



**Pacific Gas and
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April 15, 2013

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Robert Perdue
Executive Officer
California Regional Water Quality Control Board
Colorado River Basin Region
73-720 Fred Waring Drive, Suite 100
Palm Desert, CA 92260

**Subject: Topock IM-3 First Quarter 2013 Monitoring Report
PG&E Topock Compressor Station, Needles, California
Interim Measure No. 3 Groundwater Treatment System
(Document ID: PGE20130415A)**

Dear Ms. Innis and Mr. Perdue:

Enclosed is the First Quarter 2013 Monitoring 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.

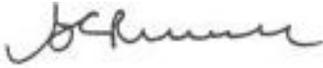
The IM-3 groundwater extraction and treatment system has extracted and treated approximately 507,545,986 gallons of water and removed approximately 5,720 pounds of total chromium from August 1, 2005 through March 31, 2013.

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.

Pamela S. Innis
Robert Perdue
April 15, 2013
Page 2

Sincerely,

A handwritten signature in cursive script, appearing to read "Curt Russell".

Curt Russell
Topock Site Manager

Enclosures:

Topock IM-3 First Quarter 2013 Monitoring Report

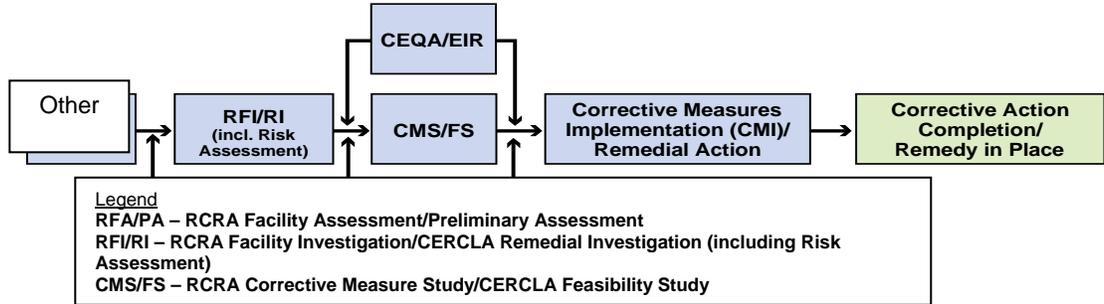
cc: Jose Cortez, Colorado River Basin Regional Water Board
Thomas Vandenberg, Colorado River Basin Regional Water Board
Aaron Yue, California Department of Toxic Substances Control

Topock Project Executive Abstract

<p>Document Title:</p> <p>Topock IM-3 First Quarter 2013 Monitoring Report</p> <p>Submitting Agency/ Authored by: U.S. Department of the Interior and Regional Water Quality Control Board</p> <p>Final Document? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>Date of Document: April 15, 2013</p> <p>Who Created this Document?: (i.e. PG&E, DTSC, DOI, Other)</p> <p>PG&E</p> <p>Document ID Number:</p> <p>PGE20130415A</p>
<p>Priority Status: <input type="checkbox"/> HIGH <input type="checkbox"/> MED <input checked="" type="checkbox"/> LOW</p> <p>Is this time critical? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	<p>Action Required:</p> <p><input checked="" type="checkbox"/> Information Only <input type="checkbox"/> Review & Comment</p> <p>Return to: _____</p> <p>By Date: _____</p> <p><input type="checkbox"/> Other / Explain:</p>
<p>Type of Document:</p> <p><input type="checkbox"/> Draft <input checked="" type="checkbox"/> Report <input type="checkbox"/> Letter <input type="checkbox"/> Memo</p> <p><input type="checkbox"/> Other / Explain:</p>	<p>What does this information pertain to?</p> <p><input type="checkbox"/> Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA)/Preliminary Assessment (PA)</p> <p><input type="checkbox"/> RCRA Facility Investigation (RFI)/Remedial Investigation (RI) (including Risk Assessment)</p> <p><input type="checkbox"/> Corrective Measures Study (CMS)/Feasibility Study (FS)</p> <p><input type="checkbox"/> Corrective Measures Implementation (CMI)/Remedial Action</p> <p><input type="checkbox"/> California Environmental Quality Act (CEQA)/Environmental Impact Report (EIR)</p> <p><input checked="" type="checkbox"/> Interim Measures</p> <p><input type="checkbox"/> Other / Explain:</p>
<p>What is the consequence of NOT doing this item? What is the consequence of DOING this item?</p> <p>Submittal of this report is a compliance requirement of the ARARs for waste discharge as documented in Attachment A to the Letter Agreement issued July 26, 2011.</p>	<p>Is this a Regulatory Requirement?</p> <p><input checked="" type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p> <p>If no, why is the document needed?</p>
<p>Other Justification/s:</p> <p><input type="checkbox"/> Permit <input type="checkbox"/> Other / Explain:</p>	
<p>Brief Summary of attached document:</p> <p>This report covers the Interim Measures No. 3 (IM-3) groundwater treatment system monitoring activities during the First 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.</p> <p>Written by: PG&E</p>	
<p>Recommendations:</p> <p>This report is for your information only.</p>	
<p>How is this information related to the Final Remedy or Regulatory Requirements?</p> <p>The Topock IM-3 First 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.</p>	
<p>Other requirements of this information?</p> <p>None.</p>	

Related Reports and Documents:

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



Version 9

First Quarter 2013 Monitoring Report Interim Measure No. 3 Groundwater Treatment System

Document ID: PGE20130415A

**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

April 15, 2013

155 Grand Avenue, Suite 800
Oakland, CA 94612

**First Quarter 2013 Monitoring 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

April 15, 2013

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



Dennis Fink

Dennis Fink, P.E.
Project Engineer

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Appendix

A	First Quarter 2013 Laboratory Analytical Reports
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Acronyms and Abbreviations

ARARs	Applicable or Relevant and Appropriate Requirements
DOI	United States Department of the Interior
gpm	gallons per minute
HMI	human-machine interface
IM	Interim Measure
IW	injection well
MRP	Monitoring and Reporting Program
PG&E	Pacific Gas and Electric Company
PST	Pacific Standard Time
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 First Quarter 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.

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

- 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.

During the First Quarter 2013, extraction wells TW-3D and PE-1 operated at a target pumping rate of 135 gallons per minute (gpm), excluding periods of planned and unplanned downtime. Extraction wells TW-2D and TW-2S were not operated during First Quarter 2013. The operational run time for the IM groundwater extraction system (combined or individual pumping), by month, was approximately:

- 98.0 percent during January 2013
- 96.6 percent during February 2013
- 98.4 percent during March 2013

Operation of the groundwater treatment system results in the following three out-flow components:

- **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. Disposal occurs each time a sludge waste storage bin reaches capacity or within 90 days of the start date for accumulation in the storage container.

Activities during the First Quarter 2013 are detailed in Section 4.

Groundwater Treatment System Flow Rates

The First Quarter 2013 treatment system monthly average flow rates (influent, effluent, and reverse osmosis concentrate) are presented in Table 2.

The system influent flow rate was measured by flow meters at groundwater extraction wells TW-2S, TW-2D, TW-3D, and PE-1 (Figure TP-PR-10-10-03). The treatment system effluent flow rate was measured by flow meters in the piping into injection wells IW-2 and IW-3 (Figure TP-PR-10-10-11). The RO concentrate flow rate was measured by a flow meter 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 treated approximately 17,196,399 gallons of extracted groundwater during the First Quarter 2013. The IM-3 facility also treated approximately 3,110 gallons of water generated from the groundwater monitoring program, approximately 14,500 gallons of injection well backwashing/re-development water, and approximately 350 gallons of rainwater that accumulated in the secondary containment around the MW-20 Bench.

Eight containers of solids (sludge) were transported offsite from the IM-3 facility during First Quarter 2013.

Periods of planned and unplanned extraction system downtime (that together resulted in approximately 2.3 percent downtime during First Quarter 2013) are summarized below. The times shown are in Pacific Standard Time (PST) to be consistent with other data collected (e.g., water level data) at the site.

4.1 January 2013

During January 2013, extraction wells TW-3D and PE-1 operated at a target pumping rate of 135 gpm excluding periods of planned and unplanned downtime. Extraction wells TW-2S and TW-2D were not operated during January 2013. The operational run time for the IM-3 groundwater extraction system (combined or individual pumping) was approximately 98.0 percent during the January 2013 reporting period.

The IM-3 facility treated approximately 5,879,555 gallons of extracted groundwater during January 2013. The IM-3 facility treated 950 gallons of water generated from the groundwater monitoring program and 2,700 gallons of injection well backwashing water. Two containers of solids from the IM-3 facility were transported offsite during January 2013.

Periods of planned and unplanned extraction system downtime (that together resulted in approximately 2.0 percent downtime during January 2013) are summarized below.

- **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.

4.2 February 2013

During February 2013, extraction wells TW-3D and PE-1 operated at a target pump rate of 135 gpm excluding periods of planned and unplanned downtime. Extraction wells TW-2D and TW-2S were not operated during February 2013. The operational run time for the IM No. 3 groundwater extraction system (combined or individual pumping) was 96.6 percent during the February 2013 reporting period.

The IM-3 facility treated approximately 5,298,130 gallons of extracted groundwater during February 2013. The IM-3 facility treated 2,160 gallons of water generated from the groundwater monitoring program and 350 gallons of rainwater that accumulated in the secondary containment around the MW-20 Bench Facility. Two containers of solids from IM-3 were transported offsite during February 2013.

Periods of planned and unplanned extraction system down time (that together resulted in approximately 3.4 percent of downtime during February 2013) are summarized below.

- **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 microfilter 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 hour, 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.

4.3 March 2013

During March 2013, extraction wells TW-3D and PE-1 operated at a target pump rate of 135 gpm excluding periods of planned and unplanned downtime. Extraction wells TW-2D and TW-2S were not operated during March 2013. The operational run time for the IM No. 3 groundwater extraction system (combined or individual pumping) was 98.4 percent during the March 2013 reporting period.

The IM-3 facility treated approximately 6,018,714 gallons of extracted groundwater during March 2013. The IM-3 facility treated 11,800 gallons of injection well backwashing/re-development water. Four containers of solids from IM-3 were transported offsite during March 2013.

Periods of planned and unplanned extraction system down time (that together resulted in approximately 1.6 percent of downtime during March 2013) are summarized below.

- **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.

SECTION 5

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 First 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.

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 6

Analytical Results

Laboratory reports for samples collected in the First Quarter 2013 were prepared by certified analytical laboratories, and are presented in Appendix A.

Samples were collected in accordance with the ARARs sampling frequency requirements. See Table 3 for sample collection dates.

The influent sampling analytical results are presented in Table 4. The effluent sampling analytical results are presented in Table 5. The RO concentrate sampling analytical results are presented in Table 6. The sludge sampling analytical results are presented in Table 7.

Table 8 identifies the laboratory that performed each analysis and lists the following required information:

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

SECTION 7

Conclusions

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

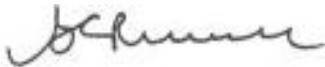
In addition, no incidents of non-compliance were identified during the reporting period. No events that caused an immediate or potential threat to human health or the environment, or new releases of hazardous waste or hazardous waste constituents, or new solid waste management units were identified during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

SECTION 8

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: April 15, 2013

Tables

TABLE 1

Sampling Station Descriptions*First 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*First 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)
January 2013 Average Monthly Flowrate	131.71	131.16	1.59
February 2013 Average Monthly Flowrate	131.40	130.93	1.39
March 2013 Average Monthly Flowrate	134.83	134.53	1.58

Notes:

gpm: gallons per minute

^a Extraction wells TW-3D and PE-1 were operated during the First Quarter 2013. Extraction wells TW-2D and TW-2S were not operated during the First Quarter 2013.^b The difference between influent flow rate and the sum of the effluent and reverse osmosis concentrate flow rates during the First Quarter 2013 is approximately 0.82 percent.

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

Parameter	Sample Collection Dates	Results
Influent	January 2, 2013	See Table 4
	February 5, 2013	
	March 5, 2013	
Effluent	January 2, 2013	See Table 5
	January 8, 2013	
	January 15, 2013	
	January 22, 2013	
	January 29, 2013	
	February 5, 2013	
	February 12, 2013	
	February 20, 2013	
	February 26, 2013	
	March 5, 2013	
	March 12, 2013	
	March 19, 2013	
	March 26, 2013	
Reverse Osmosis Concentrate	January 2, 2013	See Table 6
Sludge ^a	January 2, 2013	See Table 7

Notes:

^a Sludge samples analysis is required quarterly by composite; samples were collected from each sludge container prior to shipment off-site for the composite sample.

TABLE 4

Topock IM-3 Waste Discharge Applicable or Relevant and Appropriate Requirements (ARARs)
 Influent Monitoring Results ^a
 First Quarter 2013 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

Sampling Frequency		Monthly																						
Sample ID	Date	TDS	Turbidity	Specific Conductance	Field ^c pH	Chromium	Hexavalent Chromium	Aluminium	Ammonia (as N)	Antimony	Arsenic	Barium	Boron	Copper	Fluoride	Lead	Manganese	Molybdenum	Nickel	Nitrate (as N)	Nitrite (as N)	Sulfate	Iron	Zinc
		mg/L	NTU	µmhos/cm	pH units	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	mg/L	µg/L
Analytes Units ^b		MDL																						
		0.757	0.0140	0.116	---	0.920	0.460	10.0	0.0098	0.330	0.100	0.190	0.0060	0.260	0.104	0.0740	0.0860	0.210	0.790	0.0415	0.00054	1.54	3.60	7.00
SC-100B-WDR-394	1/2/2013	4970	0.227	7520	7.6	758	762	ND (50.0)	ND (0.500)	ND (2.00)	3.00	27.2	0.945	ND (5.00)	2.52	ND (1.00)	3.90	21.1	ND (2.00)	3.32	ND (0.0050)	533	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
SC-100B-WDR-399	2/5/2013	4390	ND (0.100)	7500	7.3	748	766	ND (50.0)	ND (0.500)	ND (2.00)	3.30	27.2	1.07	ND (5.00)	2.57	ND (1.00)	4.40	19.2	ND (2.00)	3.36	ND (0.0050)	564	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-403	3/5/2013	4580	0.160	7440	7.4	693	723	ND (50.0)	ND (0.500)	ND (2.00)	3.20	25.3	0.937	ND (5.00)	2.51	ND (1.00)	4.50	18.8	ND (20.0)	3.34	ND (0.0050)	551	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	20.0	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
 First 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
	Max Daily	NA	NA	NA	6.5-8.4	50	16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sampling Frequency	Weekly							Monthly																
Analytes Units ^c	TDS	Turbidity	Specific Conductance	Field pH ^e	Chromium	Hexavalent Chromium	Aluminium	Ammonia (as N)	Antimony	Arsenic	Barium	Boron	Copper	Fluoride	Lead	Manganese	Molybdenum	Nickel	Nitrate (as N)	Nitrite (as N)	Sulfate	Iron	Zinc	
	mg/L	NTU	µmhos/cm	pH units	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	mg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	mg/L	µg/L	µg/L	
MDL ^d	0.757	0.0140	0.116	---	0.0920	0.0092	10.0	0.0098	0.330	0.100	0.190	0.0060	0.260	0.104	0.0740	0.0860	0.210	0.790	0.0415	0.00054	1.54	3.60	7.00	
Sample ID	Date																							
SC-700B-WDR-394	1/2/2013	4340	ND (0.100)	7100	7.40	ND (1.00)	ND (0.200)	ND (50.0)	ND (0.500)	ND (2.00)	ND (0.500)	14.3	0.954	ND (5.00)	2.05	ND (1.00)	5.10	18.4	ND (2.00)	3.15	ND (0.0050)	493	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-395	1/8/2013	3960	ND (0.100)	7200	7.00	ND (1.00)	ND (0.200)	---	---	---	---	---	---	---	---	---	4.70	---	---	---	---	---	---	---
RL		250	0.100	2.00	---	1.00	0.200	---	---	---	---	---	---	---	---	---	0.500	---	---	---	---	---	---	---
SC-700B-WDR-396	1/15/2013	4410	ND (0.100)	7080	7.30	ND (1.00)	ND (0.200)	---	---	---	---	---	---	---	---	---	4.30	---	---	---	---	---	---	---
RL		250	0.100	2.00	---	1.00	0.200	---	---	---	---	---	---	---	---	---	0.500	---	---	---	---	---	---	---
SC-700B-WDR-397	1/22/2013	4790	ND (0.100)	7110	7.10	ND (1.00)	ND (1.00)	---	---	---	---	---	---	---	---	---	4.20	---	---	---	---	---	---	---
RL		250	0.100	2.00	---	1.00	1.00	---	---	---	---	---	---	---	---	---	0.500	---	---	---	---	---	---	---
SC-700B-WDR-398	1/29/2013	3940	ND (0.100)	7100	7.10	ND (1.00)	ND (0.200)	---	---	---	---	---	---	---	---	---	2.30	---	---	---	---	---	---	---
RL		250	0.100	2.00	---	1.00	0.200	---	---	---	---	---	---	---	---	---	0.500	---	---	---	---	---	---	---
SC-700B-WDR-399	2/5/2013	4050	ND (0.100)	7070	7.10	ND (1.00)	ND (0.200)	ND (50.0)	ND (0.500)	ND (2.00)	ND (0.500)	15.8	1.01	ND (5.00)	2.16	ND (1.00)	5.30	17.5	ND (2.00)	3.12	ND (0.0050)	502	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-400	2/12/2013	4490	ND (0.100)	7390	7.00	ND (1.00)	0.280	---	---	---	---	---	---	---	---	---	4.10	---	---	---	---	---	---	---
RL		250	0.100	2.00	---	1.00	0.200	---	---	---	---	---	---	---	---	---	0.500	---	---	---	---	---	---	---
SC-700B-WDR-401	2/20/2013	4550	ND (0.100)	7110	7.20	ND (1.00)	ND (1.00)	---	---	---	---	---	---	---	---	---	4.40	---	---	---	---	---	---	---
RL		250	0.100	2.00	---	1.00	1.00	---	---	---	---	---	---	---	---	---	0.500	---	---	---	---	---	---	---
SC-700B-WDR-402	2/26/2013	4190	ND (0.100)	7080	7.10	ND (1.00)	ND (0.200)	---	---	---	---	---	---	---	---	---	4.20	---	---	---	---	---	---	---
RL		250	0.100	2.00	---	1.00	0.200	---	---	---	---	---	---	---	---	---	0.500	---	---	---	---	---	---	---
SC-700B-WDR-403	3/5/2013	4110	ND (0.100)	7020	7.10	ND (1.00)	ND (0.200)	ND (50.0)	ND (0.500)	ND (2.00)	ND (0.500)	13.2	0.899	ND (5.00)	2.15	ND (1.00)	1.60	17.3	ND (10.0)	2.98	ND (0.0050)	550	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	10.0	0.500	0.0050	50.0	20.0	20.0
SC-700B-WDR-404	3/12/2013	4070	ND (0.100)	6880	7.00	ND (1.00)	ND (0.200)	---	---	---	---	---	---	---	---	---	1.60	---	---	---	---	---	---	---
RL		250	0.100	2.00	---	1.00	0.200	---	---	---	---	---	---	---	---	---	0.500	---	---	---	---	---	---	---
SC-700B-WDR-405	3/19/2013	4370	ND (0.100)	6790	6.90	ND (1.00)	ND (0.200)	---	---	---	---	---	---	---	---	---	2.40	---	---	---	---	---	---	---
RL		25.0	0.100	2.00	---	1.00	0.200	---	---	---	---	---	---	---	---	---	0.500	---	---	---	---	---	---	---
SC-700B-WDR-406	3/26/2013	4290	ND (0.100)	6740	6.90	ND (1.00)	ND (0.200)	---	---	---	---	---	---	---	---	---	0.970	---	---	---	---	---	---	---
RL		250	0.100	2.00	---	1.00	0.200	---	---	---	---	---	---	---	---	---	0.500	---	---	---	---	---	---	---

TABLE 5

Topock IM-3 Waste Discharge Applicable or Relevant and Appropriate Requirements (ARARs)
Effluent Monitoring Results^a
First Quarter 2013 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

NOTES:

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

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

TABLE 6

Topock IM-3 Waste Discharge Applicable or Relevant and Appropriate Requirements (ARARs)
 Reverse Osmosis Concentrate Monitoring Results ^a
 First Quarter 2013 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

Sampling Frequency		Quarterly																						
Sample ID	Date	Analytes	TDS	Specific Conductance	Field ^c pH	Chromium	Hexavalent Chromium	Antimony	Arsenic	Barium	Beryllium	Cadmium	Cobalt	Copper	Fluoride	Lead	Molybdenum	Mercury	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
		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		0.757	0.116	---	0.000092	0.000092	0.0017	0.00010	0.00038	0.00015	0.00044	0.00040	0.00026	0.104	0.00037	0.00041	0.000080	0.00079	0.000080	0.00027	0.00056	0.00018	0.0070	
SC-701-WDR-394	1/2/2013	29600	40300	7.9	0.00130	ND (0.0020)	ND (0.0050)	0.000590	0.0959	ND (0.0010)	ND (0.0010)	ND (0.0050)	ND (0.0050)	14.1	ND (0.0010)	0.124	ND (0.00040)	0.00480	0.0247	ND (0.0050)	ND (0.0025)	ND (0.0050)	ND (0.0200)	
RL		500	2.00	---	0.0010	0.0020	0.0050	0.00050	0.0050	0.0010	0.0010	0.0050	0.0050	0.500	0.0010	0.0020	0.00040	0.0020	0.0050	0.0050	0.0025	0.0050	0.0200	

NOTES:

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

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

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

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

TABLE 7

Topock IM-3 Waste Discharge Applicable or Relevant and Appropriate Requirements (ARARs)
 Sludge Monitoring Results^a
 First Quarter 2013 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

Sampling Frequency		Quarterly																		
Analytes Units ^b MDL	Date	Chromium	Hexavalent Chromium	Antimony	Arsenic	Barium	Beryllium	Cadmium	Cobalt	Copper	Fluoride	Lead	Molybdenum	Mercury	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
		0.0200	0.308	0.0180	0.0042	0.0180	0.00015	0.0020	0.0020	0.0140	0.0209	0.0060	0.0055	0.00020	0.0100	0.0120	0.0160	0.0072	0.0040	0.0140
SC-Sludge-WDR-394	1/2/2013	3590	36.9	49.8	ND (5.00)	54.0	ND (1.00)	5.69	ND (10.0)	7.61	19.9	ND (5.00)	ND (10.0)	ND (0.101)	26.6	ND (5.00)	ND (5.00)	ND (5.00)	36.1	30.9
RL		10.1	8.77	5.00	5.00	10.0	1.00	2.03	10.0	5.00	4.44	5.00	10.0	0.101	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 kilogram
 mg/L = milligrams per liter
 MDL = method detection limit
 ND = parameter not detected at the listed reporting limit
 RL = project reporting limit

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

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

TABLE 8

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

Monitoring Information

First 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-394	Ryan Phelps	1/2/2013	12:13:00 PM	TLI	EPA 120.1	SC	1/21/2013	Gautam Savani
					TLI	EPA 200.7	AL	1/11/2013	Ethel Suico
					TLI	EPA 200.7	B	1/11/2013	Ethel Suico
					TLI	EPA 200.7	FE	1/11/2013	Ethel Suico
					TLI	EPA 200.7	ZN	1/11/2013	Ethel Suico
					TLI	EPA 200.8	AS	1/17/2013	Bitam Emami
					TLI	EPA 200.8	BA	1/30/2013	Bitam Emami
					TLI	EPA 200.8	CR	1/16/2013	Bitam Emami
					TLI	EPA 200.8	CU	1/17/2013	Bitam Emami
					TLI	EPA 200.8	MN	1/17/2013	Bitam Emami
					TLI	EPA 200.8	MO	1/17/2013	Bitam Emami
					TLI	EPA 200.8	NI	1/17/2013	Bitam Emami
					TLI	EPA 200.8	PB	1/17/2013	Bitam Emami
					TLI	EPA 200.8	SB	1/17/2013	Bitam Emami
					TLI	EPA 218.6	CR6	1/3/2013	Himani Vaishnav
					TLI	EPA 300.0	FL	1/3/2013	Gaiwad Ghenniwa
					TLI	EPA 300.0	NO3N	1/3/2013	Gaiwad Ghenniwa
					TLI	EPA 300.0	SO4	1/3/2013	Gaiwad Ghenniwa
					FIELD	HACH	PH	1/2/2013	C.Knight
					TLI	SM2130B	TRB	1/3/2013	Gautam Savani
					TLI	SM2540C	TDS	1/9/2013	Jenny Tankunakorn
					TLI	SM4500NH3D	NH3N	1/11/2013	Melissa Scharfe
TLI	SM4500NO2B	NO2N	1/4/2013	Jenny Tankunakorn					
SC-100B	SC-100B-WDR-399	Ryan Phelps	2/5/2013	1:45:00 PM	TLI	EPA 120.1	SC	2/6/2013	Gautam Savani
					TLI	EPA 200.7	AL	2/19/2013	Ethel Suico/Denise Chauv
					TLI	EPA 200.7	B	2/19/2013	Ethel Suico/Denise Chauv
					TLI	EPA 200.7	FE	2/19/2013	Ethel Suico/Denise Chauv
					TLI	EPA 200.7	FETD	2/22/2013	Ethel Suico/Denise Chauv
					TLI	EPA 200.7	ZN	2/19/2013	Ethel Suico/Denise Chauv
					TLI	EPA 200.8	AS	2/26/2013	Bitam Emami
					TLI	EPA 200.8	BA	2/7/2013	Bitam Emami
					TLI	EPA 200.8	CR	2/7/2013	Bitam Emami
					TLI	EPA 200.8	CU	2/7/2013	Bitam Emami
					TLI	EPA 200.8	MN	2/7/2013	Bitam Emami
					TLI	EPA 200.8	MND	2/7/2013	Bitam Emami
					TLI	EPA 200.8	MO	2/7/2013	Bitam Emami

TABLE 8

Topock IM-3 Waste Discharge Applicable or Relevant and Appropriate Requirements (ARARs)
 Monitoring Information
 First 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-399	Ryan Phelps	2/5/2013	1:45:00 PM	TLI	EPA 200.8	NI	2/26/2013	Bitra Emami
					TLI	EPA 200.8	PB	2/7/2013	Bitra Emami
					TLI	EPA 200.8	SB	2/7/2013	Bitra Emami
					TLI	EPA 218.6	CR6	2/7/2013	Rozita Bahramzad
					TLI	EPA 300.0	FL	2/6/2013	Giawad Ghenniwa
					TLI	EPA 300.0	NO3N	2/6/2013	Giawad Ghenniwa
					TLI	EPA 300.0	SO4	2/6/2013	Giawad Ghenniwa
					FIELD	HACH	PH	2/5/2013	Ryan Phelps
					TLI	SM 2320B	ALKB	2/7/2013	Melissa Scharfe
					TLI	SM 2320B	ALKC	2/7/2013	Melissa Scharfe
					TLI	SM2130B	TRB	2/6/2013	Gautam Savani
					TLI	SM2540C	TDS	2/6/2013	Jenny Tankunakorn
					TLI	SM4500NH3D	NH3N	2/20/2013	Melissa Scharfe
					TLI	SM4500NO2B	NO2N	2/7/2013	Jenny Tankunakorn
					SC-100B	SC-100B-WDR-403	Chris Lentz	3/5/2013	11:45:00 AM
TLI	EPA 200.7	AL	3/15/2013	Denise Chauv					
TLI	EPA 200.7	B	3/15/2013	Denise Chauv					
TLI	EPA 200.7	FE	3/13/2013	Denise Chauv					
TLI	EPA 200.7	FETD	3/12/2013	Denise Chauv					
TLI	EPA 200.7	ZN	3/13/2013	Denise Chauv					
TLI	EPA 200.8	AS	3/15/2013	Bitra Emami/Ethel Suico					
TLI	EPA 200.8	BA	3/15/2013	Bitra Emami/Ethel Suico					
TLI	EPA 200.8	CR	3/15/2013	Bitra Emami/Ethel Suico					
TLI	EPA 200.8	CU	3/15/2013	Bitra Emami/Ethel Suico					
TLI	EPA 200.8	MN	3/15/2013	Bitra Emami/Ethel Suico					
TLI	EPA 200.8	MND	3/15/2013	Bitra Emami/Ethel Suico					
TLI	EPA 200.8	MO	3/15/2013	Bitra Emami/Ethel Suico					
TLI	EPA 200.8	NI	3/21/2013	Bitra Emami/Ethel Suico					
TLI	EPA 200.8	PB	3/15/2013	Bitra Emami/Ethel Suico					
TLI	EPA 200.8	SB	3/15/2013	Bitra Emami/Ethel Suico					
TLI	EPA 218.6	CR6	3/8/2013	Rozita Bahramzad/Tom Martinez					
TLI	EPA 300.0	FL	3/6/2013	Giawad Ghenniwa					
TLI	EPA 300.0	NO3N	3/6/2013	Giawad Ghenniwa					
TLI	EPA 300.0	SO4	3/6/2013	Giawad Ghenniwa					
FIELD	HACH	PH	3/5/2013	Chris Lentz					
TLI	SM 2320B	ALKB	3/6/2013	Melissa Scharfe					

TABLE 8

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

Monitoring Information

First 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-403	Chris Lentz	3/5/2013	11:45:00 AM	TLI	SM 2320B	ALKC	3/6/2013	Melissa Scharfe
					TLI	SM2130B	TRB	3/6/2013	Gautam Savani
					TLI	SM2540C	TDS	3/6/2013	Jenny Tankunakorn
					TLI	SM4500NH3D	NH3N	3/8/2013	Melissa Scharfe
					TLI	SM4500NO2B	NO2N	3/6/2013	Jenny Tankunakorn
SC-700B	SC-700B-WDR-394	Ryan Phelps	1/2/2013	12:21:00 PM	TLI	EPA 120.1	SC	1/21/2013	Gautam Savani
					TLI	EPA 200.7	AL	1/11/2013	Ethel Suico
					TLI	EPA 200.7	B	1/11/2013	Ethel Suico
					TLI	EPA 200.7	FE	1/11/2013	Ethel Suico
					TLI	EPA 200.7	ZN	1/11/2013	Ethel Suico
					TLI	EPA 200.8	AS	1/16/2013	Bitam Emami
					TLI	EPA 200.8	BA	1/16/2013	Bitam Emami
					TLI	EPA 200.8	CR	1/16/2013	Bitam Emami
					TLI	EPA 200.8	CU	1/16/2013	Bitam Emami
					TLI	EPA 200.8	MN	1/16/2013	Bitam Emami
					TLI	EPA 200.8	MO	1/17/2013	Bitam Emami
					TLI	EPA 200.8	NI	1/16/2013	Bitam Emami
					TLI	EPA 200.8	PB	1/17/2013	Bitam Emami
					TLI	EPA 200.8	SB	1/17/2013	Bitam Emami
					TLI	EPA 218.6	CR6	1/3/2013	Himani Vaishnav
					TLI	EPA 300.0	FL	1/3/2013	Gaiwad Ghenniwa
					TLI	EPA 300.0	NO3N	1/3/2013	Gaiwad Ghenniwa
					TLI	EPA 300.0	SO4	1/3/2013	Gaiwad Ghenniwa
					FIELD	HACH	PH	1/2/2013	C.Knight
					TLI	SM2130B	TRB	1/3/2013	Gautam Savani
TLI	SM2540C	TDS	1/9/2013	Jenny Tankunakorn					
TLI	SM4500NH3D	NH3N	1/11/2013	Melissa Scharfe					
TLI	SM4500NO2B	NO2N	1/4/2013	Jenny Tankunakorn					
SC-700B	SC-700B-WDR-395	Chris Lentz	1/8/2013	11:30:00 AM	TLI	EPA 120.1	SC	1/11/2013	Gautam Savani
					TLI	EPA 200.8	CR	1/17/2013	Bitam Emami
					TLI	EPA 200.8	MN	1/17/2013	Bitam Emami
					TLI	EPA 218.6	CR6	1/9/2013	Himani Vaishnav
					FIELD	HACH	PH	1/8/2013	Chris Ron
					TLI	SM2130B	TRB	1/9/2013	Gautam Savani
					TLI	SM2540C	TDS	1/9/2013	Jenny Tankunakorn

TABLE 8

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

Monitoring Information

First 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-396	Chris Lentz	1/15/2013	1:30:00 PM	TLI	EPA 120.1	SC	1/18/2013	Gautam Savani
					TLI	EPA 200.8	CR	1/18/2013	Bitam Emami
					TLI	EPA 200.8	MN	1/18/2013	Bitam Emami
					TLI	EPA 218.6	CR6	1/18/2013	Himani Vaishnav
					FIELD	HACH	PH	1/15/2013	Ron Phelps
					TLI	SM2130B	TRB	1/16/2013	Gautam Savani
					TLI	SM2540C	TDS	1/16/2013	Jenny Tankunakorn
SC-700B	SC-700B-WDR-397	Ron Phelps	1/22/2013		TLI	EPA 120.1	SC	1/24/2013	Gautam Savani
					TLI	EPA 200.8	CR	1/29/2013	Bitam Emami
					TLI	EPA 200.8	MN	1/29/2013	Bitam Emami
					TLI	EPA 218.6	CR6	1/24/2013	Himani Vaishnav
					FIELD	HACH	PH	1/22/2013	Ron Phelps
					TLI	SM2130B	TRB	1/23/2013	Gautam Savani
					TLI	SM2540C	TDS	1/23/2013	Jenny Tankunakorn
SC-700B	SC-700B-WDR-398	Chris Lentz	1/29/2013	11:30:00 AM	TLI	EPA 120.1	SC	1/31/2013	Gautam Savani
					TLI	EPA 200.8	CR	2/5/2013	Bitam Emami
					TLI	EPA 200.8	MN	2/5/2013	Bitam Emami
					TLI	EPA 218.6	CR6	1/30/2013	Rozita Bahramzad
					FIELD	HACH	PH	1/29/2013	Chris Lentz
					TLI	SM2130B	TRB	1/30/2013	Gautam Savani
					TLI	SM2540C	TDS	1/31/2013	Jenny Tankunakorn
SC-700B	SC-700B-WDR-399	Ryan Phelps	2/5/2013	2:05:00 PM	TLI	EPA 120.1	SC	2/6/2013	Gautam Savani
					TLI	EPA 200.7	AL	2/19/2013	Ethel Suico/Denise Chauv
					TLI	EPA 200.7	B	2/19/2013	Ethel Suico/Denise Chauv
					TLI	EPA 200.7	FE	2/19/2013	Ethel Suico/Denise Chauv
					TLI	EPA 200.7	ZN	2/19/2013	Ethel Suico/Denise Chauv
					TLI	EPA 200.8	AS	2/26/2013	Bitam Emami
					TLI	EPA 200.8	BA	2/7/2013	Bitam Emami
					TLI	EPA 200.8	CR	2/7/2013	Bitam Emami
					TLI	EPA 200.8	CU	2/7/2013	Bitam Emami
					TLI	EPA 200.8	MN	2/7/2013	Bitam Emami
					TLI	EPA 200.8	MO	2/7/2013	Bitam Emami
					TLI	EPA 200.8	NI	2/26/2013	Bitam Emami
					TLI	EPA 200.8	PB	2/7/2013	Bitam Emami
					TLI	EPA 200.8	SB	2/7/2013	Bitam Emami

TABLE 8

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

Monitoring Information

First 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-399	Ryan Phelps	2/5/2013	2:05:00 PM	TLI	EPA 218.6	CR6	2/7/2013	Rozita Bahramzad
					TLI	EPA 300.0	FL	2/6/2013	Giawad Ghenniwa
					TLI	EPA 300.0	NO3N	2/6/2013	Giawad Ghenniwa
					TLI	EPA 300.0	SO4	2/6/2013	Giawad Ghenniwa
					FIELD	HACH	PH	2/5/2013	Ryan Phelps
					TLI	SM2130B	TRB	2/6/2013	Gautam Savani
					TLI	SM2540C	TDS	2/6/2013	Jenny Tankunakorn
					TLI	SM4500NH3D	NH3N	2/20/2013	Melissa Scharfe
					TLI	SM4500NO2B	NO2N	2/7/2013	Jenny Tankunakorn
SC-700B	SC-700B-WDR-400	Ron Phelps	2/12/2013	11:00:00 AM	TLI	EPA 120.1	SC	2/14/2013	Gautam Savani
					TLI	EPA 200.8	CR	2/13/2013	Bitam Emami
					TLI	EPA 200.8	MN	2/13/2013	Bitam Emami
					TLI	EPA 218.6	CR6	2/15/2013	Rozita Bahramzad
					FIELD	HACH	PH	2/12/2013	Ron Phelps
					TLI	SM2130B	TRB	2/13/2013	Gautam Savani
					TLI	SM2540C	TDS	2/15/2013	Jenny Tankunakorn
SC-700B	SC-700B-WDR-401	J. Aide	2/20/2013	12:25:00 PM	TLI	EPA 120.1	SC	2/22/2013	Gautam Savani
					TLI	EPA 200.8	CR	2/25/2013	Bitam Emami
					TLI	EPA 200.8	MN	2/25/2013	Bitam Emami
					TLI	EPA 218.6	CR6	2/21/2013	Rozita Bahramzad
					FIELD	HACH	PH	2/20/2013	J Aide
					TLI	SM2130B	TRB	2/21/2013	Gautam Savani
					TLI	SM2540C	TDS	2/22/2013	Jenny Tankunakorn
SC-700B	SC-700B-WDR-402	Chris Lentz	2/26/2013	11:30:00 AM	TLI	EPA 120.1	SC	2/28/2013	Gautam Savani
					TLI	EPA 200.8	CR	3/4/2013	Bitam Emami
					TLI	EPA 200.8	MN	3/4/2013	Bitam Emami
					TLI	EPA 218.6	CR6	3/5/2013	Rozita Bahramzad/Tom Martinez
					FIELD	HACH	PH	2/26/2013	Chris Lentz
					TLI	SM2130B	TRB	2/27/2013	Gautam Savani
					TLI	SM2540C	TDS	3/4/2013	Jenny Tankunakorn
SC-700B	SC-700B-WDR-403	Chris Lentz	3/5/2013	11:45:00 AM	TLI	EPA 120.1	SC	3/6/2013	Gautam Savani
					TLI	EPA 200.7	AL	3/15/2013	Denise Chauv
					TLI	EPA 200.7	B	3/15/2013	Denise Chauv
					TLI	EPA 200.7	FE	3/13/2013	Denise Chauv
					TLI	EPA 200.7	ZN	3/13/2013	Denise Chauv

TABLE 8

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

Monitoring Information

First 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-403	Chris Lentz	3/5/2013	11:45:00 AM	TLI	EPA 200.8	AS	3/15/2013	Bitu Emami/Ethel Suico
					TLI	EPA 200.8	BA	3/15/2013	Bitu Emami/Ethel Suico
					TLI	EPA 200.8	CR	3/15/2013	Bitu Emami/Ethel Suico
					TLI	EPA 200.8	CU	3/15/2013	Bitu Emami/Ethel Suico
					TLI	EPA 200.8	MN	3/15/2013	Bitu Emami/Ethel Suico
					TLI	EPA 200.8	MO	3/15/2013	Bitu Emami/Ethel Suico
					TLI	EPA 200.8	NI	3/21/2013	Bitu Emami/Ethel Suico
					TLI	EPA 200.8	PB	3/15/2013	Bitu Emami/Ethel Suico
					TLI	EPA 200.8	SB	3/15/2013	Bitu Emami/Ethel Suico
					TLI	EPA 218.6	CR6	3/27/2013	Rozita Bahramzad/Tom Martinez
					TLI	EPA 300.0	FL	3/6/2013	Giawad Ghenniwa
					TLI	EPA 300.0	NO3N	3/6/2013	Giawad Ghenniwa
					TLI	EPA 300.0	SO4	3/6/2013	Giawad Ghenniwa
					FIELD	HACH	PH	3/5/2013	Chris Lentz
					TLI	SM2130B	TRB	3/6/2013	Gautam Savani
					TLI	SM2540C	TDS	3/6/2013	Jenny Tankunakorn
SC-700B	SC-700B-WDR-404	Chris Lentz	3/12/2013	11:30:00 AM	TLI	EPA 120.1	SC	3/13/2013	Gautam Savani
					TLI	EPA 200.8	CR	3/19/2013	Bitu Emami
					TLI	EPA 200.8	MN	3/19/2013	Bitu Emami
					TLI	EPA 218.6	CR6	3/14/2013	Rozita Bahramzad
					FIELD	HACH	PH	3/12/2013	Chris Lentz
					TLI	SM2130B	TRB	3/13/2013	Gautam Savani
					TLI	SM2540C	TDS	3/14/2013	Jenny Tankunakorn
SC-700B	SC-700B-WDR-405	Ron Phelps	3/19/2013	10:00:00 AM	TLI	EPA 120.1	SC	3/20/2013	Gautam Savani
					TLI	EPA 200.8	CR	3/22/2013	Ethel Suico
					TLI	EPA 200.8	MN	3/22/2013	Ethel Suico
					TLI	EPA 218.6	CR6	3/20/2013	Rozita Bahramzad
					FIELD	HACH	PH	3/19/2013	Ron Phelps
					TLI	SM2130B	TRB	3/20/2013	Gautam Savani
					TLI	SM2540C	TDS	3/25/2013	Jenny Tankunakorn
SC-700B	SC-700B-WDR-406	Ron Phelps	3/26/2013	1:15:00 PM	TLI	EPA 120.1	SC	3/27/2013	Gautam Savani
					TLI	EPA 200.8	CR	3/27/2013	Ethel Suico
					TLI	EPA 200.8	MN	3/27/2013	Ethel Suico

TABLE 8

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

Monitoring Information

First 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-406	Ron Phelps	3/26/2013	1:15:00 PM	TLI	EPA 218.6	CR6	3/27/2013	Tom Martinez
					FIELD	HACH	PH	3/26/2013	Jamie Gustafson
					TLI	SM2130B	TRB	3/27/2013	Gautam Savani
					TLI	SM2540C	TDS	3/27/2013	Jenny Tankunakorn
SC-701	SC-701-WDR-394	Ryan Phelps	1/2/2013	12:28:00 PM	TLI	EPA 120.1	SC	1/21/2013	Gautam Savani
					TLI	EPA 200.7	ZN	1/11/2013	Ethel Suico
					TLI	EPA 200.8	AG	1/17/2013	Bitu Emami
					TLI	EPA 200.8	AS	1/17/2013	Bitu Emami
					TLI	EPA 200.8	BA	1/22/2013	Bitu Emami
					TLI	EPA 200.8	BE	1/17/2013	Bitu Emami
					TLI	EPA 200.8	CD	1/17/2013	Bitu Emami
					TLI	EPA 200.8	CO	1/17/2013	Bitu Emami
					TLI	EPA 200.8	CR	1/17/2013	Bitu Emami
					TLI	EPA 200.8	CU	1/17/2013	Bitu Emami
					TLI	EPA 200.8	HG	1/30/2013	Bitu Emami
					TLI	EPA 200.8	MN	1/17/2013	Bitu Emami
					TLI	EPA 200.8	MO	1/22/2013	Bitu Emami
					TLI	EPA 200.8	NI	1/17/2013	Bitu Emami
					TLI	EPA 200.8	PB	1/17/2013	Bitu Emami
					TLI	EPA 200.8	SB	1/17/2013	Bitu Emami
					TLI	EPA 200.8	SE	1/17/2013	Bitu Emami
					TLI	EPA 200.8	TL	1/17/2013	Bitu Emami
					TLI	EPA 200.8	V	1/17/2013	Bitu Emami
					TLI	EPA 218.6	CR6	1/3/2013	Himani Vaishnav
TLI	EPA 300.0	FL	1/3/2013	Gaiwad Ghenniwa					
FIELD	HACH	PH	1/2/2013	C.Knight					
TLI	SM2540C	TDS	1/9/2013	Jenny Tankunakorn					
Phase Separator	SC-Sludge-WDR-394	Ryan Phelps	1/2/2013	10:25:00 AM	TLI	EPA 300.0	FL	1/3/2013	Giawad Ghenniwa
					TLI	EPA 300.0	NO3N	1/3/2013	Giawad Ghenniwa
					TLI	EPA 6010B	AG	1/15/2013	Ethel Suico/Denise Chauv
					TLI	EPA 6010B	AS	1/15/2013	Ethel Suico/Denise Chauv
					TLI	EPA 6010B	BA	1/15/2013	Ethel Suico/Denise Chauv
					TLI	EPA 6010B	CD	1/15/2013	Ethel Suico/Denise Chauv
					TLI	EPA 6010B	CO	1/15/2013	Ethel Suico/Denise Chauv
					TLI	EPA 6010B	CR	1/15/2013	Ethel Suico/Denise Chauv
					TLI	EPA 6010B	CU	1/15/2013	Ethel Suico/Denise Chauv

TABLE 8

Topock IM-3 Waste Discharge Applicable or Relevant and Appropriate Requirements (ARARs)
Monitoring Information
First 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
Phase Separator	SC-Sludge-WDR-394	Ryan Phelps	1/2/2013	10:25:00 AM	TLI	EPA 6010B	MN	1/16/2013	Ethel Suico/Denise Chauv
					TLI	EPA 6010B	MO	1/21/2013	Ethel Suico/Denise Chauv
					TLI	EPA 6010B	NI	1/21/2013	Ethel Suico/Denise Chauv
					TLI	EPA 6010B	PB	1/16/2013	Ethel Suico/Denise Chauv
					TLI	EPA 6010B	SB	1/15/2013	Ethel Suico/Denise Chauv
					TLI	EPA 6010B	SE	1/15/2013	Ethel Suico/Denise Chauv
					TLI	EPA 6010B	TL	1/18/2013	Ethel Suico/Denise Chauv
					TLI	EPA 6010B	V	1/15/2013	Ethel Suico/Denise Chauv
					TLI	EPA 6010B	ZN	1/15/2013	Ethel Suico/Denise Chauv
					TLI	SM2540B	MOIST	1/7/2013	Gautam Savani
					TLI	SW 6020A	BE	1/21/2013	Bitu Emami
					TLI	SW 6020A	HG	1/21/2013	Bitu Emami
					TLI	SW 7199	CR6	1/22/2013	Himani Vaishnav

TABLE 8

Topock IM-3 Waste Discharge Applicable or Relevant and Appropriate Requirements (ARARs)
Monitoring Information
First Quarter 2013 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

NOTES:

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

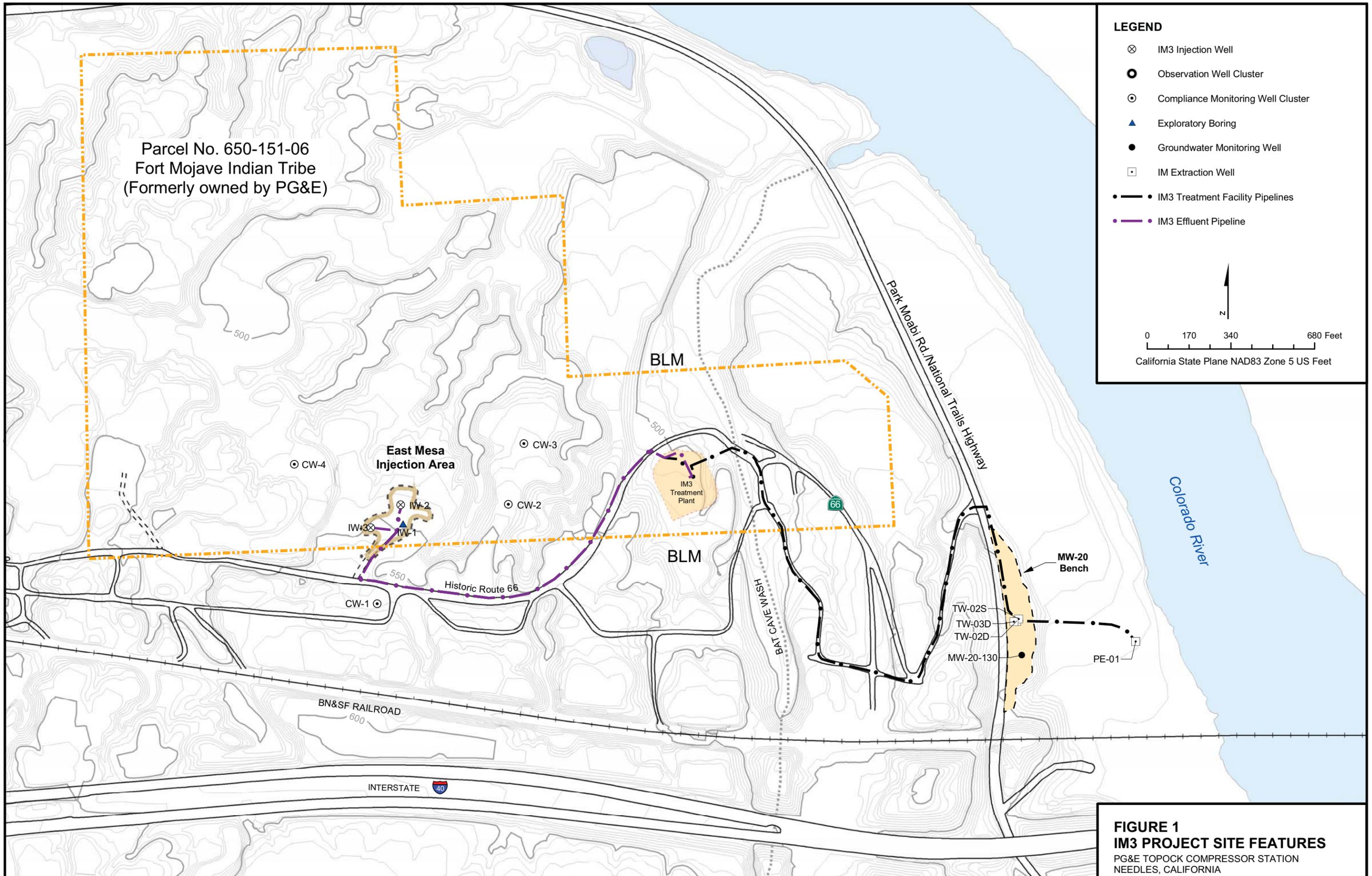
SC-100B = Sampling location for all influent samples is tap on pipe from extraction wells into tank T-100 (see attached P&ID TP-PR-10-10-04).

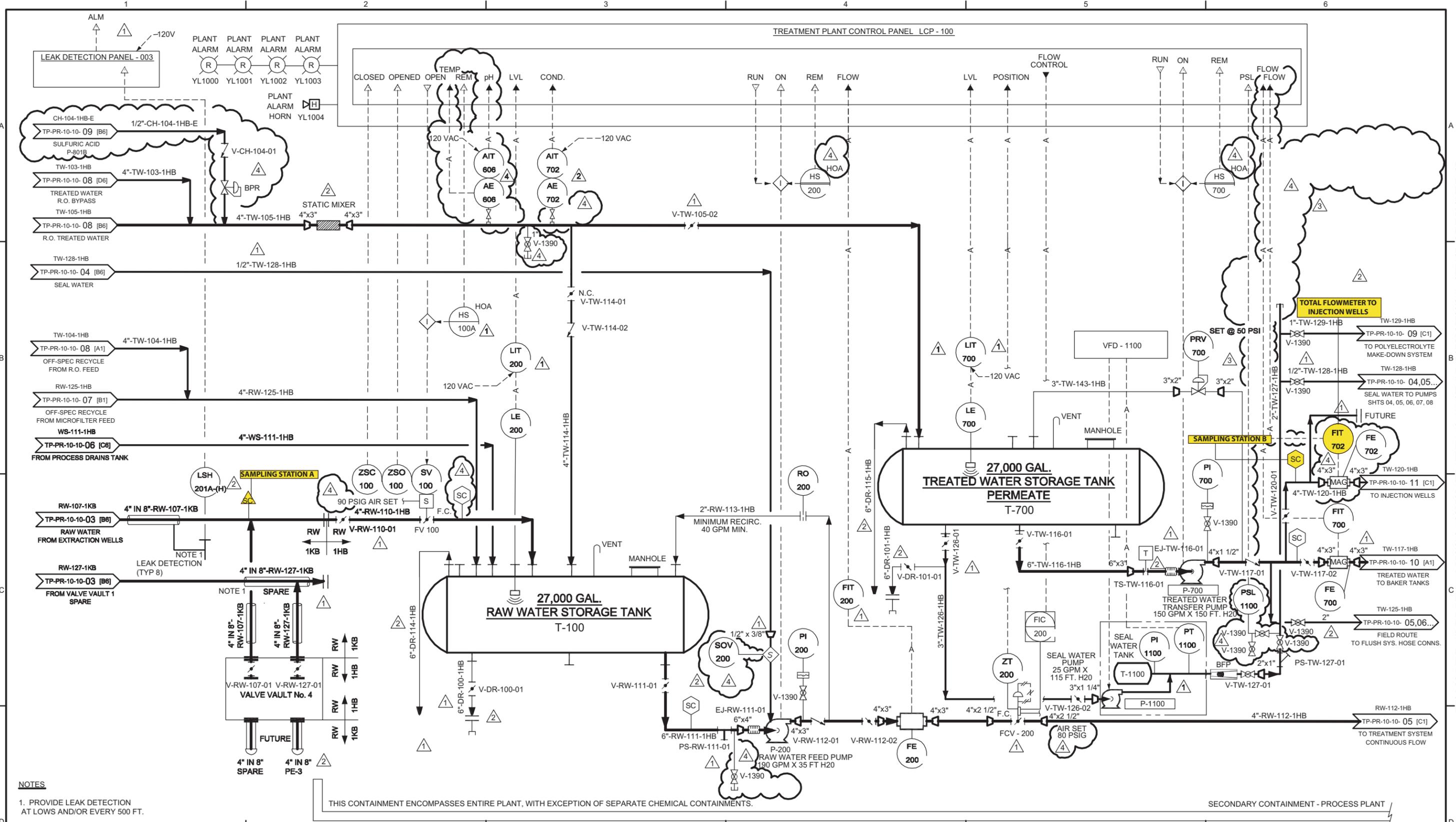
SC-701 = Sampling location for all reverse osmosis samples is tap on pipe T-701 (see attached P&ID PR-10-04).

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

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

Figures





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

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

SECONDARY CONTAINMENT - PROCESS PLANT

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

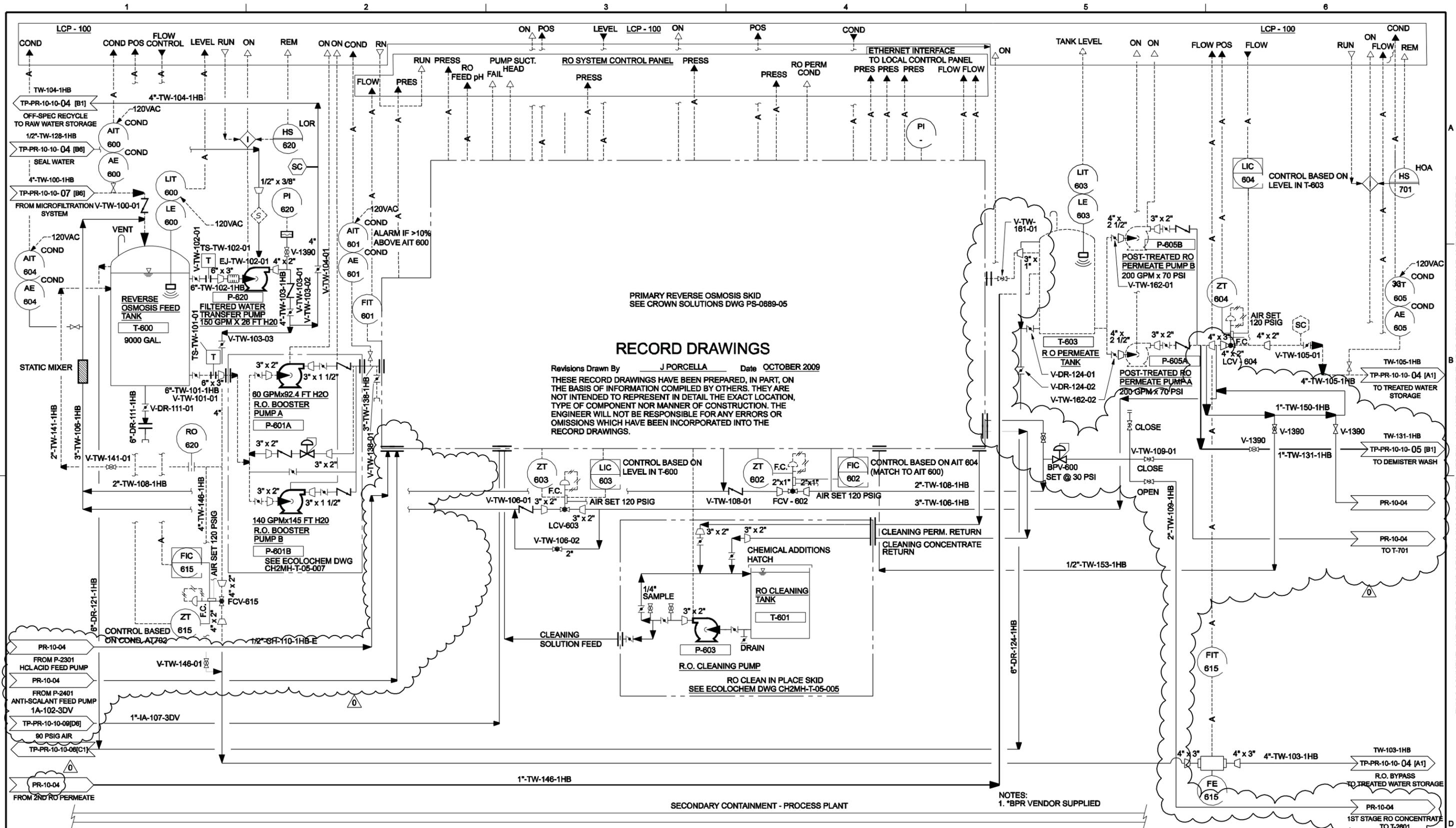
SCALE NONE

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

CH2MHILL

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

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NOTES:
 1. *BPR VENDOR SUPPLIED

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

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

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

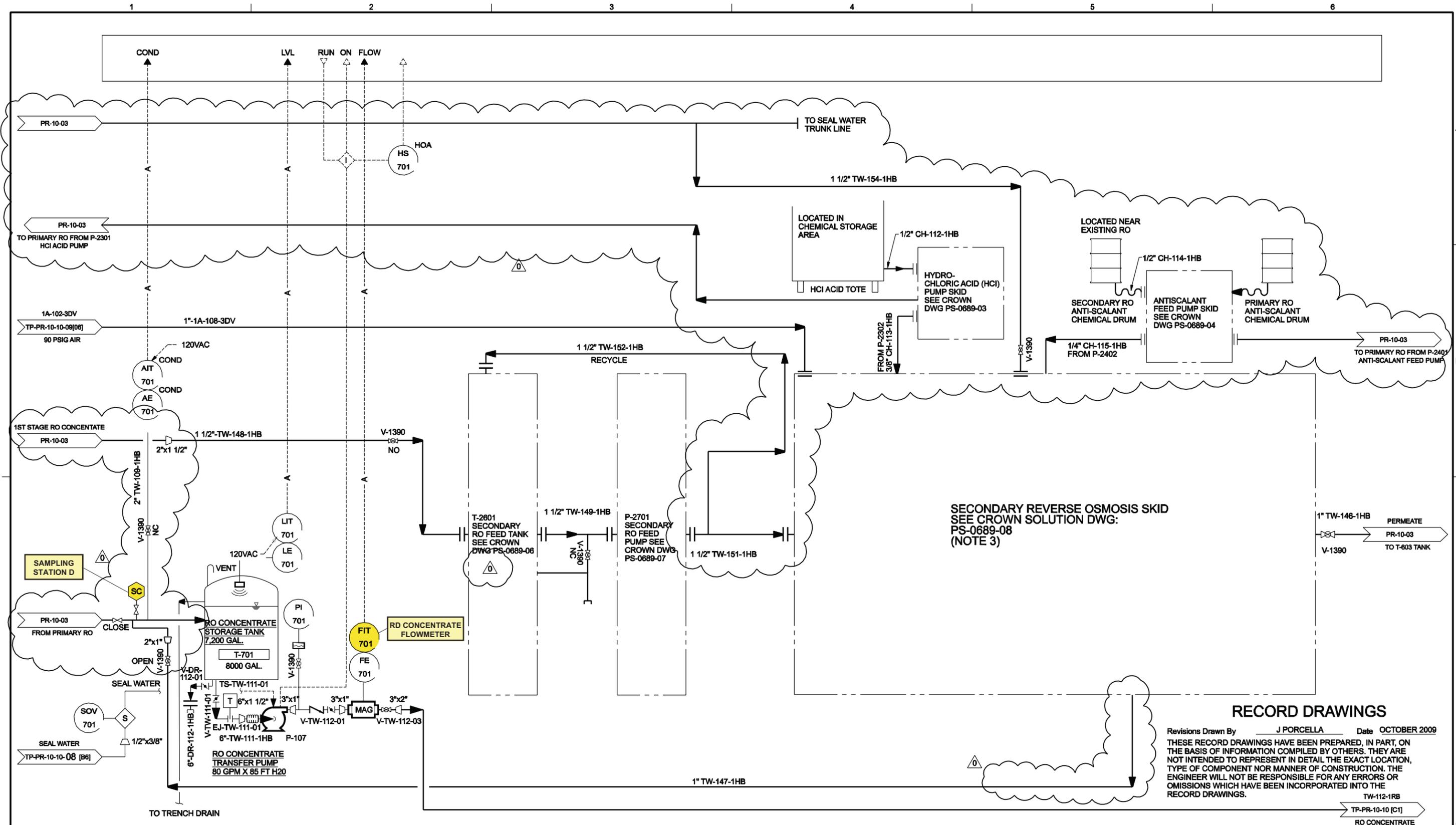
PROJECT NO. 362032

CH2MHILL

PROCESS AND INSTRUMENTATION DIAGRAM
 REVERSE OSMOSIS SYSTEM
 SHEET ONE OF TWO

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

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

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Revisions Drawn By J PORCELLA Date OCTOBER 2009
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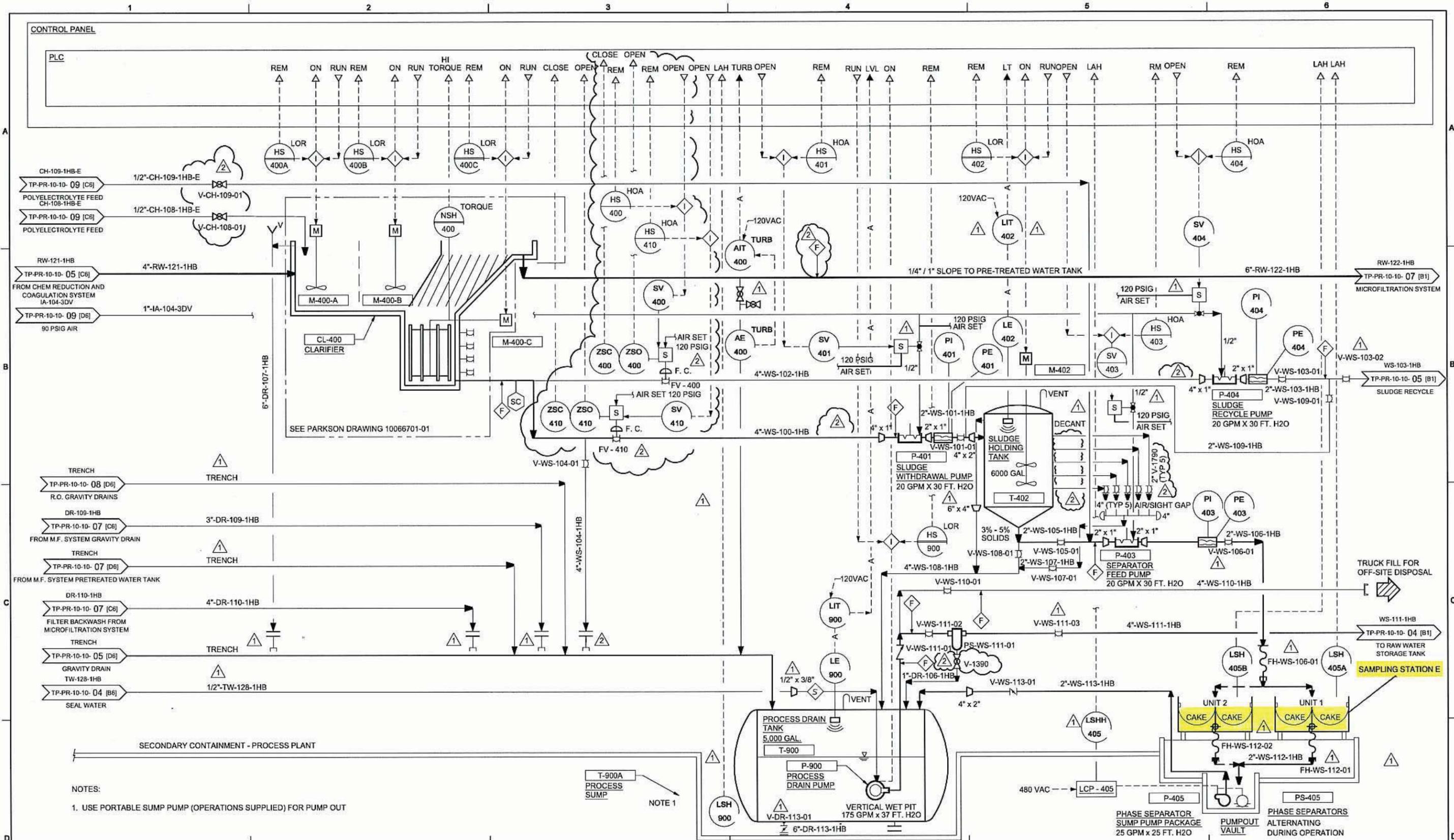
**** ORIGINAL STAMPED AND SIGNED BY: JOHN PORCELLA CALIFORNIA PE NO. C70145 ON 04-01-2009 ****

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

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

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

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

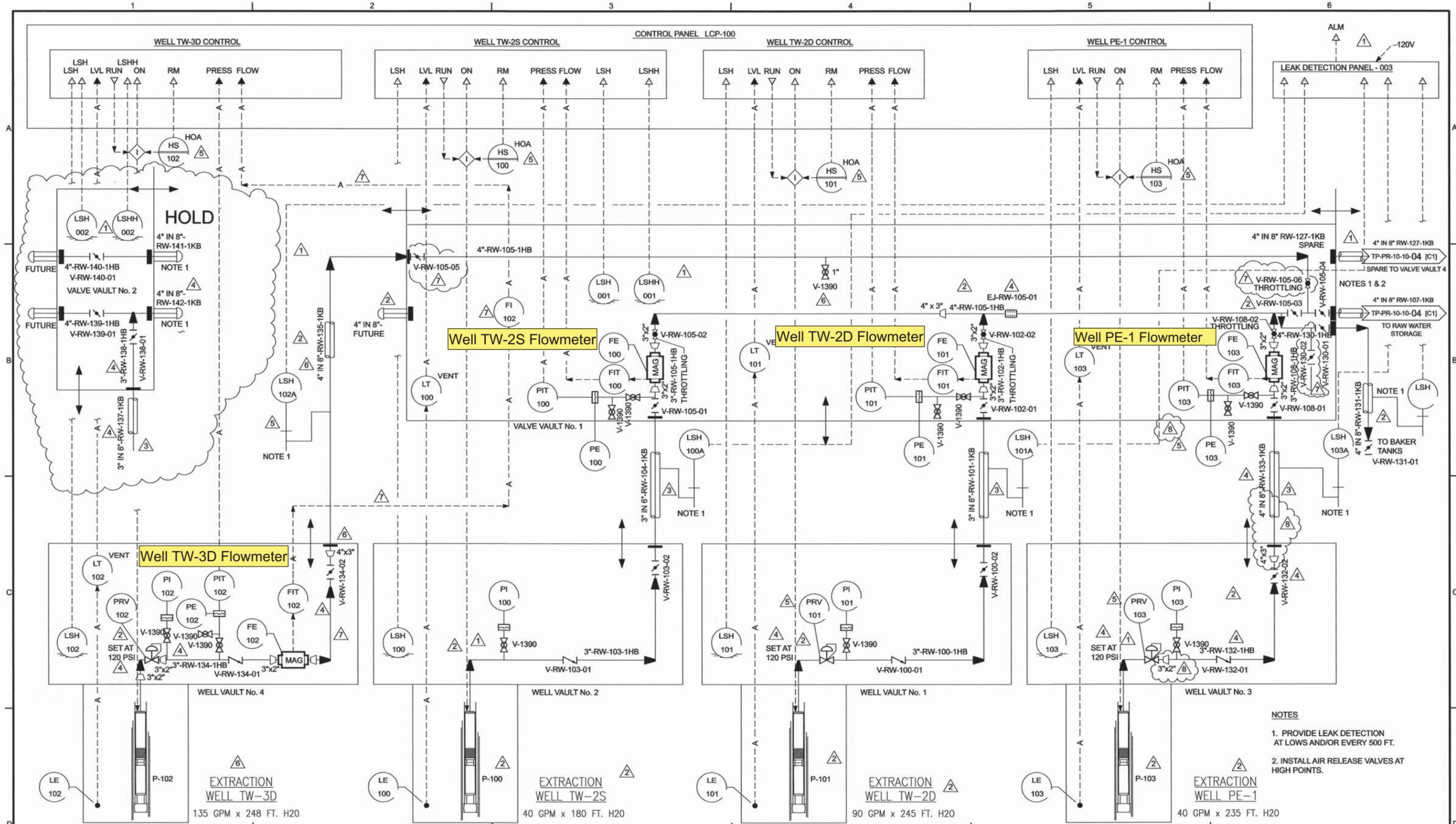
NO.	DATE	REVISION	BY	CHK	REVISION APPROVAL	REV 2	DATE 01/23/05	PRINT DISTRIBUTION	STATUS				PACIFIC GAS & ELECTRIC CO. TOPOCK COMPRESSOR STATION INTERIM MEASURE 3 EXPANDED GROUNDWATER EXTRACTION AND TREATMENT SYSTEM PROJ. NO. 315994	PROCESS AND INSTRUMENTATION DIAGRAM SHEET 06 CLARIFICATION AND SLUDGE REMOVAL		
									ISSUED	REV	DATE	SDE		PEM	DWG. NO. TP-PR-10-10-06	REV. 2
0	07/28/04	FOR INTERNAL REVIEW	EFC	AJ	DISCIPLINE REVIEWED			STATUS	ISSUED							
0	09/03/04	APPROVED FOR CONSTRUCTION	EFC	AJ	CIVIL			DISCIPLINE REVIEWED	PRELIMINARY							
1	10/13/04	REVISED AND APPROVED FOR CONSTRUCTION	EFC	AJ	STRUCTURAL			INST & CONTROL	FOR REVIEW AND APPROVAL	D	07/28/04					
2	01/23/05	REVISED AND APPROVED FOR CONSTRUCTION	EFC	AJ	MECHANICAL			ARCHITECTURAL	APPROVED FOR CONSTRUCTION	0	09/03/04	KLM	TP			
					PROCESS			ENVIRONMENTAL	REVISED & APPROVED FOR CONSTRUCTION	2	01/23/05					
					PIPING			GEN. ARRANG.								
								INTRA CO.								

SCALE NONE

CH2MHILL

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

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

NO.	DATE	REVISION	BY	CHK	REVISION APPROVAL	REV 8	DATE 12/06/05	PRINT DISTRIBUTION	STATUS
8	12/07/05	REMOVED PE-1 HOLDS	JBW	SDH	DISCIPLINE	REVIEWED	DISCIPLINE	REVIEWED	ISSUED
1	10/13/04	REVISED AND APPROVED FOR CONSTRUCTION	EFC	AJ	CIVIL	---	ELECTRICAL	---	PRELIMINARY
2	01/23/05	REVISED AND APPROVED FOR CONSTRUCTION	EFC	AJ	STRUCTURAL	---	INST & CONTROL	---	FOR REVIEW AND APPROVAL
3	03/16/05	DELETED NOTES, APPROVED FOR CONSTRUCTION	EFC	AJ	MECHANICAL	---	ARCHITECTURAL	---	APPROVED FOR CONSTRUCTION
4	07/20/05	RELIEF VALVE SETTINGS, WELL PE-1 LINE TAGS, HOLDS REMOVED, APPROVED FOR CONSTRUCTION	EFC	AJ	PROCESS	---	ENVIRONMENTAL	---	FIELD
5	09/27/05	FINAL RECORD ISSUE	EFC	AJ	PIPING	SDH	GEN. ARRANG.	---	REVISED & APPROVED FOR CONSTRUCTION
6	10/06/05	REVISED FINAL RECORD - ADDED TW-3D	EFC	AJ	---	---	---	---	---
7	10/19/05	REVISED AS NOTED	EFC	AJ	---	---	---	---	---

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

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

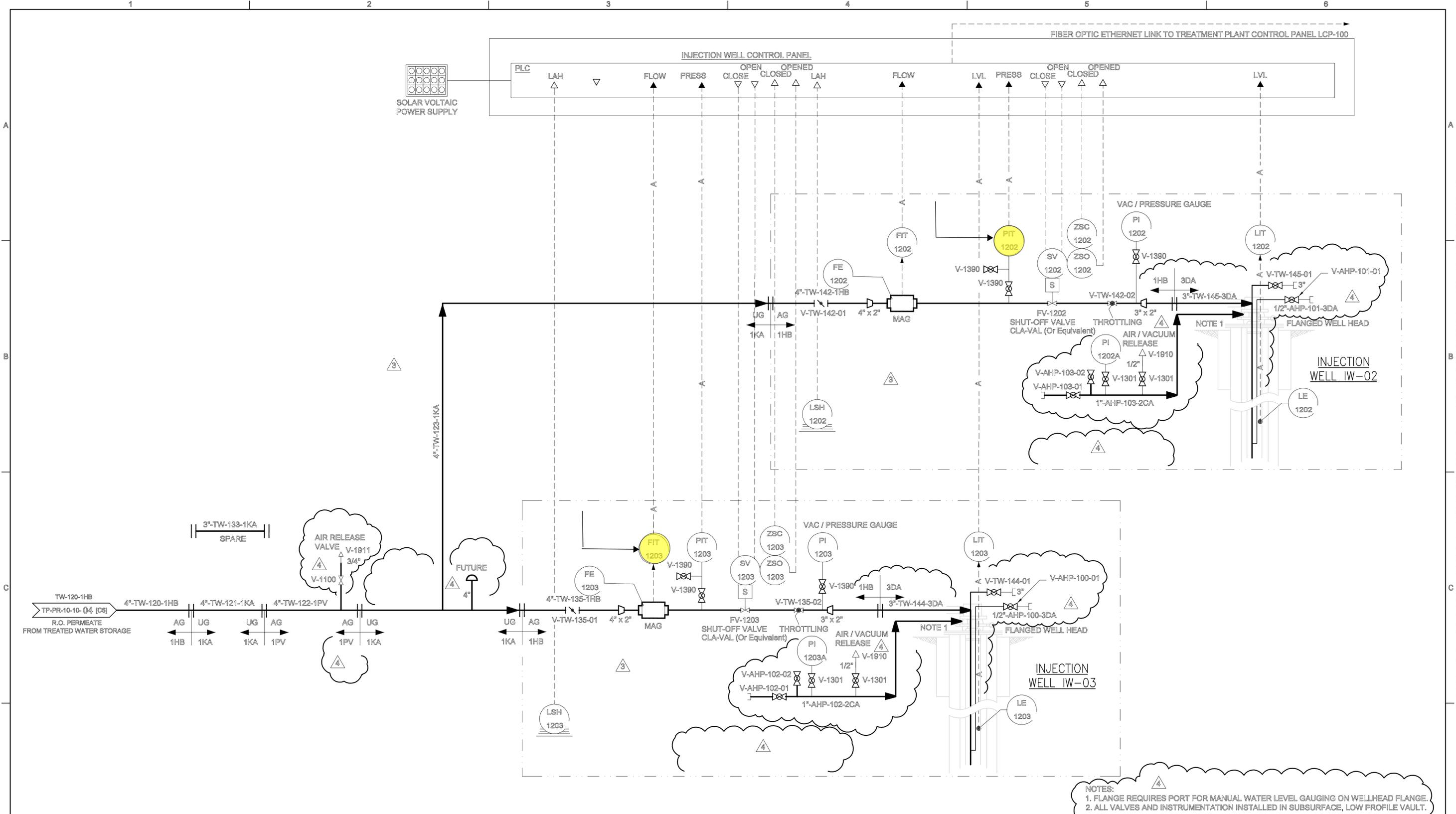
SCALE NONE

CH2MHILL



RESPONSIBLE ENGINEER:
Kenneth L. Martins
PE # CH4876 Exp. 6/30/08

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

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

SCALE NONE

CH2MHILL

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

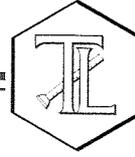
PACIFIC GAS & ELECTRIC CO.
 TOPOCK COMPRESSOR STATION
 INTERIM MEASURE 3
 EXPANDED GROUNDWATER EXTRACTION
 AND TREATMENT SYSTEM
 PROJ. NO. 315994

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Appendix A
First Quarter 2013 Laboratory Analytical Reports

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

February 27, 2013

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

Dear Mr. Duffy:

SUBJECT: REVISED CASE NARRATIVE PG&E TOPOCK IM3PLANT-WDR-394 PROJECT, SLUDGE
MONITORING,
TLI NO.: 805560

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-394 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 January 2, 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 matrix spike recovery for Total Beryllium and Mercury by SW 6020.A in batch 012113A exceeded the acceptance limits of 75-125%. Post-spike and post-spike duplicates were analyzed on the sample and the recoveries were within acceptance limits. Because the sample results were below the reporting limit, the matrix spike failed high, 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

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING



Established 1931

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

Attention: Shawn Duffy

Sample: One (1) Soil Sample

Project Name: PG&E Topock Project

Project No.: 456827.01.DM

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

Laboratory No.: 805560

Date: February 22, 2013

Collected: January 2, 2013

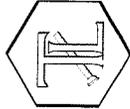
Received: January 2, 2013

ANALYST LIST

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

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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.: 805566
Date Received: January 2, 2013

Analytical Results Summary

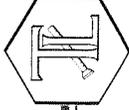
<u>Lab I.D.</u>	<u>Sample I.D.</u>	<u>Sample Time</u>	<u>SW 7199</u> Hexavalent Chromium <u>mg/kg</u>	<u>EPA 300.0</u> Fluoride <u>mg/kg</u>	<u>EPA 300.0</u> Nitrate as N <u>mg/kg</u>	<u>SM 2540 B</u> % Moisture <u>%</u>
805560	SC-Sludge-WDR-394	10:25	36.9	19.9	11.8	54.9

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

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

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.



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.: 805560
Date Received: January 2, 2013
Revision 1; February 27, 2013

Analytical Results Summary

METALS ANALYSIS: Total Metal Analyses as Requested

Lab I.D.	Sample ID	Date of Analysis:	Time Coll.	Antimony SW 6010B	Arsenic SW 6010B	Barium SW 6010B	Beryllium SW 6020A	Cadmium SW 6010B	Chromium SW 6010B	Cobalt SW 6010B	Copper SW 6010B	Lead SW 6010B
805560	SC-Sludge-WDR-394	01/15/13	10:25	49.8	ND	54.0	ND	5.69	3590	ND	7.61	ND
Lab I.D.	Sample ID	Date of Analysis:	Time Coll.	Manganese SW 6010B	Molybdenum SW 6010B	Nickel SW 6010B	Selenium SW 6010B	Silver SW 6010B	Thallium SW 6010B	Vanadium SW 6010B	Zinc SW 6010B	
805560	SC-Sludge-WDR-394	01/16/13	10:25	266	ND	26.6	ND	ND	ND	36.1	30.9	

NOTES:

ND: Not detected, or below limit of detection

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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: 01CrH13I

Laboratory No.: 805560

Date: February 22, 2013

Collected: January 2, 2013

Received: January 2, 2013

Prep/ Analyzed: January 22, 2013

Analytical Batch: 01CrH13I

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
805560	SC-Sludge-WDR-394	10:25	19:32	mg/kg	10.0	8.77	36.9

QA/QC Summary

QC STD I.D.	Laboratory Number	Sample Concentration	Duplicate Concentration	Relative Percent Difference	Acceptance limits	QC Within Control
Duplicate	805581-2	ND	ND	0.00%	< 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	805581-2	0.00	10.0	8.64	86.4	82.0	86.4	94.9%	75-125%	Yes
IMS	805581-2	0.00	100.0	9.58	958	883	958	92.2%	75-125%	Yes
PDMS	805581-2	0.00	10.0	17.4	174	173	174	99.4%	85-115%	Yes

QC Std I.D.	Measured Concentration	Theoretical Concentration	Percent Recovery	Acceptance Limits	QC Within Control
Blank	ND	<0.400	---	<0.400	Yes
MRCSS	2.09	2.00	104%	90% - 110%	Yes
MRCVS#1	2.17	2.00	109%	90% - 110%	Yes
MRCVS#2	1.95	2.00	97.6%	90% - 110%	Yes
MRCVS#3	2.00	2.00	99.8%	90% - 110%	Yes
MRCVS#4	1.85	2.00	92.7%	90% - 110%	Yes
LLCS	0.0105	0.0100	105%	70% - 130%	Yes
LCS	1.93	2.00	96.5%	80% - 120%	Yes

ND: Below the reporting limit (Not Detected).

DF: Dilution Factor.

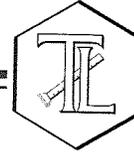
Respectfully submitted,
TRUESDAIL LABORATORIES, INC.


Mona Nassimi, Manager
Analytical Services

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TRUESDAIL LABORATORIES, INC.

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Established 1931

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

REPORT

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

Attention: Shawn Duffy

Laboratory No.: 805560

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

Date: February 22, 2013
Collected: January 2, 2013
Received: January 2, 2013
Prep/ Analyzed: January 7, 2013
Analytical Batch: 01SOLID13A

Investigation:

Total Solids by SM 2540 B

Analytical Results % Moisture

<u>TLI I.D.</u>	<u>Field I.D.</u>	<u>Sample Time</u>	<u>Units</u>	<u>Results</u>
805560	SC-Sludge-WDR-394	10:25	%	54.9

QA/QC Summary

QC STD I.D.	Laboratory Number	Concentration	Duplicate Concentration	Relative Percent Difference	Acceptance limits	QC Within Control
Duplicate	805581-4	1.95	1.78	9.27%	≤ 20%	Yes

ND: Below the reporting limit (Not Detected).

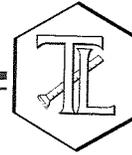
DF: Dilution Factor

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.


Mona Nassimi, Manager
Analytical Services

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www.truesdail.com

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.: 805560

Date: February 22, 2013

Collected: January 2, 2013

Received: January 2, 2013

Prep/ Analyzed: January 3, 2013

Analytical Batch: 01AN13A

Investigation: Fluoride by Ion Chromatography using EPA 300.0

Analytical Results Fluoride

<u>TLI I.D.</u>	<u>Field I.D.</u>	<u>Sample Time</u>	<u>Run Time</u>	<u>Units</u>	<u>DF</u>	<u>RL</u>	<u>Results</u>
805560	SC-Sludge-WDR-394	10:25	13:41	mg/kg	1.00	4.44	19.9

QA/QC Summary

QC STD I.D.	Laboratory Number	Concentration	Duplicate Concentration	Relative Percent Difference	Acceptance limits	QC Within Control
Duplicate	805562-2	2.52	2.47	2.08%	< 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	805562-2	2.52	5.00	4.00	20.0	22.9	22.5	102%	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	4.11	4.00	103%	90% - 110%	Yes
MRCVS#1	3.13	3.00	104%	90% - 110%	Yes
MRCVS#2	3.14	3.00	105%	90% - 110%	Yes
MRCVS#3	3.15	3.00	105%	90% - 110%	Yes
LCS	4.12	4.00	103%	90% - 110%	Yes

ND: Below the reporting limit (Not Detected).

DF: Dilution Factor.

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

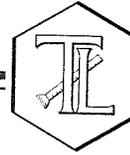
Mona Nassimi
for
Mona Nassimi, Manager
Analytical Services

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www.truesdail.com

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.: 805560

Date: February 22, 2013

Collected: January 2, 2013

Received: January 2, 2013

Prep/ Analyzed: January 3, 2013

Analytical Batch: 01AN13A

Investigation: Nitrate as N by Ion Chromatography using EPA 300.0

Analytical Results Nitrate as N

<u>TLI I.D.</u>	<u>Field I.D.</u>	<u>Sample Time</u>	<u>Run Time</u>	<u>Units</u>	<u>DF</u>	<u>RL</u>	<u>Results</u>
805560	SC-Sludge-WDR-394	10:25	13:41	mg/kg	1.00	4.44	11.8

QA/QC Summary

QC STD I.D.	Laboratory Number	Concentration	Duplicate Concentration	Relative Percent Difference	Acceptance limits	QC Within Control
Duplicate	805562-2	3.32	3.64	9.27%	≤ 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	805562-2	3.32	5.00	4.00	20.0	24.0	23.3	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	4.01	4.00	100%	90% - 110%	Yes
MRCVS#1	2.98	3.00	99.4%	90% - 110%	Yes
MRCVS#2	2.99	3.00	99.5%	90% - 110%	Yes
LCS	3.98	4.00	99.4%	90% - 110%	Yes

ND: Below the reporting limit (Not Detected).

DF: Dilution Factor.

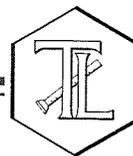
Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for 
Mona Nassimi, Manager
Analytical Services

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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

REPORT

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

Laboratory No.: 805560

Reported: February 27, 2013

Collected: January 2, 2013

Received: January 2, 2013

Analyzed: See Below

Revision 1

Investigation: Total Metal Analyses as Requested

Analytical Results

SAMPLE ID: SC-Sludge-WDR-394		Time Collected: 10:25		LAB ID: 805560				
Parameter	Method	Reported Value	DF	Units	RL	Batch	Date Analyzed	Time Analyzed
Antimony	SW 6010B	49.8	2.00	mg/kg	5.00	011513A	01/15/13	13:17
Arsenic	SW 6010B	ND	2.00	mg/kg	5.00	011513A	01/15/13	13:17
Barium	SW 6010B	54.0	2.00	mg/kg	10.0	011513A	01/15/13	13:17
Beryllium	SW 6020A	ND	5.00	mg/kg	1.00	012113A	01/21/13	15:27
Cadmium	SW 6010B	5.69	2.00	mg/kg	2.03	011513A	01/15/13	13:17
Chromium	SW 6010B	3590	10.0	mg/kg	10.1	011513A	01/15/13	13:17
Cobalt	SW 6010B	ND	2.00	mg/kg	10.0	011513A	01/15/13	13:17
Copper	SW 6010B	7.61	2.00	mg/kg	5.00	011513A	01/15/13	13:17
Lead	SW 6010B	ND	2.00	mg/kg	5.00	011613A-Th2	01/16/13	12:45
Manganese	SW 6010B	266	2.00	mg/kg	2.03	011613A-Th2	01/16/13	12:45
Mercury	SW 6020A	ND	5.00	mg/kg	0.101	012113A	01/21/13	15:27
Molybdenum	SW 6010B	ND	5.00	mg/kg	10.0	012113B-Th2	01/21/13	19:57
Nickel	SW 6010B	26.6	5.00	mg/kg	5.07	012113B-Th2	01/21/13	19:57
Selenium	SW 6010B	ND	2.00	mg/kg	5.00	011513A	01/15/13	13:17
Silver	SW 6010B	ND	2.00	mg/kg	5.00	011513A	01/15/13	13:17
Thallium	SW 6010B	ND	2.00	mg/kg	5.00	011813A	01/18/13	15:40
Vanadium	SW 6010B	36.1	2.00	mg/kg	5.00	011513A	01/15/13	13:17
Zinc	SW 6010B	30.9	2.00	mg/kg	10.0	011513A	01/15/13	13:17

NOTES:

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

ND: Not detected, or below limit of detection.

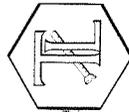
DF: Dilution factor.

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

Mona Nassimi
for Mona Nassimi, Manager
Analytical Services

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING



Established 1931

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

Attention: Shawn Duffy

Samples: One (1) Soil Sample

Project Name: PG&E Topock Project

Project No.: 456827.01.DM

P.O. No.: 456827.01.DM

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

Laboratory No.: 805560
Reported: February 27, 2013
Collected: January 2, 2013
Received: January 2, 2013
Revision 1

Quality Control/Quality Assurance Report

Parameter	Method	Batch	Units	Blank	RL	MRCCS			MRCVS				
						Observed Value	TRUE Value	% Rec	Control Limits	Observed Value	TRUE Value	% Rec	Control Limits %
Antimony	SW 6010B	011513A	mg/kg	ND	5.00	5.01	5.00	100%	90-110%	5.13	5.00	103%	90-110%
Arsenic	SW 6010B	011513A	mg/kg	ND	5.00	4.98	5.00	99.6%	90-110%	5.18	5.00	104%	90-110%
Barium	SW 6010B	011513A	mg/kg	ND	10.0	4.62	5.00	92.5%	90-110%	4.56	5.00	91.1%	90-110%
Beryllium	SW 6020A	012113A	mg/kg	ND	1.00	0.0199	0.0200	99.6%	90-110%	0.0196	0.0200	98.0%	90-110%
Cadmium	SW 6010B	011513A	mg/kg	ND	1.00	5.08	5.00	102%	90-110%	5.30	5.00	106%	90-110%
Chromium	SW 6010B	011513A	mg/kg	ND	5.00	4.91	5.00	98.1%	90-110%	5.43	5.00	109%	90-110%
Cobalt	SW 6010B	011513A	mg/kg	ND	10.0	5.01	5.00	100%	90-110%	5.25	5.00	105%	90-110%
Copper	SW 6010B	011513A	mg/kg	ND	5.00	4.73	5.00	94.6%	90-110%	4.64	5.00	92.8%	90-110%
Lead	SW 6010B	011613A-Th2	mg/kg	ND	5.00	4.97	5.00	99.4%	90-110%	5.18	5.00	104%	90-110%
Manganese	SW 6010B	011613A-Th2	mg/kg	ND	1.00	4.95	5.00	99.1%	90-110%	4.91	5.00	98.1%	90-110%
Mercury	SW 6020A	012113A	mg/kg	ND	0.100	0.00198	0.00200	98.9%	90-110%	0.00184	0.00200	91.8%	90-110%
Molybdenum	SW 6010B	012113B-Th2	mg/kg	ND	10.0	4.88	5.00	97.7%	90-110%	4.85	5.00	96.9%	90-110%
Nickel	SW 6010B	012113B-Th2	mg/kg	ND	5.00	4.98	5.00	99.6%	90-110%	4.66	5.00	93.2%	90-110%
Selenium	SW 6010B	011513A	mg/kg	ND	5.00	5.10	5.00	102%	90-110%	5.28	5.00	106%	90-110%
Silver	SW 6010B	011513A	mg/kg	ND	5.00	4.80	5.00	96.1%	90-110%	4.82	5.00	96.4%	90-110%
Thallium	SW 6010B	011813A	mg/kg	ND	5.00	4.94	5.00	98.8%	90-110%	4.96	5.00	99.2%	90-110%
Vanadium	SW 6010B	011513A	mg/kg	ND	5.00	4.78	5.00	95.6%	90-110%	5.20	5.00	104%	90-110%
Zinc	SW 6010B	011513A	mg/kg	ND	10.0	5.23	5.00	105%	90-110%	5.31	5.00	106%	90-110%



INTERFERENCE CHECK STANDARD (ICS A+B #1)

INTERFERENCE CHECK STANDARD (ICS A+B #2)

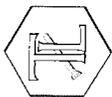
Parameter	Method	Units	ICS Obs.	ICS Theo.	% Rec.	Control Limits	ICS Obs.	ICS Theo.	% Rec.	Control Limits
Arsenic	SW 6010B	mg/kg	1.99	2.00	99.7%	80-120%	2.03	2.00	101%	80-120%
Cadmium	SW 6010B	mg/kg	2.07	2.00	104%	80-120%	2.09	2.00	105%	80-120%
Chromium	SW 6010B	mg/kg	2.04	2.00	102%	80-120%	2.25	2.00	112%	80-120%
Cobalt	SW 6010B	mg/kg	2.07	2.00	104%	80-120%	2.09	2.00	104%	80-120%
Copper	SW 6010B	mg/kg	1.94	2.00	97.0%	80-120%	1.93	2.00	96.3%	80-120%
Manganese	SW 6010B	mg/kg	2.07	2.00	104%	80-120%	2.04	2.00	102%	80-120%
Mercury	SW 6020A	mg/kg	0.00193	0.00200	96.4%	80-120%	0.00188	0.00200	93.9%	80-120%
Nickel	SW 6010B	mg/kg	2.08	2.00	104%	80-120%	1.84	2.00	92.2%	80-120%
Silver	SW 6010B	mg/kg	1.76	2.00	88.2%	80-120%	1.62	2.00	81.1%	80-120%
Zinc	SW 6010B	mg/kg	2.16	2.00	108%	80-120%	2.14	2.00	107%	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	1.94	2.00	97.0%	85-115%	805560	49.8	43.5	13.3%	≤20
Arsenic	SW 6010B	mg/kg	1.95	2.00	97.5%	85-115%	805560	ND	ND	0.00%	≤20
Barium	SW 6010B	mg/kg	1.89	2.00	94.5%	85-115%	805560	54.0	54.2	0.37%	≤20
Beryllium	SW 6020A	mg/kg	0.0520	0.0500	104%	85-115%	805560	ND	ND	0.00%	≤20
Cadmium	SW 6010B	mg/kg	2.05	2.00	102%	85-115%	805560	5.69	5.58	1.89%	≤20
Chromium	SW 6010B	mg/kg	2.09	2.00	105%	85-115%	805560	3590	3200	11.5%	≤20
Cobalt	SW 6010B	mg/kg	2.09	2.00	105%	85-115%	805560	ND	2.29	0.00%	≤20
Copper	SW 6010B	mg/kg	1.95	2.00	97.4%	85-115%	805560	7.61	8.80	14.5%	≤20
Lead	SW 6010B	mg/kg	2.07	2.00	104%	85-115%	805560	ND	ND	0.00%	≤20
Manganese	SW 6010B	mg/kg	2.12	2.00	106%	85-115%	805560	266	268	0.87%	≤20
Mercury	SW 6020A	mg/kg	0.00520	0.00500	104%	85-115%	805560	ND	ND	0.00%	≤20
Molybdenum	SW 6010B	mg/kg	1.96	2.00	97.9%	85-115%	805560	ND	ND	0.00%	≤20
Nickel	SW 6010B	mg/kg	1.91	2.00	95.7%	85-115%	805560	26.6	24.7	7.61%	≤20
Selenium	SW 6010B	mg/kg	1.88	2.00	94.0%	85-115%	805560	ND	ND	0.00%	≤20
Silver	SW 6010B	mg/kg	1.91	2.00	95.3%	85-115%	805560	ND	ND	0.00%	≤20
Thallium	SW 6010B	mg/kg	1.98	2.00	99.2%	85-115%	805560	ND	ND	0.00%	≤20
Vanadium	SW 6010B	mg/kg	2.02	2.00	101%	85-115%	805560	36.1	34.3	5.30%	≤20
Zinc	SW 6010B	mg/kg	1.91	2.00	95.4%	85-115%	805560	30.9	30.6	1.01%	≤20

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TRUESDAIL LABORATORIES, INC.

Report Continued

Revision 1; February 27, 2013

MATRIX SPIKE

Sample ID	Parameter	Method	Units	Sample Result	DF	Spike Level	Total Amt. of Spike	Theo. Value	MS Obs.	% Rec.	Accuracy Control Limits %
805560	Antimony	SW 6010B	mg/kg	49.8	2.00	98.8	198	247	238	95.5%	75-125%
805560	Arsenic	SW 6010B	mg/kg	0.00	2.00	98.8	198	198	214	108%	75-125%
805560	Barium	SW 6010B	mg/kg	54.0	2.00	98.8	198	252	258	103%	75-125%
805560	Beryllium	SW 6020A	mg/kg	0.00	5.00	0.834	4.17	4.17	7.91	190%	75-125%
805560	Cadmium	SW 6010B	mg/kg	5.69	2.00	98.8	198	203	198	97.3%	75-125%
805560	Chromium	SW 6010B	mg/kg	3590	10.0	203	2027	5617	5850	112%	75-125%
805560	Cobalt	SW 6010B	mg/kg	0.00	2.00	98.8	198	198	191	96.6%	75-125%
805560	Copper	SW 6010B	mg/kg	7.61	2.00	98.8	198	205	195	94.8%	75-125%
805560	Lead	SW 6010B	mg/kg	0.00	2.00	203	405	405	338	83.4%	75-125%
805560	Manganese	SW 6010B	mg/kg	266	2.00	203	405	671	648	94.3%	75-125%
805560	Mercury	SW 6020A	mg/kg	0.00	5.00	0.0834	0.417	0.417	0.787	189%	75-125%
805560	Molybdenum	SW 6010B	mg/kg	0.00	5.00	39.5	198	198	190	96.2%	75-125%
805560	Nickel	SW 6010B	mg/kg	26.6	5.00	39.5	198	224	197	86.2%	75-125%
805560	Selenium	SW 6010B	mg/kg	0.00	2.00	98.8	198	198	171	86.7%	75-125%
805560	Silver	SW 6010B	mg/kg	0.00	2.00	98.8	198	198	168	85.1%	75-125%
805560	Thallium	SW 6010B	mg/kg	0.00	2.00	98.8	198	198	162	81.9%	75-125%
805560	Vanadium	SW 6010B	mg/kg	36.1	2.00	98.8	198	234	213	89.4%	75-125%
805560	Zinc	SW 6010B	mg/kg	30.9	2.00	98.8	198	228	231	102%	75-125%

ND: Not detected, or below limit of detection.

DF: Dilution Factor

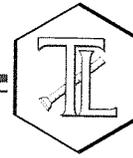
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Mona Nassimi
Mona Nassimi, Manager
Analytical Services

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Dry Weight Calculations

Date Calculated: 2/22/2013

	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	8.963	---	54.9	19.8930	19.9	2.00	4.44
Nitrate as N	5.339	---	54.9	11.8497	11.8	2.00	4.44
Hexavalent Chromium	16.6330	---	54.9	36.9162	36.9	3.9526	8.77
QC analyzed on 805581-2							
Hexavalent Chromium	ND	---	8.53	ND	ND	0.3953	0.432
Hexavalent Chromium - Dup	ND	---	8.53	ND	ND	0.3922	0.429
Hexavalent Chromium - MS	74.9827	---	8.53	81.9725	82.0	4.00	4.37
Hexavalent Chromium - IMS	807.8953	---	8.53	883.2064	883	40.0	43.7
Hexavalent Chromium - PDMS	158.4134	---	8.53	173.1805	173	4.00	4.37
Antimony	22.42	2.00	54.9	49.7603	49.8	1.8263	5.00
Arsenic	1.894	2.00	54.9	4.2037	ND	0.9132	5.00
Barium	24.34	2.00	54.9	54.02166	54.0	1.8263	10.0
Beryllium	0.018709	5.00	54.9	0.0415	ND	0.2283	1.00
Cadmium	2.562	2.00	54.9	5.6863	5.69	0.9132	2.03
Chromium	1617	10.0	54.9	3588.8672	3590	4.5658	10.1
Cobalt	1.036	2.00	54.9	2.2994	ND	0.9132	10.0
Copper	3.428	2.00	54.9	7.6083	7.61	1.8263	5.00
Lead	1.706	2.00	54.9	3.7864	ND	0.9132	5.00
Manganese	120.1	2.00	54.9	266.5572	266	0.9132	2.03
Mercury	0.037475	5.00	54.9	0.08317	ND	0.0457	0.101
Molybdenum	1.810	5.00	54.9	4.0172	ND	2.2829	10.0
Nickel	12.00	5.00	54.9	26.6335	26.6	2.2829	5.07
Selenium	ND	2.00	54.9	ND	ND	1.8263	5.00
Silver	ND	2.00	54.9	ND	ND	1.8263	5.00
Thallium	ND	2.00	54.9	ND	ND	0.9132	5.00
Vanadium	16.28	2.00	54.9	36.1328	36.1	0.9132	5.00
Zinc	13.94	2.00	54.9	30.9393	30.9	1.8263	10.0

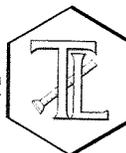
Sample Result in Dry Weight = [Sample_{ww} / (100-%Moisture)]*100

where:

Sample_{ww} = Sample result in wet weight

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Dry Weight Calculations

Date Calculated: 2/27/2013

	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: 805560							
Antimony	19.62	2.00	54.9	43.5458	43.5	1.7062	5.00
Arsenic	ND	2.00	54.9	ND	ND	0.8531	5.00
Barium	24.43	2.00	54.9	54.22141	54.2	1.7062	10.0
Beryllium	ND	5.00	54.9	ND	ND	0.2133	1.00
Cadmium	2.51	2.00	54.9	5.5797	5.58	0.8531	1.89
Chromium	1440	10.0	54.9	3196.0227	3200	4.2655	9.47
Cobalt	1.03	2.00	54.9	2.2927	ND	0.8531	10.0
Copper	3.96	2.00	54.9	8.7979	8.80	1.7062	5.00
Lead	ND	2.00	54.9	ND	ND	0.8531	5.00
Manganese	120.90	2.00	54.9	268.3327	268	0.8531	1.89
Mercury	ND	5.00	54.9	ND	ND	0.0427	0.100
Molybdenum	ND	5.00	54.9	ND	ND	2.1327	10.0
Nickel	11.12	5.00	54.9	24.6804	24.7	2.1327	5.00
Selenium	ND	2.00	54.9	ND	ND	1.7062	5.00
Silver	ND	2.00	54.9	ND	ND	1.7062	5.00
Thallium	ND	2.00	54.9	ND	ND	0.8531	5.00
Vanadium	15.44	2.00	54.9	34.2685	34.3	0.8531	5.00
Zinc	13.80	2.00	54.9	30.6286	30.6	1.7062	10.0
Matrix Spike: 805560							
Antimony	107.4	2.00	54.9	238.3700	238	1.7798	5.00
Arsenic	96.24	2.00	54.9	213.6009	214	0.8899	5.00
Barium	116.4	2.00	54.9	258.3452	258	1.7798	10.0
Beryllium	3.563	5.00	54.9	7.9084	7.91	0.1878	1.00
Cadmium	89.19	2.00	54.9	197.9537	198	0.8899	1.98
Chromium	2636	10.0	54.9	5850.4972	5850	4.5658	10.1
Cobalt	85.99	2.00	54.9	190.8514	191	0.8899	10.0
Copper	87.81	2.00	54.9	194.8908	195	1.7798	5.00
Lead	152.3	2.00	54.9	338.0238	338	0.9132	5.00
Manganese	292.0	2.00	54.9	648.0824	648	0.9132	2.03
Mercury	0.3544	5.00	54.9	0.7866	0.787	0.0376	0.100
Molybdenum	85.60	5.00	54.9	189.9858	190	2.2248	10.0
Nickel	88.71	5.00	54.9	196.8883	197	2.2248	5.00
Selenium	77.18	2.00	54.9	171.2979	171	1.7798	5.00
Silver	75.73	2.00	54.9	168.0797	168	1.7798	5.00
Thallium	72.92	2.00	54.9	161.8430	162	0.8899	5.00
Vanadium	95.82	2.00	54.9	212.6687	213	0.8899	5.00
Zinc	104.3	2.00	54.9	231.4897	231	1.7798	10.0

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

where:

Sample_{ww} = Sample result in wet weight



TOTAL SOLIDS BY SM 2540 B ¹

Date of Analysis: 01/07/13

Analytical Batch: 01SOLID13A
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
805560	1	1.3404	2.0006	3.3410	2.2418	0.9014	45.056	54.944
805581-1	2	1.3216	2.0324	3.3540	3.2936	1.9720	97.028	2.972
805581-2	3	1.3302	2.0371	3.3673	3.1936	1.8634	91.473	8.527
805581-3	4	1.344	2.0061	3.3501	3.2885	1.9445	96.929	3.071
805581-4	5	1.3353	2.0383	3.3736	3.3338	1.9985	98.047	1.953
805581-4D	6	1.3309	2.0397	3.3706	3.3343	2.0034	98.220	1.780

Relative Percent Difference			
Sample ID	Sample	Sample Dup	RPD
805581-4	1.953	1.780	9.3

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

- 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

Maksim
Reviewer Name


Reviewer Signature



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

[IM3plant-WDR-394]

TURNAROUND TIME 10 Days
 DATE 01/02/13 PAGE 1 OF 1

805560

COMPANY	PROJECT NAME	PHONE	ADDRESS	P.O. NUMBER	SAMPLERS (SIGNATURE)	SAMPLE I.D.	DATE	TIME	DESCRIPTION	Metals (6010B) Mn	Cr6 (7199)	Metals (6010B) Title 22, (includes Mercury)	Bioassay 96hr Acute	Anions (300.0) F, NO3	NUMBER OF CONTAINERS	COMMENTS
CH2M HILL / E2	PG&E Topock IM3	530-229-3303	155 Grand Ave Ste 1000 Oakland, CA 94612	424973.01.DM	<i>C. Laugier</i>	SC-Sludge-WDR-394	01/02/13	10:25	Sludge	X	X	X	X	X	4	
<div style="border: 1px solid black; padding: 5px; display: inline-block;"> ALERT !! Level III QC </div>																
For Sample Conditions Use Form Attached																
TOTAL NUMBER OF CONTAINERS																
															4	

CHAIN OF CUSTODY SIGNATURE RECORD

Signature (Relinquished)	Printed Name	Company/ Agency	Date/ Time
<i>Ryan Phelps</i>	Ryan Phelps	E2	1-2-13 15:30
<i>Katol Davila</i>	Katol Davila	T.L.I	01-02-13 15:30
<i>Katol Davila</i>	Katol Davila	T.L.I	1-2-13 21:30
<i>Shabazzma</i>	Shabazzma	T.L.I	1/2/13 21:30
Signature (Relinquished)	Printed Name	Company/ Agency	Date/ Time
Signature (Received)	Printed Name	Company/ Agency	Date/ Time

SAMPLE CONDITIONS
 RECEIVED COOL WARM 3.4 °C
 CUSTODY SEALED YES NO

SPECIAL REQUIREMENTS:



Sample Integrity & Analysis Discrepancy Form

Client: E 2

Lab # 805560

Date Delivered: 01/02/13 Time: 01:30 By: Mail Field Service Client

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

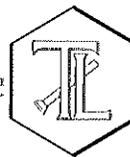
**ALERT!!
Level III QC**

16. Comments: _____

17. Sample Check-In completed by **Truesdail** Log-In/Receiving: [Signature]

TRUESDAIL LABORATORIES, INC.

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Established 1931

14201 FRANKLIN AVENUE
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February 1, 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-394 PROJECT, GROUNDWATER
MONITORING,
TLI NO.: 805562

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-394 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 January 2, 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 internal standards for sample SC-701-WDR-394 analyzed straight for Total Beryllium, Antimony, Mercury, and Thallium by EPA 200.8 were outside the recovery limits of 70% - 130% as a result of matrix interference. Therefore, the sample was re-analyzed at a dilution and the internal standards were within acceptable limits. Due to the dilution, the reporting limits for these metals exceed the Contract Required Detection Limits. All other QA/QC were within acceptable limits.

Total Thallium by EPA 200.8 in batch 011713A was detected in the method blank just 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

for 
Michael Ngo
Quality Assurance/Quality Control Officer

002

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING



Established 1931

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

Attention: Shawn Duffy

Sample: Three (3) Groundwaters

Project Name: PG&E Topock Project

Project No.: 456827.01.DM

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Laboratory No.: 805562

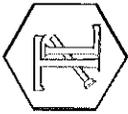
Date: February 1, 2013

Collected: January 2, 2013

Received: January 2, 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	Ethel Suico
EPA 200.8	Metals by ICP/MS	Bitu Emami
EPA 218.6	Hexavalent Chromium	Himani Vaishnav



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.: 805562
Date Received: January 2, 2013

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
805562-001	SC-700B-WDR-394	E120.1	NONE	1/2/2013	12:21	EC	7100	umhos/cm	2.0
805562-001	SC-700B-WDR-394	E200.7	NONE	1/2/2013	12:21	Aluminum	ND	ug/L	50.0
805562-001	SC-700B-WDR-394	E200.7	NONE	1/2/2013	12:21	BORON	954	ug/L	200
805562-001	SC-700B-WDR-394	E200.7	NONE	1/2/2013	12:21	Iron	ND	ug/L	20.0
805562-001	SC-700B-WDR-394	E200.7	NONE	1/2/2013	12:21	Zinc	ND	ug/L	20.0
805562-001	SC-700B-WDR-394	E200.8	NONE	1/2/2013	12:21	Antimony	ND	ug/L	2.0
805562-001	SC-700B-WDR-394	E200.8	NONE	1/2/2013	12:21	Arsenic	ND	ug/L	0.50
805562-001	SC-700B-WDR-394	E200.8	NONE	1/2/2013	12:21	Barium	14.3	ug/L	5.0
805562-001	SC-700B-WDR-394	E200.8	NONE	1/2/2013	12:21	Chromium	ND	ug/L	1.0
805562-001	SC-700B-WDR-394	E200.8	NONE	1/2/2013	12:21	Copper	ND	ug/L	5.0
805562-001	SC-700B-WDR-394	E200.8	NONE	1/2/2013	12:21	Lead	ND	ug/L	1.0
805562-001	SC-700B-WDR-394	E200.8	NONE	1/2/2013	12:21	Manganese	5.1	ug/L	0.50
805562-001	SC-700B-WDR-394	E200.8	NONE	1/2/2013	12:21	Molybdenum	18.4	ug/L	2.0
805562-001	SC-700B-WDR-394	E200.8	NONE	1/2/2013	12:21	Nickel	ND	ug/L	2.0
805562-001	SC-700B-WDR-394	E218.6	LABFLT	1/2/2013	12:21	Chromium, Hexavalent	ND	ug/L	0.20
805562-001	SC-700B-WDR-394	E300	NONE	1/2/2013	12:21	Fluoride	2.05	mg/L	0.500
805562-001	SC-700B-WDR-394	E300	NONE	1/2/2013	12:21	Nitrate as N	3.15	mg/L	0.500
805562-001	SC-700B-WDR-394	E300	NONE	1/2/2013	12:21	Sulfate	493	mg/L	25.0
805562-001	SC-700B-WDR-394	SM2130B	NONE	1/2/2013	12:21	Turbidity	ND	NTU	0.100
805562-001	SC-700B-WDR-394	SM2540C	NONE	1/2/2013	12:21	Total Dissolved Solids	4340	mg/L	250
805562-001	SC-700B-WDR-394	SM4500NH3D	NONE	1/2/2013	12:21	Ammonia-N	ND	mg/L	0.500
805562-001	SC-700B-WDR-394	SM4500NO2B	NONE	1/2/2013	12:21	Nitrite as N	ND	mg/L	0.0050



TRUESDAIL LABORATORIES, INC.

Report Continued

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
805562-002	SC-100B-WDR-394	E120.1	NONE	1/2/2013	12:13	EC	7520	umhos/cm	2.00
805562-002	SC-100B-WDR-394	E200.7	NONE	1/2/2013	12:13	Aluminum	ND	ug/L	50.0
805562-002	SC-100B-WDR-394	E200.7	NONE	1/2/2013	12:13	BORON	945	ug/L	200
805562-002	SC-100B-WDR-394	E200.7	NONE	1/2/2013	12:13	Iron	ND	ug/L	20.0
805562-002	SC-100B-WDR-394	E200.7	NONE	1/2/2013	12:13	Zinc	ND	ug/L	20.0
805562-002	SC-100B-WDR-394	E200.8	NONE	1/2/2013	12:13	Antimony	ND	ug/L	2.0
805562-002	SC-100B-WDR-394	E200.8	NONE	1/2/2013	12:13	Arsenic	3.0	ug/L	0.50
805562-002	SC-100B-WDR-394	E200.8	NONE	1/2/2013	12:13	Barium	27.2	ug/L	5.0
805562-002	SC-100B-WDR-394	E200.8	NONE	1/2/2013	12:13	Chromium	758	ug/L	2.0
805562-002	SC-100B-WDR-394	E200.8	NONE	1/2/2013	12:13	Copper	ND	ug/L	5.0
805562-002	SC-100B-WDR-394	E200.8	NONE	1/2/2013	12:13	Lead	ND	ug/L	1.0
805562-002	SC-100B-WDR-394	E200.8	NONE	1/2/2013	12:13	Manganese	3.9	ug/L	0.50
805562-002	SC-100B-WDR-394	E200.8	NONE	1/2/2013	12:13	Molybdenum	21.1	ug/L	2.0
805562-002	SC-100B-WDR-394	E200.8	NONE	1/2/2013	12:13	Nickel	ND	ug/L	2.0
805562-002	SC-100B-WDR-394	E218.6	LABFLT	1/2/2013	12:13	Chromium, Hexavalent	762	ug/L	10.0
805562-002	SC-100B-WDR-394	E300	NONE	1/2/2013	12:13	Fluoride	2.52	mg/L	0.500
805562-002	SC-100B-WDR-394	E300	NONE	1/2/2013	12:13	Nitrate as N	3.32	mg/L	0.500
805562-002	SC-100B-WDR-394	E300	NONE	1/2/2013	12:13	Sulfate	533	mg/L	25.0
805562-002	SC-100B-WDR-394	SM2130B	NONE	1/2/2013	12:13	Turbidity	0.227	NTU	0.100
805562-002	SC-100B-WDR-394	SM2540C	NONE	1/2/2013	12:13	Total Dissolved Solids	4970	mg/L	250
805562-002	SC-100B-WDR-394	SM4500NH3D	NONE	1/2/2013	12:13	Ammonia-N	ND	mg/L	0.500
805562-002	SC-100B-WDR-394	SM4500NO2B	NONE	1/2/2013	12:13	Nitrite as N	ND	mg/L	0.0050

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TRUESDAIL LABORATORIES, INC.

Report Continued

Revision 1; February 5, 2013

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
805562-003	SC-701-WDR-394	E120.1	NONE	1/2/2013	12:28	EC	40300	umhos/cm	2.00
805562-003	SC-701-WDR-394	E200.7	NONE	1/2/2013	12:28	Zinc	ND	ug/L	20.0
805562-003	SC-701-WDR-394	E200.8	NONE	1/2/2013	12:28	Antimony	ND	ug/L	5.0
805562-003	SC-701-WDR-394	E200.8	NONE	1/2/2013	12:28	Arsenic	0.59	ug/L	0.50
805562-003	SC-701-WDR-394	E200.8	NONE	1/2/2013	12:28	Barium	95.9	ug/L	5.0
805562-003	SC-701-WDR-394	E200.8	NONE	1/2/2013	12:28	Beryllium	ND	ug/L	1.0
805562-003	SC-701-WDR-394	E200.8	NONE	1/2/2013	12:28	Cadmium	ND	ug/L	1.0
805562-003	SC-701-WDR-394	E200.8	NONE	1/2/2013	12:28	Chromium	1.3	ug/L	1.0
805562-003	SC-701-WDR-394	E200.8	NONE	1/2/2013	12:28	Cobalt	ND	ug/L	5.0
805562-003	SC-701-WDR-394	E200.8	NONE	1/2/2013	12:28	Copper	ND	ug/L	5.0
805562-003	SC-701-WDR-394	E200.8	NONE	1/2/2013	12:28	Lead	ND	ug/L	1.0
805562-003	SC-701-WDR-394	E200.8	NONE	1/2/2013	12:28	Manganese	40.1	ug/L	0.50
805562-003	SC-701-WDR-394	E200.8	NONE	1/2/2013	12:28	Mercury	ND	ug/L	0.40
805562-003	SC-701-WDR-394	E200.8	NONE	1/2/2013	12:28	Molybdenum	124	ug/L	2.0
805562-003	SC-701-WDR-394	E200.8	NONE	1/2/2013	12:28	Nickel	4.8	ug/L	2.0
805562-003	SC-701-WDR-394	E200.8	NONE	1/2/2013	12:28	Selenium	24.7	ug/L	5.0
805562-003	SC-701-WDR-394	E200.8	NONE	1/2/2013	12:28	Silver	ND	ug/L	5.0
805562-003	SC-701-WDR-394	E200.8	NONE	1/2/2013	12:28	Thallium	ND	ug/L	2.5
805562-003	SC-701-WDR-394	E200.8	NONE	1/2/2013	12:28	Vanadium	ND	ug/L	5.0
805562-003	SC-701-WDR-394	E218.6	LABFLT	1/2/2013	12:28	Chromium, Hexavalent	ND	ug/L	2.0
805562-003	SC-701-WDR-394	E300	NONE	1/2/2013	12:28	Fluoride	14.1	mg/L	0.500
805562-003	SC-701-WDR-394	SM2540C	NONE	1/2/2013	12:28	Total Dissolved Solids	29600	mg/L	500

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. 805562

Page 1 of 35

Printed 2/1/2013

Samples Received on 1/2/2013 9:30:00 PM

Field ID	Lab ID	Collected	Matrix
SC-700B-WDR-394	805562-001	01/02/2013 12:21	Water
SC-100B-WDR-394	805562-002	01/02/2013 12:13	Water
SC-701-WDR-394	805562-003	01/02/2013 12:28	Water

Anions By I.C. - EPA 300.0

Batch 01AN13A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805562-001 Fluoride	mg/L	01/03/2013 11:01	5.00	0.104	0.500	2.05
Nitrate as Nitrogen	mg/L	01/03/2013 11:01	5.00	0.0415	0.500	3.15
Sulfate	mg/L	01/03/2013 13:18	50.0	1.54	25.0	493
805562-002 Fluoride	mg/L	01/03/2013 11:13	5.00	0.104	0.500	2.52
Nitrate as Nitrogen	mg/L	01/03/2013 11:13	5.00	0.0415	0.500	3.32
Sulfate	mg/L	01/03/2013 13:30	50.0	1.54	25.0	533
805562-003 Fluoride	mg/L	01/03/2013 11:24	5.00	0.104	0.500	14.1

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 = 805562-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Fluoride	mg/L	5.00	2.47	2.52	2.04	0 - 20
Nitrate as Nitrogen	mg/L	5.00	3.64	3.32	9.33	0 - 20

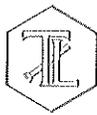
Duplicate

Lab ID = 805635-003

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Sulfate	mg/L	25.0	71.4	71.6	0.242	0 - 20

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016



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Page 2 of 35

Project Number: 456827.01.DM

Printed 2/1/2013

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Fluoride	mg/L	1.00	4.12	4.00	103	90 - 110
Sulfate	mg/L	1.00	19.9	20.0	99.5	90 - 110
Nitrate as Nitrogen	mg/L	1.00	3.98	4.00	99.4	90 - 110

Matrix Spike

Lab ID = 805562-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Fluoride	mg/L	5.00	22.9	22.5(20.0)	102	85 - 115
Nitrate as Nitrogen	mg/L	5.00	24.0	23.3(20.0)	104	85 - 115

Matrix Spike

Lab ID = 805635-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Sulfate	mg/L	25.0	176	172(100)	104	85 - 115

MRCSS - 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	20.1	20.0	101	90 - 110
Nitrate as Nitrogen	mg/L	1.00	4.01	4.00	100	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	104	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
Sulfate	mg/L	1.00	15.0	15.0	100	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	101	90 - 110



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MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrate as Nitrogen	mg/L	1.00	2.98	3.00	99.4	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrate as Nitrogen	mg/L	1.00	2.99	3.00	99.5	90 - 110

Nitrite SM 4500-NO2 B

Batch 01NO213B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805562-001 Nitrite as Nitrogen	mg/L	01/04/2013 11:33	1.00	0.000540	0.0050	ND
805562-002 Nitrite as Nitrogen	mg/L	01/04/2013 11:34	1.00	0.000540	0.0050	ND

Method Blank

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

Duplicate

Lab ID = 805562-001

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	0.0310	91.3	90 - 110

Matrix Spike

Lab ID = 805562-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Nitrite as Nitrogen	mg/L	1.00	0.0180	0.0200(0.0200)	90.0	85 - 115

MRCVS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrite as Nitrogen	mg/L	1.00	0.0291	0.0310	93.9	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrite as Nitrogen	mg/L	1.00	0.0182	0.0200	91.0	90 - 110



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Specific Conductivity - EPA 120.1		Batch 01EC13K				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
805562-001 Specific Conductivity	umhos/cm	01/21/2013	1.00	0.116	2.00	7100
805562-002 Specific Conductivity	umhos/cm	01/21/2013	1.00	0.116	2.00	7520
805562-003 Specific Conductivity	umhos/cm	01/21/2013	1.00	0.116	2.00	40300

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate

Lab ID = 805562-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	7090	7100	0.141	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	673	706	95.3	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	930	998	93.2	90 - 110



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Chrome VI by EPA 218.6

Batch 01CrH13B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805562-001 Chromium, Hexavalent	ug/L	01/03/2013 15:41	1.00	0.00920	0.20	ND
805562-002 Chromium, Hexavalent	ug/L	01/03/2013 15:51	50.0	0.460	10.0	762
805562-003 Chromium, Hexavalent	ug/L	01/03/2013 20:53	10.0	0.0920	2.0	ND

Method Blank

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

Duplicate

Lab ID = 805375-004

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.97	2.01	1.90	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.196	0.200	98.0	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.79	5.00	95.8	90 - 110

Matrix Spike

Lab ID = 805375-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.950	1.00(1.00)	95.0	90 - 110

Matrix Spike

Lab ID = 805375-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.915	1.00(1.00)	91.5	90 - 110

Matrix Spike

Lab ID = 805375-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	9.49	9.91(5.00)	91.6	90 - 110

Matrix Spike

Lab ID = 805375-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	6.82	7.01(5.00)	96.3	90 - 110

Matrix Spike

Lab ID = 805375-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.964	1.00(1.00)	96.4	90 - 110

Matrix Spike

Lab ID = 805375-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.948	1.00(1.00)	94.8	90 - 110



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Matrix Spike							Lab ID = 805375-007
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range	
Chromium, Hexavalent	ug/L	1.00	0.958	1.00(1.00)	95.8	90 - 110	
Matrix Spike							Lab ID = 805375-008
Chromium, Hexavalent	ug/L	1.00	0.901	1.00(1.00)	90.1	90 - 110	
Matrix Spike							Lab ID = 805375-009
Chromium, Hexavalent	ug/L	1.00	39.1	39.9(20.0)	96.1	90 - 110	
Matrix Spike							Lab ID = 805375-011
Chromium, Hexavalent	ug/L	5.00	44.3	45.2(25.0)	96.3	90 - 110	
Matrix Spike							Lab ID = 805375-012
Chromium, Hexavalent	ug/L	50.0	1460	1470(750)	97.6	90 - 110	
Matrix Spike							Lab ID = 805375-013
Chromium, Hexavalent	ug/L	1.00	0.982	1.00(1.00)	98.2	90 - 110	
Matrix Spike							Lab ID = 805375-014
Chromium, Hexavalent	ug/L	1.00	0.972	1.00(1.00)	97.2	90 - 110	
Matrix Spike							Lab ID = 805375-015
Chromium, Hexavalent	ug/L	100	3880	3980(2000)	95.0	90 - 110	
Matrix Spike							Lab ID = 805375-016
Chromium, Hexavalent	ug/L	50.0	1750	1750(1000)	99.8	90 - 110	
Matrix Spike							Lab ID = 805561-001
Chromium, Hexavalent	ug/L	1.00	17.9	18.1(10.0)	98.7	90 - 110	
Matrix Spike							Lab ID = 805562-001
Chromium, Hexavalent	ug/L	1.00	0.998	1.05(1.00)	95.1	90 - 110	
Matrix Spike							Lab ID = 805562-001
Chromium, Hexavalent	ug/L	5.00	4.62	5.04(5.00)	91.6	90 - 110	

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



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Matrix Spike							Lab ID = 805562-002
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range	
Chromium, Hexavalent	ug/L	50.0	1770	1760(1000)	101	90 - 110	
Matrix Spike							Lab ID = 805562-003
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range	
Chromium, Hexavalent	ug/L	5.00	4.93	5.35(5.00)	91.6	90 - 110	
Matrix Spike							Lab ID = 805562-003
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range	
Chromium, Hexavalent	ug/L	10.0	9.61	10.4(10.0)	92.0	90 - 110	
MRCSS - Secondary							
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range	
Chromium, Hexavalent	ug/L	1.00	4.69	5.00	93.8	90 - 110	
MRCVS - Primary							
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range	
Chromium, Hexavalent	ug/L	1.00	10.1	10.0	101	95 - 105	
MRCVS - Primary							
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range	
Chromium, Hexavalent	ug/L	1.00	10.1	10.0	101	95 - 105	
MRCVS - Primary							
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range	
Chromium, Hexavalent	ug/L	1.00	10.0	10.0	100.	95 - 105	
MRCVS - Primary							
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range	
Chromium, Hexavalent	ug/L	1.00	9.87	10.0	98.7	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	
MRCVS - Primary							
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range	
Chromium, Hexavalent	ug/L	1.00	9.98	10.0	99.8	95 - 105	
MRCVS - Primary							
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range	
Chromium, Hexavalent	ug/L	1.00	10.2	10.0	102	95 - 105	



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Metals by EPA 200.7, Total		Batch 011113B				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
805562-001 Aluminum	ug/L	01/11/2013 14:21	1.00	6.24	50.0	ND
Boron	ug/L	01/11/2013 14:21	1.00	6.47	200	954
Iron	ug/L	01/11/2013 14:21	1.00	3.57	20.0	ND
Zinc	ug/L	01/11/2013 14:21	1.00	6.95	20.0	ND
805562-002 Aluminum	ug/L	01/11/2013 14:27	1.00	6.24	50.0	ND
Boron	ug/L	01/11/2013 14:27	1.00	6.47	200	945
Iron	ug/L	01/11/2013 14:27	1.00	3.57	20.0	ND
Zinc	ug/L	01/11/2013 14:27	1.00	6.95	20.0	ND
805562-003 Zinc	ug/L	01/11/2013 15:16	1.00	6.95	20.0	ND

Method Blank

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

Duplicate

Lab ID = 805562-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Aluminum	ug/L	1.00	ND	0	0	0 - 20
Iron	ug/L	1.00	ND	0	0	0 - 20
Zinc	ug/L	1.00	ND	0	0	0 - 20
Boron	ug/L	1.00	994	945	5.05	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Aluminum	ug/L	1.00	2220	2000	111	85 - 115
Iron	ug/L	1.00	2260	2000	113	85 - 115
Zinc	ug/L	1.00	1950	2000	97.4	85 - 115
Boron	ug/L	1.00	2130	2000	106	85 - 115

Matrix Spike

Lab ID = 805562-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Aluminum	ug/L	1.00	1570	2000(2000)	78.5	75 - 125
Iron	ug/L	1.00	1850	2000(2000)	92.4	75 - 125
Zinc	ug/L	1.00	2090	2000(2000)	104	75 - 125
Boron	ug/L	1.00	2750	2940(2000)	90.4	75 - 125



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Metals by EPA 200.8, Total		Batch 011613B					
Parameter	Unit	Analyzed	DF	MDL	RL	Result	
805562-001 Arsenic	ug/L	01/16/2013 23:09	1.00	0.100	0.50	ND	
Barium	ug/L	01/16/2013 23:09	1.00	0.188	5.0	14.3	
Chromium	ug/L	01/16/2013 23:09	1.00	0.0920	1.0	ND	
Copper	ug/L	01/16/2013 23:09	1.00	0.257	5.0	ND	
Manganese	ug/L	01/16/2013 23:09	1.00	0.0860	0.50	5.1	
Nickel	ug/L	01/16/2013 23:09	1.00	0.786	2.0	ND	
805562-002 Arsenic	ug/L	01/17/2013 00:08	1.00	0.100	0.50	3.0	
Chromium	ug/L	01/16/2013 23:44	10.0	0.920	2.0	758	
Copper	ug/L	01/17/2013 00:08	1.00	0.257	5.0	ND	
Manganese	ug/L	01/17/2013 00:08	1.00	0.0860	0.50	3.9	
Nickel	ug/L	01/17/2013 00:08	1.00	0.786	2.0	ND	
805562-003 Arsenic	ug/L	01/17/2013 00:26	1.00	0.100	0.50	0.59	
Beryllium	ug/L	01/17/2013 00:32	5.00	0.150	1.0	ND	
Cadmium	ug/L	01/17/2013 00:32	5.00	0.435	1.0	ND	
Chromium	ug/L	01/17/2013 00:26	1.00	0.0920	1.0	1.3	
Copper	ug/L	01/17/2013 00:26	1.00	0.257	5.0	ND	
Manganese	ug/L	01/17/2013 00:26	1.00	0.0860	0.50	40.1	
Nickel	ug/L	01/17/2013 00:26	1.00	0.786	2.0	4.8	
Selenium	ug/L	01/17/2013 00:26	1.00	0.0800	5.0	24.7	
Vanadium	ug/L	01/17/2013 00:26	1.00	0.181	5.0	ND	

Method Blank

Parameter	Unit	DF	Result
Arsenic	ug/L	1.00	ND
Barium	ug/L	1.00	ND
Beryllium	ug/L	1.00	ND
Cadmium	ug/L	1.00	ND
Chromium	ug/L	1.00	ND
Mercury	ug/L	1.00	ND
Nickel	ug/L	1.00	ND
Selenium	ug/L	1.00	ND
Copper	ug/L	1.00	ND
Vanadium	ug/L	1.00	ND
Manganese	ug/L	1.00	ND



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Duplicate

Lab ID = 805562-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Arsenic	ug/L	1.00	ND	0	0	0 - 20
Barium	ug/L	1.00	13.3	14.3	7.04	0 - 20
Beryllium	ug/L	1.00	ND	0	0	0 - 20
Cadmium	ug/L	1.00	ND	0	0	0 - 20
Chromium	ug/L	1.00	ND	0	0	0 - 20
Mercury	ug/L	1.00	ND	0	0	0 - 20
Nickel	ug/L	1.00	ND	0	0	0 - 20
Selenium	ug/L	1.00	ND	0	0	0 - 20
Copper	ug/L	1.00	ND	0	0	0 - 20
Vanadium	ug/L	1.00	ND	0	0	0 - 20
Manganese	ug/L	1.00	5.05	5.07	0.415	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	0.185	0.200	92.5	70 - 130

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Barium	ug/L	1.00	0.922	1.00	92.2	70 - 130

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Beryllium	ug/L	1.00	0.183	0.200	91.5	70 - 130
Cadmium	ug/L	1.00	0.172	0.200	86.0	70 - 130
Chromium	ug/L	1.00	0.231	0.200	116	70 - 130
Mercury	ug/L	1.00	0.170	0.200	85.0	70 - 130

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nickel	ug/L	1.00	0.580	0.500	116	70 - 130

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Selenium	ug/L	1.00	2.10	2.00	105	70 - 130
Copper	ug/L	1.00	1.03	1.00	103	70 - 130
Vanadium	ug/L	1.00	0.941	1.00	94.1	70 - 130

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	0.218	0.200	109	70 - 130



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Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	46.1	50.0	92.2	85 - 115
Barium	ug/L	1.00	47.5	50.0	95.0	85 - 115
Beryllium	ug/L	1.00	45.9	50.0	91.8	85 - 115
Cadmium	ug/L	1.00	45.8	50.0	91.7	85 - 115
Chromium	ug/L	1.00	47.5	50.0	94.9	85 - 115
Mercury	ug/L	1.00	4.73	5.00	94.6	85 - 115
Nickel	ug/L	1.00	46.8	50.0	93.6	85 - 115
Selenium	ug/L	1.00	42.8	50.0	85.5	85 - 115
Copper	ug/L	1.00	48.0	50.0	96.0	85 - 115
Vanadium	ug/L	1.00	47.2	50.0	94.3	85 - 115
Manganese	ug/L	1.00	47.6	50.0	95.2	85 - 115

Matrix Spike

Lab ID = 805562-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	1.00	45.0	50.0(50.0)	90.0	75 - 125
Barium	ug/L	1.00	60.0	64.3(50.0)	91.4	75 - 125
Beryllium	ug/L	1.00	37.9	50.0(50.0)	75.8	75 - 125
Cadmium	ug/L	1.00	41.0	50.0(50.0)	81.9	75 - 125
Chromium	ug/L	1.00	44.9	50.0(50.0)	89.8	75 - 125
Mercury	ug/L	1.00	4.52	5.00(5.00)	90.4	75 - 125
Nickel	ug/L	1.00	42.4	50.0(50.0)	84.9	75 - 125
Selenium	ug/L	1.00	44.6	50.0(50.0)	89.3	75 - 125
Copper	ug/L	1.00	41.8	50.0(50.0)	83.6	75 - 125
Vanadium	ug/L	1.00	47.5	50.0(50.0)	95.0	75 - 125
Manganese	ug/L	1.00	50.2	55.1(50.0)	90.2	75 - 125



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Matrix Spike Duplicate Lab ID = 805562-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	1.00	44.0	50.0(50.0)	88.0	75 - 125
Barium	ug/L	1.00	59.8	64.3(50.0)	91.1	75 - 125
Beryllium	ug/L	1.00	38.1	50.0(50.0)	76.2	75 - 125
Cadmium	ug/L	1.00	40.8	50.0(50.0)	81.6	75 - 125
Chromium	ug/L	1.00	43.6	50.0(50.0)	87.2	75 - 125
Mercury	ug/L	1.00	4.57	5.00(5.00)	91.4	75 - 125
Nickel	ug/L	1.00	41.2	50.0(50.0)	82.4	75 - 125
Selenium	ug/L	1.00	43.8	50.0(50.0)	87.5	75 - 125
Copper	ug/L	1.00	40.6	50.0(50.0)	81.3	75 - 125
Vanadium	ug/L	1.00	46.2	50.0(50.0)	92.3	75 - 125
Manganese	ug/L	1.00	48.7	55.1(50.0)	87.3	75 - 125

MRCSS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	20.2	20.0	101	90 - 110
Barium	ug/L	1.00	19.9	20.0	99.7	90 - 110
Beryllium	ug/L	1.00	19.2	20.0	96.2	90 - 110
Cadmium	ug/L	1.00	19.7	20.0	98.4	90 - 110
Chromium	ug/L	1.00	20.2	20.0	101	90 - 110
Mercury	ug/L	1.00	2.03	2.00	102	90 - 110
Nickel	ug/L	1.00	20.0	20.0	100	90 - 110
Selenium	ug/L	1.00	19.8	20.0	99.2	90 - 110
Copper	ug/L	1.00	21.0	20.0	105	90 - 110
Vanadium	ug/L	1.00	20.3	20.0	101	90 - 110
Manganese	ug/L	1.00	20.4	20.0	102	90 - 110

MRCVS - Primary

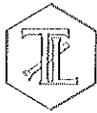
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	19.2	20.0	95.8	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	19.2	20.0	96.0	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	18.8	20.0	94.2	90 - 110



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Interference Check Standard AB

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

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Copper	ug/L	1.00	19.6	20.0	98.0	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Copper	ug/L	1.00	19.8	20.0	99.0	80 - 120

Interference Check Standard AB

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

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Vanadium	ug/L	1.00	ND	0		
Manganese	ug/L	1.00	19.5	20.0	97.5	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	19.3	20.0	96.3	80 - 120

Serial Dilution

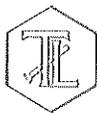
Lab ID = 805561-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	100	981	925	5.91	0 - 10

Serial Dilution

Lab ID = 805562-003

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Selenium	ug/L	5.00	25.9	24.7	4.82	0 - 10
Manganese	ug/L	5.00	41.7	40.1	3.99	0 - 10



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Project Number: 456827.01.DM

Printed 2/1/2013

Metals by EPA 200.8, Total		Batch 011713A					
Parameter	Unit	Analyzed	DF	MDL	RL	Result	
805562-001 Antimony	ug/L	01/17/2013 16:30	1.00	0.332	2.0	ND	
Lead	ug/L	01/17/2013 16:30	1.00	0.0740	1.0	ND	
Molybdenum	ug/L	01/17/2013 16:30	1.00	0.207	2.0	18.4	
805562-002 Antimony	ug/L	01/17/2013 18:24	1.00	0.332	2.0	ND	
Lead	ug/L	01/17/2013 18:24	1.00	0.0740	1.0	ND	
Molybdenum	ug/L	01/17/2013 18:24	1.00	0.207	2.0	21.1	
805562-003 Antimony	ug/L	01/17/2013 19:00	5.00	1.66	5.0	ND	
Cobalt	ug/L	01/17/2013 19:00	5.00	0.395	5.0	ND	
Lead	ug/L	01/17/2013 19:00	5.00	0.370	1.0	ND	
Silver	ug/L	01/17/2013 19:00	5.00	0.270	5.0	ND	
Thallium	ug/L	01/17/2013 19:00	5.00	0.565	2.5	ND	

Method Blank

Parameter	Unit	DF	Result
Cobalt	ug/L	1.00	ND
Antimony	ug/L	1.00	ND
Lead	ug/L	1.00	ND
Silver	ug/L	1.00	ND
Thallium	ug/L	1.00	1.08
Uranium	ug/L	1.00	ND
Molybdenum	ug/L	1.00	ND

Duplicate

Lab ID = 805562-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Cobalt	ug/L	1.00	ND	0	0	0 - 20
Antimony	ug/L	1.00	ND	0	0	0 - 20
Lead	ug/L	1.00	ND	0	0	0 - 20
Silver	ug/L	1.00	ND	0	0	0 - 20
Thallium	ug/L	1.00	ND	0	0	0 - 20
Uranium	ug/L	1.00	3.25	3.21	1.27	0 - 20
Molybdenum	ug/L	1.00	19.2	18.4	4.18	0 - 20



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 456827.01.DM

Printed 2/1/2013

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Cobalt	ug/L	1.00	0.904	1.00	90.4	70 - 130
Antimony	ug/L	1.00	0.973	1.00	97.3	70 - 130
Lead	ug/L	1.00	0.202	0.200	101	70 - 130
Silver	ug/L	1.00	1.06	1.00	106	70 - 130
Thallium	ug/L	1.00	0.457	0.500	91.4	70 - 130
Uranium	ug/L	1.00	0.204	0.200	102	70 - 130
Molybdenum	ug/L	1.00	0.517	0.500	103	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Cobalt	ug/L	1.00	43.9	50.0	87.9	85 - 115
Antimony	ug/L	1.00	50.6	50.0	101	85 - 115
Lead	ug/L	1.00	51.5	50.0	103	85 - 115
Silver	ug/L	1.00	47.7	50.0	95.5	85 - 115
Thallium	ug/L	1.00	48.9	50.0	97.8	85 - 115
Uranium	ug/L	1.00	53.9	50.0	108	85 - 115
Molybdenum	ug/L	1.00	51.3	50.0	103	85 - 115

Matrix Spike

Lab ID = 805562-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Cobalt	ug/L	1.00	43.4	50.0(50.0)	86.8	75 - 125
Antimony	ug/L	1.00	48.2	50.0(50.0)	96.4	75 - 125
Lead	ug/L	1.00	45.6	50.0(50.0)	91.1	75 - 125
Silver	ug/L	1.00	40.3	50.0(50.0)	80.6	75 - 125
Thallium	ug/L	1.00	43.7	50.0(50.0)	87.4	75 - 125
Uranium	ug/L	1.00	54.0	53.2(50.0)	101	75 - 125
Molybdenum	ug/L	1.00	70.3	68.4(50.0)	104	75 - 125

Matrix Spike Duplicate

Lab ID = 805562-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Cobalt	ug/L	1.00	42.7	50.0(50.0)	85.4	75 - 125
Antimony	ug/L	1.00	47.7	50.0(50.0)	95.5	75 - 125
Lead	ug/L	1.00	45.0	50.0(50.0)	90.0	75 - 125
Silver	ug/L	1.00	39.7	50.0(50.0)	79.4	75 - 125
Thallium	ug/L	1.00	44.3	50.0(50.0)	88.6	75 - 125
Uranium	ug/L	1.00	52.8	53.2(50.0)	99.1	75 - 125
Molybdenum	ug/L	1.00	68.9	68.4(50.0)	101	75 - 125



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 456827.01.DM

Printed 2/1/2013

Metals by EPA 200.8, Total		Batch 012213A				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
805562-003 Barium	ug/L	01/22/2013 13:10	2.00	0.376	5.0	95.9
Molybdenum	ug/L	01/22/2013 13:10	2.00	0.414	2.0	124

Method Blank

Parameter	Unit	DF	Result
Barium	ug/L	1.00	ND
Molybdenum	ug/L	1.00	ND

Duplicate

Lab ID = 805562-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Barium	ug/L	2.00	13.6	14.3	4.78	0 - 20
Molybdenum	ug/L	2.00	17.5	18.4	4.82	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Barium	ug/L	1.00	0.477	0.500	95.4	70 - 130
Molybdenum	ug/L	1.00	0.596	0.500	119	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Barium	ug/L	2.00	52.2	50.0	104	85 - 115
Molybdenum	ug/L	2.00	51.8	50.0	104	85 - 115

Matrix Spike

Lab ID = 805562-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Barium	ug/L	2.00	64.0	64.3(50.0)	99.3	75 - 125
Molybdenum	ug/L	2.00	69.2	68.4(50.0)	102	75 - 125

Matrix Spike Duplicate

Lab ID = 805562-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Barium	ug/L	2.00	63.6	64.3(50.0)	98.6	75 - 125
Molybdenum	ug/L	2.00	70.0	68.4(50.0)	103	75 - 125

MRCSS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Barium	ug/L	1.00	20.1	20.0	100	90 - 110
Molybdenum	ug/L	1.00	20.6	20.0	103	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Barium	ug/L	1.00	19.6	20.0	98.3	90 - 110



Report Continued

Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 456827.01.DM

Printed 2/1/2013

Serial Dilution

Lab ID = 805562-003

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Barium	ug/L	10.0	93.4	95.9	2.58	0 - 10
Molybdenum	ug/L	10.0	126	124	1.87	0 - 10



Client: E2 Consulting Engineers, Inc.

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Metals by EPA 200.8, Total

Batch 013013A

Table with 7 columns: Parameter, Unit, Analyzed, DF, MDL, RL, Result. Rows include Barium (27.2) and Mercury (ND).

Method Blank

Table with 4 columns: Parameter, Unit, DF, Result. Rows for Barium and Mercury, both ND.

Duplicate

Lab ID = 805562-001

Table with 7 columns: Parameter, Unit, DF, Result, Expected, RPD, Acceptance Range. Rows for Barium and Mercury.

Low Level Calibration Verification

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Rows for Barium and Mercury.

Lab Control Sample

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Rows for Barium and Mercury.

Matrix Spike

Lab ID = 805562-001

Table with 7 columns: Parameter, Unit, DF, Result, Expected/Added, Recovery, Acceptance Range. Rows for Barium and Mercury.

Matrix Spike Duplicate

Lab ID = 805562-001

Table with 7 columns: Parameter, Unit, DF, Result, Expected/Added, Recovery, Acceptance Range. Rows for Barium and Mercury.

MRCSS - Secondary

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Rows for Barium and Mercury.

MRCVS - Primary

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Row for Barium.



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 456827.01.DM

Printed 2/1/2013

Interference Check Standard AB

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

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Mercury	ug/L	1.00	2.02	2.00	101	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Mercury	ug/L	1.00	2.07	2.00	103	80 - 120

Serial Dilution

Lab ID = 805562-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Barium	ug/L	10.0	27.6	27.2	1.65	0 - 10

Total Dissolved Solids by SM 2540 C

Batch 01TDS13B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805562-001 Total Dissolved Solids	mg/L	01/09/2013	1.00	0.757	250	4340
805562-002 Total Dissolved Solids	mg/L	01/09/2013	1.00	0.757	250	4970
805562-003 Total Dissolved Solids	mg/L	01/09/2013	1.00	0.757	500	29600

Method Blank

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

Duplicate

Lab ID = 805562-003

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	31500	29600	6.16	0 - 10

Duplicate

Lab ID = 805650-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	3930	3960	0.760	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Dissolved Solids	mg/L	1.00	492	500	98.4	90 - 110



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Project Number: 456827.01.DM

Printed 2/1/2013

Ammonia Nitrogen by SM4500-NH3D		Batch 01NH313A				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
805562-001 Ammonia as N	mg/L	01/11/2013	1.00	0.00980	0.500	ND
805562-002 Ammonia as N	mg/L	01/11/2013	1.00	0.00980	0.500	ND
Method Blank						
Parameter	Unit	DF	Result			
Ammonia as N	mg/L	1.00	ND			
Duplicate						Lab ID = 805562-001
Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Ammonia as N	mg/L	1.00	ND	0	0	0 - 20
Lab Control Sample						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	8.30	8.00	104	90 - 110
Lab Control Sample Duplicate						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	8.68	8.00	108	90 - 110
Matrix Spike						Lab ID = 805562-002
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	8.71	8.00(8.00)	109	75 - 125
MRCCS - Secondary						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	5.44	6.00	90.6	90 - 110
MRCVS - Primary						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	6.09	6.00	101	90 - 110



Report Continued

Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 456827.01.DM

Printed 2/1/2013

Turbidity by SM 2130 B		Batch 01TUC13D				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
805562-001 Turbidity	NTU	01/03/2013	1.00	0.0140	0.100	ND
805562-002 Turbidity	NTU	01/03/2013	1.00	0.0140	0.100	0.227

Method Blank

Parameter	Unit	DF	Result
Turbidity	NTU	1.00	ND

Duplicate

Lab ID = 805562-001

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	8.40	8.00	105	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	7.58	8.00	94.8	90 - 110

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

Mona Nassimi
for Mona Nassimi
Manager, Analytical Services



ej

Total Dissolved Solids by SM 2540 C

Calculations

Batch: 01TDS13B
Date Analyzed: 1/9/13

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	74.2232	74.2232	74.2232	0.0000	No	0.0000	0.0	25.0	ND	1
805561-1	20	49.1727	49.2284	49.228	0.0004	No	0.0553	2765.0	125.0	2765.0	1
805561-2	10	51.4359	51.4868	51.4866	0.0002	No	0.0507	5070.0	250.0	5070.0	1
805562-1	10	75.2731	75.3165	75.3165	0.0000	No	0.0434	4340.0	250.0	4340.0	1
805562-2	10	50.5701	50.6201	50.6198	0.0003	No	0.0497	4970.0	250.0	4970.0	1
805562-3	5	51.0739	51.2222	51.2219	0.0003	No	0.1480	29600.0	500.0	29600.0	1
805593	970	109.0617	109.0617	109.0617	0.0000	No	0.0000	0.0	2.6	ND	1
805609-2	200	111.3649	111.3782	111.3782	0.0000	No	0.0133	66.5	12.5	66.5	1
805609-4	100	67.2037	67.2355	67.2352	0.0003	No	0.0315	315.0	25.0	315.0	1
805614-16	100	66.7074	66.7577	66.7577	0.0000	No	0.0503	503.0	25.0	503.0	1
805615	100	77.7820	77.8356	77.8355	0.0001	No	0.0535	535.0	25.0	535.0	1
805562-3D	5	50.1270	50.2844	50.2844	0.0000	No	0.1574	31480.0	500.0	31480.0	1
LCS	100	70.8921	70.9413	70.9413	0.0000	No	0.0492	492.0	25.0	492.0	1
805622-1	50	72.0903	72.1364	72.136	0.0004	No	0.0457	914.0	50.0	914.0	1
805622-2	100	78.6153	78.6701	78.6697	0.0004	No	0.0544	544.0	25.0	544.0	1
805622-3	100	73.4428	73.4999	73.4999	0.0000	No	0.0571	571.0	25.0	571.0	1
805622-4	100	69.2051	69.2651	69.265	0.0001	No	0.0599	599.0	25.0	599.0	1
805634-13	100	72.7697	72.8257	72.8256	0.0001	No	0.0559	559.0	25.0	559.0	1
805650	10	50.6377	50.6773	50.6773	0.0000	No	0.0396	3960.0	250.0	3960.0	1
805664-1	100	115.2326	115.2554	115.2554	0.0000	No	0.0228	228.0	25.0	228.0	1
805650D	10	50.5061	50.5454	50.5454	0.0000	No	0.0393	3930.0	250.0	3930.0	1

Calculation as follows:

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

Where:

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

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

Laboratory Control Sample (LCS) Summary

QC Std LD.	Measured Value, ppm	Theoretical Value, ppm	Percent Rec	Acceptance Limit	QC Within Control?
LCS1	492	500	98.4%	90-110%	Yes
LCSD					

LCS Recovery

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

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

Duplicate Determinations Difference Summary

Lab Number	Sample Weight, g	Sample Dup Weight, g	% RPD	Acceptance Limit	QC Within Control?
805562-3	0.148	0.1574	3.1%	≤5%	Yes
805650	0.0396	0.0393	0.4%	5%	Yes

Duplicate Determination Difference

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

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

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

Jenny T.

Analyst Printed Name

Analyst Signature

Maksim G.

Reviewer Printed Name

Reviewer Signature

Total Dissolved Solids by SM 2540 C

TDS/EC CHECK

Batch: 01TDS13B
Date Analyzed: 1/9/13

Laboratory Number	EC	TDS/EC Ratio: 0.55-.9	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
805561-1	4590	0.60	2983.5	0.93
805561-2	8000	0.63	5200	0.98
805562-1	6870	0.63	4465.5	0.97
805562-2	7030	0.71	4569.5	1.09
805562-3	40400	0.73	26260	1.13
805593	4.83	ND	3,1395	ND
805609-2	121	0.55	78.65	0.85
805609-4	529	0.60	343.85	0.92
805614-16	851	0.59	553.15	0.91
805615	872	0.61	566.8	0.94
805562-3D	40400	0.78	26260	1.20
LCS				
805622-1	1670	0.55	1085.5	0.84
805622-2	915	0.59	594.75	0.91
805622-3	926	0.62	601.9	0.95
805622-4	994	0.60	646.1	0.93
805634-13	884	0.63	574.6	0.97
805650	7180	0.55	4667	0.85
805664-1	387	0.59	251.55	0.91
805650D	7180	0.55	4667	0.84



TRUESDAIL LABORATORIES, INC.
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 (714)730-6239 FAX: (714) 730-6462
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CHAIN OF CUSTODY RECORD
 [IM3Plant-WDR-394]

Rec'd 01/02/13
 SJK 805562

TURNAROUND TIME 10 Days
 DATE 01/02/13 PAGE 1 OF 1

805 562

SAMPLE I.D.	DATE	TIME	DESCRIPTION	NUMBER OF CONTAINERS											COMMENTS	
				Cr(VI) (218.6) Lab Filtered	Tile 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)
SC-700B-WDR-394	01/02/13	12:21		X	X	X	X	X	X	X	X	X	X	X	X	DH = 2 } PW = 2 } metals PM = 2 } 39 Form Attached ALERT !! Level III QC
SC-100B-WDR-394	01/02/13	12:13		X	X	X	X	X	X	X	X	X	X	X	X	
SC-701-WDR-394	01/02/13	12:28		X	X	X	X	X	X	X	X	X	X	X	X	
				TOTAL NUMBER OF CONTAINERS											12	

CHAIN OF CUSTODY SIGNATURE RECORD				SAMPLE CONDITIONS			
Signature (Relinquished)	Printed Name	Company/ Agency	Date/ Time	RECEIVED	COOL	WARM	
<i>[Signature]</i>	Ryan Phelps	E2	1-2-13 15:30	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3.4 °C
<i>[Signature]</i>	Rafael Davila	Company/ Agency	1-2-13 15:30	CUSTODY SEALED	YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>	
<i>[Signature]</i>	Rafael Davila	Company/ Agency	1-2-13 15:30	SPECIAL REQUIREMENTS:			
<i>[Signature]</i>	Indira	Company/ Agency	1/2/13 21:30	The metals include: Cr, Al, Sb, As, Ba, B, Cu, Pb, Mn, Mo, Ni, Fe, Zn			
<i>[Signature]</i>		Company/ Agency					
<i>[Signature]</i>		Company/ Agency					

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
01/03/13	805561-1	7	2 ml	9.5	10:15 AM	HAV
↓	↓ -2	↓	↓	↓	10:20 AM	HAV
01/03/13	805562-1	7	2 ml	9.5	10:25 AM	HAV
↓	↓ -2	↓	↓	↓	10:30 AM	↓
↓	↓ -3	↓	↓	↓	10:35 AM	↓



Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
805593	7X1 BE	< 2	1-8-13	BE	yes		1/10/13	pH < 2
805596	71							
805594								
805597								
805598								
805599 (1-4)								
805600 (1-4)								
805612								
805614 (1-4)		72				8:00	1/10/13	pH < 2
805630	< 1	72	1-8-13	ES	yes	10:30		
805605 (1-16, 21-23)	< 1	< 2	1-8-13	ES	yes			-5,10 turbidity > 1
805619-6	< 1	72			NO	1:30	1/10/13	pH < 2
805622 (1-4)	↓	↓			↓	↓		
805638	< 1	72	1-9-13	BE	NO	11:00 AM	1/10/13	pH < 2
805649 (1-3)					↓	↓	1/10/13	pH < 2
805632	< 1	< 2		DC	yes			
805630	< 1	< 2						
805628	< 1	< 2						
805631								
805627	↓	↓			↓			
805629	↓	↓			↓			
805633	SOLID			DC	TTL			
805662	72	72	1/10/13	ES	yes	9:00 AM	1/10/13 15:30	pH < 2
805504	< 2	< 2	1/10/13	ES	yes			
805675 (1-3, 8-12, 15-18)	< 1	< 2						
805506 (1-3)	< 1	< 2						
805528 (1-5)		↓						
805561 (1-2)		72				10:00		Filtered then acidify
805562 (1-3)		< 2						
805650	↓	72			↓	10:00		
805560	SLUDGE		1/14/13	ES	TTL			
805651 (1-5, 8-14)	< 1	< 2			yes			TOTAL/DISSOLVED
805652 (1-8)	< 1	< 2			↓			
805663 (10-12)	< 1	72	1/15/13	BE	NO	10: AM	1/15/13 15:30	pH < 2
805669	< 1	< 2	1/15/13	ES	yes			
805675								
805677								
805679								
805680								
805681								
805686								
805732								
805733	↓	↓			↓			

Notes:

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



Sample Integrity & Analysis Discrepancy Form

Client: E2

Lab # 805562

Date Delivered: 01/02/13 Time: 11:30 By: Mail Field Service Client

1. Was a Chain of Custody received and signed? Yes No N/A
2. Does Customer require an acknowledgement of the COC? Yes No N/A
3. Are there any special requirements or notes on the COC? Yes No N/A
4. If a letter was sent with the COC, does it match the COC? Yes No N/A
5. Were all requested analyses understood and acceptable? Yes No N/A
6. Were samples received in a chilled condition? 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: duida



TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING



Established 1931

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

January 29, 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-395 PROJECT, GROUNDWATER
MONITORING, TLI NO.: 805650

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-395 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 January 8, 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.

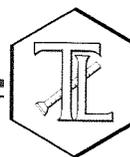
Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

for 
Mona Nassimi
Manager, Analytical Services


Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.

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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

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

Laboratory No.: 805650

Date: January 29, 2013

Collected: January 8, 2013

Received: January 8, 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	Bitra Emami
EPA 218.6	Hexavalent Chromium	Himani Vaishnav



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.: 8056650
Date Received: January 8, 2013

Analytical Results Summary

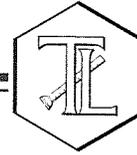
Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
8056650-001	SC-700B-WDR-395	E120.1	NONE	1/8/2013	11:30	EC	7200	umhos/cm	2.00
8056650-001	SC-700B-WDR-395	E200.8	NONE	1/8/2013	11:30	Chromium	ND	ug/L	1.0
8056650-001	SC-700B-WDR-395	E200.8	NONE	1/8/2013	11:30	Manganese	4.7	ug/L	0.50
8056650-001	SC-700B-WDR-395	E218.6	LABFLT	1/8/2013	11:30	Chromium, Hexavalent	ND	ug/L	0.20
8056650-001	SC-700B-WDR-395	SM2130B	NONE	1/8/2013	11:30	Turbidity	ND	NTU	0.100
8056650-001	SC-700B-WDR-395	SM2540C	NONE	1/8/2013	11:30	Total Dissolved Solids	3960	mg/L	250

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

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

TRUESDAIL LABORATORIES, INC.

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REPORT

Client: E2 Consulting Engineers, Inc.

155 Grand Avenue, Suite 800

Oakland, CA 94612

Attention: Shawn Duffy

Project Name: PG&E Topock Project

Project Number: 456827.01.DM

P.O. Number: 456827.01.DM

Release Number:

Laboratory No. 805650

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Printed 1/29/2013

Samples Received on 1/8/2013 10:30:00 PM

Field ID	Lab ID	Collected	Matrix
SC-700B-WDR-395	805650-001	01/08/2013 11:30	Water

Specific Conductivity - EPA 120.1

Batch 01EC13F

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805650-001 Specific Conductivity	umhos/cm	01/11/2013	1.00	0.116	2.00	7200

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate

Lab ID = 805650-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	7200	7200	0	0 - 10

Lab Control Sample

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

MRCCS - Secondary

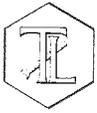
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	680	706	96.3	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	910	998	91.2	90 - 110

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

009



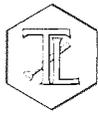
Client: E2 Consulting Engineers, Inc.

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

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Printed 1/29/2013

Table with 7 columns: Parameter, Unit, DF, Result, Expected/Added, Recovery, Acceptance Range. Includes sections for Method Blank, Duplicate, Low Level Calibration Verification, Lab Control Sample, and Matrix Spike.

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



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 456827.01.DM

Printed 1/29/2013

Metals by EPA 200.8, Total		Batch 011613B				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
805650-001 Chromium	ug/L	01/17/2013 00:44	1.00	0.0920	1.0	ND
Manganese	ug/L	01/17/2013 00:44	1.00	0.0860	0.50	4.7

Method Blank

Parameter	Unit	DF	Result
Arsenic	ug/L	1.00	ND
Barium	ug/L	1.00	ND
Beryllium	ug/L	1.00	ND
Cadmium	ug/L	1.00	ND
Chromium	ug/L	1.00	ND
Mercury	ug/L	1.00	ND
Nickel	ug/L	1.00	ND
Selenium	ug/L	1.00	ND
Copper	ug/L	1.00	ND
Vanadium	ug/L	1.00	ND
Manganese	ug/L	1.00	ND

Duplicate

Lab ID = 805562-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Arsenic	ug/L	1.00	ND	0	0	0 - 20
Barium	ug/L	1.00	13.3	14.3	7.04	0 - 20
Beryllium	ug/L	1.00	ND	0	0	0 - 20
Cadmium	ug/L	1.00	ND	0	0	0 - 20
Chromium	ug/L	1.00	ND	0	0	0 - 20
Mercury	ug/L	1.00	ND	0	0	0 - 20
Nickel	ug/L	1.00	ND	0	0	0 - 20
Selenium	ug/L	1.00	ND	0	0	0 - 20
Copper	ug/L	1.00	ND	0	0	0 - 20
Vanadium	ug/L	1.00	ND	0	0	0 - 20
Manganese	ug/L	1.00	5.05	5.07	0.415	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	0.185	0.200	92.5	70 - 130

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Barium	ug/L	1.00	0.922	1.00	92.2	70 - 130



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 456827.01.DM

Printed 1/29/2013

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Beryllium	ug/L	1.00	0.183	0.200	91.5	70 - 130
Cadmium	ug/L	1.00	0.172	0.200	86.0	70 - 130
Chromium	ug/L	1.00	0.231	0.200	116	70 - 130
Mercury	ug/L	1.00	0.170	0.200	85.0	70 - 130

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nickel	ug/L	1.00	0.580	0.500	116	70 - 130

Low Level Calibration Verification

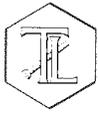
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Selenium	ug/L	1.00	2.10	2.00	105	70 - 130
Copper	ug/L	1.00	1.03	1.00	103	70 - 130
Vanadium	ug/L	1.00	0.941	1.00	94.1	70 - 130

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	0.218	0.200	109	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	46.1	50.0	92.2	85 - 115
Barium	ug/L	1.00	47.5	50.0	95.0	85 - 115
Beryllium	ug/L	1.00	45.9	50.0	91.8	85 - 115
Cadmium	ug/L	1.00	45.8	50.0	91.7	85 - 115
Chromium	ug/L	1.00	47.5	50.0	94.9	85 - 115
Mercury	ug/L	1.00	4.73	5.00	94.6	85 - 115
Nickel	ug/L	1.00	46.8	50.0	93.6	85 - 115
Selenium	ug/L	1.00	42.8	50.0	85.5	85 - 115
Copper	ug/L	1.00	48.0	50.0	96.0	85 - 115
Vanadium	ug/L	1.00	47.2	50.0	94.3	85 - 115
Manganese	ug/L	1.00	47.6	50.0	95.2	85 - 115



Client: E2 Consulting Engineers, Inc.

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

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Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Vanadium	ug/L	1.00	ND	0		
Manganese	ug/L	1.00	19.5	20.0	97.5	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	19.3	20.0	96.3	80 - 120

Serial Dilution

Lab ID = 805561-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	100	981	925	5.91	0 - 10

Serial Dilution

Lab ID = 805562-003

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Selenium	ug/L	5.00	25.9	24.7	4.82	0 - 10
Manganese	ug/L	5.00	41.7	40.1	3.99	0 - 10

Total Dissolved Solids by SM 2540 C

Batch 01TDS13B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805650-001 Total Dissolved Solids	mg/L	01/09/2013	1.00	0.757	250	3960

Method Blank

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

Duplicate

Lab ID = 805562-003

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	31500	29600	6.16	0 - 10

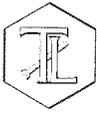
Duplicate

Lab ID = 805650-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	3930	3960	0.760	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Dissolved Solids	mg/L	1.00	492	500	98.4	90 - 110



Client: E2 Consulting Engineers, Inc.

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

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Printed 1/29/2013

Turbidity by SM 2130 B

Batch 01TUC13H

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805650-001 Turbidity	NTU	01/09/2013	1.00	0.0140	0.100	ND

Method Blank

Parameter	Unit	DF	Result
Turbidity	NTU	1.00	ND

Duplicate

Lab ID = 805650-001

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	8.03	8.00	100	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	8.11	8.00	101	90 - 110

Respectfully submitted,

TRUESDAIL LABORATORIES, INC.


 For Mona Nassimi
 Manager, Analytical Services



e2

Total Dissolved Solids by SM 2540 C

Calculations

Batch: 01TDS13B
Date Analyzed: 1/9/13

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	74.2232	74.2232	74.2232	0.0000	No	0.0000	0.0	25.0	ND	1
805561-1	20	49.1727	49.2284	49.228	0.0004	No	0.0553	2765.0	125.0	2765.0	1
805561-2	10	51.4359	51.4868	51.4866	0.0002	No	0.0507	5070.0	250.0	5070.0	1
805562-1	10	75.2731	75.3165	75.3165	0.0000	No	0.0434	4340.0	250.0	4340.0	1
805562-2	10	50.5701	50.6201	50.6198	0.0003	No	0.0497	4970.0	250.0	4970.0	1
805562-3	5	51.0739	51.2222	51.2219	0.0003	No	0.1480	29600.0	500.0	29600.0	1
805593	970	109.0617	109.0617	109.0617	0.0000	No	0.0000	0.0	2.6	ND	1
805609-2	200	111.3649	111.3782	111.3782	0.0000	No	0.0133	66.5	12.5	66.5	1
805609-4	100	67.2037	67.2355	67.2352	0.0003	No	0.0315	315.0	25.0	315.0	1
805614-16	100	66.7074	66.7577	66.7577	0.0000	No	0.0503	503.0	25.0	503.0	1
805615	100	77.7820	77.8356	77.8355	0.0001	No	0.0535	535.0	25.0	535.0	1
805562-3D	5	50.1270	50.2844	50.2844	0.0000	No	0.1574	31480.0	500.0	31480.0	1
LCS	100	70.8921	70.9413	70.9413	0.0000	No	0.0492	492.0	25.0	492.0	1
805622-1	50	72.0903	72.1364	72.136	0.0004	No	0.0457	914.0	50.0	914.0	1
805622-2	100	78.6153	78.6701	78.6697	0.0004	No	0.0544	544.0	25.0	544.0	1
805622-3	100	73.4428	73.4999	73.4999	0.0000	No	0.0571	571.0	25.0	571.0	1
805622-4	100	69.2051	69.2651	69.265	0.0001	No	0.0599	599.0	25.0	599.0	1
805634-13	100	72.7697	72.8257	72.8256	0.0001	No	0.0559	559.0	25.0	559.0	1
805650	10	50.6377	50.6773	50.6773	0.0000	No	0.0396	3960.0	250.0	3960.0	1
805664-1	100	115.2326	115.2554	115.2554	0.0000	No	0.0228	228.0	25.0	228.0	1
805650D	10	50.5061	50.5454	50.5454	0.0000	No	0.0393	3930.0	250.0	3930.0	1

Calculation as follows:

Filterable residue (TDS), mg/L =

$$\left(\frac{A-B}{C}\right) \times 10^6$$

Where:

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

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

Laboratory Control Sample (LCS) Summary

QC Std I.D.	Measured Value, ppm	Theoretical Value, ppm	Percent Rec	Acceptance Limit	QC Within Control?
LCS1	492	500	98.4%	90-110%	Yes
LCSD					

LCS Recovery

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

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

Duplicate Determinations Difference Summary

Lab Number	Sample Weight, g	Sample Dup Weight, g	% RPD	Acceptance Limit	QC Within Control?
805562-3	0.148	0.1574	3.1%	≤5%	Yes
805650	0.0396	0.0393	0.4%	5%	Yes

Duplicate Determination Difference

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

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

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

Jenny T.
Analyst Printed Name

Analyst Signature

Maksim G.
Reviewer Printed Name

Reviewer Signature

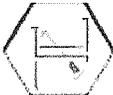
Total Dissolved Solids by SM 2540 C

TDS/EC CHECK

Batch: 01TDS13B
Date Analyzed: 1/9/13

Laboratory Number	EC	TDS/EC Ratio: 0.55-.9	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
805561-1	4590	0.60	2983.5	0.93
805561-2	8000	0.63	5200	0.98
805562-1	6870	0.63	4465.5	0.97
805562-2	7030	0.71	4569.5	1.09
805562-3	40400	0.73	26260	1.13
805593	4.83	ND	3.1395	ND
805609-2	121	0.55	78.65	0.85
805609-4	529	0.60	343.85	0.92
805614-16	851	0.59	553.15	0.91
805615	872	0.61	566.8	0.94
805562-3D	40400	0.78	26260	1.20
LCS				
805622-1	1670	0.55	1085.5	0.84
805622-2	915	0.59	594.75	0.91
805622-3	926	0.62	601.9	0.95
805622-4	994	0.60	646.1	0.93
805634-13	884	0.63	574.6	0.97
805650	7180	0.55	4667	0.85
805664-1	387	0.59	251.55	0.91
805650D	7180	0.55	4667	0.84





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CHAIN OF CUSTODY RECORD

IIM3Plant-WDR-395] **805650**

COC Number _____
 TURNAROUND TIME 10 Days
 DATE 01/08/13 PAGE 1 OF 1

COMPANY E2	PROJECT NAME PG&E Topock	PHONE (530) 229-3303	FAX (530) 339-3303	P.O. NUMBER 456827.01.DM	TEAM 1	SAMPLERS (SIGNATURE) <i>Chen</i>	DATE 01/08/13	TIME 11:30	DESCRIPTION Water	C6 (218.6) Lab Filtered	X	Total Metals (200.7) Cr, Mn	X	Specific Conductance (120.1)	X	TDS (SM2540C)	X	Turbidity (SM12130)	X	COMMENTS	NUMBER OF CONTAINERS	3	TOTAL NUMBER OF CONTAINERS	3
---------------	-----------------------------	-------------------------	-----------------------	-----------------------------	-----------	-------------------------------------	------------------	---------------	----------------------	-------------------------	---	-----------------------------	---	------------------------------	---	---------------	---	---------------------	---	----------	----------------------	---	----------------------------	---

**ALERT !!
 Level III QC**

For Sample Conditions
 See Form Attached

CHAIN OF CUSTODY SIGNATURE RECORD				SAMPLE CONDITIONS			
Signature (Relinquished)	Printed Name	Company/ Agency	Date/ Time	RECEIVED	COOL <input checked="" type="checkbox"/>	WARM <input type="checkbox"/>	3.3 °C
<i>Chen</i>	Chen	CH2M Hill	1-8-13 15:30	CUSTODY SEALED	YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>	
Signature (Received)	Printed Name	Company/ Agency	Date/ Time	SPECIAL REQUIREMENTS:			
<i>Rafael Davila</i>	Rafael	T.L.I.	1-8-13 15:30				
Signature (Relinquished)	Printed Name	Company/ Agency	Date/ Time				
<i>Rafael Davila</i>	Rafael	T.L.I.	1-8-13 22:30				
Signature (Received)	Printed Name	Company/ Agency	Date/ Time				
<i>Shabrina</i>	Shabrina	T.L.I.	1/8/13 02:15				
Signature (Relinquished)	Printed Name	Company/ Agency	Date/ Time				
Signature (Received)	Printed Name	Company/ Agency	Date/ Time				

054

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
01/03/13	805561-1	7	2 ml	9.5	10:15 AM	HAV
↓	↓ -2	↓	↓	↓	10:20 AM	HAV
01/03/13	805562-1	7	2 ml	9.5	10:25 AM	HAV
↓	↓ -2	↓	↓	↓	10:30 AM	↓
↓	↓ -3	↓	↓	↓	10:35 AM	↓
01/04/13	805581-5	9	N/A	N/A	N/A	HAV
01/09/13	805650	7	2 ml	9.5	9:30 AM	HAV
01/09/13	805651-1	9.5	N/A	N/A	N/A	HAV
↓	↓ -2	↓	↓	↓	↓	↓
↓	↓ -3	↓	↓	↓	↓	↓
↓	↓ -4	↓	↓	↓	↓	↓
↓	↓ -5	↓	↓	↓	↓	↓
↓	↓ -6	↓	↓	↓	↓	↓
↓	↓ -7	↓	↓	↓	↓	↓
↓	↓ -8	↓	↓	↓	↓	↓
↓	↓ -9	↓	↓	↓	↓	↓
↓	↓ -10	↓	↓	↓	↓	↓
↓	↓ -11	↓	↓	↓	↓	↓
↓	↓ -12	↓	↓	↓	↓	↓
↓	↓ -13	↓	↓	↓	↓	↓
↓	↓ -14	↓	↓	↓	↓	↓
↓	↓ -15	↓	↓	↓	↓	↓
01/10/13	805671-1	9.5	N/A	N/A	N/A	RB
↓	↓ -2	↓	↓	↓	↓	↓
↓	↓ -3	↓	↓	↓	↓	↓
↓	↓ -4	↓	↓	↓	↓	↓
↓	↓ -5	↓	↓	↓	↓	↓
↓	↓ -6	↓	↓	↓	↓	↓
↓	↓ -7	↓	↓	↓	↓	↓
↓	↓ -8	↓	↓	↓	↓	↓
↓	↓ -9	↓	↓	↓	↓	↓

M
1-16-13

HAV

01/14/13
055



Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
805593	7X1BE	<2	1-2-13	BE	yes		1/10/13	pH <2
805596	71							
805594								
805597								
805598								
805599(1-4)								
805600(1-4)								
805612								
805614(16-23)		72				8:00	1/10/13	pH 2.2
805380	<1	72	1-9-13	ES	yes	10:30		
805305(1-16, 21-23)	<1	<2	1-8-13	ES	yes			-5.10 turbidity >1
805619-6	<1	72			NO	1:30	1/10/13	pH 2.2
805622(1-4)	↓	↓			↓	↓		
805638	<1	72	1-9-13	BE	NO	11:00am	1/10/13	pH 2.2
805649(1-3)					↓	↓	1/10/13	pH 2.2
805632	<1	<2		DC	yes			
805630	<1	<2						
805628	<1	<2						
805631								
805627								
805629	↓	↓						
805633	SOLID			DC	TTL			
805662	7R	72	1/10/13	ES	yes	9:00am	1/10/13 15:30	pH 2.2
805504	L2	L2	1/10/13	ES	yes			
805375(1-7, 8-12, 15-18)	L2	L2						
805506(1-3)	L2	L2						
805528(1-5)		↓						
805561(1-2)		72				10:00		Filtered then acidify
805562(1-3)		L2						
805650	↓	72				10:00		
805560	SLUDGE		1/14/13	ES	TTL			
805651(1-5, 8-14)	<1	L2			yes			TOTAL/DISSOLVED
805652(1-5)	<1	L2			↓			
805663(10-12)	<1	72	1/15/13	BE	NO	10:00 AM	1/10/13 15:30	pH 2.2
805669	<1	L2	1/15/13	ES	yes			
805675								
805677								
805679								
805680								
805681								
805686								
805732								
805733								

Notes:

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



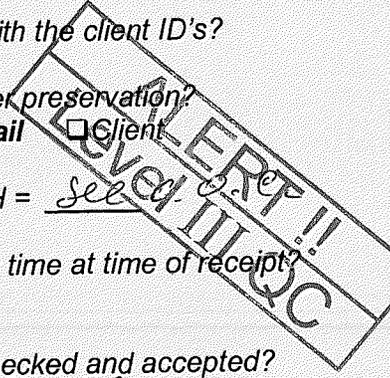
Sample Integrity & Analysis Discrepancy Form

Client: F 2

Lab # 805650

Date Delivered: 01/08/13 Time: 2:30 By: Mail Field Service Client

1. Was a Chain of Custody received and signed? Yes No N/A
2. Does Customer require an acknowledgement of the COC? Yes No N/A
3. Are there any special requirements or notes on the COC? Yes No N/A
4. If a letter was sent with the COC, does it match the COC? Yes No N/A
5. Were all requested analyses understood and acceptable? Yes No N/A
6. Were samples received in a chilled condition? Yes No N/A
Temperature (if yes)? 3.3 °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 log 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: Anda Stobur

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www.truesdail.com

January 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-396 PROJECT, GROUNDWATER
MONITORING, TLI NO.: 805813

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-396 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 January 15, 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.

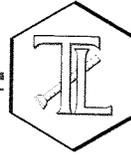
Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.


for Mona Nassimi
Manager, Analytical Services


Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.

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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

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Laboratory No.: 805813

Date: January 28, 2013

Collected: January 15, 2013

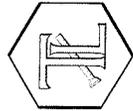
Received: January 15, 2013

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	Bitu Emami
EPA 218.6	Hexavalent Chromium	Himani Vaishnav

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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.: 805813
Date Received: January 15, 2013

Analytical Results Summary

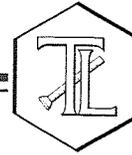
Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
805813-001	SC-700B-WDR-396	E120.1	NONE	1/15/2013	13:30	EC	7080	umhos/cm	2.00
805813-001	SC-700B-WDR-396	E200.8	NONE	1/15/2013	13:30	Chromium	ND	ug/L	1.0
805813-001	SC-700B-WDR-396	E200.8	NONE	1/15/2013	13:30	Manganese	4.3	ug/L	0.50
805813-001	SC-700B-WDR-396	E218.6	LABFLT	1/15/2013	13:30	Chromium, Hexavalent	ND	ug/L	0.20
805813-001	SC-700B-WDR-396	SM2130B	NONE	1/15/2013	13:30	Turbidity	ND	NTU	0.100
805813-001	SC-700B-WDR-396	SM2540C	NONE	1/15/2013	13:30	Total Dissolved Solids	4410	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. 805813

Page 1 of 8

Printed 1/28/2013

Samples Received on 1/15/2013 9:30:00 PM

Field ID	Lab ID	Collected	Matrix
SC-700B-WDR-396	805813-001	01/15/2013 13:30	Water

Specific Conductivity - EPA 120.1

Batch 01EC13I

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805813-001 Specific Conductivity	umhos/cm	01/18/2013	1.00	0.116	2.00	7080

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate

Lab ID = 805813-001

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	690	706	97.7	90 - 110

MRCCS - Secondary

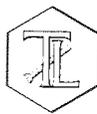
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	670	706	94.9	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	952	998	95.4	90 - 110

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

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Page 2 of 8

Project Number: 456827.01.DM

Printed 1/28/2013

Chrome VI by EPA 218.6		Batch 01CrH13F				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
805813-001 Chromium, Hexavalent	ug/L	01/18/2013 11:44	1.00	0.00920	0.20	ND
Method Blank						
Parameter	Unit	DF	Result			
Chromium, Hexavalent	ug/L	1.00	ND			
Duplicate						Lab ID = 805831-007
Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	35.4	35.5	0.160	0 - 20
Low Level Calibration Verification						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.177	0.200	88.6	70 - 130
Lab Control Sample						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.70	5.00	93.9	90 - 110
Matrix Spike						Lab ID = 805813-001
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.75	5.08(5.00)	93.4	90 - 110
Matrix Spike						Lab ID = 805813-001
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.998	1.08(1.00)	92.1	90 - 110
Matrix Spike						Lab ID = 805831-001
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	6.46	6.68(5.00)	95.6	90 - 110
Matrix Spike						Lab ID = 805831-002
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	6.49	6.64(5.00)	97.0	90 - 110
Matrix Spike						Lab ID = 805831-003
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.69	1.71(1.00)	98.0	90 - 110
Matrix Spike						Lab ID = 805831-004
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	7.54	7.78(5.00)	95.2	90 - 110

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Client: E2 Consulting Engineers, Inc.

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

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Printed 1/28/2013

Table with 7 columns: Parameter, Unit, Analyzed, DF, MDL, RL, Result. Rows include 805813-001 Chromium and Manganese.

Method Blank

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

Duplicate

Lab ID = 805813-001

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

Low Level Calibration Verification

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

Lab Control Sample

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

Matrix Spike

Lab ID = 805813-001

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

Matrix Spike Duplicate

Lab ID = 805813-001

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

MRCCS - Secondary

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

MRCVS - Primary

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Row includes Chromium.

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 456827.01.DM

Printed 1/28/2013

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 01TDS13C

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805813-001 Total Dissolved Solids	mg/L	01/16/2013	1.00	0.757	250	4410

Method Blank

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

Duplicate

Lab ID = 805753-004

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	306	325	6.02	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Dissolved Solids	mg/L	1.00	492	500	98.4	90 - 110

Turbidity by SM 2130 B

Batch 01TUC13N

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805813-001 Turbidity	NTU	01/16/2013	1.00	0.0140	0.100	ND

Method Blank

Parameter	Unit	DF	Result
Turbidity	NTU	1.00	ND

Duplicate

Lab ID = 805813-001

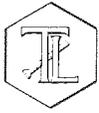
Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Turbidity	NTU	1.00	ND	0	0	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	7.53	8.00	94.1	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	7.61	8.00	95.1	90 - 110



TRUESDAIL LABORATORIES, INC.

Report Continued

Client: E2 Consulting Engineers, Inc.

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

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Printed 1/28/2013

Respectfully submitted,

TRUESDAIL LABORATORIES, INC.

fo - Mona Nassimi
Manager, Analytical Services



eJ

Total Dissolved Solids by SM 2540 C

Calculations

Batch: 01TDS13C
Date Analyzed: 1/16/13

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	76.1846	76.1853	76.1853	0.0000	No	0.0007	7.0	25.0	ND	1
805670-1	490	104.2335	104.2347	104.2347	0.0000	No	0.0012	2.4	5.1	ND	1
805670-2	490	102.7192	102.7216	102.7216	0.0000	No	0.0024	4.9	5.1	ND	1
805753-2	200	110.9423	110.9556	110.9555	0.0001	No	0.0132	66.0	12.5	66.0	1
805753-4	100	73.7978	73.8303	73.8303	0.0000	No	0.0325	325.0	25.0	325.0	1
805757	1000	105.5622	105.5646	105.5646	0.0000	No	0.0024	2.4	2.5	ND	1
805813	10	49.3490	49.3933	49.3931	0.0002	No	0.0441	4410.0	250.0	4410.0	1
805753-4D	100	73.1827	73.2135	73.2133	0.0002	No	0.0306	306.0	25.0	306.0	1
LCS	100	75.7560	75.8056	75.8052	0.0004	No	0.0492	492.0	25.0	492.0	1

Calculation as follows:

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

Where:

- A = weight of dish + residue in grams.
- B = weight of dish in grams.
- C = mL of sample filtered.
- RL = reporting limit.
- ND = not detected (below the reporting limit)

Laboratory Control Sample (LCS) Summary

QC Std I.D.	Measured Value, ppm	Theoretical Value, ppm	Percent Rec	Acceptance Limit	QC Within Control?
LCS1	492	500	98.4%	90-110%	Yes
LCS2					

LCS Recovery

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

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

Duplicate Determinations Difference Summary

Lab Number	Sample Weight, g	Sample Dup Weight, g	% RPD	Acceptance Limit	QC Within Control?
805753-4	0.0325	0.0306	3.0%	≤5%	Yes

Duplicate Determination Difference

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

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

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

Jenny T.

Analyst Printed Name

Analyst Signature

Maksim G.

Reviewer Printed Name

Reviewer Signature

Total Dissolved Solids by SM 2540 C

TDS/EC CHECK

Batch: 01TDS13C
Date Analyzed: 1/16/13

Laboratory Number	EC	TDS/EC Ratio: 0.55-.9	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
805670-1	2.45	ND	1.5925	ND
805670-2	14.13	ND	9.1845	ND
805753-2	122	0.54	79.3	0.83
805753-4	552	0.59	358.8	0.91
805757	10	ND	6.5	ND
805813	7110	0.62	4621.5	0.95
805753-4D	552	0.55	358.8	0.85
LCS				

[Handwritten signature]



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 (714) 730-6239 FAX: (714) 730-6462
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CHAIN OF CUSTODY RECORD

[IM3] Plant-WDR-396]

805813

COC Number

TURNAROUND TIME **10** Days

DATE **01/15/13**

PAGE **1** OF **1**

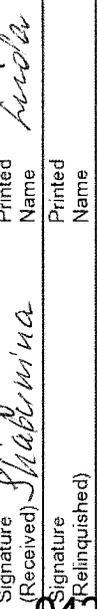
COMPANY E2	PROJECT NAME PG&E Topock	PHONE (530) 229-3303	FAX (530) 339-3303
ADDRESS 155 Grand Ave Ste 1000 Oakland, CA 94612	P.O. NUMBER 456827.01.DM	TEAM 1	
SAMPLERS (SIGNATURE) 	DATE 01/15/13	TIME 1:30	DESCRIPTION Water
SAMPLE I.D. SC-700B-WDR-396			

TEST	DATE	TIME	DESCRIPTION	RESULTS	COMMENTS
Cr6 (218.6) Lab Filtered				X	
Total Metals (200.7) Cr, Mn				X	
Specific Conductance (120.1)				X	
TDS (SM2540C)				X	
Turbidity (SM2130)				X	
NUMBER OF CONTAINERS					3
TOTAL NUMBER OF CONTAINERS					3

Rec'd 1/15/13
 S18a **805813**

**ALERT!!
 Level III QC**

CHAIN OF CUSTODY SIGNATURE RECORD

Signature (Relinquished) 	Printed Name Charles Lee	Company/ Agency CH2M Hill	Date/ Time 1-15-13 15:30	SAMPLE CONDITIONS RECEIVED COOL <input checked="" type="checkbox"/> WARM <input type="checkbox"/> CUSTODY SEALED YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>
Signature (Received) 	Printed Name Rafael Davila	Company/ Agency T.L.I.	Date/ Time 1-15-13 15:30	
Signature (Relinquished) 	Printed Name Rafael Davila	Company/ Agency T.L.I.	Date/ Time 1-15-13 21:30	
Signature (Received) 	Printed Name Shabirina	Company/ Agency TLI	Date/ Time 1/15/13 21:30	
Signature (Relinquished)	Printed Name	Company/ Agency	Date/ Time	
Signature (Received)	Printed Name	Company/ Agency	Date/ Time	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
01/10/13	80567-10	9.5	N/A	N/A	N/A	RB
	-11					
	-12					
	-13					
	-14					
	-15					
	-16					
01/18/13	805813	7	2 ml	9.5	9:30 AM	HAY
01/17/13	805831-1	9.5	N/A	N/A	N/A	RB
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
	-13					
	-14					
01/17/13	805832-1	9.5	N/A	N/A	N/A	RB
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					

M
1-28-13



Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
805747	<1	<2	1/15/13	ES	yes			
805748 (1-4)	↓	↓	↓	↓	↓			
805670 (1,2)	<1	>2	1/15/13	DC	NO	12:30	1/18/13 15:30	pH < 2
805753 (1,2,4)	<1	>2	↓	DC	NO	12:30	↓	pH < 2
805803 (1,1.5)	<1	>2	1/16/13	BE	NO	11:30	↓	↓
805806 (1-3)	<1	↓	↓	↓	↓	↓	↓	↓
805671 (1,2,5,12,14)	<1	<2	1/16/13	ES	yes			Total/DISSOLVED
805813	<1	>2	↓	↓	yes	11:00		
805782	<1	<2	1/16/13	ES	yes			
805794	↓	↓	↓	↓	↓			
805795	↓	↓	↓	↓	↓			
805798	↓	↓	↓	↓	↓			
805799	↓	↓	↓	↓	↓			
805800	↓	↓	↓	↓	↓			
805801	↓	↓	↓	↓	↓			
805824	↓	↓	↓	↓	↓			
805827 (1,1.2)	<1	>2	1/15/13	DC	NO	16:10	1/18/13 15:30	pH < 2
805841	↓	<2	1/18/13	ES	yes			
842	↓	↓	↓	↓	↓			
843	↓	↓	↓	↓	↓			
844	↓	↓	↓	↓	↓			
845	↓	↓	↓	↓	↓			
846	↓	↓	↓	↓	↓			
847	↓	↓	↓	↓	↓			
848	↓	↓	↓	↓	↓			
805831 (1-12,14)	<1	<2	1/18/13	ES	yes			
805862 (1-7)	↓	↓	↓	↓	↓			
805885	<1	<2	1/21/13	DC	yes			
805832 (1-11)	<1	<2	1/21/13	DC	yes			Total/Disc
805864 (1,3-7)	<1	<2	↓	↓	↓			
805890 (1,2,4)	<1	>2	1/22/13	DC	NO	10:25		
805888	<1	<2	↓	DC	yes			
805905	↓	↓	↓	↓	↓			
805906	↓	↓	↓	↓	↓			
805907	↓	↓	↓	↓	↓			
805908	↓	↓	↓	↓	↓			
805909	↓	↓	↓	↓	↓			
805881 (1-7)	↓	↓	↓	↓	yes			
805863 (1-8)	↓	↓	↓	↓	↓			
805883 (1-3)	↓	↓	↓	↓	↓			
805914	<1	>2	1/23/13	DC	No	14:30	1/24/13 15:20	pH < 2
805916 (1-3)	↓	↓	↓	↓	↓		↓	↓
805937	<1	<2	↓	↓	yes			
805938-1	<1	>2	↓	↓	No	14:50		

Notes:

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



Sample Integrity & Analysis Discrepancy Form

Client: E 2

Lab # 805813

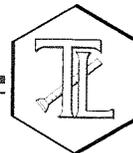
Date Delivered: 01/15/13 Time: 21:30 By: Mail Field Service Client

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, 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: A. Staburine

LEVEL III COC ALERT!!!

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

February 20, 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-397 PROJECT, GROUNDWATER MONITORING, TLI NO.: 805921

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-397 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 January 22, 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.

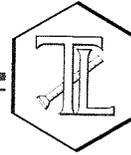
Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

fo 
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

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

Laboratory No.: 805921

Date: February 20, 2013

Collected: January 22, 2013

Received: January 22, 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	Bitu Emami
EPA 218.6	Hexavalent Chromium	Himani Vaishnav

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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.: 805921
Date Received: January 22, 2013

Analytical Results Summary

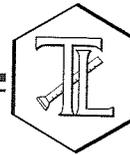
Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
805921-001	SC-700B-WDR-397	E120.1	NONE	1/22/2013	14:30	EC	7110	umhos/cm	2.00
805921-001	SC-700B-WDR-397	E200.8	NONE	1/22/2013	14:30	Chromium	ND	ug/L	1.0
805921-001	SC-700B-WDR-397	E200.8	NONE	1/22/2013	14:30	Manganese	4.2	ug/L	0.50
805921-001	SC-700B-WDR-397	E218.6	LABFLT	1/22/2013	14:30	Chromium, Hexavalent	ND	ug/L	1.0
805921-001	SC-700B-WDR-397	SM2130B	NONE	1/22/2013	14:30	Turbidity	ND	NTU	0.100
805921-001	SC-700B-WDR-397	SM2540C	NONE	1/22/2013	14:30	Total Dissolved Solids	4790	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 0.01 ppm will have two (2) significant figures.
Result above or equal to 0.01 ppm 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. 805921

Page 1 of 8

Printed 2/20/2013

Samples Received on 1/22/2013 9:30:00 PM

Field ID	Lab ID	Collected	Matrix
SC-700B-WDR-397	805921-001	01/22/2013 14:30	Water

Specific Conductivity - EPA 120.1

Batch 01EC13L

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805921-001 Specific Conductivity	umhos/cm	01/24/2013	1.00	0.116	2.00	7110

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate

Lab ID = 805921-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	7100	7110	0.141	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	709	706	100	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	705	706	99.8	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	935	998	93.7	90 - 110



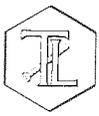
Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Project Number: 456827.01.DM

Chrome VI by EPA 218.6		Batch 01CrH13L				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
805921-001 Chromium, Hexavalent	ug/L	01/24/2013 15:31	5.00	0.0460	1.0	ND
Method Blank						
Parameter	Unit	DF	Result			
Chromium, Hexavalent	ug/L	1.00	ND			
Duplicate						
Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	2.95	3.00	1.71	0 - 20
Low Level Calibration Verification						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.178	0.200	88.8	70 - 130
Lab Control Sample						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.71	5.00	94.2	90 - 110
Matrix Spike						
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	7.48	7.77(5.00)	94.1	90 - 110
Matrix Spike						
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	7.59	8.00(5.00)	91.8	90 - 110
Matrix Spike						
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.96	6.28(5.00)	93.5	90 - 110
Matrix Spike						
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	6.54	6.86(5.00)	93.7	90 - 110
Matrix Spike						
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	6.44	6.75(5.00)	93.7	90 - 110
Matrix Spike						
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	6.44	6.74(5.00)	94.0	90 - 110

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



TRUESDAIL LABORATORIES, INC.

Report Continued

Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Page 4 of 8

Project Number: 456827.01.DM

Printed 2/20/2013

Matrix Spike

Lab ID = 805900-009

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.42	9.70(5.00)	94.4	90 - 110

Matrix Spike

Lab ID = 805921-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.879	1.00(1.00)	87.9	90 - 110

Matrix Spike

Lab ID = 805921-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.63	5.00(5.00)	92.6	90 - 110

MRCSS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.64	5.00	92.7	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.78	10.0	97.8	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.65	10.0	96.5	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	9.74	10.0	97.4	95 - 105

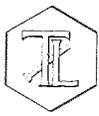
MRCVS - Primary

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

MRCVS - Primary

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

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Project Number: 456827.01.DM

Metals by EPA 200.8, Total

Batch 012913B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805921-001 Chromium	ug/L	01/29/2013 20:44	1.00	0.0920	1.0	ND
Manganese	ug/L	01/29/2013 20:44	1.00	0.0860	0.50	4.2

Method Blank

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

Duplicate

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	1.00	ND	0	0	0 - 20
Manganese	ug/L	1.00	4.33	4.21	2.72	0 - 20

Lab ID = 805921-001

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.369	0.400	92.2	70 - 130
Manganese	ug/L	1.00	0.375	0.400	93.8	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	50.7	50.0	101	85 - 115
Manganese	ug/L	1.00	48.7	50.0	97.4	85 - 115

Matrix Spike

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	1.00	48.6	50.0(50.0)	97.2	75 - 125
Manganese	ug/L	1.00	50.4	54.2(50.0)	92.3	75 - 125

Lab ID = 805921-001

Matrix Spike Duplicate

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	1.00	47.8	50.0(50.0)	95.6	75 - 125
Manganese	ug/L	1.00	50.0	54.2(50.0)	91.5	75 - 125

Lab ID = 805921-001

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.6	20.0	98.0	90 - 110
Manganese	ug/L	1.00	18.8	20.0	94.1	90 - 110

MRCVS - Primary

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

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

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Printed 2/20/2013

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	18.9	20.0	94.5	80 - 120

Total Dissolved Solids by SM 2540 C

Batch 01TDS13F

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805921-001 Total Dissolved Solids	mg/L	01/23/2013	1.00	0.757	250	4790

Method Blank

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

Duplicate

Lab ID = 805882-004

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	1300	1300	0.154	0 - 10

Duplicate

Lab ID = 805921-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	4390	4790	8.71	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Dissolved Solids	mg/L	1.00	509	500	102	90 - 110

Turbidity by SM 2130 B

Batch 01TUC13S

Parameter	Unit	Analyzed	DF	MDL	RL	Result
805921-001 Turbidity	NTU	01/23/2013	1.00	0.0140	0.100	ND

Method Blank

Parameter	Unit	DF	Result
Turbidity	NTU	1.00	ND

Duplicate

Lab ID = 805921-001

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	7.44	8.00	93.0	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	7.59	8.00	94.9	90 - 110



TRUESDAIL LABORATORIES, INC.

Report Continued

Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Project Number: 456827.01.DM

Page 8 of 8

Printed 2/20/2013

Respectfully submitted,

TRUESDAIL LABORATORIES, INC.

for Mona Nassimi

Manager, Analytical Services



eJ

Total Dissolved Solids by SM 2540 C**Calculations**Batch: 01TDS13F
Date Analyzed: 1/23/13

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	68.1259	68.1259	68.1259	0.0000	No	0.0000	0.0	25.0	ND	1
805935	1000	109.3863	109.3896	109.3896	0.0000	No	0.0033	3.3	2.5	3.3	1
805881-2	100	73.5886	73.6390	73.6389	0.0001	No	0.0503	503.0	25.0	503.0	1
805881-3	100	78.8033	78.8621	78.8619	0.0002	No	0.0586	586.0	25.0	586.0	1
805881-4	50	52.0403	52.0947	52.0943	0.0004	No	0.0540	1080.0	50.0	1080.0	1
805881-5	50	49.9057	49.9602	49.9602	0.0000	No	0.0545	1090.0	50.0	1090.0	1
805881-7	50	48.0273	48.0746	48.0743	0.0003	No	0.0470	940.0	50.0	940.0	1
805882-1	20	50.4984	50.5698	50.5695	0.0003	No	0.0711	3555.0	125.0	3555.0	1
805882-2	50	49.6755	49.7592	49.7588	0.0004	No	0.0833	1666.0	50.0	1666.0	1
805882-3	50	51.8926	51.9589	51.9586	0.0003	No	0.0660	1320.0	50.0	1320.0	1
805882-4	50	48.0009	48.0657	48.0657	0.0000	No	0.0648	1296.0	50.0	1296.0	1
805882-4D	50	51.9267	51.992	51.9918	0.0002	No	0.0651	1302.0	50.0	1302.0	1
LCS	100	74.7201	74.7712	74.771	0.0002	No	0.0509	509.0	25.0	509.0	1
805882-5	100	76.7925	76.8259	76.8259	0.0000	No	0.0334	334.0	25.0	334.0	1
805882-6	50	49.3971	49.4817	49.4815	0.0002	No	0.0844	1688.0	50.0	1688.0	1
805882-7	50	49.4975	49.5696	49.5695	0.0001	No	0.0720	1440.0	50.0	1440.0	1
805882-8	20	47.8619	47.9443	47.9443	0.0000	No	0.0824	4120.0	125.0	4120.0	1
805882-9	50	72.3773	72.4917	72.4917	0.0000	No	0.1144	2288.0	50.0	2288.0	1
805882-10	20	51.7244	51.7851	51.7851	0.0000	No	0.0607	3035.0	125.0	3035.0	1
805882-11	20	50.6992	50.7793	50.779	0.0003	No	0.0798	3990.0	125.0	3990.0	1
805901-4	50	74.3990	74.4312	74.4312	0.0000	No	0.0322	644.0	50.0	644.0	1
805921	10	50.8539	50.9019	50.9018	0.0001	No	0.0479	4790.0	250.0	4790.0	1
805928	490	108.7281	108.7337	108.7337	0.0000	No	0.0056	11.4	5.1	11.4	1
805921D	10	50.9441	50.988	50.988	0.0000	No	0.0439	4390.0	250.0	4390.0	1

Calculation as follows:

Filterable residue (TDS), mg/L =

$$\left(\frac{A-B}{C} \right) \times 10^6$$

Where:

A = weight of dish + residue in grams.
B = weight of dish in grams.
C = mL of sample filtered.RL = reporting limit.
ND = not detected (below the reporting limit)**Laboratory Control Sample (LCS) Summary**

QC Std LD.	Measured Value, ppm	Theoretical Value, ppm	Percent Rec	Acceptance Limit	QC Within Control?
LCS1	509	500	101.8%	90-110%	Yes
LCS2					

LCS Recovery

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

P = Percent recovery.
LC = Measured LCS value (ppm).
LT = Theoretical LCS value (ppm).**Duplicate Determinations Difference Summary**

Lab Number	Sample Weight, g	Sample Dup Weight, g	% RPD	Acceptance Limit	QC Within Control?
805882-4	0.0648	0.0651	0.2%	≤5%	Yes
805921	0.0479	0.0439	4.4%	5%	Yes

Duplicate Determination Difference

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

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

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

Jenny T.

Analyst Printed Name

Analyst Signature

Maksim G.

Reviewer Printed Name

Reviewer Signature

Total Dissolved Solids by SM 2540 C

TDS/EC CHECK

Batch: 01TDS13F
Date Analyzed: 1/23/13

Laboratory Number	EC	TDS/EC Ratio: 0.55-.9	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
805935	4.01	0.82	2.6065	1.27
805881-2	697	0.72	453.05	1.11
805881-3	885	0.66	575.25	1.02
805881-4	1543	0.70	1002.95	1.08
805881-5	1547	0.70	1005.55	1.08
805881-7	1362	0.69	885.3	1.06
805882-1	4450	0.80	2892.5	1.23
805882-2	2210	0.75	1436.5	1.16
805882-3	1810	0.73	1176.5	1.12
805882-4	1820	0.71	1183	1.10
805882-4D	1820	0.72	1183	1.10
LCS				
805882-5	494	0.68	321.1	1.04
805882-6	2310	0.73	1501.5	1.12
805882-7	2000	0.72	1300	1.11
805882-8	5220	0.79	3393	1.21
805882-9	2980	0.77	1937	1.18
805882-10	3990	0.76	2593.5	1.17
805882-11	5220	0.76	3393	1.18
805901-4	959	0.67	623.35	1.03
805921	7130	0.67	4634.5	1.03
805928	16.8	0.68	10.92	1.05
805921D	7130	0.62	4634.5	0.95

[Handwritten Signature]
[Handwritten Signature]



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

CHAIN OF CUSTODY RECORD

IM3 Plant-WDR-397

805921

COC Number

TURNAROUND TIME 10 Days

DATE 01/24/13 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	DATE 01/24/13	TIME 15:30	DESCRIPTION Water																																				
SAMPLERS (SIGNATURE)																																													
SAMPLE ID. SC-700B-WDR-397																																													
<table border="1"> <tr> <th>Cr6 (218.6) Lab Filtered</th> <th>Total Metals (2007) Cr, Mn</th> <th>Specific Conductance (120 f)</th> <th>TDS (SM2540C)</th> <th>Turbidity (SM2130)</th> <th>COMMENTS</th> </tr> <tr> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td></td> </tr> <tr> <td colspan="5"></td> <td>NUMBER OF CONTAINERS</td> </tr> <tr> <td colspan="5"></td> <td>3</td> </tr> <tr> <td colspan="5"></td> <td>TOTAL NUMBER OF CONTAINERS</td> </tr> <tr> <td colspan="5"></td> <td>3</td> </tr> </table>										Cr6 (218.6) Lab Filtered	Total Metals (2007) Cr, Mn	Specific Conductance (120 f)	TDS (SM2540C)	Turbidity (SM2130)	COMMENTS	X	X	X	X	X							NUMBER OF CONTAINERS						3						TOTAL NUMBER OF CONTAINERS						3
Cr6 (218.6) Lab Filtered	Total Metals (2007) Cr, Mn	Specific Conductance (120 f)	TDS (SM2540C)	Turbidity (SM2130)	COMMENTS																																								
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					NUMBER OF CONTAINERS																																								
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For Sample Conditions See Form Attached

ALERT!!
Level III QC

CHAIN OF CUSTODY SIGNATURE RECORD

Signature (Relinquished)	Printed Name	Company/ Agency	Date/ Time
Signature (Received)	Printed Name	Company/ Agency	Date/ Time
Signature (Relinquished)	Printed Name	Company/ Agency	Date/ Time
Signature (Received)	Printed Name	Company/ Agency	Date/ Time
Signature (Relinquished)	Printed Name	Company/ Agency	Date/ Time
Signature (Received)	Printed Name	Company/ Agency	Date/ Time

SAMPLE CONDITIONS

RECEIVED COOL WARM 3.2 e

CUSTODY SEALED YES NO

SPECIAL REQUIREMENTS:

1/22/13 21:30

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
1/22/13	805899-1	9.5	N/A	9.5 N/A	N/A	RB
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
1/22/13	805900-1	9.5	N/A	N/A	N/A	RB
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
1/22/13	805901-1	9.5	N/A	N/A	N/A	RB
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
01/23/13	805921	7	2 ml	9.5	11:00 AM	HAV

ms
1-31-13

HAV
01-30-13



Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
805938-2	N/A	N/A	1/23/13	DC	Yes			TTC
805933(1-2)	↓	↓	↓	↓	↓			TTC
805882(1-11)	<1	<2	1/23/13	ES	yes			
805898(1-3.56)	↓	↓	↓	↓	↓			
805884(1-2)	↓	↓	↓	↓	↓			
805899(1-9)	↓	↓	↓	↓	↓			
805900(1-4, 6-9)	↓	↓	↓	↓	↓			
805901(1, 3-10)	<1	<2	1/24/13	ES	yes			
805921	<1	>2	↓	↓	↓	10:00		
805922(1, 3-7)	<1	<2	↓	↓	↓			
805923(1, 3-10)	↓	↓	↓	↓	↓			
805924(1-8)	↓	↓	↓	↓	↓			
805941(10-13)	<1	>2	1/24/13	DC	No	14:00	1/29/13 3:30	<2 (pH)
805943(1,2)	<1	>2	↓	↓	No	↓		-1 Turb > 1
805965(1,2)	<1	<2	↓	↓	Yes			
805966	<1	<2	↓	↓	↓			
805970(1,2)	>1	<2	1/25/13	DC	Yes			
805980(1,2)	↓	↓	↓	↓	↓			
805972	↓	↓	↓	↓	↓			
805971	↓	↓	↓	↓	↓			
805969(1-4)	↓	↓	↓	↓	↓			
805990(1-3)	↓	↓	↓	↓	↓			
805991	↓	↓	↓	↓	↓			
806016-1	<1	<2	1/24/13	ES	yes			
805982	>1	<2	1/28/13	DC	yes			
805984	↓	↓	↓	↓	↓			
805950(1-7)	<1	<2	↓	↓	yes			
805925(1-7)	↓	↓	↓	↓	↓			
806001(1-3)	>1	<2	1/28/13	ES	yes			
806002(1-4)	↓	↓	↓	↓	↓			
806005	↓	↓	↓	↓	↓			
806009	↓	↓	↓	↓	↓			
806010(1-4)	↓	↓	↓	↓	↓			
805986	↓	↓	↓	↓	↓			
806006(1-2)	<1	>2	↓	↓	No	15:00	1/29/13 15:15	pH < 2
806040(1-4)	↓	↓	↓	↓	↓	↓	↓	↓
805951(1-10)	<1	<2	1/29/13	DC	yes			
805952(1,3-10)	↓	↓	↓	↓	↓			
806051	<1	<2	↓	↓	yes			
806055	<1	<2	↓	↓	↓			
806057	<1	<2	↓	↓	↓			
806085	<1	>2	1/30/13	DC	Yes	11:45		
806072	↓	↓	↓	↓	No	↓		
805953(1-3)	<1	<2	↓	DC	Yes			

Notes:

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



Sample Integrity & Analysis Discrepancy Form

Client: EL

Lab # 805921

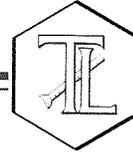
Date Delivered: 01/22/13 Time: 21:30 By: Mail Field Service Client

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?
Temperature (if yes)? 3.2 °C Yes No N/A
7. Were samples received intact
(i.e. broken bottles, leaks, air bubbles, etc.)? Yes No N/A
8. Were sample custody seals intact? Yes No N/A
9. Does the number of samples received agree with COC? Yes No N/A
10. Did sample labels correspond with the client ID's? Yes No N/A
11. Did sample labels indicate proper preservation?
Preserved (if yes) by: Truesdail Client Yes No N/A
12. Were samples pH checked? pH = See c.o.e Yes No N/A
13. Were all analyses within holding time at time of receipt?
If not, notify Project Manager. Yes No N/A
14. Have Project due dates been checked and accepted?
Turn Around Time (TAT): RUSH Std Yes No N/A
15. **Sample Matrix:** Liquid Drinking Water Ground Water Waste Water
 Sludge Soil Wipe Paint Solid Other Water
16. Comments: _____
17. Sample Check-In completed by Truesdail Log-In/Receiving: Linda

ALERT !!
Level III QC

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING



Established 1931

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

February 14, 2013

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

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK IM3PLANT-WDR-398 PROJECT, GROUNDWATER
MONITORING, TLI NO.: 806075

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-398 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 January 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.

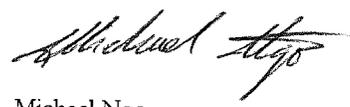
Total Chromium and Total Manganese were analyzed by EPA 200.8 rather than EPA 200.7 as requested on the chain of custody with Mr. Shawn Duffy's approval.

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.

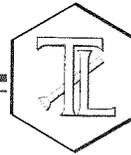
Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.


fo - Mona Nassimi
Manager, Analytical Services


Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING



Established 1931

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

Attention: Shawn Duffy

Sample: One (1) Groundwater Sample

Project Name: PG&E Topock Project

Project No.: 456827.01.DM

14201 FRANKLIN AVENUE
TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462
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Laboratory No.: 806075

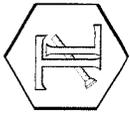
Date: February 14, 2013

Collected: January 29, 2013

Received: January 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	Bitra Emami
EPA 218.6	Hexavalent Chromium	Rozita Bahramzad



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.: 806075
Date Received: January 29, 2013

Analytical Results Summary

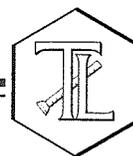
Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
806075-001	SC-700B-WDR-398	E120.1	NONE	1/29/2013	11:30	EC	7100	umhos/cm	2.00
806075-001	SC-700B-WDR-398	E200.8	NONE	1/29/2013	11:30	Chromium	ND	ug/L	1.0
806075-001	SC-700B-WDR-398	E200.8	NONE	1/29/2013	11:30	Manganese	2.3	ug/L	0.50
806075-001	SC-700B-WDR-398	E218.6	LABFLT	1/29/2013	11:30	Chromium, Hexavalent	ND	ug/L	0.20
806075-001	SC-700B-WDR-398	SM2130B	NONE	1/29/2013	11:30	Turbidity	ND	NTU	0.100
806075-001	SC-700B-WDR-398	SM2540C	NONE	1/29/2013	11:30	Total Dissolved Solids	3940	mg/L	250

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

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

TRUESDAIL LABORATORIES, INC.

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REPORT

Client: E2 Consulting Engineers, Inc.

155 Grand Avenue, Suite 800

Oakland, CA 94612

Attention: Shawn Duffy

Project Name: PG&E Topock Project

Project Number: 456827.01.DM

P.O. Number: 456827.01.DM

Release Number:

Laboratory No. 806075

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Printed 2/14/2013

Samples Received on 1/29/2013 9:30:00 PM

Field ID	Lab ID	Collected	Matrix
SC-700B-WDR-398	806075-001	01/29/2013 11:30	Water

Specific Conductivity - EPA 120.1

Batch 01EC13M

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806075-001 Specific Conductivity	umhos/cm	01/31/2013	1.00	0.116	2.00	7100

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate

Lab ID = 806075-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	7100	7100	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	701	706	99.3	90 - 110

MRCSS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	685	706	97.0	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	974	998	97.6	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	970	998	97.2	90 - 110

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

007



Client: E2 Consulting Engineers, Inc.

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

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Chrome VI by EPA 218.6

Batch 01CrH13Q

Table with 7 columns: Parameter, Unit, Analyzed, DF, MDL, RL, Result. Row 1: 806075-001 Chromium, Hexavalent, ug/L, 01/30/2013 12:52, 1.00, 0.00920, 0.20, ND

Method Blank

Table with 4 columns: Parameter, Unit, DF, Result. Row 1: Chromium, Hexavalent, ug/L, 1.00, ND

Duplicate

Lab ID = 805925-006

Table with 7 columns: Parameter, Unit, DF, Result, Expected, RPD, Acceptance Range. Row 1: Chromium, Hexavalent, ug/L, 1.00, 13.9, 13.8, 0.501, 0 - 20

Low Level Calibration Verification

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Row 1: Chromium, Hexavalent, ug/L, 1.00, 0.199, 0.200, 99.4, 70 - 130

Lab Control Sample

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Row 1: Chromium, Hexavalent, ug/L, 1.00, 4.94, 5.00, 98.8, 90 - 110

Matrix Spike

Lab ID = 805925-001

Table with 7 columns: Parameter, Unit, DF, Result, Expected/Added, Recovery, Acceptance Range. Row 1: Chromium, Hexavalent, ug/L, 1.00, 6.38, 6.49(5.00), 97.8, 90 - 110

Matrix Spike

Lab ID = 805925-002

Table with 7 columns: Parameter, Unit, DF, Result, Expected/Added, Recovery, Acceptance Range. Row 1: Chromium, Hexavalent, ug/L, 1.00, 6.46, 6.48(5.00), 99.6, 90 - 110

Matrix Spike

Lab ID = 805925-003

Table with 7 columns: Parameter, Unit, DF, Result, Expected/Added, Recovery, Acceptance Range. Row 1: Chromium, Hexavalent, ug/L, 1.00, 9.37, 9.43(5.00), 98.9, 90 - 110

Matrix Spike

Lab ID = 805925-004

Table with 7 columns: Parameter, Unit, DF, Result, Expected/Added, Recovery, Acceptance Range. Row 1: Chromium, Hexavalent, ug/L, 1.00, 9.07, 9.22(5.00), 97.1, 90 - 110

Matrix Spike

Lab ID = 805925-005

Table with 7 columns: Parameter, Unit, DF, Result, Expected/Added, Recovery, Acceptance Range. Row 1: Chromium, Hexavalent, ug/L, 1.00, 17.9, 18.3(10.0), 96.4, 90 - 110

Matrix Spike

Lab ID = 805925-007

Table with 7 columns: Parameter, Unit, DF, Result, Expected/Added, Recovery, Acceptance Range. Row 1: Chromium, Hexavalent, ug/L, 1.00, 14.7, 15.1(10.0), 96.2, 90 - 110

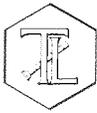


Client: E2 Consulting Engineers, Inc.

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Matrix Spike							Lab ID = 805925-008
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range	
Chromium, Hexavalent	ug/L	1.00	0.956	1.00(1.00)	95.6	90 - 110	
Matrix Spike							Lab ID = 806073-001
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range	
Chromium, Hexavalent	ug/L	1.00	5.93	6.00(5.00)	98.6	90 - 110	
Matrix Spike							Lab ID = 806075-001
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	4.93	5.00	98.6	90 - 110	
MRCVS - Primary							
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range	
Chromium, Hexavalent	ug/L	1.00	9.97	10.0	99.7	95 - 105	
MRCVS - Primary							
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range	
Chromium, Hexavalent	ug/L	1.00	9.98	10.0	99.8	95 - 105	
MRCVS - Primary							
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range	
Chromium, Hexavalent	ug/L	1.00	10.0	10.0	100	95 - 105	
MRCVS - Primary							
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range	
Chromium, Hexavalent	ug/L	1.00	9.85	10.0	98.5	95 - 105	



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 456827.01.DM

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Metals by EPA 200.8, Total		Batch 020513B				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
806075-001 Chromium	ug/L	02/05/2013 22:30	2.00	0.184	1.0	ND
Manganese	ug/L	02/05/2013 22:30	2.00	0.172	0.50	2.3

Method Blank

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

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.224	0.200	112	70 - 130
Uranium	ug/L	1.00	0.205	0.200	102	70 - 130
Manganese	ug/L	1.00	0.222	0.200	111	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	2.00	52.8	50.0	106	85 - 115
Uranium	ug/L	2.00	53.3	50.0	107	85 - 115
Manganese	ug/L	2.00	52.1	50.0	104	85 - 115

Matrix Spike

Lab ID = 806075-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	49.0	50.0(50.0)	98.0	75 - 125
Uranium	ug/L	2.00	54.7	53.0(50.0)	103	75 - 125
Manganese	ug/L	2.00	51.3	52.3(50.0)	97.9	75 - 125

Matrix Spike Duplicate

Lab ID = 806075-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	50.4	50.0(50.0)	101	75 - 125
Uranium	ug/L	2.00	55.8	53.0(50.0)	105	75 - 125
Manganese	ug/L	2.00	51.5	52.3(50.0)	98.4	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.7	20.0	98.4	90 - 110
Uranium	ug/L	1.00	20.4	20.0	102	90 - 110
Manganese	ug/L	1.00	19.6	20.0	98.1	90 - 110



Client: E2 Consulting Engineers, Inc.

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

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



TRUESDAIL LABORATORIES, INC.

Report Continued

Client: E2 Consulting Engineers, Inc.

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

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Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for 
Mona Nassimi
Manager, Analytical Services



e2

Total Dissolved Solids by SM 2540 C

Calculations

Batch: 01TDS13I
Date Analyzed: 1/31/12

Laboratory Number	Sample volume, ml	Initial weight, g	1st Final weight, g	2nd Final weight, g	Weight Difference, g	Exceeds 0.5mg? Yes/No	Residue weight, g	Filterable residue, ppm	RL, ppm	Reported Value, ppm	DF
Blank	100	74.2231	74.2232	74.2231	0.0001	No	0.0000	0.0	25.0	ND	1
805995-1	50	50.9528	51.0737	51.0735	0.0002	No	0.1207	2414.0	50.0	2414.0	1
805995-2	20	50.9438	51.0067	51.0067	0.0000	No	0.0629	3145.0	125.0	3145.0	1
805995-3	50	51.7232	51.8363	51.8359	0.0004	No	0.1127	2254.0	50.0	2254.0	1
805995-4	20	49.74	49.8222	49.8219	0.0003	No	0.0819	4095.0	125.0	4095.0	1
805995-5	50	51.8435	51.9406	51.9406	0.0000	No	0.0971	1942.0	50.0	1942.0	1
805995-6	50	50.6967	50.7482	50.7477	0.0005	No	0.0510	1020.0	50.0	1020.0	1
805995-7	50	51.8012	51.8566	51.8566	0.0000	No	0.0554	1108.0	50.0	1108.0	1
805995-8	20	50.7276	50.8164	50.8164	0.0000	No	0.0888	4440.0	125.0	4440.0	1
805995-9	100	76.5035	76.5339	76.5335	0.0004	No	0.0300	300.0	25.0	300.0	1
806017-7	50	75.2897	75.3464	75.346	0.0004	No	0.0563	1126.0	50.0	1126.0	1
806017-7D	50	50.7005	50.7572	50.7567	0.0005	No	0.0562	1124.0	50.0	1124.0	1
LCS	100	76.1852	76.2349	76.2345	0.0004	No	0.0493	493.0	25.0	493.0	1
806049-1	20	49.0710	49.127	49.1266	0.0004	No	0.0556	2780.0	125.0	2780.0	1
806049-2	50	51.4919	51.5745	51.5743	0.0002	No	0.0824	1648.0	50.0	1648.0	1
806049-3	50	50.6336	50.6974	50.6972	0.0002	No	0.0636	1272.0	50.0	1272.0	1
806049-4	20	51.0511	51.128	51.1279	0.0001	No	0.0768	3840.0	125.0	3840.0	1
806050-2	50	49.5139	49.556	49.5556	0.0004	No	0.0417	834.0	50.0	834.0	1
806050-3	50	50.4845	50.5258	50.5255	0.0003	No	0.0410	820.0	50.0	820.0	1
806050-4	100	76.2786	76.3125	76.3122	0.0003	No	0.0336	336.0	25.0	336.0	1
806075	10	51.8600	51.8996	51.8994	0.0002	No	0.0394	3940.0	250.0	3940.0	1
806097-5	20	49.7739	49.8322	49.8322	0.0000	No	0.0583	2915.0	125.0	2915.0	1
806097-6	20	47.9468	48.0022	48.0022	0.0000	No	0.0554	2770.0	125.0	2770.0	1
806050-4D	100	76.6719	76.7052	76.7049	0.0003	No	0.0330	330.0	25.0	330.0	1

Calculation as follows:

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

Where:

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

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

Laboratory Control Sample (LCS) Summary

QC Std I.D.	Measured Value, ppm	Theoretical Value, ppm	Percent Rec	Acceptance Limit	QC Within Control?
LCS1	493	500	98.6%	90-110%	Yes
LCS2					

LCS Recovery

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

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

Duplicate Determinations Difference Summary

Lab Number	Sample Weight, g	Sample Dup Weight, g	% RPD	Acceptance Limit	QC Within Control?
806017-7	0.0563	0.0562	0.1%	≤5%	Yes
806050-4	0.0336	0.033	0.9%	5%	Yes

Duplicate Determination Difference

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

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

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

Jenny T.

Analyst Printed Name

Analyst Signature

Maksim G.

Reviewer Printed Name

Reviewer Signature

Total Dissolved Solids by SM 2540 C

TDS/EC CHECK

Batch: 01TDS13I
Date Analyzed: 1/31/12

Laboratory Number	EC	TDS/EC Ratio: 0.55-.9	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
805995-1	3440	0.70	2236	1.08
805995-2	4250	0.74	2762.5	1.14
805995-3	3000	0.75	1950	1.16
805995-4	5210	0.79	3386.5	1.21
805995-5	2900	0.67	1885	1.03
805995-6	1610	0.63	1046.5	0.97
805995-7	1760	0.63	1144	0.97
805995-8	5680	0.78	3692	1.20
805995-9	470	0.64	305.5	0.98
806017-7	1686	0.67	1095.9	1.03
806017-7D	1686	0.67	1095.9	1.03
LCS				
806049-1	4440	0.63	2886	0.96
806049-2	2280	0.72	1482	1.11
806049-3	1770	0.72	1150.5	1.11
806049-4	5020	0.76	3263	1.18
806050-2	1200	0.69	780	1.07
806050-3	1180	0.69	767	1.07
806050-4	513	0.65	333.45	1.01
806075	7100	0.55	4615	0.85
806097-5	4080	0.71	2652	1.10
806097-6	4060	0.68	2639	1.05
806050-4D	513	0.64	333.45	0.99





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CHAIN OF CUSTODY RECORD

[IM3Plant-WDR-398]

COC Number
 TURNAROUND TIME 10 Days
 DATE 01/29/13 PAGE 1 OF 1

806 075

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) <i>Chris Lantz</i>	DATE 01/29/13	TIME 11:30	DESCRIPTION Water	Cr6 (218.6) Lab Filtered	X	Total Metals (200.7) Cr, Mn	X	X	X	TDS (SM2540C)	X	Turbidity (SM2130)	X	NUMBER OF CONTAINERS	3	COMMENTS
SC-700B-WDR-398											TOTAL NUMBER OF CONTAINERS		E										

p H = 6 (200.7)

ALERT !!
 Level III QC

For Sample Conditions
 See Form Attached

CHAIN OF CUSTODY SIGNATURE RECORD										SAMPLE CONDITIONS				
Signature (Relinquished)	<i>Chris Lantz</i>	Printed Name	Chris Lantz	Company/ Agency	CH2M HILL	Date/ Time	1-29-13 15:30	RECEIVED	COOL	<input checked="" type="checkbox"/>	WARM	<input type="checkbox"/>	3, 1	°C
Signature (Received)	<i>Rafael Davila</i>	Printed Name	Rafael Davila	Company/ Agency	T-H-I	Date/ Time	1-29-13 15:30	CUSTODY SEALED	YES	<input type="checkbox"/>	NO	<input checked="" type="checkbox"/>		
Signature (Relinquished)	<i>Rafael Davila</i>	Printed Name	Rafael Davila	Company/ Agency	T-H-I	Date/ Time	1-29-13 21:30	SPECIAL REQUIREMENTS:						
Signature (Received)	<i>Shobana</i>	Printed Name	Shobana	Company/ Agency	T-H-I	Date/ Time	1/29/13 8:10							
Signature (Relinquished)		Printed Name		Company/ Agency		Date/ Time								
Signature (Received)		Printed Name		Company/ Agency		Date/ Time								

Hexavalent Chromium

Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
1/29/13	806050-1	9.5	N/A	N/A	N/A	KB
↓	-2	↓	↓	↓	↓	↓
↓	-3	↓	↓	↓	↓	↓
↓	-4	↓	↓	↓	↓	↓
↓	-5	↓	↓	↓	↓	↓
↓	-6	↓	↓	↓	↓	↓
↓	-7	↓	↓	↓	↓	↓
↓	-8	↓	↓	↓	↓	↓
1/30/13	806074-1	9.5	N/A	N/A	N/A	HAV
↓	-2	↓	↓	↓	↓	↓
↓	-3	↓	↓	↓	↓	↓
↓	-4	↓	↓	↓	↓	↓
01/30/13	806075	7	2 mL	9.5	10:15 AM	HAV
01/30/13	806076-1	9.5	N/A	N/A	N/A	HAV
↓	-2	↓	↓	↓	↓	↓
↓	-3	↓	↓	↓	↓	↓
↓	-4	↓	↓	↓	↓	↓
↓	-5	↓	↓	↓	↓	↓
↓	-6	↓	↓	↓	↓	↓
↓	-7	↓	↓	↓	↓	↓
01/30/13	806073	9.5	N/A	N/A	N/A	HAV

1-31-13
 HAV
 01-30-13



Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
8059154 (1-5)	<1	<2	01/30/13	DC	Yes			
8059193 (1-8,10)	<1	↓	1/30/13	↓	Yes			
8059194 (1,3-8)	<1	↓	↓	↓	Yes			
806073	<1	<2	1/30/13	BE	Yes			
806092 (1-10)	<1	>2	1/31/13	BE	No			
806094 (1-3)	↓	↓	↓	↓	↓			
806017 (1-4,7)	↓	<2	2-1-13	BE	Yes			
806047 (1-5)	↓	↓	↓	↓	↓			
806048 (1-2)	↓	↓	↓	↓	↓			
806049 (1-4)	↓	↓	↓	↓	↓			
806075 (1)	↓	>2	↓	↓	↓	2-1-13		
806050 (1-7)	<1	<2	↓	DC	Yes			
806076 (1-7)	↓	↓	↓	DC	Yes			
806098 (1,2)	↓	↓	↓	↓	↓			
806099 (1,2,3)	↓	↓	↓	↓	↓			
806113 (1-6)	↓	↓	↓	↓	↓			
806084	<1	>2	2/3/13	DC	Yes	13:30		
806116 (1-4)	<1	<2	↓	↓	↓			
806115 (1-8)	<1	<2	↓	↓	↓			
806114 (1-12)	↓	↓	↓	↓	↓			
806074 (1-4)	↓	↓	↓	↓	↓			
806097 (1-10)	↓	↓	↓	↓	↓			
806156 (1-3)	<1	>2	2/4/13	DC	No	15:40		
806150	<1	<2	↓	↓	Yes			
806155 (1,2,4)	<1	>2	↓	↓	No	15:50		
806172	<1	>2	2/5/13	DC	Yes	16:25		
806177	↓	<2	↓	↓	↓			
806178	↓	↓	↓	↓	↓			
806179	↓	↓	↓	↓	↓			
806180	↓	↓	↓	↓	↓			
806181	↓	↓	↓	↓	↓			
806182	↓	↓	↓	↓	↓			
806183	↓	↓	↓	↓	↓			
806166	↓	↓	↓	↓	↓			
806163 (16,23)	<1	>2	2/5/13	DC	No	16:30		
806165 (1-4)	<1	>2	↓	↓	↓	↓		
806187	<1	>2	2-6-13	BE	No	12:00		
806144 (1-7)	<1	<2	2/6/13	ES	Yes			
806145 (1-2)	↓	↓	↓	↓	↓			
806146 (1-6)	↓	↓	↓	↓	↓			
806148 (1-2)	↓	-2 <2	↓	↓	↓	11:30	11:	-1 pH >2
806147 (1-4)	<1	<2	2/6/13	ES	Yes			
Total 806201 (1-2)	<1	-1 <2	↓	↓	↓	2:00		-2 pH >2
Discard 806201-2	↓	>2	↓	↓	↓	2:00		Filtered then acidified

Notes:

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



Sample Integrity & Analysis Discrepancy Form

Client: EL

Lab # 806075

Date Delivered: 01/29/13 Time: 11:50 By: Mail Field Service Client

1. Was a Chain of Custody received and signed? Yes No N/A
2. Does Customer require an acknowledgement of the COC? Yes No N/A
3. Are there any special requirements or notes on the COC? Yes No N/A
4. If a letter was sent with the COC, does it match the COC? Yes No N/A
5. Were all requested analyses understood and acceptable? Yes No N/A
6. Were samples received in a chilled condition?
Temperature (if yes)? 3.1 °C Yes No N/A
7. Were samples received intact
(i.e. broken bottles, leaks, air bubbles, etc..)? Yes No N/A
8. Were sample custody seals intact? Yes No N/A
9. Does the number of samples received agree with COC? Yes No N/A
10. Did sample labels correspond with the client ID's? Yes No N/A
11. Did sample labels indicate proper preservation?
Preserved (if yes) by: Truesdail Client Yes No N/A
12. Were samples pH checked? pH = See C.O.C Yes No N/A
13. Were all analyses within holding time at time of receipt?
If not, notify Project Manager. Yes No N/A
14. Have Project due dates been checked and accepted?
Turn Around Time (TAT): RUSH Std Yes No N/A
15. **Sample Matrix:** Liquid Drinking Water Ground Water Waste Water
 Sludge Soil Wipe Paint Solid Other Water
16. Comments: _____
17. Sample Check-In completed by Truesdail Log-In/Receiving: Lida

ALERT !!
Level III QC

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	1-2-13	12:13	1-2-13	12:18	METER #1	1-2-13	02:30	-53.6	C. Knight	7.6

Notes:

OK

SC-700B	1-2-13	12:21	1-2-13	12:28	METER #1	1-2-13	02:30	-53.6	C. Knight	7.4
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Notes:

SC-701	1-2-13	12:28	1-2-13	12:34	METER #1	1-2-13	02:30	-53.6	C. Knight	7.9
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Notes:

SC-700B	1-8-13	11:30	1-8-13	11:35	METER #1	1-8-13	01:50	-53.6	Chris Fox	7.0
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Notes:

SC-700B	1-15-13	13:30	1-15-13	13:35	METER #1	1-15-13	01:20	-53.1	Mark Phelps	7.3
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Notes:

SC-700B	1-22-13	14:30	1-22-13	14:35	METER #1	1-22-13	1:15	-53.3	Mark Phelps	7.1
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Notes:

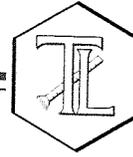
SC-700B	1-29-13	11:30	1-29-13	11:50	METER #1	1-29-13	2:00	-54.3	Chris Fox	7.1
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Notes:

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

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING



Established 1931

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

February 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-399 PROJECT, GROUNDWATER
MONITORING,
TLI NO.: 806201

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-399 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 February 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.

No violations or nonconformance actions occurred for this data package.

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

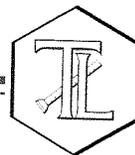
Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

to- Mona Nassimi
Mona Nassimi
Manager, Analytical Services

Michael Ngo
Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING



Established 1931

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

Attention: Shawn Duffy

Sample: Two (2) Groundwaters

Project Name: PG&E Topock Project

Project No.: 456827.01.DM

14201 FRANKLIN AVENUE
TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462
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Laboratory No.: 806201

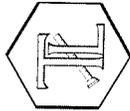
Date: February 28, 2013

Collected: February 5, 2013

Received: February 5, 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	Ethel Suico / Denise Chauv
EPA 200.8	Metals by ICP/MS	Bitra Emami
EPA 218.6	Hexavalent Chromium	Rozita Bahramzad



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

Attention: Shawn Duffy

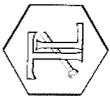
Project Name: PG&E Topock Project
Project No.: 456827.01.DM
P.O. No.: 456827.01.DM

Laboratory No.: 806201
Date Received: February 5, 2013

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
806201-001	SC-700B-WDR-399	E120.1	NONE	2/5/2013	14:05	EC	7070	umhos/cm	2.00
806201-001	SC-700B-WDR-399	E200.7	NONE	2/5/2013	14:05	Aluminum	ND	ug/L	50.0
806201-001	SC-700B-WDR-399	E200.7	NONE	2/5/2013	14:05	BORON	1010	ug/L	200
806201-001	SC-700B-WDR-399	E200.7	NONE	2/5/2013	14:05	Iron	ND	ug/L	20.0
806201-001	SC-700B-WDR-399	E200.7	NONE	2/5/2013	14:05	Zinc	ND	ug/L	20.0
806201-001	SC-700B-WDR-399	E200.8	NONE	2/5/2013	14:05	Antimony	ND	ug/L	2.0
806201-001	SC-700B-WDR-399	E200.8	NONE	2/5/2013	14:05	Arsenic	ND	ug/L	0.500
806201-001	SC-700B-WDR-399	E200.8	NONE	2/5/2013	14:05	Barium	15.8	ug/L	5.0
806201-001	SC-700B-WDR-399	E200.8	NONE	2/5/2013	14:05	Chromium	ND	ug/L	1.0
806201-001	SC-700B-WDR-399	E200.8	NONE	2/5/2013	14:05	Copper	ND	ug/L	5.0
806201-001	SC-700B-WDR-399	E200.8	NONE	2/5/2013	14:05	Lead	ND	ug/L	1.0
806201-001	SC-700B-WDR-399	E200.8	NONE	2/5/2013	14:05	Manganese	5.3	ug/L	0.50
806201-001	SC-700B-WDR-399	E200.8	NONE	2/5/2013	14:05	Molybdenum	17.5	ug/L	2.0
806201-001	SC-700B-WDR-399	E218.6	LABFLT	2/5/2013	14:05	Nickel	ND	ug/L	2.0
806201-001	SC-700B-WDR-399	E300	NONE	2/5/2013	14:05	Chromium, Hexavalent	ND	ug/L	0.20
806201-001	SC-700B-WDR-399	E300	NONE	2/5/2013	14:05	Fluoride	2.16	mg/L	0.500
806201-001	SC-700B-WDR-399	E300	NONE	2/5/2013	14:05	Nitrate as N	3.12	mg/L	0.500
806201-001	SC-700B-WDR-399	SM2130B	NONE	2/5/2013	14:05	Sulfate	502	mg/L	25.0
806201-001	SC-700B-WDR-399	SM2540C	NONE	2/5/2013	14:05	Turbidity	ND	NTU	0.100
806201-001	SC-700B-WDR-399	SM4500NH3D	NONE	2/5/2013	14:05	Total Dissolved Solids	4050	mg/L	250
806201-001	SC-700B-WDR-399	SM4500NO2B	NONE	2/5/2013	14:05	Ammonia-N	ND	mg/L	0.500
806201-001	SC-700B-WDR-399		NONE	2/5/2013	14:05	Nitrite as N	ND	mg/L	0.0050

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TRUESDAIL LABORATORIES, INC.

Report Continued

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
806201-002	SC-100B-WDR-399	E120.1	NONE	2/5/2013	13:45	EC	7500	umhos/cm	2.00
806201-002	SC-100B-WDR-399	E200.7	NONE	2/5/2013	13:45	Aluminum	ND	ug/L	50.0
806201-002	SC-100B-WDR-399	E200.7	NONE	2/5/2013	13:45	BORON	1070	ug/L	200
806201-002	SC-100B-WDR-399	E200.7	NONE	2/5/2013	13:45	Iron	ND	ug/L	20.0
806201-002	SC-100B-WDR-399	E200.7	LABFLT	2/5/2013	13:45	Iron	ND	ug/L	20.0
806201-002	SC-100B-WDR-399	E200.7	NONE	2/5/2013	13:45	Zinc	ND	ug/L	20.0
806201-002	SC-100B-WDR-399	E200.8	NONE	2/5/2013	13:45	Antimony	ND	ug/L	20.0
806201-002	SC-100B-WDR-399	E200.8	NONE	2/5/2013	13:45	Arsenic	3.3	ug/L	2.0
806201-002	SC-100B-WDR-399	E200.8	NONE	2/5/2013	13:45	Barium	27.2	ug/L	0.50
806201-002	SC-100B-WDR-399	E200.8	NONE	2/5/2013	13:45	Chromium	748	ug/L	5.0
806201-002	SC-100B-WDR-399	E200.8	NONE	2/5/2013	13:45	Copper	ND	ug/L	2.0
806201-002	SC-100B-WDR-399	E200.8	NONE	2/5/2013	13:45	Lead	ND	ug/L	5.0
806201-002	SC-100B-WDR-399	E200.8	LABFLT	2/5/2013	13:45	Lead	ND	ug/L	1.0
806201-002	SC-100B-WDR-399	E200.8	NONE	2/5/2013	13:45	Manganese	4.5	ug/L	0.50
806201-002	SC-100B-WDR-399	E200.8	NONE	2/5/2013	13:45	Manganese	4.4	ug/L	0.50
806201-002	SC-100B-WDR-399	E200.8	NONE	2/5/2013	13:45	Molybdenum	19.2	ug/L	2.0
806201-002	SC-100B-WDR-399	E200.8	NONE	2/5/2013	13:45	Nickel	ND	ug/L	2.0
806201-002	SC-100B-WDR-399	E218.6	LABFLT	2/5/2013	13:45	Chromium, Hexavalent	766	ug/L	10.0
806201-002	SC-100B-WDR-399	E300	NONE	2/5/2013	13:45	Fluoride	2.57	mg/L	0.500
806201-002	SC-100B-WDR-399	E300	NONE	2/5/2013	13:45	Nitrate as N	3.36	mg/L	0.500
806201-002	SC-100B-WDR-399	E300	NONE	2/5/2013	13:45	Sulfate	564	mg/L	50.0
806201-002	SC-100B-WDR-399	SM2130B	NONE	2/5/2013	13:45	Turbidity	ND	NTU	0.100
806201-002	SC-100B-WDR-399	SM2320B	NONE	2/5/2013	13:45	Alkalinity	138	mg/L	5.00
806201-002	SC-100B-WDR-399	SM2320B	NONE	2/5/2013	13:45	Alkalinity, Bicarbonate (As CaCO3)	138	mg/L	5.00
806201-002	SC-100B-WDR-399	SM2320B	NONE	2/5/2013	13:45	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
806201-002	SC-100B-WDR-399	SM2540C	NONE	2/5/2013	13:45	Total Dissolved Solids	4390	mg/L	250
806201-002	SC-100B-WDR-399	SM4500NH3D	NONE	2/5/2013	13:45	Ammonia-N	ND	mg/L	0.500
806201-002	SC-100B-WDR-399	SM4500NO2B	NONE	2/5/2013	13:45	Nitrite as N	ND	mg/L	0.0050
806201-002	SC-100B-WDR-399	SM4500-PB_E	NONE	2/5/2013	13:45	Total Phosphorous-P	ND	mg/L	0.0200
806201-002	SC-100B-WDR-399	SM4500SI	NONE	2/5/2013	13:45	Soluble Silica	22.0	mg/L	1.00
806201-002	SC-100B-WDR-399	SM5310C	NONE	2/5/2013	13:45	Total Organic Carbon	ND	mg/L	0.300

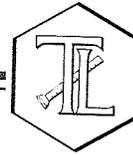
ND: Non Detected (below reporting limit)
mg/L: Milligrams per liter.

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

REPORT

Client: E2 Consulting Engineers, Inc.

155 Grand Avenue, Suite 800

Oakland, CA 94612

Attention: Shawn Duffy

Project Name: PG&E Topock Project

Project Number: 456827.01.DM

P.O. Number: 456827.01.DM

Release Number:

Laboratory No. 806201

Page 1 of 30

Printed 2/28/2013

Samples Received on 2/5/2013 9:30:00 PM

Field ID	Lab ID	Collected	Matrix
SC-700B-WDR-399	806201-001	02/05/2013 14:05	Water
SC-100B-WDR-399	806201-002	02/05/2013 13:45	Water

Anions By I.C. - EPA 300.0

Batch 02AN13E

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806201-001 Fluoride	mg/L	02/06/2013 11:37	5.00	0.104	0.500	2.16
Nitrate as Nitrogen	mg/L	02/06/2013 11:37	5.00	0.0415	0.500	3.12
Sulfate	mg/L	02/06/2013 12:58	50.0	1.54	25.0	502
806201-002 Fluoride	mg/L	02/06/2013 11:49	5.00	0.104	0.500	2.57
Nitrate as Nitrogen	mg/L	02/06/2013 11:49	5.00	0.0415	0.500	3.36
Sulfate	mg/L	02/06/2013 12:24	100	3.07	50.0	564

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

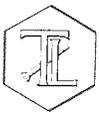
Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Fluoride	mg/L	5.00	2.52	2.57	2.00	0 - 20
Sulfate	mg/L	100	561	564	0.531	0 - 20
Nitrate as Nitrogen	mg/L	5.00	3.33	3.36	0.777	0 - 20

Lab ID = 806201-002

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Fluoride	mg/L	1.00	4.12	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

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Project Number: 456827.01.DM

Matrix Spike

Lab ID = 806201-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Fluoride	mg/L	5.00	22.9	22.6(20.0)	102	85 - 115
Sulfate	mg/L	100	1060	1060(500)	100	85 - 115
Nitrate as Nitrogen	mg/L	5.00	23.7	23.4(20.0)	102	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	20.2	20.0	101	90 - 110
Nitrate as Nitrogen	mg/L	1.00	4.00	4.00	99.9	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Fluoride	mg/L	1.00	3.16	3.00	105	90 - 110

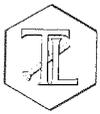
MRCVS - Primary

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
Fluoride	mg/L	1.00	3.14	3.00	105	90 - 110
Sulfate	mg/L	1.00	15.2	15.0	101	90 - 110
Nitrate as Nitrogen	mg/L	1.00	3.00	3.00	99.9	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 02NO213C

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806201-001 Nitrite as Nitrogen	mg/L	02/07/2013 10:38	1.00	0.000540	0.0050	ND
806201-002 Nitrite as Nitrogen	mg/L	02/07/2013 10:39	1.00	0.000540	0.0050	ND

Method Blank

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

Duplicate

Lab ID = 806201-001

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	0.0285	0.0308	92.5	90 - 110

Matrix Spike

Lab ID = 806201-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Nitrite as Nitrogen	mg/L	1.00	0.0276	0.0308(0.0308)	89.6	85 - 115

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrite as Nitrogen	mg/L	1.00	0.0285	0.0308	92.5	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

Alkalinity by SM 2320B

Batch 02ALK13A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806201-002 Alkalinity as CaCO3	mg/L	02/07/2013	1.00	0.555	5.00	138
Bicarbonate (Calculated)	mg/L	02/07/2013	1.00	0.555	5.00	138
Carbonate (Calculated)	mg/L	02/07/2013	1.00	0.555	5.00	ND

Method Blank

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

Duplicate

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Alkalinity as CaCO3	mg/L	1.00	122	120	1.65	0 - 20

Lab ID = 806074-003

Lab Control Sample

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

Lab Control Sample Duplicate

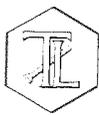
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Alkalinity as CaCO3	mg/L	1.00	98.0	100	98.0	90 - 110

Matrix Spike

Lab ID = 806074-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Alkalinity as CaCO3	mg/L	1.00	214	210(100)	104	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 02EC13B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806201-001 Specific Conductivity	umhos/cm	02/06/2013	1.00	0.116	2.00	7070
806201-002 Specific Conductivity	umhos/cm	02/06/2013	1.00	0.116	2.00	7500

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	7500	7500	0	0 - 10

Lab ID = 806201-002

Duplicate

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	8250	8260	0.121	0 - 10

Lab ID = 806202-002

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	693	706	98.2	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	698	706	98.9	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	698	706	98.9	90 - 110

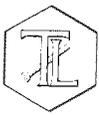
MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	930	998	93.2	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 02CrH13H

Table with 7 columns: Parameter, Unit, Analyzed, DF, MDL, RL, Result. Rows include 806201-001 Chromium, Hexavalent and 806201-002 Chromium, Hexavalent.

Method Blank

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

Duplicate

Table with 7 columns: Parameter, Unit, DF, Result, Expected, RPD, Acceptance Range. Includes Lab ID = 806099-001.

Low Level Calibration Verification

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Row: Chromium, Hexavalent, ug/L, 1.00, 0.213, 0.200, 106, 70 - 130.

Lab Control Sample

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Row: Chromium, Hexavalent, ug/L, 1.00, 5.08, 5.00, 102, 90 - 110.

Matrix Spike

Table with 7 columns: Parameter, Unit, DF, Result, Expected/Added, Recovery, Acceptance Range. Includes Lab ID = 806074-001.

Matrix Spike

Table with 7 columns: Parameter, Unit, DF, Result, Expected/Added, Recovery, Acceptance Range. Includes Lab ID = 806074-002.

Matrix Spike

Table with 7 columns: Parameter, Unit, DF, Result, Expected/Added, Recovery, Acceptance Range. Includes Lab ID = 806074-003.

Matrix Spike

Table with 7 columns: Parameter, Unit, DF, Result, Expected/Added, Recovery, Acceptance Range. Includes Lab ID = 806074-004.

Matrix Spike

Table with 7 columns: Parameter, Unit, DF, Result, Expected/Added, Recovery, Acceptance Range. Includes Lab ID = 806201-001.

Matrix Spike

Table with 7 columns: Parameter, Unit, DF, Result, Expected/Added, Recovery, Acceptance Range. Includes Lab ID = 806201-002.

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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 021913A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806201-001 Zinc	ug/L	02/19/2013 13:55	1.00	7.00	20.0	ND
806201-002 Zinc	ug/L	02/19/2013 14:16	1.00	7.00	20.0	ND

Method Blank

Parameter	Unit	DF	Result
Zinc	ug/L	1.00	ND

Duplicate

Lab ID = 806201-001

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	1900	2000	95.2	85 - 115

Matrix Spike

Lab ID = 806201-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Zinc	ug/L	1.00	2060	2000(2000)	103	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Zinc	ug/L	1.00	5100	5000	102	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Zinc	ug/L	1.00	4960	5000	99.3	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		

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Zinc	ug/L	1.00	2030	2000	102	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Zinc	ug/L	1.00	2030	2000	102	80 - 120

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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 021913A-Th2

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806201-001 Aluminum	ug/L	02/19/2013 13:30	1.00	10.0	50.0	ND
Boron	ug/L	02/19/2013 13:30	1.00	6.00	200	1010
Iron	ug/L	02/19/2013 13:30	1.00	9.50	20.0	ND
806201-002 Aluminum	ug/L	02/19/2013 13:49	1.00	10.0	50.0	ND
Boron	ug/L	02/19/2013 13:49	1.00	6.00	200	1070
Iron	ug/L	02/19/2013 13:49	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 = 806201-001

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	1010	1010	0.198	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Aluminum	ug/L	1.00	2140	2000	107	85 - 115
Iron	ug/L	1.00	2200	2000	110	85 - 115
Boron	ug/L	1.00	2100	2000	105	85 - 115

Matrix Spike

Lab ID = 806201-001

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	1970	2000(2000)	98.3	75 - 125
Boron	ug/L	1.00	2980	3010(2000)	98.5	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Aluminum	ug/L	1.00	5250	5000	105	95 - 105
Iron	ug/L	1.00	5210	5000	104	95 - 105
Boron	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 020713C

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806201-001 Antimony	ug/L	02/07/2013 20:45	2.00	0.664	2.0	ND
Barium	ug/L	02/07/2013 20:45	2.00	0.376	5.0	15.8
Chromium	ug/L	02/07/2013 20:45	2.00	0.184	1.0	ND
Copper	ug/L	02/07/2013 20:45	2.00	0.514	5.0	ND
Lead	ug/L	02/07/2013 20:45	2.00	0.148	1.0	ND
Manganese	ug/L	02/07/2013 20:45	2.00	0.172	0.50	5.3
Molybdenum	ug/L	02/07/2013 20:45	2.00	0.414	2.0	17.5
806201-002 Antimony	ug/L	02/07/2013 21:39	2.00	0.664	2.0	ND
Barium	ug/L	02/07/2013 21:39	2.00	0.376	5.0	27.2
Chromium	ug/L	02/07/2013 21:45	10.0	0.920	2.0	748
Copper	ug/L	02/07/2013 21:39	2.00	0.514	5.0	ND
Lead	ug/L	02/07/2013 21:39	2.00	0.148	1.0	ND
Manganese	ug/L	02/07/2013 21:39	2.00	0.172	0.50	4.4
Molybdenum	ug/L	02/07/2013 21:39	2.00	0.414	2.0	19.2

Method Blank

Parameter	Unit	DF	Result
Barium	ug/L	1.00	ND
Chromium	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

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Barium	ug/L	1.00	0.436	0.500	87.2	70 - 130
Chromium	ug/L	1.00	0.195	0.200	97.5	70 - 130
Antimony	ug/L	1.00	1.04	1.00	104	70 - 130
Copper	ug/L	1.00	1.20	1.00	120	70 - 130
Lead	ug/L	1.00	0.202	0.200	101	70 - 130
Manganese	ug/L	1.00	0.235	0.200	118	70 - 130
Molybdenum	ug/L	1.00	0.479	0.500	95.8	70 - 130

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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
Barium	ug/L	2.00	48.2	50.0	96.5	85 - 115
Chromium	ug/L	2.00	50.5	50.0	101	85 - 115
Antimony	ug/L	2.00	46.9	50.0	93.8	85 - 115
Copper	ug/L	2.00	51.8	50.0	104	85 - 115
Lead	ug/L	2.00	48.0	50.0	96.0	85 - 115
Manganese	ug/L	2.00	50.2	50.0	100	85 - 115
Molybdenum	ug/L	2.00	47.7	50.0	95.3	85 - 115

Matrix Spike

Lab ID = 806201-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Barium	ug/L	2.00	62.8	65.8(50.0)	94.1	75 - 125
Chromium	ug/L	2.00	47.8	50.0(50.0)	95.6	75 - 125
Antimony	ug/L	2.00	47.6	50.0(50.0)	95.3	75 - 125
Copper	ug/L	2.00	47.8	50.0(50.0)	95.5	75 - 125
Lead	ug/L	2.00	46.5	50.0(50.0)	92.9	75 - 125
Manganese	ug/L	2.00	50.7	55.3(50.0)	90.8	75 - 125
Molybdenum	ug/L	2.00	65.8	67.5(50.0)	96.6	75 - 125

Matrix Spike Duplicate

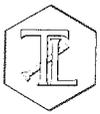
Lab ID = 806201-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Barium	ug/L	2.00	64.6	65.8(50.0)	97.6	75 - 125
Chromium	ug/L	2.00	50.8	50.0(50.0)	102	75 - 125
Antimony	ug/L	2.00	48.7	50.0(50.0)	97.3	75 - 125
Copper	ug/L	2.00	50.1	50.0(50.0)	100	75 - 125
Lead	ug/L	2.00	47.3	50.0(50.0)	94.7	75 - 125
Manganese	ug/L	2.00	55.3	55.3(50.0)	99.9	75 - 125
Molybdenum	ug/L	2.00	68.1	67.5(50.0)	101	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Barium	ug/L	1.00	19.0	20.0	94.8	90 - 110
Chromium	ug/L	1.00	20.0	20.0	99.8	90 - 110
Antimony	ug/L	1.00	18.8	20.0	94.0	90 - 110
Copper	ug/L	1.00	20.4	20.0	102	90 - 110
Lead	ug/L	1.00	19.1	20.0	95.3	90 - 110
Manganese	ug/L	1.00	20.2	20.0	101	90 - 110
Molybdenum	ug/L	1.00	19.1	20.0	95.7	90 - 110

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 456827.01.DM

Printed 2/28/2013

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	20.0	20.0	99.8	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
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 = 806201-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Barium	ug/L	10.0	27.8	27.2	2.10	0 - 10
Chromium	ug/L	50.0	778	748	4.00	0 - 10

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 456827.01.DM

Printed 2/28/2013

Metals by EPA 200.8, Total

Batch 022613B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806201-001 Arsenic	ug/L	02/26/2013 17:30	1.00	0.100	0.50	ND
Nickel	ug/L	02/26/2013 17:30	1.00	0.786	2.0	ND
806201-002 Arsenic	ug/L	02/26/2013 17:00	1.00	0.100	0.50	3.3
Nickel	ug/L	02/26/2013 17:00	1.00	0.786	2.0	ND

Method Blank

Parameter	Unit	DF	Result
Arsenic	ug/L	1.00	ND
Nickel	ug/L	1.00	ND

Duplicate

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Arsenic	ug/L	1.00	3.34	3.30	1.29	0 - 20
Nickel	ug/L	1.00	ND	0	0	0 - 20

Lab ID = 806201-002

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	0.225	0.200	112	70 - 130
Nickel	ug/L	1.00	2.00	2.00	100	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	2.00	52.4	50.0	105	85 - 115
Nickel	ug/L	2.00	54.9	50.0	110	85 - 115

Matrix Spike

Lab ID = 806201-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	1.00	55.0	53.3(50.0)	103	75 - 125
Nickel	ug/L	1.00	48.0	50.0(50.0)	96.0	75 - 125

Matrix Spike Duplicate

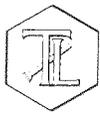
Lab ID = 806201-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	1.00	54.7	53.3(50.0)	103	75 - 125
Nickel	ug/L	1.00	47.7	50.0(50.0)	95.4	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	19.5	20.0	97.3	90 - 110
Nickel	ug/L	1.00	19.4	20.0	97.0	90 - 110

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 456827.01.DM

Printed 2/28/2013

Reactive Silica by SM4500-Si D

Batch 02Si13A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806201-002 Silica	mg/L	02/08/2013	25.0	0.252	1.00	22.0

Method Blank

Parameter	Unit	DF	Result
Silica	mg/L	1.00	ND

Duplicate

Lab ID = 806242-001

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

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Silica	mg/L	1.00	0.210	0.206	102	90 - 110

Matrix Spike

Lab ID = 806242-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Silica	mg/L	1.00	0.242	0.206(0.206)	117	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Silica	mg/L	1.00	0.210	0.206	102	90 - 110

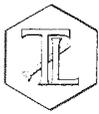
MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Silica	mg/L	1.00	0.401	0.400	100	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Silica	mg/L	1.00	0.401	0.400	100	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 02TDS13B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806201-001 Total Dissolved Solids	mg/L	02/06/2013	1.00	0.757	250	4050
806201-002 Total Dissolved Solids	mg/L	02/06/2013	1.00	0.757	250	4390

Method Blank

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

Duplicate

Lab ID = 806148-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	1120	1120	0.358	0 - 10

Duplicate

Lab ID = 806165-004

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	583	583	0	0 - 10

Lab Control Sample

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

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Client: E2 Consulting Engineers, Inc.

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

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Printed 2/28/2013

Total Organic Carbon (T/DOC) SM 5310 C

Batch 02TOC13A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806201-002 Total Organic Carbon	mg/L	02/06/2013 16:26	1.00	0.0309	0.300	ND

Method Blank

Parameter	Unit	DF	Result
Total Organic Carbon	mg/L	1.00	ND

Duplicate

Lab ID = 806146-007

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Organic Carbon	mg/L	1.00	2.01	2.02	0.596	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Organic Carbon	mg/L	1.00	9.80	10.0	98.0	90 - 110

Matrix Spike

Lab ID = 806148-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Total Organic Carbon	mg/L	1.00	11.7	11.7(10.0)	99.6	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Organic Carbon	mg/L	1.00	9.90	10.0	99.0	85 - 115

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Organic Carbon	mg/L	1.00	9.91	10.0	99.1	90 - 110

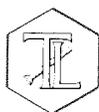
MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Organic Carbon	mg/L	1.00	9.49	10.0	94.9	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Organic Carbon	mg/L	1.00	9.40	10.0	94.0	90 - 110

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 456827.01.DM

Printed 2/28/2013

Total Phosphate, SM 4500-PB,E

Batch 02TP13A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806201-002 Phosphate, Total As P	mg/L	02/13/2013	1.00	0.00648	0.0200	ND

Method Blank

Parameter	Unit	DF	Result
Phosphate, Total As P	mg/L	1.00	ND

Duplicate

Lab ID = 806201-002

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	0.0714	0.0650	110	90 - 110

Matrix Spike

Lab ID = 806201-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Phosphate, Total As P	mg/L	1.00	0.0711	0.0650(0.0650)	109	75 - 125

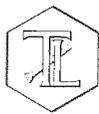
MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Phosphate, Total As P	mg/L	1.00	0.0714	0.0650	110	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Phosphate, Total As P	mg/L	1.00	0.0724	0.0660	110	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 02NH313C

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806201-001 Ammonia as N	mg/L	02/20/2013	1.00	0.00980	0.500	ND
806201-002 Ammonia as N	mg/L	02/20/2013	1.00	0.00980	0.500	ND

Method Blank

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

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	7.20	8.00	90.0	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	7.28	8.00	91.0	90 - 110

Matrix Spike

Lab ID = 806201-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	7.17	8.00(8.00)	89.6	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	7.46	8.00	93.3	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	5.41	6.00	90.1	90 - 110

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Project Number: 456827.01.DM

Printed 2/28/2013

Metals by EPA 200.8, Dissolved

Batch 020713A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806201-002 Manganese	ug/L	02/07/2013 13:59	2.00	0.172	0.50	4.5

Method Blank

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

Duplicate

Lab ID = 806147-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	2.00	16.9	16.0	5.41	0 - 20
Manganese	ug/L	2.00	86.6	84.5	2.45	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.255	0.200	128	70 - 130
Manganese	ug/L	1.00	0.203	0.200	102	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	2.00	52.6	50.0	105	85 - 115
Manganese	ug/L	2.00	51.3	50.0	102	85 - 115

Matrix Spike

Lab ID = 806147-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	68.2	66.0(50.0)	104	75 - 125
Manganese	ug/L	2.00	138	134(50.0)	107	75 - 125

Matrix Spike Duplicate

Lab ID = 806147-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	67.2	66.0(50.0)	102	75 - 125
Manganese	ug/L	2.00	136	134(50.0)	103	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.3	20.0	96.6	90 - 110
Manganese	ug/L	1.00	19.7	20.0	98.5	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	21.0	20.0	105	90 - 110

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 456827.01.DM

Printed 2/28/2013

Metals by 200.7, Dissolved

Batch 022213A-Th2

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806201-002 Iron	ug/L	02/22/2013 14:58	1.00	9.50	20.0	ND

Method Blank

Parameter	Unit	DF	Result
Iron	ug/L	1.00	ND

Duplicate

Lab ID = 806147-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Iron	ug/L	5.00	338	330	2.28	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	55.4	50.0	111	85 - 115

Matrix Spike

Lab ID = 806147-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	5.00	10300	10300(10000)	99.4	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	4980	5000	99.7	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5220	5000	104	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5160	5000	103	90 - 110

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2140	2000	107	80 - 120

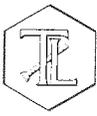
Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2140	2000	107	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2140	2000	107	80 - 120

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Report Continued

Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 456827.01.DM

Printed 2/28/2013

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2100	2000	105	80 - 120

Turbidity by SM 2130 B

Batch 02TUC13D

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806201-001 Turbidity	NTU	02/06/2013	1.00	0.0140	0.100	ND
806201-002 Turbidity	NTU	02/06/2013	1.00	0.0140	0.100	ND

Method Blank

Parameter	Unit	DF	Result
Turbidity	NTU	1.00	ND

Duplicate

Lab ID = 806201-002

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	8.77	8.00	110	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	7.70	8.00	96.2	90 - 110

Respectfully submitted,

TRUESDAIL LABORATORIES, INC.

Mona Nassimi
 for Mona Nassimi
 Manager, Analytical Services



e2

Total Dissolved Solids by SM 2540 C**Calculations**Batch: 02TDS13B
Date Analyzed: 2/6/13

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	75.4414	75.4414	75.4414	0.0000	No	0.0000	0.0	25.0	ND	1
806145-1	50	47.8626	48.0115	48.0111	0.0004	No	0.1485	2970.0	50.0	2970.0	1
806145-2	50	50.7637	50.9003	50.8999	0.0004	No	0.1362	2724.0	50.0	2724.0	1
806146-1	50	48.0016	48.0323	48.0323	0.0000	No	0.0307	614.0	50.0	614.0	1
806146-2	100	69.2023	69.2492	69.2492	0.0000	No	0.0469	469.0	25.0	469.0	1
806146-3	50	51.9374	51.9768	51.9767	0.0001	No	0.0393	786.0	50.0	786.0	1
806146-4	50	46.9808	47.0133	47.0132	0.0001	No	0.0324	648.0	50.0	648.0	1
806146-7	50	49.1826	49.2373	49.2372	0.0001	No	0.0546	1092.0	50.0	1092.0	1
806148-2	50	50.5696	50.6255	50.6254	0.0001	No	0.0558	1116.0	50.0	1116.0	1
806155-2	200	109.388	109.4025	109.4025	0.0000	No	0.0145	72.5	12.5	72.5	1
806155-4	100	66.7053	66.7467	66.7463	0.0004	No	0.0410	410.0	25.0	410.0	1
806148-2D	50	50.4061	50.462	50.4619	0.0001	No	0.0558	1116.0	50.0	1116.0	1
LCS	100	67.0498	67.0998	67.0998	0.0000	No	0.0500	500.0	25.0	500.0	1
806156-1	50	49.6708	49.7166	49.7166	0.0000	No	0.0458	916.0	50.0	916.0	1
806156-2	200	103.7309	103.7466	103.7466	0.0000	No	0.0157	78.5	12.5	78.5	1
806156-3	50	50.6108	50.7589	50.7585	0.0004	No	0.1477	2954.0	50.0	2954.0	1
806163	100	77.9954	78.0471	78.047	0.0001	No	0.0516	516.0	25.0	516.0	1
806165-1	50	49.4983	49.5477	49.5476	0.0001	No	0.0493	986.0	50.0	986.0	1
806165-2	100	72.7693	72.8226	72.8222	0.0004	No	0.0529	529.0	25.0	529.0	1
806165-3	100	73.1785	73.2344	73.2341	0.0003	No	0.0556	556.0	25.0	556.0	1
806165-4	100	78.6147	78.6733	78.673	0.0003	No	0.0583	583.0	25.0	583.0	1
806201-1	10	50.8303	50.8710	50.8708	0.0002	No	0.0405	4050.0	250.0	4050.0	1
806201-2	10	49.8219	49.8659	49.8658	0.0001	No	0.0439	4390.0	250.0	4390.0	1
806165-4D	100	77.7820	77.8406	77.8403	0.0003	No	0.0583	583.0	25.0	583.0	1

Calculation as follows:

Filterable residue (TDS), mg/L =

$$\left(\frac{A - B}{C} \right) \times 10^6$$

Where:

A = weight of dish + residue in grams.
B = weight of dish in grams.
C = mL of sample filtered.RL = reporting limit.
ND = not detected (below the reporting limit)**Laboratory Control Sample (LCS) Summary**

QC Std I.D.	Measured Value, ppm	Theoretical Value, ppm	Percent Rec	Acceptance Limit	QC Within Control?
LCS1	500	500	100.0%	90-110%	Yes
LCS2					

LCS Recovery

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

P = Percent recovery.

LC = Measured LCS value (ppm).

LT = Theoretical LCS value (ppm).

Duplicate Determinations Difference Summary

Lab Number	Sample Weight, g	Sample Dup Weight, g	% RPD	Acceptance Limit	QC Within Control?
806148-2	0.0558	0.0558	0.0%	≤5%	Yes
806165-4	0.0583	0.0586	0.3%	5%	Yes

Duplicate Determination Difference

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

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

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

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

C = Average weight in (g).

Jenny T.

Analyst Printed Name

Analyst Signature

Maksim G.

Reviewer Printed Name

Reviewer Signature

Total Dissolved Solids by SM 2540 C

TDS/EC CHECK

Batch: 02TDS13B
Date Analyzed: 2/6/13

Laboratory Number	EC	TDS/EC Ratio: 0.55-9	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
806145-1	3810	0.78	2476.5	1.20
806145-2	3750	0.73	2437.5	1.12
806146-1	1003	0.61	651.95	0.94
806146-2	714	0.66	464.1	1.01
806146-3	1152	0.68	748.8	1.05
806146-4	1019	0.64	662.35	0.98
806146-7	1607	0.68	1044.55	1.05
806148-2	1588	0.70	1032.2	1.08
806155-2	130	0.56	84.5	0.86
806155-4	658	0.62	427.7	0.96
806148-2D	1588	0.70	1032.2	1.08
LCS				
806156-1	1256	0.73	816.4	1.12
806156-2	131	0.60	85.15	0.92
806156-3	3980	0.74	2587	1.14
806163	874	0.59	568.1	0.91
806165-1	1710	0.58	1111.5	0.89
806165-2	902	0.59	586.3	0.90
806165-3	921	0.60	598.65	0.93
806165-4	1003	0.58	651.95	0.89
806201-1	7120	0.57	4628	0.88
806201-2	7540	0.58	4901	0.90
806165-4D	1003	0.58	651.95	0.89



Alkalinity by SM 2320B

Calculations

Analytical Batch: 02ALK13A
 Matrix: WATER
 Date of Analysis: 2/7/13

Lab ID	Sample pH	Sample Volume (ml)	N of HCL	Titrat Volume to reach pH 8.3	P Alkalinity as CaCO3	Titrat Volume to reach pH 4.5	Total mL titrant to reach pH 0.3 unit lower	Total Alkalinity as CaCO3	RL, ppm	Total Alkalinity Reported Value	HCO3 Conc. as CaCO3 (ppm)	CO3 Alkalinity as CaCO3 (ppm)	OH Alkalinity as CaCO3 (ppm)	LOW Alkalinity as CaCO3 (<20ppm)
BLANK	6.75	50	0.02		0.0	0.00		0.0	5	ND	ND	ND	ND	ND
806074-3	8.02	50	0.02		0.0	6.00		120.0	5	120.0	120.0	ND	ND	ND
806074-3 DUP	8.03	50	0.02		0.0	6.10		122.0	5	122.0	122.0	ND	ND	ND
806074-4	7.83	50	0.02		0.0	5.50		110.0	5	110.0	110.0	ND	ND	ND
806074-4 MS	9.37	50	0.02	2.10	42.0	10.70		214.0	5	214.0	130.0	84	ND	ND
806114-1	7.71	50	0.02		0.0	5.75		115.0	5	115.0	115.0	ND	ND	ND
806116-6	7.25	50	0.02		0.0	11.50		230.0	5	230.0	230.0	ND	ND	ND
806145-1	7.30	50	0.02		0.0	14.45		289.0	5	289.0	289.0	ND	ND	ND
806145-2	7.25	50	0.02		0.0	18.75		375.0	5	375.0	375.0	ND	ND	ND
806201-2	7.42	50	0.02		0.0	6.90		138.0	5	138.0	138.0	ND	ND	ND
806065-21	7.99	50	0.02		0.0	4.15		83.0	5	83.0	83.0	ND	ND	ND
806166-1	6.56	50	0.02		0.0	9.15		183.0	5	183.0	183.0	ND	ND	ND
806156-2	5.70	50	0.02		0.0	1.35		27.0	5	27.0	27.0	ND	ND	ND
806156-3	6.97	50	0.02		0.0	29.60		592.0	5	592.0	592.0	ND	ND	ND
806163-20	7.93	50	0.02		0.0	4.50		90.0	5	90.0	90.0	ND	ND	ND
LCS	10.30	50	0.02	2.1	42.0	4.95		99.0	5	99.0	15.0	84	ND	ND
LCSD	10.42	50	0.02	2.2	44.0	4.90		98.0	5	98.0	10.0	88	ND	ND

Calculations as follows: $T \text{ or } P = \left(\frac{A \times N}{mL \text{ sample}} \right) \times N \times 50000$

Low Alkalinity: = $(2 \times B - C) \times N \times 50000$ mL sample

Where:
 T = Total Alkalinity, mg CaCO3/L
 P = Phenolphthalein Alkalinity, mg CaCO3/L
 A = mL standard acid used
 N = normality of standard acid

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

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

Blank Summary

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

Laboratory Control Sample (LCS/LCSD) Summary

QC Std I.D.	Measured Value, ppm	Theoretical Value, ppm	% Recovery	Acceptance Limit	QC Within Control?
LCS	99	100	99.0%	90-110	Yes
LCSD	98	100	98.0%	90-110	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?
806074-4	110	1	100	100	214	210.00	104%	75-125	Yes			

Duplicate Determination Difference Summary

Lab Number I.D.	Measured Value, ppm	Dup Value, ppm	RPD	Acceptance Limit	QC Within Control?
806074-3	120	122	1.7%	20%	Yes

Melissa S.
 Analyst Printed Name

[Signature]
 Analyst Signature

Maksim G.
 Reviewer Printed Name

[Signature]
 Reviewer Signature

02

Rec'd 02/05/13

S 806201

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-399]

COC Number
TURNAROUND TIME 10 Days
DATE 2/05/13 PAGE 1 OF 1

806201

COMPANY	CH2M HILL /E2	PROJECT NAME	PG&E Topock IM3	PHONE	530-229-3303	FAX	530-339-3303	ADDRESS	155 Grand Ave Site 1000 Oakland, CA 94612	P.O. NUMBER	456827.01.DM	SAMPLERS (SIGNATURE)	[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	Soluble Silica - Reactive (4500-Si Cord)	NO2 (4500-NO2B)	NUMBER OF CONTAINERS	COMMENTS
SC-700B-WDR-399	2/05/13	14:05		X	X	X	X	X	X	X	X	X	X	X	X	X	4	PH=2 (200.7)
SC-100B-WDR-399	2/05/13	13:45		X	X	X	X	X	X	X	X	X	X	X	X	X	10	PH=7 (200.7)
ALERT!!																		
Level III QC																		
Sample Conditions Form Attached																		
TOTAL NUMBER OF CONTAINERS																		
13																		

CHAIN OF CUSTODY SIGNATURE RECORD

Signature (Relinquished)	Printed Name	Company/ Agency	Date/ Time
[Signature]	Ryan Phelps	Ch2M HILL	2-5-13 15:30
Signature (Received)	Rafael Davila	Company/ Agency	2-5-13 15:30
Signature (Relinquished)	Rafael Davila	Company/ Agency	2-5-13 21:30
Signature (Received)	Shachindra	Company/ Agency	2/5/13 21:30
Signature (Relinquished)	[Signature]	Company/ Agency	
Signature (Received)	[Signature]	Company/ Agency	

SAMPLE CONDITIONS

RECEIVED COOL WARM 4.2 °C

CUSTODY SEALED YES NO

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



Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
8059154 (1-5)	<2	<2	01/30/13	DC	Yes			
805993 (1-8,6)	<1	↓	1/30/13	↓	Yes			
805994 (1,3-8)	<1	↓	↓	↓	Yes			
806073	<1	<2	1/30/13	BE	Yes			
806092 (1-12)	<1	>2	1/31/13	BE	No			
806094 (1-3)	↓	↓	↓	↓	↓			
806071 (1-4,7)	↓	<2	2-1-13	BE	Yes			
806047 (1-5)	↓	↓	↓	↓	↓			
806048 (1-2)	↓	↓	↓	↓	↓			
806049 (1-4)	↓	↓	↓	↓	↓			
806075 (1)	↓	>2	↓	↓	↓		2-1-13	
806050 (1-7)	<1	<2	↓	DC	Yes			
806076 (1-7)	↓	↓	↓	DC	Yes			
806098 (1,2)	↓	↓	↓	↓	↓			
806099 (1,2,3)	↓	↓	↓	↓	↓			
806113 (1-6)	↓	↓	↓	↓	↓			
806084	<1	>2	2/3/13	DC	Yes		13:30	
806116 (1-4,6)	<1	<2	↓	↓	↓			
806115 (1-8)	<1	<2	↓	↓	↓			
806114 (1-12)	↓	↓	↓	↓	↓			
806074 (1-4)	↓	↓	↓	↓	↓			
806097 (1-10)	↓	↓	↓	↓	↓			
806156 (1-3)	<1	>2	2/4/13	DC	No		15:40	
806150	<1	<2	↓	↓	Yes			
806155 (1,2,4)	<1	>2	↓	↓	No		15:00	
806172	<1	>2	2/5/13	DC	Yes		16:25	
806177	↓	<2	↓	↓	↓			
806178	↓	↓	↓	↓	↓			
806179	↓	↓	↓	↓	↓			
806180	↓	↓	↓	↓	↓			
806181	↓	↓	↓	↓	↓			
806182	↓	↓	↓	↓	↓			
806183	↓	↓	↓	↓	↓			
806166	↓	↓	↓	↓	↓			
806163 (1,2,3)	<1	>2	2/5/13	DC	No		16:30	
806165 (1-4)	<1	>2	↓	↓	↓		↓	
806187	<1	>2	2-6-13	BE	No		12:00	
806144 (1-7)	<1	<2	2/6/13	ES	Yes			
806145 (1-2)	↓	↓	↓	↓	↓			
806146 (1-6)	↓	↓	↓	↓	↓			
806148 (1-2)	↓	-2 <2	↓	↓	↓		11:30	-1 pH >2
806147 (1-4)	<1	<2	2/6/13	ES	Yes			
Total 806201 (1-2)	<1	-1 <2	↓	↓	↓		2:00	-2 pH >2
Discard 806201-2	↓	>2	↓	↓	↓		2:00	Filtered then acidif

Notes:

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



Sample Integrity & Analysis Discrepancy Form

Client: E 2

Lab # 806201

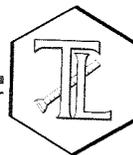
Date Delivered: 02/05/13 Time: 2:30 By: Mail Field Service Client

1. Was a Chain of Custody received and signed? Yes No N/A
2. Does Customer require an acknowledgement of the COC? Yes No N/A
3. Are there any special requirements or notes on the COC? Yes No N/A
4. If a letter was sent with the COC, does it match the COC? Yes No N/A
5. Were all requested analyses understood and acceptable? Yes No N/A
6. Were samples received in a chilled condition?
Temperature (if yes)? 4.2 °C Yes No N/A
7. Were samples received intact
(i.e. broken bottles, leaks, air bubbles, etc.)? Yes No N/A
8. Were sample custody seals intact? Yes No N/A
9. Does the number of samples received agree with COC? Yes No N/A
10. Did sample labels correspond with the client ID's? Yes No N/A
11. Did sample labels indicate proper preservation?
Preserved (if yes) by: Truesdail Client
12. Were samples pH checked? pH = See C. v. P Yes No N/A
13. Were all analyses within holding time at time of receipt?
If not, notify Project Manager. Yes No N/A
14. Have Project due dates been checked and accepted?
Turn Around Time (TAT): RUSH Std Yes No N/A
15. **Sample Matrix:** Liquid Drinking Water Ground Water Waste Water
 Sludge Soil Wipe Paint Solid Other Water
16. Comments: _____
17. Sample Check-In completed by Truesdail Log-In/Receiving: Lucia

ALERT !!
Level III QC

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING



Established 1931

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

February 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-400 PROJECT, GROUNDWATER
MONITORING, TLI No.: 806329

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-400 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 February 12, 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.

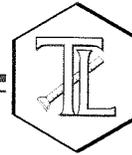
Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.


for Mona Nassimi
Manager, Analytical Services


Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING



Established 1931

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

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

Laboratory No.: 806329

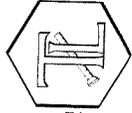
Date: February 25, 2013

Collected: February 12, 2013

Received: February 12, 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	Bitra Emami
EPA 218.6	Hexavalent Chromium	Rozita Bahramzad



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.: 806329

Date Received: February 12, 2013

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
806329-001	SC-700B-WDR-400	E120.1	NONE	2/12/2013	11:00	EC	7390	umhos/cm	2.00
806329-001	SC-700B-WDR-400	E200.8	NONE	2/12/2013	11:00	Chromium	ND	ug/L	1.0
806329-001	SC-700B-WDR-400	E200.8	NONE	2/12/2013	11:00	Manganese	4.1	ug/L	0.50
806329-001	SC-700B-WDR-400	E218.6	LABFLT	2/12/2013	11:00	Chromium, Hexavalent	0.28	ug/L	0.20
806329-001	SC-700B-WDR-400	SM2130B	NONE	2/12/2013	11:00	Turbidity	ND	NTU	0.100
806329-001	SC-700B-WDR-400	SM2540C	NONE	2/12/2013	11:00	Total Dissolved Solids	4490	mg/L	250

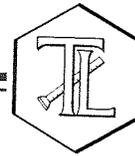
ND: Non Detected (below reporting limit)
mg/L: Milligrams per liter.

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. 806329

Page 1 of 9

Printed 2/25/2013

Samples Received on 2/12/2013 9:30:00 PM

Field ID	Lab ID	Collected	Matrix
SC-700B-WDR-400	806329-001	02/12/2013 11:00	Water

Specific Conductivity - EPA 120.1

Batch 02EC13D

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806329-001 Specific Conductivity	umhos/cm	02/14/2013	1.00	0.116	2.00	7390

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	7390	7390	0	0 - 10

Lab ID = 806329-001

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	693	706	98.2	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

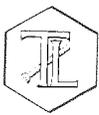
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	972	998	97.4	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	970	998	97.2	90 - 110

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007



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Project Number: 456827.01.DM

Chrome VI by EPA 218.6

Batch 02CrH13P

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806329-001 Chromium, Hexavalent	ug/L	02/15/2013 10:59	1.00	0.00920	0.20	0.28

Method Blank

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

Duplicate

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	2.58	2.56	0.805	0 - 20

Lab ID = 806330-011

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.198	0.200	99.0	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.75	5.00	95.0	90 - 110

Matrix Spike

Lab ID = 806203-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.86	5.00(5.00)	97.3	90 - 110

Matrix Spike

Lab ID = 806203-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.93	5.00(5.00)	98.6	90 - 110

Matrix Spike

Lab ID = 806203-008

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

Matrix Spike

Lab ID = 806329-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.25	1.28(1.00)	97.3	90 - 110

Matrix Spike

Lab ID = 806330-001

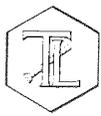
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.978	1.00(1.00)	97.8	90 - 110

Matrix Spike

Lab ID = 806330-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	35.8	34.0(25.0)	107	90 - 110

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 456827.01.DM

Printed 2/25/2013

Metals by EPA 200.8, Total

Batch 021313A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806329-001 Chromium	ug/L	02/13/2013 14:11	2.00	0.184	1.0	ND
Manganese	ug/L	02/13/2013 14:11	2.00	0.172	0.50	4.1

Method Blank

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

Duplicate

Lab ID = 806329-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	2.00	ND	0	0	0 - 20
Manganese	ug/L	2.00	4.04	4.14	2.44	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.198	0.200	99.0	70 - 130
Manganese	ug/L	1.00	0.197	0.200	98.5	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	2.00	49.9	50.0	99.9	85 - 115
Manganese	ug/L	2.00	49.0	50.0	98.1	85 - 115

Matrix Spike

Lab ID = 806329-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	52.5	50.0(50.0)	105	75 - 125
Manganese	ug/L	2.00	54.8	54.1(50.0)	101	75 - 125

Matrix Spike Duplicate

Lab ID = 806329-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	51.3	50.0(50.0)	103	75 - 125
Manganese	ug/L	2.00	54.8	54.1(50.0)	101	75 - 125

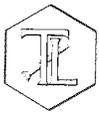
MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.3	20.0	96.7	90 - 110
Manganese	ug/L	1.00	19.3	20.0	96.6	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.1	20.0	95.6	90 - 110

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Client: E2 Consulting Engineers, Inc.

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

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Printed 2/25/2013

Interference Check Standard AB

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Row: Chromium, ug/L, 1.00, 19.2, 20.0, 95.9, 80 - 120

Interference Check Standard AB

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Row: Manganese, ug/L, 1.00, 19.9, 20.0, 99.6, 80 - 120

Interference Check Standard AB

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Row: Manganese, ug/L, 1.00, 19.4, 20.0, 97.2, 80 - 120

Total Dissolved Solids by SM 2540 C

Batch 02TDS13D

Table with 7 columns: Parameter, Unit, Analyzed, DF, MDL, RL, Result. Row: 806329-001 Total Dissolved Solids, mg/L, 02/15/2013, 1.00, 0.757, 250, 4490

Method Blank

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

Duplicate

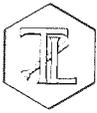
Lab ID = 806348-004

Table with 7 columns: Parameter, Unit, DF, Result, Expected, RPD, Acceptance Range. Row: Total Dissolved Solids, mg/L, 1.00, 312, 319, 2.22, 0 - 10

Lab Control Sample

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Row: Total Dissolved Solids, mg/L, 1.00, 462, 500, 92.4, 90 - 110

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Report Continued

Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 456827.01.DM

Printed 2/25/2013

Turbidity by SM 2130 B

Batch 02TUC13G

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806329-001 Turbidity	NTU	02/13/2013	1.00	0.0140	0.100	ND

Method Blank

Parameter	Unit	DF	Result
Turbidity	NTU	1.00	ND

Duplicate

Lab ID = 806329-001

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	7.77	8.00	97.1	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	7.58	8.00	94.8	90 - 110

Respectfully submitted,

TRUESDAIL LABORATORIES, INC.

Mona Nassimi

Mona Nassimi
Manager, Analytical Services

et



Truesdail Laboratories, Inc.

Total Dissolved Solids by SM 2540 C

Calculations

Batch: 02TDS13D
Date Analyzed: 2/15/13

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	78.3738	78.3838	78.3838	0.0000	No	0.0100	100.0	25.0	100.0	1
806299	50	49.8789	49.9262	49.9261	0.0001	No	0.0472	944.0	50.0	944.0	1
806302	485	159.0533	159.0559	159.0559	0.0000	No	0.0026	5.4	5.2	5.4	1
806328-1	50	47.217	47.2728	47.2726	0.0002	No	0.0556	1112.0	50.0	1112.0	1
806328-2	50	49.8198	49.8594	49.859	0.0004	No	0.0392	784.0	50.0	784.0	1
806328-3	50	49.1795	49.2156	49.2152	0.0004	No	0.0357	714.0	50.0	714.0	1
806328-4	50	50.6098	50.6434	50.6430	0.0004	No	0.0332	664.0	50.0	664.0	1
806328-5	50	50.7477	50.7823	50.7822	0.0001	No	0.0345	690.0	50.0	690.0	1
806328-6	50	51.3358	51.3646	51.3644	0.0002	No	0.0286	572.0	50.0	572.0	1
806328-7	50	50.5001	50.5564	50.5563	0.0001	No	0.0562	1124.0	50.0	1124.0	1
806328-8	50	50.5684	50.6288	50.6288	0.0000	No	0.0604	1208.0	50.0	1208.0	1
806328-8D	50	47.5129	47.5736	47.5736	0.0000	No	0.0607	1214.0	50.0	1214.0	1
LCS	100	78.8073	78.8539	78.8535	0.0004	No	0.0462	462.0	25.0	462.0	1
806328-9	50	50.1517	50.2131	50.2127	0.0004	No	0.0610	1220.0	50.0	1220.0	1
806328-10	50	47.8555	47.9052	47.9048	0.0004	No	0.0493	986.0	50.0	986.0	1
806329	10	50.7607	50.806	50.8056	0.0004	No	0.0449	4490.0	250.0	4490.0	1
806341-7	100	69.4869	69.5237	69.5237	0.0000	No	0.0368	368.0	25.0	368.0	1
806348-2	200	111.3623	111.3729	111.3729	0.0000	No	0.0106	53.0	12.5	53.0	1
806348-4	100	74.3971	74.4292	74.429	0.0002	No	0.0319	319.0	25.0	319.0	1
806348-4D	100	74.2246	74.2558	74.2558	0.0000	No	0.0312	312.0	25.0	312.0	1

Calculation as follows:

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

Where:

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

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

Laboratory Control Sample (LCS) Summary

QC Std I.D.	Measurd Value, ppm	Theoretical Value, ppm	Percent Rec	Acceptance Limit	QC Within Control?
LCS1	462	500	92.4%	90-110%	Yes
LCS2					

LCS Recovery

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

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

Duplicate Determinations Difference Summary

Lab Number	Sample Weight, g	Sample Dup Weight, g	% RPD	Acceptance Limit	QC Within Control?
806328-8	0.0604	0.0607	0.2%	≤5%	Yes
806348-4	0.0319	0.0312	1.1%	5%	Yes

Duplicate Determination Difference

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

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

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

Jenny T.

Analyst Printed Name

Analyst Signature

Maksim G.

Reviewer Printed Name

Reviewer Signature

Total Dissolved Solids by SM 2540 C

TDS/EC CHECK

Batch: 02TDS13D
Date Analyzed: 2/15/13

Laboratory Number	EC	TDS/EC Ratio: 0.55-.9	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
806299	1475	0.64	958.75	0.98
806302	9.74	0.55	6.331	0.85
806328-1	1548	0.72	1006.2	1.11
806328-2	1195	0.66	776.75	1.01
806328-3	1094	0.65	711.1	1.00
806328-4	1041	0.64	676.65	0.98
806328-5	1060	0.65	689	1.00
806328-6	920	0.62	598	0.96
806328-7	1558	0.72	1012.7	1.11
806328-8	1633	0.74	1061.45	1.14
806328-8D	1633	0.74	1061.45	1.14
LCS				
806328-9	1685	0.72	1095.25	1.11
806328-10	1378	0.72	895.7	1.10
806329	7390	0.61	4803.5	0.93
806341-7	617	0.60	401.05	0.92
806348-2	94.4	0.56	61.36	0.86
806348-4	532	0.60	345.8	0.92
806348-4D	532	0.59	345.8	0.90

JA



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CHAIN OF CUSTODY RECORD

[[IM3Plant-WDR-400]]

806329

COC Number

TURNAROUND TIME 10 Days

DATE 02/12/13

PAGE 1 OF 1

COMPANY E2	PROJECT NAME PG&E Topock	PHONE (530) 229-3303	FAX (530) 339-3303	P.O. NUMBER 458827.01.DM	TEAM 1	SAMPLERS SIGNATURE 	DATE 02/12/13	TIME 11:00	DESCRIPTION Water	Cr6 (218.6) Lab Filtered	X	Total Metals (200.7) Cr, Mn	X	X	X	X	TDS (SM2540C)	X	Turbidity (SM130)	X	COMMENTS
SAMPLE I.D. SC-700B-WDR-400										NUMBER OF CONTAINERS											
										3											
										DH = 6 (200.7)											
										TOTAL NUMBER OF CONTAINERS											
										5											

ALERT!!
Level III QC

Sample Conditions
 See Attachments

CHAIN OF CUSTODY SIGNATURE RECORD

Signature (Relinquished)	Printed Name	Company/Agency	Date/Time
	<i>Rafael Davila</i>	PG&E	2-12-13 15:30
Signature (Received)	Printed Name	Company/Agency	Date/Time
<i>Rafael Davila</i>	<i>Rafael Davila</i>	T.H.I	2-12-13 15:30
Signature (Relinquished)	Printed Name	Company/Agency	Date/Time
	<i>Rafael Davila</i>	T.H.I	2-12-13 21:30
Signature (Received)	Printed Name	Company/Agency	Date/Time
<i>Shubhanna</i>	<i>Shubhanna</i>	T.H.I	2/12/13 21:30
Signature (Relinquished)	Printed Name	Company/Agency	Date/Time
Signature (Received)	Printed Name	Company/Agency	Date/Time

SAMPLE CONDITIONS

RECEIVED COOL WARM 3.4 C

CUSTODY SEALED YES NO

SPECIAL REQUIREMENTS:

0

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
02/01/13	806148-1	9.5	N/A	N/A	N/A	HAV
↓	↓ -2	↓	↓	↓	↓	↓
↓	↓ -3	↓	↓	↓	↓	↓
02/06/13	806201-1	7	2 ml	9.5	10:00 AM	HAV
↓	↓ -2	↓	↓	↓	10:05 AM	HAV
02/06/13	806202-1	7	2 ml	9.5	10:10 AM	HAV
↓	↓ -2	↓	↓	↓	10:20 AM	HAV
02/06/13	806203-1	9.5	N/A	N/A	N/A	HAV
↓	↓ -2	↓	↓	↓	↓	↓
↓	↓ -3	↓	↓	↓	↓	↓
↓	↓ -4	↓	↓	↓	↓	↓
↓	↓ -5	↓	↓	↓	↓	↓
↓	↓ -6	↓	↓	↓	↓	↓
↓	↓ -7	↓	↓	↓	↓	↓
↓	↓ -8	↓	↓	↓	↓	↓
02/08/13	806237-1	9.5	N/A	N/A	N/A	RB
02/13/13	806329	7	2 ml	9.5	9:30 AM	HAV
02/13/13	806330-1	9.5	N/A	N/A	N/A	HAV
↓	↓ -2	↓	↓	↓	↓	↓
↓	↓ -3	↓	↓	↓	↓	↓
↓	↓ -4	↓	↓	↓	↓	↓
↓	↓ -5	↓	↓	↓	↓	↓
↓	↓ -6	↓	↓	↓	↓	↓
↓	↓ -7	↓	↓	↓	↓	↓
↓	↓ -8	↓	↓	↓	↓	↓
↓	↓ -9	↓	↓	↓	↓	↓
↓	↓ -10	↓	↓	↓	↓	↓
↓	↓ -11	↓	↓	↓	↓	↓
↓	↓ -12	↓	↓	↓	↓	↓
↓	↓ -13	↓	↓	↓	↓	↓
↓	↓ -14	↓	↓	↓	↓	↓


 02/21/13



Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
806202(1-2)	<1	>2	2/6/13	ES	Yes	2:00		Filtered then dec
806212(11-13)	<1	>2	2/7/13	BE	NO	8:00AM		Fl
806230(1-3)	<1	>2	2-8-13	BE	NO	7:30AM		
806219(1-2)	>1	<2			YES			
806221		72/BE				7:30AM		
806222		<2						
806224								
806234								
806220(3(13 ²))	<1	<2	2-6-13	BE	yes			
805996(1-10)			01/31-13					
805995(1-9)								
806243	<1	<2	2/8/13	DC	yes			
806244	<1	<2						
806265	<1	<2						
806267	<1	<2						
806268(1-4)	>1	<2	2-11-13	BE	YES			
806269(1-4)	>1							
806237	<1	<2						
806211	TTL	-						
806296(1-4)	<1	<2	2-12-13	BE				
806263	>2	<2	2/12/13	ES	yes			
806275(1-2)								
806282(1-8)								
806285								
806286(1-2)								
806287								
806291(1-4)								
806292								
806329	<1	>2	2-13-13	BE	YES	8:30 AM		
806330(1-4)(9-11) 13-15)	<1	<2						
806341(14-6)	<1	>2			NO	13:30		
806322							2-15-13	PH < 2
806339	>1	>2	2/13/13	DC	Yes	14:30		
806299	<1	<2						
806337(1-6)	<1	>2	2-14-13	BE	NO	6:30	2-15-13	PH < 2
806341(1-18)								
806347(1-3)								
806348(1-291)								
806304	<1	<2	2/14/13	ES	yes			
806305								
806306								
806307								
806308								

Notes:

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



Sample Integrity & Analysis Discrepancy Form

Client: E 2

Lab # 806329

Date Delivered: 02/12/13 Time: 11:30 By: Mail Field Service Client

1. Was a Chain of Custody received and signed? Yes No N/A
2. Does Customer require an acknowledgement of the COC? Yes No N/A
3. Are there any special requirements or notes on the COC? Yes No N/A
4. If a letter was sent with the COC, does it match the COC? Yes No N/A
5. Were all requested analyses understood and acceptable? Yes No N/A
6. Were samples received in a chilled condition? 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: Linda

ALERT !!
Level III QC

TRUESDAIL LABORATORIES, INC.

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14201 FRANKLIN AVENUE
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www.truesdail.com

March 5, 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-401 PROJECT, GROUNDWATER
MONITORING, TLI No.: 806462

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-401 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 February 20, 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.

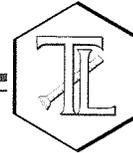
Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

for 
Mona Nassimi
Manager, Analytical Services


Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.

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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

14201 FRANKLIN AVENUE
TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462
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Laboratory No.: 806462

Date: March 5, 2013

Collected: February 20, 2013

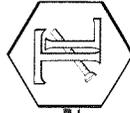
Received: February 20, 2013

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	Bitra Emami
EPA 218.6	Hexavalent Chromium	Rozita Bahramzad

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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.: 806462
Date Received: February 20, 2013

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
806462-001	SC-700B-WDR-401	E120.1	NONE	2/20/2013	12:25	EC	7110	umhos/cm	2.00
806462-001	SC-700B-WDR-401	E200.8	NONE	2/20/2013	12:25	Chromium	ND	ug/L	1.0
806462-001	SC-700B-WDR-401	E200.8	NONE	2/20/2013	12:25	Manganese	4.4	ug/L	0.50
806462-001	SC-700B-WDR-401	E218.6	LABFLT	2/20/2013	12:25	Chromium, Hexavalent	ND	ug/L	1.0
806462-001	SC-700B-WDR-401	SM2130B	NONE	2/20/2013	12:25	Turbidity	ND	NTU	0.100
806462-001	SC-700B-WDR-401	SM2540C	NONE	2/20/2013	12:25	Total Dissolved Solids	4550	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 0.01 ppm will have two (2) significant figures.

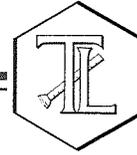
Result above or equal to 0.01 ppm will have three (3) significant figures.

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. 806462

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Printed 3/5/2013

Samples Received on 2/20/2013 9:30:00 PM

Field ID	Lab ID	Collected	Matrix
SC-700B-WDR-401	806462-001	02/20/2013 12:25	Water

Specific Conductivity - EPA 120.1		Batch 02EC13F				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
806462-001 Specific Conductivity	umhos/cm	02/22/2013	1.00	0.116	2.00	7110

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate

Lab ID = 806462-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	7120	7110	0.140	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	701	706	99.3	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	687	706	97.3	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	936	998	93.8	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

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Printed 3/5/2013

Chrome VI by EPA 218.6

Batch 02CrH13Q

Table with 7 columns: Parameter, Unit, Analyzed, DF, MDL, RL, Result. Row 1: 806462-001 Chromium, Hexavalent, ug/L, 02/21/2013 15:00, 5.00, 0.0460, 1.0, ND

Method Blank

Table with 4 columns: Parameter, Unit, DF, Result. Row 1: Chromium, Hexavalent, ug/L, 1.00, ND

Duplicate

Lab ID = 806432-005

Table with 7 columns: Parameter, Unit, DF, Result, Expected, RPD, Acceptance Range. Row 1: Chromium, Hexavalent, ug/L, 1.00, 18.3, 18.7, 1.98, 0 - 20

Low Level Calibration Verification

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Row 1: Chromium, Hexavalent, ug/L, 1.00, 0.188, 0.200, 94.2, 70 - 130

Lab Control Sample

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Row 1: Chromium, Hexavalent, ug/L, 1.00, 4.91, 5.00, 98.2, 90 - 110

Matrix Spike

Lab ID = 806330-004

Table with 7 columns: Parameter, Unit, DF, Result, Expected/Added, Recovery, Acceptance Range. Row 1: Chromium, Hexavalent, ug/L, 5.00, 4.74, 5.00(5.00), 94.7, 90 - 110

Matrix Spike

Lab ID = 806330-004

Table with 7 columns: Parameter, Unit, DF, Result, Expected/Added, Recovery, Acceptance Range. Row 1: Chromium, Hexavalent, ug/L, 1.00, 0.911, 1.00(1.00), 91.1, 90 - 110

Matrix Spike

Lab ID = 806431-011

Table with 7 columns: Parameter, Unit, DF, Result, Expected/Added, Recovery, Acceptance Range. Row 1: Chromium, Hexavalent, ug/L, 1.00, 1.92, 1.98(1.00), 94.7, 90 - 110

Matrix Spike

Lab ID = 806432-001

Table with 7 columns: Parameter, Unit, DF, Result, Expected/Added, Recovery, Acceptance Range. Row 1: Chromium, Hexavalent, ug/L, 1.00, 1.95, 1.97(1.00), 97.8, 90 - 110

Matrix Spike

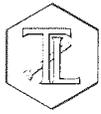
Lab ID = 806432-002

Table with 7 columns: Parameter, Unit, DF, Result, Expected/Added, Recovery, Acceptance Range. Row 1: Chromium, Hexavalent, ug/L, 1.00, 1.85, 1.93(1.00), 92.0, 90 - 110

Matrix Spike

Lab ID = 806432-003

Table with 7 columns: Parameter, Unit, DF, Result, Expected/Added, Recovery, Acceptance Range. Row 1: Chromium, Hexavalent, ug/L, 1.00, 1.36, 1.40(1.00), 96.6, 90 - 110



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 456827.01.DM

Printed 3/5/2013

Matrix Spike

Lab ID = 806432-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.65	1.72(1.00)	93.7	90 - 110

Matrix Spike

Lab ID = 806433-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	7.68	8.00(5.00)	93.7	90 - 110

Matrix Spike

Lab ID = 806433-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.52	9.96(5.00)	91.3	90 - 110

Matrix Spike

Lab ID = 806462-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.76	5.07(5.00)	93.8	90 - 110

Matrix Spike

Lab ID = 806462-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.02	1.06(1.00)	95.8	90 - 110

MRCSS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.92	5.00	98.4	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.62	10.0	96.2	95 - 105

MRCVS - Primary

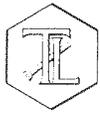
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.65	10.0	96.5	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.76	10.0	97.6	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



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 456827.01.DM

Printed 3/5/2013

Metals by EPA 200.8, Total

Batch 022513A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806462-001 Chromium	ug/L	02/25/2013 13:18	2.00	0.184	1.0	ND
Manganese	ug/L	02/25/2013 13:18	2.00	0.172	0.50	4.4

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 = 806462-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	2.00	ND	0	0	0 - 20
Uranium	ug/L	2.00	2.41	2.37	1.72	0 - 20
Manganese	ug/L	2.00	4.80	4.44	7.85	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
Uranium	ug/L	1.00	0.199	0.200	99.5	70 - 130
Manganese	ug/L	1.00	0.194	0.200	97.0	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
Uranium	ug/L	2.00	50.1	50.0	100	85 - 115
Manganese	ug/L	2.00	49.1	50.0	98.2	85 - 115

Matrix Spike

Lab ID = 806462-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	51.5	50.0(50.0)	103	75 - 125
Uranium	ug/L	2.00	53.5	52.4(50.0)	102	75 - 125
Manganese	ug/L	2.00	54.8	54.4(50.0)	101	75 - 125

Matrix Spike Duplicate

Lab ID = 806462-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	51.8	50.0(50.0)	104	75 - 125
Uranium	ug/L	2.00	52.2	52.4(50.0)	99.6	75 - 125
Manganese	ug/L	2.00	55.0	54.4(50.0)	101	75 - 125



Client: E2 Consulting Engineers, Inc.

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

Page 8 of 9
Printed 3/5/2013

Total Dissolved Solids by SM 2540 C

Batch 02TDS13F

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806462-001 Total Dissolved Solids	mg/L	02/22/2013	1.00	0.757	250	4550

Method Blank

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

Duplicate

Lab ID = 806432-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	274	277	1.09	0 - 10

Duplicate

Lab ID = 806462-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	4650	4550	2.17	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Dissolved Solids	mg/L	1.00	507	500	101	90 - 110

Turbidity by SM 2130 B

Batch 02TUC13L

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806462-001 Turbidity	NTU	02/21/2013	1.00	0.0140	0.100	ND

Method Blank

Parameter	Unit	DF	Result
Turbidity	NTU	1.00	ND

Duplicate

Lab ID = 806462-001

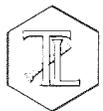
Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Turbidity	NTU	1.00	ND	0	0	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	8.27	8.00	103	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



TRUESDAIL LABORATORIES, INC.

Report Continued

Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Page 9 of 9

Project Number: 456827.01.DM

Printed 3/5/2013

Respectfully submitted,

TRUESDAIL LABORATORIES, INC.

for 
Mona Nassimi
Manager, Analytical Services



ed

Total Dissolved Solids by SM 2540 C

Calculations

Batch: 02TDS13F
Date Analyzed: 2/22/13

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	77.5486	77.5492	77.5492	0.0000	No	0.0006	6.0	25.0	ND	1
806431-1	50	51.4287	51.5716	51.5712	0.0004	No	0.1425	2850.0	50.0	2850.0	1
806431-2	50	51.8554	51.9876	51.9876	0.0000	No	0.1322	2644.0	50.0	2644.0	1
806431-3	50	52.0407	52.1711	52.1708	0.0003	No	0.1301	2602.0	50.0	2602.0	1
806431-4	50	50.5044	50.6501	50.6499	0.0002	No	0.1455	2910.0	50.0	2910.0	1
806431-5	50	50.6974	50.8312	50.8308	0.0004	No	0.1334	2668.0	50.0	2668.0	1
806431-6	20	51.0517	51.1580	51.1576	0.0004	No	0.1059	5295.0	125.0	5295.0	1
806431-7	20	49.3478	49.4448	49.4448	0.0000	No	0.0970	4850.0	125.0	4850.0	1
806431-8	50	51.8008	51.9357	51.9353	0.0004	No	0.1345	2690.0	50.0	2690.0	1
806431-9	20	50.7292	50.8078	50.8078	0.0000	No	0.0786	3930.0	125.0	3930.0	1
806432-1	100	74.6693	74.697	74.697	0.0000	No	0.0277	277.0	25.0	277.0	1
806432-1D	100	73.1760	73.2034	73.2034	0.0000	No	0.0274	274.0	25.0	274.0	1
LCS	100	78.6121	78.6629	78.6628	0.0001	No	0.0507	507.0	25.0	507.0	1
806432-2	100	66.7024	66.7345	66.7342	0.0003	No	0.0318	318.0	25.0	318.0	1
806432-3	100	77.9903	78.0256	78.0256	0.0000	No	0.0353	353.0	25.0	353.0	1
806432-4	100	77.7777	77.8109	77.8108	0.0001	No	0.0331	331.0	25.0	331.0	1
806432-5	50	50.8333	50.8936	50.8932	0.0004	No	0.0599	1198.0	50.0	1198.0	1
806433-3	50	50.5563	50.6092	50.6093	-0.0001	No	0.0530	1060.0	50.0	1060.0	1
806433-4	50	48.0240	48.0865	48.0865	0.0000	No	0.0625	1250.0	50.0	1250.0	1
806461-1	10	51.8906	51.9902	51.9899	0.0003	No	0.0993	9930.0	250.0	9930.0	1
806461-2	20	46.9784	47.0385	47.0381	0.0004	No	0.0597	2985.0	125.0	2985.0	1
806461-3	20	50.4012	50.4697	50.4697	0.0000	No	0.0685	3425.0	125.0	3425.0	1
806462	10	51.4556	51.5014	51.5011	0.0003	No	0.0455	4550.0	250.0	4550.0	1
806462D	10	51.9353	51.9821	51.9818	0.0003	No	0.0465	4650.0	250.0	4650.0	1

Calculation as follows:

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

Where:

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

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

Laboratory Control Sample (LCS) Summary

QC Std I.D.	Measured Value, ppm	Theoretical Value, ppm	Percent Rec	Acceptance Limit	QC Within Control?
LCS1	507	500	101.4%	90-110%	Yes
LCS2					

LCS Recovery

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

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

Duplicate Determinations Difference Summary

Lab Number	Sample Weight, g	Sample Dup Weight, g	% RPD	Acceptance Limit	QC Within Control?
806432-1	0.0277	0.0274	0.5%	≤5%	Yes
806462	0.0455	0.0465	1.1%	5%	Yes

Duplicate Determination Difference

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

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

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

Jenny T.

Analyst Printed Name

Jenny T.
Analyst Signature

Maksim G.

Reviewer Printed Name

Maksim G.
Reviewer Signature

Total Dissolved Solids by SM 2540 C

TDS/EC CHECK

Batch: 02TDS13F
Date Analyzed: 2/22/13

Laboratory Number	EC	TDS/EC Ratio: 0.55-9	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
806431-1	3750	0.76	2437.5	1.17
806431-2	3510	0.75	2281.5	1.16
806431-3	3680	0.71	2392	1.09
806431-4	3770	0.77	2450.5	1.19
806431-5	3500	0.76	2275	1.17
806431-6	6310	0.84	4101.5	1.29
806431-7	5830	0.83	3789.5	1.28
806431-8	3550	0.76	2307.5	1.17
806431-9	5110	0.77	3321.5	1.18
806432-1	441	0.63	286.65	0.97
806432-1D	441	0.62	286.65	0.96
LCS				
806432-2	477	0.67	310.05	1.03
806432-3	510	0.69	331.5	1.06
806432-4	480	0.69	312	1.06
806432-5	1825	0.66	1186.25	1.01
806433-3	1527	0.69	992.55	1.07
806433-4	1705	0.73	1108.25	1.13
806461-1	11820	0.84	7683	1.29
806461-2	3700	0.81	2405	1.24
806461-3	4270	0.80	2775.5	1.23
806462	7110	0.64	4621.5	0.98
806462D	7110	0.65	4621.5	1.01





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-401]

806462

COC Number

TURNAROUND TIME **10** Days

DATE **02/20/13** 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	DATE 02/20/13	TIME 1221												
SAMPLERS (SIGNATURE) 	DESCRIPTION Water	DATE 02/20/13	TIME 1221												
SAMPLE I.D. SC-700B-WDR-401	DATE 02/20/13	TIME 1221	DESCRIPTION Water												
<table border="1"> <tr> <th>Cr6 (218.6) Lab Filtered</th> <th>Total Metals (200.7) Cr, Mn</th> <th>Specific Conductance (120.7)</th> <th>TDS (SM2540C)</th> <th>Turbidity (SM2130)</th> <th>COMMENTS</th> </tr> <tr> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td></td> </tr> </table>				Cr6 (218.6) Lab Filtered	Total Metals (200.7) Cr, Mn	Specific Conductance (120.7)	TDS (SM2540C)	Turbidity (SM2130)	COMMENTS	X	X	X	X	X	
Cr6 (218.6) Lab Filtered	Total Metals (200.7) Cr, Mn	Specific Conductance (120.7)	TDS (SM2540C)	Turbidity (SM2130)	COMMENTS										
X	X	X	X	X											
<table border="1"> <tr> <td>3</td> <td colspan="4">PH = 6 (200.7)</td> </tr> <tr> <td>3</td> <td colspan="4">TOTAL NUMBER OF CONTAINERS</td> </tr> </table>					3	PH = 6 (200.7)				3	TOTAL NUMBER OF CONTAINERS				
3	PH = 6 (200.7)														
3	TOTAL NUMBER OF CONTAINERS														

**ALERT !!
Level III QC**

Sample Conditions
Form Attached

CHAIN OF CUSTODY SIGNATURE RECORD

Signature (Relinquished) 	Printed Name JADE	Company/ Agency E2	Date/ Time 2-20-13 1330	SAMPLE CONDITIONS RECEIVED COOL <input checked="" type="checkbox"/> WARM <input type="checkbox"/> CUSTODY SEALED YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>
Signature (Received) 	Printed Name Rafael Davila	Company/ Agency T.H.-I	Date/ Time 2-20-13 15:30	
Signature (Relinquished) 	Printed Name Rafael Davila	Company/ Agency T.H.-I	Date/ Time 2-20-13 21:30	
Signature (Received) 	Printed Name Allyssa	Company/ Agency T.H.-I	Date/ Time 2/20/13 21:30	
Signature (Relinquished) 	Printed Name Allyssa	Company/ Agency T.H.-I	Date/ Time 2/20/13 21:30	
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
2/21/13	806461-4	7	2ml/100mL	9.5	9:00 AM	TM
	-5	7			9:00 AM	TM
	-6				9:05 AM	TM
	-7				9:05 AM	TM
	-8				9:05 AM	TM
	-9				9:10 AM	TM
	-10				9:10 AM	TM
	-11				9:15 AM	TM
	-12				9:15 AM	TM
	-13				9:19 AM	TM
	-14				9:20 AM	TM
	-15				9:20 AM	TM
2/21/13	806462	7	2ml/100mL	9.5	N/A 9:20 AM	TM
2/21/13	806463-1	9.5	N/A	N/A	N/A	TM
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
	-13					
	-14					
2/21/13	806464-1	9.5	N/A	N/A	N/A	TM
	-2					
	-3					
	-4					

TM
2/25/13

TM
02/26/13



TRUESDAIL LABORATORIES, INC.

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
806309	<1	<2	2/14/13	ES	yes			
806312	↓	↓	↓	↓	↓			
806313	↓	↓	↓	↓	↓			
806314	↓	↓	↓	↓	↓			
806315	↓	↓	↓	↓	↓			
806369	>1	<2	2-19-13	BE	yes			
806370	↓	↓	↓	↓	↓			
806371	↓	↓	↓	↓	↓			
806372	↓	↓	↓	↓	↓			
806373	↓	↓	↓	↓	↓			
806374	↓	↓	↓	↓	↓			
806375	↓	↓	↓	↓	↓			
806376	↓	↓	↓	↓	↓			
8063900 (1-2)	↓	↓	↓	↓	↓			
8063405	↓	↓	↓	↓	↓			
8063406	↓	↓	↓	↓	↓			
8063401	↓	>2	↓	↓	↓		10 AM	
806411	>1	<2	↓	↓	↓			
806416 (1-2,4)	<1	>2	↓	↓	NO	1:300		
806427L (1-3,4)	<1	>2	2-20-13	BE	NO	8:00		
806433(1-4)	<1	<2	↓	↓	yes			
806431(10-11)	↓	>2	↓	↓	↓		11:00	Acidified metal part
806432(1-5)	↓	<2	↓	↓	↓			
806461(4-15)	<1	>2	2-21-13	BE	yes			Acid after filter
806462 (+ 3/8-14)	↓	>2	↓	↓	↓		13:AM	
806463(1-3,8-14)	↓	<2	↓	↓	↓			
806464(1-8)	↓	↓	↓	↓	↓			
806465(1-10)	↓	↓	↓	↓	↓			
806467(1-5)	↓	↓	↓	↓	↓			
806440	<1	>2	2/21/13	DC	yes			
806456(10-12)	<1	>2	2/21/13	ES	NO	15:00		
806454(1-3)	↓	↓	↓	↓	↓	↓		
806438(1-4)	>1	<2	↓	↓	yes			
806441	↓	↓	↓	↓	↓			
806442	↓	↓	↓	↓	↓			
806443	↓	↓	↓	↓	↓			
806444	↓	↓	↓	↓	↓			
806445	↓	↓	↓	↓	↓			
806468	↓	↓	↓	↓	↓			
806474	↓	↓	↓	↓	↓			
806469-2	SLUDGE		↓	↓	↓			
806482(1-2)	>1	<2	2/25/13	DC	yes			
806486	>1	<2	↓	↓	↓			
806522(1-4)	<1	>2	↓	↓	NO	14:15	1-26-13	pH < 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.



Sample Integrity & Analysis Discrepancy Form

Client: E 2

Lab # 806462

Date Delivered: 02/20/13 Time: 2:30 By: Mail Field Service Client

1. Was a Chain of Custody received and signed? Yes No N/A
2. Does Customer require an acknowledgement of the COC? Yes No N/A
3. Are there any special requirements or notes on the COC? Yes No N/A
4. If a letter was sent with the COC, does it match the COC? Yes No N/A
5. Were all requested analyses understood and acceptable? Yes No N/A
6. Were samples received in a chilled condition?
Temperature (if yes)? 3.9 °C Yes No N/A
7. Were samples received intact
(i.e. broken bottles, leaks, air bubbles, etc..)? Yes No N/A
8. Were sample custody seals intact? Yes No N/A
9. Does the number of samples received agree with COC? Yes No N/A
10. Did sample labels correspond with the client ID's? Yes No N/A
11. Did sample labels indicate proper preservation?
Preserved (if yes) by: Truesdail Client Yes No N/A
12. Were samples pH checked? pH = See C.O.C. Yes No N/A
13. Were all analyses within holding time at time of receipt?
If not, notify Project Manager. Yes No N/A
14. Have Project due dates been checked and accepted?
Turn Around Time (TAT): RUSH Std Yes No N/A
15. **Sample Matrix:** Liquid Drinking Water Ground Water Waste Water
 Sludge Soil Wipe Paint Solid Other Water

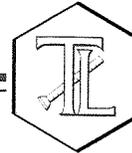
16. Comments: _____

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

ALERT !!
Level III QC

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING



Established 1931

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

March 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-402 PROJECT, GROUNDWATER
MONITORING, TLI NO.: 806552

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-402 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 February 26, 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.

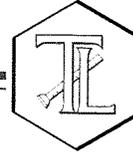
Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

for 
Mona Nassimi
Manager, Analytical Services


Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING



Established 1931

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

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

Laboratory No.: 806552

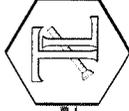
Date: March 8, 2013

Collected: February 26, 2013

Received: February 26, 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	Bitra Emami
EPA 218.6	Hexavalent Chromium	Rozita Bahramzad / Tom Martinez

**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.:** 806552**Date Received:** February 26, 2013

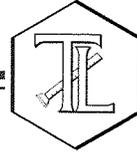
Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
806552-001	SC-700B-WDR-402	E120.1	NONE	2/26/2013	11:30	EC	7080	umhos/cm	2.00
806552-001	SC-700B-WDR-402	E200.8	NONE	2/26/2013	11:30	Chromium	ND	ug/L	1.0
806552-001	SC-700B-WDR-402	E200.8	NONE	2/26/2013	11:30	Manganese	4.2	ug/L	0.50
806552-001	SC-700B-WDR-402	E218.6	LABFLT	2/26/2013	11:30	Chromium, Hexavalent	ND	ug/L	0.20
806552-001	SC-700B-WDR-402	SM2130B	NONE	2/26/2013	11:30	Turbidity	ND	NTU	0.100
806552-001	SC-700B-WDR-402	SM2540C	NONE	2/26/2013	11:30	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. 806552

Page 1 of 8

Printed 3/8/2013

Samples Received on 2/26/2013 9:30:00 PM

Field ID	Lab ID	Collected	Matrix
SC-700B-WDR-402	806552-001	02/26/2013 11:30	Water

Specific Conductivity - EPA 120.1

Batch 02EC13I

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806552-001 Specific Conductivity	umhos/cm	02/28/2013	1.00	0.116	2.00	7080

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate

Lab ID = 806552-001

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

Lab Control Sample

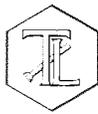
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	693	706	98.2	90 - 110

MRCCS - Secondary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	972	998	97.4	90 - 110



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 456827.01.DM

Printed 3/8/2013

Chrome VI by EPA 218.6

Batch 03CrH13B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806552-001 Chromium, Hexavalent	ug/L	03/05/2013 15:10	1.00	0.00920	0.20	ND

Method Blank

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

Duplicate

Lab ID = 806465-009

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	14.6	14.6	0.112	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	4.87	5.00	97.4	90 - 110

Matrix Spike

Lab ID = 806465-001

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 = 806465-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	7.59	7.69(5.00)	98.0	90 - 110

Matrix Spike

Lab ID = 806465-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.990	1.00(1.00)	99.0	90 - 110

Matrix Spike

Lab ID = 806465-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	7.58	7.71(5.00)	97.3	90 - 110

Matrix Spike

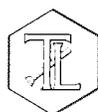
Lab ID = 806465-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.03	28.0	27.9(15.0)	101	90 - 110

Matrix Spike

Lab ID = 806465-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.02	35.5	35.6(20.0)	99.4	90 - 110

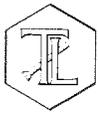


Client: E2 Consulting Engineers, Inc.

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

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Table with 7 columns: Parameter, Unit, DF, Result, Expected/Added, Recovery, Acceptance Range. Multiple rows for Chromium, Hexavalent with Matrix Spike labels and Lab IDs ranging from 806465-007 to 806554-003.



Report Continued

Client: E2 Consulting Engineers, Inc.

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

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Printed 3/8/2013

Metals by EPA 200.8, Total

Batch 030413A

Table with 7 columns: Parameter, Unit, Analyzed, DF, MDL, RL, Result. Rows include Chromium and Manganese with their respective units and results.

Method Blank

Table with 4 columns: Parameter, Unit, DF, Result. Rows for Chromium and Manganese showing ND results.

Duplicate

Lab ID = 806552-001

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

Low Level Calibration Verification

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

Lab Control Sample

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Rows for Chromium and Manganese lab control samples.

Matrix Spike

Lab ID = 806552-001

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

Matrix Spike Duplicate

Lab ID = 806552-001

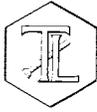
Table with 7 columns: Parameter, Unit, DF, Result, Expected/Added, Recovery, Acceptance Range. Rows for Chromium and Manganese matrix spike duplicate testing.

MRCCS - Secondary

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Rows for Chromium and Manganese MRCCS secondary testing.

MRCVS - Primary

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Rows for Chromium and Manganese MRCVS primary testing.



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 456827.01.DM

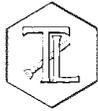
Printed 3/22/2013

Revised

Total Dissolved Solids by SM 2540 C		Batch 03TDS13A				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
806552-001 Total Dissolved Solids	mg/L	03/04/2013	1.00	0.757	250	4190
Method Blank						
Parameter	Unit	DF	Result			
Total Dissolved Solids	mg/L	1.00	ND			
Duplicate						Lab ID = 806552-001
Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	4370	4190	4.20	0 - 10
Lab Control Sample						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Dissolved Solids	mg/L	1.00	497	500	99.4	90 - 110

Turbidity by SM 2130 B		Batch 02TUC130				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
806552-001 Turbidity	NTU	02/27/2013	1.00	0.0140	0.100	ND
Method Blank						
Parameter	Unit	DF	Result			
Turbidity	NTU	1.00	ND			
Duplicate						Lab ID = 806552-001
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	7.87	8.00	98.4	90 - 110
Lab Control Sample Duplicate						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	7.65	8.00	95.6	90 - 110

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



TRUESDAIL LABORATORIES, INC.

Report Continued

Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 456827.01.DM

Printed 3/8/2013

Respectfully submitted,

TRUESDAIL LABORATORIES, INC.

for 
Mona Nassimi
Manager, Analytical Services



ed

Total Dissolved Solids by SM 2540 C

Calculations

Batch: 03TDS13A
Date Analyzed: 3/4/13

Table with 12 columns: 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. Rows include Blank, 806552, 806589-1, 806589-2, 806619, 806620-2, 806620-4, 806552D, and LCS.

Calculation as follows:

Filterable residue (TDS), mg/L = ((A - B) / C) 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

Table with 6 columns: QC Std I.D., Measurd Value, ppm, Theoretical Value, ppm, Percent Rec, Acceptance Limit, QC Within Control?. Rows include LCS1 and LCSD.

LCS Recovery

P = (LC / LT) x 100

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

Duplicate Determinations Difference Summary

Table with 6 columns: Lab Number, Sample Weight, g, Sample Dup Weight, g, % RPD, Acceptance Limit, QC Within Control?. Row includes 806552.

Duplicate Determination Difference

% Difference = (|A - B| / C) x 100

where C = (A + B) / 2

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

Jenny T.

Analyst Printed Name

Analyst Signature

Maksim G.

Reviewer Printed Name

Reviewer Signature

Total Dissolved Solids by SM 2540 C

TDS/EC CHECK

Batch: 03TDS13A
Date Analyzed: 3/4/13

Laboratory Number	EC	TDS/EC Ratio: 0.55-9	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
806552	7080	0.59	4602	0.91
806589-1	3550	0.63	2307.5	0.97
806589-2	3980	0.61	2587	0.94
806619	860	0.67	559	1.04
806620-2	155	0.56	100.75	0.87
806620-4	515	0.58	334.75	0.89
806552D	7080	0.62	4602	0.95
LCS				

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CHAIN OF CUSTODY RECORD
 [IM3Plant-WDR-402]

COC Number _____
 TURNAROUND TIME 10 Days
 DATE 02/26/13 PAGE 1 OF 1

806 552

COMPANY <u>E2</u>	PROJECT NAME <u>PG&E Topock</u>	PHONE <u>(530) 229-3303</u>	FAX <u>(530) 339-3303</u>
ADDRESS <u>155 Grand Ave Site 1000 Oakland, CA 94612</u>	P.O. NUMBER <u>456827.01.DM</u>	TEAM <u>1</u>	
SAMPLERS (SIGNATURE) <u>[Signature]</u>	DATE <u>02/26/13</u>	TIME <u>11:50</u>	DESCRIPTION <u>Water</u>
SAMPLE I.D. <u>SC-700B-WDR-402</u>			

NUMBER OF CONTAINERS	COMMENTS
<u>3</u>	<u>PH = 6 (200.7)</u>
<u>3</u>	TOTAL NUMBER OF CONTAINERS

<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>
Cr6 (218.6) Lab Filtered	Total Metals (200.7) Cr, Mn	Specific Conductance (120.1)	TDS (SM2540C)	Turbidity (SM2130)		

ALERT !!
Level III QC

For Sample Conditions
 See Form Attached

CHAIN OF CUSTODY SIGNATURE RECORD				SAMPLE CONDITIONS			
Signature (Relinquished)	Printed Name	Company/ Agency	Date/ Time	RECEIVED	COOL <input checked="" type="checkbox"/>	WARM <input type="checkbox"/>	<u>3.8</u> °F
<u>[Signature]</u>	<u>Chris Kim</u>	<u>CH2M Hill</u>	<u>2-26-13 15:50</u>	CUSTODY SEALED	YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>	
Signature (Received)	Printed Name	Company/ Agency	Date/ Time	SPECIAL REQUIREMENTS:			
<u>[Signature]</u>	<u>Rafael Davila</u>	<u>T.L.I</u>	<u>2-26-13 15:30</u>				
Signature (Relinquished)	Printed Name	Company/ Agency	Date/ Time				
<u>[Signature]</u>	<u>Rafael Davila</u>	<u>T.L.I</u>	<u>2-26-13 21:30</u>				
Signature (Received)	Printed Name	Company/ Agency	Date/ Time				
<u>[Signature]</u>	<u>Michelle</u>	<u>T.L.I</u>	<u>2/26/13 21:50</u>				
Signature (Relinquished)	Printed Name	Company/ Agency	Date/ Time				
<u>[Signature]</u>							
Signature (Received)	Printed Name	Company/ Agency	Date/ Time				
<u>[Signature]</u>							

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
2/21/13	806464-5	9.5	N/A	N/A	N/A	TM
	-6	↓	↓	↓	↓	↓
	-7	↓	↓	↓	↓	↓
	-8	↓	↓	↓	↓	↓
2/21/13	806465-1	9.5	N/A	N/A	N/A	TM
	-2	↓	↓	↓	↓	↓
	-3	↓	↓	↓	↓	↓
	-4	↓	↓	↓	↓	↓
	-5	↓	↓	↓	↓	↓
	-6	↓	↓	↓	↓	↓
	-7	↓	↓	↓	↓	↓
	-8	↓	↓	↓	↓	↓
	-9	↓	↓	↓	↓	↓
	-10	↓	↓	↓	↓	↓
2/27/13	806552-	7	2 mL	9.5	10:15	RB
2/27/13	806553-1	9.5	N/A	N/A	N/A	RB
	-2	↓	↓	↓	↓	↓
	-3	↓	↓	↓	↓	↓
	-4	↓	↓	↓	↓	↓
2/27/13	806554-1	9.5	N/A	N/A	N/A	RB
	-2	↓	↓	↓	↓	↓
	-3	↓	↓	↓	↓	↓
	-4	↓	↓	↓	↓	↓
2/27/13	806555-1	9.5	N/A	N/A	N/A	RB
	-2	↓	↓	↓	↓	↓
	-3	↓	↓	↓	↓	↓
	-4	↓	↓	↓	↓	↓
	-5	↓	↓	↓	↓	↓
	-6	↓	↓	↓	↓	↓
	-7	↓	↓	↓	↓	↓
	-8	↓	↓	↓	↓	↓


 03/06/13 RB
 2/6/13



Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
806497(1,2)	<1	<2	2/25/13	DC	yes			
806520	>1	<2						
806493(1-5)	>1	<2						
806494(1-5)	>1	<2						
806552	<1	>2	2-27-13	BE	yes	11:00		
806553(1-4)		<2						
806554(1-4)								
806555(1,4-7)								
806542(1-3)		>2			no	12:00	2/28/13 @ 15:35	
806545								
806537	<1	<2		DC	yes			
806565	<1	>2			yes	14:00	2/28/13 @ 15:30	
806562(1-14)	<1	>2	2/28/13	ES	no	9:30	3/1/13 @ 16:20	pH < 2
806567(10-12)								
806570(1-2)	>1	>2			yes			
806572(1-2)	>1	<2			yes			
806586(1,2)	<1	>2		DC	yes	15:30		
806617	>1	<2	3/4/13	DC	yes			
806632(1-12)	<1		3-5-13	BE				
806633(1-10)								
806634(1,3-6)								
806635(1-5, 8-14)								
806620(1-2, 4)	<1	>2	3/5/13	ES	no	12:00		
806627(16, 23)								
806625		>2			yes			
806626								
806686(1-2, 5, 12)	<1	<2	3-6-13	BE	yes			
806669(1-2)		>2						Lab pH Adjusted
806670(1-2)								
806679(1-5)		<2						
806643	>1	<2		DC	yes			
806651	<1							
806688	>1	>2				12:30		
806667	<1	>2		BE	no	14:00		
806631(1-3)						15:00		
806694(10-12)								
806682(4-6)								
806650	<1	<2	3/4/13	DC	yes			
806649								
806648								
806647								
806646								
806652								
806671								

Notes:

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



Sample Integrity & Analysis Discrepancy Form

Client: E 2

Lab # 806552

Date Delivered: 02/26/13 Time: 11:30 By: Mail Field Service Client

1. Was a Chain of Custody received and signed? Yes No N/A
2. Does Customer require an acknowledgement of the COC? Yes No N/A
3. Are there any special requirements or notes on the COC? Yes No N/A
4. If a letter was sent with the COC, does it match the COC? Yes No N/A
5. Were all requested analyses understood and acceptable? Yes No N/A
6. Were samples received in a chilled condition?
Temperature (if yes)? 3.8 °C Yes No N/A
7. Were samples received intact
(i.e. broken bottles, leaks, air bubbles, etc..)? Yes No N/A
8. Were sample custody seals intact? Yes No N/A
9. Does the number of samples received agree with COC? Yes No N/A
10. Did sample labels correspond with the client ID's? Yes No N/A
11. Did sample labels indicate proper preservation?
Preserved (if yes) by: Truesdail Client Yes No N/A
12. Were samples pH checked? pH = see c.v. e. Yes No N/A
13. Were all analyses within holding time at time of receipt?
If not, notify Project Manager. Yes No N/A
14. Have Project due dates been checked and accepted?
Turn Around Time (TAT): RUSH Std Yes No N/A
15. **Sample Matrix:** Liquid Drinking Water Ground Water Waste Water
 Sludge Soil Wipe Paint Solid Other Water
16. Comments: _____
17. Sample Check-In completed by Truesdail Log-In/Receiving: Maria Shabunina

ALERT !!
Level III QC

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	2-5-13	1345	2-5-13	14:50	METER #1	2-5-13	00:25	-54.3		7.3

Notes:

SC-700B	2-5-13	1405	2-5-13	1450	METER #1	2-5-13	00:25	-54.3		7.1
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Notes:

SC PE-1	2-5-13	1425	2-5-13	1451	METER #1	2-5-13	00:25	-54.3		7.6
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Notes:

TW-3D	2-5-13	1432	2-5-13	1451	METER #1	2-5-13	00:25	-54.3		7.2
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Notes:

SC-700B	2-12-13	1100	2-12-13	1105	METER #1	2-12-13	0045	-54.2		7.0
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Notes:

SC-700B	2-20-13	1225	2-20-13	1230	METER #1	2-20-13	0945	-53.8		7.2
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Notes:

SC-700-B	2-26-13	11:30	2-26-13	11:35	METER #1	2-26-13	00108	-53.9		7.1
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Notes:

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

TRUESDAIL LABORATORIES, INC.

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Established 1931

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www.truesdail.com

March 29, 2013

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

Dear Mr. Duffy:

SUBJECT: REVISED CASE NARRATIVE PG&E TOPOCK IM3PLANT-WDR-403 PROJECT,
GROUNDWATER MONITORING,
TLI NO.: 806670

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-403 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 March 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.

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

The internal standard for samples SC-700B-WDR-403 and SC-100B-WDR-403 analyzed straight and at a 2x dilution for Total Nickel by EPA 200.8 were outside the recovery limits of 70% - 130% as a result of matrix interference. Therefore, the samples were re-analyzed at a 5x dilution. The internal standard was within acceptable limits for sample SC-700B-WDR-403 but continued to fall outside the recovery limits for sample SC-100B-WDR-403. Sample SC-100B-WDR-403 was re-analyzed at a dilution of 10x and the internal standard was within the acceptable limits. Due to the dilutions, the reporting limits for Total Nickel exceed the Contract Required Detection Limits. All other QA/QC were within acceptable limits.

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

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

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

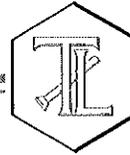

Mona Nassimi
Manager, Analytical Services


Michael Ngo
Quality Assurance/Quality Control Officer

002

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING



Established 1931

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

Attention: Shawn Duffy

Sample: Two (2) Groundwaters

Project Name: PG&E Topock Project

Project No.: 456827.01.DM

14201 FRANKLIN AVENUE
TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462
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Laboratory No.: 806670

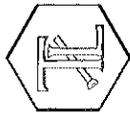
Date: March 29, 2013

Collected: March 5, 2013

Received: March 5, 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	Bitu Emami / Ethel Suico
EPA 218.6	Hexavalent Chromium	Rozita Bahramzad / Tom Martinez



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.: 806670
Date Received: March 5, 2013

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
806670-001	SC-700B-WDR-403	E120.1	NONE	3/5/2013	11:45	EC	7020	umhos/cm	2.00
806670-001	SC-700B-WDR-403	E200.7	NONE	3/5/2013	11:45	Aluminum	ND	ug/L	50.0
806670-001	SC-700B-WDR-403	E200.7	NONE	3/5/2013	11:45	BORON	899	ug/L	200
806670-001	SC-700B-WDR-403	E200.7	NONE	3/5/2013	11:45	Iron	ND	ug/L	20.0
806670-001	SC-700B-WDR-403	E200.7	NONE	3/5/2013	11:45	Zinc	ND	ug/L	20.0
806670-001	SC-700B-WDR-403	E200.8	NONE	3/5/2013	11:45	Antimony	ND	ug/L	2.0
806670-001	SC-700B-WDR-403	E200.8	NONE	3/5/2013	11:45	Arsenic	ND	ug/L	0.50
806670-001	SC-700B-WDR-403	E200.8	NONE	3/5/2013	11:45	Barium	13.2	ug/L	5.0
806670-001	SC-700B-WDR-403	E200.8	NONE	3/5/2013	11:45	Chromium	ND	ug/L	1.0
806670-001	SC-700B-WDR-403	E200.8	NONE	3/5/2013	11:45	Copper	ND	ug/L	5.0
806670-001	SC-700B-WDR-403	E200.8	NONE	3/5/2013	11:45	Lead	ND	ug/L	1.0
806670-001	SC-700B-WDR-403	E200.8	NONE	3/5/2013	11:45	Manganese	1.6	ug/L	0.50
806670-001	SC-700B-WDR-403	E200.8	NONE	3/5/2013	11:45	Molybdenum	17.3	ug/L	2.0
806670-001	SC-700B-WDR-403	E200.8	NONE	3/5/2013	11:45	Nickel	ND	ug/L	10.0
806670-001	SC-700B-WDR-403	E218.6	LABFLT	3/5/2013	11:45	Chromium, Hexavalent	ND	ug/L	0.20
806670-001	SC-700B-WDR-403	E300	NONE	3/5/2013	11:45	Fluoride	2.15	mg/L	0.500
806670-001	SC-700B-WDR-403	E300	NONE	3/5/2013	11:45	Nitrate as N	2.98	mg/L	0.500
806670-001	SC-700B-WDR-403	E300	NONE	3/5/2013	11:45	Sulfate	550	mg/L	50.0
806670-001	SC-700B-WDR-403	SM2130B	NONE	3/5/2013	11:45	Turbidity	ND	NTU	0.100
806670-001	SC-700B-WDR-403	SM2540C	NONE	3/5/2013	11:45	Total Dissolved Solids	4110	mg/L	250
806670-001	SC-700B-WDR-403	SM4500NH3D	NONE	3/5/2013	11:45	Ammonia-N	ND	mg/L	0.500
806670-001	SC-700B-WDR-403	SM4500NO2B	NONE	3/5/2013	11:45	Nitrite as N	ND	mg/L	0.0050



TRUESDAIL LABORATORIES, INC.

Report Continued

Revision 1; March 29, 2013

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
806670-002	SC-100B-WDR-403	E120.1	NONE	3/5/2013	11:45	EC	7440	umhos/cm	2.00
806670-002	SC-100B-WDR-403	E200.7	NONE	3/5/2013	11:45	Aluminum	ND	ug/L	50.0
806670-002	SC-100B-WDR-403	E200.7	NONE	3/5/2013	11:45	BORON	937	ug/L	200
806670-002	SC-100B-WDR-403	E200.7	LABFLT	3/5/2013	11:45	Iron	ND	ug/L	20.0
806670-002	SC-100B-WDR-403	E200.7	NONE	3/5/2013	11:45	Iron	ND	ug/L	20.0
806670-002	SC-100B-WDR-403	E200.7	NONE	3/5/2013	11:45	Zinc	ND	ug/L	20.0
806670-002	SC-100B-WDR-403	E200.8	NONE	3/5/2013	11:45	Antimony	ND	ug/L	2.0
806670-002	SC-100B-WDR-403	E200.8	NONE	3/5/2013	11:45	Arsenic	3.2	ug/L	0.50
806670-002	SC-100B-WDR-403	E200.8	NONE	3/5/2013	11:45	Barium	25.3	ug/L	5.0
806670-002	SC-100B-WDR-403	E200.8	NONE	3/5/2013	11:45	Chromium	693	ug/L	2.0
806670-002	SC-100B-WDR-403	E200.8	NONE	3/5/2013	11:45	Copper	ND	ug/L	5.0
806670-002	SC-100B-WDR-403	E200.8	NONE	3/5/2013	11:45	Lead	ND	ug/L	1.0
806670-002	SC-100B-WDR-403	E200.8	LABFLT	3/5/2013	11:45	Manganese	4.9	ug/L	0.50
806670-002	SC-100B-WDR-403	E200.8	NONE	3/5/2013	11:45	Manganese	4.5	ug/L	0.50
806670-002	SC-100B-WDR-403	E200.8	NONE	3/5/2013	11:45	Molybdenum	18.8	ug/L	2.0
806670-002	SC-100B-WDR-403	E200.8	NONE	3/5/2013	11:45	Nickel	ND	ug/L	20.0
806670-002	SC-100B-WDR-403	E218.6	LABFLT	3/5/2013	11:45	Chromium, Hexavalent	723	ug/L	10.0
806670-002	SC-100B-WDR-403	E300	NONE	3/5/2013	11:45	Fluoride	2.51	mg/L	0.500
806670-002	SC-100B-WDR-403	E300	NONE	3/5/2013	11:45	Nitrate as N	3.34	mg/L	0.500
806670-002	SC-100B-WDR-403	E300	NONE	3/5/2013	11:45	Sulfate	551	mg/L	25.0
806670-002	SC-100B-WDR-403	SM2130B	NONE	3/5/2013	11:45	Turbidity	0.160	NTU	0.100
806670-002	SC-100B-WDR-403	SM2320B	NONE	3/5/2013	11:45	Alkalinity	143	mg/L	5.00
806670-002	SC-100B-WDR-403	SM2320B	NONE	3/5/2013	11:45	Alkalinity, Bicarbonate (As CaCO3)	143	mg/L	5.00
806670-002	SC-100B-WDR-403	SM2320B	NONE	3/5/2013	11:45	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
806670-002	SC-100B-WDR-403	SM2540C	NONE	3/5/2013	11:45	Total Dissolved Solids	4580	mg/L	250
806670-002	SC-100B-WDR-403	SM4500NH3D	NONE	3/5/2013	11:45	Ammonia-N	ND	mg/L	0.500
806670-002	SC-100B-WDR-403	SM4500NO2B	NONE	3/5/2013	11:45	Nitrite as N	ND	mg/L	0.0050
806670-002	SC-100B-WDR-403	SM4500-PB_E	NONE	3/5/2013	11:45	Total Phosphorous-P	ND	mg/L	0.0200
806670-002	SC-100B-WDR-403	SM4500Si	NONE	3/5/2013	11:45	Soluble Silica	21.2	mg/L	2.00
806670-002	SC-100B-WDR-403	SM5310C	NONE	3/5/2013	11:45	Total Organic Carbon	0.302	mg/L	0.300

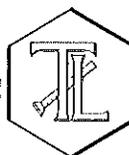
ND: Non Detected (below reporting limit)
mg/L: Milligrams per liter.

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.

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

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING



Established 1931

14201 FRANKLIN AVENUE
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(714) 730-6239 · FAX (714) 730-6462
www.truesdail.com

REPORT

Client: E2 Consulting Engineers, Inc.

155 Grand Avenue, Suite 800

Oakland, CA 94612

Attention: Shawn Duffy

Project Name: PG&E Topock Project

Project Number: 456827.01.DM

P.O. Number: 456827.01.DM

Release Number:

Laboratory No. 806670

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Printed 3/29/2013

Samples Received on 3/5/2013 10:30:00 PM

Field ID	Lab ID	Collected	Matrix
SC-700B-WDR-403	806670-001	03/05/2013 11:45	Water
SC-100B-WDR-403	806670-002	03/05/2013 11:45	Water

Anions By I.C. - EPA 300.0

Batch 03AN13D

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806670-001 Fluoride	mg/L	03/06/2013 11:22	5.00	0.104	0.500	2.15
Nitrate as Nitrogen	mg/L	03/06/2013 11:22	5.00	0.0415	0.500	2.98
Sulfate	mg/L	03/06/2013 12:08	100	3.07	50.0	550
806670-002 Fluoride	mg/L	03/06/2013 11:33	5.00	0.104	0.500	2.51
Nitrate as Nitrogen	mg/L	03/06/2013 11:33	5.00	0.0415	0.500	3.34
Sulfate	mg/L	03/06/2013 12:42	50.0	1.54	25.0	551

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 = 806670-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Sulfate	mg/L	100	546	550	0.689	0 - 20

Duplicate Lab ID = 806670-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Fluoride	mg/L	5.00	2.74	2.51	8.65	0 - 20
Nitrate as Nitrogen	mg/L	5.00	3.16	3.34	5.44	0 - 20



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 456827.01.DM

Printed 3/29/2013

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	20.6	20.0	103	90 - 110
Nitrate as Nitrogen	mg/L	1.00	4.07	4.00	102	90 - 110

Matrix Spike

Lab ID = 806670-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Sulfate	mg/L	100	1060	1050(500)	102	85 - 115

Matrix Spike

Lab ID = 806670-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Fluoride	mg/L	5.00	23.6	22.5(20.0)	106	85 - 115
Nitrate as Nitrogen	mg/L	5.00	22.8	23.3(20.0)	97.2	85 - 115

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Fluoride	mg/L	1.00	4.15	4.00	104	90 - 110
Sulfate	mg/L	1.00	20.6	20.0	103	90 - 110
Nitrate as Nitrogen	mg/L	1.00	4.06	4.00	102	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Fluoride	mg/L	1.00	3.20	3.00	107	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
Fluoride	mg/L	1.00	3.17	3.00	106	90 - 110
Sulfate	mg/L	1.00	15.5	15.0	103	90 - 110

MRCVS - Primary

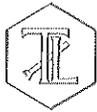
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrate as Nitrogen	mg/L	1.00	3.02	3.00	100	90 - 110

MRCVS - Primary

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

MRCVS - Primary

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



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 456827.01.DM

Printed 3/29/2013

Nitrite SM 4500-NO2 B

Batch 03NO213D

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806670-001 Nitrite as Nitrogen	mg/L	03/06/2013 14:28	1.00	0.000630	0.0050	ND
806670-002 Nitrite as Nitrogen	mg/L	03/06/2013 14:29	1.00	0.000630	0.0050	ND

Method Blank

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

Duplicate

Lab ID = 806670-002

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	0.0278	0.0280	99.3	90 - 110

Matrix Spike

Lab ID = 806670-002

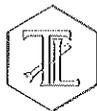
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Nitrite as Nitrogen	mg/L	1.00	0.0294	0.0280(0.0280)	105	85 - 115

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	0.0201	0.0200	100	90 - 110



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 456827.01.DM

Printed 3/29/2013

Alkalinity by SM 2320B

Batch 03ALK13B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806670-002 Alkalinity as CaCO3	mg/L	03/06/2013	1.00	0.555	5.00	143
Bicarbonate (Calculated)	mg/L	03/06/2013	1.00	0.555	5.00	143
Carbonate (Calculated)	mg/L	03/06/2013	1.00	0.555	5.00	ND

Method Blank

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

Duplicate

Lab ID = 806668-007

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Alkalinity as CaCO3	mg/L	1.00	126	126	0	0 - 20

Lab Control Sample

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

Lab Control Sample Duplicate

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

Matrix Spike

Lab ID = 806670-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Alkalinity as CaCO3	mg/L	1.00	246	243(100)	103	75 - 125



Client: E2 Consulting Engineers, Inc.

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

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Printed 3/29/2013

Specific Conductivity - EPA 120.1

Batch 03EC13C

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806670-001 Specific Conductivity	umhos/cm	03/06/2013	1.00	0.116	2.00	7020
806670-002 Specific Conductivity	umhos/cm	03/06/2013	1.00	0.116	2.00	7440

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate

Lab ID = 806668-012

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	874	874	0	0 - 10

Duplicate

Lab ID = 806670-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	7440	7440	0	0 - 10

Lab Control Sample

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

Lab Control Sample Duplicate

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

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	707	706	100	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	964	998	96.6	90 - 110

MRCVS - Primary

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



Client: E2 Consulting Engineers, Inc.

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

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Printed 3/29/2013

Chrome VI by EPA 218.6

Batch 03CrH13E

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806670-002 Chromium, Hexavalent	ug/L	03/08/2013 20:55	50.0	0.460	10.0	723

Method Blank

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

Duplicate

Lab ID = 806632-007

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	500	7470	7410	0.776	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	4.86	5.00	97.3	90 - 110

Matrix Spike

Lab ID = 806632-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.982	1.00(1.00)	98.2	90 - 110

Matrix Spike

Lab ID = 806632-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.16	1.17(1.00)	99.2	90 - 110

Matrix Spike

Lab ID = 806632-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	100	4500	4580(2000)	96.0	90 - 110

Matrix Spike

Lab ID = 806632-007

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	500	15100	14900(7500)	103	90 - 110

Matrix Spike

Lab ID = 806632-009

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.03	1.02(1.00)	101	90 - 110

Matrix Spike

Lab ID = 806632-010

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.982	1.00(1.00)	98.2	90 - 110



Client: E2 Consulting Engineers, Inc.

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

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Printed 3/29/2013

Matrix Spike							Lab ID = 806632-011
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range	
Chromium, Hexavalent	ug/L	1.00	1.02	1.00(1.00)	102	90 - 110	
Matrix Spike							Lab ID = 806632-012
Chromium, Hexavalent	ug/L	1.00	0.988	1.00(1.00)	98.8	90 - 110	
Matrix Spike							Lab ID = 806669-001
Chromium, Hexavalent	ug/L	1.00	16.6	16.5(10.0)	101	90 - 110	
Matrix Spike							Lab ID = 806670-002
Chromium, Hexavalent	ug/L	50.0	1490	1470(750)	102	90 - 110	
MRCCS - Secondary							
Chromium, Hexavalent	ug/L	1.00	4.87	5.00	97.4	90 - 110	
MRCVS - Primary							
Chromium, Hexavalent	ug/L	1.00	10.0	10.0	100	95 - 105	
MRCVS - Primary							
Chromium, Hexavalent	ug/L	1.00	10.1	10.0	101	95 - 105	
MRCVS - Primary							
Chromium, Hexavalent	ug/L	1.00	10.2	10.0	102	95 - 105	
MRCVS - Primary							
Chromium, Hexavalent	ug/L	1.00	10.2	10.0	102	95 - 105	



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Chrome VI by EPA 218.6

Batch 03CrH13P

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806670-001 Chromium, Hexavalent	ug/L	03/27/2013 13:03	1.00	0.00920	0.20	ND

Method Blank

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

Duplicate

Lab ID = 807068-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.0735	0.0805	9.09	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.213	0.200	106	70 - 130

Lab Control Sample

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

Matrix Spike

Lab ID = 806670-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.04	1.08(1.00)	95.8	90 - 110

Matrix Spike

Lab ID = 807068-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.04	1.08(1.00)	95.5	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.92	5.00	98.5	90 - 110

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.92	10.0	99.2	95 - 105



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Metals by EPA 200.7, Total

Batch 031313A-Th2

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806670-001 Iron	ug/L	03/13/2013 13:53	1.00	9.50	20.0	ND
Zinc	ug/L	03/13/2013 13:53	1.00	7.00	20.0	ND
806670-002 Iron	ug/L	03/13/2013 14:36	1.00	9.50	20.0	ND
Zinc	ug/L	03/13/2013 14:36	1.00	7.00	20.0	ND

Method Blank

Parameter	Unit	DF	Result
Iron	ug/L	1.00	ND
Zinc	ug/L	1.00	ND

Duplicate

Lab ID = 806670-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
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
Iron	ug/L	1.00	54.3	50.0	109	85 - 115
Zinc	ug/L	1.00	53.6	50.0	107	85 - 115

Matrix Spike

Lab ID = 806670-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	45.7	50.0(50.0)	91.4	75 - 125
Zinc	ug/L	1.00	55.6	50.0(50.0)	111	75 - 125

Matrix Spike Duplicate

Lab ID = 806670-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	45.1	50.0(50.0)	90.2	75 - 125
Zinc	ug/L	1.00	54.7	50.0(50.0)	109	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5080	5000	102	95 - 105
Zinc	ug/L	1.00	5260	5000	105	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	4910	5000	98.3	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	4880	5000	97.6	90 - 110



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Metals by EPA 200.7, Total

Batch 031513A-Th2

Table with 7 columns: Parameter, Unit, Analyzed, DF, MDL, RL, Result. Rows include Aluminum and Boron for samples 806670-001 and 806670-002.

Method Blank

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

Duplicate

Lab ID = 806670-002

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

Lab Control Sample

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

Matrix Spike

Lab ID = 806670-002

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

Matrix Spike Duplicate

Lab ID = 806670-002

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

MRCCS - Secondary

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

MRCVS - Primary

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Row for Aluminum.

MRCVS - Primary

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Row for Aluminum.

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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Metals by EPA 200.8, Total

Batch 031513A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806670-001 Antimony	ug/L	03/15/2013 11:59	1.00	0.332	2.0	ND
Arsenic	ug/L	03/15/2013 11:59	1.00	0.100	0.50	ND
Barium	ug/L	03/15/2013 11:59	1.00	0.188	5.0	13.2
Chromium	ug/L	03/15/2013 12:53	1.00	0.0920	1.0	ND
Copper	ug/L	03/15/2013 11:59	1.00	0.257	5.0	ND
Lead	ug/L	03/15/2013 11:59	1.00	0.0740	1.0	ND
Manganese	ug/L	03/15/2013 11:59	1.00	0.0860	0.50	1.6
Molybdenum	ug/L	03/15/2013 11:59	1.00	0.207	2.0	17.3
806670-002 Antimony	ug/L	03/15/2013 12:41	1.00	0.332	2.0	ND
Arsenic	ug/L	03/15/2013 12:41	1.00	0.100	0.50	3.2
Barium	ug/L	03/15/2013 12:41	1.00	0.188	5.0	25.3
Chromium	ug/L	03/15/2013 12:41	10.0	0.920	2.0	693
Copper	ug/L	03/15/2013 12:41	1.00	0.257	5.0	ND
Lead	ug/L	03/15/2013 12:41	1.00	0.0740	1.0	ND
Manganese	ug/L	03/15/2013 12:41	1.00	0.0860	0.50	4.5
Molybdenum	ug/L	03/15/2013 12:41	1.00	0.207	2.0	18.8

Method Blank

Parameter	Unit	DF	Result
Arsenic	ug/L	1.00	ND
Barium	ug/L	1.00	ND
Chromium	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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Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	0.141	0.200	70.5	70 - 130
Barium	ug/L	1.00	0.447	0.500	89.4	70 - 130
Chromium	ug/L	1.00	0.246	0.200	123	70 - 130
Antimony	ug/L	1.00	1.87	2.00	93.6	70 - 130
Copper	ug/L	1.00	1.63	2.00	81.6	70 - 130
Lead	ug/L	1.00	0.197	0.200	98.5	70 - 130
Manganese	ug/L	1.00	0.439	0.500	87.8	70 - 130
Molybdenum	ug/L	1.00	0.459	0.500	91.8	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	49.6	50.0	99.1	85 - 115
Barium	ug/L	1.00	48.6	50.0	97.1	85 - 115
Chromium	ug/L	1.00	50.4	50.0	101	85 - 115
Antimony	ug/L	1.00	49.7	50.0	99.5	85 - 115
Copper	ug/L	1.00	51.0	50.0	102	85 - 115
Lead	ug/L	1.00	49.2	50.0	98.4	85 - 115
Manganese	ug/L	1.00	50.3	50.0	100	85 - 115
Molybdenum	ug/L	1.00	49.5	50.0	98.9	85 - 115

Matrix Spike

Lab ID = 806670-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	1.00	50.0	50.0(50.0)	100	75 - 125
Barium	ug/L	1.00	60.5	63.2(50.0)	94.6	75 - 125
Chromium	ug/L	1.00	49.3	50.0(50.0)	98.5	75 - 125
Antimony	ug/L	1.00	47.0	50.0(50.0)	93.9	75 - 125
Copper	ug/L	1.00	45.6	50.0(50.0)	91.1	75 - 125
Lead	ug/L	1.00	42.3	50.0(50.0)	84.6	75 - 125
Manganese	ug/L	1.00	50.7	51.6(50.0)	98.2	75 - 125
Molybdenum	ug/L	1.00	65.6	67.3(50.0)	96.7	75 - 125



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Matrix Spike Duplicate

Lab ID = 806670-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	1.00	49.1	50.0(50.0)	98.1	75 - 125
Barium	ug/L	1.00	61.0	63.2(50.0)	95.6	75 - 125
Chromium	ug/L	1.00	47.8	50.0(50.0)	95.5	75 - 125
Antimony	ug/L	1.00	47.8	50.0(50.0)	95.6	75 - 125
Copper	ug/L	1.00	44.1	50.0(50.0)	88.2	75 - 125
Lead	ug/L	1.00	42.4	50.0(50.0)	84.9	75 - 125
Manganese	ug/L	1.00	49.3	51.6(50.0)	95.4	75 - 125
Molybdenum	ug/L	1.00	66.0	67.3(50.0)	97.4	75 - 125

MRCSS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	20.8	20.0	104	90 - 110
Barium	ug/L	1.00	20.2	20.0	101	90 - 110
Chromium	ug/L	1.00	20.7	20.0	104	90 - 110
Antimony	ug/L	1.00	19.8	20.0	99.2	90 - 110
Copper	ug/L	1.00	21.0	20.0	105	90 - 110
Lead	ug/L	1.00	20.3	20.0	102	90 - 110
Manganese	ug/L	1.00	20.6	20.0	103	90 - 110
Molybdenum	ug/L	1.00	20.1	20.0	101	90 - 110

MRCVS - Primary

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

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	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	20.7	20.0	104	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Barium	ug/L	1.00	21.5	20.0	108	90 - 110



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Serial Dilution

Lab ID = 806670-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Barium	ug/L	5.00	25.1	25.3	0.802	0 - 10
Chromium	ug/L	50.0	699	693	0.816	0 - 10



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Metals by EPA 200.8, Total

Batch 032113A-ICPMS-1

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806670-001 Nickel	ug/L	03/21/2013 11:46	5.00	3.93	10.0	ND
806670-002 Nickel	ug/L	03/21/2013 13:54	10.0	7.86	20.0	ND

Method Blank

Parameter	Unit	DF	Result
Nickel	ug/L	1.00	ND

Duplicate

Lab ID = 806670-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Nickel	ug/L	5.00	ND	0	0	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nickel	ug/L	1.00	1.90	2.00	94.9	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nickel	ug/L	1.00	51.0	50.0	102	85 - 115

Matrix Spike

Lab ID = 806670-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Nickel	ug/L	5.00	44.1	50.0(50.0)	88.1	75 - 125

MRCSS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nickel	ug/L	1.00	19.9	20.0	99.4	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nickel	ug/L	1.00	19.5	20.0	97.4	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nickel	ug/L	1.00	19.2	20.0	96.0	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nickel	ug/L	1.00	19.7	20.0	98.5	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	20.3	20.0	102	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nickel	ug/L	1.00	20.1	20.0	100	80 - 120

Reactive Silica by SM4500-Si D

Batch 03Si13A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806670-002 Silica	mg/L	03/08/2013	50.0	0.505	2.00	21.2

Method Blank

Parameter	Unit	DF	Result
Silica	mg/L	1.00	ND

Duplicate

Lab ID = 806670-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Silica	mg/L	50.0	19.7	21.2	7.53	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Silica	mg/L	1.00	0.194	0.206	94.1	90 - 110

Matrix Spike

Lab ID = 806714-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Silica	mg/L	1.00	0.170	0.206(0.206)	82.5	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Silica	mg/L	1.00	0.194	0.206	94.1	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Silica	mg/L	1.00	0.361	0.400	90.3	90 - 110



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Total Dissolved Solids by SM 2540 C

Batch 03TDS13B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806670-001 Total Dissolved Solids	mg/L	03/06/2013	1.00	0.757	250	4110
806670-002 Total Dissolved Solids	mg/L	03/06/2013	1.00	0.757	250	4580

Method Blank

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

Duplicate

Lab ID = 806670-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	4710	4580	2.80	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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Total Organic Carbon (T/DOC) SM 5310 C

Batch 03TOC13A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806670-002 Total Organic Carbon	mg/L	03/06/2013 12:26	1.00	0.0309	0.300	0.302

Method Blank

Parameter	Unit	DF	Result
Total Organic Carbon	mg/L	1.00	ND
Dissolved Organic Carbon	mg/L	1.00	ND

Duplicate

Lab ID = 806670-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Organic Carbon	mg/L	1.00	ND	0.302	0	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Organic Carbon	mg/L	1.00	9.52	10.0	95.2	90 - 110

Matrix Spike

Lab ID = 806670-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Total Organic Carbon	mg/L	1.00	8.20	10.3(10.0)	78.9	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Organic Carbon	mg/L	1.00	10.4	10.0	104	85 - 115

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Organic Carbon	mg/L	1.00	9.34	10.0	93.4	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Organic Carbon	mg/L	1.00	9.07	10.0	90.7	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Organic Carbon	mg/L	1.00	9.48	10.0	94.8	90 - 110



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Total Phosphate, SM 4500-PB,E

Batch 03TP13B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806670-002 Phosphate, Total As P	mg/L	03/06/2013	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 = 806670-002

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	0.0688	0.0650	106	90 - 110

Matrix Spike

Lab ID = 806670-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Phosphate, Total As P	mg/L	1.00	0.0559	0.0650(0.0650)	86.0	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Phosphate, Total As P	mg/L	1.00	0.0688	0.0650	106	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Phosphate, Total As P	mg/L	1.00	0.0666	0.0660	101	90 - 110



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Ammonia Nitrogen by SM4500-NH3D

Batch 03NH313C

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806670-001 Ammonia as N	mg/L	03/08/2013	1.00	0.0318	0.500	ND
806670-002 Ammonia as N	mg/L	03/08/2013	1.00	0.0318	0.500	ND

Method Blank

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

Duplicate

Lab ID = 806670-002

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	7.82	8.00	97.8	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	7.48	8.00	93.5	90 - 110

Matrix Spike

Lab ID = 806670-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	8.34	8.00(8.00)	104	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	5.61	6.00	93.6	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	5.80	6.00	96.6	90 - 110



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Metals by EPA 200.8, Dissolved

Batch 031513A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806670-002 Manganese	ug/L	03/15/2013 14:24	1.00	0.0420	0.50	4.9

Method Blank

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

Duplicate

Lab ID = 806668-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	1.00	ND	0	0	0 - 20
Manganese	ug/L	1.00	0.567	0.585	3.12	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.246	0.200	123	70 - 130
Manganese	ug/L	1.00	0.439	0.500	87.8	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	50.4	50.0	101	85 - 115
Manganese	ug/L	1.00	50.3	50.0	100	85 - 115

Matrix Spike

Lab ID = 806668-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	1.00	47.4	50.0(50.0)	94.8	75 - 125
Manganese	ug/L	1.00	47.6	50.6(50.0)	94.0	75 - 125

Matrix Spike Duplicate

Lab ID = 806668-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	1.00	47.7	50.0(50.0)	95.5	75 - 125
Manganese	ug/L	1.00	47.9	50.6(50.0)	94.7	75 - 125

MRCSS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.7	20.0	104	90 - 110
Manganese	ug/L	1.00	20.6	20.0	103	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.8	20.0	104	90 - 110



Report Continued

Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project
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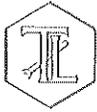
Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	19.9	20.0	99.5	80 - 120

Serial Dilution

Lab ID = 806670-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	50.0	699	693	0.816	0 - 10



Client: E2 Consulting Engineers, Inc.

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Metals by 200.7, Dissolved

Batch 031213A-Th2

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806670-002 Iron	ug/L	03/12/2013 18:24	1.00	9.50	20.0	ND

Method Blank

Parameter	Unit	DF	Result
Iron	ug/L	1.00	ND

Duplicate

Lab ID = 806668-001

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

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	52.3	50.0	105	85 - 115

Matrix Spike

Lab ID = 806668-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	53.3	50.0(50.0)	107	75 - 125

Matrix Spike Duplicate

Lab ID = 806668-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	50.0	50.0(50.0)	100	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	4930	5000	98.6	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	4780	5000	95.5	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	4750	5000	95.0	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	4760	5000	95.2	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	4730	5000	94.7	90 - 110



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Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2000	2000	100.	80 - 120

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	1980	2000	98.8	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	1980	2000	99.0	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	1990	2000	99.7	80 - 120

Turbidity by SM 2130 B

Batch 03TUC13C

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806670-001 Turbidity	NTU	03/06/2013	1.00	0.0140	0.100	ND
806670-002 Turbidity	NTU	03/06/2013	1.00	0.0140	0.100	0.160

Method Blank

Parameter	Unit	DF	Result
Turbidity	NTU	1.00	ND

Duplicate

Lab ID = 806670-001

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	7.99	8.00	99.9	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	8.12	8.00	102	90 - 110



TRUESDAIL LABORATORIES, INC.

Report Continued

Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Respectfully submitted,

TRUESDAIL LABORATORIES, INC.

for 

Mona Nassimi

Manager, Analytical Services



Total Dissolved Solids by SM 2540 C

Calculations

Batch: 03TDS13B
Date Analyzed: 3/6/13

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	75.2726	75.2726	75.2726	0.0000	No	0.0000	0.0	25.0	ND	1
806627	50	76.7671	76.801	76.801	0.0000	No	0.0339	678.0	50.0	678.0	1
806669-1	20	47.8554	47.9122	47.9119	0.0003	No	0.0565	2825.0	125.0	2825.0	1
806669-2	10	49.4982	49.5514	49.5511	0.0003	No	0.0529	5290.0	250.0	5290.0	1
806670-1	10	49.1798	49.221	49.2209	0.0001	No	0.0411	4110.0	250.0	4110.0	1
806670-2	10	50.7475	50.7937	50.7933	0.0004	No	0.0458	4580.0	250.0	4580.0	1
806682-7	100	74.1501	74.1850	74.1848	0.0002	No	0.0347	347.0	25.0	347.0	1
806695-1	100	66.7983	66.8252	66.8248	0.0004	No	0.0265	265.0	25.0	265.0	1
MDL5	1000	110.7246	110.7279	110.7278	0.0001	No	0.0032	3.2	2.5	3.2	1
MDL6	1000	110.9390	110.9407	110.9407	0.0000	No	0.0017	1.7	2.5	ND	1
MDL7	1000	109.8982	109.9003	109.9002	0.0001	No	0.0020	2.0	2.5	ND	1
806670-2D	10	48.5475	48.5946	48.5946	0.0000	No	0.0471	4710.0	250.0	4710.0	1
LCS	100	78.3693	78.4205	78.4203	0.0002	No	0.0510	510.0	25.0	510.0	1

Calculation as follows:

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

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

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

Laboratory Control Sample (LCS) Summary

QC Std ID.	Measured Value, ppm	Theoretical Value, ppm	Percent Rec	Acceptance Limit	QC Within Control?
LCS1	510	500	102.0%	90-110%	Yes
LCS2					

LCS Recovery

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

where
 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?
806670-2	0.0458	0.0471	1.4%	≤5%	Yes

Duplicate Determination Difference

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

where
 $C = \frac{A + B}{2}$
 A = Weight of the first sample in (g).
 B = Weight of the second sample in (g).
 C = Average weight in (g).

Jenny T.
Analyst Printed Name

Maksim G.
Reviewer Printed Name

Total Dissolved Solids by SM 2540 C

TDS/EC CHECK

Batch: 03TDS13B
Date Analyzed: 3/6/13

Laboratory Number	EC	TDS/EC Ratio: 0.55-.9	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
806627	1172	0.58	761.8	0.89
806669-1	4450	0.63	2892.5	0.98
806669-2	8240	0.64	5356	0.99
806670-1	6990	0.59	4543.5	0.90
806670-2	7490	0.61	4868.5	0.94
806682-7	581	0.60	377.65	0.92
806695-1	427	0.62	277.55	0.95
MDL5				
MDL6				
MDL7				
806670-2	7490	0.63	4868.5	0.97
LCS				

Alkalinity by SM 2320B

Calculations

Analytical Batch: 03ALK13B
 Matrix: WATER
 Date of Analysis: 3/6/13

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 CaCO3 (ppm)	CO3 Alkalinity as CaCO3 (ppm)	OH Alkalinity as CaCO3 (ppm)	Low Alkalinity as CaCO3 (ppm)
BLANK	6.90	50	0.02	0.00	0.0	0.00		0.0	5	ND	ND	ND	ND	
806688-1	8.19	50	0.02	6.50	0.0	6.50		130.0	5	130.0	130.0	ND	ND	
806688-2	8.23	50	0.02	6.20	0.0	6.20		124.0	5	124.0	124.0	ND	ND	
806688-5	8.22	50	0.02	6.35	0.0	6.35		127.0	5	127.0	127.0	ND	ND	
806688-6	8.22	50	0.02	6.20	0.0	6.20		124.0	5	124.0	124.0	ND	ND	
806688-7	8.20	50	0.02	6.30	0.0	6.30		126.0	5	126.0	126.0	ND	ND	
806688-8	8.19	50	0.02	6.15	0.0	6.15		123.0	5	123.0	123.0	ND	ND	
806688-9	8.19	50	0.02	6.15	0.0	6.15		123.0	5	123.0	123.0	ND	ND	
806688-10	8.19	50	0.02	6.25	0.0	6.25		125.0	5	125.0	125.0	ND	ND	
806688-11	8.28	50	0.02	6.05	0.0	6.05		121.0	5	121.0	121.0	ND	ND	
806688-12	8.28	50	0.02	6.10	0.0	6.10		122.0	5	122.0	122.0	ND	ND	
806688-14	8.20	50	0.02	6.40	0.0	6.40		128.0	5	128.0	128.0	ND	ND	
806670-2	7.64	50	0.02	7.15	0.0	7.15		143.0	5	143.0	143.0	ND	ND	
806682-1	7.85	50	0.02	4.25	0.0	4.25		85.0	5	85.0	85.0	ND	ND	
806688-7 DUP	8.20	50	0.02	6.30	0.0	6.30		126.0	5	126.0	126.0	ND	ND	
806670-2 MS	10.28	50	0.02	1.7	34.0	12.30		246.0	5	246.0	178.0	88	ND	
LCS	10.32	50	0.02	2.3	45.0	4.95		99.0	5	99.0	9.0	90	ND	
LCSD	10.32	50	0.02	2.2	44.0	5.00		100.0	5	100.0	12.0	88	ND	

Calculations as follows: $T \text{ or } P = \left(\frac{A \times N \times 50000}{\text{mL sample}} \right)$ **Low Alkalinity: =** $(2 \times B - C) \times N \times 50000$ mL sample

Where:
 T = Total Alkalinity, mg CaCO3/L
 P = Phenolphthalein Alkalinity, mg CaCO3/L
 A = mL standard acid used
 N = normality of standard acid
 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 ID	Measured Value, ppm	Theoretical Value, ppm	% Recovery	Acceptance Limit	QC Within Control?
LCS	99	100	99.0%	90-110	Yes
LCSD	100	100	100.0%	90-110	Yes

Sample Matrix Spike (MS/MSD) Summary

Lab Number	Conc of Unspk spl	Dil Factor	Added Spk Conc	MS/MSD Amt	MS/MSD % Rec	Theor Conc of Spk Spl	Measrd Conc of Spk Spl
806670-2	143	1	100	100	103%	243.00	246

Duplicate Determination Difference Summary

Lab Number ID	Measured Value, ppm	Dup Value, ppm	RPD	Acceptance Limit	QC Within Control?
806688-7	126	126	0.0%	20%	Yes

Melissa S.
 Analyst Printed Name

Maksim G.
 Reviewer Printed Name

[Signature]
 Reviewer Signature

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
3/5/13	806635-9	9.5	N/A	N/A	N/A	RM
	-10					
	-11					
	-12					
	-13					
	-14					
	-15					
3/6/13	803668-1	9.5	N/A	N/A	N/A	RM
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
	-13					
	-14					
	-15					
	-16					
3/6/13	806669-1	7.0	2mL/100mL	9.5	10:20	RM
	-2					
3/6/13	806670-1	7.0	2mL/100mL	9.5	16:20	RM
	-2					
3/6/13	806673	9.5	N/A	N/A	N/A	RM
3/6/13	806696-1	7.0	2mL/100mL	9.5	15:45	RM
	-2		2mL/100mL			RM


 03/14/13
 RM
 3/12/13



Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
806497(1,2)	<1	<2	2/25/13	DC	yes			
806520	>1	<2	↓	↓	↓			
806493(1-5)	>1	<2	↓	↓	↓			
806494(1-5)	>1	<2	↓	↓	↓			
806552	<1	>2	2-27-13	BE	yes	11:00		
806553(1-4)	↓	<2	↓	↓	↓			
806554(1-4)	↓	↓	↓	↓	↓			
806555(1-4)	↓	↓	↓	↓	↓			
806542(1-3)	↓	>2			no	12:00	2/28/13 @ 15:35	
806545	↓	↓			↓		↓	
806537	<1	<2	↓	DC	yes			
806565	<1	>2	↓	↓	yes	14:00	3/28/13 @ 15:30	
806562(1-1A)	<1	>2	2/28/13	ES	NO	9:30	3/1/13 @ 16:00 pH < 2	
806567(10-12)	↓	↓			↓	↓	↓	↓
806570(1-2)	>1	<2			yes			
806572(1-2)	>1	<2			yes			
806586(1,2)	<1	>2		DC	yes	15:30		
806617	>1	<2	3/4/13	DC	yes			
806632(1-12)	<1	↓	3-5-13	BE	↓			
806633(1-12)	↓	↓	↓	↓	↓			
806634(1-12)	↓	↓	↓	↓	↓			
806635(1-5, 8-14)	↓	↓	↓	↓	↓			
806620(1-2, 4)	<1	>2	3/5/13	ES	NO	12:00		
806627(11, 23)	↓	↓	↓	↓	↓			
806625	↓	<2			yes			
806626	↓	↓			↓			
806688(1-2, 14-16)	<1	<2	3-6-13	BE	yes			
806669(1-2)	↓	>2	↓	↓	↓			Lab Error - Aerial Pond
806670(1-2)	↓	↓	↓	↓	↓			↓
806679(1-5)	↓	<2	↓	↓	↓			
806643	>1	<2		DC	yes			
806651	<1	↓	↓	↓	↓			
806688	>1	>2	↓	↓	↓	12:30		
806667	<1	>2		BE	no	14:00		
806663(1-3)	↓	↓	↓	↓	↓	15:00		
806694(10-12)	↓	↓	↓	↓	↓	15:00		
806682(4-6)	↓	↓	↓	↓	↓	↓		
806650	<1	<2	3/4/13	DC	yes			
806649	↓	↓	↓	↓	↓			
806648	↓	↓	↓	↓	↓			
806647	↓	↓	↓	↓	↓			
806646	↓	↓	↓	↓	↓			
806652	↓	↓	↓	↓	↓			
806671	↓	↓	↓	↓	↓			

Notes:

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



Sample Integrity & Analysis Discrepancy Form

Client: E2

Lab # 806670

Date Delivered: 03/05/13 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?
Temperature (if yes)? 3.2 °C Yes No N/A
7. Were samples received intact
(i.e. broken bottles, leaks, air bubbles, etc..)? Yes No N/A
8. Were sample custody seals intact? Yes No N/A
9. Does the number of samples received agree with COC? Yes No N/A
10. Did sample labels correspond with the client ID's? Yes No N/A
11. Did sample labels indicate proper preservation?
Preserved (if yes) by: Truesdail Client Yes No N/A
12. Were samples pH checked? pH = see p.c.c Yes No N/A
13. Were all analyses within holding time at time of receipt?
If not, notify Project Manager. Yes No N/A
14. Have Project due dates been checked and accepted?
Turn Around Time (TAT): RUSH Std Yes No N/A
15. **Sample Matrix:** Liquid Drinking Water Ground Water Waste Water
 Sludge Soil Wipe Paint Solid Other Water

16. Comments: _____

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

ALERT !!
Level III QC

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING



Established 1931

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

March 22, 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-404 PROJECT, GROUNDWATER MONITORING, TLI NO.: 806826

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-404 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 March 12, 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.

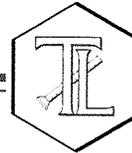
Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

for 
Mona Nassimi
Manager, Analytical Services


Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING



Established 1931

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

14201 FRANKLIN AVENUE
TUSTIN, CALIFORNIA 92780-7008
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Laboratory No.: 806826

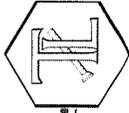
Date: March 22, 2013

Collected: March 12, 2013

Received: March 12, 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	Bitra Emami
EPA 218.6	Hexavalent Chromium	Rozita Bahramzad



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.: 806826
Date Received: March 12, 2013

Analytical Results Summary

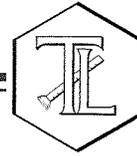
Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
806826-001	SC-700B-WDR-404	E120.1	NONE	3/12/2013	11:30	EC	6880	umhos/cm	2.00
806826-001	SC-700B-WDR-404	E200.8	NONE	3/12/2013	11:30	Chromium	ND	ug/L	1.0
806826-001	SC-700B-WDR-404	E200.8	NONE	3/12/2013	11:30	Manganese	1.6	ug/L	0.50
806826-001	SC-700B-WDR-404	E218.6	LABFLT	3/12/2013	11:30	Chromium, Hexavalent	ND	ug/L	0.20
806826-001	SC-700B-WDR-404	SM2130B	NONE	3/12/2013	11:30	Turbidity	ND	NTU	0.100
806826-001	SC-700B-WDR-404	SM2540C	NONE	3/12/2013	11:30	Total Dissolved Solids	4070	mg/L	250

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

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

TRUESDAIL LABORATORIES, INC.

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

REPORT

Client: E2 Consulting Engineers, Inc.

155 Grand Avenue, Suite 800

Oakland, CA 94612

Attention: Shawn Duffy

Project Name: PG&E Topock Project

Project Number: 456827.01.DM

P.O. Number: 456827.01.DM

Release Number:

Laboratory No. 806826

Page 1 of 9

Printed 3/22/2013

Samples Received on 3/12/2013 9:30:00 PM

Field ID	Lab ID	Collected	Matrix
SC-700B-WDR-404	806826-001	03/12/2013 11:30	Water

Specific Conductivity - EPA 120.1

Batch 03EC13E

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806826-001 Specific Conductivity	umhos/cm	03/13/2013	1.00	0.116	2.00	6880

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate

Lab ID = 806826-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	6890	6880	0.145	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	702	706	99.4	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	940	998	94.2	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	970	998	97.2	90 - 110

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Page 3 of 9

Project Number: 456827.01.DM

Printed 3/22/2013

Chrome VI by EPA 218.6

Batch 03CrH13K

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806826-001 Chromium, Hexavalent	ug/L	03/14/2013 11:33	1.00	0.00920	0.20	ND

Method Blank

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

Duplicate

Lab ID = 806668-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.0336	0.0390	14.9	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.203	0.200	102	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.94	5.00	98.8	90 - 110

Matrix Spike

Lab ID = 806668-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.03	1.04(1.00)	99.7	90 - 110

Matrix Spike

Lab ID = 806668-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.998	1.04(1.00)	96.0	90 - 110

Matrix Spike

Lab ID = 806668-003

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 = 806668-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.964	1.00(1.00)	96.4	90 - 110

Matrix Spike

Lab ID = 806668-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.986	1.03(1.00)	95.5	90 - 110

Matrix Spike

Lab ID = 806668-006

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



TRUESDAIL LABORATORIES, INC.

Report Continued

Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 456827.01.DM

Printed 3/22/2013

Matrix Spike							Lab ID = 806668-007
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range	
Chromium, Hexavalent	ug/L	1.00	0.973	1.03(1.00)	94.0	90 - 110	
Matrix Spike							Lab ID = 806668-008
Chromium, Hexavalent	ug/L	1.00	1.00	1.03(1.00)	96.7	90 - 110	
Matrix Spike							Lab ID = 806668-009
Chromium, Hexavalent	ug/L	1.00	0.978	1.03(1.00)	94.5	90 - 110	
Matrix Spike							Lab ID = 806668-010
Chromium, Hexavalent	ug/L	1.00	1.07	1.03(1.00)	104	90 - 110	
Matrix Spike							Lab ID = 806668-011
Chromium, Hexavalent	ug/L	1.00	0.990	1.03(1.00)	95.7	90 - 110	
Matrix Spike							Lab ID = 806668-012
Chromium, Hexavalent	ug/L	1.00	1.11	1.03(1.00)	108	90 - 110	
Matrix Spike							Lab ID = 806668-013
Chromium, Hexavalent	ug/L	1.00	0.959	1.00(1.00)	95.9	90 - 110	
Matrix Spike							Lab ID = 806668-014
Chromium, Hexavalent	ug/L	1.00	0.988	1.03(1.00)	95.9	90 - 110	
Matrix Spike							Lab ID = 806668-015
Chromium, Hexavalent	ug/L	1.00	0.961	1.01(1.00)	94.7	90 - 110	
Matrix Spike							Lab ID = 806826-001
Chromium, Hexavalent	ug/L	1.00	1.04	1.08(1.00)	96.1	90 - 110	
Matrix Spike							Lab ID = 806826-001
Chromium, Hexavalent	ug/L	5.00	4.80	5.11(5.00)	93.8	90 - 110	
MRCCS - Secondary							
Chromium, Hexavalent	ug/L	1.00	4.97	5.00	99.5	90 - 110	

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Client: E2 Consulting Engineers, Inc.

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

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Printed 3/22/2013

Metals by EPA 200.8, Total

Batch 031913A

Table with 7 columns: Parameter, Unit, Analyzed, DF, MDL, RL, Result. Rows include Chromium and Manganese with their respective units and results.

Method Blank

Table with 4 columns: Parameter, Unit, DF, Result. Rows for Chromium and Manganese showing ND results.

Duplicate

Lab ID = 806826-001

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

Low Level Calibration Verification

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

Lab Control Sample

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Rows for Chromium and Manganese with expected values and recovery.

Matrix Spike

Lab ID = 806826-001

Table with 7 columns: Parameter, Unit, DF, Result, Expected/Added, Recovery, Acceptance Range. Rows for Chromium and Manganese with expected/added values and recovery.

Matrix Spike Duplicate

Lab ID = 806826-001

Table with 7 columns: Parameter, Unit, DF, Result, Expected/Added, Recovery, Acceptance Range. Rows for Chromium and Manganese with expected/added values and recovery.

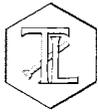
MRCCS - Secondary

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Rows for Chromium and Manganese with expected values and recovery.

MRCVS - Primary

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Row for Chromium with expected value and recovery.

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TRUESDAIL LABORATORIES, INC.

Report Continued

Client: E2 Consulting Engineers, Inc.

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

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Printed 3/22/2013

Interference Check Standard AB

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Row 1: Chromium, ug/L, 1.00, 19.6, 20.0, 98.1, 80 - 120

Interference Check Standard AB

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Row 1: Manganese, ug/L, 1.00, 19.0, 20.0, 95.3, 80 - 120

Interference Check Standard AB

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Row 1: Manganese, ug/L, 1.00, 19.6, 20.0, 98.2, 80 - 120

Total Dissolved Solids by SM 2540 C

Batch 03TDS13E

Table with 7 columns: Parameter, Unit, Analyzed, DF, MDL, RL, Result. Row 1: 806826-001 Total Dissolved Solids, mg/L, 03/14/2013, 1.00, 0.757, 250, 4070

Method Blank

Table with 4 columns: Parameter, Unit, DF, Result. Row 1: Total Dissolved Solids, mg/L, 1.00, ND

Duplicate

Lab ID = 806858-005

Table with 7 columns: Parameter, Unit, DF, Result, Expected, RPD, Acceptance Range. Row 1: Total Dissolved Solids, mg/L, 1.00, 488, 484, 0.823, 0 - 10

Lab Control Sample

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Row 1: Total Dissolved Solids, mg/L, 1.00, 490, 500, 98.0, 90 - 110



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 456827.01.DM

Printed 3/22/2013

Turbidity by SM 2130 B		Batch 03TUC13J				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
806826-001 Turbidity	NTU	03/13/2013	1.00	0.0140	0.100	ND
Method Blank						
Parameter	Unit	DF	Result			
Turbidity	NTU	1.00	ND			
Duplicate						Lab ID = 806826-001
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	7.86	8.00	98.2	90 - 110
Lab Control Sample Duplicate						
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	8.44	8.00	106	90 - 110

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for 
Mona Nassimi
Manager, Analytical Services

ej



Truesdail Laboratories, Inc.

Total Dissolved Solids by SM 2540 C

Calculations

Batch: 03TDS13E
Date Analyzed: 3/14/13

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	77.9922	77.9922	77.9922	0.0000	No	0.0000	0.0	25.0	ND	1
806825	50	52.0416	52.114	52.114	0.0000	No	0.0724	1448.0	50.0	1448.0	1
806826	10	50.7257	50.7664	50.7664	0.0000	No	0.0407	4070.0	250.0	4070.0	1
806858-1	100	70.8884	70.9374	70.9371	0.0003	No	0.0487	487.0	25.0	487.0	1
806858-2	100	78.3952	78.4434	78.4432	0.0002	No	0.0480	480.0	25.0	480.0	1
806858-3	50	68.7696	68.8118	68.8118	0.0000	No	0.0422	844.0	50.0	844.0	1
806858-5	100	75.7554	75.8040	75.8038	0.0002	No	0.0484	484.0	25.0	484.0	1
806845	485	168.6240	168.6268	168.6268	0.0000	No	0.0028	5.8	5.2	5.8	1
MDL Ver@5ppm	1000	104.2317	104.2372	104.2371	0.0001	No	0.0054	5.4	2.5	5.4	1
806858-5D	100	76.3385	76.3874	76.3873	0.0001	No	0.0488	488.0	25.0	488.0	1
LCS	100	66.7032	66.7525	66.7522	0.0003	No	0.0490	490.0	25.0	490.0	1

Calculation as follows:

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

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

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

Laboratory Control Sample (LCS) Summary

QC Std I.D.	Measurd Value, ppm	Theoretical Value, ppm	Percent Rec	Acceptance Limit	QC Within Control?
LCS1	490	500	98.0%	90-110%	Yes
LCS2					

LCS Recovery

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

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

Duplicate Determinations Difference Summary

Lab Number	Sample Weight, g	Sample Dup Weight, g	% RPD	Acceptance Limit	QC Within Control?
806858-5	0.0484	0.0488	0.4%	≤5%	Yes

Duplicate Determination Difference

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

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

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

Jenny T.
Analyst Printed Name

Analyst Signature

Maksim G.
Reviewer Printed Name

Reviewer Signature

Total Dissolved Solids by SM 2540 C

TDS/EC CHECK

Batch: 03TDS13E
Date Analyzed: 3/14/13

Laboratory Number	EC	TDS/EC Ratio: 0.55-.9	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
806825	2009	0.72	1305.85	1.11
806826	6820	0.60	4433	0.92
806858-1	771	0.63	501.15	0.97
806858-2	771	0.62	501.15	0.96
806858-3	1277	0.66	830.05	1.02
806858-5	778	0.62	505.7	0.96
806845	7.43	0.78	4.8295	1.20
MDL Ver@5ppm				
806858-5D	778	0.63	505.7	0.96
LCS				



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 (714) 730-6239 FAX: (714) 730-6462
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CHAIN OF CUSTODY RECORD

[IM3]Plant-WDR-404]

806 826

COC Number

TURNAROUND TIME 10 Days

DATE 03/12/13 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	458827.01.DM	TEAM	1																																																							
SAMPLERS SIGNATURE	<i>Chen</i>																																																									
SAMPLE I.D.	DATE	TIME	DESCRIPTION																																																							
SC-700B-WDR-404	03/12/13	11:30	Water																																																							
<table border="1"> <tr> <td>Cr6 (216) Lab Filtered</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Total Metals (200.7) Cr, Mn</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Specific Conductance (120.1)</td> <td></td> <td></td> <td></td> <td>X</td> <td>X</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>TDS (SM2540C)</td> <td></td> <td></td> <td></td> <td>X</td> <td>X</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Turbidity (SM2130)</td> <td></td> <td></td> <td></td> <td>X</td> <td>X</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>				Cr6 (216) Lab Filtered	X	X	X	X	X						Total Metals (200.7) Cr, Mn	X	X	X	X	X						Specific Conductance (120.1)				X	X						TDS (SM2540C)				X	X						Turbidity (SM2130)				X	X					
Cr6 (216) Lab Filtered	X	X	X	X	X																																																					
Total Metals (200.7) Cr, Mn	X	X	X	X	X																																																					
Specific Conductance (120.1)				X	X																																																					
TDS (SM2540C)				X	X																																																					
Turbidity (SM2130)				X	X																																																					
COMMENTS																																																										
NUMBER OF CONTAINERS																																																										
3																																																										
TOTAL NUMBER OF CONTAINERS																																																										
3																																																										

PM = 6 (2007)

ALERT!!
Level III QC

CHAIN OF CUSTODY SIGNATURE RECORD

Signature (Relinquished)	<i>Chen</i>	Printed Name	Chen Chen	Company/Agency	Ch2em Hill	Date/Time	3-12-13 15:50
Signature (Received)	<i>Rafael Davila</i>	Printed Name	Rafael Davila	Company/Agency	T.H.I	Date/Time	3-12-13 15:30
Signature (Relinquished)	<i>Rafael Davila</i>	Printed Name	Rafael Davila	Company/Agency	T.H.I	Date/Time	3-12-13 21:30
Signature (Received)	<i>Shabirina</i>	Printed Name	Shabirina	Company/Agency	THI	Date/Time	3/12/13 21:30
Signature (Relinquished)		Printed Name		Company/Agency		Date/Time	
Signature (Received)		Printed Name		Company/Agency		Date/Time	

SAMPLE CONDITIONS

RECEIVED COOL WARM YES NO
 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
3/12/13	806790-1	9.5	N/A	N/A	N/A	TM
	-2					
	-3					
	-4					
	-5					
3/12/13	806791-1	9.5	N/A	N/A	N/A	TM
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
3/12/13	806805	7.0	2mL/100mL	9.5	16:50	TM
3/13/13	806824-1	9.0 9.5	N/A	N/A	N/A	TM
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
3/13/13	806825	9.5	N/A	N/A	N/A	TM
3/13/13	806826	7.0	2mL/100mL	9.5	11:10	TM
3/13/13	806827-1	9.5	N/A	N/A	N/A	TM
	-2					
TM	806827 806828-1	9.5	N/A	N/A	N/A	TM
	-2					
	-3					
3/13/13	806829-1	9.5	N/A	N/A	N/A	TM
	-2					

TM
03/18/13

3/18/13



Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
806861	<2	<2	3/14/13	DC	yes			
806862	<1	<2	3/14/13	DC	yes			
806848 (1-2)	<1	>2		BC	no	13:30		
806849 (1-7)	↓	↓	↓	↓	no			
806726 (1-5)	<1	<2	3/8/13	BE	yes			
806826	<1	>2	3/15/13	ES	yes	9:00		
806827 -1	<1	<2	↓	↓	↓			
806828 (1-3)	↓	↓	↓	↓	↓			
806829 (1-4)	↓	↓	↓	↓	↓			
806877 (1-6)	<1	<2	3/19/13	ES	yes			
806908 (1-4)	↓	↓	↓	↓	↓			
806909 (1-12)	↓	↓	↓	↓	↓			
806910 (1-12)	↓	↓	↓	↓	↓			
806933 (1-7)	↓	↓	↓	↓	↓			
806965	<1	>2	3/20/13	ES	yes	9:30		
806966 (1,3)	↓	<2	↓	↓	↓			
806963	<1	>2	3/20/13	DC	NO	12:10		
806918 (1,2,4)	<1	>2	↓	↓	NO	12:10		
806955 (1,2,3)	↓	↓	↓	↓	NO	12:10		
806953 (1,3,4)	↓	↓	↓	↓	NO	↓		
806903	<1	<2	↓	↓	yes			
806904	↓	↓	↓	↓	↓			
806923	↓	↓	↓	↓	↓			
806925	↓	↓	↓	↓	↓			
806926	↓	↓	↓	↓	↓			
806939	↓	↓	↓	↓	↓			
806959	↓	↓	↓	↓	↓			
806960	↓	↓	↓	↓	↓			
806961	↓	↓	↓	↓	↓			
806962	↓	↓	↓	↓	↓			
806963	↓	↓	↓	↓	↓			
806964	>1	↓	↓	↓	↓			
806897	<1	↓	↓	↓	↓			
806899	↓	↓	↓	↓	↓			
806873	>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.



Sample Integrity & Analysis Discrepancy Form

806826

Client: E 2

Lab # _____

Date Delivered: 03/12/13 Time: 2:30 By: Mail Field Service Client

1. Was a Chain of Custody received and signed? Yes No N/A
2. Does Customer require an acknowledgement of the COC? Yes No N/A
3. Are there any special requirements or notes on the COC? Yes No N/A
4. If a letter was sent with the COC, does it match the COC? Yes No N/A
5. Were all requested analyses understood and acceptable? Yes No N/A
6. Were samples received in a chilled condition?
Temperature (if yes)? 3.4 °C Yes No N/A
7. Were samples received intact
(i.e. broken bottles, leaks, air bubbles, etc.)? Yes No N/A
8. Were sample custody seals intact? Yes No N/A
9. Does the number of samples received agree with COC? Yes No N/A
10. Did sample labels correspond with the client ID's? Yes No N/A
11. Did sample labels indicate proper preservation?
Preserved (if yes) by: Truesdail Client Yes No N/A
12. Were samples pH checked? pH = see C.O.C. Yes No N/A
13. Were all analyses within holding time at time of receipt?
If not, notify Project Manager. Yes No N/A
14. Have Project due dates been checked and accepted?
Turn Around Time (TAT): RUSH Std Yes No N/A

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

16. Comments: _____

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

ALERT !!
Level III QC

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING



Established 1931

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

March 29, 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-405 PROJECT, GROUNDWATER
MONITORING, TLI NO.: 806965

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-405 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 March 19, 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.

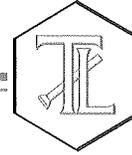
Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

for 
Mona Nassimi
Manager, Analytical Services


Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING



Established 1931

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

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www.truesdail.com

Laboratory No.: 806965

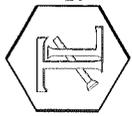
Date: March 29, 2013

Collected: March 19, 2013

Received: March 19, 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	Rozita Bahramzad



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.: 806965
Date Received: March 19, 2013

Analytical Results Summary

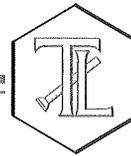
Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
806965-001	SC-700B-WDR-405	E120.1	NONE	3/19/2013	10:00	EC	6790	umhos/cm	2.00
806965-001	SC-700B-WDR-405	E200.8	NONE	3/19/2013	10:00	Chromium	ND	ug/L	1.0
806965-001	SC-700B-WDR-405	E200.8	NONE	3/19/2013	10:00	Manganese	2.4	ug/L	0.50
806965-001	SC-700B-WDR-405	E218.6	LABFLT	3/19/2013	10:00	Chromium, Hexavalent	ND	ug/L	0.20
806965-001	SC-700B-WDR-405	SM2130B	NONE	3/19/2013	10:00	Turbidity	ND	NTU	0.100
806965-001	SC-700B-WDR-405	SM2540C	NONE	3/19/2013	10:00	Total Dissolved Solids	4370	mg/L	25.0

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

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

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REPORT

Client: E2 Consulting Engineers, Inc.

155 Grand Avenue, Suite 800

Oakland, CA 94612

Attention: Shawn Duffy

Project Name: PG&E Topock Project

Project Number: 456827.01.DM

P.O. Number: 456827.01.DM

Release Number:

Laboratory No. 806965

Page 1 of 7

Printed 3/29/2013

Samples Received on 3/19/2013 10:30:00 PM

Field ID	Lab ID	Collected	Matrix
SC-700B-WDR-405	806965-001	03/19/2013 10:00	Water

Specific Conductivity - EPA 120.1

Batch 03EC13G

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806965-001 Specific Conductivity	umhos/cm	03/20/2013	1.00	0.116	2.00	6790

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate

Lab ID = 806965-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	6790	6790	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

MRCCS - Secondary

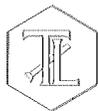
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	694	706	98.3	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	970	998	97.2	90 - 110

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

008



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Page 2 of 7

Project Number: 456827.01.DM

Printed 3/29/2013

Chrome VI by EPA 218.6

Batch 03CrH13N

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806965-001 Chromium, Hexavalent	ug/L	03/20/2013 11:28	1.00	0.00920	0.20	ND

Method Blank

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

Duplicate

Lab ID = 806966-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.534	0.516	3.33	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.206	0.200	103	70 - 130

Lab Control Sample

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

Matrix Spike

Lab ID = 806910-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.19	1.19(1.00)	99.7	90 - 110

Matrix Spike

Lab ID = 806910-012

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	250	9770	9740(5000)	100	90 - 110

Matrix Spike

Lab ID = 806965-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.06	1.00(1.00)	106	90 - 110

Matrix Spike

Lab ID = 806966-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.50	1.52(1.00)	98.3	90 - 110

Matrix Spike

Lab ID = 806966-002

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 = 806966-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.52	1.54(1.00)	98.3	90 - 110



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 456827.01.DM

Printed 3/29/2013

Metals by EPA 200.8, Total

Batch 032213A-ICPMS-1

Parameter	Unit	Analyzed	DF	MDL	RL	Result
806965-001 Chromium	ug/L	03/22/2013 11:49	2.00	0.184	1.0	ND
Manganese	ug/L	03/22/2013 11:49	2.00	0.172	0.50	2.4

Method Blank

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

Duplicate

Lab ID = 806965-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	2.00	ND	0	0	0 - 20
Manganese	ug/L	2.00	2.31	2.37	2.48	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.218	0.200	109	70 - 130
Manganese	ug/L	1.00	0.194	0.200	97.0	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	2.00	46.5	50.0	93.1	85 - 115
Manganese	ug/L	2.00	43.7	50.0	87.4	85 - 115

Matrix Spike

Lab ID = 806965-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	47.0	50.0(50.0)	94.0	75 - 125
Manganese	ug/L	2.00	45.6	52.4(50.0)	86.4	75 - 125

Matrix Spike Duplicate

Lab ID = 806965-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	46.4	50.0(50.0)	92.8	75 - 125
Manganese	ug/L	2.00	45.1	52.4(50.0)	85.5	75 - 125

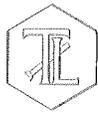
MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.1	20.0	100	90 - 110
Manganese	ug/L	1.00	18.7	20.0	93.6	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.9	20.0	94.6	90 - 110
Manganese	ug/L	1.00	18.6	20.0	92.9	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

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Total Dissolved Solids by SM 2540 C

Batch 03TDS13G

Table with 7 columns: Parameter, Unit, Analyzed, DF, MDL, RL, Result. Row 1: 806965-001 Total Dissolved Solids, mg/L, 03/25/2013, 1.00, 0.757, 25.0, 4370

Method Blank

Table with 4 columns: Parameter, Unit, DF, Result. Row 1: Total Dissolved Solids, mg/L, 1.00, ND

Duplicate

Lab ID = 807023-001

Table with 7 columns: Parameter, Unit, DF, Result, Expected, RPD, Acceptance Range. Row 1: Total Dissolved Solids, mg/L, 1.00, 553, 548, 0.908, 0 - 5

Lab Control Sample

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Row 1: Total Dissolved Solids, mg/L, 1.00, 500, 500, 100, 90 - 110

Turbidity by SM 2130 B

Batch 03TUC13M

Table with 7 columns: Parameter, Unit, Analyzed, DF, MDL, RL, Result. Row 1: 806965-001 Turbidity, NTU, 03/20/2013, 1.00, 0.0140, 0.100, ND

Method Blank

Table with 4 columns: Parameter, Unit, DF, Result. Row 1: Turbidity, NTU, 1.00, ND

Duplicate

Lab ID = 806965-001

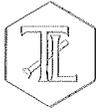
Table with 7 columns: Parameter, Unit, DF, Result, Expected, RPD, Acceptance Range. Row 1: Turbidity, NTU, 1.00, ND, 0, 0, 0 - 20

Lab Control Sample

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Row 1: Turbidity, NTU, 1.00, 7.83, 8.00, 97.9, 90 - 110

Lab Control Sample Duplicate

Table with 7 columns: Parameter, Unit, DF, Result, Expected, Recovery, Acceptance Range. Row 1: Turbidity, NTU, 1.00, 7.80, 8.00, 97.5, 90 - 110



TRUESDAIL LABORATORIES, INC.

Report Continued

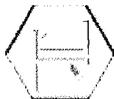
Client: E2 Consulting Engineers, Inc.

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

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Printed 3/29/2013

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for 
Mona Nassimi
Manager, Analytical Services



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

CHAIN OF CUSTODY RECORD

[IM3] Plant-WDR-405

COC Number

TURNAROUND TIME 10 Days

DATE 03/19/13 PAGE 1 OF 1

806 965

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) 	DATE 03/19/13	TIME 10:00	DESCRIPTION Water	C6 (218.6) Lab Filled	X	Total Metals (200.7) Cr, Mn	X	Specific Conductance (120.1)	X	TDS (SM2540C)	X	Turbidity (SM2130)	X	COMMENTS
SC-700B-WDR-405											3		3		DM=6 (200.7)		TOTAL NUMBER OF CONTAINERS				

ALERT!!
Level III QC

For Sample Conditions
See Form Attached

CHAIN OF CUSTODY SIGNATURE RECORD										SAMPLE CONDITIONS				
Signature (Relinquished)	Printed Name	Company/ Agency	Date/ Time	Signature (Received)	Printed Name	Company/ Agency	Date/ Time	Signature (Relinquished)	Printed Name	Company/ Agency	Date/ Time	RECEIVED	COOL	WARM
		OMI	3-19-13 15:30		T.H.I.	Company/ Agency	3-19-13 15:30		T.H.I.	Company/ Agency	3-19-13 22:30	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Signature (Received)	Printed Name	Company/ Agency	Date/ Time	Signature (Relinquished)	Printed Name	Company/ Agency	Date/ Time	Signature (Received)	Printed Name	Company/ Agency	Date/ Time	CUSTODY SEALED	YES	NO
		TLI	3/19/13 21:30			Company/ Agency	3/19/13 21:30			Company/ Agency	3/19/13 21:30	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Signature (Relinquished)	Printed Name	Company/ Agency	Date/ Time	Signature (Received)	Printed Name	Company/ Agency	Date/ Time	SPECIAL REQUIREMENTS:						
		Company/ Agency	Date/ Time			Company/ Agency	Date/ Time							
Signature (Received)	Printed Name	Company/ Agency	Date/ Time											
		Company/ Agency	Date/ Time											



Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
806861	<2	<2	3/14/13	DC	yes			
806862	<1	<2	3/14/13	DC	yes			
806848 (10-12)	<1	>2		BC	NO	13:30		
806849 (1-7)	↓	↓	↓	↓	NO			
806826 (1-5)	<1	<2	3/9/13	BE	yes			
806826	<1	>2	3/15/13	ES	yes	9:00		
806827-1	<1	<2	↓	↓	↓			
806828 (1-3)	↓	↓	↓	↓	↓			
806829 (1-4)	↓	↓	↓	↓	↓			
806877 (1-6)	<1	<2	3/9/13	ES	yes			
806908 (1-4)	↓	↓	↓	↓	↓			
806909 (1-12)	↓	↓	↓	↓	↓			
806910 (1-12)	↓	↓	↓	↓	↓			
806933 (1-7)	↓	↓	↓	↓	↓			
806965	<1	>2	3/20/13	ES	yes	9:30		
806966 (1,3)	↓	<2	↓	↓	↓			
806963	<1	>2	3/20/13	DC	NO	12:10	3/20/13 1:00	pH <2
806918 (1,2,4)	<1	>2	↓	↓	NO	12:10	↓	↓
806958 (1,2,3)	↓	↓	↓	↓	NO	12:10	↓	↓
806953 (1,3,4)	↓	↓	↓	↓	NO	↓	↓	↓
806903	<1	<2	↓	↓	yes			
806904	↓	↓	↓	↓	↓			
806923	↓	↓	↓	↓	↓			
806925	↓	↓	↓	↓	↓			
806926	↓	↓	↓	↓	↓			
806939	↓	↓	↓	↓	↓			
806959	↓	↓	↓	↓	↓			
806960	↓	↓	↓	↓	↓			
806961	↓	↓	↓	↓	↓			
806962	↓	↓	↓	↓	↓			
806963	↓	↓	↓	↓	↓			
806964	>1	↓	↓	↓	↓			
806897	<1	↓	↓	↓	↓			
806899	↓	↓	↓	↓	↓			
806873	>1	<2	↓	↓	↓			
806985	<1	<2	3/21/13	DC	yes			
806999	>1	>2	↓	↓	↓	14:25		
806987	<1	<2	3-22-13	BE	yes			
806982 (1-3)	↓	>2	↓	↓	NO	9:30	3/26/13 10:00	pH <2
806983 (4-10)	↓	↓	↓	↓	↓			
807008	↓	↓	↓	↓	↓			
806994	<1	>2	↓	DC	NO	12:10		
807029 (1-8)	<1	>2	3/22/13	DC	NO	16:05	↓	↓
807011	<1	<2	3/25/13	DC	yes			

Notes:

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



Sample Integrity & Analysis Discrepancy Form

Client: E 2

Lab # 806965

Date Delivered: 03/19/13 Time: 12:30 By: Mail Field Service Client

1. Was a Chain of Custody received and signed? Yes No N/A
2. Does Customer require an acknowledgement of the COC? Yes No N/A
3. Are there any special requirements or notes on the COC? Yes No N/A
4. If a letter was sent with the COC, does it match the COC? Yes No N/A
5. Were all requested analyses understood and acceptable? Yes No N/A
6. Were samples received in a chilled condition?
Temperature (if yes)? 3.2 °C Yes No N/A
7. Were samples received intact
(i.e. broken bottles, leaks, air bubbles, etc.)? Yes No N/A
8. Were sample custody seals intact? Yes No N/A
9. Does the number of samples received agree with COC? Yes No N/A
10. Did sample labels correspond with the client ID's? Yes No N/A
11. Did sample labels indicate proper preservation?
Preserved (if yes) by: Truesdail Client Yes No N/A
12. Were samples pH checked? pH = See C.O.C. Yes No N/A
13. Were all analyses within holding time at time of receipt?
If not, notify Project Manager. Yes No N/A
14. Have Project due dates been checked and accepted?
Turn Around Time (TAT): RUSH Std Yes No N/A

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

16. Comments: _____

17. Sample Check-In completed by Truesdail Log-In/Receiving: [Signature]



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

March 29, 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-406 PROJECT, GROUNDWATER MONITORING, TLI NO.: 807068

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-406 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 March 26, 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.

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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

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Laboratory No.: 807068

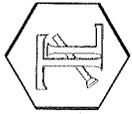
Date: March 29, 2013

Collected: March 26, 2013

Received: March 26, 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



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.: 807068
Date Received: March 26, 2013

Analytical Results Summary

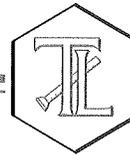
Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
807068-001	SC-700B-WDR-406	E120.1	NONE	3/26/2013	13:15	EC	6740	umhos/cm	2.00
807068-001	SC-700B-WDR-406	E200.8	NONE	3/26/2013	13:15	Chromium	ND	ug/L	1.0
807068-001	SC-700B-WDR-406	E200.8	NONE	3/26/2013	13:15	Manganese	0.97	ug/L	0.50
807068-001	SC-700B-WDR-406	E218.6	LABFLT	3/26/2013	13:15	Chromium, Hexavalent	ND	ug/L	0.20
807068-001	SC-700B-WDR-406	SM2130B	NONE	3/26/2013	13:15	Turbidity	ND	NTU	0.100
807068-001	SC-700B-WDR-406	SM2540C	NONE	3/26/2013	13:15	Total Dissolved Solids	4290	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. 807068

Page 1 of 6

Printed 3/29/2013

Samples Received on 3/26/2013 9:30:00 PM

Field ID	Lab ID	Collected	Matrix
SC-700B-WDR-406	807068-001	03/26/2013 13:15	Water

Specific Conductivity - EPA 120.1

Batch 03EC13J

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807068-001 Specific Conductivity	umhos/cm	03/27/2013	1.00	0.116	2.00	6740

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate

Lab ID = 807068-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	6740	6740	0	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	670	706	94.9	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	658	706	93.2	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	965	998	96.7	90 - 110

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

008



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Page 2 of 6

Project Number: 456827.01.DM

Printed 3/29/2013

Chrome VI by EPA 218.6

Batch 03CrH13P

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807068-001 Chromium, Hexavalent	ug/L	03/27/2013 13:13	1.00	0.00920	0.20	ND

Method Blank

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	ND			
Duplicate						Lab ID = 807068-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.0735	0.0805	9.09	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.213	0.200	106	70 - 130

Lab Control Sample

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

Matrix Spike

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.04	1.08(1.00)	95.8	90 - 110

Matrix Spike

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.04	1.08(1.00)	95.5	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.92	5.00	98.5	90 - 110

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.92	10.0	99.2	95 - 105



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Page 3 of 6

Project Number: 456827.01.DM

Printed 3/29/2013

Metals by EPA 200.8, Total

Batch 032713A-ICPMS-1

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807068-001 Chromium	ug/L	03/27/2013 14:43	2.00	0.184	1.0	ND
Manganese	ug/L	03/27/2013 14:43	2.00	0.172	0.50	0.97

Method Blank

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

Duplicate

Lab ID = 807068-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	2.00	ND	0	0	0 - 20
Manganese	ug/L	2.00	1.00	0.969	3.15	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.230	0.200	115	70 - 130
Manganese	ug/L	1.00	0.199	0.200	99.5	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	2.00	51.4	50.0	103	85 - 115
Manganese	ug/L	2.00	48.6	50.0	97.2	85 - 115

Matrix Spike

Lab ID = 807068-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	42.8	50.0(50.0)	85.7	75 - 125
Manganese	ug/L	2.00	39.8	51.0(50.0)	77.6	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.1	20.0	100	90 - 110
Manganese	ug/L	1.00	18.6	20.0	93.2	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.3	20.0	96.6	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.9	20.0	99.4	90 - 110



Client: E2 Consulting Engineers, Inc.

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

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Total Dissolved Solids by SM 2540 C		Batch 03TDS13H				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
807068-001 Total Dissolved Solids	mg/L	03/27/2013	1.00	0.757	250	4290
Method Blank						
Parameter	Unit	DF	Result			
Total Dissolved Solids	mg/L	1.00	ND			
Duplicate						
Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	4550	4290	5.88	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

Lab ID = 807068-001

Turbidity by SM 2130 B		Batch 03TUC13R				
Parameter	Unit	Analyzed	DF	MDL	RL	Result
807068-001 Turbidity	NTU	03/27/2013	1.00	0.0140	0.100	ND
Method Blank						
Parameter	Unit	DF	Result			
Turbidity	NTU	1.00	ND			
Duplicate						
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	7.68	8.00	96.0	90 - 110



TRUESDAIL LABORATORIES, INC.

Report Continued

Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

Page 6 of 6

Project Number: 456827.01.DM

Printed 3/29/2013

Respectfully submitted,

TRUESDAIL LABORATORIES, INC.

for 

Mona Nassimi

Manager, Analytical Services



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-406]

COC Number
 TURNAROUND TIME 10 Days
 DATE 03/26/13 PAGE 1 OF 1

807068

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 458827.01.DM		TEAM 1	
SAMPLERS (SIGNATURE)		DATE 03/26/13		TIME 13:15		DESCRIPTION Water		C6 (218.6) Lab Filtered		X	
								Total Metals (200.7) Cr, Mn		X	
								Specific Conductance (120.1)		X	
								TDS (SM2540C)		X	
								Turbidity (SM2130)		X	
								NUMBER OF CONTAINERS		3	
								COMMENTS		DH=6 (200.7)	
								TOTAL NUMBER OF CONTAINERS		3	

**ALERT !!
 Level III QC**

For Sample Conditions
 Lab Form Attached

RUSH

CHAIN OF CUSTODY SIGNATURE RECORD				SAMPLE CONDITIONS			
Signature (Relinquished)	Printed Name	Company/ Agency	Date/ Time	RECEIVED	COOL	WARM	4.5 °E
Signature (Received)	Printed Name	Company/ Agency	Date/ Time	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Signature (Relinquished)	Printed Name	Company/ Agency	Date/ Time	CUSTODY SEALED	YES	NO	<input checked="" type="checkbox"/>
Signature (Received)	Printed Name	Company/ Agency	Date/ Time	SPECIAL REQUIREMENTS:			
Signature (Relinquished)	Printed Name	Company/ Agency	Date/ Time				
Signature (Received)	Printed Name	Company/ Agency	Date/ Time				



Sample Integrity & Analysis Discrepancy Form

Client: E2

Lab # 807068

Date Delivered: 03/26/13 Time: 4:30 By: Mail Field Service Client

1. Was a Chain of Custody received and signed? Yes No N/A
2. Does Customer require an acknowledgement of the COC? Yes No N/A
3. Are there any special requirements or notes on the COC? Yes No N/A
4. If a letter was sent with the COC, does it match the COC? Yes No N/A
5. Were all requested analyses understood and acceptable? Yes No N/A
6. Were samples received in a chilled condition?
Temperature (if yes)? 4.3 °C Yes No N/A
7. Were samples received intact
(i.e. broken bottles, leaks, air bubbles, etc.)? Yes No N/A
8. Were sample custody seals intact? Yes No N/A
9. Does the number of samples received agree with COC? Yes No N/A
10. Did sample labels correspond with the client ID's? Yes No N/A
11. Did sample labels indicate proper preservation?
Preserved (if yes) by: Truesdail Client Yes No N/A
12. Were samples pH checked? pH = see c.o.c. Yes No N/A
13. Were all analyses within holding time at time of receipt?
If not, notify Project Manager. Yes No N/A
14. Have Project due dates been checked and accepted?
Turn Around Time (TAT): RUSH Std Yes No N/A
15. **Sample Matrix:** Liquid Drinking Water Ground Water Waste Water
 Sludge Soil Wipe Paint Solid Other Water
16. Comments: _____
17. Sample Check-In completed by Truesdail Log-In/Receiving: Linda

ALERT !!
Level III QC

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
PE-1	3-5-13	10:45	3-5-13	11:00	METER #1	3-5-13	00:45	-53.6	CHRIS LENTZ	7.6

Notes:

TW-3D	3-5-13	10:45	3-5-13	11:00	METER #1	3-5-13	00:45	-53.6	CHRIS LENTZ	7.3
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Notes:

SC-700B	3-5-13	11:45	3-5-13	12:00	METER #1	3-5-13	00:45	-53.6	CHRIS LENTZ	7.1
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Notes:

SC-100B	3-5-13	11:45	3-5-13	12:00	METER #1	3-5-13	00:45	-53.6	CHRIS LENTZ	7.4
---------	--------	-------	--------	-------	----------	--------	-------	-------	-------------	-----

Notes:

SC-701	3-5-13	11:30	3-5-13	11:33	METER #1	3-5-13	00:45	-53.6	CHRIS LENTZ	7.0
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Notes:

SC-700B	3-12-13	11:30	3-12-13	11:35	METER #1	3-12-13	1:10	-53.8	CHRIS LENTZ	7.0
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Notes:

SC-700B	3-19-13	10:00	3-19-13	10:05	METER #1	3-19-13	9:45	-53.7	R. PHELPS	6.9
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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-700B	3-26-13	13:15	3-26-13	13:19	Meter # 1	7-26-13	00:08	-53.9	<i>[Signature]</i>	6.9

Notes:

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
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Notes:

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
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Notes:

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
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Notes:

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Notes:

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Notes:

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Notes:

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