05/21/2013 13:05	Water

Specific Conductivity - EPA 120.1 Batch 05EC13J

Parameter	Unit	Analyzed	DF	MDL	RL	Result
808083-001 Specific Conductivity	umhos/cm	05/24/2013	1.00	0.116	2.00	6540

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate — Lab ID = 808083-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	6540	6540	0	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	688	706	97.4	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	695	706	98.4	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	668	706	94.6	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	935	998	93.7	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	940	998	94.2	90 - 110

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Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project
Project Number: 456827.01.DM

Chrome VI by EPA 218.6

Batch 05CrH13N

Parameter	Unit	Analyzed	DF	MDL	RL	Result
808083-001 Chromium, Hexavalent	ug/L	05/24/2013 11:58	1.00	0.00920	0.20	ND

Method Blank

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

Duplicate — Lab ID = 808086-017

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.0383	0.0342	11.3	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.207	0.200	104	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.01	5.00	100	90 - 110

Matrix Spike — Lab ID = 808083-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.16	1.13(1.00)	102	90 - 110

Matrix Spike — Lab ID = 808084-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.984	1.00(1.00)	98.4	90 - 110

Matrix Spike — Lab ID = 808084-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.97	5.00(5.00)	99.4	90 - 110

Matrix Spike — Lab ID = 808084-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.05	1.02(1.00)	102	90 - 110

Matrix Spike — Lab ID = 808084-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.965	1.00(1.00)	96.5	90 - 110

Matrix Spike — Lab ID = 808084-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.17	5.06(5.00)	102	90 - 110

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project
Project Number: 456827.01.DM

Metals by EPA 200.8, Total

Batch 052813A-ICPMS-1

Parameter	Unit	Analyzed	DF	MDL	RL	Result
808083-001 Chromium	ug/L	05/28/2013 16:56	2.00	0.184	1.0	ND
Manganese	ug/L	05/28/2013 16:56	2.00	0.172	1.0	4.0

Method Blank

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

Duplicate

Lab ID = 808083-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	2.00	ND	0	0	0 - 20
Manganese	ug/L	2.00	4.34	4.05	6.87	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.190	0.200	95.2	70 - 130
Manganese	ug/L	1.00	0.206	0.200	103	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	2.00	49.4	50.0	98.9	85 - 115
Manganese	ug/L	2.00	49.0	50.0	98.1	85 - 115

Matrix Spike

Lab ID = 808083-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	57.9	50.0(50.0)	116	75 - 125
Manganese	ug/L	2.00	52.9	54.0(50.0)	97.6	75 - 125

Matrix Spike Duplicate

Lab ID = 808083-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	47.8	50.0(50.0)	95.6	75 - 125
Manganese	ug/L	2.00	50.0	54.0(50.0)	91.9	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.5	20.0	102	90 - 110
Manganese	ug/L	1.00	20.5	20.0	103	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.8	20.0	99.2	90 - 110

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Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	21.5	20.0	108	80 - 120

Total Dissolved Solids by SM 2540 C

Batch 05TDS13G

Parameter	Unit	Analyzed	DF	MDL	RL	Result
808083-001 Total Dissolved Solids	mg/L	05/23/2013	1.00	1.76	250	4270

Method Blank

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

Duplicate — Lab ID = 808113-006

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	816	804	1.48	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Dissolved Solids	mg/L	1.00	496	500	99.2	90 - 110

Turbidity by SM 2130 B

Batch 05TUC13P

Parameter	Unit	Analyzed	DF	MDL	RL	Result
808083-001 Turbidity	NTU	05/22/2013	1.00	0.0140	0.100	ND

Method Blank

Parameter	Unit	DF	Result
Turbidity	NTU	1.00	ND

Duplicate — Lab ID = 808083-001

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	7.74	8.00	96.8	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	7.93	8.00	99.1	90 - 110

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project
Project Number: 456827.01.DM

Printed 6/3/2013

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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

Truesdail Laboratories, Inc.

Total Dissolved Solids by SM 2540 C

Calculations

Batch: 05TDS13G
Date Analyzed: 5/23/13

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	75.7571	75.7577	75.7573	0.0004	No	0.0002	2.0	25.0	ND	1
808021-1	50	76.5102	76.547	76.547	0.0000	No	0.0368	736.0	50.0	736.0	1
808021-6	50	73.5823	73.6205	73.6202	0.0003	No	0.0379	758.0	50.0	758.0	1
808022-1	50	74.6009	74.6374	74.6374	0.0000	No	0.0365	730.0	50.0	730.0	1
808022-6	50	77.989	78.0277	78.0277	0.0000	No	0.0387	774.0	50.0	774.0	1
808028-1	50	76.2765	76.3145	76.3145	0.0000	No	0.0380	760.0	50.0	760.0	1
808028-6	50	77.7759	77.8157	77.8155	0.0002	No	0.0396	792.0	50.0	792.0	1
808059-1	50	78.8019	78.8411	78.8409	0.0002	No	0.0390	780.0	50.0	780.0	1
808059-6	50	74.1480	74.1875	74.1872	0.0003	No	0.0392	784.0	50.0	784.0	1
808095-1	50	76.6696	76.7894	76.789	0.0004	No	0.1194	2388.0	50.0	2388.0	1
808095-2	50	66.7013	66.823	66.8228	0.0002	No	0.1215	2430.0	50.0	2430.0	1
808095-2D	50	78.3920	78.5182	78.5178	0.0004	No	0.1258	2516.0	50.0	2516.0	1
LCS	100	66.8591	66.9091	66.9087	0.0004	No	0.0496	496.0	25.0	496.0	1
808083	10	50.7608	50.8039	50.8035	0.0004	No	0.0427	4270.0	250.0	4270.0	1
808099-1	50	71.3209	71.3573	71.357	0.0003	No	0.0361	722.0	50.0	722.0	1
808099-6	50	74.6568	74.6941	74.6941	0.0000	No	0.0373	746.0	50.0	746.0	1
808113-1	50	68.3716	68.4117	68.4117	0.0000	No	0.0401	802.0	50.0	802.0	1
808113-6	50	74.2205	74.261	74.2607	0.0003	No	0.0402	804.0	50.0	804.0	1
808113-6D	50	75.2704	75.3112	75.3112	0.0000	No	0.0408	816.0	50.0	816.0	1

Calculation as follows:

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

Where:

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

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

Laboratory Control Sample (LCS) Summary

QC Std I.D.	Measurd Value, ppm	Theoretical Value, ppm	Percent Rec	Acceptance Limit	QC Within Control?
LCS1	496	500	99.2%	90-110%	Yes
LCSD					

LCS Recovery

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

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

Duplicate Determinations Difference Summary

Lab Number	Sample Weight, g	Sample Dup Weight, g	% RPD	Acceptance Limit	QC Within Control?
808095-2	0.1215	0.1258	1.7%	≤5%	Yes
808113-6	0.0402	0.0408	0.7%	5%	Yes

Duplicate Determination Difference

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

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

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

Jenny T.
Analyst Printed Name

Analyst Signature

Maksim G.
Reviewer Printed Name

Reviewer Signature

WetChem TDS_2012.xls

Total Dissolved Solids by SM 2540 C

TDS/EC CHECK

Batch: 05TDS13G
Date Analyzed: 5/23/13

Laboratory Number	EC	TDS/EC Ratio: 0.55-.9	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
808021-1	1337	0.55	869.05	0.85
808021-6	1174	0.65	763.1	0.99
808022-1	1317	0.55	856.05	0.85
808022-6	1118	0.69	726.7	1.07
808028-1	1360	0.56	884	0.86
808028-6	1119	0.71	727.35	1.09
808059-1	1377	0.57	895.05	0.87
808059-6	1118	0.70	726.7	1.08
808095-1	3800	0.63	2470	0.97
808095-2	3570	0.68	2320.5	1.05
808095-2D	3570	0.70	2320.5	1.08
LCS				
808083	6470	0.66	4205.5	1.02
808099-1	1200	0.60	780	0.93
808099-6	1080	0.69	702	1.06
808113-1	1300	0.62	845	0.95
808113-6	1170	0.69	760.5	1.06
808113-6D	1170	0.70	760.5	1.07

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CHAIN OF CUSTODY RECORD

[IM3Plant-WDR-414]

808083

COC Number

TURNAROUND TIME 10 Days

DATE 05/21/13

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: 456827.01.DM TEAM: 1

SAMPLERS (SIGNATURE):

Rec'd 5/21/13
Sd 808083

SAMPLE I.D.	DATE	TIME	DESCRIPTION	Cr6 (218.6) Lab Filtered	Total Metals (200.7) Cr, Mn	Specific Conductance (120.1)	TDS (SM2540C)	Turbidity (SM2130)									NUMBER OF CONTAINERS	COMMENTS
SC-700B-WDR-414	05/21/13	13:05	Water	x	x	x	x		x								3	pH=6 (200.7)
																	3	TOTAL NUMBER OF CONTAINERS

ALERT !!
Level III QC

CHAIN OF CUSTODY SIGNATURE RECORD

	Printed Name	Company/ Agency	Date/ Time
Signature (Relinquished)	Ryan Phelps	CH2MHILL	5-21-13 4:00 PM
Signature (Received) Rafael Davila	Rafael	T.L.I	5-21-13 4:00
Signature (Relinquished) Rafael Davila	Rafael	T.L.I	5-21-13 23:00
Signature (Received) Linda	Shakuntala	TLI	5/21/13 23:00
Signature (Relinquished)			
Signature (Received)			

SAMPLE CONDITIONS

RECEIVED COOL ☑ WARM ☐ 4.5 °C

CUSTODY SEALED YES ☐ NO ☑

SPECIAL REQUIREMENTS:

For Sample Conditions See Form Attached

042

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
5/15/13	807949-18	9.5	N/A	N/A	N/A	NF
	-19					
	-20					
	-21					
	-22					
	-23					
	-24					
	-25					
5/15/13	807947	7.0	2mL/100mL	9.5	7:45am	TM
05/15/13	807948 -1	8.0	0.3mL / 25mL	9.5	7:15am	TM
	-2	9.7	N/A	N/A	N/A	
	-3	8.0	0.5mL / 25mL	~~8~~ 9.5	7:15am	
	-4	9.5	N/A	N/A	N/A	
	-5	7.0	2mL/100mL	9.5mL	7:20am	
	-6				7:25	
	-7				7:25	
	-8				7:30	
	-9				7:30	
	-10				7:30	
	-11				7:35	
	-12				7:35	
5/22/13	808083	6.0	2mL/100mL	9.5	10:15	TM
5/22/13	808084 -1	9.5	N/A	N/A	N/A	TM
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
5/22/13	808085 -1	9.5	N/A	N/A	N/A	TM
	-2					

TM 5/28/13

05/29/13

TRUESDAIL LABORATORIES, INC.

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
807886	<1	<2	5/13/13	ES	yes			
807887	↓	↓	↓	↓	↓			
807889	↓	>2	↓	↓	NO	11:00		
807894	↓	<2	↓	BE	yes			
807893	↓	↓	↓	↓	↓			
807871 (1-10)	<1	<2	5-14-15	BE	yes			
807897 (1-4)	<1	>2	↓	↓	No	11:00		
807901 (1-3)	↓	↓	↓	↓	↓	↓		
807911	<1	<2	5/14/13	m	yes			
807912	↓	↓	↓	↓	↓			
807913								
807914								
807915								
807916								
807917								
807918	<1	>2	5-15-13	BE	No	8:00		
807949 (1-2, 10-13-15)	↓	<2	↓	↓	yes			
807949 (17-22, 24-25)	↓	↓	↓	↓	↓			
807941 (1-2)	<1	>2	↓	↓	No	13:00		
807970 (10-12)	<1	>2	5-16-13	BE	No	8:00		
807969 (1-3	↓	↓	↓	↓	↓	↓		
807991 (1-6)	>1	<2	5-17-13	BE	yes			
807993 (1-4)	↓	↓	↓	↓	↓			
807994								
807995 (1-4)	↓	↓	↓	↓	↓			
807997 (1-4)	<1	<2	5-17-13	BE	yes			
807947 BE	↓	>2 BE	↓	↓	↓	11:00		
808020	>1	>2	5-20-13	BE	yes	7:00		
808021-1	>1	<2	5-21-13	ES	yes			
-6	↓	↓	↓	↓	↓			
808022-(1-6)	<1							
023	↓	↓	↓	↓	↓			
024								
028 (1-6)								
034								
051								
052								
053								
054								
055	↓	↓	↓	↓	↓			
808039 (1-6)	<1	<2	5/22/13	ES	yes			
808036 (1-4)	<1	<2	↓	↓	↓			
808083	<1	>2				10:00		
808084 (1-7)	<1	<2	↓	↓	↓			

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

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: E2 **Lab #** 1305023

Date Delivered: 05/21/13 **Time:** 23:00 **By:** ☐Mail ☑Field Service ☐Client

1. Was a Chain of Custody received and signed? ☑Yes ☐No ☐N/A
2. Does Customer require an acknowledgement of the COC? ☐Yes ☐No ☑N/A
3. Are there any special requirements or notes on the COC? ☐Yes ☐No ☑N/A
4. If a letter was sent with the COC, does it match the COC? ☐Yes ☐No ☑N/A
5. Were all requested analyses understood and acceptable? ☑Yes ☐No ☐N/A
6. Were samples received in a chilled condition? ☑Yes ☐No ☐N/A
   Temperature (if yes)? 4.5 °C
7. Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)? ☑Yes ☐No ☐N/A
8. Were sample custody seals intact? ☐Yes ☐No ☑N/A
9. Does the number of samples received agree with COC? ☑Yes ☐No ☐N/A
10. Did sample labels correspond with the client ID's? ☑Yes ☐No ☐N/A
11. Did sample labels indicate proper preservation? ☐Yes ☐No ☑N/A
    Preserved (if yes) by: ☐Truesdail ☐Client
12. Were samples pH checked? pH = see c.o.c ☑Yes ☐No ☐N/A
13. Were all analyses within holding time at time of receipt? ☑Yes ☐No ☐N/A
    If not, notify Project Manager.
14. Have Project due dates been checked and accepted? ☑Yes ☐No ☐N/A
    Turn Around Time (TAT): ☐ RUSH ☑Std
15. **Sample Matrix:** ☐Liquid ☐Drinking Water ☐Ground Water ☐Waste Water ☐Sludge ☐Soil ☐Wipe ☐Paint ☐Solid ☑Other Water
16. Comments: _____
17. Sample Check-In completed by Truesdail Log-In/Receiving: Luda

ALERT !!
Level II QC

C:\UsenTest\Desktop\Forms A - D\Discrp.FormBlank.doc

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

June 10, 2013

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

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK IM3PLANT-WDR-415 PROJECT, GROUNDWATER MONITORING, TLI NO.: 808179

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-415 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 29, 2013, 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. Shawn Duffy's approval.

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

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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.: 456827.01.DM

Laboratory No.: 808179
Date: June 10, 2013
Collected: May 29, 2013
Received: May 29, 2013

ANALYST LIST

METHOD	PARAMETER	ANALYST
EPA 120.1	Specific Conductivity	Gautam Savani
SM 2540C	Total Dissolved Solids	Jenny Tankunakorn
SM 2130B	Turbidity	Gautam Savani
EPA 200.8	Total Metals	Ethel Suico
EPA 218.6	Hexavalent Chromium	Tom Martinez

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

Laboratory No.: 808179
Date Received: May 29, 2013

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

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
808179-001	SC-700B-WDR-415	E120.1	NONE	5/29/2013	7:40	EC	6970	umhos/cm	2.00
808179-001	SC-700B-WDR-415	E200.8	NONE	5/29/2013	7:40	Chromium	ND	ug/L	1.0
808179-001	SC-700B-WDR-415	E200.8	NONE	5/29/2013	7:40	Manganese	1.2	ug/L	0.50
808179-001	SC-700B-WDR-415	E218.6	LABFLT	5/29/2013	7:40	Chromium, Hexavalent	ND	ug/L	1.0
808179-001	SC-700B-WDR-415	SM2130B	NONE	5/29/2013	7:40	Turbidity	ND	NTU	0.100
808179-001	SC-700B-WDR-415	SM2540C	NONE	5/29/2013	7:40	Total Dissolved Solids	4200	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: 456827.01.DM
P.O. Number: 456827.01.DM
Release Number:

Laboratory No. 808179

Printed 6/10/2013

Samples Received on 5/29/2013 9:00:00 PM

Field ID	Lab ID	Collected	Matrix
SC-700B-WDR-415	808179-001	05/29/2013 07:40	Water

Specific Conductivity - EPA 120.1 Batch 05EC13K

Parameter	Unit	Analyzed	DF	MDL	RL	Result
808179-001 Specific Conductivity	umhos/cm	05/30/2013	1.00	0.606	2.00	6970

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate — Lab ID = 808179-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	6970	6970	0	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	682	706	96.6	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	670	706	94.9	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	953	998	95.5	90 - 110

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project
Project Number: 456827.01.DM

Chrome VI by EPA 218.6

Batch 05CrH13P

Parameter	Unit	Analyzed	DF	MDL	RL	Result
808179-001 Chromium, Hexavalent	ug/L	05/30/2013 12:19	5.00	0.0460	1.0	ND

Method Blank

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

Duplicate — Lab ID = 808179-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	0.156	0.156	0.128	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.192	0.200	95.8	70 - 130

Lab Control Sample

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

Matrix Spike — Lab ID = 808179-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.10	5.16(5.00)	98.8	90 - 110

Matrix Spike — Lab ID = 808179-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.15	1.15(1.00)	101	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.95	5.00	99.1	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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Metals by EPA 200.8, Total Batch 053113A-ICPMS-1

Parameter	Unit	Analyzed	DF	MDL	RL	Result
808179-001 Chromium	ug/L	05/31/2013 09:43	2.00	0.184	1.0	ND
Manganese	ug/L	05/31/2013 09:43	2.00	0.172	0.50	1.2

Method Blank

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

Duplicate — Lab ID = 808179-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	2.00	ND	0	0	0 - 20
Manganese	ug/L	2.00	1.18	1.23	4.23	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.210	0.200	105	70 - 130
Manganese	ug/L	1.00	0.209	0.200	104	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	2.00	51.2	50.0	102	85 - 115
Manganese	ug/L	2.00	50.9	50.0	102	85 - 115

Matrix Spike — Lab ID = 808179-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	46.1	50.0(50.0)	92.3	75 - 125
Manganese	ug/L	2.00	45.6	51.2(50.0)	88.8	75 - 125

Matrix Spike Duplicate — Lab ID = 808179-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	46.0	50.0(50.0)	92.1	75 - 125
Manganese	ug/L	2.00	45.4	51.2(50.0)	88.4	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.5	20.0	102	90 - 110
Manganese	ug/L	1.00	19.8	20.0	99.1	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.2	20.0	101	90 - 110
Manganese	ug/L	1.00	19.9	20.0	99.4	90 - 110

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Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project
Project Number: 456827.01.DM

Total Dissolved Solids by SM 2540 C

Batch 06TDS13A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
808179-001 Total Dissolved Solids	mg/L	06/03/2013	1.00	1.76	250	4200

Method Blank

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

Duplicate — Lab ID = 808179-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	4110	4200	2.17	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Dissolved Solids	mg/L	1.00	493	500	98.6	90 - 110

Turbidity by SM 2130 B

Batch 05TUC13S

Parameter	Unit	Analyzed	DF	MDL	RL	Result
808179-001 Turbidity	NTU	05/30/2013	1.00	0.0140	0.100	ND

Method Blank

Parameter	Unit	DF	Result
Turbidity	NTU	1.00	ND

Duplicate — Lab ID = 808179-001

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	7.55	8.00	94.4	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	7.60	8.00	95.0	90 - 110

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Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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

Truesdail Laboratories, Inc.

Total Dissolved Solids by SM 2540 C

Calculations

Batch: 06TDS13A
Date Analyzed: 6/3/13

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	72.4114	72.4114	72.4114	0.0000	No	0.0000	0.0	25.0	ND	1
808179	10	47.957	47.999	47.999	0.0000	No	0.0420	4200.0	250.0	4200.0	1
808180	400	167.3427	167.3456	167.3456	0.0000	No	0.0029	7.2	6.3	7.2	1
808195	100	72.0837	72.1309	72.1309	0.0000	No	0.0472	472.0	25.0	472.0	1
808196	50	75.2744	75.4257	75.4256	0.0001	No	0.1512	3024.0	50.0	3024.0	1
808225-17	50	70.3982	70.4379	70.4375	0.0004	No	0.0393	786.0	50.0	786.0	1
808179D	10	51.8001	51.8414	51.8412	0.0002	No	0.0411	4110.0	250.0	4110.0	1
LCS	100	74.702	74.7513	74.7513	0.0000	No	0.0493	493.0	25.0	493.0	1

Calculation as follows:

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

Where:

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

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

Laboratory Control Sample (LCS) Summary

QC Std I.D.	Measurd Value, ppm	Theoretical Value, ppm	Percent Rec	Acceptance Limit	QC Within Control?
LCS1	493	500	98.6%	90-110%	Yes
LCSD					

LCS Recovery

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

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

Duplicate Determinations Difference Summary

Lab Number	Sample Weight, g	Sample Dup Weight, g	% RPD	Acceptance Limit	QC Within Control?
808179	0.042	0.0411	1.1%	≤5%	Yes

Duplicate Determination Difference

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

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

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

Jenny T.
Analyst Printed Name

Analyst Signature

Maksim G.
Reviewer Printed Name

Reviewer Signature

Total Dissolved Solids by SM 2540 C

TDS/EC CHECK

Batch: 06TDS13A
Date Analyzed: 6/3/13

Laboratory Number	EC	TDS/EC Ratio: 0.55-.9	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
808179	6970	0.60	4530.5	0.93
808180	9.02	0.80	5.863	1.24
808195	633	0.75	411.45	1.15
808196	3020	1.00	1963	1.54
808225-17	1216	0.65	790.4	0.99
808179D	6970	0.59	4530.5	0.91
LCS				

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

CHAIN OF CUSTODY RECORD

[IM3Plant-WDR-415]

COC Number 808179

TURNAROUND TIME 10 Days

DATE 05/29/13 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: 456827.01.DM TEAM: 1

SAMPLERS (SIGNATURE):

SAMPLE I.D.	DATE	TIME	DESCRIPTION	Cr6 (218.6) Lab Filtered	Total Metals (200.7) Cr, Mn	Specific Conductance (120.1)	TDS (SM2540C)	Turbidity (SM2130)								NUMBER OF CONTAINERS	COMMENTS
SC-700B-WDR-415	05/29/13	07:40	Water	x	x	x	x		x							3	pH = 6 (200.7)
																3	TOTAL NUMBER OF CONTAINERS

For Sample Conditions
See Form Attached

ALERT !!
Level III QC

CHAIN OF CUSTODY SIGNATURE RECORD

	Printed Name	Company/ Agency	Date/ Time
Signature (Relinquished)	Ryan Phelps	CH2MHILL	5-29-13 15:10
Signature (Received)	Hipolito	FLI	5-29-13 1540
Signature (Relinquished)	Hipolito	FLI	5-29-13 2100
Signature (Received) Shabumina	Linda	FLI	5/29/13 21:00
Signature (Relinquished)			
Signature (Received)			

SAMPLE CONDITIONS

RECEIVED COOL ☑ WARM ☐ 3.8°C

CUSTODY SEALED YES ☐ NO ☑

SPECIAL REQUIREMENTS:

036

Hexavalent Chromium

Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
5/23/13	808111-3	7.0	0.5 ml / 25 ml	9.5	16:00	TM
5/30/13	808179	7.0	2 ml / 100 ml	9.5	7:30	HAV

05/31/13

5/31/13 TM

TRUESDAIL LABORATORIES, INC.

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
808085(1-5 8-14)	<1	<2	5/22/13	ES	yes			
808086(2-5, 8-17)	↓	↓	↓	↓	↓			
808061(10-12)	<1	>2	5/22/13	ES	NO	3:30		
808075(1-3)	↓	↓	↓	↓	↓	↓		
808077(1-2, C-6)	↓	↓	↓	↓	↓	↓		
808098	↓	↓	↓	↓	yes			
808093	SOLID	SAMPLES	5/22/13	ES	TTLC			
808107(1-3) Total	<1	<2	5-23-13	BE	yes			
808099-1,-6	>1	<2	5/23/13	DL	yes			
808116(1-2)	<1	>2	"	BE	NO	13:00		
808161(1-2	↓	↓	5-29-13	BE	NO	10:30		
808179	↓	↓	5-30-13	↓	yes	2:30		
808158(1-4)	>1	<2	5/30/13	DL	yes			
808113(1,6)	↓	↓	↓	↓	↓			
808115	↓	↓	↓	↓	↓			
808111 (1-3)	↓	↓	↓	↓	↓			
808109	<1	↓	↓	↓	↓			
808156	↓	↓	↓	↓	↓			
808157	↓	↓	↓	↓	↓			
808175	>1	<2	5-30-13	BE	yes			
808176(10-12)	<1	>2	↓	↓	NO	10:30		
808186	>1	<2	↓	DL	yes			
808188(1-3)	<1	>2	↓	BE	NO	14:30		
808195	<1	>2	6/3/13	ES	yes			
808196	↓	↓	↓	↓	↓			
808203	↓	↓	↓	↓	↓			
808215	>1	<2	6/4/13	ES	yes			
216	↓	↓	↓	↓	↓			
217	↓	↓	↓	↓	↓			
808225(17,24)	<1	>2	6/4/13	ES	NO			
808268(1-2)	<1	>2	6-5-13	BE	yes	8:30		after i.f
808267(1-2)	↓	↓	↓	↓	↓	↓		after i.f
808269	↓	<2	↓	↓	↓	↓ BE		
808271(1-3)	↓	↓	↓	↓	↓			T & D
808268	<1	<2	6-5-13	BE	yes			
808270	↓	↓	↓	↓	↓			
808272(1-8)	↓	↓	↓	↓	↓			plant
808249(1-2)	<1	>2	6-6-13	BE	NO	7:30		
808293(1-3)	↓	↓	↓	↓	↓	↓		
808298(1-3)	↓	↓	↓	↓	↓	9:30		
808301(1-2)	<1	<2	6-6-13	BE	yes			-1 D, m

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

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: E2 **Lab #** 808179

Date Delivered: 05/29/13 **Time:** 21:00 **By:** ☐Mail ☒Field Service ☐Client

1. Was a Chain of Custody received and signed? ☒Yes ☐No ☐N/A
2. Does Customer require an acknowledgement of the COC? ☐Yes ☐No ☒N/A
3. Are there any special requirements or notes on the COC? ☐Yes ☐No ☒N/A
4. If a letter was sent with the COC, does it match the COC? ☐Yes ☐No ☒N/A
5. Were all requested analyses understood and acceptable? ☒Yes ☐No ☐N/A
6. Were samples received in a chilled condition? ☒Yes ☐No ☐N/A
   Temperature (if yes)? 3.8 °C
7. Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)? ☒Yes ☐No ☐N/A
8. Were sample custody seals intact? ☐Yes ☐No ☒N/A
9. Does the number of samples received agree with COC? ☒Yes ☐No ☐N/A
10. Did sample labels correspond with the client ID's? ☒Yes ☐No ☐N/A
11. Did sample labels indicate proper preservation? ☐Yes ☐No ☒N/A
    Preserved (if yes) by: ☐Truesdail ☐Client
12. Were samples pH checked? pH = see c.o.c ☒Yes ☐No ☐N/A
13. Were all analyses within holding time at time of receipt? ☒Yes ☐No ☐N/A
    If not, notify Project Manager.
14. Have Project due dates been checked and accepted? ☒Yes ☐No ☐N/A
    Turn Around Time (TAT): ☐ RUSH ☒ Std
15. **Sample Matrix:** ☐Liquid ☐Drinking Water ☐Ground Water ☐Waste Water ☐Sludge ☐Soil ☐Wipe ☐Paint ☐Solid ☒Other Water
16. Comments: _____
17. Sample Check-In completed by Truesdail Log-In/Receiving: L. Shabecina

ALERT !!
Level III QC

C:\Users\Test\Desktop\Forms A - D\Discrp.FormBlank.doc

Analytical Bench Log Book

WDR pH Results

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
1	SC-700B	4-23-13	14:13	4-23-13	14:22	METER #1	4-23-13	00:25	-53.1	Ryan Phelps	7.1
Notes:											
2	PE1	5-1-13	1407	5-1-13	1412	METER #1	5-1-13	0040	-53.3	J Aide	7.6
Notes:											
3	RO3D	5-1-13	1359	5-1-13	1405	METER #1	5-1-13	0040	-53.3	J Aide	7.3
Notes:											
4	SC700B	5-1-13	1349	5-1-13	1354	METER #1	5-1-13	0040	-53.3	J Aide	7.2
Notes:											
5	SC-100C	5-1-13	1333	5-1-13	1337	METER #1	5-1-13	0040	-53.3	J Aide	7.4
Notes.											
6	SC-701	5-1-13	1340	5-1-13	1344	METER #1	5-1-13	0040	-53.3	J Aide	7.8
Notes:											
7											
Notes											

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

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	5-7-13	1030	5-7-13	1035	METER #1	5-7-13	00:40	-53.1	CHRIS LEWIS	7.3
SC-700B	5-7-13	1030	5-7-13	1035	METER #1	5-7-13	00:40	-53.1	CHRIS LEWIS	7.0
SC-700B	5-14-13	16:05	5-14-13	16:10	METER #1	5-14-13	00:26	-53.7	~~CHRIS LEWIS~~ GEORGE GLORIA	6.9
SC-700B	5-21-13	13:05	5-21-13	13:10	METER #1	5-21-13	00:55	-53.4	Ryan Phelps	6.9
SC-700B	5-29-13	07:40	5-29-13	7:45	METER #1	5-29-13	00:35	-53.4	Ryan Phelps	7.6

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

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 18, 2013

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

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK IM3PLANT-WDR-416 PROJECT, GROUNDWATER MONITORING,

TLI NO.: 808267

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-416 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 4, 2013, 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 Metals were analyzed by EPA 200.8 and EPA 200.7 with Mr. Shawn Duffy's approval.

Total Aluminum by EPA 200.7 in batch 061013A-Th2 was detected in the method blank above the reporting limit. Because the sample results were all below the reporting limit and all other QA/QC were within acceptable limits, the data was accepted.

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

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www.truesdail.com

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

Laboratory No.: 808267
Date: June 18, 2013
Collected: June 4, 2013
Received: June 4, 2013

ANALYST LIST

METHOD	PARAMETER	ANALYST
EPA 120.1	Specific Conductivity	Gautam Savani
SM 2540C	Total Dissolved Solids	Jenny Tankunakorn
SM 2320B	Total Alkalinity	Melissa Scharfe
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	Gautam Savani
EPA 300.0	Anions	Giawad Ghenniwa
SM 4500-NH3 D	Ammonia	Melissa Scharfe
SM 4500-NO2 B	Nitrite as N	Jenny Tankunakorn
EPA 200.7	Metals by ICP	Denise Chauv
EPA 200.8	Metals by ICP/MS	Bita Emami
EPA 218.6	Hexavalent Chromium	Tom Martinez

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

Attention: Shawn Duffy

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

Laboratory No.: 808267
Date Received: June 4, 2013

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
808267-001	SC-700B-WDR-416	E120.1	NONE	6/4/2013	13:30	EC	6600	umhos/cm	2.00
808267-001	SC-700B-WDR-416	E200.7	NONE	6/4/2013	13:30	Aluminum	ND	ug/L	50.0
808267-001	SC-700B-WDR-416	E200.7	NONE	6/4/2013	13:30	BORON	966	ug/L	200
808267-001	SC-700B-WDR-416	E200.7	NONE	6/4/2013	13:30	Iron	ND	ug/L	20.0
808267-001	SC-700B-WDR-416	E200.7	NONE	6/4/2013	13:30	Zinc	ND	ug/L	20.0
808267-001	SC-700B-WDR-416	E200.8	NONE	6/4/2013	13:30	Antimony	ND	ug/L	2.0
808267-001	SC-700B-WDR-416	E200.8	NONE	6/4/2013	13:30	Arsenic	ND	ug/L	0.50
808267-001	SC-700B-WDR-416	E200.8	NONE	6/4/2013	13:30	Barium	9.7	ug/L	5.0
808267-001	SC-700B-WDR-416	E200.8	NONE	6/4/2013	13:30	Chromium	ND	ug/L	1.0
808267-001	SC-700B-WDR-416	E200.8	NONE	6/4/2013	13:30	Copper	ND	ug/L	5.0
808267-001	SC-700B-WDR-416	E200.8	NONE	6/4/2013	13:30	Lead	ND	ug/L	1.0
808267-001	SC-700B-WDR-416	E200.8	NONE	6/4/2013	13:30	Manganese	0.53	ug/L	0.50
808267-001	SC-700B-WDR-416	E200.8	NONE	6/4/2013	13:30	Molybdenum	18.7	ug/L	2.0
808267-001	SC-700B-WDR-416	E200.8	NONE	6/4/2013	13:30	Nickel	ND	ug/L	2.0
808267-001	SC-700B-WDR-416	E218.6	LABFLT	6/4/2013	13:30	Chromium, Hexavalent	ND	ug/L	0.20
808267-001	SC-700B-WDR-416	E300	NONE	6/4/2013	13:30	Fluoride	1.87	mg/L	0.500
808267-001	SC-700B-WDR-416	E300	NONE	6/4/2013	13:30	Nitrate as N	2.72	mg/L	0.500
808267-001	SC-700B-WDR-416	E300	NONE	6/4/2013	13:30	Sulfate	510	mg/L	25.0
808267-001	SC-700B-WDR-416	SM2130B	NONE	6/4/2013	13:30	Turbidity	ND	NTU	0.100
808267-001	SC-700B-WDR-416	SM2540C	NONE	6/4/2013	13:30	Total Dissolved Solids	3990	mg/L	125
808267-001	SC-700B-WDR-416	SM4500NH3D	NONE	6/4/2013	13:30	Ammonia-N	0.599	mg/L	0.500
808267-001	SC-700B-WDR-416	SM4500NO2B	NONE	6/4/2013	13:30	Nitrite as N	ND	mg/L	0.005

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

Revision 1; June 20, 2013

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
808267-002	SC-100B-WDR-416	E120.1	NONE	6/4/2013	13:30	EC	7010	umhos/cm	2.00
808267-002	SC-100B-WDR-416	E200.7	NONE	6/4/2013	13:30	Aluminum	ND	ug/L	50.0
808267-002	SC-100B-WDR-416	E200.7	NONE	6/4/2013	13:30	BORON	995	ug/L	200
808267-002	SC-100B-WDR-416	E200.7	LABFLT	6/4/2013	13:30	Iron	ND	ug/L	20.0
808267-002	SC-100B-WDR-416	E200.7	NONE	6/4/2013	13:30	Iron	ND	ug/L	20.0
808267-002	SC-100B-WDR-416	E200.7	NONE	6/4/2013	13:30	Zinc	ND	ug/L	20.0
808267-002	SC-100B-WDR-416	E200.8	NONE	6/4/2013	13:30	Antimony	ND	ug/L	2.0
808267-002	SC-100B-WDR-416	E200.8	NONE	6/4/2013	13:30	Arsenic	3.5	ug/L	0.50
808267-002	SC-100B-WDR-416	E200.8	NONE	6/4/2013	13:30	Barium	24.6	ug/L	5.0
808267-002	SC-100B-WDR-416	E200.8	NONE	6/4/2013	13:30	Chromium	666	ug/L	2.0
808267-002	SC-100B-WDR-416	E200.8	NONE	6/4/2013	13:30	Copper	ND	ug/L	5.0
808267-002	SC-100B-WDR-416	E200.8	NONE	6/4/2013	13:30	Lead	ND	ug/L	1.0
808267-002	SC-100B-WDR-416	E200.8	LABFLT	6/4/2013	13:30	Manganese	5.0	ug/L	0.50
808267-002	SC-100B-WDR-416	E200.8	NONE	6/4/2013	13:30	Manganese	4.9	ug/L	0.50
808267-002	SC-100B-WDR-416	E200.8	NONE	6/4/2013	13:30	Molybdenum	20.1	ug/L	2.0
808267-002	SC-100B-WDR-416	E200.8	NONE	6/4/2013	13:30	Nickel	ND	ug/L	2.0
808267-002	SC-100B-WDR-416	E218.6	LABFLT	6/4/2013	13:30	Chromium, Hexavalent	672	ug/L	10.0
808267-002	SC-100B-WDR-416	E300	NONE	6/4/2013	13:30	Fluoride	2.36	mg/L	0.500
808267-002	SC-100B-WDR-416	E300	NONE	6/4/2013	13:30	Nitrate as N	2.86	mg/L	0.500
808267-002	SC-100B-WDR-416	E300	NONE	6/4/2013	13:30	Sulfate	543	mg/L	25.0
808267-002	SC-100B-WDR-416	SM2130B	NONE	6/4/2013	13:30	Turbidity	0.132	NTU	0.100
808267-002	SC-100B-WDR-416	SM2320B	NONE	6/4/2013	13:30	Alkalinity	156	mg/L	5.00
808267-002	SC-100B-WDR-416	SM2320B	NONE	6/4/2013	13:30	Alkalinity, Bicarbonate (As CaCO3)	156	mg/L	5.00
808267-002	SC-100B-WDR-416	SM2320B	NONE	6/4/2013	13:30	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
808267-002	SC-100B-WDR-416	SM2540C	NONE	6/4/2013	13:30	Total Dissolved Solids	4410	mg/L	250
808267-002	SC-100B-WDR-416	SM4500NH3D	NONE	6/4/2013	13:30	Ammonia-N	ND	mg/L	0.500
808267-002	SC-100B-WDR-416	SM4500NO2B	NONE	6/4/2013	13:30	Nitrite as N	ND	mg/L	0.0050
808267-002	SC-100B-WDR-416	SM4500-PB_E	NONE	6/4/2013	13:30	Total Phosphorous-P	ND	mg/L	0.0200
808267-002	SC-100B-WDR-416	SM4500SI	LABFLT	6/4/2013	13:30	Soluble Silica	19.6	mg/L	1.00
808267-002	SC-100B-WDR-416	SM5310C	NONE	6/4/2013	13:30	Total Organic Carbon	1.37	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: 456827.01.DM
P.O. Number: 456827.01.DM
Release Number:

Laboratory No. 808267

Printed 6/18/2013

Samples Received on 6/4/2013 9:00:00 PM

Field ID	Lab ID	Collected	Matrix
SC-700B-WDR-416	808267-001	06/04/2013 13:30	Water
SC-100B-WDR-416	808267-002	06/04/2013 13:30	Water

Anions By I.C. - EPA 300.0 Batch 06AN13C

Parameter	Unit	Analyzed	DF	MDL	RL	Result
808267-001 Fluoride	mg/L	06/05/2013 09:45	5.00	0.104	0.500	1.87
Nitrate as Nitrogen	mg/L	06/05/2013 09:45	5.00	0.0415	0.500	2.72
Sulfate	mg/L	06/05/2013 13:22	50.0	1.54	25.0	510
808267-002 Fluoride	mg/L	06/05/2013 09:57	5.00	0.104	0.500	2.36
Nitrate as Nitrogen	mg/L	06/05/2013 09:57	5.00	0.0415	0.500	2.86
Sulfate	mg/L	06/05/2013 13:56	50.0	1.54	25.0	543

Method Blank

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

Duplicate — Lab ID = 808267-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Fluoride	mg/L	5.00	2.36	2.36	0.0424	0 - 20
Nitrate as Nitrogen	mg/L	5.00	2.88	2.86	0.836	0 - 20

Duplicate — Lab ID = 808270-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Sulfate	mg/L	50.0	163	164	0.356	0 - 20

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project
Project Number: 456827.01.DM

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Fluoride	mg/L	1.00	4.16	4.00	104	90 - 110
Sulfate	mg/L	1.00	20.1	20.0	101	90 - 110
Nitrate as Nitrogen	mg/L	1.00	4.01	4.00	100	90 - 110

Matrix Spike

Lab ID = 808267-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Fluoride	mg/L	5.00	22.8	22.4(20.0)	102	85 - 115
Nitrate as Nitrogen	mg/L	5.00	22.6	22.9(20.0)	98.7	85 - 115

Matrix Spike

Lab ID = 808270-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Sulfate	mg/L	50.0	358	364(200)	97.1	85 - 115

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Fluoride	mg/L	1.00	4.13	4.00	103	90 - 110
Sulfate	mg/L	1.00	20.3	20.0	102	90 - 110
Nitrate as Nitrogen	mg/L	1.00	4.04	4.00	101	90 - 110

MRCVS - Primary

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

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Fluoride	mg/L	1.00	3.15	3.00	105	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Fluoride	mg/L	1.00	3.18	3.00	106	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sulfate	mg/L	1.00	14.8	15.0	99.0	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sulfate	mg/L	1.00	14.9	15.0	99.5	90 - 110

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project
Project Number: 456827.01.DM

Nitrite SM 4500-NO2 B Batch 06NO213C

Parameter	Unit	Analyzed	DF	MDL	RL	Result
808267-001 Nitrite as Nitrogen	mg/L	06/06/2013 12:07	1.00	0.000630	0.0050	ND
808267-002 Nitrite as Nitrogen	mg/L	06/06/2013 12:07	1.00	0.000630	0.0050	ND

Method Blank

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

Duplicate — Lab ID = 808267-002

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	0.0288	0.0280	103	90 - 110

Matrix Spike — Lab ID = 808267-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Nitrite as Nitrogen	mg/L	1.00	0.0262	0.0280(0.0280)	93.6	85 - 115

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrite as Nitrogen	mg/L	1.00	0.0288	0.0280	103	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrite as Nitrogen	mg/L	1.00	0.0191	0.0200	95.5	90 - 110

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project
Project Number: 456827.01.DM

Alkalinity by SM 2320B

Batch 06ALK13A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
808267-002 Alkalinity as CaCO3	mg/L	06/12/2013	1.00	1.68	5.00	156
Bicarbonate (Calculated)	mg/L	06/12/2013	1.00	1.68	5.00	156
Carbonate (Calculated)	mg/L	06/12/2013	1.00	1.68	5.00	ND

Method Blank

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

Duplicate — Lab ID = 808225-017

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Alkalinity as CaCO3	mg/L	1.00	93.0	92.0	1.08	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Alkalinity as CaCO3	mg/L	1.00	102	100	102	90 - 110

Lab Control Sample Duplicate

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

Matrix Spike — Lab ID = 808267-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Alkalinity as CaCO3	mg/L	1.00	251	256(100)	95.0	75 - 125

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project
Project Number: 456827.01.DM

Specific Conductivity - EPA 120.1

Batch 06EC13C

Parameter	Unit	Analyzed	DF	MDL	RL	Result
808267-001 Specific Conductivity	umhos/cm	06/05/2013	1.00	0.606	2.00	6600
808267-002 Specific Conductivity	umhos/cm	06/05/2013	1.00	0.606	2.00	7010

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate

Lab ID = 808267-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	7000	7010	0.143	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	692	706	98.0	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	680	706	96.3	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	945	998	94.7	90 - 110

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project
Project Number: 456827.01.DM

Printed 6/20/2013
Revised

Chrome VI by EPA 218.6

Batch 06CrH13A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
808267-001 Chromium, Hexavalent	ug/L	06/05/2013 09:06	1.00	0.00920	0.20	ND
808267-002 Chromium, Hexavalent	ug/L	06/05/2013 09:17	50.0	0.460	10.0	672

Method Blank

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

Duplicate — Lab ID = 808270-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	2.33	2.35	0.812	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.204	0.200	102	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.42	5.00	108	90 - 110

Matrix Spike — Lab ID = 808266-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	15.3	15.1(10.0)	102	90 - 110

Matrix Spike — Lab ID = 808267-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.12	5.16(5.00)	99.3	90 - 110

Matrix Spike — Lab ID = 808267-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.20	1.19(1.00)	100	90 - 110

Matrix Spike — Lab ID = 808267-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	1430	1420(750)	101	90 - 110

Matrix Spike — Lab ID = 808268-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	8.45	8.36(5.00)	102	90 - 110

Matrix Spike — Lab ID = 808270-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	7.28	7.35(5.00)	98.6	90 - 110

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Metals by EPA 200.7, Total

Batch 061013A-Th2

Parameter	Unit	Analyzed	DF	MDL	RL	Result
808267-001 Aluminum	ug/L	06/10/2013 15:50	1.00	10.0	50.0	ND
Boron	ug/L	06/10/2013 15:50	1.00	6.00	200	966
Iron	ug/L	06/10/2013 15:50	1.00	9.50	20.0	ND
Zinc	ug/L	06/10/2013 15:50	1.00	7.00	20.0	ND
808267-002 Aluminum	ug/L	06/10/2013 16:15	1.00	10.0	50.0	ND
Boron	ug/L	06/10/2013 16:15	1.00	6.00	200	995
Iron	ug/L	06/10/2013 16:15	1.00	9.50	20.0	ND
Zinc	ug/L	06/10/2013 16:15	1.00	7.00	20.0	ND

Method Blank

Parameter	Unit	DF	Result
Aluminum	ug/L	1.00	61.2
Iron	ug/L	1.00	ND
Zinc	ug/L	1.00	ND
Boron	ug/L	1.00	ND

Duplicate

Lab ID = 808267-001

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	985	966	1.97	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Aluminum	ug/L	1.00	2130	2000	107	85 - 115
Iron	ug/L	1.00	2300	2000	115	85 - 115
Zinc	ug/L	1.00	2140	2000	107	85 - 115
Boron	ug/L	1.00	2160	2000	108	85 - 115

Matrix Spike

Lab ID = 808267-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Aluminum	ug/L	1.00	1700	2000(2000)	84.8	75 - 125
Iron	ug/L	1.00	2010	2000(2000)	101	75 - 125
Zinc	ug/L	1.00	2330	2000(2000)	116	75 - 125
Boron	ug/L	1.00	2960	2970(2000)	99.5	75 - 125

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project
Project Number: 456827.01.DM

Matrix Spike Duplicate

Lab ID = 808267-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Aluminum	ug/L	1.00	1640	2000(2000)	82.0	75 - 125
Iron	ug/L	1.00	1940	2000(2000)	96.9	75 - 125
Zinc	ug/L	1.00	2270	2000(2000)	114	75 - 125
Boron	ug/L	1.00	2860	2970(2000)	94.6	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Aluminum	ug/L	1.00	5070	5000	101	95 - 105
Iron	ug/L	1.00	5140	5000	103	95 - 105
Zinc	ug/L	1.00	5220	5000	104	95 - 105
Boron	ug/L	1.00	5160	5000	103	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Aluminum	ug/L	1.00	5480	5000	110	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Aluminum	ug/L	1.00	5260	5000	105	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
Iron	ug/L	1.00	5430	5000	109	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5430	5000	108	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5220	5000	104	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Zinc	ug/L	1.00	5290	5000	106	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Zinc	ug/L	1.00	5300	5000	106	90 - 110

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Metals by EPA 200.8, Total Batch 060613A

Parameter		Unit	Analyzed	DF	MDL	RL	Result
808267-001	Antimony	ug/L	06/06/2013 09:59	1.00	0.332	2.0	ND
	Arsenic	ug/L	06/06/2013 09:59	1.00	0.100	0.50	ND
	Barium	ug/L	06/06/2013 09:59	1.00	0.188	5.0	9.7
	Chromium	ug/L	06/06/2013 09:59	1.00	0.0920	1.0	ND
	Copper	ug/L	06/06/2013 09:59	1.00	0.257	5.0	ND
	Lead	ug/L	06/06/2013 09:59	1.00	0.0740	1.0	ND
	Manganese	ug/L	06/06/2013 09:59	1.00	0.0860	0.50	0.53
	Molybdenum	ug/L	06/06/2013 09:59	1.00	0.207	2.0	18.7
	Nickel	ug/L	06/06/2013 09:59	1.00	0.786	2.0	ND
808267-002	Antimony	ug/L	06/06/2013 10:42	1.00	0.332	2.0	ND
	Arsenic	ug/L	06/06/2013 10:42	1.00	0.100	0.50	3.5
	Barium	ug/L	06/06/2013 10:42	1.00	0.188	5.0	24.6
	Chromium	ug/L	06/06/2013 10:48	10.0	0.920	2.0	666
	Copper	ug/L	06/06/2013 10:42	1.00	0.257	5.0	ND
	Lead	ug/L	06/06/2013 10:42	1.00	0.0740	1.0	ND
	Manganese	ug/L	06/06/2013 10:42	1.00	0.0860	0.50	4.9
	Molybdenum	ug/L	06/06/2013 10:42	1.00	0.207	2.0	20.1
	Nickel	ug/L	06/06/2013 10:42	1.00	0.786	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
Copper	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: 456827.01.DM

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	0.507	0.500	101	70 - 130
Chromium	ug/L	1.00	0.252	0.200	126	70 - 130
Nickel	ug/L	1.00	2.02	2.00	101	70 - 130
Antimony	ug/L	1.00	1.06	1.00	106	70 - 130
Copper	ug/L	1.00	1.06	1.00	106	70 - 130
Lead	ug/L	1.00	0.203	0.200	102	70 - 130
Manganese	ug/L	1.00	0.219	0.200	110	70 - 130
Molybdenum	ug/L	1.00	0.556	0.500	111	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	2.00	50.0	50.0	99.9	85 - 115
Barium	ug/L	2.00	51.4	50.0	103	85 - 115
Chromium	ug/L	2.00	50.8	50.0	102	85 - 115
Nickel	ug/L	2.00	51.1	50.0	102	85 - 115
Antimony	ug/L	2.00	49.8	50.0	99.6	85 - 115
Copper	ug/L	2.00	51.1	50.0	102	85 - 115
Lead	ug/L	2.00	50.2	50.0	100	85 - 115
Manganese	ug/L	2.00	51.3	50.0	103	85 - 115
Molybdenum	ug/L	2.00	48.6	50.0	97.1	85 - 115

Matrix Spike

Lab ID = 808267-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	1.00	48.9	50.0(50.0)	97.7	75 - 125
Barium	ug/L	1.00	58.1	59.7(50.0)	96.7	75 - 125
Chromium	ug/L	1.00	49.0	50.0(50.0)	98.1	75 - 125
Nickel	ug/L	1.00	45.9	50.0(50.0)	91.8	75 - 125
Antimony	ug/L	1.00	50.2	50.0(50.0)	100	75 - 125
Copper	ug/L	1.00	45.5	50.0(50.0)	91.0	75 - 125
Lead	ug/L	1.00	46.1	50.0(50.0)	92.1	75 - 125
Manganese	ug/L	1.00	49.4	50.5(50.0)	97.8	75 - 125
Molybdenum	ug/L	1.00	67.7	68.7(50.0)	98.0	75 - 125

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project
Project Number: 456827.01.DM

Matrix Spike Duplicate

Lab ID = 808267-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	1.00	48.6	50.0(50.0)	97.1	75 - 125
Barium	ug/L	1.00	58.3	59.7(50.0)	97.1	75 - 125
Chromium	ug/L	1.00	49.0	50.0(50.0)	98.0	75 - 125
Nickel	ug/L	1.00	46.6	50.0(50.0)	93.2	75 - 125
Antimony	ug/L	1.00	50.5	50.0(50.0)	101	75 - 125
Copper	ug/L	1.00	45.6	50.0(50.0)	91.2	75 - 125
Lead	ug/L	1.00	46.4	50.0(50.0)	92.8	75 - 125
Manganese	ug/L	1.00	49.3	50.5(50.0)	97.6	75 - 125
Molybdenum	ug/L	1.00	67.0	68.7(50.0)	96.7	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	18.3	20.0	91.5	90 - 110
Barium	ug/L	1.00	19.2	20.0	96.0	90 - 110
Chromium	ug/L	1.00	18.4	20.0	92.1	90 - 110
Nickel	ug/L	1.00	18.2	20.0	91.3	90 - 110
Antimony	ug/L	1.00	19.0	20.0	95.2	90 - 110
Copper	ug/L	1.00	18.8	20.0	94.0	90 - 110
Lead	ug/L	1.00	19.3	20.0	96.5	90 - 110
Manganese	ug/L	1.00	18.6	20.0	93.2	90 - 110
Molybdenum	ug/L	1.00	19.1	20.0	95.6	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	20.1	20.0	100	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	19.9	20.0	99.4	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	21.3	20.0	106	90 - 110
Barium	ug/L	1.00	21.2	20.0	106	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Barium	ug/L	1.00	20.9	20.0	104	90 - 110

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Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	21.3	20.0	106	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 = 808267-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	50.0	677	666	1.70	0 - 10

Reactive Silica by SM4500-Si D

Batch 06Si13A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
808267-002 Silica	mg/L	06/10/2013	25.0	0.252	1.00	19.6

Method Blank

Parameter	Unit	DF	Result
Silica	mg/L	1.00	ND

Duplicate — Lab ID = 808267-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Silica	mg/L	25.0	19.8	19.6	1.03	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Silica	mg/L	1.00	0.206	0.206	100	90 - 110

Matrix Spike — Lab ID = 808303-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Silica	mg/L	25.0	28.4	27.8(5.15)	113	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Silica	mg/L	1.00	0.206	0.206	100	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Silica	mg/L	1.00	0.375	0.400	93.7	90 - 110

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project
Project Number: 456827.01.DM

Total Dissolved Solids by SM 2540 C Batch 06TDS13B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
808267-001 Total Dissolved Solids	mg/L	06/07/2013	1.00	1.76	125	3990
808267-002 Total Dissolved Solids	mg/L	06/07/2013	1.00	1.76	250	4410

Method Blank

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

Duplicate

Lab ID = 808301-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	2450	2410	1.56	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Dissolved Solids	mg/L	1.00	495	500	99.0	90 - 110

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Total Organic Carbon (T/DOC) SM 5310 C

Batch 06TOC13C

Parameter	Unit	Analyzed	DF	MDL	RL	Result
808267-002 Total Organic Carbon	mg/L	06/06/2013 16:37	1.00	0.0877	0.300	1.37

Method Blank

Parameter	Unit	DF	Result
Total Organic Carbon	mg/L	1.00	ND

Duplicate — Lab ID = 808288-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Organic Carbon	mg/L	1.00	2.73	3.06	11.5	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Organic Carbon	mg/L	1.00	9.73	10.0	97.3	90 - 110

Matrix Spike — Lab ID = 808267-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Total Organic Carbon	mg/L	1.00	10.8	11.4(10.0)	94.2	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Organic Carbon	mg/L	1.00	9.12	10.0	91.2	85 - 115

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Organic Carbon	mg/L	1.00	9.64	10.0	96.4	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Organic Carbon	mg/L	1.00	9.74	10.0	97.4	90 - 110

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project
Project Number: 456827.01.DM

Total Phosphate, SM 4500-PB,E

Batch 06TP13A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
808267-002 Phosphate, Total As P	mg/L	06/11/2013	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 = 808267-002

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 = 808267-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Phosphate, Total As P	mg/L	1.00	0.0648	0.0650(0.0650)	99.7	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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Ammonia Nitrogen by SM4500-NH3D Batch 06NH313B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
808267-001 Ammonia as N	mg/L	06/12/2013	1.00	0.0318	0.500	0.599
808267-002 Ammonia as N	mg/L	06/12/2013	1.00	0.0318	0.500	ND

Method Blank

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

Duplicate — Lab ID = 808267-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Ammonia as N	mg/L	1.00	0.499	0.599	18.2	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	8.42	8.00	105	90 - 110

Lab Control Sample Duplicate

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 = 808267-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	8.70	8.00(8.00)	109	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	6.56	6.00	109	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	6.07	6.00	101	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	6.30	6.00	105	90 - 110

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project
Project Number: 456827.01.DM

Metals by EPA 200.8, Dissolved

Batch 060613A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
808267-002 Manganese	ug/L	06/06/2013 12:14	2.00	0.172	0.50	5.0

Method Blank

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

Duplicate

Lab ID = 808268-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	2.00	3.68	3.75	2.02	0 - 20
Uranium	ug/L	2.00	34.4	35.4	2.71	0 - 20
Manganese	ug/L	2.00	2.67	2.62	2.04	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.252	0.200	126	70 - 130
Uranium	ug/L	1.00	0.202	0.200	101	70 - 130
Manganese	ug/L	1.00	0.219	0.200	110	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	2.00	50.8	50.0	102	85 - 115
Uranium	ug/L	2.00	50.9	50.0	102	85 - 115
Manganese	ug/L	2.00	51.3	50.0	103	85 - 115

Matrix Spike

Lab ID = 808268-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	53.9	53.8(50.0)	100	75 - 125
Uranium	ug/L	2.00	91.8	85.4(50.0)	113	75 - 125
Manganese	ug/L	2.00	52.4	52.6(50.0)	99.5	75 - 125

Matrix Spike Duplicate

Lab ID = 808268-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	59.6	53.8(50.0)	112	75 - 125
Uranium	ug/L	2.00	81.8	85.4(50.0)	92.8	75 - 125
Manganese	ug/L	2.00	57.9	52.6(50.0)	110	75 - 125

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Interference Check Standard A

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

Interference Check Standard A

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

Interference Check Standard A

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

Interference Check Standard A

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

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.3	20.0	96.7	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	21.0	20.0	105	80 - 120
Uranium	ug/L	1.00	ND	0		

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Uranium	ug/L	1.00	ND	0		
Manganese	ug/L	1.00	19.4	20.0	97.1	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	21.3	20.0	106	80 - 120

Serial Dilution Lab ID = 808267-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	50.0	677	666	1.70	0 - 10

Serial Dilution Lab ID = 808268-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Uranium	ug/L	10.0	33.4	35.4	5.72	0 - 10

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Metals by 200.7, Dissolved Batch 061013A-Th2

Parameter	Unit	Analyzed	DF	MDL	RL	Result
808267-002 Iron	ug/L	06/10/2013 14:57	1.00	9.50	20.0	ND

Method Blank

Parameter	Unit	DF	Result
Iron	ug/L	1.00	ND
Strontium	ug/L	1.00	ND

Duplicate — Lab ID = 808268-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Iron	ug/L	1.00	ND	0	0	0 - 20
Strontium	ug/L	1.00	635	626	1.36	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	56.4	50.0	113	85 - 115
Strontium	ug/L	1.00	49.6	50.0	99.2	85 - 115

Matrix Spike — Lab ID = 808268-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	54.1	50.0(50.0)	108	75 - 125
Strontium	ug/L	1.00	2760	2630(2000)	107	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5140	5000	103	95 - 105
Strontium	ug/L	1.00	4880	5000	97.6	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5430	5000	108	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5220	5000	104	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Strontium	ug/L	1.00	5300	5000	106	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Strontium	ug/L	1.00	4900	5000	98.0	90 - 110

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project
Project Number: 456827.01.DM

Turbidity by SM 2130 B Batch 06TUC13D

Parameter	Unit	Analyzed	DF	MDL	RL	Result
808267-001 Turbidity	NTU	06/05/2013	1.00	0.0140	0.100	ND
808267-002 Turbidity	NTU	06/05/2013	1.00	0.0140	0.100	0.132

Method Blank

Parameter	Unit	DF	Result
Turbidity	NTU	1.00	ND

Duplicate

Lab ID = 808267-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Turbidity	NTU	1.00	0.134	0.132	1.50	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	7.83	8.00	97.9	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	7.78	8.00	97.2	90 - 110

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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Truesdail Laboratories, Inc.

4 ea

Total Dissolved Solids by SM 2540 C

Calculations

Batch: 06TDS13B
Date Analyzed: 6/7/13

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	74.7337	74.7337	74.7337	0.0000	No	0.0000	0.0	25.0	ND	1
808266-1	20	51.8548	51.9083	51.9078	0.0005	No	0.0530	2650.0	125.0	2650.0	1
808266-2	10	51.3484	51.3988	51.3987	0.0001	No	0.0503	5030.0	250.0	5030.0	1
808267-1	20	72.636	72.7162	72.7158	0.0004	No	0.0798	3990.0	125.0	3990.0	1
808267-2	10	51.2493	51.2937	51.2934	0.0003	No	0.0441	4410.0	250.0	4410.0	1
808270	50	48.5356	48.5694	48.5691	0.0003	No	0.0335	670.0	50.0	670.0	1
808271-1	100	73.7935	73.8230	73.8230	0.0000	No	0.0295	295.0	25.0	295.0	1
808271-2	100	73.4398	73.472	73.4719	0.0001	No	0.0321	321.0	25.0	321.0	1
808271-3	100	75.0188	75.053	75.0527	0.0003	No	0.0339	339.0	25.0	339.0	1
808301-1	100	68.7603	68.7920	68.7917	0.0003	No	0.0314	314.0	25.0	314.0	1
808301-2	50	49.8810	50.0017	50.0017	0.0000	No	0.1207	2414.0	50.0	2414.0	1
808301-2D	50	51.0476	51.1703	51.17	0.0003	No	0.1224	2448.0	50.0	2448.0	1
LCS	100	76.1820	76.2318	76.2315	0.0003	No	0.0495	495.0	25.0	495.0	1

Calculation as follows:

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

Where:

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

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

Laboratory Control Sample (LCS) Summary

QC Std I.D.	Measurd Value, ppm	Theoretical Value, ppm	Percent Rec	Acceptance Limit	QC Within Control?
LCS1	495	500	99.0%	90-110%	Yes
LCSD					

LCS Recovery

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

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

Duplicate Determinations Difference Summary

Lab Number	Sample Weight, g	Sample Dup Weight, g	% RPD	Acceptance Limit	QC Within Control?
808301-2	0.1207	0.1224	0.7%	≤5%	Yes

Duplicate Determination Difference

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

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

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

Jenny T.
Analyst Printed Name

Analyst Signature

Maksim G.
Reviewer Printed Name

Reviewer Signature

WetChem TDS_2012.xls

Total Dissolved Solids by SM 2540 C

TDS/EC CHECK

Batch: 06TDS13B
Date Analyzed: 6/7/13

Laboratory Number	EC	TDS/EC Ratio: 0.55-.9	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
808266-1	4350	0.61	2827.5	0.94
808266-2	7630	0.66	4959.5	1.01
808267-1	6600	0.60	4290	0.93
808267-2	7010	0.63	4556.5	0.97
808270	1020	0.66	663	1.01
808271-1	427	0.69	277.55	1.06
808271-2	487	0.66	316.55	1.01
808271-3	489	0.69	317.85	1.07
808301-1	471	0.67	306.15	1.03
808301-2	3380	0.71	2197	1.10
808301-2D	3380	0.72	2197	1.11
LCS				

TRUESDAIL LABORATORIES, INC.

Alkalinity by SM 2320B

Calculations

Analytical Batch: 06ALK13A
Matrix: WATER
Date of Analysis: 6/12/13

Lab ID	Sample pH	Sample Volume (ml)	N of HCL	Titrant Volume to reach pH 8.3	P Alkalinity as CaCO3	Titrant Volume to reach pH 4.5	Total mL titrant to reach pH 0.3 unit lower	Total Alkalinity as CaCO3	RL, ppm	Total Alkalinity Reported Value	HCO3 Conc. as $CaCO_3$ (ppm)	CO3 Alkalinity as $CaCO_3$ (ppm)	OH Alkalinity as $CaCO_3$ (ppm)	Low Alkalinity as $CaCO_3$ (<20ppm)
BLANK	6.93	50	0.02		0.0	0.00		0.0	5	ND	ND	ND	ND	
808225-17	7.19	50	0.02		0.0	4.60		92.0	5	92.0	92.0	ND	ND	
808225-17 DUP	7.30	50	0.02		0.0	4.65		93.0	5	93.0	93.0	ND	ND	
808225-21	8.10	50	0.02		0.0	5.45		109.0	5	109.0	109.0	ND	ND	
808267-2	7.67	50	0.02		0.0	7.80		156.0	5	156.0	156.0	ND	ND	
808267-2 MS	9.03	50	0.02	1.95	39.0	12.55		251.0	5	251.0	173.0	78	ND	
808370-21	7.97	50	0.02		0.0	5.35		107.0	5	107.0	107.0	ND	ND	
808423-5	8.10	50	0.02		0.0	5.45		109.0	5	109.0	109.0	ND	ND	
LCS	10.29	50	0.02	2.45	49.0	5.10		102.0	5	102.0	4.0	98	ND	
LCSD	10.26	50	0.02	2.40	48.0	5.05		101.0	5	101.0	5.0	96	ND	

Calculations as follows:

T or P = $\left(\frac{A \times N \times 50000}{mL\ sample}\right)$

Where:
T = Total Alkalinity, mg CaCO3/L
P = Phenolphthalein Alkalinity, mg CaCO3/L
A = mL standard acid used
N = normality of standard acid

Low Alkalinity: as mg/L CaCO3 = $\frac{(2 \times B - C) \times N \times 50000}{mL\ sample}$

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

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

Blank Summary

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

Laboratory Control Sample (LCS/LCSD) Summary

QC Std I.D.	Measured Value, ppm	Theoretical Value, ppm	% Recovery	Accetance Limit	QC Within Control?
LCS	102	100	102.0%	90-110	Yes
LCSD	101	100	101.0%	90-110	Yes

Duplicate Determination Difference Summary

Lab Number I.D.	Measured Value, ppm	Dup Value, ppm	RPD	Accetance Limit	QC Within Control?
808225-17	92	93	1.1%	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?
808267-2	156	1	100	100	251	256.00	95%	75-125	Yes			
		1	100	100								

Melissa S
Analyst Printed Name

Analyst Signature

Maksim G.
Reviewer Printed Name

Reviewer Signature

061213a

052

Rec'd 06/04/13

S 808267

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-416] 808267

COC Number

TURNAROUND TIME 10 Days

DATE 6/04/13 PAGE 1 OF 1

COMPANY CH2M HILL /E2

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 456827.01.DM

SAMPLERS (SIGNATURE

	SAMPLE I.D.	DATE	TIME	DESCRIPTION	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	COMMENTS
-1	SC-700B-WDR-416	6/04/13	13:50		X		X	X	X	X	X		X				X		5	pH=6 } 200.7
-2	SC-100B-WDR-416	6/04/13	13:50		X	X	X	X	X	X	X	X	X	X	X	X	X		9	pH=6 }
																			14	TOTAL NUMBER OF CONTAINERS

ALERT !!
Level III QC

CHAIN OF CUSTODY SIGNATURE RECORD

	Signature	Printed Name	Company/ Agency	Date/ Time
Signature (Relinquished)		CHRIS LEMC	CH2MHILL	6-4-13
Signature (Received)		Lee Brady	TLI	6-4-13 1600
Signature (Relinquished)		Lee Brady	TLI	6-4-13 2100
Signature (Received)		Linda	TLI	6/4/13 21:00
Signature (Relinquished)				
Signature (Received)				

SAMPLE CONDITIONS

RECEIVED COOL ☑ WARM ☐ 4.1 °C

CUSTODY SEALED YES ☐ NO ☑

SPECIAL REQUIREMENTS:

The metals include: Cr, Al, Sb, As, Ba, B, Cu, Pb, Mn, Mo, Ni, Fe, Zn

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
5/23/13	808111-3	7.0	0.5 ml / 25 ml	9.5	16:00	TM
5/30/13	808179	7.0	2 ml / 100 ml	9.5	7:30	HAV
6/5/13	808266-1	7.0	2 ml / 100 ml	9.5	9:30	NE
↓	↓ -2	↓	↓	↓	↓	NE
	808267-1	7.0	2 ml / 100 ml	9.5	9:30	NE
	-2	↓	↓	↓	↓	NE
	808268	9.5	N/A	N/A	N/A	NE
	808270	9.5	N/A	N/A	N/A	NE
	808271-1	↓	↓	↓	↓	NE
	↓ -2					NE
↓	↓ -3	↓	↓	↓	↓	NE

TM 6/5/13

06/05/13

TRUESDAIL LABORATORIES, INC.

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
808085(1-5,8-14)	<1	<2	5/22/13	ES	yes			
808086(2-5,8-17)	↓	↓	↓	↓	↓			
808061(10-12)	<1	>2	5/22/13	ES	NO	3:30		
808075(1-3)								
808077(1-2,C-6)								
808098					yes			
808093	SOLID		SAMPLE	5/22/13	BE	TTLC		
808107(1-3)T-Tal	<1	<2	5-23-13	BE	yes			
808099-1,-6	>1	<2	5/23/13	DL	yes			
808116(1-2)	<1	>2	"	BE	NO	13:00		
808161(1-2			5-29-13	BE	NO	10:30		
808179			5-30-13		yes	8:30		
808158(1-9)	>1	<2	5/30/13	DL	yes			
808113(1,6)								
808115								
808111 (1-3)								
808109	<1							
808156								
808157								
808175	>1	<2	5-30-13	BE	yes			
808176(10-12)	<1	>2			NO	10:30		
808186	>1	<2	↓	DL	yes			
808188(1-3)	<1	>2	↓	BE	NO	14:30		
808195	<1	>2	6/3/13	ES	yes			
808196								
808203								
808215	>1	<2	6/4/13	ES	yes			
216								
217								
808225(17,24)	<1	>2	6/4/13	ES	NO			
808268(1-2)	<1	>2	6-5-13	BE	yes	8:30		after L.F
808267(1-2)							-2 Total/Diss	after L.F
808269		<2				BE		
808271(1-3)								T,D
808268	<1	<2	6-5-13	BE	yes			
808270								
808272(1-8)								plant
808249(1-2)	<1	>2	6-6-13	BE	NO	7:30		<2 6-7
808293(1-3)								<2
808298(1-3)						9:30		<2
808301(1-2)	<1	<2	6-6-13	BE	yes			-1 D,M
808239	<1	<2	6/7/13	DL	yes			
808240								
808241								

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

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: E 2 **Lab #** 808267

Date Delivered: 06/04/13 **Time:** 21:00 **By:** ☐Mail ☒Field Service ☐Client

1. Was a Chain of Custody received and signed? ☑Yes ☐No ☐N/A
2. Does Customer require an acknowledgement of the COC? ☐Yes ☐No ☒N/A
3. Are there any special requirements or notes on the COC? ☐Yes ☐No ☑N/A
4. If a letter was sent with the COC, does it match the COC? ☐Yes ☐No ☑N/A
5. Were all requested analyses understood and acceptable? ☑Yes ☐No ☐N/A
6. Were samples received in a chilled condition? ☑Yes ☐No ☐N/A
   Temperature (if yes)? 4.1 °C
7. Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)? ☑Yes ☐No ☐N/A
8. Were sample custody seals intact? ☐Yes ☐No ☑N/A
9. Does the number of samples received agree with COC? ☑Yes ☐No ☐N/A
10. Did sample labels correspond with the client ID's? ☑Yes ☐No ☐N/A
11. Did sample labels indicate proper preservation? ☐Yes ☐No ☒N/A
    Preserved (if yes) by: ☐Truesdail ☐Client
12. Were samples pH checked? pH = see c.o.c. ☑Yes ☐No ☐N/A
13. Were all analyses within holding time at time of receipt? ☑Yes ☐No ☐N/A
    If not, notify Project Manager.
14. Have Project due dates been checked and accepted? ☑Yes ☐No ☐N/A
    Turn Around Time (TAT): ☐ RUSH ☑ Std
15. **Sample Matrix:** ☐Liquid ☐Drinking Water ☐Ground Water ☐Waste Water ☐Sludge ☐Soil ☐Wipe ☐Paint ☐Solid ☒Other Water
16. Comments:
17. Sample Check-In completed by Truesdail Log-In/Receiving: Linda

ALERT !! Level III QC

C:\Users\Test\Desktop\Forms A - D\Discrp.FormBlank.doc

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 25, 2013

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

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK IM3PLANT-WDR-417 PROJECT, GROUNDWATER MONITORING, TLI NO.: 808407

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-417 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 11, 2013, 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. Shawn Duffy's approval.

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

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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.: 456827.01.DM

Laboratory No.: 808407
Date: June 25, 2013
Collected: June 11, 2013
Received: June 11, 2013

ANALYST LIST

METHOD	PARAMETER	ANALYST
EPA 120.1	Specific Conductivity	Gautam Savani
SM 2540C	Total Dissolved Solids	Jenny Tankunakorn
SM 2130B	Turbidity	Gautam Savani
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

Laboratory No.: 808407
Date Received: June 11, 2013

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

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
808407-001	SC-700B-WDR-417	E120.1	NONE	6/11/2013	13:15	EC	6710	umhos/cm	2.00
808407-001	SC-700B-WDR-417	E200.8	NONE	6/11/2013	13:15	Chromium	ND	ug/L	1.0
808407-001	SC-700B-WDR-417	E200.8	NONE	6/11/2013	13:15	Manganese	0.84	ug/L	0.50
808407-001	SC-700B-WDR-417	E218.6	LABFLT	6/11/2013	13:15	Chromium, Hexavalent	0.21	ug/L	0.20
808407-001	SC-700B-WDR-417	SM2130B	NONE	6/11/2013	13:15	Turbidity	ND	NTU	0.100
808407-001	SC-700B-WDR-417	SM2540C	NONE	6/11/2013	13:15	Total Dissolved Solids	4170	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: 456827.01.DM
P.O. Number: 456827.01.DM
Release Number:

Laboratory No. 808407

Printed 6/24/2013

Samples Received on 6/11/2013 9:30:00 PM

Field ID	Lab ID	Collected	Matrix
SC-700B-WDR-417	808407-001	06/11/2013 13:15	Water

Specific Conductivity - EPA 120.1 Batch 06EC13E

Parameter	Unit	Analyzed	DF	MDL	RL	Result
808407-001 Specific Conductivity	umhos/cm	06/12/2013	1.00	0.606	2.00	6710

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate — Lab ID = 808407-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	6710	6710	0	0 - 10

Lab Control Sample

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

MRCCS - Secondary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	920	999	92.1	90 - 110

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project
Project Number: 456827.01.DM

Chrome VI by EPA 218.6

Batch 06CrH13D

Parameter	Unit	Analyzed	DF	MDL	RL	Result
808407-001 Chromium, Hexavalent	ug/L	06/12/2013 09:59	1.00	0.00920	0.20	0.21

Method Blank

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

Duplicate — Lab ID = 808407-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.201	0.212	5.52	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	5.10	5.00	102	90 - 110

Matrix Spike — Lab ID = 808407-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.21	1.21(1.00)	100	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.15	5.00	103	90 - 110

MRCVS - Primary

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

MRCVS - Primary

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

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Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project
Project Number: 456827.01.DM

Metals by EPA 200.8, Total

Batch 061213A-ICPMS-1

Parameter	Unit	Analyzed	DF	MDL	RL	Result
808407-001 Chromium	ug/L	06/12/2013 13:05	2.00	0.184	1.0	ND
Manganese	ug/L	06/12/2013 13:05	2.00	0.172	0.50	0.84

Method Blank

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

Duplicate — Lab ID = 808407-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	2.00	ND	0	0	0 - 20
Manganese	ug/L	2.00	0.928	0.835	10.5	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.235	0.200	118	70 - 130
Manganese	ug/L	1.00	0.197	0.200	98.6	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	2.00	51.6	50.0	103	85 - 115
Manganese	ug/L	2.00	51.0	50.0	102	85 - 115

Matrix Spike — Lab ID = 808407-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	54.8	50.0(50.0)	110	75 - 125
Manganese	ug/L	2.00	52.3	50.8(50.0)	103	75 - 125

Matrix Spike Duplicate — Lab ID = 808407-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	54.0	50.0(50.0)	108	75 - 125
Manganese	ug/L	2.00	51.8	50.8(50.0)	102	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.0	20.0	94.8	90 - 110
Manganese	ug/L	1.00	19.0	20.0	95.0	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.4	20.0	96.9	90 - 110
Manganese	ug/L	1.00	19.5	20.0	97.6	90 - 110

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Total Dissolved Solids by SM 2540 C

Batch 06TDS13C

Parameter	Unit	Analyzed	DF	MDL	RL	Result
808407-001 Total Dissolved Solids	mg/L	06/13/2013	1.00	1.76	250	4170

Method Blank

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

Duplicate — Lab ID = 808407-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	4310	4170	3.30	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Dissolved Solids	mg/L	1.00	486	500	97.2	90 - 110

Turbidity by SM 2130 B

Batch 06TUC13I

Parameter	Unit	Analyzed	DF	MDL	RL	Result
808407-001 Turbidity	NTU	06/12/2013	1.00	0.0140	0.100	ND

Method Blank

Parameter	Unit	DF	Result
Turbidity	NTU	1.00	ND

Duplicate — Lab ID = 808407-001

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	8.15	8.00	102	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	7.93	8.00	99.1	90 - 110

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project
Project Number: 456827.01.DM

Printed 6/24/2013

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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

ej

Truesdail Laboratories, Inc.

Total Dissolved Solids by SM 2540 C

Calculations

Batch: 06TDS13C
Date Analyzed: 6/13/13

Laboratory Number	Sample volume, ml	Initial weight,g	1st Final weight,g	2nd Final weight,g	Weight Difference, g	Exceeds 0.5mg? Yes/No	Residue weight,g	Filterable residue, ppm	RL , ppm	Reported Value, ppm	DF
Blank	100	76.5389	76.5389	76.5389	0.0000	No	0.0000	0.0	25.0	ND	1
808361-1	100	68.1218	68.1748	68.1748	0.0000	No	0.0530	530.0	25.0	530.0	1
808361-2	100	74.6928	74.7461	74.7460	0.0001	No	0.0532	532.0	25.0	532.0	1
808361-3	100	78.3718	78.4225	78.4225	0.0000	No	0.0507	507.0	25.0	507.0	1
808361-4	100	71.3062	71.3598	71.3596	0.0002	No	0.0534	534.0	25.0	534.0	1
808362-2	200	92.09	92.1038	92.1038	0.0000	No	0.0138	69.0	12.5	69.0	1
808362-4	100	74.5277	74.5565	74.5561	0.0004	No	0.0284	284.0	25.0	284.0	1
808368-1	100	72.7649	72.8184	72.8182	0.0002	No	0.0533	533.0	25.0	533.0	1
808368-2	50	47.8473	47.8938	47.8936	0.0002	No	0.0463	926.0	50.0	926.0	1
808407	10	50.4998	50.5417	50.5415	0.0002	No	0.0417	4170.0	250.0	4170.0	1
808423-6	100	72.5005	72.5509	72.5506	0.0003	No	0.0501	501.0	25.0	501.0	1
808407D	10	51.4978	51.5412	51.5409	0.0003	No	0.0431	4310.0	250.0	4310.0	1
LCS	100	70.8888	70.9374	70.9374	0.0000	No	0.0486	486.0	25.0	486.0	1
808425-1	100	69.3372	69.3604	69.3603	0.0001	No	0.0231	231.0	25.0	231.0	1
808444	100	67.6563	67.7025	67.7023	0.0002	No	0.0460	460.0	25.0	460.0	1
808445	50	76.7911	76.8709	76.8708	0.0001	No	0.0797	1594.0	50.0	1594.0	1
808425-1D	100	75.4423	75.4644	75.4643	0.0001	No	0.0220	220.0	25.0	220.0	1

Calculation as follows:

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

Where:

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

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

Laboratory Control Sample (LCS) Summary

QC Std I.D.	Measurd Value, ppm	Theoretical Value, ppm	Percent Rec	Acceptance Limit	QC Within Control?
LCS1	486	500	97.2%	90-110%	Yes
LCSD					

LCS Recovery

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

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

Duplicate Determinations Difference Summary

Lab Number	Sample Weight, g	Sample Dup Weight, g	% RPD	Acceptance Limit	QC Within Control?
808407	0.0417	0.0431	1.7%	≤5%	Yes
808425-1	0.0231	0.022	2.4%	5%	Yes

Duplicate Determination Difference

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

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

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

Jenny T.
Analyst Printed Name

Analyst Signature

Maksim G.
Reviewer Printed Name

Reviewer Signature

WetChem TDS_2012.xls

Total Dissolved Solids by SM 2540 C

TDS/EC CHECK

Batch: 06TDS13C
Date Analyzed: 6/13/13

Laboratory Number	EC	TDS/EC Ratio: 0.55-.9	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
808361-1	847	0.63	550.55	0.96
808361-2	886	0.60	575.9	0.92
808361-3	813	0.62	528.45	0.96
808361-4	818	0.65	531.7	1.00
808362-2	97.5	0.71	63.375	1.09
808362-4	441	0.64	286.65	0.99
808368-1	821	0.65	533.65	1.00
808368-2	1394	0.66	906.1	1.02
808407	6700	0.62	4355	0.96
808423-6	785	0.64	510.25	0.98
808407D	6700	0.64	4355	0.99
LCS				
808425-1	386	0.60	250.9	0.92
808444	613	0.75	398.45	1.15
808445	2270	0.70	1475.5	1.08
808425-1D	386	0.57	250.9	0.88

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(714)730-6239 FAX: (714) 730-6462
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CHAIN OF CUSTODY RECORD

[IM3Plant-WDR-417]

808407

COC Number

TURNAROUND TIME 10 Days

DATE 06/11/13

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: 456827.01.DM TEAM: 1

SAMPLERS (SIGNATURE): Chris Lentz

Rec'd 6/11/13
S12b 808407

SAMPLE I.D.	DATE	TIME	DESCRIPTION	Cr6 (218.6) Lab Filtered	Total Metals (200.7) Cr, Mn	Specific Conductance (120.1)	TDS (SM2540C)	Turbidity (SM2130)									NUMBER OF CONTAINERS	COMMENTS
SC-700B-WDR-417	06/11/13	13:15	Water	x	x	x	x		x								3	pH = 6 (200.7)
																	3	TOTAL NUMBER OF CONTAINERS

ALERT !!
Level III QC

For Sample Conditions See Form Attached

CHAIN OF CUSTODY SIGNATURE RECORD

	Signature	Printed Name	Company/ Agency	Date/ Time
Signature (Relinquished)	Chris Lentz	CHRIS LENTZ	CH2M HILL	6-11-13 15:30
Signature (Received)	Rafael Davila	Rafael	TLI	6-11-13 15:30
Signature (Relinquished)	Rafael Davila	Rafael	TLI	6-11-13 21:30
Signature (Received)	Shabunina	Linda	TLI	6/11/13 21:30
Signature (Relinquished)				
Signature (Received)				

SAMPLE CONDITIONS

RECEIVED COOL ☑ WARM ☐ 4.6 °C

CUSTODY SEALED YES ☐ NO ☑

SPECIAL REQUIREMENTS:

Hexavalent Chromium

Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
5/23/13	808111-3	7.0	0.5 ml / 25 ml	9.5	16:00	TM
5/30/13	808179	7.0	2 ml / 100 ml	9.5	7:30	HAN
6/5/13	808266-1	7.0	2 ml / 100 ml	9.5	9:30	NE
	-2					NE
	808267-1	7.0	2 ml / 100 ml	9.5	9:30	NE
	-2					NE
	808268	9.5	N/A	N/A	N/A	NE
	808270	9.5	N/A	N/A	N/A	NE
	808271-1					NE
	-2					NE
	-3					NE
6/6/13	808301-1	9.5	N/A	N/A	N/A	NE
	-2					NE
6/4/13	808272-1	7.0	2 ml / 100 ml	9.5	12:00	TM
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
6/12/13	808407	7.0	2 ml / 100 ml	9.5	8:30	NE

NE 6/12/13

06/13/13

C:\My Documents\Templates\Hexavalent Chromium\Cr6+ pH Log

TRUESDAIL LABORATORIES, INC.

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
808243	<1	<2	6/7/13	BE	yes			
808262	>1	<2	↓	↓	↓			
808304	<1	↓	↓	↓	↓			
808307	↓	↓	↓	↓	↓			
808317	>1	↓	↓	↓	↓			
808324	<1	>2	↓	↓	~~yes~~ NO	10:25		
808338	↓	<2	↓	BE	yes			
808339	↓	↓	↓	↓	↓			
808342	>1	<2	6-10-13	BE	yes			
808343	↓	↓	↓	↓	↓			
808344	↓	↓	↓	↓	↓			
808345	↓	↓	↓	↓	↓			
808346	↓	↓	↓	↓	↓			
808347	↓	↓	↓	↓	↓			
808348	↓	↓	↓	↓	↓			
808349	↓	↓	↓	↓	↓			
808350	↓	↓	↓	↓	↓			
808351	↓	↓	↓	↓	↓			
808352	↓	↓	↓	↓	↓			
808361(1-4)	<1	>2	6-11-13	BE	NO	7:00		
808362(1-2,4)	↓	↓	↓	↓	↓	↓		
808372(1-6)	↓	↓	↓	↓	↓	11:30		
808366	>1	<2	↓	↓	yes			
808367	↓	↓	↓	↓	↓			
808368(1-2)	↓	↓	↓	↓	↓			
808371	↓	↓	↓	↓	↓			
808376	↓	↓	↓	↓	↓			
808407	<1	>2	6-12-13	BE	yes	7:00		
808409	>1	<2	↓	↓	↓			
808406(1-2)	<1	>2	↓	↓	NO	11:00	6/17	<2
808388	>1	<2	↓	↓	yes			
808389	↓	↓	↓	↓	↓			
808390	↓	↓	↓	↓	↓			
808391	↓	↓	↓	↓	↓			
808415	↓	↓	↓	↓	↓			
808423(1,2,4,7)	<1	>2	↓	↓	NO	14:00	6/17	<2
808426(1-3)	<1	>2	6/13/13	BE	NO	10:30	↓	↓
808428(1-3)	↓	↓	↓	↓	↓	↓		
808424	>1	>2	↓	↓	yes	↓		
808427	↓	<2	↓	↓	↓			
808441	<1	<2	6/14/13	ES	yes			
808454-4	↓	↓	↓	↓	↓			
808467-4	↓	↓	↓	↓	↓			
808469	↓	↓	↓	↓	↓			

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

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: E2 **Lab #** 808407

Date Delivered: 06/11/13 **Time:** 21:30 **By:** ☐ Mail ☒ Field Service ☐ Client

1. Was a Chain of Custody received and signed? ☒ Yes ☐ No ☐ N/A
2. Does Customer require an acknowledgement of the COC? ☐ Yes ☐ No ☒ N/A
3. Are there any special requirements or notes on the COC? ☐ Yes ☐ No ☒ N/A
4. If a letter was sent with the COC, does it match the COC? ☐ Yes ☐ No ☒ N/A
5. Were all requested analyses understood and acceptable? ☒ Yes ☐ No ☐ N/A
6. Were samples received in a chilled condition? ☒ Yes ☐ No ☐ N/A
   Temperature (if yes)? 4.6 °C
7. Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)? ☒ Yes ☐ No ☐ N/A
8. Were sample custody seals intact? ☐ Yes ☐ No ☒ N/A
9. Does the number of samples received agree with COC? ☒ Yes ☐ No ☐ N/A
10. Did sample labels correspond with the client ID's? ☒ Yes ☐ No ☐ N/A
11. Did sample labels indicate proper preservation? ☐ Yes ☐ No ☒ N/A
    Preserved (if yes) by: ☐ **Truesdail** ☐ Client
12. Were samples pH checked? pH = ____ ☒ Yes ☐ No ☐ N/A
13. Were all analyses within holding time at time of receipt? ☒ Yes ☐ No ☐ N/A
    If not, notify Project Manager.
14. Have Project due dates been checked and accepted? ☒ Yes ☐ No ☐ N/A
    Turn Around Time (TAT): ☐ **RUSH** ☒ Std
15. **Sample Matrix:** ☐ Liquid ☐ Drinking Water ☐ Ground Water ☐ Waste Water ☐ Sludge ☐ Soil ☐ Wipe ☐ Paint ☐ Solid ☒ Other Water
16. Comments: ____
17. Sample Check-In completed by **Truesdail** Log-In/Receiving: Linda

ALERT Q.C
Level III QC

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June 26, 2013

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

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK IM3PLANT-WDR-418 PROJECT, GROUNDWATER MONITORING, TLI NO.: 808567

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-418 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 18, 2013, 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. Shawn Duffy's approval.

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

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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.: 456827.01.DM

Laboratory No.: 808567
Date: June 26, 2013
Collected: June 18, 2013
Received: June 18, 2013

ANALYST LIST

METHOD	PARAMETER	ANALYST
EPA 120.1	Specific Conductivity	Gautam Savani
SM 2540C	Total Dissolved Solids	Jenny Tankunakorn
SM 2130B	Turbidity	Gautam Savani
EPA 200.8	Total Metals	Ethel Suico
EPA 218.6	Hexavalent Chromium	Tom Martinez

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

Laboratory No.: 808567
Date Received: June 18, 2013

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

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
808567-001	SC-700B-WDR-418	E120.1	NONE	6/18/2013	11:15	EC	6340	umhos/cm	2.00
808567-001	SC-700B-WDR-418	E200.8	NONE	6/18/2013	11:15	Chromium	ND	ug/L	1.0
808567-001	SC-700B-WDR-418	E200.8	NONE	6/18/2013	11:15	Manganese	0.77	ug/L	0.50
808567-001	SC-700B-WDR-418	E218.6	LABFLT	6/18/2013	11:15	Chromium, Hexavalent	ND	ug/L	0.20
808567-001	SC-700B-WDR-418	SM2130B	NONE	6/18/2013	11:15	Turbidity	ND	NTU	0.100
808567-001	SC-700B-WDR-418	SM2540C	NONE	6/18/2013	11:15	Total Dissolved Solids	4240	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: 456827.01.DM
P.O. Number: 456827.01.DM
Release Number:

Laboratory No. 808567

Printed 6/26/2013

Samples Received on 6/18/2013 9:30:00 PM

Field ID	Lab ID	Collected	Matrix
SC-700B-WDR-418	808567-001	06/18/2013 11:15	Water

Specific Conductivity - EPA 120.1 Batch 06EC13H

Parameter	Unit	Analyzed	DF	MDL	RL	Result
808567-001 Specific Conductivity	umhos/cm	06/19/2013	1.00	0.606	2.00	6340

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate — Lab ID = 808567-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	6330	6340	0.158	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	693	706	98.2	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	697	706	98.7	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	904	996	90.8	90 - 110

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Chrome VI by EPA 218.6

Batch 06CrH13E

Parameter	Unit	Analyzed	DF	MDL	RL	Result
808567-001 Chromium, Hexavalent	ug/L	06/24/2013 11:22	1.00	0.00920	0.20	ND

Method Blank

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

Duplicate — Lab ID = 808567-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.188	0.190	1.06	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.201	0.200	100	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.10	5.00	102	90 - 110

Matrix Spike — Lab ID = 808567-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.20	1.19(1.00)	101	90 - 110

Matrix Spike — Lab ID = 808568-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.07	5.00(5.00)	101	90 - 110

Matrix Spike — Lab ID = 808568-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.04	1.00(1.00)	104	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.14	5.00	103	90 - 110

MRCVS - Primary

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

MRCVS - Primary

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

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project
Project Number: 456827.01.DM

Metals by EPA 200.8, Total

Batch 061913A-ICPMS-1

Parameter	Unit	Analyzed	DF	MDL	RL	Result
808567-001 Chromium	ug/L	06/19/2013 16:23	2.00	0.184	1.0	ND
Manganese	ug/L	06/19/2013 16:23	2.00	0.172	0.50	0.77

Method Blank

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

Duplicate — Lab ID = 808536-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	2.00	ND	0	0	0 - 20
Uranium	ug/L	2.00	ND	0	0	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	0.150	0.200	74.8	70 - 130
Uranium	ug/L	1.00	0.206	0.200	103	70 - 130
Manganese	ug/L	1.00	0.213	0.200	106	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	2.00	47.9	50.0	95.8	85 - 115
Uranium	ug/L	2.00	46.6	50.0	93.1	85 - 115
Manganese	ug/L	2.00	49.7	50.0	99.3	85 - 115

Matrix Spike — Lab ID = 808536-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	49.6	50.0(50.0)	99.3	75 - 125
Uranium	ug/L	2.00	47.9	50.0(50.0)	95.7	75 - 125
Manganese	ug/L	2.00	49.1	50.0(50.0)	98.1	75 - 125

Matrix Spike Duplicate — Lab ID = 808536-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	50.2	50.0(50.0)	100	75 - 125
Uranium	ug/L	2.00	48.4	50.0(50.0)	96.8	75 - 125
Manganese	ug/L	2.00	50.1	50.0(50.0)	100	75 - 125

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Total Dissolved Solids by SM 2540 C

Batch 06TDS13D

Parameter	Unit	Analyzed	DF	MDL	RL	Result
808567-001 Total Dissolved Solids	mg/L	06/19/2013	1.00	1.76	250	4240

Method Blank

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

Duplicate — Lab ID = 808567-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	4120	4240	2.87	0 - 10

Lab Control Sample

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

Turbidity by SM 2130 B

Batch 06TUC13L

Parameter	Unit	Analyzed	DF	MDL	RL	Result
808567-001 Turbidity	NTU	06/19/2013	1.00	0.0140	0.100	ND

Method Blank

Parameter	Unit	DF	Result
Turbidity	NTU	1.00	ND

Duplicate — Lab ID = 808567-001

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	8.44	8.00	106	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	8.42	8.00	105	90 - 110

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project
Project Number: 456827.01.DM

Printed 6/26/2013

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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

e2

Truesdail Laboratories, Inc.

Total Dissolved Solids by SM 2540 C

Calculations

Batch: 06TDS13D
Date Analyzed: 6/19/13

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	77.2426	77.2426	77.2426	0.0000	No	0.0000	0.0	25.0	ND	1
808529-2	200	115.2302	115.2472	115.2469	0.0003	No	0.0167	83.5	12.5	83.5	1
808529-4	100	67.0421	67.0737	67.0735	0.0002	No	0.0314	314.0	25.0	314.0	1
808567	10	51.4576	51.5004	51.5	0.0004	No	0.0424	4240.0	250.0	4240.0	1
808567D	10	50.7475	50.7887	50.7887	0.0000	No	0.0412	4120.0	250.0	4120.0	1
LCS	100	73.1766	73.2266	73.2264	0.0002	No	0.0498	498.0	25.0	498.0	1

Calculation as follows:

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

Where:

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

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

Laboratory Control Sample (LCS) Summary

QC Std I.D.	Measurd Value, ppm	Theoretical Value, ppm	Percent Rec	Acceptance Limit	QC Within Control?
LCS1	498	500	99.6%	90-110%	Yes
LCSD					

LCS Recovery

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

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

Duplicate Determinations Difference Summary

Lab Number	Sample Weight, g	Sample Dup Weight, g	% RPD	Acceptance Limit	QC Within Control?
808567	0.0424	0.0412	1.4%	≤5%	Yes

Duplicate Determination Difference

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

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

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

Jenny T.
Analyst Printed Name

Analyst Signature

Maksim G.
Reviewer Printed Name

Reviewer Signature

Total Dissolved Solids by SM 2540 C

TDS/EC CHECK

Batch: 06TDS13D
Date Analyzed: 6/19/13

Laboratory Number	EC	TDS/EC Ratio: 0.55-.9	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
808529-2	136	0.61	88.4	0.94
808529-4	449	0.70	291.85	1.08
808567	6360	0.67	4134	1.03
808567D	6360	0.65	4134	1.00
LCS				

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CHAIN OF CUSTODY RECORD

[IM3Plant-WDR-418]

808567

COC Number

TURNAROUND TIME 10 Days

DATE 06/18/13 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 456827.01.DM TEAM 1

SAMPLERS (SIGNATURE Chris Lem

SAMPLE I.D.	DATE	TIME	DESCRIPTION	Cr6 (218.6) Lab Filtered	Total Metals (200.7) Cr, Mn	Specific Conductance (120.1)	TDS (SM2540C)	Turbidity (SM2130)									NUMBER OF CONTAINERS	COMMENTS
SC-700B-WDR-418	06/18/13	11:15	Water	x	x	x	x		x								3	pH=6 (200.7)
																	3	TOTAL NUMBER OF CONTAINERS

ALERT !!
Level III QC

CHAIN OF CUSTODY SIGNATURE RECORD

	Signature	Printed Name	Company/ Agency	Date/ Time
Signature (Relinquished)	Chris Lem	CHRIS LEMM	CH2M HILL	6-18-13 15:30
Signature (Received)	Rafael Davila	Rafael	T.L.I	6-18-13 15:30
Signature (Relinquished)	Rafael Davila	Rafael	T.L.I	6-18-13 21:30
Signature (Received)	Shakeunina	Linda	TLI	6/18/13 21:30
Signature (Relinquished)				
Signature (Received)				

SAMPLE CONDITIONS

RECEIVED COOL ☑ WARM ☐ 3.7 °C

CUSTODY SEALED YES ☐ NO ☑

SPECIAL REQUIREMENTS:

For Sample Conditions
See Form Attached

037

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
5/23/13	808111-3	7.0	0.5 ml / 25 ml	9.5	16:00	TM
5/30/13	808179	7.0	2 ml / 100 ml	9.5	7:30	HAN
6/5/13	808266-1	7.0	2 ml / 100 ml	9.5	9:30	NE
↓	↓ -2	↓	↓	↓	↓	NE
	808267-1	7.0	2 ml / 100 ml	9.5	9:30	NE
	-2	↓	↓	↓	↓	NE
	808268	9.5	N/A	N/A	N/A	NE
	808270	9.5	N/A	N/A	N/A	NE
	808271-1	↓	↓	↓	↓	NE
	-2	↓	↓	↓	↓	NE
↓	↓ -3	↓	↓	↓	↓	NE
6/6/13	808301-1	9.5	N/A	N/A	N/A	NE
↓	↓ -2	↓	↓	↓	↓	NE
6/4/13	808272-1	7.0	2 mL / 100 mL	9.5	12:00	TM
↓	↓ -2	↓	↓	↓	↓	↓
	-3					
	-4					
	-5					
	-6					
	-7					
↓	↓ -8	↓	↓	↓	↓	↓
6/12/13	808407	7.0	2 ml / 100 ml	9.5	8:30	NE
6/19/13	808567	7.0	2 mL / 100 ml	9.5	8:00	NE
↓	808568	9.5	N/A	N/A	N/A	NE
6/20/13	808590-1	7.0	2 mL / 100 mL	9.5	8:40	TM
↓	↓ -2	↓	↓	↓	8:40	↓
	-3				8:45	
↓	↓ -4	↓	↓	↓	8:45	↓

TM 6/24/13

06/25/13

TRUESDAIL LABORATORIES, INC.

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
808490	<1	<2	6/14/13	ES	yes			
808491	↓	↓	↓	↓	↓			
808492	↓	↓	↓	↓	↓			
808529(1-2,4)	<1	>2	6-18-13	BE	NO	8:00		
808567 T	<1	>2	6-19-13	BE	yes	8:30		
808536(1-4)	↓	<2	↓	↓	↓			
808568	↓	↓	↓	↓	↓			
808558(1-2, 3-6)	↓	>2	↓	↓	NO	11:00	6-21	<2
808565(1-3)	↓	↓	↓	↓	↓	↓	↓	↓
808587	>1	>2	6/19/13	DL	yes	15:30		
808542	<1	<2	↓	↓	↓			
808543	↓	↓	↓	↓	↓			
808544	↓	↓	↓	↓	↓			
808545	↓	↓	↓	↓	↓			
808546	↓	↓	↓	↓	↓			
808588(10-12)	<1	>2	6-20-13	BE	NO	7:00	6-21	<2
808597(1-6)	<1	<2	↓	↓	yes			
808619	<1	>2	6-21-13	BE	NO	7:00	6-25	<2
808632(1-7)	<1	<2	6-21-13	BE	yes			
808592	<1	>2	↓	↓	NO	9:00	6-25	<2
808611	<1	>2	↓	↓	↓	10:30		

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

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: E2 **Lab #** 808567

Date Delivered: 06 / 18 / 13 **Time:** 21:30 **By:** ☐ **Mail** ☑ **Field Service** ☐ **Client**

1. *Was a Chain of Custody received and signed?* ☑ Yes ☐ No ☐ N/A
2. *Does Customer require an acknowledgement of the COC?* ☐ Yes ☐ No ☑ N/A
3. *Are there any special requirements or notes on the COC?* ☐ Yes ☐ No ☑ N/A
4. *If a letter was sent with the COC, does it match the COC?* ☐ Yes ☐ No ☑ N/A
5. *Were all requested analyses understood and acceptable?* ☑ Yes ☐ No ☐ N/A
6. *Were samples received in a chilled condition?* ☑ Yes ☐ No ☐ N/A
   Temperature (if yes)? 3.7 °C
7. *Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)?* ☑ Yes ☐ No ☐ N/A
8. *Were sample custody seals intact?* ☐ Yes ☐ No ☑ N/A
9. *Does the number of samples received agree with COC?* ☑ Yes ☐ No ☐ N/A
10. *Did sample labels correspond with the client ID's?* ☐ Yes ☐ No ☐ N/A
11. *Did sample labels indicate proper preservation?* ☐ Yes ☐ No ☑ N/A
    Preserved (if yes) by: ☐ **Truesdail** ☐ Client
12. *Were samples pH checked? pH =* see C.O.C. ☑ Yes ☐ No ☐ N/A
13. *Were all analyses within holding time at time of receipt?* ☑ Yes ☐ No ☐ N/A
    If not, notify Project Manager.
14. *Have Project due dates been checked and accepted?* ☑ Yes ☐ No ☐ N/A
    Turn Around Time (TAT): ☐ **RUSH** ☑ Std
15. ***Sample Matrix:*** ☐ Liquid ☐ Drinking Water ☐ Ground Water ☐ Waste Water ☐ Sludge ☐ Soil ☐ Wipe ☐ Paint ☐ Solid ☑ Other Water
16. *Comments:* _____
17. *Sample Check-In completed by* **Truesdail** *Log-In/Receiving:* [illegible]

VERIFIED QC

C:\Users\Test\Desktop\Forms A - D\Discrp.FormBlank.doc

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June 28, 2013

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

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK IM3PLANT-WDR-419 PROJECT, GROUNDWATER MONITORING, TLI NO.: 808685

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-419 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 25, 2013, 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. Shawn Duffy's approval.

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

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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.: 456827.01.DM

Laboratory No.: 808685
Date: June 28, 2013
Collected: June 25, 2013
Received: June 25, 2013

ANALYST LIST

METHOD	PARAMETER	ANALYST
EPA 120.1	Specific Conductivity	Gautam Savani
SM 2540C	Total Dissolved Solids	Jenny Tankunakorn
SM 2130B	Turbidity	Gautam Savani
EPA 200.8	Total Metals	Bita Emami
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

Laboratory No.: 808685
Date Received: June 25, 2013

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

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
808685-001	SC-700B-WDR-419	E120.1	NONE	6/25/2013	14:30	EC	6340	umhos/cm	2.00
808685-001	SC-700B-WDR-419	E200.8	NONE	6/25/2013	14:30	Chromium	ND	ug/L	1.0
808685-001	SC-700B-WDR-419	E200.8	NONE	6/25/2013	14:30	Manganese	2.7	ug/L	0.50
808685-001	SC-700B-WDR-419	E218.6	LABFLT	6/25/2013	14:30	Chromium, Hexavalent	ND	ug/L	0.20
808685-001	SC-700B-WDR-419	SM2130B	NONE	6/25/2013	14:30	Turbidity	ND	NTU	0.100
808685-001	SC-700B-WDR-419	SM2540C	NONE	6/25/2013	14:30	Total Dissolved Solids	4150	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: 456827.01.DM
P.O. Number: 456827.01.DM
Release Number:

Laboratory No. 808685

Printed 6/28/2013

Samples Received on 6/25/2013 9:30:00 PM

Field ID	Lab ID	Collected	Matrix
SC-700B-WDR-419	808685-001	06/25/2013 14:30	Water

Specific Conductivity - EPA 120.1 Batch 06EC13K

Parameter	Unit	Analyzed	DF	MDL	RL	Result
808685-001 Specific Conductivity	umhos/cm	06/26/2013	1.00	0.606	2.00	6340

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate — Lab ID = 808685-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	6350	6340	0.158	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	692	706	98.0	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	672	706	95.2	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	905	996	90.9	90 - 110

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Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project
Project Number: 456827.01.DM Printed 6/28/2013

Chrome VI by EPA 218.6

Batch 06CrH13F

Parameter	Unit	Analyzed	DF	MDL	RL	Result
808685-001 Chromium, Hexavalent	ug/L	06/27/2013 10:03	1.00	0.00920	0.20	ND

Method Blank

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

Duplicate — Lab ID = 808685-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.135	0.137	1.62	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.202	0.200	101	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.09	5.00	102	90 - 110

Matrix Spike — Lab ID = 808685-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.16	1.14(1.00)	102	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.14	5.00	103	90 - 110

MRCVS - Primary

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

MRCVS - Primary

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

MRCVS - Primary

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

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Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project Page 3 of 6
Project Number: 456827.01.DM Printed 6/28/2013

Metals by EPA 200.8, Total

Batch 062713A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
808685-001 Chromium	ug/L	06/27/2013 14:06	2.00	0.184	1.0	ND
Manganese	ug/L	06/27/2013 14:06	2.00	0.172	0.50	2.7

Method Blank

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

Duplicate

Lab ID = 808685-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	2.00	ND	0	0	0 - 20
Uranium	ug/L	2.00	2.71	2.71	0.0369	0 - 20
Manganese	ug/L	2.00	2.67	2.72	1.93	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.208	0.200	104	70 - 130
Uranium	ug/L	1.00	0.196	0.200	98.0	70 - 130
Manganese	ug/L	1.00	0.217	0.200	108	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	2.00	48.0	50.0	96.1	85 - 115
Uranium	ug/L	2.00	46.3	50.0	92.7	85 - 115
Manganese	ug/L	2.00	48.6	50.0	97.1	85 - 115

Matrix Spike

Lab ID = 808685-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	46.1	50.0(50.0)	92.3	75 - 125
Uranium	ug/L	2.00	50.3	52.7(50.0)	95.3	75 - 125
Manganese	ug/L	2.00	49.7	52.7(50.0)	94.0	75 - 125

Matrix Spike Duplicate

Lab ID = 808685-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	46.6	50.0(50.0)	93.2	75 - 125
Uranium	ug/L	2.00	50.2	52.7(50.0)	95.1	75 - 125
Manganese	ug/L	2.00	49.7	52.7(50.0)	93.9	75 - 125

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Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.2	20.0	96.2	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.6	20.0	98.0	80 - 120
Uranium	ug/L	1.00	ND	0		

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Uranium	ug/L	1.00	ND	0		
Manganese	ug/L	1.00	19.7	20.0	98.4	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	19.9	20.0	99.7	80 - 120

Serial Dilution — Lab ID = 808659-006

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Uranium	ug/L	10.0	27.2	25.9	5.06	0 - 10

Total Dissolved Solids by SM 2540 C

Batch 06TDS13E

Parameter	Unit	Analyzed	DF	MDL	RL	Result
808685-001 Total Dissolved Solids	mg/L	06/26/2013	1.00	1.76	250	4150

Method Blank

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

Duplicate — Lab ID = 808685-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	4020	4150	3.18	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Dissolved Solids	mg/L	1.00	491	500	98.2	90 - 110

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Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project
Project Number: 456827.01.DM

Printed 6/28/2013

Turbidity by SM 2130 B Batch 06TUC13O

Parameter	Unit	Analyzed	DF	MDL	RL	Result
808685-001 Turbidity	NTU	06/26/2013	1.00	0.0140	0.100	ND

Method Blank

Parameter	Unit	DF	Result
Turbidity	NTU	1.00	ND

Duplicate — Lab ID = 808685-001

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	7.51	8.00	93.9	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	7.46	8.00	93.2	90 - 110

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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Truesdail Laboratories, Inc.

Total Dissolved Solids by SM 2540 C

Calculations

Batch: 06TDS13E
Date Analyzed: 6/26/13

Laboratory Number	Sample volume, ml	Initial weight,g	1st Final weight,g	2nd Final weight,g	Weight Difference, g	Exceeds 0.5mg? Yes/No	Residue weight,g	Filterable residue, ppm	RL , ppm	Reported Value, ppm	DF
Blank	100	66.7993	66.7993	66.7993	0.0000	No	0.0000	0.0	25.0	ND	1
808604	50	71.9729	72.0632	72.0632	0.0000	No	0.0903	1806.0	50.0	1806.0	1
808606-1	50	76.9739	77.0934	77.0931	0.0003	No	0.1192	2384.0	50.0	2384.0	1
808606-2	50	69.2395	69.3641	69.3641	0.0000	No	0.1246	2492.0	50.0	2492.0	1
808656-1	100	72.5276	72.5812	72.5811	0.0001	No	0.0535	535.0	25.0	535.0	1
808656-2	100	74.0482	74.1035	74.1033	0.0002	No	0.0551	551.0	25.0	551.0	1
808656-3	100	72.3761	72.4286	72.4286	0.0000	No	0.0525	525.0	25.0	525.0	1
808656-4	100	69.4819	69.5347	69.5347	0.0000	No	0.0528	528.0	25.0	528.0	1
808685	10	51.8911	51.933	51.9326	0.0004	No	0.0415	4150.0	250.0	4150.0	1
MDL Ver@5pp	1000	102.7188	102.7241	102.7241	0.0000	No	0.0053	5.3	2.5	5.3	1
808685D	10	50.5793	50.6197	50.6195	0.0002	No	0.0402	4020.0	250.0	4020.0	1
LCS	100	69.3915	69.441	69.4406	0.0004	No	0.0491	491.0	25.0	491.0	1

Calculation as follows:

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

Where:

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

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

Laboratory Control Sample (LCS) Summary

QC Std I.D.	Measurd Value, ppm	Theoretical Value, ppm	Percent Rec	Acceptance Limit	QC Within Control?
LCS1	491	500	98.2%	90-110%	Yes
LCSD					

LCS Recovery

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

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

Duplicate Determinations Difference Summary

Lab Number	Sample Weight, g	Sample Dup Weight, g	% RPD	Acceptance Limit	QC Within Control?
808685	0.0415	0.0402	1.6%	≤5%	Yes

Duplicate Determination Difference

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

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

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

Jenny T.
Analyst Printed Name

Analyst Signature

Maksim G.
Reviewer Printed Name

Reviewer Signature

Total Dissolved Solids by SM 2540 C

TDS/EC CHECK

Batch: 06TDS13E
Date Analyzed: 6/26/13

Laboratory Number	EC	TDS/EC Ratio: 0.55-.9	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
808604	2620	0.69	1703	1.06
808606-1	3520	0.68	2288	1.04
808606-2	3720	0.67	2418	1.03
808656-1	802	0.67	521.3	1.03
808656-2	863	0.64	560.95	0.98
808656-3	793	0.66	515.45	1.02
808656-4	779	0.68	506.35	1.04
808685	6360	0.65	4134	1.00
MDL Ver@5ppm				
808685D	6360	0.63	4134	0.97
LCS				

TRUESDAIL LABORATORIES, INC.
14201 Franklin Avenue, Tustin, CA 92780-7008
(714)730-6239 FAX: (714) 730-6462
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CHAIN OF CUSTODY RECORD

[IM3Plant-WDR-419]

808685

COC Number

TURNAROUND TIME 5 Days

DATE 06/25/13 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: 456827.01.DM TEAM: 1

SAMPLERS (SIGNATURE):

SAMPLE I.D.	DATE	TIME	DESCRIPTION	Cr6 (218.6) Lab Filtered	Total Metals (200.7) Cr, Mn	Specific Conductance (120.1)	TDS (SM2540C)	Turbidity (SM2130)								NUMBER OF CONTAINERS	COMMENTS
SC-700B-WDR-419	06/25/13	~~1614~~ 1430	Water	x	x	x	x		x							3	pH = 6 (200.7)
																5	TOTAL NUMBER OF CONTAINERS

RUSH

ALERT !!
Level III QC

For Sample Conditions See Form Attached

CHAIN OF CUSTODY SIGNATURE RECORD

	Printed Name	Company/ Agency	Date/ Time
Signature (Relinquished)	J Ade	E2	6-25-13 1630
Signature (Received)	Rafael Davila	T.L.I	6-25-30 14:30
Signature (Relinquished)	Rafael Davila	T.L.I	6-25-13 21:30
Signature (Received)	Shabunina	TLI	6/25/13 21:30
Signature (Relinquished)			
Signature (Received)			

SAMPLE CONDITIONS

RECEIVED COOL ☑ WARM ☐ 3.8 °C

CUSTODY SEALED YES ☐ NO ☑

SPECIAL REQUIREMENTS:

036

Hexavalent Chromium

Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
5/23/13	808111-3	7.0	0.5 ml / 25 ml	9.5	16:00	TM
5/30/13	808179	7.0	2 ml / 100 ml	9.5	7:30	HAV
6/5/13	808266-1	7.0	2 ml / 100 ml	9.5	9:30	NE
	-2					NE
	808267-1	7.0	2 ml / 100 ml	9.5	9:30	NE
	-2					NE
	808268	9.5	N/A	N/A	N/A	NE
	808270	9.5	N/A	N/A	N/A	NE
	808271-1					NE
	-2					NE
	-3					NE
6/6/13	808301-1	9.5	N/A	N/A	N/A	NE
	-2					NE
6/4/13	808272-1	7.0	2 mL / 100 mL	9.5	12:00	TM
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
6/12/13	808407	7.0	2 ml / 100 ml	9.5	8:30	NE
6/19/13	808567	7.0	2 ml / 100 ml	9.5	8:00	NE
	808568	9.5	N/A	N/A	N/A	NE
6/20/13	808590-1	7.0	2 mL / 100 mL	9.5	8:40	TM
	-2					8:40
	-3					8:45
	-4					8:45
6/26/13	808685	7.0	2 mL / 100 ml	9.5	7:30	NE

06/28/13 NE 6/27/13

TRUESDAIL LABORATORIES, INC.

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
808490	<1	<2	6/14/13	ES	yes			
808491	↓	↓	↓	↓	↓			
808492	↓	↓	↓	↓	↓			
808529(1-2,4)	<1	>2	6-18-13	BE	NO	8:00		
808567 T	<1	>2	6-19-13	BE	yes	8:30		
808536(1-4)	↓	<2	↓	↓	↓			
808568	↓	↓	↓	↓	↓			
808558(1-2, 3-6)	↓	>2	↓	↓	NO	11:00	6-21	<2
808565(1-3)	↓	↓	↓	↓	↓	↓	↓	↓
808587	>1	>2	6/19/13	DV	yes	15:30		
808542	<1	<2	↓	↓	↓			
808543	↓	↓	↓	↓	↓			
808544	↓	↓	↓	↓	↓			
808545	↓	↓	↓	↓	↓			
808546	↓	↓	↓	↓	↓			
808588(10-12)	<1	>2	6-20-13	BE	NO	7:00	6-21	<2
808597(1-6)	<1	<2	↓	↓	yes			
808619	<1	>2	6-21-13	BE	NO	7:00	6-25	<2
808632(1-7)	<1	<2	6-21-13	BE	yes			
808592	<1	>2	↓	↓	NO	9:00	6-25	<2
808611	<1	>2	↓	↓	↓	10:30		
808656(1-4)	<1	>2	6-25-13	BE	NO	11:00		
808685	<1	>2	6-26-13	BE	yes	8:30		
808659(1-6)	<1	<2	↓	↓	↓			
808680(1-2)	<1	>2	↓	↓	NO	10:30		
808674	>1	1	↓	↓	yes	12:0		
808674	↓	<2	↓	↓	↓			
808594	↓	↓	↓	↓	↓			
808649	↓	↓	↓	↓	↓			
808650	↓	↓	↓	↓	↓			
808657(1,2,3,4,7,10,13,14,23)	BE <1	↓	↓	↓	NO	10:00AM	6-27-13	
808668	BE >1	↓	↓	↓	yes			
808698(10-11)	<1	>2	6-27-13	BE	NO	7:00		
808703(1-3)	↓	↓	↓	↓	↓	↓		

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

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: E 2 **Lab #** 808685

Date Delivered: 06 / 25 / 13 **Time:** 21:30 **By:** ☐ Mail ☑ Field Service ☐ Client

1. Was a Chain of Custody received and signed? ☑ Yes ☐ No ☐ N/A
2. Does Customer require an acknowledgement of the COC? ☐ Yes ☐ No ☑ N/A
3. Are there any special requirements or notes on the COC? ☐ Yes ☐ No ☑ N/A
4. If a letter was sent with the COC, does it match the COC? ☐ Yes ☐ No ☑ N/A
5. Were all requested analyses understood and acceptable? ☑ Yes ☐ No ☐ N/A
6. Were samples received in a chilled condition? ☑ Yes ☐ No ☐ N/A
   Temperature (if yes)? 3.8 °C
7. Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)? ☑ Yes ☐ No ☐ N/A
8. Were sample custody seals intact? ☐ Yes ☐ No ☑ N/A
9. Does the number of samples received agree with COC? ☑ Yes ☐ No ☐ N/A
10. Did sample labels correspond with the client ID's? ☑ Yes ☐ No ☐ N/A
11. Did sample labels indicate proper preservation? ☐ Yes ☐ No ☑ N/A
    Preserved (if yes) by: ☐ **Truesdail** ☐ Client
12. Were samples pH checked? pH = see c.o.c. ☑ Yes ☐ No ☐ N/A
13. Were all analyses within holding time at time of receipt? ☑ Yes ☐ No ☐ N/A
    If not, notify Project Manager.
14. Have Project due dates been checked and accepted? ☑ Yes ☐ No ☐ N/A
    Turn Around Time (TAT): ☒ **RUSH** ☐ Std
15. **Sample Matrix:** ☐ Liquid ☐ Drinking Water ☐ Ground Water ☐ Waste Water ☐ Sludge ☐ Soil ☐ Wipe ☐ Paint ☐ Solid ☒ Other Water
16. Comments: _____
17. Sample Check-In completed by **Truesdail** Log-In/Receiving: L. Strabunine

RUSH

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	6-4-13	13:30	6-4-13	13:35	METER #1	6-4-13	00:24	-54.2	CHRIS LENTZ	7.1
SC-100B	6-4-13	13:30	6-4-13	13:35	METER #1	6-4-13	00:24	-54.2	CHRIS LENTZ	7.4

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

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
1	PE-1	6-4-13	12:30	6-4-13	12:35	METER #1	6-4-13	00:24	-54.2	CHRIS LEWIS	7.4
Notes:											
2	TW3D	6-4-13	12:30	6-4-13	12:35	METER	6-4-13	00:24	-54.2	CHRIS LEWIS	7.2
Notes:											
3	SC-700B	6-11-13	13:15	6-11-13	13:20	METER #1	6-11-13	00:30	-54.1	CHRIS LEWIS	7.0
Notes:											
4	SC-700B	6-18-13	11:15	6-18-13	11:20	METER #1	6-18-13	00:31	-53.6	CHRIS LEWIS	6.8
Notes:											
5	SC-700B	6-25-13	1430	6-25-13	1440	METER #1	6-25-13	00:32	-53.6	6.6 / DRIA	6.8
Notes:											
6											
Notes:											
7											
Notes:											

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