Pacific Gas and Electric Company

Curt Russell
Topock Site Manager
GT&D Remediation

Topock Compressor Station
145453 National Trails Hwy
Needles, CA 92363

Mailing Address
P.O. Box 337
Needles, CA 92363

760.326.5582
Fax: 760.326.5542
Email: gcr4@pge.com

October 15, 2013

Pamela S. Innis
Topock Remedial Project Manager
U.S. Department of the Interior
Office of Environmental Policy and Compliance
P.O Box 2507 (D-108)
Denver Federal Center, Building 56
Denver, CO 80225-0007

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 Third Quarter 2013 Monitoring Report
PG&E Topock Compressor Station, Needles, California
Interim Measure No. 3 Groundwater Treatment System
(Document ID: PGE20131015A)

Dear Ms. Innis and Mr. Perdue:

Enclosed is the Third 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 538,046,391 gallons of water and removed approximately 5,890 pounds of total chromium from August 1, 2005 through September 30, 2013.

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

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

Sincerely,

Curt Russell
Topock Site Manager

Enclosures:

Topock IM-3 Third Quarter 2013 Monitoring Report

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

Topock Project Executive Abstract

Document Title: Topock IM-3 Third Quarter 2013 Monitoring Report Submitting Agency/Authored by: U.S. Department of the Interior and Regional Water Quality Control Board Final Document? ☒ Yes ☐ No	Date of Document: October 15, 2013 Who Created this Document?: (i.e. PG&E, DTSC, DOI, Other) PG&E Document ID Number: PGE20131015A
Priority Status: ☐ **HIGH** ☐ **MED** ☒ **LOW** Is this time critical? ☐ Yes ☒ No Type of Document: ☐ Draft ☒ Report ☐ Letter ☐ Memo ☐ Other / Explain:	Action Required: ☒ Information Only ☐ Review & Comment Return to: _____ By Date:_____ ☐ Other / Explain:
What does this information pertain to? ☐ Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA)/Preliminary Assessment (PA) ☐ RCRA Facility Investigation (RFI)/Remedial Investigation (RI) (including Risk Assessment) ☐ Corrective Measures Study (CMS)/Feasibility Study (FS) ☐ Corrective Measures Implementation (CMI)/Remedial Action ☐ California Environmental Quality Act (CEQA)/Environmental Impact Report (EIR) ☒ Interim Measures ☐ Other / Explain:	Is this a Regulatory Requirement? ☒ Yes ☐ No If no, why is the document needed?
What is the consequence of NOT doing this item? What is the consequence of DOING this item? Submittal of this report is a compliance requirement of the ARARs for waste discharge as documented in Attachment A to the Letter Agreement issued July 26, 2011.	Other Justification/s: ☐ Permit ☐ Other / Explain:

Brief Summary of attached document:

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

Written by: PG&E

Recommendations:
This report is for your information only.

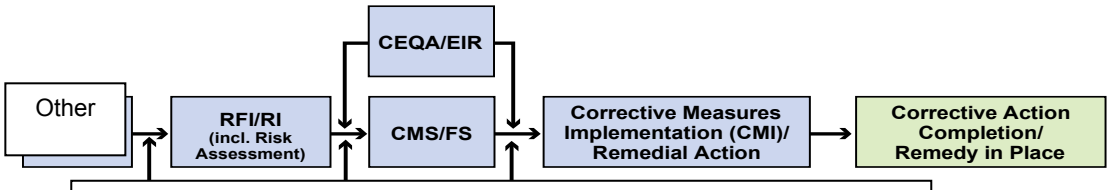
How is this information related to the Final Remedy or Regulatory Requirements?

The Topock IM-3 Third Quarter 2013 Monitoring Report is related to the Interim Measure. PG&E is currently operating the IM-3 groundwater treatment system as authorized by the U.S. Department of the Interior (DOI) Waste Discharge Applicable or Relevant and Appropriate Requirements (ARARs) as documented in Attachment A to the Letter Agreement issued July 26, 2011 from the Colorado River Basin Regional Water Quality Control Board (Regional Water Board) to DOI, and the subsequent Letter of Concurrence issued August 18, 2011 from DOI to the Regional Water Board.

Other requirements of this information?
None.

Related Reports and Documents:

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



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

Version 9

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

Document ID: PGE20131015A

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

October 15, 2013

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

Third 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

October 15, 2013

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

Dennis Fink, P.E.
Project Engineer

Contents

Section **Page**

Acronyms and Abbreviations ..... **vii**

1.0 Introduction **1-1**

2.0 Sampling Station Locations **2-1**

3.0 Description of Activities **3-1**

4.0 Groundwater Treatment System Flow Rates **4-1**
- 4.1 July 2013 4-1
- 4.2 August 2013 4-2
- 4.3 September 2013 4-3

5.0 Sampling and Analytical Procedures **5-1**

6.0 Analytical Results **6-1**

7.0 Conclusions **7-1**

8.0 Certification **8-1**

Tables

1 Sampling Station Descriptions
2 Flow Monitoring Results
3 Sample Collection Dates
4 Topock IM-3 Waste Discharge ARARs Influent Monitoring Results
5 Topock IM-3 Waste Discharge ARARs Effluent Monitoring Results
6 Topock IM-3 Waste Discharge ARARs Reverse Osmosis Concentrate Monitoring Results
7 Topock IM-3 Waste Discharge ARARs Sludge Monitoring Results
8 Topock IM-3 Waste Discharge ARARs Monitoring Information

Figures

1 IM-3 Project Site Features
TP-PR-10-10-04 Raw Water Storage and Treated Water Storage Tanks and Sampling Locations
PR-10-03 Reverse Osmosis System Sampling and Metering Locations (1 of 2)
PR-10-04 Reverse Osmosis System Sampling and Metering Locations (2 of 2)
TP-PR-10-10-06 Sludge Storage Tanks Sampling Locations
TP-PR-10-10-03 Extraction Wells - Influent Metering Locations
TP-PR-10-10-11 Injection Wells - Effluent Metering Locations

Appendix

A Third Quarter 2013 Laboratory Analytical Reports

Acronyms and Abbreviations

ARARs	Applicable or Relevant and Appropriate Requirements
DOI	United States Department of the Interior
gpm	gallons per minute
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 Third 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 Third 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 Third Quarter 2013. The recorded operational run time for the IM groundwater extraction system (combined or individual pumping), by month, was approximately:

- 95.9 percent during July 2013
- 85.4 percent during August 2013
- 98.7 percent during September 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 Third Quarter 2013 are detailed in Section 4.

SECTION 4

Groundwater Treatment System Flow Rates

The Third 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).

During July and August 2013, a series of lightning strikes at the IM-3 treatment facility and to the City of Needles power system caused significant damage to electrical components at the treatment facility; however, the lightning strikes did not result in a change to effluent water quality. On July 28, 2013 a lightning strike on the City of Needles power system caused the extraction well system to go off line for 10 hours, 38 minutes. On August 18, 2013 the strikes caused the flow meters at TW-3D and PE-01 to fail. See Section 4.2 for additional flow meter outage details.

The IM-3 facility treated approximately 13,708,132 gallons of extracted groundwater during the Third Quarter 2013. The IM-3 facility also treated approximately 2,980 gallons of water generated from the groundwater monitoring program, and approximately 9,600 gallons of injection well backwashing/re-development water.

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

Periods of planned and unplanned extraction system downtime (that together resulted in approximately 6.7 percent downtime during Third 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 July 2013

During July 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 July 2013. The operational run time for the IM-3 groundwater extraction system (combined or individual pumping) was 95.9 percent during the July 2013 reporting period.

The IM-3 facility treated approximately 5,771,686 gallons of extracted groundwater during July 2013. The IM-3 facility treated 6,900 gallons of injection well backwashing/re-development water and 1,010 gallons from groundwater monitoring well sampling. Two containers of solids from the IM-3 facility were transported offsite during July 2013.

Periods of planned and unplanned extraction system down time (that together resulted in approximately 4.1 percent of downtime during July 2013) are summarized below.

- **July 1, 2013 (unplanned):** The extraction well system was offline from 12:18 am to 12:52 am due to a loss of power from the City of Needles power. Extraction system downtime was 34 minutes.
- **July 3, 2013 (planned):** The extraction well system was offline from 7:32 am to 8:06 am, from 8:10 am to 8:12 am, from 8:14 am to 8:16 am, and from 8:20 am to 8:22 am due to testing of critical alarms and leak detection system. Extraction system downtime was 40 minutes.
- **July 3, 2013 (planned):** The extraction well system was offline from 9:24 am to 12:58 pm due to testing of the injection well injectivity. Extraction system downtime was 3 hours, 34 minutes.

- **July 7, 2013 (unplanned):** The extraction well system was offline from 3:50 pm to 3:52 pm, from 4:24 pm to 4:32 pm, and from 4:38 pm to 4:42 pm due to a loss of power from the City of Needles power. Extraction system downtime was 14 minutes.
- **July 7, 2013 (unplanned):** The extraction well system was offline from 6:18 pm to 8:04 pm, from 8:06 pm to 8:16 pm, and from 10:56 pm to 11:14 pm due to high level alarm in T-100. Extraction system downtime was 2 hours, 14 minutes
- **July 8, 2013 (unplanned**): The extraction system was offline from 2:32 pm to 2:38 pm due to loss of power from the City of Needles power. Extraction system downtime was 6 minutes.
- **July 9, 2013 (unplanned):** The extraction well system was offline from 2:18 am to 8:00 am due to a polymer feed line malfunction. Extraction system downtime was 5 hours, 42 minutes.
- **July 10, 2013 (planned):** The extraction well system was offline from 4:18 am to 8:22 am for repair of the injection line system. Extraction system downtime was 4 hours, 4 minutes.
- **July 11, 2013 (unplanned):** The extraction well system was offline from 7:38 am to 8:00 am, from 8:06 am to 8:44 am, from 11:38 am to 11:46 am, and from 1:14 pm to 1:18 pm due to loss of power from the City of Needles power. Extraction system downtime was 1 hour, 12 minutes.
- **July 16, 2013 (unplanned):** The extraction well system was offline from 3:42 am to 4:22 am due to reduced ferrous flow. Extraction system downtime was 40 minutes.
- **July 28, 2013 (unplanned):** The extraction well system was offline from 2:54 pm to 3:00 pm due to a loss of power from the City of Needles power due to a nearby storm system. Extraction system downtime was 6 minutes.
- **July 28-29, 2013 (unplanned):** The extraction well system was offline from 10:06 pm on July 28 through 8:36 am on July 29 and from 9:46 am to 9:54 am on July 29 due to a lightning strike on the City of Needles power system. Extraction system downtime was 10 hours, 38 minutes.
- **July 30, 2013 (unplanned):** The extraction well system was offline from 8:46 am to 9:42 am to replace the surge protector damaged in the lightning strike on July 28, 2013. Extraction system downtime was 56 minutes.

4.2 August 2013

During the August 2013 reporting period, a series of lightning strikes at IM-3 and to the City of Needles power system caused significant damage to electrical components at the treatment facility. On August 18, 2013, around 9:38 pm, the lightning strikes caused the flow meters at TW-3D and PE-01 to fail. The extraction pumps continued to operate following the lightning strikes without operable flow meters, because replacement flow meters were not readily available. The flow meter at PE-01 was replaced on August 29, 2013, and the flow meter in TW-3D was replaced September 4, 2013. Due to the meter failures, flow data from a flow meter for PE-01 was unavailable between August 18 and August 28, 2013, and flow data from a flow meter for TW-03D was unavailable from August 18, 2013 through the end of the month. The data presented below and on report tables include only data from the time periods during which the flow meters were operating correctly.

During August 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 August 2013. The recorded operational run time for the IM-3 groundwater extraction system (combined or individual pumping) was 85.4 percent during the August 2013 reporting period.

The IM-3 facility recorded treating approximately 2,767,047 gallons of extracted groundwater during August 2013. Four containers of solids from the IM-3 facility were transported offsite during August 2013.

Because the extraction wells' flow meters were not operable for the a portion of the month of August, the monthly extraction rate and volume was calculated by subtracting the average input flow from the Process Drain Tank (T-900) from the Raw Water Storage Tank (T-100) output flow. The input from the Process Drain Tank and the extraction wells TW-3D and PE-01 are the only contributors into the Raw Water Storage Tank. Using this information, the calculated extraction rate for wells TW-3D and PE-1 was 135 gpm excluding periods of planned and unplanned downtime. The calculated volume of extracted groundwater treated by the IM-3 facility was approximately 5,300,000 gallons during August 2013.

Periods of planned and unplanned extraction system down time (that together resulted in approximately 14.6 percent of downtime during August 2013) are summarized below.

- **August 5, 2013 (unplanned):** The extraction well system was offline from 5:42 am to 7:06 am due to a polymer feed line malfunction. Extraction system downtime was 1 hour, 24 minutes.
- **August 7, 2013 (unplanned):** The extraction well system was offline from 11:30 am to 11:32 am due to a loss of power from the City of Needles power. Extraction system downtime was 2 minutes.
- **August 8, 2013 (unplanned):** The extraction well system was offline from 8:06 pm to 9:58 pm to replace the main flow control valve (FCV-200). Extraction system downtime was 1 hour, 52 minutes.
- **August 12-16, 2013 (planned):** The extraction well system was offline from 7:20 am on August 12th to 1:52 pm on August 15th, from 3:28 pm August 15th to 6:44 am August 16th, and from 7:26 am to 9:48 am on August 16th for semiannual scheduled maintenance. Extraction system downtime was 4 days and 10 minutes.
- **August 18, 2013 (unplanned):** The extraction well system was offline from 8:04 pm to 8:08 pm due to a loss of power from the City of Needles caused by strong thunderstorms in the area. Extraction system downtime was 4 minutes.
- **August 29, 2013 (planned):** The extraction well system was offline from 8:20 am to 10:54 am to replace the flow meter on extraction well PE-01. Extraction system downtime was 2 hours, 34 minutes.
- **August 28, 2013 (planned):** The extraction well system was offline from 8:12 am to 1:26 pm and from 1:40 pm to 2:18 pm due to maintenance on the microfilter modules, primary RO modules, and secondary RO modules. Extraction system downtime was 5 hours, 52 minutes.
- **August 29, 2013 (unplanned):** The extraction well system was offline from 1:38 pm to 1:40 pm and 6:08 pm to 6:12 pm due to a loss of power from the City of Needles power, caused by strong thunderstorms in the area. Extraction system downtime was 6 minutes.
- **August 30, 2013 (unplanned):** The extraction well system was offline from 2:36 am to 2:56 am to switch the plant from generator power to the City of Needles power system. Extraction system downtime was 20 minutes.

4.3 September 2013

As described in Section 4.2, on August 18, 2013 lightning strikes caused the flow meters at extraction wells TW-3D and PE-01 to fail. The extraction pumps continued to operate following the lightning strikes without operable flow meters, because replacement flow meters were not readily available. The flow meter at PE-01 was replaced on August 29, 2013, and the flow meter in TW-3D was replaced on September 4, 2013. Due to the meter failures, flow data from a flow meter for TW-03D was unavailable from September 1 through 4, 2013. The data presented below and on report tables include only data from the time periods during which the flow meters were operating correctly.

During September 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

September 2013. The recorded operational run time for the IM-3 groundwater extraction system (combined or individual pumping) was 98.7 percent during the September 2013 reporting period.

The IM-3 facility recorded treating approximately 5,169,399 gallons of extracted groundwater during September 2013. The IM-3 facility treated 2,700 gallons of injection well backwashing/re-development water and 1,970 gallons from groundwater monitoring well sampling. No containers of solids from the IM-3 facility were transported offsite during September 2013.

Because the extraction wells' flow meters were not operable for the entire month of August, the monthlyextraction rate and volume was calculated by subtracting the average input flow from the Process Drain Tank (T-900) from the Raw Water Storage Tank (T-100) output flow. The input from the Process Drain Tank and the extraction wells TW-3D and PE-01 are the only contributors into the Raw Water Storage Tank. Using this information, the calculated extraction rate for wells TW-3D and PE-1 was 135 gpm excluding periods of planned and unplanned downtime. The calculated volume of extracted groundwater treated by the IM-3 facility was approximately 5,700,000 gallons during September 2013.

Periods of planned and unplanned extraction system down time (that together resulted in approximately 1.3 percent of downtime during September 2013) are summarized below.

- **September 1, 2013 (unplanned):** The extraction well system was offline from 1:40 am to 1:50 am to switch the plant to generator power due to strong thunderstorms in the area. Extraction system downtime was 10 minutes.
- **September 1, 2013 (unplanned):** The extraction well system was offline from 6:56 am to 7:06 am to switch the plant back to City of Needles power. Extraction system downtime was 10 minutes.
- **September 4, 2013 (unplanned):** The extraction well system was offline from 7:08 am to 8:26 am due to installation of spool pieces to replace damaged flowmeters at extraction wells PE-1 and TW-3D. Extraction system downtime was 1 hour, 18 minutes.
- **September 9, 2013 (unplanned):** The extraction well system was offline from 1:42 pm to 1:54 pm to switch the plant to generator power due to a power surge from City of Needles power caused by strong thunderstorms in the area. Extraction system downtime was 12 minutes.
- **September 9, 2013 (unplanned):** The extraction well system was offline from 9:40 pm to 9:54 pm to switch the plant back to City of Needles power. Extraction system downtime was 14 minutes.
- **September 10, 2013 (unplanned):** The extraction well system was offline from 12:14 am to 12:44 am to unclog the strainer at the effluent pump (P-200) for the Raw Water Tank (T-100). Extraction system downtime was 30 minutes.
- **September 11, 2013 (planned):** The extraction well system was offline from 12:28 pm to 12:34 pm, from 12:38 pm to 12:40 pm, and from 12:48 pm to 12:50 pm due to testing of critical alarms and leak detection system. Extraction system downtime was 10 minutes.
- **September 18, 2013 (unplanned):** The extraction wells system was offline from 7:04 am to 12:50 pm to make repairs to the Treated Water Tank (T-700) effluent line. Extraction system downtime was 5 hours, 46 minutes.
- **September 23, 2013 (unplanned):** The extraction well system was offline from 9:44 am to 9:50 am due to a loss of power from the City of Needles. Extraction system downtime was 6 minutes.
- **September 24, 2013 (planned):** The extraction wells system was offline from 8:08 am to 8:12 am and from 10:16 am to 10:18 am for City of Needles Power to replace the site meter box. Extraction system downtime was 6 minutes.
- **September 26, 2013 (planned):** The extraction wells system was offline from 12:16 pm to 12:58 pm to change the microfilter bank. Extraction system downtime was 42 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 Third 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 Third 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: October 15, 2013

Tables

TABLE 1
Sampling Station Descriptions
Third 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
Third 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)
July 2013 Average Monthly Flowrate	129.3	128.9	1.4
August 2013 Average Monthly Flowrate[c]	62.0	114.3	3.1
September 2013 Average Monthly Flowrate[c]	119.8	131.9	1.2

Notes:
gpm: gallons per minute
[a] Extraction wells TW-3D and PE-1 were operated during the Third Quarter 2013. Extraction wells TW-2D and TW-2S were not operated during the Third Quarter 2013.
[b] The difference between influent flow rate and the sum of the effluent and reverse osmosis concentrate flow rates during the Third Quarter 2013 is approximately 22.4 percent.
[c] During the August 2013 reporting period, a series of lightning strikes at the IM-3 treatment facility and to the City of Needles power system caused significant damage to electrical components at the treatment facility; however, the lightning strikes did not result in a change to effluent water quality. On August 18, 2013, the lightning strikes caused the flow meters at TW-3D and PE-01 to fail. The extraction pumps continued to operate following the lightning strikes without operable flow meters, because replacement flow meters were not readily available. The flow meter at PE-01 was replaced on August 29, 2013, and the flow meter in TW-3D was replaced September 4, 2013. Due to the meter failures, flow data from a flow meter for PE-01 was unavailable between August 18 and August 28, 2013 and flow data from a flow meter for TW-03D was unavailable from August 18, 2013 through September 4, 2013. The data presented in this table include only data from the time periods during which the flow meters were operating correctly.

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

Parameter	Sample Collection Dates	Results
Influent	July 2, 2013	See Table 4
	August 6, 2013	
	September 3, 2013	
Effluent	July 2, 2013	See Table 5
	July 9, 2013	
	July 16, 2013	
	July 25, 2013	
	July 30, 2013	
	August 6, 2013	
	August 12, 2013	
	August 16, 2013	
	August 20, 2013	
	August 27, 2013	
	September 3, 2013	
	September 10, 2013	
	September 17, 2013	
	September 24, 2013	
Reverse Osmosis Concentrate	July 2, 2013	See Table 6
Sludge[a]	July 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]
Third Quarter 2013 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

Sampling Frequency		Monthly																						
Analytes		TDS	Turbidity	Specific Conductance	Field [c] pH	Chromium	Hexavalent Chromium	Aluminium	Ammonia (as N)	Antimony	Arsenic	Barium	Boron	Copper	Fluoride	Lead	Manganese	Molybdenum	Nickel	Nitrate (as N)	Nitrite (as N)	Sulfate	Iron	Zinc
Units [b]		mg/L	NTU	µmhos/cm	pH units	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	mg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	mg/L	µg/L	µg/L
MDL		1.76	0.0140	0.606	---	0.920	0.460	10.0	0.0318	0.330	0.100	0.190	0.0041	0.260	0.104	0.0740	0.0860	0.210	0.790	0.0415	0.00063	1.54	3.00	5.10
Sample ID	Date																							
SC-100B-WDR-420	**7/2/2013**	**4460**	**ND (0.100)**	**6640**	**7.5**	**633**	**626**	**ND (20.0)**	**ND (0.500)**	**ND (2.00)**	**3.50**	**24.9**	**0.845**	**ND (5.00)**	**2.59**	**ND (1.00)**	**4.30**	**19.1**	**ND (2.00)**	**2.88**	**ND (0.0050)**	**525**	**ND (20.0)**	**ND (20.0)**
RL		125	0.100	2.00	---	2.00	10.0	20.0	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-425	**8/6/2013**	**4480**	**ND (0.100)**	**6930**	**7.2**	**676**	**638**	**ND (50.0)**	**ND (0.500)**	**ND (2.00)**	**3.60**	**24.9**	**0.896**	**ND (5.00)**	**2.47**	**ND (1.00)**	**4.30**	**20.4**	**ND (2.00)**	**2.95**	**ND (0.0050)**	**530**	**ND (20.0)**	**ND (20.0)**
RL		125	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-430	**9/3/2013**	**4560**	**ND (0.100)**	**7260**	**7.2**	**694**	**648**	**ND (50.0)**	**ND (0.500)**	**ND (2.00)**	**3.60**	**26.9**	**0.946**	**ND (5.00)**	**2.50**	**ND (1.00)**	**4.50**	**19.9**	**ND (2.00)**	**2.98**	**ND (0.0050)**	**550**	**ND (20.0)**	**ND (20.0)**
RL		250	0.100	2.00	---	5.00	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

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

Sample ID	Date	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
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		TDS	Turbidity	Specific Conductance	Field pH	Chromium	Hexavalent Chromium	Aluminium	Ammonia (as N)	Antimony	Arsenic	Barium	Boron	Copper	Fluoride	Lead	Manganese	Molybdenum	Nickel	Nitrate (as N)	Nitrite (as N)	Sulfate	Iron	Zinc
Units[c]		mg/L	NTU	µmhos/cm	pH units	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	mg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	mg/L	µg/L	µg/L
MDL[d]		1.76	0.0140	0.606	---	0.0710	0.0092	10.0	0.0318	0.330	0.100	0.190	0.0041	0.260	0.104	0.0740	0.0600	0.210	0.790	0.0415	0.00063	1.54	3.00	5.10
SC-700B-WDR-420	**7/2/2013**	**3820**	**0.102**	**6120**	**6.90**	**ND (1.00)**	**0.210**	**ND (20.0)**	**0.570**	**ND (2.00)**	**ND (0.500)**	**8.60**	**0.847**	**ND (5.00)**	**1.77**	**ND (1.00)**	**2.60**	**16.3**	**ND (2.00)**	**2.55**	**ND (0.0050)**	**454**	**ND (20.0)**	**ND (20.0)**
RL		125	0.100	2.00	---	1.00	0.200	20.0	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-700B-WDR-421	**7/9/2013**	**4070**	**0.281**	**6430**	**6.90**	**ND (1.00)**	**0.350**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**0.980**	**---**	**---**	**---**	**---**	**---**	**---**	**---**
RL		250	0.100	2.00	---	1.00	0.200	---	---	---	---	---	---	---	---	---	0.500	---	---	---	---	---	---	---
SC-700B-WDR-422	**7/16/2013**	**4120**	**ND (0.100)**	**6670**	**7.10**	**ND (1.00)**	**ND (0.200)**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**8.70**	**---**	**---**	**---**	**---**	**---**	**---**	**---**
RL		125	0.100	2.00	---	1.00	0.200	---	---	---	---	---	---	---	---	---	0.500	---	---	---	---	---	---	---
SC-700B-WDR-423	**7/25/2013**	**4110**	**0.103**	**6480**	**6.90**	**ND (1.00)**	**ND (0.200)**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**1.40**	**---**	**---**	**---**	**---**	**---**	**---**	**---**
RL		125	0.100	2.00	---	1.00	0.200	---	---	---	---	---	---	---	---	---	0.500	---	---	---	---	---	---	---
SC-700B-WDR-424	**7/30/2013**	**4380**	**ND (0.100)**	**6300**	**7.00**	**ND (1.00)**	**ND (0.200)**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**1.10**	**---**	**---**	**---**	**---**	**---**	**---**	**---**
RL		125	0.100	2.00	---	1.00	0.200	---	---	---	---	---	---	---	---	---	0.500	---	---	---	---	---	---	---
SC-700B-WDR-425	**8/6/2013**	**4120**	**ND (0.100)**	**6690**	**6.90**	**ND (1.00)**	**ND (0.200)**	**ND (50.0)**	**ND (0.500)**	**ND (2.00)**	**ND (0.500)**	**10.5**	**0.919**	**ND (5.00)**	**2.06**	**ND (1.00)**	**1.00**	**18.0**	**ND (2.00)**	**2.85**	**ND (0.0050)**	**502**	**ND (20.0)**	**ND (20.0)**
RL		125	0.100	2.00	---	1.00	0.200	50.0	0.500	2.00	0.500	5.00	0.200	5.00	0.500	1.00	0.500	2.00	2.00	0.500	0.0050	25.0	20.0	20.0
SC-700B-WDR-426	**8/12/2013**	**4060**	**ND (0.100)**	**6680**	**6.80**	**ND (1.00)**	**ND (0.200)**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**0.670**	**---**	**---**	**---**	**---**	**---**	**---**	**---**
RL		125	0.100	2.00	---	1.00	0.200	---	---	---	---	---	---	---	---	---	0.500	---	---	---	---	---	---	---
SC-700B-WDR-427	**8/16/2013**	**4170**	**ND (0.100)J**	**6760**	**7.20**	**ND (1.00)**	**0.300**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**0.950**	**---**	**---**	**---**	**---**	**---**	**---**	**---**
RL		125	0.100	2.00	---	1.00	0.200	---	---	---	---	---	---	---	---	---	0.500	---	---	---	---	---	---	---
SC-700B-WDR-428	**8/20/2013**	**4290**	**ND (0.100)**	**6790**	**7.10**	**ND (1.00)**	**ND (0.200)**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**2.90**	**---**	**---**	**---**	**---**	**---**	**---**	**---**
RL		125	0.100	2.00	---	1.00	0.200	---	---	---	---	---	---	---	---	---	0.500	---	---	---	---	---	---	---
SC-700B-WDR-429	**8/27/2013**	**4390**	**ND (0.100)**	**7190**	**7.40**	**ND (1.00)**	**ND (0.200)**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**1.30**	**---**	**---**	**---**	**---**	**---**	**---**	**---**
RL		250	0.100	2.00	---	1.00	0.200	---	---	---	---	---	---	---	---	---	0.500	---	---	---	---	---	---	---
SC-700B-WDR-430	**9/3/2013**	**4600**	**ND (0.100)**	**7290**	**7.10**	**ND (1.00)**	**ND (0.200)**	**ND (50.0)**	**ND (0.500)**	**ND (2.00)**	**ND (0.500)**	**10.4**	**0.923**	**ND (5.00)**	**2.02**	**ND (1.00)**	**0.860**	**20.5**	**ND (2.00)**	**2.87**	**ND (0.0050)**	**506**	**ND (20.0)**	**ND (20.0)**
RL		250	0.100	2.00	---	1.00	0.200	50.0	0.500	2.00	0.500	5.00	0.200	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-431	**9/10/2013**	**4500**	**ND (0.100)**	**7240**	**7.00**	**ND (1.00)**	**0.270**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**1.30**	**---**	**---**	**---**	**---**	**---**	**---**	**---**
RL		250	0.100	2.00	---	1.00	0.200	---	---	---	---	---	---	---	---	---	0.500	---	---	---	---	---	---	---
SC-700B-WDR-432	**9/17/2013**	**4540**	**ND (0.100)**	**7060**	**7.10**	**ND (1.00)**	**ND (0.200)**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**0.820**	**---**	**---**	**---**	**---**	**---**	**---**	**---**
RL		250	0.100	2.00	---	1.00	0.200	---	---	---	---	---	---	---	---	---	0.500	---	---	---	---	---	---	---
SC-700B-WDR-433	**9/24/2013**	**4470**	**ND (0.100)**	**7230**	**7.10**	**ND (1.00)**	**ND (0.200)**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**1.50**	**---**	**---**	**---**	**---**	**---**	**---**	**---**
RL		250	0.100	2.00	---	1.00	0.200	---	---	---	---	---	---	---	---	---	0.500	---	---	---	---	---	---	---

NOTES:

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

[a] Sampling location for all effluent samples is tap on pipe downstream from tank T-700 to injection wells (see attached P&ID TP-PR-10-10-04).

[b] In addition to the listed effluent limits, the ARARs state that the effluent shall not contain heavy metals, chemicals, pesticides or other constituents in concentrations toxic to human health.

[c] Units reported in this table are those units required in the ARARs.

[d] MDL listed is the target MDL by analysis method; however, the MDL may change for each sample analysis due to the dilution required by the matrix to meet the method QC requirements. The target MDL for each method/analyte combination is calculated annually.

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

TABLE 6
Topock IM-3 Waste Discharge Applicable or Relevant and Appropriate Requirements (ARARs)
Reverse Osmosis Concentrate Monitoring Results [a]
Third Quarter 2013 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

Sampling Frequency		Quarterly																					
Analytes		TDS	Specific Conductance	Field pH [c]	Chromium	Hexavalent Chromium	Antimony	Arsenic	Barium	Beryllium	Cadmium	Cobalt	Copper	Fluoride	Lead	Molybdenum	Mercury	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
Units [b]		mg/L	µmhos/cm	pH units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
MDL		1.76	0.606	---	0.00046	0.000092	0.0017	0.00020	0.00094	0.000060	0.00017	0.00016	0.00051	0.104	0.00015	0.0010	0.00020	0.0016	0.00040	0.00011	0.00056	0.00036	0.0070
Sample ID	**Date**																						
SC-701-WDR-420	**7/2/2013**	**29600**	**37900**	**7.8**	**0.00290**	**ND (0.0020)**	**ND (0.0035)**	**0.00110**	**0.0750**	**ND (0.00050)**	**ND (0.0010)**	**ND (0.0050)**	**ND (0.0050)**	**14.8**	**ND (0.0010)**	**0.118**	**ND (0.0010)**	**0.00400**	**0.0236**	**ND (0.0050)**	**ND (0.0020)**	**ND (0.0050)**	**ND (0.0200)**
RL		500	2.00	---	0.0010	0.0020	0.0035	0.00050	0.0050	0.00050	0.0010	0.0050	0.0050	0.500	0.0010	0.0025	0.0010	0.0040	0.0050	0.0050	0.0020	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]
Third Quarter 2013 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

Sampling Frequency		Quarterly																			Annually
Analytes		Chromium	Hexavalent Chromium	Antimony	Arsenic	Barium	Beryllium	Cadmium	Cobalt	Copper	Fluoride	Lead	Molybdenum	Mercury	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc	Bioassay
Units[b]		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	% Survival
MDL		0.0120	0.0112	0.0450	0.0060	0.0266	0.00060	0.0020	0.0066	0.0051	0.0209	0.0015	0.0200	0.00020	0.0098	0.0120	0.0160	0.0052	0.0054	0.0350	at 750 mg/L
Sample ID	**Date**																				
SC-Sludge-WDR-420	**7/2/2013**	**2840**	**30.2**	**50.2**	**ND (5.00)**	**56.7**	**ND (2.10)**	**5.19**	**ND (10.0)**	**19.2**	**53.1**	**ND (5.00)**	**ND (10.0)**	**0.125**	**10.8**	**ND (5.00)**	**ND (5.00)**	**ND (5.00)**	**35.9**	**32.7**	100
RL		5.25	4.64	10.5	5.00	10.5	2.10	2.10	10.0	5.00	4.64	5.00	10.0	0.105	5.25	5.00	5.00	5.00	5.25	10.5	100

NOTES:

(---) = not required by the ARARs Monitoring and Reporting Program
mg/kg = milligrams per killogram
mg/L = milligrams per liter
MDL = method detection limit
ND = parameter not detected at the listed reporting limit
RL = project reporting limit

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

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

TABLE 8
Topock IM-3 Waste Discharge Applicable or Relevant and Appropriate Requirements (ARARs)
Monitoring Information
Third 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-420	J.Aide	7/2/2013	12:25:00 PM	TLI	EPA 120.1	SC	7/8/2013	Gautam Savani
					TLI	EPA 200.7	AL	7/11/2013	Denise Chauv
					TLI	EPA 200.7	B	7/11/2013	Denise Chauv
					TLI	EPA 200.7	FE	7/11/2013	Denise Chauv
					TLI	EPA 200.7	ZN	7/11/2013	Denise Chauv
					TLI	EPA 200.8	AS	7/8/2013	Bita Emami/Katia Kiarashpoor/Ethel Suico
					TLI	EPA 200.8	BA	7/8/2013	Bita Emami/Katia Kiarashpoor/Ethel Suico
					TLI	EPA 200.8	CR	7/8/2013	Bita Emami/Katia Kiarashpoor/Ethel Suico
					TLI	EPA 200.8	CU	7/8/2013	Bita Emami/Katia Kiarashpoor/Ethel Suico
					TLI	EPA 200.8	MN	7/10/2013	Bita Emami/Katia Kiarashpoor/Ethel Suico
					TLI	EPA 200.8	MO	7/8/2013	Bita Emami/Katia Kiarashpoor/Ethel Suico
					TLI	EPA 200.8	NI	7/24/2013	Bita Emami/Katia Kiarashpoor/Ethel Suico
					TLI	EPA 200.8	PB	7/8/2013	Bita Emami/Katia Kiarashpoor/Ethel Suico
					TLI	EPA 200.8	SB	7/29/2013	Bita Emami/Katia Kiarashpoor/Ethel Suico
					TLI	EPA 218.6	CR6	7/3/2013	Tom Martinez
					TLI	EPA 300.0	FL	7/3/2013	Giawad Ghenniwa
					TLI	EPA 300.0	NO3N	7/3/2013	Giawad Ghenniwa
					TLI	EPA 300.0	SO4	7/3/2013	Giawad Ghenniwa
					FIELD	HACH	PH	7/2/2013	J.Aide
					TLI	SM2130B	TRB	7/3/2013	Gautam Savani
					TLI	SM2540C	TDS	7/3/2013	Jenny Tankunakorn
					TLI	SM4500NH3D	NH3N	7/16/2013	Maria Mangarova
					TLI	SM4500NO2B	NO2N	7/3/2013	Jenny Tankunakorn
SC-100B	SC-100B-WDR-425	J. Aide	8/6/2013	1:35:00 PM	TLI	EPA 120.1	SC	8/7/2013	Jenny Tankunakorn
					TLI	EPA 200.7	AL	8/26/2013	Denise Chauv
					TLI	EPA 200.7	B	8/26/2013	Denise Chauv
					TLI	EPA 200.7	FE	8/26/2013	Denise Chauv
					TLI	EPA 200.7	FETD	8/19/2013	Denise Chauv
					TLI	EPA 200.7	ZN	8/26/2013	Denise Chauv
					TLI	EPA 200.8	AS	8/13/2013	Ethel Suico
					TLI	EPA 200.8	BA	8/14/2013	Ethel Suico
					TLI	EPA 200.8	CR	8/14/2013	Ethel Suico
					TLI	EPA 200.8	CU	8/13/2013	Ethel Suico
					TLI	EPA 200.8	MN	8/13/2013	Ethel Suico
					TLI	EPA 200.8	MND	8/13/2013	Ethel Suico
					TLI	EPA 200.8	MO	8/13/2013	Ethel Suico

TABLE 8
Topock IM-3 Waste Discharge Applicable or Relevant and Appropriate Requirements (ARARs)
Monitoring Information
Third 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-425	J. Aide	8/6/2013	1:35:00 PM	TLI	EPA 200.8	NI	8/13/2013	Ethel Suico
					TLI	EPA 200.8	PB	8/13/2013	Ethel Suico
					TLI	EPA 200.8	SB	8/13/2013	Ethel Suico
					TLI	EPA 218.6	CR6	8/7/2013	Tom Martinez
					TLI	EPA 300.0	FL	8/7/2013	Giawad Ghenniwa
					TLI	EPA 300.0	NO3N	8/7/2013	Giawad Ghenniwa
					TLI	EPA 300.0	SO4	8/7/2013	Giawad Ghenniwa
					FIELD	HACH	PH	8/6/2013	Ryan Phelps
					TLI	SM 2320B	ALKB	8/8/2013	Kim Luck
					TLI	SM 2320B	ALKC	8/8/2013	Kim Luck
					TLI	SM2130B	TRB	8/7/2013	Kim Luck
					TLI	SM2540C	TDS	8/12/2013	Jenny Tankunakorn
					TLI	SM4500NH3D	NH3N	8/16/2013	Maria Mangarova
					TLI	SM4500NO2B	NO2N	8/8/2013	Jenny Tankunakorn
SC-100B	SC-100B-WDR-430	Ryan Phelps	9/3/2013	2:00:00 PM	TLI	EPA 120.1	SC	9/5/2013	Jenny Tankunakorn
					TLI	EPA 200.7	AL	9/12/2013	Denise Chauv
					TLI	EPA 200.7	B	9/12/2013	Denise Chauv
					TLI	EPA 200.7	FE	9/12/2013	Denise Chauv
					TLI	EPA 200.7	FETD	9/12/2013	Denise Chauv
					TLI	EPA 200.7	ZN	9/12/2013	Denise Chauv
					TLI	EPA 200.8	AS	9/5/2013	Ethel Suico
					TLI	EPA 200.8	BA	9/5/2013	Ethel Suico
					TLI	EPA 200.8	CR	9/5/2013	Ethel Suico
					TLI	EPA 200.8	CU	9/5/2013	Ethel Suico
					TLI	EPA 200.8	MN	9/5/2013	Ethel Suico
					TLI	EPA 200.8	MND	9/6/2013	Ethel Suico
					TLI	EPA 200.8	MO	9/5/2013	Ethel Suico
					TLI	EPA 200.8	NI	9/5/2013	Ethel Suico
					TLI	EPA 200.8	PB	9/5/2013	Ethel Suico
					TLI	EPA 200.8	SB	9/5/2013	Ethel Suico
					TLI	EPA 218.6	CR6	9/5/2013	Naheed Eidinejad
					TLI	EPA 300.0	FL	9/4/2013	Giawad Ghenniwa
					TLI	EPA 300.0	NO3N	9/4/2013	Giawad Ghenniwa
					TLI	EPA 300.0	SO4	9/4/2013	Giawad Ghenniwa
					FIELD	HACH	PH	9/3/2013	Ryan Phelps
					TLI	SM 2320B	ALKB	9/5/2013	Kim Luck

TABLE 8
Topock IM-3 Waste Discharge Applicable or Relevant and Appropriate Requirements (ARARs)
Monitoring Information
Third 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-430	Ryan Phelps	9/3/2013	2:00:00 PM	TLI	SM 2320B	ALKC	9/5/2013	Kim Luck
					TLI	SM2130B	TRB	9/4/2013	Kim Luck
					TLI	SM2540C	TDS	9/5/2013	Jenny Tankunakorn
					TLI	SM4500NH3D	NH3N	9/12/2013	Maria Mangarova
					TLI	SM4500NO2B	NO2N	9/4/2013	Jenny Tankunakorn
SC-700B	SC-700B-WDR-420	J.Aide	7/2/2013	12:33:00 PM	TLI	EPA 120.1	SC	7/8/2013	Gautam Savani
					TLI	EPA 200.7	AL	7/11/2013	Denise Chauv
					TLI	EPA 200.7	B	7/11/2013	Denise Chauv
					TLI	EPA 200.7	FE	7/11/2013	Denise Chauv
					TLI	EPA 200.7	ZN	7/11/2013	Denise Chauv
					TLI	EPA 200.8	AS	7/8/2013	Bita Emami/Katia Kiarashpoor/Ethel Suico
					TLI	EPA 200.8	BA	7/8/2013	Bita Emami/Katia Kiarashpoor/Ethel Suico
					TLI	EPA 200.8	CR	7/8/2013	Bita Emami/Katia Kiarashpoor/Ethel Suico
					TLI	EPA 200.8	CU	7/8/2013	Bita Emami/Katia Kiarashpoor/Ethel Suico
					TLI	EPA 200.8	MN	7/10/2013	Bita Emami/Katia Kiarashpoor/Ethel Suico
					TLI	EPA 200.8	MO	7/8/2013	Bita Emami/Katia Kiarashpoor/Ethel Suico
					TLI	EPA 200.8	NI	7/24/2013	Bita Emami/Katia Kiarashpoor/Ethel Suico
					TLI	EPA 200.8	PB	7/8/2013	Bita Emami/Katia Kiarashpoor/Ethel Suico
					TLI	EPA 200.8	SB	7/29/2013	Bita Emami/Katia Kiarashpoor/Ethel Suico
					TLI	EPA 218.6	CR6	7/3/2013	Tom Martinez
					TLI	EPA 300.0	FL	7/3/2013	Giawad Ghenniwa
					TLI	EPA 300.0	NO3N	7/3/2013	Giawad Ghenniwa
					TLI	EPA 300.0	SO4	7/3/2013	Giawad Ghenniwa
					FIELD	HACH	PH	7/2/2013	J.Aide
					TLI	SM2130B	TRB	7/3/2013	Gautam Savani
					TLI	SM2540C	TDS	7/3/2013	Jenny Tankunakorn
					TLI	SM4500NH3D	NH3N	7/16/2013	Maria Mangarova
					TLI	SM4500NO2B	NO2N	7/3/2013	Jenny Tankunakorn
SC-700B	SC-700B-WDR-421	Ryan Phelps	7/9/2013	2:30:00 PM	TLI	EPA 120.1	SC	7/12/2013	Jenny Tankunakorn
					TLI	EPA 200.8	CR	7/12/2013	Ethel Suico
					TLI	EPA 200.8	MN	7/12/2013	Ethel Suico
					TLI	EPA 218.6	CR6	7/15/2013	Tom Martinez
					FIELD	HACH	PH	7/9/2013	Ryan Phelps
					TLI	SM2130B	TRB	7/10/2013	Gautam Savani
					TLI	SM2540C	TDS	7/10/2013	Jenny Tankunakorn

TABLE 8
Topock IM-3 Waste Discharge Applicable or Relevant and Appropriate Requirements (ARARs)
Monitoring Information
Third 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-422	George Gloria	7/16/2013	2:36:00 PM	TLI	EPA 120.1	SC	7/17/2013	Jenny Tankunakorn
					TLI	EPA 200.8	CR	7/24/2013	Ethel Suico
					TLI	EPA 200.8	MN	7/24/2013	Ethel Suico
					TLI	EPA 218.6	CR6	7/19/2013	Naheed Eidinejad
					FIELD	HACH	PH	7/16/2013	G. Gloria
					TLI	SM2130B	TRB	7/18/2013	Kim Luck
					TLI	SM2540C	TDS	7/19/2013	Jenny Tankunakorn
SC-700B	SC-700B-WDR-423	Ryan Phelps	7/25/2013	10:24:00 AM	TLI	EPA 120.1	SC	7/26/2013	Jenny Tankunakorn
					TLI	EPA 200.8	CR	7/29/2013	Ethel Suico
					TLI	EPA 200.8	MN	7/29/2013	Ethel Suico
					TLI	EPA 218.6	CR6	7/30/2013	Naheed Eidinejad/Tom Martinez
					FIELD	HACH	PH	7/25/2013	Ron Phelps
					TLI	SM2130B	TRB	7/26/2013	Kim Luck
					TLI	SM2540C	TDS	7/26/2013	Jenny Tankunakorn
SC-700B	SC-700B-WDR-424	Ryan Phelps	7/30/2013	8:20:00 AM	TLI	EPA 120.1	SC	7/31/2013	Jenny Tankunakorn
					TLI	EPA 200.8	CR	8/5/2013	Ethel Suico
					TLI	EPA 200.8	MN	8/5/2013	Ethel Suico
					TLI	EPA 218.6	CR6	8/1/2013	Naheed Eidinejad
					FIELD	HACH	PH	7/30/2013	Ryan Phelps
					TLI	SM2130B	TRB	7/31/2013	Kim Luck
					TLI	SM2540C	TDS	8/2/2013	Jenny Tankunakorn
SC-700B	SC-700B-WDR-425	J. Aide	8/6/2013	2:15:00 PM	TLI	EPA 120.1	SC	8/7/2013	Jenny Tankunakorn
					TLI	EPA 200.7	AL	8/19/2013	Denise Chauv
					TLI	EPA 200.7	B	8/19/2013	Denise Chauv
					TLI	EPA 200.7	FE	8/19/2013	Denise Chauv
					TLI	EPA 200.7	ZN	8/19/2013	Denise Chauv
					TLI	EPA 200.8	AS	8/13/2013	Ethel Suico
					TLI	EPA 200.8	BA	8/13/2013	Ethel Suico
					TLI	EPA 200.8	CR	8/13/2013	Ethel Suico
					TLI	EPA 200.8	CU	8/13/2013	Ethel Suico
					TLI	EPA 200.8	MN	8/13/2013	Ethel Suico
					TLI	EPA 200.8	MO	8/13/2013	Ethel Suico
					TLI	EPA 200.8	NI	8/13/2013	Ethel Suico
					TLI	EPA 200.8	PB	8/13/2013	Ethel Suico
					TLI	EPA 200.8	SB	8/13/2013	Ethel Suico

TABLE 8
Topock IM-3 Waste Discharge Applicable or Relevant and Appropriate Requirements (ARARs)
Monitoring Information
Third 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-425	J. Aide	8/6/2013	2:15:00 PM	TLI	EPA 218.6	CR6	8/7/2013	Tom Martinez
					TLI	EPA 300.0	FL	8/7/2013	Giawad Ghenniwa
					TLI	EPA 300.0	NO3N	8/7/2013	Giawad Ghenniwa
					TLI	EPA 300.0	SO4	8/7/2013	Giawad Ghenniwa
					FIELD	HACH	PH	8/6/2013	J.Aide
					TLI	SM2130B	TRB	8/7/2013	Kim Luck
					TLI	SM2540C	TDS	8/12/2013	Jenny Tankunakorn
					TLI	SM4500NH3D	NH3N	8/16/2013	Maria Mangarova
					TLI	SM4500NO2B	NO2N	8/8/2013	Jenny Tankunakorn
SC-700B	SC-700B-WDR-426	J. Aide	8/12/2013	7:30:00 AM	TLI	EPA 120.1	SC	8/15/2013	Jenny Tankunakorn
					TLI	EPA 200.8	CR	8/16/2013	Ethel Suico
					TLI	EPA 200.8	MN	8/16/2013	Ethel Suico
					TLI	EPA 218.6	CR6	8/13/2013	Naheed Eidinejad
					FIELD	HACH	PH	8/12/2013	J.Aide
					TLI	SM2130B	TRB	8/13/2013	Kim Luck
					TLI	SM2540C	TDS	8/16/2013	Jenny Tankunakorn
SC-700B	SC-700B-WDR-427	Josh Rosenberg	8/16/2013	11:00:00 AM	TLI	EPA 120.1	SC	8/20/2013	Jenny Tankunakorn
					TLI	EPA 200.8	CR	8/23/2013	Ethel Suico
					TLI	EPA 200.8	MN	8/23/2013	Ethel Suico
					TLI	EPA 218.6	CR6	8/19/2013	Naheed Eidinejad
					FIELD	HACH	PH	8/16/2013	Ron Phelps
					TLI	SM2130B	TRB	8/19/2013	Kim Luck
					TLI	SM2540C	TDS	8/20/2013	Jenny Tankunakorn
SC-700B	SC-700B-WDR-428	J. Aide	8/20/2013	11:30:00 AM	TLI	EPA 120.1	SC	8/23/2013	Jenny Tankunakorn
					TLI	EPA 200.8	CR	8/23/2013	Ethel Suico
					TLI	EPA 200.8	MN	8/23/2013	Ethel Suico
					TLI	EPA 218.6	CR6	8/22/2013	Naheed Eidinejad
					FIELD	HACH	PH	8/20/2013	J.Aide
					TLI	SM2130B	TRB	8/22/2013	Kim Luck
					TLI	SM2540C	TDS	8/20/2013	Jenny Tankunakorn
SC-700B	SC-700B-WDR-429	J. Aide	8/27/2013	12:45:00 PM	TLI	EPA 120.1	SC	8/29/2013	Jenny Tankunakorn
					TLI	EPA 200.8	CR	9/5/2013	Ethel Suico
					TLI	EPA 200.8	MN	9/5/2013	Ethel Suico
					TLI	EPA 218.6	CR6	8/28/2013	Naheed Eidinejad
					FIELD	HACH	PH	8/27/2013	J.Aide

TABLE 8
Topock IM-3 Waste Discharge Applicable or Relevant and Appropriate Requirements (ARARs)
Monitoring Information
Third 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-429	J. Aide	8/27/2013	12:45:00 PM	TLI	SM2130B	TRB	8/29/2013	Kim Luck
					TLI	SM2540C	TDS	8/30/2013	Jenny Tankunakorn
SC-700B	SC-700B-WDR-430	Ryan Phelps	9/3/2013	2:20:00 PM	TLI	EPA 120.1	SC	9/5/2013	Jenny Tankunakorn
					TLI	EPA 200.7	AL	9/12/2013	Denise Chauv
					TLI	EPA 200.7	B	9/12/2013	Denise Chauv
					TLI	EPA 200.7	FE	9/12/2013	Denise Chauv
					TLI	EPA 200.7	ZN	9/12/2013	Denise Chauv
					TLI	EPA 200.8	AS	9/5/2013	Ethel Suico
					TLI	EPA 200.8	BA	9/5/2013	Ethel Suico
					TLI	EPA 200.8	CR	9/5/2013	Ethel Suico
					TLI	EPA 200.8	CU	9/5/2013	Ethel Suico
					TLI	EPA 200.8	MN	9/5/2013	Ethel Suico
					TLI	EPA 200.8	MO	9/5/2013	Ethel Suico
					TLI	EPA 200.8	NI	9/5/2013	Ethel Suico
					TLI	EPA 200.8	PB	9/5/2013	Ethel Suico
					TLI	EPA 200.8	SB	9/5/2013	Ethel Suico
					TLI	EPA 218.6	CR6	9/5/2013	Naheed Eidinejad
					TLI	EPA 300.0	FL	9/4/2013	Giawad Ghenniwa
					TLI	EPA 300.0	NO3N	9/4/2013	Giawad Ghenniwa
					TLI	EPA 300.0	SO4	9/4/2013	Giawad Ghenniwa
					FIELD	HACH	PH	9/3/2013	Ryan Phelps
					TLI	SM2130B	TRB	9/4/2013	Kim Luck
					TLI	SM2540C	TDS	9/5/2013	Jenny Tankunakorn
					TLI	SM4500NH3D	NH3N	9/12/2013	Maria Mangarova
					TLI	SM4500NO2B	NO2N	9/4/2013	Jenny Tankunakorn
SC-700B	SC-700B-WDR-431	Ryan Phelps	9/10/2013		TLI	EPA 120.1	SC	9/12/2013	Jenny Tankunakorn
					TLI	EPA 200.8	CR	9/13/2013	Ethel Suico
					TLI	EPA 200.8	MN	9/13/2013	Ethel Suico
					TLI	EPA 218.6	CR6	9/11/2013	Tom Martinez/Naheed Eidinejad
					FIELD	HACH	PH	9/10/2013	Ryan Phelps
					TLI	SM2130B	TRB	9/12/2013	Kim Luck
					TLI	SM2540C	TDS	9/12/2013	Jenny Tankunakorn
SC-700B	SC-700B-WDR-432	Ryan Phelps	9/17/2013	11:35:00 AM	TLI	EPA 120.1	SC	9/19/2013	Jenny Tankunakorn
					TLI	EPA 200.8	CR	9/19/2013	Ethel Suico
					TLI	EPA 200.8	MN	9/19/2013	Ethel Suico

TABLE 8
Topock IM-3 Waste Discharge Applicable or Relevant and Appropriate Requirements (ARARs)
Monitoring Information
Third 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-432	Ryan Phelps	9/17/2013	11:35:00 AM	TLI	EPA 218.6	CR6	9/18/2013	Naheed Eidinejad
					FIELD	HACH	PH	9/17/2013	Ryan Phelps
					TLI	SM2130B	TRB	9/19/2013	Kim Luck
					TLI	SM2540C	TDS	9/20/2013	Jenny Tankunakorn
SC-700B	SC-700B-WDR-433	Ryan Phelps	9/24/2013	2:45:00 PM	TLI	EPA 120.1	SC	9/26/2013	Jenny Tankunakorn
					TLI	EPA 200.8	CR	9/25/2013	Ethel Suico
					TLI	EPA 200.8	MN	9/25/2013	Ethel Suico
					TLI	EPA 218.6	CR6	9/25/2013	Naheed Eidinejad
					FIELD	HACH	PH	9/24/2013	Ryan Phelps
					TLI	SM2130B	TRB	9/26/2013	Kim Luck
					TLI	SM2540C	TDS	9/25/2013	Jenny Tankunakorn
SC-701	SC-701-WDR-420	J.Aide	7/2/2013	12:20:00 PM	TLI	EPA 120.1	SC	7/8/2013	Gautam Savani
					TLI	EPA 200.7	ZN	7/11/2013	Denise Chauv
					TLI	EPA 200.8	AG	7/8/2013	Bita Emami/Katia Kiarashpoor/Ethel Suico
					TLI	EPA 200.8	AS	7/8/2013	Bita Emami/Katia Kiarashpoor/Ethel Suico
					TLI	EPA 200.8	BA	7/8/2013	Bita Emami/Katia Kiarashpoor/Ethel Suico
					TLI	EPA 200.8	BE	7/15/2013	Bita Emami/Katia Kiarashpoor/Ethel Suico
					TLI	EPA 200.8	CD	7/8/2013	Bita Emami/Katia Kiarashpoor/Ethel Suico
					TLI	EPA 200.8	CO	7/8/2013	Bita Emami/Katia Kiarashpoor/Ethel Suico
					TLI	EPA 200.8	CR	7/8/2013	Bita Emami/Katia Kiarashpoor/Ethel Suico
					TLI	EPA 200.8	CU	7/8/2013	Bita Emami/Katia Kiarashpoor/Ethel Suico
					TLI	EPA 200.8	HG	7/15/2013	Bita Emami/Katia Kiarashpoor/Ethel Suico
					TLI	EPA 200.8	MN	7/10/2013	Bita Emami/Katia Kiarashpoor/Ethel Suico
					TLI	EPA 200.8	MO	7/8/2013	Bita Emami/Katia Kiarashpoor/Ethel Suico
					TLI	EPA 200.8	NI	7/24/2013	Bita Emami/Katia Kiarashpoor/Ethel Suico
					TLI	EPA 200.8	PB	7/8/2013	Bita Emami/Katia Kiarashpoor/Ethel Suico
					TLI	EPA 200.8	SB	7/15/2013	Bita Emami/Katia Kiarashpoor/Ethel Suico
					TLI	EPA 200.8	SE	7/8/2013	Bita Emami/Katia Kiarashpoor/Ethel Suico
					TLI	EPA 200.8	TL	7/15/2013	Bita Emami/Katia Kiarashpoor/Ethel Suico
					TLI	EPA 200.8	V	7/8/2013	Bita Emami/Katia Kiarashpoor/Ethel Suico
					TLI	EPA 218.6	CR6	7/3/2013	Tom Martinez
					TLI	EPA 300.0	FL	7/3/2013	Giawad Ghenniwa
					FIELD	HACH	PH	7/2/2013	J.Aide
					TLI	SM2540C	TDS	7/3/2013	Jenny Tankunakorn
Phase Separator	SC-Sludge-WDR-420	J.Aide	7/2/2013	1:34:00 PM	TLI	EPA 300.0	FL	7/3/2013	Giawad Ghenniwa

TABLE 8
Topock IM-3 Waste Discharge Applicable or Relevant and Appropriate Requirements (ARARs)
Monitoring Information
Third 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-420	J.Aide	7/2/2013	1:34:00 PM	TLI	EPA 300.0	NO3N	7/3/2013	Giawad Ghenniwa
					TLI	EPA 6010B	AG	7/29/2013	Denise Chauv
					TLI	EPA 6010B	AS	7/29/2013	Denise Chauv
					TLI	EPA 6010B	BA	7/12/2013	Denise Chauv
					TLI	EPA 6010B	CD	7/29/2013	Denise Chauv
					TLI	EPA 6010B	CO	7/12/2013	Denise Chauv
					TLI	EPA 6010B	CR	7/12/2013	Denise Chauv
					TLI	EPA 6010B	CRT-STLC	8/5/2013	Denise Chauv
					TLI	EPA 6010B	MN	7/29/2013	Denise Chauv
					TLI	EPA 6010B	MO	7/16/2013	Denise Chauv
					TLI	EPA 6010B	NI	7/12/2013	Denise Chauv
					TLI	EPA 6010B	SB	7/16/2013	Denise Chauv
					TLI	EPA 6010B	SE	7/29/2013	Denise Chauv
					TLI	EPA 6010B	TL	7/29/2013	Denise Chauv
					TLI	EPA 6010B	V	7/12/2013	Denise Chauv
					TLI	EPA 6010B	ZN	7/16/2013	Denise Chauv
					TLI	SM2540B	MOIST	7/8/2013	Gautam Savani
					TLI	SW 6020A	BE	8/1/2013	Ethel Suico
					TLI	SW 6020A	CU	8/1/2013	Ethel Suico
					TLI	SW 6020A	HG	7/13/2013	Ethel Suico
					TLI	SW 6020A	PB	8/1/2013	Ethel Suico
					TLI	SW 7199	CR6	7/10/2013	Himani Vaishnav

TABLE 8
Topock IM-3 Waste Discharge Applicable or Relevant and Appropriate Requirements (ARARs)
Monitoring Information
Third 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-420	J. Aide	07/2/2013	1:34:00 PM	ATL	96-Hour Acute Aquatic Toxicity Screening Test	BIO	7/10/2013 - 07/14/2013	Joseph A. LeMay

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

Figures

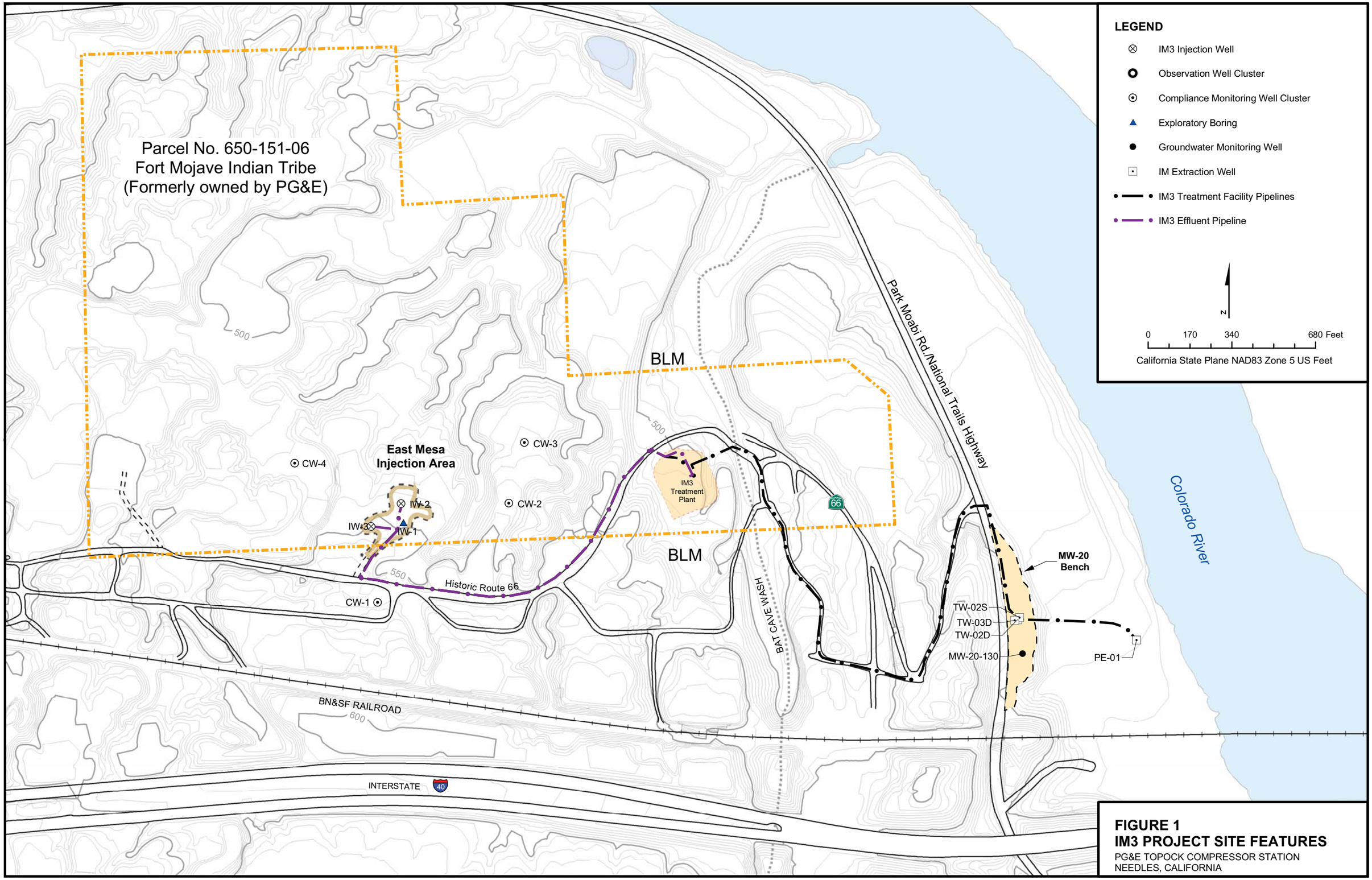
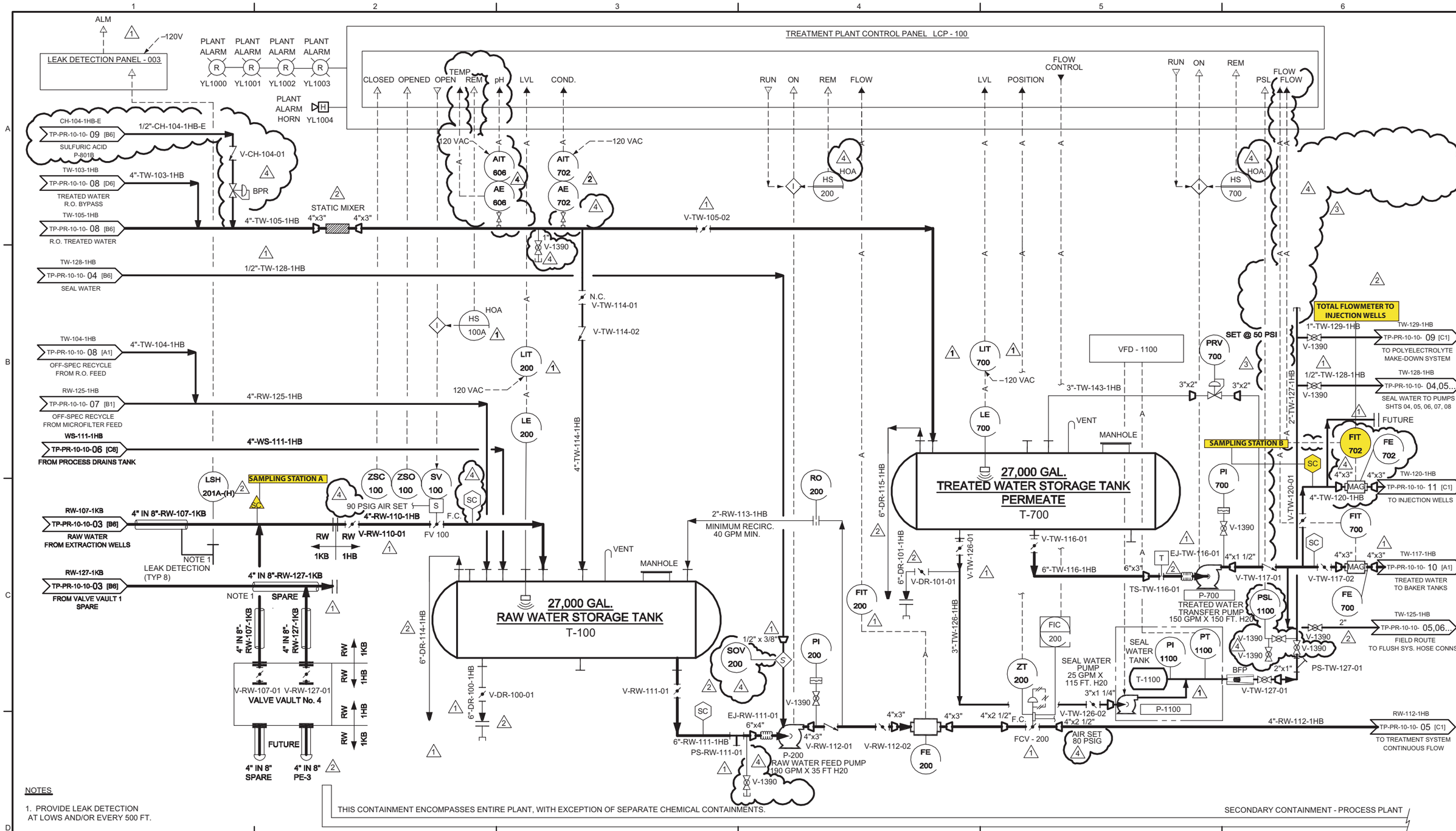


FIGURE 1
IM3 PROJECT SITE FEATURES
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

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



NOTES

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

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

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

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

SCALE NONE

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

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

PROJ NO. 315994

CH2MHILL

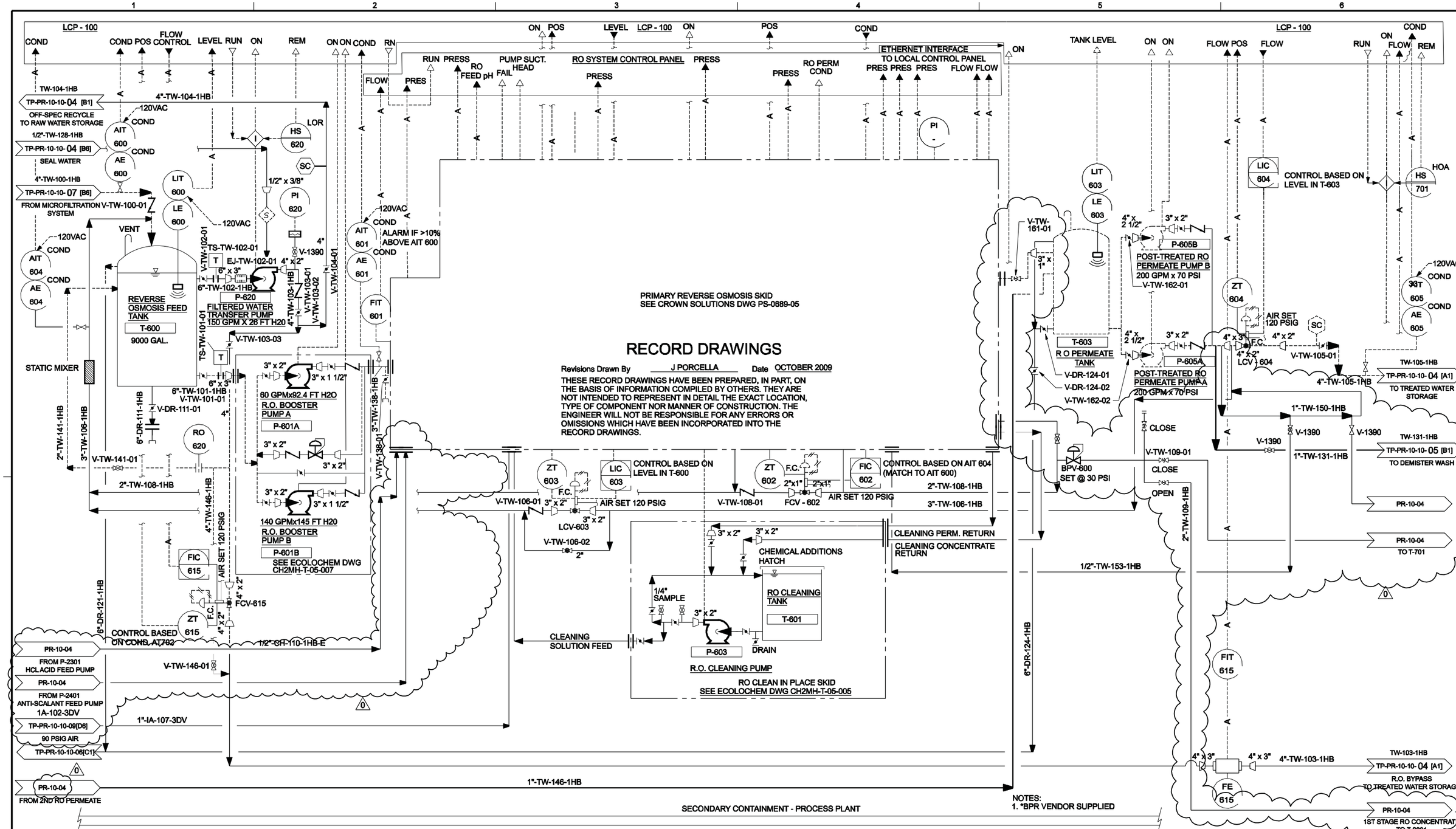
PROCESS AND INSTRUMENTATION DIAGRAM
SHEET 04
STORAGE AREA

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

BAR IS ONE INCH ON ORIGINAL DRAWING

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

REUSE OF DOCUMENTS: THIS DOCUMENT, AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF CH2M HILL AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CH2MHILL. ©CH2M HILL



THIS DOCUMENT, AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF CH2M HILL AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CH2MHILL. ©CH2M HILL

REUSE OF DOCUMENTS:

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

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

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

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

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

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

SCALE NONE

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

PROJ NO. 362032

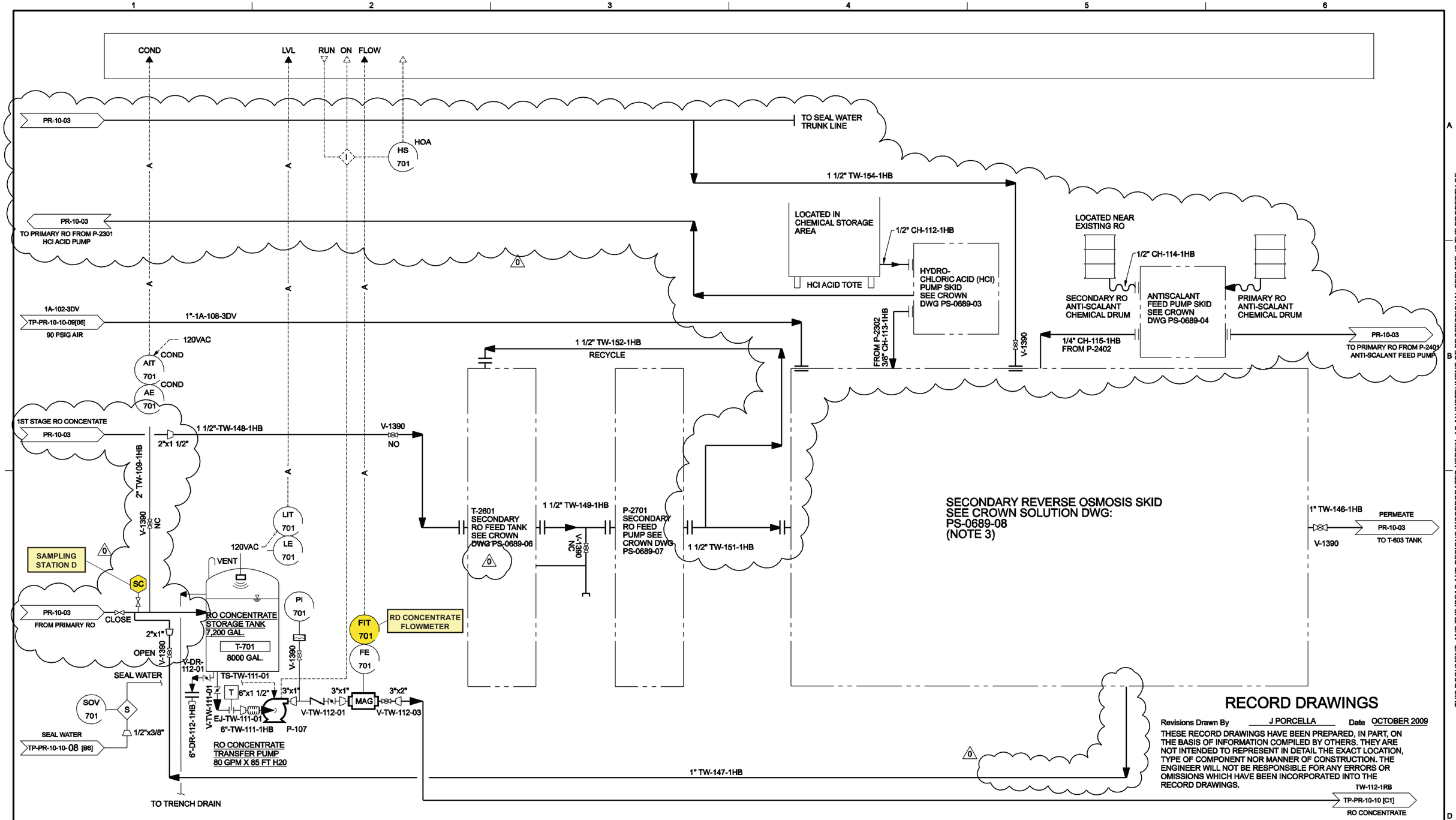
CH2MHILL

PROCESS AND INSTRUMENTATION DIAGRAM
REVERSE OSMOSIS SYSTEM
SHEET ONE OF TWO

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

BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

FILENAME: PR-10-03.dgn PLOT DATE: 11/19/2009 PLOT TIME: 10:27:54 AM



RECORD DRAWINGS

Revisions Drawn By J PORCELLA Date OCTOBER 2009

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

REUSE OF DOCUMENTS: THIS DOCUMENT, AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF CH2M HILL AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CH2MHILL. ©CH2M HILL

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

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

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

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

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

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

SCALE NONE

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

PROJ NO. 362032

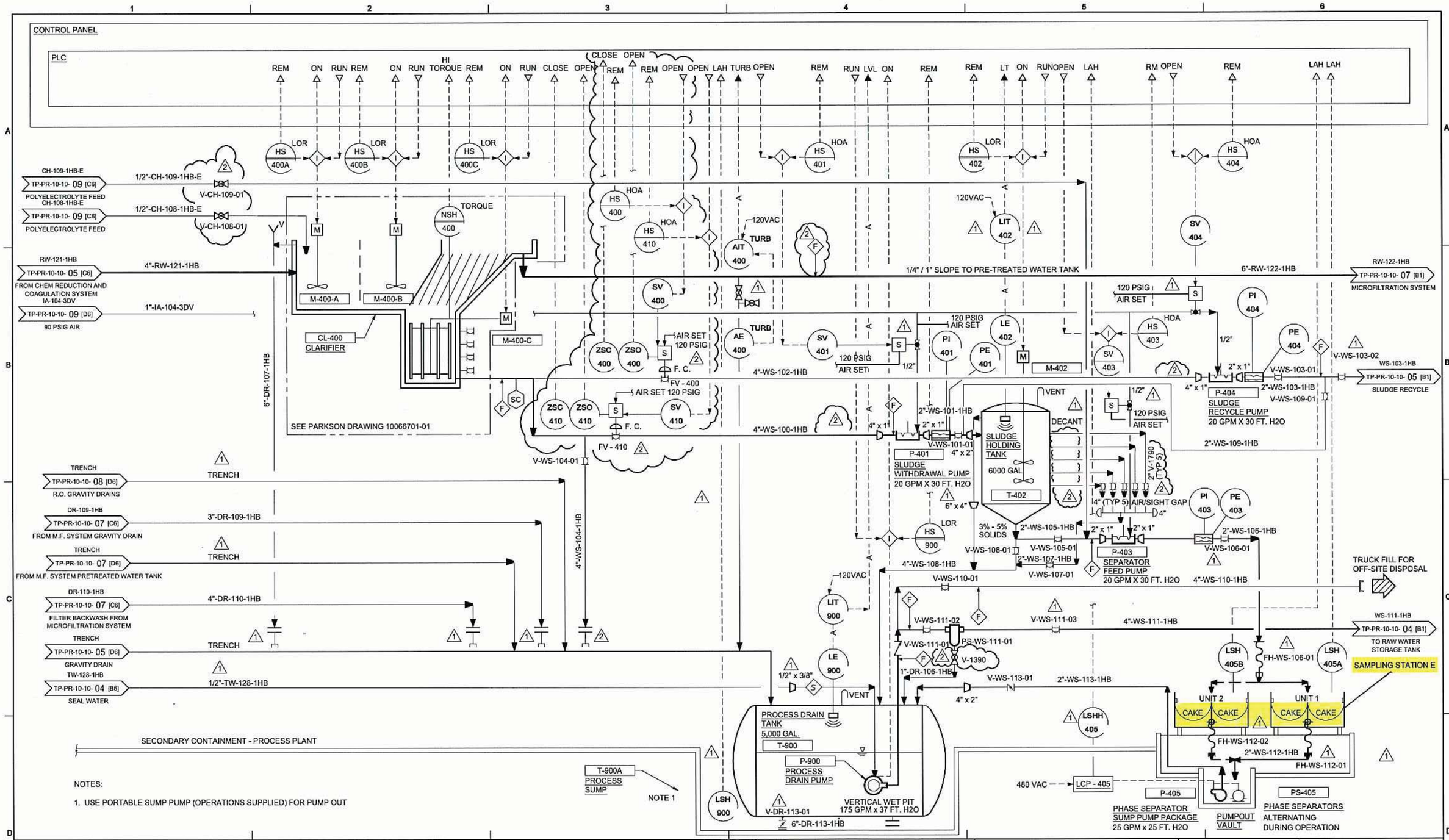
CH2MHILL

PROCESS AND INSTRUMENTATION DIAGRAM
REVERSE OSMOSIS SYSTEM
SHEET TWO OF TWO

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

BAR IS ONE INCH ON ORIGINAL DRAWING. 0 1"

FILENAME: PR-10-04.dgn PLOT DATE: 11/19/2009 PLOT TIME: 10:28:26 AM



NOTES:

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

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

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

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

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

SCALE NONE

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

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

PROJ NO. 315994

CH2MHILL

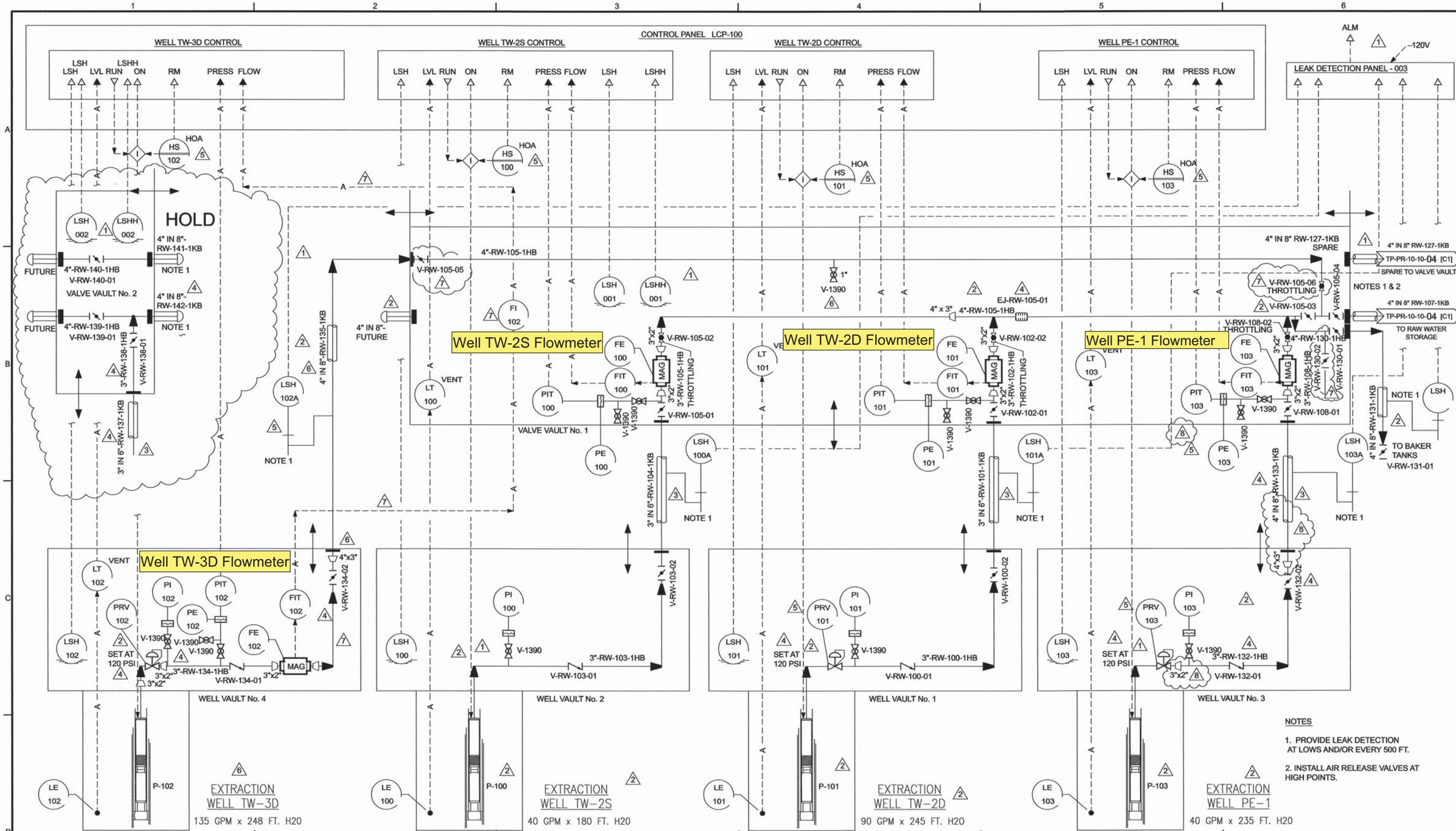
PROCESS AND INSTRUMENTATION DIAGRAM
SHEET 06
CLARIFICATION AND SLUDGE REMOVAL

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

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

BAR IS ONE INCH ON ORIGINAL DRAWING. 0 1"

REUSE OF DOCUMENTS: THIS DOCUMENT, AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF CH2M HILL AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CH2MHILL. ©CH2M HILL



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

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

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

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

SCALE NONE

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

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

PROJ NO. 315994

CH2MHILL

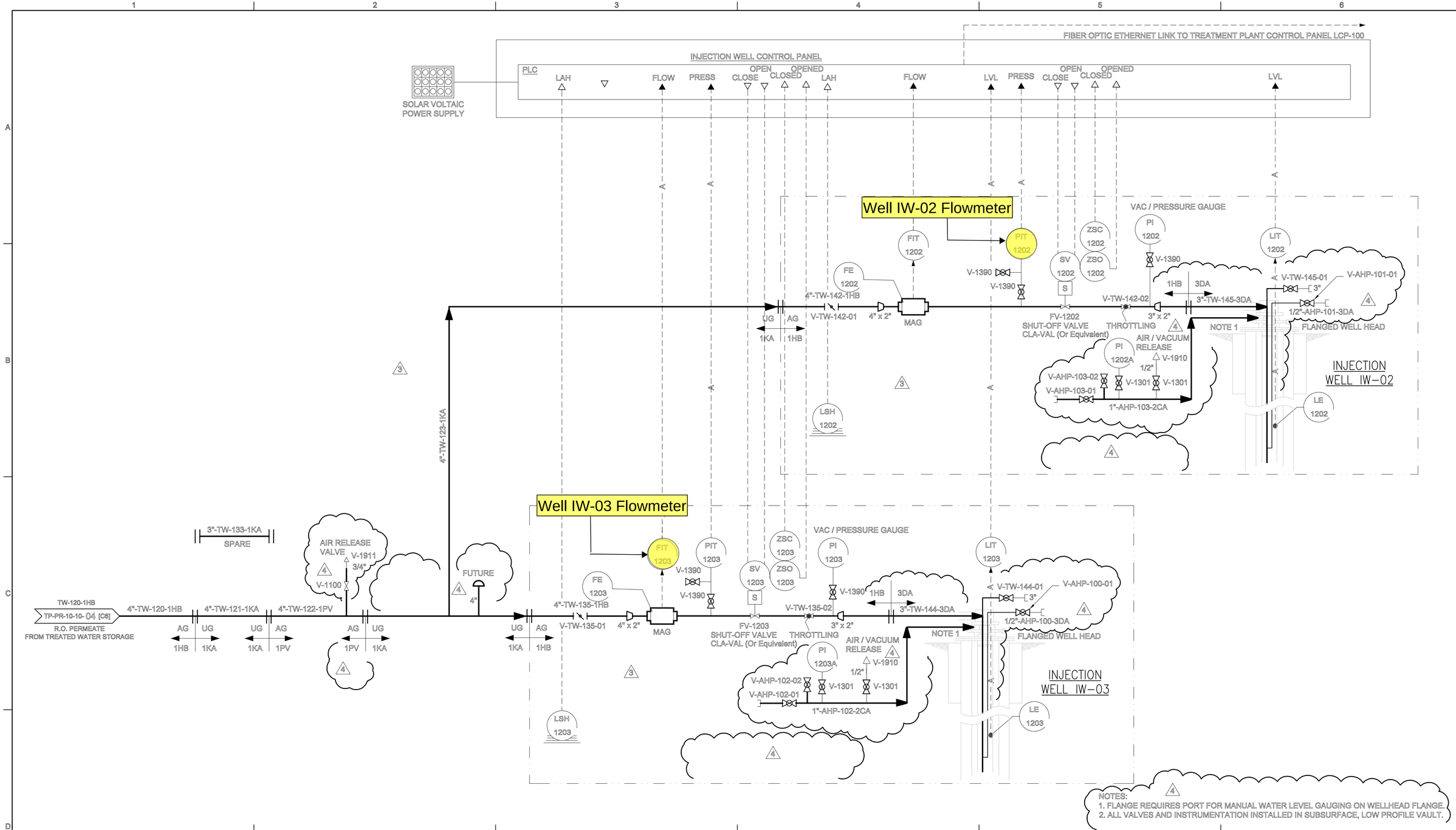
PROCESS AND INSTRUMENTATION DIAGRAM
SHEET 03
EXTRACTION WELLS
PE-1, TW-2D, TW-2S AND TW-3D

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

REUSE OF DOCUMENTS: THIS DOCUMENT, AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF CH2M HILL AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CH2MHILL. ©CH2M HILL

BAR IS ONE INCH
tppr101003.dwg 12/07/2005 01:06:58 PM

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



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

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

NO.	DATE	REVISION	BY	CHK
A	07/28/04	FOR INTERNAL REVIEW	EFC	AJ
0	09/03/04	APPROVED FOR CONSTRUCTION	EFC	AJ
1	10/13/04	REVISED AND APPROVED FOR CONSTRUCTION	EFC	AJ
2	01/23/05	REVISED AND APPROVED FOR CONSTRUCTION	EFC	AJ
3	02/14/05	REVISED AND APPROVED FOR CONSTRUCTION	EFC	AJ
4	03/10/05	REMOVED HOLD AND APPROVED FOR CONSTRUCTION	EFC	AJ

REVISION APPROVAL		REV 4	DATE 03/10/05	PRINT DISTRIBUTION	
DISCIPLINE	REVIEWED	DISCIPLINE	REVIEWED	DATE	
CIVIL		ELECTRICAL		STATUS	
STRUCTURAL		INST & CONTROL		REV.	
MECHANICAL		ARCHITECTURAL		CLIENT	
PROCESS		ENVIRONMENTAL		FIELD	
PIPING		GEN. ARRANG.		INTRA CO.	

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

SCALE NONE

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

PROJ NO. 315994

CH2MHILL

PROCESS AND INSTRUMENTATION DIAGRAM
SHEET 11
INJECTION WELLS

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

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

BAR IS ONE INCH ON ORIGINAL DRAWING. 0 1"

REUSE OF DOCUMENTS: THIS DOCUMENT, AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF CH2M HILL AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CH2MHILL.
©CH2M HILL

Appendix A
Third Quarter 2013 Laboratory Analytical Reports

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING
Established 1931
14201 FRANKLIN AVENUE
TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462
www.truesdail.com

July 30, 2013

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

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK IM3PLANT-WDR-420 PROJECT, GROUNDWATER MONITORING,

TLI NO.: 808804

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-420 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 July 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.

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

The internal standard for sample SC-701-WDR-420 analyzed at a 2x dilution for Total Antimony, Mercury, and Thallium by EPA 200.8 and was outside the recovery limits of 70% - 130% as a result of matrix interference. Therefore, the samples were re-analyzed at 5x dilutions. The internal standards were within acceptable limits. Due to the dilutions, the reporting limits for these metals exceed the Contract Required Detection Limits. All other QA/QC were within acceptable limits.

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

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

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING
Established 1931
14201 FRANKLIN AVENUE
TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462
www.truesdail.com

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

Laboratory No.: 808804
Date: July 30, 2013
Collected: July 2, 2013
Received: July 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	Maria Mangarova
SM 4500-NO2 B	Nitrite as N	Jenny Tankunakorn
EPA 200.7	Metals by ICP	Denise Chauv
EPA 200.8	Metals by ICP/MS	Bita Emami / Katia Kiarashpoor / Ethel Suico
EPA 218.6	Hexavalent Chromium	Tom Martinez

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

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

Attention: Shawn Duffy

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

Laboratory No.: 808804
Date Received: July 2, 2013

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
808804-001	SC-700B-WDR-420	E120.1	NONE	7/2/2013	12:33	EC	6120	umhos/cm	2.00
808804-001	SC-700B-WDR-420	E200.7	NONE	7/2/2013	12:33	Aluminum	ND	ug/L	20.0
808804-001	SC-700B-WDR-420	E200.7	NONE	7/2/2013	12:33	BORON	847	ug/L	200
808804-001	SC-700B-WDR-420	E200.7	NONE	7/2/2013	12:33	Iron	ND	ug/L	20.0
808804-001	SC-700B-WDR-420	E200.7	NONE	7/2/2013	12:33	Zinc	ND	ug/L	20.0
808804-001	SC-700B-WDR-420	E200.8	NONE	7/2/2013	12:33	Antimony	ND	ug/L	2.0
808804-001	SC-700B-WDR-420	E200.8	NONE	7/2/2013	12:33	Arsenic	ND	ug/L	0.50
808804-001	SC-700B-WDR-420	E200.8	NONE	7/2/2013	12:33	Barium	8.6	ug/L	5.0
808804-001	SC-700B-WDR-420	E200.8	NONE	7/2/2013	12:33	Chromium	ND	ug/L	1.0
808804-001	SC-700B-WDR-420	E200.8	NONE	7/2/2013	12:33	Copper	ND	ug/L	5.0
808804-001	SC-700B-WDR-420	E200.8	NONE	7/2/2013	12:33	Lead	ND	ug/L	1.0
808804-001	SC-700B-WDR-420	E200.8	NONE	7/2/2013	12:33	Manganese	2.6	ug/L	0.50
808804-001	SC-700B-WDR-420	E200.8	NONE	7/2/2013	12:33	Molybdenum	16.3	ug/L	2.0
808804-001	SC-700B-WDR-420	E200.8	NONE	7/2/2013	12:33	Nickel	ND	ug/L	2.0
808804-001	SC-700B-WDR-420	E218.6	LABFLT	7/2/2013	12:33	Chromium, Hexavalent	0.21	ug/L	0.20
808804-001	SC-700B-WDR-420	E300	NONE	7/2/2013	12:33	Fluoride	1.77	mg/L	0.500
808804-001	SC-700B-WDR-420	E300	NONE	7/2/2013	12:33	Nitrate as N	2.55	mg/L	0.500
808804-001	SC-700B-WDR-420	E300	NONE	7/2/2013	12:33	Sulfate	454	mg/L	50.0
808804-001	SC-700B-WDR-420	SM2130B	NONE	7/2/2013	12:33	Turbidity	0.102	NTU	0.100
808804-001	SC-700B-WDR-420	SM2540C	NONE	7/2/2013	12:33	Total Dissolved Solids	3820	mg/L	125
808804-001	SC-700B-WDR-420	SM4500NH3D	NONE	7/2/2013	12:33	Ammonia-N	0.570	mg/L	0.500
808804-001	SC-700B-WDR-420	SM4500NO2B	NONE	7/2/2013	12:33	Nitrite as N	ND	mg/L	0.0050

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

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
808804-002	SC-100B-WDR-420	E120.1	NONE	7/2/2013	12:25	EC	6640	umhos/cm	2.00
808804-002	SC-100B-WDR-420	E200.7	NONE	7/2/2013	12:25	Aluminum	ND	ug/L	20.0
808804-002	SC-100B-WDR-420	E200.7	NONE	7/2/2013	12:25	BORON	845	ug/L	200
808804-002	SC-100B-WDR-420	E200.7	NONE	7/2/2013	12:25	Iron	ND	ug/L	20.0
808804-002	SC-100B-WDR-420	E200.7	NONE	7/2/2013	12:25	Zinc	ND	ug/L	20.0
808804-002	SC-100B-WDR-420	E200.8	NONE	7/2/2013	12:25	Antimony	ND	ug/L	2.0
808804-002	SC-100B-WDR-420	E200.8	NONE	7/2/2013	12:25	Arsenic	3.5	ug/L	0.50
808804-002	SC-100B-WDR-420	E200.8	NONE	7/2/2013	12:25	Barium	24.9	ug/L	5.0
808804-002	SC-100B-WDR-420	E200.8	NONE	7/2/2013	12:25	Chromium	633	ug/L	2.0
808804-002	SC-100B-WDR-420	E200.8	NONE	7/2/2013	12:25	Copper	ND	ug/L	5.0
808804-002	SC-100B-WDR-420	E200.8	NONE	7/2/2013	12:25	Lead	ND	ug/L	1.0
808804-002	SC-100B-WDR-420	E200.8	NONE	7/2/2013	12:25	Manganese	4.3	ug/L	0.50
808804-002	SC-100B-WDR-420	E200.8	NONE	7/2/2013	12:25	Molybdenum	19.1	ug/L	2.0
808804-002	SC-100B-WDR-420	E200.8	NONE	7/2/2013	12:25	Nickel	ND	ug/L	2.0
808804-002	SC-100B-WDR-420	E218.6	LABFLT	7/2/2013	12:25	Chromium, Hexavalent	626	ug/L	10.0
808804-002	SC-100B-WDR-420	E300	NONE	7/2/2013	12:25	Fluoride	2.59	mg/L	0.500
808804-002	SC-100B-WDR-420	E300	NONE	7/2/2013	12:25	Nitrate as N	2.88	mg/L	0.500
808804-002	SC-100B-WDR-420	E300	NONE	7/2/2013	12:25	Sulfate	525	mg/L	25.0
808804-002	SC-100B-WDR-420	SM2130B	NONE	7/2/2013	12:25	Turbidity	ND	NTU	0.100
808804-002	SC-100B-WDR-420	SM2540C	NONE	7/2/2013	12:25	Total Dissolved Solids	4460	mg/L	125
808804-002	SC-100B-WDR-420	SM4500NH3D	NONE	7/2/2013	12:25	Ammonia-N	ND	mg/L	0.500
808804-002	SC-100B-WDR-420	SM4500NO2B	NONE	7/2/2013	12:25	Nitrite as N	ND	mg/L	0.0050

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

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
808804-003	SC-701-WDR-420	E120.1	NONE	7/2/2013	12:20	EC	37900	umhos/cm	2.00
808804-003	SC-701-WDR-420	E200.7	NONE	7/2/2013	12:20	Zinc	ND	ug/L	20.0
808804-003	SC-701-WDR-420	E200.8	NONE	7/2/2013	12:20	Antimony	ND	ug/L	3.5
808804-003	SC-701-WDR-420	E200.8	NONE	7/2/2013	12:20	Arsenic	1.1	ug/L	0.50
808804-003	SC-701-WDR-420	E200.8	NONE	7/2/2013	12:20	Barium	75.0	ug/L	5.0
808804-003	SC-701-WDR-420	E200.8	NONE	7/2/2013	12:20	Beryllium	ND	ug/L	0.50
808804-003	SC-701-WDR-420	E200.8	NONE	7/2/2013	12:20	Cadmium	ND	ug/L	1.0
808804-003	SC-701-WDR-420	E200.8	NONE	7/2/2013	12:20	Chromium	2.9	ug/L	1.0
808804-003	SC-701-WDR-420	E200.8	NONE	7/2/2013	12:20	Cobalt	ND	ug/L	5.0
808804-003	SC-701-WDR-420	E200.8	NONE	7/2/2013	12:20	Copper	ND	ug/L	5.0
808804-003	SC-701-WDR-420	E200.8	NONE	7/2/2013	12:20	Lead	ND	ug/L	1.0
808804-003	SC-701-WDR-420	E200.8	NONE	7/2/2013	12:20	Manganese	38.3	ug/L	0.50
808804-003	SC-701-WDR-420	E200.8	NONE	7/2/2013	12:20	Mercury	ND	ug/L	1.0
808804-003	SC-701-WDR-420	E200.8	NONE	7/2/2013	12:20	Molybdenum	118	ug/L	2.5
808804-003	SC-701-WDR-420	E200.8	NONE	7/2/2013	12:20	Nickel	4.0	ug/L	4.0
808804-003	SC-701-WDR-420	E200.8	NONE	7/2/2013	12:20	Selenium	23.6	ug/L	5.0
808804-003	SC-701-WDR-420	E200.8	NONE	7/2/2013	12:20	Silver	ND	ug/L	5.0
808804-003	SC-701-WDR-420	E200.8	NONE	7/2/2013	12:20	Thallium	ND	ug/L	2.0
808804-003	SC-701-WDR-420	E200.8	NONE	7/2/2013	12:20	Vanadium	ND	ug/L	5.0
808804-003	SC-701-WDR-420	E218.6	LABFLT	7/2/2013	12:20	Chromium, Hexavalent	ND	ug/L	2.0
808804-003	SC-701-WDR-420	E300	NONE	7/2/2013	12:20	Fluoride	14.8	mg/L	0.500
808804-003	SC-701-WDR-420	SM2540C	NONE	7/2/2013	12:20	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.

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

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

REPORT

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

Laboratory No. 808804

Printed 7/30/2013

Samples Received on 7/2/2013 9:30:00 PM

Field ID	Lab ID	Collected	Matrix
SC-700B-WDR-420	808804-001	07/02/2013 12:33	Water
SC-100B-WDR-420	808804-002	07/02/2013 12:25	Water
SC-701-WDR-420	808804-003	07/02/2013 12:20	Water

Anions By I.C. - EPA 300.0 Batch 07AN13C

Parameter	Unit	Analyzed	DF	MDL	RL	Result
808804-001 Fluoride	mg/L	07/03/2013 10:08	5.00	0.104	0.500	1.77
Nitrate as Nitrogen	mg/L	07/03/2013 10:08	5.00	0.0415	0.500	2.55
Sulfate	mg/L	07/03/2013 11:39	100	3.07	50.0	454
808804-002 Fluoride	mg/L	07/03/2013 10:19	5.00	0.104	0.500	2.59
Nitrate as Nitrogen	mg/L	07/03/2013 10:19	5.00	0.0415	0.500	2.88
Sulfate	mg/L	07/03/2013 12:36	50.0	1.54	25.0	525
808804-003 Fluoride	mg/L	07/03/2013 10:54	5.00	0.104	0.500	14.8

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 = 808804-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Sulfate	mg/L	100	456	454	0.365	0 - 20

Duplicate — Lab ID = 808804-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Fluoride	mg/L	5.00	2.59	2.59	0.0386	0 - 20
Nitrate as Nitrogen	mg/L	5.00	2.85	2.88	1.08	0 - 20

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

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

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Fluoride	mg/L	1.00	4.08	4.00	102	90 - 110
Sulfate	mg/L	1.00	19.8	20.0	99.2	90 - 110
Nitrate as Nitrogen	mg/L	1.00	3.99	4.00	99.7	90 - 110

Matrix Spike — Lab ID = 808804-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Sulfate	mg/L	100	1530	1450(1000)	107	85 - 115

Matrix Spike — Lab ID = 808804-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Fluoride	mg/L	5.00	22.5	22.6(20.0)	99.8	85 - 115
Nitrate as Nitrogen	mg/L	5.00	22.7	22.9(20.0)	99.3	85 - 115

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Fluoride	mg/L	1.00	4.14	4.00	103	90 - 110
Sulfate	mg/L	1.00	20.2	20.0	101	90 - 110
Nitrate as Nitrogen	mg/L	1.00	4.04	4.00	101	90 - 110

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Fluoride	mg/L	1.00	3.08	3.00	103	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Fluoride	mg/L	1.00	3.10	3.00	103	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sulfate	mg/L	1.00	14.9	15.0	99.6	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sulfate	mg/L	1.00	15.0	15.0	99.8	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sulfate	mg/L	1.00	14.9	15.0	99.5	90 - 110
Nitrate as Nitrogen	mg/L	1.00	2.99	3.00	99.6	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.

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	99.7	90 - 110

Nitrite SM 4500-NO2 B

Batch 07NO213C

Parameter	Unit	Analyzed	DF	MDL	RL	Result
808804-001 Nitrite as Nitrogen	mg/L	07/03/2013 16:03	1.00	0.000630	0.0050	ND
808804-002 Nitrite as Nitrogen	mg/L	07/03/2013 16:04	1.00	0.000630	0.0050	ND

Method Blank

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

Duplicate — Lab ID = 808804-002

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	0.0279	0.0280	99.6	90 - 110

Matrix Spike — Lab ID = 808804-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Nitrite as Nitrogen	mg/L	1.00	0.0286	0.0280(0.0280)	102	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrite as Nitrogen	mg/L	1.00	0.0279	0.0280	99.6	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrite as Nitrogen	mg/L	1.00	0.0200	0.0200	100	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

Specific Conductivity - EPA 120.1

Batch 07EC13B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
808804-001 Specific Conductivity	umhos/cm	07/08/2013	1.00	0.606	2.00	6120
808804-002 Specific Conductivity	umhos/cm	07/08/2013	1.00	0.606	2.00	6640
808804-003 Specific Conductivity	umhos/cm	07/08/2013	1.00	0.606	2.00	37900

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate

Lab ID = 808804-003

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	37900	37900	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	674	706	95.5	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	903	996	90.7	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.

Chrome VI by EPA 218.6

Batch 07CrH13G

Parameter	Unit	Analyzed	DF	MDL	RL	Result
808804-001 Chromium, Hexavalent	ug/L	07/03/2013 09:36	1.00	0.00920	0.20	0.21
808804-002 Chromium, Hexavalent	ug/L	07/03/2013 09:57	50.0	0.460	10.0	626
808804-003 Chromium, Hexavalent	ug/L	07/03/2013 10:49	10.0	0.0920	2.0	ND

Method Blank

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

Duplicate — Lab ID = 808805-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.70	4.70	0.119	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.183	0.200	91.6	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.14	5.00	103	90 - 110

Matrix Spike — Lab ID = 808804-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.36	5.21(5.00)	103	90 - 110

Matrix Spike — Lab ID = 808804-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.24	1.21(1.00)	103	90 - 110

Matrix Spike — Lab ID = 808804-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	1340	1380(750)	95.4	90 - 110

Matrix Spike — Lab ID = 808804-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	10.0	50.7	51.4(50.0)	98.7	90 - 110

Matrix Spike — Lab ID = 808805-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.62	9.70(5.00)	98.4	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.14	5.00	103	90 - 110

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.

Metals by EPA 200.7, Total

Batch 071113A-Th2

Parameter	Unit	Analyzed	DF	MDL	RL	Result
808804-001 Aluminum	ug/L	07/11/2013 15:46	1.00	10.0	20.0	ND
Boron	ug/L	07/11/2013 15:46	1.00	6.00	200	847
Iron	ug/L	07/11/2013 15:46	1.00	9.50	20.0	ND
Zinc	ug/L	07/11/2013 15:46	1.00	7.00	20.0	ND
808804-002 Aluminum	ug/L	07/11/2013 14:57	1.00	10.0	20.0	ND
Boron	ug/L	07/11/2013 14:57	1.00	6.00	200	845
Iron	ug/L	07/11/2013 14:57	1.00	9.50	20.0	ND
Zinc	ug/L	07/11/2013 14:57	1.00	7.00	20.0	ND
808804-003 Zinc	ug/L	07/11/2013 15:52	1.00	7.00	20.0	ND

Method Blank

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

Duplicate

Lab ID = 808804-002

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	870	845	2.93	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Aluminum	ug/L	1.00	2160	2000	108	85 - 115
Iron	ug/L	1.00	2150	2000	108	85 - 115
Zinc	ug/L	1.00	2160	2000	108	85 - 115
Boron	ug/L	1.00	1910	2000	95.6	85 - 115

Matrix Spike

Lab ID = 808804-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Aluminum	ug/L	1.00	1520	2000(2000)	75.8	75 - 125
Iron	ug/L	1.00	1800	2000(2000)	90.0	75 - 125
Zinc	ug/L	1.00	2230	2000(2000)	111	75 - 125
Boron	ug/L	1.00	2680	2840(2000)	91.8	75 - 125

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.

Matrix Spike Duplicate Lab ID = 808804-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Aluminum	ug/L	1.00	1520	2000(2000)	76.2	75 - 125
Iron	ug/L	1.00	1850	2000(2000)	92.6	75 - 125
Zinc	ug/L	1.00	2200	2000(2000)	110	75 - 125
Boron	ug/L	1.00	2720	2840(2000)	93.8	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Aluminum	ug/L	1.00	5160	5000	103	95 - 105
Iron	ug/L	1.00	4860	5000	97.3	95 - 105
Zinc	ug/L	1.00	5190	5000	104	95 - 105
Boron	ug/L	1.00	4880	5000	97.5	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Aluminum	ug/L	1.00	4950	5000	99.0	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Aluminum	ug/L	1.00	5030	5000	101	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	4980	5000	99.6	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	4840	5000	96.9	90 - 110

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Zinc	ug/L	1.00	5070	5000	101	90 - 110
Boron	ug/L	1.00	4820	5000	96.5	90 - 110

MRCVS - Primary

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

Metals by EPA 200.8, Total Batch 070813A

Parameter		Unit	Analyzed	DF	MDL	RL	Result
808804-001	Arsenic	ug/L	07/08/2013 11:54	2.00	0.200	0.50	ND
	Barium	ug/L	07/08/2013 11:54	2.00	0.376	5.0	8.6
	Chromium	ug/L	07/08/2013 11:54	2.00	0.184	1.0	ND
	Copper	ug/L	07/08/2013 11:54	2.00	0.514	5.0	ND
	Lead	ug/L	07/08/2013 11:54	2.00	0.148	1.0	ND
	Molybdenum	ug/L	07/08/2013 11:54	2.00	0.414	2.0	16.3
808804-002	Arsenic	ug/L	07/08/2013 13:03	2.00	0.200	0.50	3.5
	Barium	ug/L	07/08/2013 13:03	2.00	0.376	5.0	24.9
	Chromium	ug/L	07/08/2013 12:50	10.0	0.920	2.0	633
	Copper	ug/L	07/08/2013 13:03	2.00	0.514	5.0	ND
	Lead	ug/L	07/08/2013 13:03	2.00	0.148	1.0	ND
	Molybdenum	ug/L	07/08/2013 13:03	2.00	0.414	2.0	19.1
808804-003	Arsenic	ug/L	07/08/2013 13:15	2.00	0.200	0.50	1.1
	Barium	ug/L	07/08/2013 13:51	5.00	0.940	5.0	75.0
	Cadmium	ug/L	07/08/2013 13:15	2.00	0.174	1.0	ND
	Chromium	ug/L	07/08/2013 13:51	5.00	0.460	1.0	2.9
	Cobalt	ug/L	07/08/2013 13:15	2.00	0.158	5.0	ND
	Copper	ug/L	07/08/2013 13:15	2.00	0.514	5.0	ND
	Lead	ug/L	07/08/2013 13:15	2.00	0.148	1.0	ND
	Molybdenum	ug/L	07/08/2013 13:51	5.00	1.04	2.5	118
	Selenium	ug/L	07/08/2013 13:51	5.00	0.400	5.0	23.6
	Silver	ug/L	07/08/2013 13:15	2.00	0.108	5.0	ND
	Vanadium	ug/L	07/08/2013 13:15	2.00	0.362	5.0	ND

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

Method Blank

Parameter	Unit	DF	Result
Arsenic	ug/L	1.00	ND
Barium	ug/L	1.00	ND
Cadmium	ug/L	1.00	ND
Cobalt	ug/L	1.00	ND
Chromium	ug/L	1.00	ND
Nickel	ug/L	1.00	ND
Selenium	ug/L	1.00	ND
Copper	ug/L	1.00	ND
Lead	ug/L	1.00	ND
Silver	ug/L	1.00	ND
Vanadium	ug/L	1.00	ND
Molybdenum	ug/L	1.00	ND

Duplicate — Lab ID = 808804-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Arsenic	ug/L	2.00	ND	0	0	0 - 20
Barium	ug/L	2.00	9.05	8.58	5.34	0 - 20
Cadmium	ug/L	2.00	ND	0	0	0 - 20
Cobalt	ug/L	2.00	ND	0	0	0 - 20
Chromium	ug/L	2.00	ND	0	0	0 - 20
Nickel	ug/L	2.00	ND	0	0	0 - 20
Selenium	ug/L	2.00	ND	0	0	0 - 20
Copper	ug/L	2.00	ND	0	0	0 - 20
Lead	ug/L	2.00	ND	0	0	0 - 20
Silver	ug/L	2.00	ND	0	0	0 - 20
Vanadium	ug/L	2.00	ND	0	0	0 - 20
Molybdenum	ug/L	2.00	17.0	16.3	4.52	0 - 20

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

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	0.243	0.200	122	70 - 130
Barium	ug/L	1.00	0.487	0.500	97.4	70 - 130
Cadmium	ug/L	1.00	0.203	0.200	102	70 - 130
Cobalt	ug/L	1.00	0.186	0.200	93.0	70 - 130
Chromium	ug/L	1.00	0.209	0.200	104	70 - 130
Nickel	ug/L	1.00	1.94	2.00	96.8	70 - 130
Selenium	ug/L	1.00	0.225	0.200	112	70 - 130
Copper	ug/L	1.00	0.461	0.500	92.2	70 - 130
Lead	ug/L	1.00	0.193	0.200	96.5	70 - 130
Silver	ug/L	1.00	0.553	0.500	111	70 - 130
Vanadium	ug/L	1.00	0.563	0.500	113	70 - 130
Molybdenum	ug/L	1.00	0.483	0.500	96.6	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	2.00	49.0	50.0	98.0	85 - 115
Barium	ug/L	2.00	49.7	50.0	99.4	85 - 115
Cadmium	ug/L	2.00	48.7	50.0	97.4	85 - 115
Cobalt	ug/L	2.00	49.9	50.0	99.9	85 - 115
Chromium	ug/L	2.00	50.2	50.0	100	85 - 115
Nickel	ug/L	2.00	49.8	50.0	99.6	85 - 115
Selenium	ug/L	2.00	46.9	50.0	93.8	85 - 115
Copper	ug/L	2.00	49.2	50.0	98.5	85 - 115
Lead	ug/L	2.00	48.9	50.0	97.7	85 - 115
Silver	ug/L	2.00	48.1	50.0	96.2	85 - 115
Vanadium	ug/L	2.00	50.2	50.0	100	85 - 115
Molybdenum	ug/L	2.00	48.4	50.0	96.8	85 - 115

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

Matrix Spike

Lab ID = 808804-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	2.00	48.6	50.0(50.0)	97.1	75 - 125
Barium	ug/L	2.00	56.4	58.6(50.0)	95.8	75 - 125
Cadmium	ug/L	2.00	42.9	50.0(50.0)	85.8	75 - 125
Cobalt	ug/L	2.00	46.9	50.0(50.0)	93.8	75 - 125
Chromium	ug/L	2.00	48.6	50.0(50.0)	97.3	75 - 125
Nickel	ug/L	2.00	44.4	50.0(50.0)	88.8	75 - 125
Selenium	ug/L	2.00	48.5	50.0(50.0)	96.9	75 - 125
Copper	ug/L	2.00	43.9	50.0(50.0)	87.9	75 - 125
Lead	ug/L	2.00	43.5	50.0(50.0)	87.1	75 - 125
Silver	ug/L	2.00	41.1	50.0(50.0)	82.2	75 - 125
Vanadium	ug/L	2.00	51.4	50.0(50.0)	103	75 - 125
Molybdenum	ug/L	2.00	62.6	66.3(50.0)	92.7	75 - 125

Matrix Spike Duplicate

Lab ID = 808804-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	2.00	48.8	50.0(50.0)	97.6	75 - 125
Barium	ug/L	2.00	57.5	58.6(50.0)	97.8	75 - 125
Cadmium	ug/L	2.00	43.5	50.0(50.0)	87.1	75 - 125
Cobalt	ug/L	2.00	47.4	50.0(50.0)	94.7	75 - 125
Chromium	ug/L	2.00	48.3	50.0(50.0)	96.7	75 - 125
Nickel	ug/L	2.00	44.8	50.0(50.0)	89.7	75 - 125
Selenium	ug/L	2.00	48.8	50.0(50.0)	97.6	75 - 125
Copper	ug/L	2.00	44.0	50.0(50.0)	88.0	75 - 125
Lead	ug/L	2.00	43.9	50.0(50.0)	87.8	75 - 125
Silver	ug/L	2.00	41.2	50.0(50.0)	82.4	75 - 125
Vanadium	ug/L	2.00	51.9	50.0(50.0)	104	75 - 125
Molybdenum	ug/L	2.00	63.1	66.3(50.0)	93.6	75 - 125

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.

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	19.1	20.0	95.5	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Copper	ug/L	1.00	18.0	20.0	90.3	80 - 120
Lead	ug/L	1.00	ND	0		

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Lead	ug/L	1.00	ND	0		
Silver	ug/L	1.00	19.2	20.0	96.2	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Silver	ug/L	1.00	19.4	20.0	97.0	80 - 120
Vanadium	ug/L	1.00	ND	0		

Interference Check Standard AB

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

Interference Check Standard AB

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

Serial Dilution Lab ID = 808804-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Barium	ug/L	50.0	24.6	24.9	1.08	0 - 10
Chromium	ug/L	50.0	626	633	1.12	0 - 10

Serial Dilution Lab ID = 808804-003

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Barium	ug/L	25.0	77.3	75.0	2.98	0 - 10
Molybdenum	ug/L	25.0	120	118	1.63	0 - 10

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.

Metals by EPA 200.8, Total Batch 071013A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
808804-001 Manganese	ug/L	07/10/2013 11:08	2.00	0.172	0.50	2.6
808804-002 Manganese	ug/L	07/10/2013 11:56	2.00	0.172	0.50	4.3
808804-003 Manganese	ug/L	07/10/2013 12:02	2.00	0.172	0.50	38.3

Method Blank

Parameter	Unit	DF	Result
Manganese	ug/L	1.00	ND

Duplicate — Lab ID = 808804-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Manganese	ug/L	2.00	2.54	2.57	1.06	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	0.242	0.200	121	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	2.00	50.7	50.0	101	85 - 115

Matrix Spike — Lab ID = 808804-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Manganese	ug/L	2.00	50.6	52.6(50.0)	96.0	75 - 125

Matrix Spike Duplicate — Lab ID = 808804-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Manganese	ug/L	2.00	50.9	52.6(50.0)	96.7	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	19.7	20.0	98.6	90 - 110

MRCVS - Primary

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

MRCVS - Primary

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

Interference Check Standard A

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

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

Interference Check Standard A

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

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	19.7	20.0	98.7	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	19.3	20.0	96.7	80 - 120

Serial Dilution Lab ID = 808804-003

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Manganese	ug/L	10.0	37.4	38.3	2.36	0 - 10

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.

Metals by EPA 200.8, Total

Batch 071513A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
808804-003 Antimony	ug/L	07/15/2013 14:38	5.00	1.66	3.5	ND
Beryllium	ug/L	07/15/2013 14:30	2.00	0.0600	0.50	ND
Mercury	ug/L	07/15/2013 14:38	5.00	0.200	1.0	ND
Thallium	ug/L	07/15/2013 14:38	5.00	0.565	2.0	ND

Method Blank

Parameter	Unit	DF	Result
Beryllium	ug/L	1.00	ND
Mercury	ug/L	1.00	ND
Antimony	ug/L	1.00	ND
Thallium	ug/L	1.00	ND

Duplicate

Lab ID = 808804-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Beryllium	ug/L	2.00	ND	0	0	0 - 20
Mercury	ug/L	2.00	ND	0	0	0 - 20
Antimony	ug/L	2.00	ND	0	0	0 - 20
Thallium	ug/L	2.00	ND	0	0	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Beryllium	ug/L	1.00	0.231	0.200	116	70 - 130
Mercury	ug/L	1.00	0.212	0.200	106	70 - 130
Antimony	ug/L	1.00	0.631	0.700	90.1	70 - 130
Thallium	ug/L	1.00	0.419	0.400	105	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Beryllium	ug/L	2.00	56.1	50.0	112	85 - 115
Mercury	ug/L	2.00	5.38	5.00	108	85 - 115
Antimony	ug/L	2.00	50.1	50.0	100	85 - 115
Thallium	ug/L	2.00	55.1	50.0	110	85 - 115

Matrix Spike

Lab ID = 808804-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Beryllium	ug/L	2.00	53.3	50.0(50.0)	106	75 - 125
Mercury	ug/L	2.00	4.74	5.00(5.00)	94.8	75 - 125
Antimony	ug/L	2.00	50.0	50.0(50.0)	100	75 - 125
Thallium	ug/L	2.00	44.2	50.0(50.0)	88.4	75 - 125

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.

Matrix Spike Duplicate Lab ID = 808804-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Beryllium	ug/L	2.00	53.8	50.0(50.0)	108	75 - 125
Mercury	ug/L	2.00	4.94	5.00(5.00)	98.8	75 - 125
Antimony	ug/L	2.00	51.5	50.0(50.0)	103	75 - 125
Thallium	ug/L	2.00	46.8	50.0(50.0)	93.6	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Beryllium	ug/L	1.00	21.2	20.0	106	90 - 110
Mercury	ug/L	1.00	2.09	2.00	104	90 - 110
Antimony	ug/L	1.00	19.6	20.0	98.2	90 - 110
Thallium	ug/L	1.00	21.5	20.0	108	90 - 110

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Beryllium	ug/L	1.00	21.3	20.0	107	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Beryllium	ug/L	1.00	20.3	20.0	101	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Mercury	ug/L	1.00	1.87	2.00	93.6	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Mercury	ug/L	1.00	1.88	2.00	93.8	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Mercury	ug/L	1.00	1.87	2.00	93.4	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Antimony	ug/L	1.00	18.4	20.0	92.0	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Antimony	ug/L	1.00	18.3	20.0	91.3	90 - 110

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

Metals by EPA 200.8, Total

Batch 072413A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
808804-001 Nickel	ug/L	07/24/2013 14:05	1.00	0.786	2.0	ND
808804-002 Nickel	ug/L	07/24/2013 14:41	1.00	0.786	2.0	ND
808804-003 Nickel	ug/L	07/24/2013 14:47	2.00	1.57	4.0	4.0

Method Blank

Parameter	Unit	DF	Result
Nickel	ug/L	1.00	ND

Duplicate — Lab ID = 808804-001

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

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nickel	ug/L	1.00	1.91	2.00	95.5	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nickel	ug/L	2.00	48.9	50.0	97.9	85 - 115

Matrix Spike — Lab ID = 808804-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Nickel	ug/L	1.00	46.6	50.0(50.0)	93.2	75 - 125

Matrix Spike Duplicate — Lab ID = 808804-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Nickel	ug/L	1.00	48.1	50.0(50.0)	96.3	75 - 125

MRCCS - Secondary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nickel	ug/L	1.00	19.7	20.0	98.6	90 - 110

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nickel	ug/L	1.00	19.9	20.0	99.5	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.

Metals by EPA 200.8, Total

Batch 072913B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
808804-001 Antimony	ug/L	07/29/2013 18:37	2.00	0.664	2.0	ND
808804-002 Antimony	ug/L	07/29/2013 19:01	2.00	0.664	2.0	ND

Method Blank

Parameter	Unit	DF	Result
Antimony	ug/L	1.00	ND

Duplicate — Lab ID = 808804-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Antimony	ug/L	2.00	ND	0	0	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Antimony	ug/L	1.00	0.640	0.700	91.4	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Antimony	ug/L	2.00	48.0	50.0	95.9	85 - 115

Matrix Spike — Lab ID = 808804-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Antimony	ug/L	2.00	46.5	50.0(50.0)	93.1	75 - 125

Matrix Spike Duplicate — Lab ID = 808804-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Antimony	ug/L	2.00	46.8	50.0(50.0)	93.5	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Antimony	ug/L	1.00	19.7	20.0	98.4	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Antimony	ug/L	1.00	18.5	20.0	92.6	90 - 110

Interference Check Standard A

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

Interference Check Standard A

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

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

Interference Check Standard AB

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

Interference Check Standard AB

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

Total Dissolved Solids by SM 2540 C

Batch 07TDS13A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
808804-001 Total Dissolved Solids	mg/L	07/03/2013	1.00	1.76	125	3820
808804-002 Total Dissolved Solids	mg/L	07/03/2013	1.00	1.76	125	4460
808804-003 Total Dissolved Solids	mg/L	07/03/2013	1.00	1.76	500	29600

Method Blank

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

Duplicate — Lab ID = 808805-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	5140	4920	4.37	0 - 10

Lab Control Sample

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

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.

Ammonia Nitrogen by SM4500-NH3D Batch 07NH313B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
808804-001 Ammonia as N	mg/L	07/16/2013	1.00	0.0318	0.500	0.570
808804-002 Ammonia as N	mg/L	07/16/2013	1.00	0.0318	0.500	ND

Method Blank

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

Duplicate — Lab ID = 808804-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Ammonia as N	mg/L	1.00	0.526	0.570	8.03	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	9.54	10.0	95.4	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	9.17	10.0	91.7	90 - 110

Matrix Spike — Lab ID = 808804-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	9.62	10.0(10.0)	96.2	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	6.59	6.00	110	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	6.28	6.00	105	90 - 110

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

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

Turbidity by SM 2130 B Batch 07TUC13C

Parameter	Unit	Analyzed	DF	MDL	RL	Result
808804-001 Turbidity	NTU	07/03/2013	1.00	0.0140	0.100	0.102
808804-002 Turbidity	NTU	07/03/2013	1.00	0.0140	0.100	ND

Method Blank

Parameter	Unit	DF	Result
Turbidity	NTU	1.00	ND

Duplicate Lab ID = 808804-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Turbidity	NTU	1.00	0.103	0.102	0.976	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	8.40	8.00	105	90 - 110

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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

Truesdail Laboratories, Inc.

Total Dissolved Solids by SM 2540 C

Calculations

Batch: 07TDS13A
Date Analyzed: 7/3/13

Laboratory Number	Sample volume, ml	Initial weight,g	1st Final weight,g	2nd Final weight,g	Weight Difference, g	Exceeds 0.5mg? Yes/No	Residue weight,g	Filterable residue, ppm	RL , ppm	Reported Value, ppm	DF
Blank	100	77.7772	77.7774	77.7772	0.0002	No	0.0000	0.0	25.0	ND	1
808732	200	111.197	111.1998	111.1998	0.0000	No	0.0028	14.0	12.5	14.0	1
808760-17	50	50.6966	50.7322	50.7318	0.0004	No	0.0352	704.0	50.0	704.0	1
808777-7	100	75.2727	75.3289	75.3287	0.0002	No	0.0560	560.0	25.0	560.0	1
808777-8	100	72.4114	72.4672	72.467	0.0002	No	0.0556	556.0	25.0	556.0	1
808804-1	20	47.5151	47.5916	47.5916	0.0000	No	0.0765	3825.0	125.0	3825.0	1
808804-2	20	49.8206	49.9101	49.9099	0.0002	No	0.0893	4465.0	125.0	4465.0	1
808804-3	5	49.2748	49.4229	49.4228	0.0001	No	0.1480	29600.0	500.0	29600.0	1
808805-1	20	47.9471	47.9999	47.9995	0.0004	No	0.0524	2620.0	125.0	2620.0	1
808805-2	10	47.9415	47.9911	47.9907	0.0004	No	0.0492	4920.0	250.0	4920.0	1
808834-1	100	77.9910	78.019	78.0186	0.0004	No	0.0276	276.0	25.0	276.0	1
808805-2D	10	51.8785	51.9299	51.9299	0.0000	No	0.0514	5140.0	250.0	5140.0	1
LCS	100	66.7027	66.7521	66.7521	0.0000	No	0.0494	494.0	25.0	494.0	1

Calculation as follows:

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

Where:

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

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

Laboratory Control Sample (LCS) Summary

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

LCS Recovery

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

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

Duplicate Determinations Difference Summary

Lab Number	Sample Weight, g	Sample Dup Weight, g	% RPD	Acceptance Limit	QC Within Control?
808805-2	0.0492	0.0514	2.2%	≤5%	Yes

Duplicate Determination Difference

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

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

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

Jenny T.
Analyst Printed Name

Analyst Signature

Maksim G.
Reviewer Printed Name

Reviewer Signature

WelChem TDS_2012.xls

Total Dissolved Solids by SM 2540 C

TDS/EC CHECK

Batch: 07TDS13A
Date Analyzed: 7/3/13

Laboratory Number	EC	TDS/EC Ratio: 0.55-.9	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
808732	24.8	0.56	16.12	0.87
808760-17	1064	0.66	691.6	1.02
808777-7	838	0.67	544.7	1.03
808777-8	839	0.66	545.35	1.02
808804-1	6290	0.61	4088.5	0.94
808804-2	6730	0.66	4374.5	1.02
808804-3	38000	0.78	24700	1.20
808805-1	4140	0.63	2691	0.97
808805-2	7360	0.67	4784	1.03
808834-1	462	0.60	300.3	0.92
808805-2D	7360	0.70	4784	1.07
LCS				

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-420]

808804

TURNAROUND TIME 10 Days
DATE 07/02/13
PAGE 1 OF 1

COMPANY: CH2M HILL /E2
PROJECT NAME: PG&E Topock IM3
PHONE: 530-229-3303 FAX: 530-339-3303
ADDRESS: 155 Grand Ave Ste 1000, Oakland, CA 94612
P.O. NUMBER: 456827.01.DM
SAMPLERS (SIGNATURE):

	SAMPLE I.D.	DATE	TIME	DESCRIPTION	Cr(VI) (218.6) Lab Filtered	Title 22 Metals List (200.7, 200.8, 245.1)	EC (120.1)	TDS (2540 c)	Turb (2130)	Total Metals (200.7) See List Below	Ammonia (4500-NH3)	Anions (300.0) F	Anions (300.0) F, NO3, SO4	TOC (5310 C)	Total Metals (200.7) Mn	NO2 (4500-NO2B)			NUMBER OF CONTAINERS	COMMENTS
1	SC-700B-WDR-420	07/02/13	1233		X		X	X	X	X	X		X			X			4	pH=2
2	SC-100B-WDR-420	07/02/13	1225		X		X	X	X	X	X		X			X			4	pH=7 metals
3	SC-701-WDR-420	07/02/13	1220		X	X	X	X				X			X				4	pH=2
																			12	TOTAL NUMBER OF CONTAINERS

ALERT !!
Level III QC

CHAIN OF CUSTODY SIGNATURE RECORD

	Signature	Printed Name	Company/ Agency	Date/ Time
Signature (Relinquished)		JAIOO	E2	7-2-13 1345
Signature (Received)	Rafael Davila	Rafael	T.L.I	7-2-13 15:30
Signature (Relinquished)	Rafael Davila	Rafael	T.L.I	7-2-13 21:30
Signature (Received)	Shabunina	Lidia	TLI	7/2/13 21:30
Signature (Relinquished)				
Signature (Received)				

SAMPLE CONDITIONS

RECEIVED COOL ☑ WARM ☐ 3.3 °C

CUSTODY SEALED YES ☐ NO ☑

SPECIAL REQUIREMENTS:

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

Hexavalent Chromium

Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
5/23/13	808111-3	7.0	0.5 ml / 25 ml	9.5	16:00	TM
5/30/13	808179	7.0	2 ml / 100 ml	9.5	7:30	HAV
6/5/13	808266-1	7.0	2 ml / 100 ml	9.5	9:30	NE
↓	↓ -2	↓	↓	↓	↓	NE
	808267-1	7.0	2 ml / 100 ml	9.5	9:30	NE
	-2	↓	↓	↓	↓	NE
	808268	9.5	N/A	N/A	N/A	NE
	808270	9.5	N/A	N/A	N/A	NE
	808271-1	↓	↓	↓	↓	NE
	-2					NE
↓	↓ -3	↓	↓	↓	↓	NE
6/6/13	808301-1	9.5	N/A	N/A	N/A	NE
↓	↓ -2	↓	↓	↓	↓	NE
6/4/13	808272-1	7.0	2 mL / 100 mL	9.5	12:00	TM
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
↓	↓ -8	↓	↓	↓	↓	↓
6/12/13	808407	7.0	2 ml / 100 ml	9.5	8:30	NE
6/19/13	808567	7.0	2 mL / 100 ml	9.5	8:00	NE
↓	808568	9.5	N/A	N/A	N/A	NE
6/20/13	808596-1	7.0	2 mL / 100 mL	9.5	8:40	TM
	-2				8:40	
	-3				8:45	
↓	↓ -4	↓	↓	↓	8:45	↓
6/26/13	808685	7.0	2 mL / 100 ml	9.5	7:30	NE
7/3/13	808804-1	7.0	2 mL / 100 mL	9.5	8:00	TM
↓	↓ -2	↓	↓	↓	↓	TM

TM 7/5/13

07/08/13

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
7/3/13	808804-3	7.0	2mL/100mL	9.5	8:05	TM
~~↓~~	~~↓ -3~~	~~↓~~	~~↓~~	~~↓~~	~~↓~~	~~TM~~
7/3/13	808805-1	7.0	2mL/100mL	9.5	8:10	TM
↓	↓ -2	↓	↓	↓	↓	TM

TM
7/5/13

07/08/13

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

TRUESDAIL LABORATORIES, INC.

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
808768	<1	<2	7/2/13	DC	yes			
808776	<1	<2	7/3/13	DC	yes			
808778	>1	↓	↓	↓	↓			
808779	<1							
808784(1-2)	<1	>2	7-3-13	BE	No	14:00		
808783(1-3)	↓	↓	↓	↓	↓			
808784(1-6)								
808804(1-3)	<1	<2	7-8-13	BE	yes			
808804(1-2)	↓	>2	↓	↓	↓	7:00		
808805(1-2)		>2				7:00		after filter
808802		<2						
808810(1-3)		<2						
808863(1-4)		↓						
808837(1-15)	<1	<2	7-8-13	ES	yes			
808853(1-12)	<1	<2	7-9-13	BE	↓			
808855(1-6)	↓	↓	↓	↓	↓			
808854(1-4								
808852(1-10)								
808851(1-5)								
808867-6	<1	>2	7/9/13	DC	NO	12:20		
808892	<1	>2	7-10-13	BE	yes	10:00		
808879(1-2)	<1	>2	↓	↓	NO	12:00		
808878(1-15)	↓	↓			↓	↓		
808806	SLUDGE		7-10-13	ES	yes			
808906	>1	>2	7/10/13	DC	yes			
808807-4	<1	<2	↓	↓	↓			
808826	>1	↓						
808827-4	↓							
808842	<1							
808843	↓							
808869								
808870								
808871								
808872								
808873								
808874								
808886								
808887								
808888								
808889								
808907	<1	>2	7/11/13	ES	No	10:30		
808908	↓	↓	↓	↓	↓	↓		
808912 (1-3)	↓	↓	↓	↓	↓	4:30		

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

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: E2 **Lab #** 808804

Date Delivered: 07/02/13 **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? ☒ 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 C.O.C ☒ Yes ☐ No ☐ N/A
13. Were all analyses within holding time at time of receipt? ☒ Yes ☐ No ☐ N/A
    If not, notify Project Manager.
14. Have Project due dates been checked and accepted? ☒ Yes ☐ No ☐ N/A
    Turn Around Time (TAT): ☐ **RUSH** ☒ Std
15. **Sample Matrix:** ☐ Liquid ☐ Drinking Water ☐ Ground Water ☐ Waste Water
    ☐ Sludge ☐ Soil ☐ Wipe ☐ Paint ☐ Solid ☒ Other Water
16. Comments: _____
17. Sample Check-In completed by **Truesdail** Log-In/Receiving: L. Shabunina

ALERT !! Level III QC

LABORATORY REPORT

Aquatic Testing Laboratories

Adedicated to providing quality aquatic toxicity testing@

4350 Transport Street, Unit 107
Ventura, CA 93003
(805) 650-0546 FAX (805) 650-0756
CA DOHS ELAP Cert. No.: 1775

Date: July 15, 2013

Client: Truesdail Laboratories, Inc.
14201 Franklin Avenue
Tustin, CA 92780
Attn: Sean Condon

Laboratory No.: A-13070901-001
Sample ID.: 808806-1

Sample Control: The sample was received by ATL with the chain of custody record attached.

Date Sampled: 07/02/13
Date Received: 07/09/13
Date Tested: 07/10/13 to 07/14/13

Sample Analysis: The following analyses were performed on your sample:

CCR Title 22 Fathead Minnow Hazardous Waste Screen Bioassay (Polisini & Miller 1988).

Attached are the test data generated from the analysis of your sample. All testing was conducted under the direct supervision of Joseph A. LeMay.

Result Summary:

Sample ID.	Results
808806-1	PASS (LC50 > 750 mg/l)

Quality Control: Reviewed and approved by:

Joseph A. LeMay
Laboratory Director

This report pertains only to the samples investigated and does not necessarily apply to other apparently identical or similar materials. This report is submitted for the exclusive use of the client to whom it is addressed. Any reproduction of this report or use of the Laboratory's name for advertising or publicity purpose without authorization is prohibited.

FATHEAD MINNOW HAZARDOUS WASTE SCREEN BIOASSAY

Aquatic Testing Laboratories

Lab No.: A13070901-001

Client/ID: Truesdail 808806-1

TEST SUMMARY

Species: ***Pimephales promelas***.
Fish weight (gm): av: 0.26 ; min: 0.23 ; max: 0.31 .
Reference Toxicant: SDS conducted monthly.
Test chamber volume: 10 liters.
Temperature: 20 +/- 2°C.
Aeration: none, unless D.O. drops below 5.0 mg/l.
Number of replicates: 2.
Dilution water: Soft reconstituted water (40-48 mg/l $CaCO_3$).

Source: In-Lab Culture.
Regulations: CCR Title 22.
Test Protocol: California F&G/DHS 1988.
Endpoints: Survival at 96 hrs.
Test type: Static.
Feeding: None.
Number of fish per chamber: 10.
Photoperiod: 16/8 hrs light/dark.

TEST DATA

	INITIAL			24 Hr				48 Hr				72 Hr				96 Hr			
Date/Time:	7-10-13 1100			7-11-13 1030				7-12-13 1030				7-13-13 1030				7-14-13 1030			
Analyst:																			
	°C	DO	pH	°C	DO	pH	# D	°C	DO	pH	# D	°C	DO	pH	# D	°C	DO	pH	# D
Control A	20.1	8.0	8.1	20.2	7.9	7.7	0	20.1	7.7	8.1	0	20.1	8.0	8.0	0	20.0	8.1	8.0	0
Control B	20.0	7.9	8.1	20.1	8.0	7.8	0	20.1	8.2	8.1	0	20.0	8.1	8.0	0	20.0	8.0	7.9	0
400 mg/l A	19.9	8.3	8.1	20.2	8.1	7.6	0	20.1	8.1	7.9	0	20.0	8.0	7.9	0	20.1	8.0	7.9	0
400 mg/l B	20.0	8.2	8.2	20.2	8.2	7.7	0	20.0	7.9	7.9	0	20.1	7.8	7.8	0	20.0	7.8	7.9	0
750 mg/l A	20.1	8.2	8.1	20.1	8.3	7.9	1	20.1	7.8	7.9	0	20.1	7.7	7.8	0	20.0	7.7	7.9	0
750 mg/l B	20.0	8.3	8.1	20.1	8.2	7.8	0	20.1	7.8	7.8	0	20.0	7.8	7.8	0	20.0	7.9	7.9	0

Comments: Extraction method: Mechanical shaking ✓.
None (aqueous solution) —.
Dissolved Oxygen (DO) readings in mg/l O_2. Test Aerated: Yes / No

	CONTROL		HIGH CONCENTRATION	
	Alkalinity	Hardness	Alkalinity	Hardness
Initial	32 mg/l $CaCO_3$	46 mg/l $CaCO_3$	32 mg/l $CaCO_3$	47 mg/l $CaCO_3$
Final	33 mg/l $CaCO_3$	46 mg/l $CaCO_3$	33 mg/l $CaCO_3$	48 mg/l $CaCO_3$

Total Number Dead		
Control	0	/20
400 mg/l	0	/20
750 mg/l	1	/20

RESULTS
(the checked result applies based on fish survival rates)

✓	**PASSED**	**LC50 > 750 mg/l** (<40% dead in 750 mg/l conc.)
NA	**FAILED**	**≥40% dead in 750 mg/l** (close to passing - definitive test recommended)
NA	**FAILED**	**LC50 < 400 mg/l** (>60% dead in 400 mg/l conc.)

TRUESDAIL LABORATORIES, INC.

14201 FRANKLIN AVENUE, TUSTIN, CALIFORNIA 92780

ALERT !!
Level III QC

Laboratory Transmittal Form

Date: 07/05/13 *Page:* 1 *of* 1
Laboratory: **Aquatic Testing Laboratories**
Attention: Joe LeMay
Address: 4350 Transport St. #107, Ph#:805-650- 0546
City: Ventura *State:* CA *Zip:* 93003

Please sign, date & *return this form with the results*, to:
TRUESDAIL LABORATORIES, INC.
Attn: **Sean Condon**
14201 Franklin Avenue, Tustin, California 92780
Please include Truesdail Sample ID on your invoice

Sample ID	Date	Time	Matrix	Tests/Methods Required: Acute Aquatic Toxicity, 96 hr Acute (Bioassay)										Container Qty.	Comments/Container Type
808806	7/2/13	13:34	Sludge	X										1	9 oz /Glass
															Level III
														1	Containers Total

Type of Service:
- [x] Normal (TAT)
- [ ] RUSH (5 day TAT)
- [ ] URGENT (24-48 hr. TAT)
- [ ] Results needed by: _____

Sample Conditions:
Received on Ice? Yes/No Sealed? Yes/No
Special Shipment/Handling or Storage Requirements:

	Signature	Printed Name	Company	Date	Time
Relinquished by:	Luda Shabunina	Luda Shabunina	TLI	07/05/13	14:30
Received by:	[signature]	Joe LeMay	TLI	7-9-13	

Document/Forms/Aquatic Testing labs- (Solid)CH2M Hill/07/05/13 8:56 AM/CH

TLI Phone:(714) 730-6239 • Fax (714) 730-6462

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

August 7, 2013

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

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK IM3PLANT-WDR-420 PROJECT, SLUDGE MONITORING,

TLI NO.: 808806

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-420 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 July 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, except Percent Moisture and STLC for Chromium.

The MRCVS#2 recovery for Hexavalent Chromium by SW 7199 exceeded the recovery limits of 90% - 110% but did not affect the reported sample or associated QC samples.

The internal standard for Total Beryllium by SW 6010B analyzed at a 2x dilution was outside the recovery limits of 70% - 130% as a result of matrix interference. Therefore, the sample was re-analyzed at a 20x dilution by SW 6020A and the internal standard was within acceptable limits. Due to the dilution, the reporting limit for Total Beryllium exceeded the Contract Required Detection Limit and the result was below the reporting limit. All other QA/QC were within acceptable limits.

Mr. Duffy requested STLC extraction for Chromium analysis on July 20, 2013. The result of which is included in this report.

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

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

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING
Established 1931
14201 FRANKLIN AVENUE
TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462
www.truesdail.com

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

Laboratory No.: **808806**
Date: August 7, 2013
Collected: July 2, 2013
Received: July 2, 2013

ANALYST LIST

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

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

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

Attention: Shawn Duffy

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

Laboratory No.: 808806
Date Received: July 2, 2013

Analytical Results Summary

Lab I.D.	Sample I.D.	Sample Time	SW 7199 *Hexavalent Chromium*	EPA 300.0 *Fluoride*	EPA 300.0 *Nitrate as N*	SM 2540 B *% Moisture*
			mg/kg	*mg/kg*	*mg/kg*	*%*
808806	SC-Sludge-WDR-420	13:34	30.2	53.1	27.8	56.9

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

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

006

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

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

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.: 808806
Date Received: July 2, 2013

Analytical Results Summary

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

Lab I.D.	Sample ID	Date of Analysis: Time Coll.	Antimony SW 6010B 07/16/13 mg/kg	Arsenic SW 6010B 07/29/13 mg/kg	Barium SW 6010B 07/12/13 mg/kg	Beryllium SW 6020A 08/01/13 mg/kg	Cadmium SW 6010B 07/29/13 mg/kg	Chromium SW 6010B 07/12/13 mg/kg	Cobalt SW 6010B 07/12/13 mg/kg	Copper SW 6020A 08/01/13 mg/kg	Lead SW 6020A 08/01/13 mg/kg
808806	SC-Sludge-WDR-420	13:34	50.2	ND	56.7	ND	5.19	2840	ND	19.2	ND

Lab I.D.	Sample ID	Date of Analysis: Time Coll.	Manganese SW 6010B 07/29/13 mg/kg	Mercury SW 6020A 07/13/13 mg/kg	Molybdenum SW 6010B 07/16/13 mg/kg	Nickel SW 6010B 07/12/13 mg/kg	Selenium SW 6010B 07/29/13 mg/kg	Silver SW 6010B 07/29/13 mg/kg	Thallium SW 6010B 07/29/13 mg/kg	Vanadium SW 6010B 07/12/13 mg/kg	Zinc SW 6010B 07/16/13 mg/kg
808806	SC-Sludge-WDR-420	13:34	259	0.125	ND	10.8	ND	ND	ND	35.9	32.7

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

007

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

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

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

Laboratory No.: 808806
Date Received: July 2, 2013

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

Analytical Results Summary

METALS ANALYSIS: **Analysis for STLC (Soluble Threshold Limit Concentration) per Title 22 California Code of Regulations**

Lab I.D.	Sample ID	*Date of Analysis:* Time Coll.	Chromium EPA 6010B 08/05/13 mg/L
808806	SC-Sludge-WDR-420	13:34	3.92

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

008

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

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

REPORT

Client: E2 Consulting Engineers, Inc.
155 Grand 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: 07CrH13B

Laboratory No.: 808806
Date: August 7, 2013
Collected: July 2, 2013
Received: July 2, 2013
Prep/ Analyzed: July 10, 2013
Analytical Batch: 07CrH13B

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
808806	SC-Sludge-WDR-420	13:34	15:34	mg/kg	5.00	4.64	30.2

QA/QC Summary

QC STD I.D.	Laboratory Number	Sample Concentration	Duplicate Concentration	Relative Percent Difference	Acceptance limits	QC Within Control
Duplicate	808806	30.2	30.1	0.29%	≤ 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	808806	30.2	5.00	37.1	186	215	216	99.5%	75-125%	Yes
IMS	808806	30.2	100	28.5	2853	2810	2883	97.4%	75-125%	Yes
PDMS	808806	30.2	10.0	18.6	186	201	216	92.2%	85-115%	Yes

QC Std I.D.	Measured Concentration	Theoretical Concentration	Percent Recovery	Acceptance Limits	QC Within Control
Blank	ND	<0.400	---	<0.400	Yes
MRCCS	1.96	2.00	98.1%	90% - 110%	Yes
MRCVS#1	1.97	2.00	98.4%	90% - 110%	Yes
MRCVS#2	2.42	2.00	121%	90% - 110%	No
LLCS	0.0112	0.0100	112%	70% - 130%	Yes
LCS	2.01	2.00	101%	80% - 120%	Yes

ND: Below the reporting limit (Not Detected).

DF: Dilution Factor.

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi, Manager
Analytical Services

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

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

REPORT

Client: E2 Consulting Engineers, Inc.
155 Grand 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.: 808806
Date: August 7, 2013
Collected: July 2, 2013
Received: July 2, 2013
Prep/ Analyzed: July 3, 2013
Analytical Batch: 07AN13C

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

Analytical Results Fluoride

TLI I.D.	Field I.D.	Sample Time	Run Time	Units	DF	RL	Results
808806	SC-Sludge-WDR-420	13:34	12:48	mg/kg	1.00	4.64	53.1

QA/QC Summary

QC STD I.D.	Laboratory Number	Concentration	Duplicate Concentration	Relative Percent Difference	Acceptance limits	QC Within Control
Duplicate	808804-2	2.59	2.59	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	808804-2	2.59	5.00	4.00	20.0	22.5	22.6	99.8%	85-115%	Yes

QC Std I.D.	Measured Concentration	Theoretical Concentration	Percent Recovery	Acceptance Limits	QC Within Control
Blank	ND	<0.500	---	<0.500	Yes
MRCCS	4.14	4.00	103%	90% - 110%	Yes
MRCVS#1	3.10	3.00	103%	90% - 110%	Yes
MRCVS#2	3.07	3.00	102%	90% - 110%	Yes
MRCVS#3	3.08	3.00	103%	90% - 110%	Yes
LCS	4.08	4.00	102%	90% - 110%	Yes

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

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi, Manager
Analytical Services

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

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

REPORT

Client: E2 Consulting Engineers, Inc.
155 Grand 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.: 808806
Date: August 7, 2013
Collected: July 2, 2013
Received: July 2, 2013
Prep/ Analyzed: July 3, 2013
Analytical Batch: 07AN13C

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

Analytical Results Nitrate as N

TLI I.D.	Field I.D.	Sample Time	Run Time	Units	DF	RL	Results
808806	SC-Sludge-WDR-420	13:34	12:48	mg/kg	1.00	4.64	27.8

QA/QC Summary

QC STD I.D.	Laboratory Number	Concentration	Duplicate Concentration	Relative Percent Difference	Acceptance limits	QC Within Control
Duplicate	808804-2	2.88	2.85	1.01%	≤ 20%	Yes

QC Std I.D.	Lab Number	Conc.of unspiked sample	Dilution Factor	Added Spike Conc.	MS Amount	Measured Conc. of spiked sample	Theoretical Conc. of spiked sample	MS% Recovery	Acceptance limits	QC Within Control
MS	808804-2	2.88	5.00	4.00	20.0	22.7	22.9	99.3%	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	4.04	4.00	101%	90% - 110%	Yes
MRCVS#1	2.98	3.00	99.4%	90% - 110%	Yes
MRCVS#2	2.99	3.00	99.7%	90% - 110%	Yes
MRCVS#3	2.99	3.00	99.6%	90% - 110%	Yes
LCS	3.99	4.00	99.7%	90% - 110%	Yes

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

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi, Manager
Analytical Services

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

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

REPORT

Client: E2 Consulting Engineers, Inc.
155 Grand 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.: 808806
Date: August 7, 2013
Collected: July 2, 2013
Received: July 2, 2013
Prep/ Analyzed: July 8, 2013
Analytical Batch: 07SOLID13A

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

Analytical Results % Moisture

TLI I.D.	Field I.D.	Sample Time	Units	Results
808806	SC-Sludge-WDR-420	13:34	%	56.9

QA/QC Summary

QC STD I.D.	Laboratory Number	Concentration	Duplicate Concentration	Relative Percent Difference	Acceptance limits	QC Within Control
Duplicate	808806	56.9	57.0	0.08%	≤ 20%	Yes

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

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi, Manager
Analytical Services

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

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

REPORT

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

Attention: Shawn Duffy

Samples: One (1) Soil Sample
Project Name: PG&E Topock Project
Project No.: 456827.01.DM
P.O. No.: 456827.01.DM
Investigation: Total Metal Analyses as Requested

Laboratory No.: 808806
Reported: August 7, 2013
Collected: July 2, 2013
Received: July 2, 2013
Analyzed: See Below

Analytical Results

SAMPLE ID: SC-Sludge-WDR-420 **Time Collected:** 13:34 **LAB ID:** 808806

Parameter	Method	Reported Value	DF	Units	RL	Batch	Date Analyzed	Time Analyzed
Antimony	SW 6010B	50.2	5.00	mg/kg	10.5	071613A-Th2	07/16/13	13:01
Arsenic	SW 6010B	ND	2.00	mg/kg	5.00	072913A-Th2	07/29/13	15:24
Barium	SW 6010B	56.7	5.00	mg/kg	10.5	071213A	07/12/13	15:24
Beryllium	SW 6020A	ND	20.0	mg/kg	2.10	080113A	08/01/13	11:05
Cadmium	SW 6010B	5.19	2.00	mg/kg	2.10	072913A-Th2	07/29/13	15:24
Chromium	SW 6010B	2840	5.00	mg/kg	5.25	071213A	07/12/13	15:24
Cobalt	SW 6010B	ND	5.00	mg/kg	10.0	071213A	07/12/13	15:24
Copper	SW 6020A	19.2	20.0	mg/kg	5.00	080113A	08/01/13	11:05
Lead	SW 6020A	ND	20.0	mg/kg	5.00	080113A	08/01/13	11:05
Manganese	SW 6010B	259	2.00	mg/kg	2.10	072913A-Th2	07/29/13	15:24
Mercury	SW 6020A	0.125	5.00	mg/kg	0.105	071213C-ICPMS-1	07/13/13	05:06
Molybdenum	SW 6010B	ND	5.00	mg/kg	10.0	071613A-Th2	07/16/13	13:01
Nickel	SW 6010B	10.8	5.00	mg/kg	5.25	071213A	07/12/13	15:24
Selenium	SW 6010B	ND	2.00	mg/kg	5.00	072913A-Th2	07/29/13	15:24
Silver	SW 6010B	ND	2.00	mg/kg	5.00	072913A-Th2	07/29/13	15:24
Thallium	SW 6010B	ND	2.00	mg/kg	5.00	072913A	07/29/13	15:09
Vanadium	SW 6010B	35.9	5.00	mg/kg	5.25	071213A	07/12/13	15:24
Zinc	SW 6010B	32.7	5.00	mg/kg	10.5	071613A-Th2	07/16/13	13:01

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.

for Mona Nassimi, Manager
Analytical Services

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

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

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

Laboratory No.: 808806
Reported: August 7, 2013
Collected: July 2, 2013
Received: July 2, 2013

Quality Control/Quality Assurance Report

				DIGESTED BLANK		MRCCS				MRCVS			
Parameter	Method	Batch	Units	Blank	RL	Observed Value	TRUE Value	% Rec	Control Limits	Observed Value	TRUE Value	% Rec	Control Limits %
Antimony	SW 6010B	071613A-Th2	mg/kg	ND	5.00	5.05	5.00	101%	90-110%	5.02	5.00	100%	90-110%
Arsenic	SW 6010B	072913A-Th2	mg/kg	ND	5.00	4.84	5.00	96.9%	90-110%	4.89	5.00	97.9%	90-110%
Barium	SW 6010B	071213A	mg/kg	ND	10.0	4.98	5.00	99.5%	90-110%	4.75	5.00	95.1%	90-110%
Beryllium	SW 6020A	080113A	mg/kg	ND	1.00	0.02	0.0200	100%	90-110%	0.02	0.0200	104%	90-110%
Cadmium	SW 6010B	072913A-Th2	mg/kg	ND	1.00	5.02	5.00	100%	90-110%	5.06	5.00	101%	90-110%
Chromium	SW 6010B	071213A	mg/kg	ND	5.00	5.19	5.00	104%	90-110%	5.13	5.00	103%	90-110%
Cobalt	SW 6010B	071213A	mg/kg	ND	10.0	4.68	5.00	93.6%	90-110%	4.76	5.00	95.1%	90-110%
Copper	SW 6020A	080113A	mg/kg	ND	5.00	0.0202	0.0200	101%	90-110%	0.0209	0.0200	105%	90-110%
Lead	SW 6020A	080113A	mg/kg	ND	5.00	0.02	0.0200	102%	90-110%	0.02	0.0200	107%	90-110%
Manganese	SW 6010B	072913A-Th2	mg/kg	ND	1.00	5.01	5.00	100%	90-110%	4.90	5.00	97.9%	90-110%
Mercury	SW 6020A	071213C-ICPMS-1	mg/kg	ND	0.100	0.00205	0.00200	102%	90-110%	0.00202	0.00200	101%	90-110%
Molybdenum	SW 6010B	071613A-Th2	mg/kg	ND	10.0	5.02	5.00	100%	90-110%	5.11	5.00	102%	90-110%
Nickel	SW 6010B	071213A	mg/kg	ND	5.00	4.69	5.00	93.8%	90-110%	4.78	5.00	95.7%	90-110%
Selenium	SW 6010B	072913A-Th2	mg/kg	ND	5.00	4.95	5.00	99.1%	90-110%	4.99	5.00	99.8%	90-110%
Silver	SW 6010B	072913A-Th2	mg/kg	ND	5.00	4.98	5.00	99.7%	90-110%	4.95	5.00	99.0%	90-110%
Thallium	SW 6010B	072913A	mg/kg	ND	5.00	5.22	5.00	104%	90-110%	5.42	5.00	108%	90-110%
Vanadium	SW 6010B	071213A	mg/kg	ND	5.00	5.24	5.00	105%	90-110%	5.15	5.00	103%	90-110%
Zinc	SW 6010B	071613A-Th2	mg/kg	ND	10.0	5.29	5.00	106%	90-110%	5.24	5.00	105%	90-110%

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

Parameter	Method	Units	INTERFERENCE CHECK STANDARD (ICS A+B #1) ICS Obs.	ICS Theo.	% Rec.	Control Limits	INTERFERENCE CHECK STANDARD (ICS A+B #2) ICS Obs.	ICS Theo.	% Rec.	Control Limits
Arsenic	SW 6010B	mg/kg	1.96	2.00	97.8%	80-120%	2.00	2.00	99.8%	80-120%
Cadmium	SW 6010B	mg/kg	2.07	2.00	104%	80-120%	2.10	2.00	105%	80-120%
Chromium	SW 6010B	mg/kg	2.09	2.00	104%	80-120%	2.11	2.00	106%	80-120%
Cobalt	SW 6010B	mg/kg	1.87	2.00	93.6%	80-120%	1.94	2.00	96.9%	80-120%
Copper	SW 6020A	mg/kg	0.0195	0.0200	97.6%	80-120%	0.0195	0.0200	97.5%	80-120%
Manganese	SW 6010B	mg/kg	1.99	2.00	99.4%	80-120%	2.08	2.00	104%	80-120%
Mercury	SW 6020A	mg/kg	0.00195	0.00200	97.7%	80-120%	0.00193	0.00200	96.4%	80-120%
Nickel	SW 6010B	mg/kg	1.86	2.00	93.1%	80-120%	1.96	2.00	97.8%	80-120%
Silver	SW 6010B	mg/kg	1.81	2.00	90.4%	80-120%	1.69	2.00	84.7%	80-120%
Zinc	SW 6010B	mg/kg	2.18	2.00	109%	80-120%	2.26	2.00	113%	80-120%

Parameter	Method	Units	LABORATORY CONTROL SAMPLES LCS Obs.	LCS Theo.	% Rec.	Control Limits	SAMPLE DUPLICATES SAMPLE ID	SAMPLE RESULT	DUP RESULT	% RPD	Precision Control Limits %
Antimony	SW 6010B	mg/kg	2.04	2.00	102%	85-115%	808806	50.2	50.5	0.57%	≤20
Arsenic	SW 6010B	mg/kg	2.02	2.00	101%	85-115%	808806	ND	ND	0.00%	≤20
Barium	SW 6010B	mg/kg	2.02	2.00	101%	85-115%	808806	56.7	56.9	0.45%	≤20
Beryllium	SW 6020A	mg/kg	2.07	2.00	103%	85-115%	808806	ND	ND	0.00%	≤20
Cadmium	SW 6010B	mg/kg	2.12	2.00	106%	85-115%	808806	5.19	5.25	1.11%	≤20
Chromium	SW 6010B	mg/kg	2.16	2.00	108%	85-115%	808806	2840	2870	1.05%	≤20
Cobalt	SW 6010B	mg/kg	1.86	2.00	93.0%	85-115%	808806	ND	ND	0.00%	≤20
Copper	SW 6020A	mg/kg	2.09	2.00	104%	85-115%	808806	19.2	19.8	2.79%	≤20
Lead	SW 6020A	mg/kg	2.04	2.00	102%	85-115%	808806	ND	ND	0.00%	≤20
Manganese	SW 6010B	mg/kg	2.10	2.00	105%	85-115%	808806	259	262	1.16%	≤20
Mercury	SW 6020A	mg/kg	0.00513	0.00500	103%	85-115%	808806	0.125	0.122	2.77%	≤20
Molybdenum	SW 6010B	mg/kg	2.02	2.00	101%	85-115%	808806	ND	ND	0.00%	≤20
Nickel	SW 6010B	mg/kg	1.86	2.00	92.8%	85-115%	808806	10.8	11.1	3.41%	≤20
Selenium	SW 6010B	mg/kg	2.05	2.00	103%	85-115%	808806	ND	ND	0.00%	≤20
Silver	SW 6010B	mg/kg	2.12	2.00	106%	85-115%	808806	ND	ND	0.00%	≤20
Thallium	SW 6010B	mg/kg	2.29	2.00	115%	85-115%	808806	ND	ND	0.00%	≤20
Vanadium	SW 6010B	mg/kg	2.18	2.00	109%	85-115%	808806	35.9	36.1	0.45%	≤20
Zinc	SW 6010B	mg/kg	2.16	2.00	108%	85-115%	808806	32.7	33.7	2.94%	≤20

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

MATRIX SPIKE

Sample ID	Parameter	Method	Units	Sample Result	DF	Spike Level	Total Amt. of Spike	Theo. Value	MS Obs.	% Rec.	Accuracy Control Limits %
808806	Antimony	SW 6010B	mg/kg	50.2	5.00	44.3	221	271	266	97.4%	75-125%
808806	Arsenic	SW 6010B	mg/kg	0.00	2.00	110.6	221	221	215	97.3%	75-125%
808806	Barium	SW 6010B	mg/kg	56.7	5.00	44.3	221	278	291	106%	75-125%
808806	Beryllium	SW 6020A	mg/kg	0.00	20.0	5.25	105	105	102	96.9%	75-125%
808806	Cadmium	SW 6010B	mg/kg	5.19	2.00	111	221	226	212	93.3%	75-125%
808806	Chromium	SW 6010B	mg/kg	2840	5.00	210	1049	3889	3840	95.3%	75-125%
808806	Cobalt	SW 6010B	mg/kg	0.00	5.00	44.3	221	221	195	88.3%	75-125%
808806	Copper	SW 6020A	mg/kg	19.2	20.0	5.25	105	124	118	94.6%	75-125%
808806	Lead	SW 6020A	mg/kg	0.00	20.0	5.25	105	105	102	97.0%	75-125%
808806	Manganese	SW 6010B	mg/kg	259	2.00	111	221	480	476	98.2%	75-125%
808806	Mercury	SW 6020A	mg/kg	0.125	5.00	0.111	0.553	0.678	0.654	95.6%	75-125%
808806	Molybdenum	SW 6010B	mg/kg	0.00	5.00	44.3	221	221	231	104%	75-125%
808806	Nickel	SW 6010B	mg/kg	10.8	5.00	44.3	221	232	200	85.5%	75-125%
808806	Selenium	SW 6010B	mg/kg	0.00	2.00	111	221	221	188	85.1%	75-125%
808806	Silver	SW 6010B	mg/kg	0.00	2.00	111	221	221	197	89.2%	75-125%
808806	Thallium	SW 6010B	mg/kg	0.00	2.00	111	221	221	199	90.0%	75-125%
808806	Vanadium	SW 6010B	mg/kg	35.9	5.00	44.3	221	257	255	99.2%	75-125%
808806	Zinc	SW 6010B	mg/kg	32.7	5.00	44.3	221	254	263	104%	75-125%

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.

MATRIX SPIKE DUPLICATE

Sample ID	Parameter	Method	Units	Sample Result	DF	Spike Level	Total Amt. of Spike	Theo. Value	MS Obs.	% Rec.	Accuracy Control Limits %
808806	Antimony	SW 6010B	mg/kg	50.2	5.00	42.6	213	263	254	96.0%	75-125%
808806	Arsenic	SW 6010B	mg/kg	0.00	2.00	106	213	213	204	95.6%	75-125%
808806	Barium	SW 6010B	mg/kg	56.7	5.00	42.6	213	269	286	108%	75-125%
808806	Cadmium	SW 6010B	mg/kg	5.19	2.00	106	213	218	201	91.9%	75-125%
808806	Cobalt	SW 6010B	mg/kg	0.00	5.00	42.6	213	213	191	89.9%	75-125%
808806	Manganese	SW 6010B	mg/kg	259	2.00	106	213	472	458	93.7%	75-125%
808806	Mercury	SW 6020A	mg/kg	0.125	5.00	0.106	0.532	0.657	0.643	97.3%	75-125%
808806	Molybdenum	SW 6010B	mg/kg	0.00	5.00	42.6	213	213	224	105%	75-125%
808806	Nickel	SW 6010B	mg/kg	10.8	5.00	42.6	213	224	197	87.3%	75-125%
808806	Selenium	SW 6010B	mg/kg	0.00	2.00	106	213	213	176	82.9%	75-125%
808806	Silver	SW 6010B	mg/kg	0.00	2.00	106	213	213	192	90.1%	75-125%
808806	Thallium	SW 6010B	mg/kg	0.00	2.00	106	213	213	194	91.3%	75-125%
808806	Vanadium	SW 6010B	mg/kg	35.9	5.00	42.6	213	249	251	101%	75-125%
808806	Zinc	SW 6010B	mg/kg	32.7	5.00	42.6	213	245	256	105%	75-125%

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

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi, Manager
Analytical Services

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

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING
Established 1931
14201 FRANKLIN AVENUE
TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462
www.truesdail.com

Dry Weight Calculations

Date Calculated: 8/7/2013

	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	22.879	---	56.9	53.1094	53.1	2.00	4.64
Nitrate as N	11.994	---	56.9	27.8419	27.8	2.00	4.64
Hexavalent Chromium	12.9997	---	56.9	30.1764	30.2	2.00	4.64
Hexavalent Chromium - Dup	12.9624	---	56.9	30.0899	30.1	2.00	4.64
Hexavalent Chromium - MS	92.6256	---	56.9	215.013	215	4.00	9.29
Hexavalent Chromium - IMS	1210.152	---	56.9	2809.146	2810	40.0	92.9
Hexavalent Chromium - PDMS	86.7987	---	56.9	201.487	201	40.0	92.9
Antimony	21.65	5.00	56.9	50.2565	50.2	4.5196	10.5
Arsenic	ND	2.00	56.9	ND	ND	0.9039	5.00
Barium	24.42	5.00	56.9	56.68655	56.7	4.5196	10.5
Beryllium	ND	20.0	56.9	ND	ND	0.9039	2.10
Cadmium	2.236	2.00	56.9	5.1905	5.19	0.9039	2.10
Chromium	1222	5.00	56.9	2836.6489	2840	2.2598	5.25
Cobalt	1.861	5.00	56.9	4.3200	ND	2.2598	10.0
Copper	8.2797	20.0	56.9	19.2198	19.2	0.9039	5.00
Lead	ND	20.0	56.9	ND	ND	0.9039	5.00
Manganese	111.6	2.00	56.9	259.0589	259	0.9039	2.10
Mercury	0.053880	5.00	56.9	0.12507	0.125	0.0452	0.105
Molybdenum	2.608	5.00	56.9	6.0540	ND	2.2598	10.0
Nickel	4.641	5.00	56.9	10.7732	10.8	2.2598	5.25
Selenium	ND	2.00	56.9	ND	ND	1.8078	5.00
Silver	ND	2.00	56.9	ND	ND	1.8078	5.00
Thallium	ND	2.00	56.9	ND	ND	0.9039	5.00
Vanadium	15.48	5.00	56.9	35.9340	35.9	2.2598	5.25
Zinc	14.09	5.00	56.9	32.7074	32.7	4.5196	10.5

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

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

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

Dry Weight Calculations

Date Calculated: 8/7/2013

	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: 808806							
Antimony	21.75	5.00	56.9	50.4886	50.5	4.5384	10.5
Arsenic	ND	2.00	56.9	ND	ND	0.9077	5.00
Barium	24.53	5.00	56.9	56.9419	56.9	4.5384	10.5
Beryllium	ND	20.0	56.9	ND	ND	0.9077	2.11
Cadmium	2.261	2.00	56.9	5.2485	5.25	0.9077	2.11
Chromium	1235	5.00	56.9	2866.8261	2870	2.2692	5.27
Cobalt	1.882	5.00	56.9	4.3687	ND	2.2692	10.0
Copper	8.5138	20.0	56.9	19.7632	19.8	0.9077	5.00
Lead	ND	20.0	56.9	ND	ND	0.9077	5.00
Manganese	112.9	2.00	56.9	262.0766	262	0.9077	2.11
Mercury	0.05241	5.00	56.9	0.12166	0.122	0.0454	0.105
Molybdenum	2.694	5.00	56.9	6.2536	ND	2.2692	10.0
Nickel	4.802	5.00	56.9	11.1470	11.1	2.2692	5.27
Selenium	ND	2.00	56.9	ND	ND	1.8154	5.00
Silver	ND	2.00	56.9	ND	ND	1.8154	5.00
Thallium	ND	2.00	56.9	ND	ND	0.9077	5.00
Vanadium	15.55	5.00	56.9	36.0965	36.1	2.2692	5.27
Zinc	14.51	5.00	56.9	33.6823	33.7	4.5384	10.5
Matrix Spike: 808806							
Antimony	114.5	5.00	56.9	265.7908	266	4.7664	11.1
Arsenic	92.77	2.00	56.9	215.3485	215	0.9533	5.00
Barium	125.2	5.00	56.9	290.6288	291	4.7664	11.1
Beryllium	43.779	20.0	56.9	101.6250	102	0.9039	2.10
Cadmium	91.15	2.00	56.9	211.5880	212	0.9533	2.21
Chromium	1653	5.00	56.9	3837.1364	3840	2.2598	5.25
Cobalt	84.19	5.00	56.9	195.4316	195	2.3832	10.0
Copper	51.018	20.0	56.9	118.4281	118	0.9039	5.00
Lead	43.834	20.0	56.9	101.7535	102	0.9039	5.00
Manganese	205.2	2.00	56.9	476.3342	476	0.9533	2.21
Mercury	0.2816	5.00	56.9	0.6537	0.654	0.0477	0.111
Molybdenum	99.59	5.00	56.9	231.1799	231	2.3832	10.0
Nickel	86.38	5.00	56.9	200.5153	200	2.3832	5.53
Selenium	81.11	2.00	56.9	188.2820	188	1.9066	5.00
Silver	85.00	2.00	56.9	197.3119	197	1.9066	5.00
Thallium	85.82	2.00	56.9	199.2154	199	0.9533	5.00
Vanadium	110.0	5.00	56.9	255.3448	255	2.3832	5.53
Zinc	113.3	5.00	56.9	263.0052	263	4.7664	11.1

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

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

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

Dry Weight Calculations

Date Calculated: 8/7/2013

	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
Matrix Spike Duplicate: 808806							
Antimony	109.6	5.00	56.9	254.4163	254	4.5830	10.6
Arsenic	87.67	2.00	56.9	203.5098	204	0.9166	5.00
Barium	123.40	5.00	56.9	286.4505	286	4.5830	10.6
Cadmium	86.47	2.00	56.9	200.7243	201	0.9166	2.13
Cobalt	82.40	5.00	56.9	191.2765	191	2.2915	10.0
Manganese	197.50	2.00	56.9	458.4600	458	0.9166	2.13
Mercury	0.2769	5.00	56.9	0.6428	0.643	0.0458	0.106
Molybdenum	96.74	5.00	56.9	224.5642	224	2.2915	10.0
Nickel	84.68	5.00	56.9	196.5691	197	2.2915	5.32
Selenium	75.95	2.00	56.9	176.3040	176	1.8332	5.00
Silver	82.62	2.00	56.9	191.7872	192	1.8332	5.00
Thallium	83.69	2.00	56.9	194.2710	194	0.9166	5.00
Vanadium	108.2	5.00	56.9	251.1665	251	2.2915	5.32
Zinc	110.3	5.00	56.9	256.0412	256	4.5830	10.6

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

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

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

REPORT

Client: E2 Consulting Engineers, Inc.
155 Grand 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.: 808806
Date: August 7, 2013
Collected: July 2, 2013
Received: July 2, 2013
Analyzed: August 5, 2013

Investigation: Analysis for STLC (Soluble Threshold Limit Concentration) per Title 22 California Code of Regulations

Analytical Results

SAMPLE ID: SC-Sludge-WDR-420 **Time Collected:** 13:34 **LAB ID:** 808806

Parameter	Method	Reported Value	DF	Units	RL	Batch	Date Analyzed	Time Analyzed
Chromium	EPA 6010B	3.92	2.00	mg/L	0.100	080513B	08/05/13	19:03

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

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi, Manager
Analytical Services

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

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

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

Laboratory No.: 808806
Date: August 7, 2013
Collected: July 2, 2013
Received: July 2, 2013

Investigation: Analysis for STLC (Soluble Threshold Limit Concentration) per Title 22 California Code of Regulations

Quality Control/Quality Assurance Report

				BLANK		MRCCS				MRCVS			
Parameter	Method	Batch	Units	Blank	RL	Observed Value	TRUE Value	% Rec	Control Limits	Observed Value	TRUE Value	% Rec	Control Limits %
Chromium	EPA 6010B	080513B	mg/L	ND	0.100	5.18	5.00	104%	90-110%	4.53	5.00	90.6%	90-110%

INTERFERENCE CHECK STANDARD

Parameter	Method	Units	ICS AB Obs.	ICS AB Theo.	% Rec.	Control Limits %	ICS AB Obs.	ICS AB Theo.	% Rec.	Control Limits %
Chromium	EPA 6010B	mg/L	2.11	2.00	105%	80-120%	2.26	2.00	####	80-120%

030

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.

LABORATORY CONTROL SAMPLES

Parameter	Method	Units	LCS Obs.	LCS Theo.	% Rec.	Control Limits %
Chromium	EPA 6010B	mg/L	4.67	5.00	93.4%	80-120%

SAMPLE DUPLICATES

SAMPLE ID	SAMPLE RESULT	DUP RESULT	% RPD	Precision Control Limits %
808806	3.92	4.07	3.83%	≤20

MATRIX SPIKE

Sample ID	Parameter	Method	Units	Sample Result	DF	Spike Level	Total Amt. of Spike	Theo. Value	MS Obs.	% Rec.	Accuracy Control Limits %
808806	Chromium	EPA 6010B	mg/L	3.92	2.00	2.50	5.00	8.92	8.96	101%	75-125%

MATRIX SPIKE DUPLICATE

Sample ID	Parameter	Method	Units	Sample Result	DF	Spike Level	Total Amt. of Spike	Theo. Value	MS Obs.	% Rec.	Accuracy Control Limits %
808806	Chromium	EPA 6010B	mg/L	3.92	2.00	2.50	5.00	8.92	8.75	96.6%	75-125%

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

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi, Manager
Analytical Services

031

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

e2

TRUESDAIL LABORATORIES, INC.

TOTAL SOLIDS BY SM 2540 B

Date of Analysis: 07/08/13

Analytical Batch: 07SOLID13A
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
808803-1	1	1.2882	2.0534	3.3416	3.1239	1.8357	89.398	10.602
808803-2	2	1.2885	2.0067	3.2952	3.0102	1.7217	85.798	14.202
808803-3	3	1.2969	2.0047	3.3016	3.0940	1.7971	89.644	10.356
808803-4	4	1.2859	2.0058	3.2917	3.1712	1.8853	93.992	6.008
808806	5	1.299	2.0929	3.3919	2.2006	0.9016	43.079	56.921
808806D	6	1.2825	2.0264	3.3089	2.1545	0.8720	43.032	56.968

Relative Percent Difference			
Sample ID	Sample	Sample Dup	RPD
808806	56.921	56.968	0.1

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

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

G. Savani		Maksim	
Analyst Name	Analyst Signature	Reviewer Name	Reviewer Signature

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

CHAIN OF CUSTODY RECORD

[IM3plant-WDR-420]

808806

TURNAROUND TIME 10 Days
DATE 07/02/13 PAGE 1 OF 1

COMPANY: CH2M HILL / E2
PROJECT NAME: PG&E Topock IM3
PHONE: 530-229-3303 FAX: 530-339-3303
ADDRESS: 155 Grand Ave Ste 1000, Oakland, CA 94612
P.O. NUMBER: 456827.01.DM
SAMPLERS (SIGNATURE):

SAMPLE I.D.	DATE	TIME	DESCRIPTION	Anions (300.0) F, NO3	Bioassay 96hr Acute	Metals (6010B) Title 22, (includes Mercury)	Cr6 (7199)	Metals (6010B) Mn	NUMBER OF CONTAINERS	COMMENTS
SC-Sludge-WDR-420	07/02/13	1334	Sludge	X	X	X	X	X	4	
									4	TOTAL NUMBER OF CONTAINERS

ALERT !!
Level III QC

CHAIN OF CUSTODY SIGNATURE RECORD

	Signature	Printed Name	Company/ Agency	Date/ Time
Signature (Relinquished)		Aidee	E2	7-2-13 1345
Signature (Received)	Rafael Davila	Rafael	T.h.I	7-2-13 15:30
Signature (Relinquished)	Rafael Davila	Rafael	T.h.I	7-2-13 21:30
Signature (Received)	Shabunuma	Linda	TLI	7/2/13 21:30
Signature (Relinquished)				
Signature (Received)				

SAMPLE CONDITIONS
RECEIVED COOL ☑ WARM ☐ 4.6 °C
CUSTODY SEALED YES ☐ NO ☑

SPECIAL REQUIREMENTS:

072

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: E 2 **Lab #** 808806

Date Delivered: 07/02/13 **Time:** 21:30 **By:** ☐ Mail ☒ Field Service ☐ Client

1. Was a Chain of Custody received and signed? ☒ Yes ☐ No ☐ N/A
2. Does Customer require an acknowledgement of the COC? ☐ Yes ☐ No ☒ N/A
3. Are there any special requirements or notes on the COC? ☐ Yes ☐ No ☒ N/A
4. If a letter was sent with the COC, does it match the COC? ☐ Yes ☐ No ☒ N/A
5. Were all requested analyses understood and acceptable? ☒ Yes ☐ No ☐ N/A
6. Were samples received in a chilled condition? ☒ Yes ☐ No ☐ N/A
   Temperature (if yes)? 4.6 °C
7. Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)? ☒ Yes ☐ No ☐ N/A
8. Were sample custody seals intact? ☐ Yes ☐ No ☒ N/A
9. Does the number of samples received agree with COC? ☒ Yes ☐ No ☐ N/A
10. Did sample labels correspond with the client ID's? ☒ Yes ☐ No ☐ N/A
11. Did sample labels indicate proper preservation? ☐ Yes ☐ No ☒ N/A
    Preserved (if yes) by: ☐ **Truesdail** ☐ Client
12. Were samples pH checked? pH = ____ ☐ Yes ☐ No ☒ N/A
13. Were all analyses within holding time at time of receipt? ☒ Yes ☐ No ☐ N/A
    If not, notify Project Manager.
14. Have Project due dates been checked and accepted? ☒ Yes ☐ No ☐ N/A
    Turn Around Time (TAT): ☐ **RUSH** ☒ Std
15. **Sample Matrix:** ☐ Liquid ☐ Drinking Water ☐ Ground Water ☐ Waste Water ☒ Sludge ☐ Soil ☐ Wipe ☐ Paint ☐ Solid ☐ Other ____
16. Comments: ____
17. Sample Check-In completed by **Truesdail** Log-In/Receiving: L. Shabmune

ALERT !! Level III QC

LABORATORY REPORT

Aquatic Testing Laboratories

Adedicated to providing quality aquatic toxicity testing@

4350 Transport Street, Unit 107
Ventura, CA 93003
(805) 650-0546 FAX (805) 650-0756
CA DOHS ELAP Cert. No.: 1775

Date: July 15, 2013

Client: Truesdail Laboratories, Inc.
14201 Franklin Avenue
Tustin, CA 92780
Attn: Sean Condon

Laboratory No.: A-13070901-001
Sample ID.: 808806-1

Sample Control: The sample was received by ATL with the chain of custody record attached.

Date Sampled: 07/02/13
Date Received: 07/09/13
Date Tested: 07/10/13 to 07/14/13

Sample Analysis: The following analyses were performed on your sample:

CCR Title 22 Fathead Minnow Hazardous Waste Screen Bioassay (Polisini & Miller 1988).

Attached are the test data generated from the analysis of your sample. All testing was conducted under the direct supervision of Joseph A. LeMay.

Result Summary:

Sample ID.	Results
808806-1	PASS (LC50 > 750 mg/l)

Quality Control: Reviewed and approved by:

Joseph A. LeMay
Laboratory Director

This report pertains only to the samples investigated and does not necessarily apply to other apparently identical or similar materials. This report is submitted for the exclusive use of the client to whom it is addressed. Any reproduction of this report or use of the Laboratory's name for advertising or publicity purpose without authorization is prohibited.

FATHEAD MINNOW HAZARDOUS WASTE SCREEN BIOASSAY

Aquatic Testing Laboratories

Lab No.: A13070901-001

Client/ID: Truesdail 808806-1

TEST SUMMARY

Species: ***Pimephales promelas***.
Fish weight (gm): av: 0.26 ; min: 0.23 ; max: 0.31 .
Reference Toxicant: SDS conducted monthly.
Test chamber volume: 10 liters.
Temperature: 20 +/- 2°C.
Aeration: none, unless D.O. drops below 5.0 mg/l.
Number of replicates: 2.
Dilution water: Soft reconstituted water (40-48 mg/l $CaCO_3$).

Source: In-Lab Culture.
Regulations: CCR Title 22.
Test Protocol: California F&G/DHS 1988.
Endpoints: Survival at 96 hrs.
Test type: Static.
Feeding: None.
Number of fish per chamber: 10.
Photoperiod: 16/8 hrs light/dark.

TEST DATA

	INITIAL			24 Hr				48 Hr				72 Hr				96 Hr			
Date/Time:	7-10-13 1100			7-11-13 1030				7-12-13 1030				7-13-13 1030				7-14-13 1030			
Analyst:																			
	°C	DO	pH	°C	DO	pH	# D	°C	DO	pH	# D	°C	DO	pH	# D	°C	DO	pH	# D
Control A	20.1	8.0	8.1	20.2	7.9	7.7	0	20.1	7.7	8.1	0	20.1	8.0	8.0	0	20.0	8.1	8.0	0
Control B	20.0	7.9	8.1	20.1	8.0	7.8	0	20.1	8.2	8.1	0	20.0	8.1	8.0	0	20.0	8.0	7.9	0
400 mg/l A	19.9	8.3	8.1	20.2	8.1	7.6	0	20.1	8.1	7.9	0	20.0	8.0	7.9	0	20.1	8.0	7.9	0
400 mg/l B	20.0	8.2	8.2	20.2	8.2	7.7	0	20.0	7.9	7.9	0	20.1	7.8	7.8	0	20.0	7.8	7.9	0
750 mg/l A	20.1	8.2	8.1	20.1	8.3	7.9	1	20.1	7.8	7.9	0	20.1	7.7	7.8	0	20.0	7.7	7.9	0
750 mg/l B	20.0	8.3	8.1	20.1	8.2	7.8	0	20.1	7.8	7.8	0	20.0	7.8	7.8	0	20.0	7.9	7.9	0

Comments: Extraction method: Mechanical shaking ✓.
None (aqueous solution) —.
Dissolved Oxygen (DO) readings in mg/l O_2. Test Aerated: Yes / No

	CONTROL		HIGH CONCENTRATION	
	Alkalinity	Hardness	Alkalinity	Hardness
Initial	32 mg/l $CaCO_3$	46 mg/l $CaCO_3$	32 mg/l $CaCO_3$	47 mg/l $CaCO_3$
Final	33 mg/l $CaCO_3$	46 mg/l $CaCO_3$	33 mg/l $CaCO_3$	48 mg/l $CaCO_3$

Total Number Dead		
Control	0	/20
400 mg/l	0	/20
750 mg/l	1	/20

RESULTS
(the checked result applies based on fish survival rates)

✓	**PASSED**	**LC50 > 750 mg/l** (<40% dead in 750 mg/l conc.)
NA	**FAILED**	**≥40% dead in 750 mg/l** (close to passing - definitive test recommended)
NA	**FAILED**	**LC50 < 400 mg/l** (>60% dead in 400 mg/l conc.)

TRUESDAIL LABORATORIES, INC.

14201 FRANKLIN AVENUE, TUSTIN, CALIFORNIA 92780

ALERT !!
Level III QC

Laboratory Transmittal Form

Date: 07/05/13 *Page:* 1 *of* 1
Laboratory: **Aquatic Testing Laboratories**
Attention: Joe LeMay
Address: 4350 Transport St. #107, Ph#:805-650- 0546
City: Ventura *State:* CA *Zip:* 93003

Please sign, date & *return this form with the results*, to:
TRUESDAIL LABORATORIES, INC.
Attn: **Sean Condon**
14201 Franklin Avenue, Tustin, California 92780
Please include Truesdail Sample ID on your invoice

Sample ID	Date	Time	Matrix	Tests/Methods Required: Acute Aquatic Toxicity, 96 hr Acute (Bioassay)	Container Qty.	Comments/Container Type
808806	7/2/13	13:34	Sludge	X	1	9 oz /Glass
						Level III
					1	Containers Total

Type of Service:
- ☐ X Normal (TAT)
- ☐ RUSH (5 day TAT)
- ☐ URGENT (24-48 hr. TAT)
- ☐ Results needed by: _____

Sample Conditions:
Received on Ice? Yes/No Sealed? Yes/No
Special Shipment/Handling or Storage Requirements:

	Signature	Printed Name	Company	Date	Time
Relinquished by:	Luda Shabunina	Luda Shabunina	TLI	07/05/13	14:30
Received by:	[signature]	Joe LeMay	TLI	7-9-13	

TLI Phone:(714) 730-6239 • Fax (714) 730-6462

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

July 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-421 PROJECT, GROUNDWATER MONITORING, TLI NO.: 808892

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-421 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 July 9, 2013, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

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

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

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

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING
Established 1931
14201 FRANKLIN AVENUE
TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462
www.truesdail.com

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

Laboratory No.: 808892
Date: July 22, 2013
Collected: July 9, 2013
Received: July 9, 2013

ANALYST LIST

METHOD	PARAMETER	ANALYST
EPA 120.1	Specific Conductivity	Jenny Tankunakorn
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

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

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

Laboratory No.: 808892
Date Received: July 9, 2013
Revision 2; July 26, 2013

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

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
808892-001	SC-700B-WDR-421	E120.1	NONE	7/9/2013	14:30	EC	6430	umhos/cm	2.00
808892-001	SC-700B-WDR-421	E200.8	NONE	7/9/2013	14:30	Chromium	ND	ug/L	1.0
808892-001	SC-700B-WDR-421	E200.8	NONE	7/9/2013	14:30	Manganese	0.98	ug/L	0.50
808892-001	SC-700B-WDR-421	E218.6	LABFLT	7/9/2013	14:30	Chromium, Hexavalent	0.35	ug/L	0.20
808892-001	SC-700B-WDR-421	SM2130B	NONE	7/9/2013	14:30	Turbidity	0.281	NTU	0.100
808892-001	SC-700B-WDR-421	SM2540C	NONE	7/9/2013	14:30	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.

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

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

REPORT

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

Laboratory No. 808892

Printed 7/22/2013

Samples Received on 7/9/2013 9:30:00 PM

Field ID	Lab ID	Collected	Matrix
SC-700B-WDR-421	808892-001	07/09/2013 14:30	Water

Specific Conductivity - EPA 120.1 Batch 07EC13C

Parameter	Unit	Analyzed	DF	MDL	RL	Result
808892-001 Specific Conductivity	umhos/cm	07/12/2013	1.00	0.606	2.00	6430

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate — Lab ID = 808956-007

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	2420	2420	0	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	717	706	102	90 - 110

Lab Control Sample Duplicate

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

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	735	706	104	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	888	809	110	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	888	809	110	90 - 110

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

Chrome VI by EPA 218.6

Batch 07CrH13C

Parameter	Unit	Analyzed	DF	MDL	RL	Result
808892-001 Chromium, Hexavalent	ug/L	07/15/2013 14:59	1.00	0.00920	0.20	0.35

Method Blank

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

Duplicate — Lab ID = 808853-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	31.2	31.7	1.59	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.204	0.200	102	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.82	5.00	96.5	90 - 110

Matrix Spike — Lab ID = 808853-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	8.36	8.68(5.00)	93.5	90 - 110

Matrix Spike — Lab ID = 808853-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	8.98	9.29(5.00)	93.8	90 - 110

Matrix Spike — Lab ID = 808853-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	7.49	7.76(5.00)	94.6	90 - 110

Matrix Spike — Lab ID = 808853-009

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.36	1.42(1.00)	94.4	90 - 110

Matrix Spike — Lab ID = 808853-010

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.52	1.57(1.00)	94.5	90 - 110

Matrix Spike — Lab ID = 808853-011

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.78	6.01(5.00)	95.3	90 - 110

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

Client: E2 Consulting Engineers, Inc.

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

Matrix Spike — Lab ID = 808853-012

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.37	1.43(1.00)	94.5	90 - 110

Matrix Spike — Lab ID = 808892-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.30	1.35(1.00)	95.0	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.84	5.00	96.8	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.82	10.0	98.2	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.70	10.0	97.0	95 - 105

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.80	10.0	98.0	95 - 105

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

Client: E2 Consulting Engineers, Inc.

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

Printed 7/26/2013
Revised

Metals by EPA 200.8, Total

Batch 071213B-ICPMS-1

Parameter	Unit	Analyzed	DF	MDL	RL	Result
808892-001 Chromium	ug/L	07/12/2013 20:33	2.00	0.184	1.0	ND
Manganese	ug/L	07/12/2013 20:33	2.00	0.172	0.50	0.98

Method Blank

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

Duplicate

Lab ID = 808892-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	2.00	ND	0	0	0 - 20
Manganese	ug/L	2.00	1.07	0.982	8.67	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.180	0.200	90.2	70 - 130
Manganese	ug/L	1.00	0.206	0.200	103	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	2.00	53.0	50.0	106	85 - 115
Manganese	ug/L	2.00	53.1	50.0	106	85 - 115

Matrix Spike

Lab ID = 808892-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	50.7	50.0(50.0)	101	75 - 125
Manganese	ug/L	2.00	49.3	51.0(50.0)	96.7	75 - 125

Matrix Spike Duplicate

Lab ID = 808892-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	49.0	50.0(50.0)	98.1	75 - 125
Manganese	ug/L	2.00	47.3	51.0(50.0)	92.6	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.5	20.0	102	90 - 110
Manganese	ug/L	1.00	20.1	20.0	100	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.1	20.0	95.4	90 - 110

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

Interference Check Standard A

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

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.9	20.0	94.4	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.8	20.0	94.0	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	18.6	20.0	92.8	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	18.9	20.0	94.6	80 - 120

Total Dissolved Solids by SM 2540 C

Batch 07TDS13C

Parameter	Unit	Analyzed	DF	MDL	RL	Result
808892-001 Total Dissolved Solids	mg/L	07/10/2013	1.00	1.76	250	4070

Method Blank

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

Duplicate — Lab ID = 808853-005

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	3010	2980	1.07	0 - 10

Duplicate — Lab ID = 808892-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	4050	4070	0.493	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Dissolved Solids	mg/L	1.00	483	500	96.6	90 - 110

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

Client: E2 Consulting Engineers, Inc.

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

Printed 7/22/2013

Turbidity by SM 2130 B

Batch 07TUC13H

Parameter	Unit	Analyzed	DF	MDL	RL	Result
808892-001 Turbidity	NTU	07/10/2013	1.00	0.0140	0.100	0.281

Method Blank

Parameter	Unit	DF	Result
Turbidity	NTU	1.00	ND

Duplicate

Lab ID = 808892-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Turbidity	NTU	1.00	0.280	0.281	0.356	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	8.13	8.00	102	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	8.38	8.00	105	90 - 110

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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

Truesdail Laboratories, Inc.

Total Dissolved Solids by SM 2540 C

Calculations

Batch: 07TDS13C
Date Analyzed: 7/10/13

Laboratory Number	Sample volume, ml	Initial weight,g	1st Final weight,g	2nd Final weight,g	Weight Difference, g	Exceeds 0.5mg? Yes/No	Residue weight,g	Filterable residue, ppm	RL , ppm	Reported Value, ppm	DF
Blank	100	76.1815	76.1815	76.1815	0.0000	No	0.0000	0.0	25.0	ND	1
808852-6	50	72.6338	72.7477	72.7477	0.0000	No	0.1139	2278.0	50.0	2278.0	1
808852-7	50	50.4015	50.4706	50.4702	0.0004	No	0.0687	1374.0	50.0	1374.0	1
808852-8	100	75.2758	75.3096	75.3096	0.0000	No	0.0338	338.0	25.0	338.0	1
808852-9	50	47.7610	47.8279	47.8276	0.0003	No	0.0666	1332.0	50.0	1332.0	1
808852-10	50	51.8379	51.9043	51.9041	0.0002	No	0.0662	1324.0	50.0	1324.0	1
808853-1	50	49.3982	49.4632	49.4632	0.0000	No	0.0650	1300.0	50.0	1300.0	1
808853-2	50	50.5029	50.5691	50.5687	0.0004	No	0.0658	1316.0	50.0	1316.0	1
808853-3	50	47.2180	47.3259	47.3259	0.0000	No	0.1079	2158.0	50.0	2158.0	1
808853-4	50	51.1620	51.2386	51.2386	0.0000	No	0.0766	1532.0	50.0	1532.0	1
808853-5	50	50.5581	50.7071	50.7071	0.0000	No	0.1490	2980.0	50.0	2980.0	1
808853-5D	50	52.0697	52.2203	52.2203	0.0000	No	0.1506	3012.0	50.0	3012.0	1
LCS	100	78.3940	78.4425	78.4423	0.0002	No	0.0483	483.0	25.0	483.0	1
808853-6	50	50.5480	50.6021	50.6021	0.0000	No	0.0541	1082.0	50.0	1082.0	1
808853-7	50	50.8290	50.8898	50.8895	0.0003	No	0.0605	1210.0	50.0	1210.0	1
808853-8	50	50.7268	50.7865	50.7865	0.0000	No	0.0597	1194.0	50.0	1194.0	1
808853-9	100	74.7024	74.7364	74.7361	0.0003	No	0.0337	337.0	25.0	337.0	1
808853-10	100	73.4423	73.4674	73.4674	0.0000	No	0.0251	251.0	25.0	251.0	1
808853-11	100	78.8011	78.8318	78.8315	0.0003	No	0.0304	304.0	25.0	304.0	1
808853-12	100	65.7234	65.7595	65.7595	0.0000	No	0.0361	361.0	25.0	361.0	1
808891-1	100	76.5396	76.5763	76.5762	0.0001	No	0.0366	366.0	25.0	366.0	1
808891-4	100	75.4367	75.487	75.4869	0.0001	No	0.0502	502.0	25.0	502.0	1
808892	10	51.4353	51.476	51.476	0.0000	No	0.0407	4070.0	250.0	4070.0	1
808892D	10	48.9846	49.0254	49.0251	0.0003	No	0.0405	4050.0	250.0	4050.0	1

Calculation as follows:

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

Where:

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

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

Laboratory Control Sample (LCS) Summary

QC Std I.D.	Measurd Value, ppm	Theoretical Value, ppm	Percent Rec	Acceptance Limit	QC Within Control?
LCS1	483	500	96.6%	90-110%	Yes
LCSD					

LCS Recovery

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

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

Duplicate Determinations Difference Summary

Lab Number	Sample Weight, g	Sample Dup Weight, g	% RPD	Acceptance Limit	QC Within Control?
808853-5	0.149	0.1506	0.5%	≤5%	Yes
808892	0.0407	0.0405	0.2%	5%	Yes

Duplicate Determination Difference

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

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

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

Jenny T.
Analyst Printed Name

Analyst Signature

Maksim G.
Reviewer Printed Name

Reviewer Signature

Total Dissolved Solids by SM 2540 C

TDS/EC CHECK

Batch: 07TDS13C
Date Analyzed: 7/10/13

Laboratory Number	EC	TDS/EC Ratio: 0.55-.9	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
808852-6	2920	0.78	1898	1.20
808852-7	1870	0.73	1215.5	1.13
808852-8	487	0.69	316.55	1.07
808852-9	1771	0.75	1151.15	1.16
808852-10	1777	0.75	1155.05	1.15
808853-1	1733	0.75	1126.45	1.15
808853-2	1735	0.76	1127.75	1.17
808853-3	2840	0.76	1846	1.17
808853-4	2040	0.75	1326	1.16
808853-5	3900	0.76	2535	1.18
808853-5D	3900	0.77	2535	1.19
LCS				
808853-6	1470	0.74	955.5	1.13
808853-7	1590	0.76	1033.5	1.17
808853-8	1550	0.77	1007.5	1.19
808853-9	483	0.70	313.95	1.07
808853-10	386	0.65	250.9	1.00
808853-11	405	0.75	263.25	1.15
808853-12	481	0.75	312.65	1.15
808891-1	499	0.73	324.35	1.13
808891-4	676	0.74	439.4	1.14
808892	6430	0.63	4179.5	0.97
808892D	6430	0.63	4179.5	0.97

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-421]

808892

COC Number

TURNAROUND TIME 10 Days

DATE 07/09/13 PAGE 1 OF 1

COMPANY: E2

PROJECT NAME: PG&E Topock

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

ADDRESS: 155 Grand Ave Ste 1000, Oakland, CA 94612

P.O. NUMBER: 456827.01.DM TEAM: 1

SAMPLERS (SIGNATURE):

SAMPLE I.D.	DATE	TIME	DESCRIPTION	Cr6 (218.6) Lab Filtered	Total Metals (200.7) Cr, Mn	Specific Conductance (120.1)	TDS (SM2540C)	Turbidity (SM2130)								NUMBER OF CONTAINERS	COMMENTS
SC-700B-WDR-421	07/09/13	14:30	Water	x	x	x	x		x							3	pH = 6 (200.7)
																TOTAL NUMBER OF CONTAINERS	

ALERT !!
Level III QC

For Sample Conditions See Form Attached

CHAIN OF CUSTODY SIGNATURE RECORD

	Printed Name	Company/ Agency	Date/ Time
Signature (Relinquished)	Ryan Phelps	CH2MHILL	7-9-13 15:30
Signature (Received) Rafael Davila	Rafael	T-L-I	7-9-13 15:30
Signature (Relinquished) Rafael Davila	Rafael	T-L-I	7-9-13 21:30
Signature (Received) Shabunine	Linda	TLI	7/9/13 21:30
Signature (Relinquished)			
Signature (Received)			

SAMPLE CONDITIONS

RECEIVED COOL ☑ WARM ☐ 3.1 °C

CUSTODY SEALED YES ☐ NO ☑

SPECIAL REQUIREMENTS:

039

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
7/9/13	808852-8	9.5	N/A	N/A	N/A	NE
	-9					
	-10					
7/9/13	808853-1	9.5	N/A	N/A	N/A	NE
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
7/10/13	808891-1	9.5	N/A	N/A	N/A	NE
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	808892	7.0	2 mL 100 mL	9.5	8:00	NE
	808893-1	9.5	N/A	N/A	N/A	NE
	-2					
	-3					
	-4					
	-5					
	-6					

7-18-13 7/16/13

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

TRUESDAIL LABORATORIES, INC.

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
808768	<1	<2	7/2/13	DC	yes			
808776	<1	<2	7/3/13	DC	yes			
808778	>1	↓	↓	↓	↓			
808779	<1	↓	↓	↓	↓			
808798(1-2)	<1	>2	7-3-13	BE	No	14:00		
808783(1-3)	↓	↓	↓	↓	↓			
808784(1-6)	↓	↓	↓	↓	↓			
808804(1-3)	<1	<2	7-8-13	BE	yes			
808804(1-2)	↓	>2	↓	↓	↓	7:00		
808805(1-2)	↓	>2	↓	↓	↓	7:00		after filter
808802	↓	<2	↓	↓	↓			
808810(1-3)	↓	<2	↓	↓	↓			
808863(1-4)	↓	↓	↓	↓	↓			
808837(1-15)	<1	<2	7-8-13	ES	yes			
808853(1-12)	<1	<2	7-9-13	BE	↓			
808855(1-6)	↓	↓	↓	↓	↓			
808854(1-4	↓	↓	↓	↓	↓			
808852(1-10)	↓	↓	↓	↓	↓			
808851(1-5)	↓	↓	↓	↓	↓			
808857-6	<1	>2	7/9/13	DC	NO	12:20		
808892	<1	>2	7-10-13	BE	yes	10:00		
808879(1-2)	<1	>2	↓	↓	NO	12:00		
808878(1-15)	↓	↓	↓	↓	↓	↓		
808806	SLUDGE		7-10-13	ES	yes			
808906	>1	>2	7/10/13	DC	yes			
808807-4	<1	<2	↓	↓	↓			
808826	>1	↓	↓	↓	↓			
808827-4	↓	↓	↓	↓	↓			
808842	<1	↓	↓	↓	↓			
808843	↓	↓	↓	↓	↓			
808869	↓	↓	↓	↓	↓			
808870	↓	↓	↓	↓	↓			
808871	↓	↓	↓	↓	↓			
808872	↓	↓	↓	↓	↓			
808873	↓	↓	↓	↓	↓			
808874	↓	↓	↓	↓	↓			
808886	↓	↓	↓	↓	↓			
808887	↓	↓	↓	↓	↓			
808888	↓	↓	↓	↓	↓			
808889	↓	↓	↓	↓	↓			
808907	<1	>2	7/11/13	ES	No	10:30		
808908	↓	↓	↓	↓	↓	↓		
808912 (1-3)	↓	↓	↓	↓	↓	4:30		

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

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: E2 **Lab #** 808892

Date Delivered: 07/09/13 **Time:** 21:30 **By:** ☐ Mail ☑ Field Service ☐ Client

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

ALERT!! Level II QC

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

July 30, 2013

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

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK IM3PLANT-WDR-422 PROJECT, GROUNDWATER MONITORING, TLI NO.: 809035

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-422 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 July 16, 2013, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

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

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

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

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING
Established 1931
14201 FRANKLIN AVENUE
TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462
www.truesdail.com

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

Laboratory No.: 809035
Date: July 30, 2013
Collected: July 16, 2013
Received: July 16, 2013

ANALYST LIST

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

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

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

Laboratory No.: 809035
Date Received: July 16, 2013

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

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
809035-001	SC-700B-WDR-422	E120.1	NONE	7/16/2013	14:36	EC	6670	umhos/cm	2.00
809035-001	SC-700B-WDR-422	E200.8	NONE	7/16/2013	14:36	Chromium	ND	ug/L	1.0
809035-001	SC-700B-WDR-422	E200.8	NONE	7/16/2013	14:36	Manganese	8.7	ug/L	0.50
809035-001	SC-700B-WDR-422	E218.6	LABFLT	7/16/2013	14:36	Chromium, Hexavalent	ND	ug/L	0.20
809035-001	SC-700B-WDR-422	SM2130B	NONE	7/16/2013	14:36	Turbidity	ND	NTU	0.100
809035-001	SC-700B-WDR-422	SM2540C	NONE	7/16/2013	14:36	Total Dissolved Solids	4120	mg/L	125

ND: Non Detected (below reporting limit)
mg/L: Milligrams per liter.
Note: The following "Significant Figures" rule has been applied to all results:
Results below 0.01ppm will have two (2) significant figures.
Result above or equal to 0.01ppm will have three (3) significant figures.
Quality Control data will always have three (3) significant figures.

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

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING
Established 1931
14201 FRANKLIN AVENUE
TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462
www.truesdail.com

REPORT

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

Laboratory No. 809035

Printed 7/30/2013

Samples Received on 7/16/2013 7:35:00 PM

Field ID	Lab ID	Collected	Matrix
SC-700B-WDR-422	809035-001	07/16/2013 14:36	Water

Specific Conductivity - EPA 120.1 Batch 07EC13E

Parameter	Unit	Analyzed	DF	MDL	RL	Result
809035-001 Specific Conductivity	umhos/cm	07/17/2013	1.00	0.606	2.00	6670

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate — Lab ID = 809036-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	790	790	0	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	726	706	103	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	726	706	103	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	934	1000	93.4	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	934	1000	93.4	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.

Chrome VI by EPA 218.6 Batch 07CrH13F

Parameter	Unit	Analyzed	DF	MDL	RL	Result
809035-001 Chromium, Hexavalent	ug/L	07/19/2013 13:36	1.00	0.00920	0.20	ND

Method Blank

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

Duplicate — Lab ID = 808998-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	7.96	8.04	1.02	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.214	0.200	107	70 - 130

Lab Control Sample

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

Matrix Spike — Lab ID = 808954-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.57	1.61(1.00)	95.6	90 - 110

Matrix Spike — Lab ID = 808954-003

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

Matrix Spike — Lab ID = 808958-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.76	1.80(1.00)	95.9	90 - 110

Matrix Spike — Lab ID = 808958-002

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 = 808958-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	7.23	7.39(5.00)	96.8	90 - 110

Matrix Spike — Lab ID = 808958-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	6.35	6.49(5.00)	97.3	90 - 110

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

Matrix Spike — Lab ID = 808998-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	8.10	8.19(5.00)	98.1	90 - 110

Matrix Spike — Lab ID = 809035-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.04	1.07(1.00)	97.4	90 - 110

MRCCS - Secondary

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

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.95	10.0	99.5	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	10.0	10.0	100	95 - 105

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

Metals by EPA 200.8, Total

Batch 072313B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
809035-001 Chromium	ug/L	07/24/2013 01:23	1.00	0.0920	1.0	ND
Manganese	ug/L	07/24/2013 01:23	1.00	0.0860	0.50	8.7

Method Blank

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

Duplicate — Lab ID = 809035-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	1.00	ND	0	0	0 - 20
Manganese	ug/L	1.00	8.32	8.68	4.24	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.226	0.200	113	70 - 130
Manganese	ug/L	1.00	0.235	0.200	118	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	2.00	49.4	50.0	98.9	85 - 115
Manganese	ug/L	2.00	47.7	50.0	95.4	85 - 115

Matrix Spike — Lab ID = 809035-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	1.00	52.2	50.0(50.0)	104	75 - 125
Manganese	ug/L	1.00	58.2	58.7(50.0)	99.0	75 - 125

Matrix Spike Duplicate — Lab ID = 809035-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	1.00	52.5	50.0(50.0)	105	75 - 125
Manganese	ug/L	1.00	58.9	58.7(50.0)	100	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.8	20.0	104	90 - 110
Manganese	ug/L	1.00	20.1	20.0	100	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.0	20.0	99.8	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.

Interference Check Standard AB

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

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	19.0	20.0	94.8	80 - 120

Interference Check Standard AB

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

Total Dissolved Solids by SM 2540 C

Batch 07TDS13F

Parameter	Unit	Analyzed	DF	MDL	RL	Result
809035-001 Total Dissolved Solids	mg/L	07/19/2013	1.00	1.76	125	4120

Method Blank

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

Duplicate — Lab ID = 809035-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	4360	4120	5.54	0 - 10

Duplicate — Lab ID = 809111-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	950	938	1.27	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Dissolved Solids	mg/L	1.00	482	500	96.4	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.

Client: E2 Consulting Engineers, Inc.

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

Printed 7/30/2013

Turbidity by SM 2130 B Batch 07TUC13K

Parameter	Unit	Analyzed	DF	MDL	RL	Result
809035-001 Turbidity	NTU	07/18/2013	1.00	0.0140	0.100	ND

Method Blank

Parameter	Unit	DF	Result
Turbidity	NTU	1.00	ND

Duplicate — Lab ID = 809053-004

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

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	8.68	8.00	108	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	8.57	8.00	107	90 - 110

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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

Truesdail Laboratories, Inc.

e2

Total Dissolved Solids by SM 2540 C

Calculations

Batch: 07TDS13F
Date Analyzed: 7/19/13

Laboratory Number	Sample volume, ml	Initial weight,g	1st Final weight,g	2nd Final weight,g	Weight Difference, g	Exceeds 0.5mg? Yes/No	Residue weight,g	Filterable residue, ppm	RL, ppm	Reported Value, ppm	DF
Blank	100	67.6537	67.6537	67.6537	0.0000	No	0.0000	0.0	25.0	ND	1
808976-4	50	49.3988	49.5056	49.5054	0.0002	No	0.1066	2132.0	50.0	2132.0	1
808976-5	50	50.5480	50.6016	50.6015	0.0001	No	0.0535	1070.0	50.0	1070.0	1
808976-7	50	47.2188	47.2697	47.2696	0.0001	No	0.0508	1016.0	50.0	1016.0	1
808976-8	50	50.6352	50.6909	50.6908	0.0001	No	0.0556	1112.0	50.0	1112.0	1
808980	470	173.2282	173.2328	173.2328	0.0000	No	0.0046	9.8	5.3	9.8	1
808987	450	158.8810	158.8838	158.8838	0.0000	No	0.0028	6.2	5.6	6.2	1
808998-4	20	51.1617	51.2433	51.2429	0.0004	No	0.0812	4060.0	125.0	4060.0	1
808998-5	50	51.4977	51.6063	51.6063	0.0000	No	0.1086	2172.0	50.0	2172.0	1
809032	20	48.4767	48.5322	48.5319	0.0003	No	0.0552	2760.0	125.0	2760.0	1
809035	20	52.0698	52.1521	52.1521	0.0000	No	0.0823	4115.0	125.0	4115.0	1
809035D	20	46.9789	47.0661	47.066	0.0001	No	0.0871	4355.0	125.0	4355.0	1
LCS	100	76.5436	76.5922	76.5918	0.0004	No	0.0482	482.0	25.0	482.0	1
809048	50	47.9466	48.0414	48.041	0.0004	No	0.0944	1888.0	50.0	1888.0	1
809055	365	156.7370	156.7388	156.7387	0.0001	No	0.0017	4.7	6.8	ND	1
809067-4	50	50.6932	50.7479	50.7478	0.0001	No	0.0546	1092.0	50.0	1092.0	1
809067-5	50	47.5134	47.5537	47.5535	0.0002	No	0.0401	802.0	50.0	802.0	1
809069-3	50	50.4017	50.4283	50.4279	0.0004	No	0.0262	524.0	50.0	524.0	1
809069-4	50	50.7596	50.7913	50.7909	0.0004	No	0.0313	626.0	50.0	626.0	1
809069-5	50	47.9582	48.0088	48.0085	0.0003	No	0.0503	1006.0	50.0	1006.0	1
809069-6	50	51.9391	51.9884	51.9883	0.0001	No	0.0492	984.0	50.0	984.0	1
809069-7	50	51.5732	51.6243	51.624	0.0003	No	0.0508	1016.0	50.0	1016.0	1
809111	50	51.2354	51.2826	51.2823	0.0003	No	0.0469	938.0	50.0	938.0	1
808111D	50	50.7933	50.8411	50.8408	0.0003	No	0.0475	950.0	50.0	950.0	1

Calculation as follows:

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

Where:

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

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

Laboratory Control Sample (LCS) Summary

QC Std I.D.	Measurd Value, ppm	Theoretical Value, ppm	Percent Rec	Acceptance Limit	QC Within Control?
LCS1	482	500	96.4%	90-110%	Yes
LCSD					

LCS Recovery

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

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

Duplicate Determinations Difference Summary

Lab Number	Sample Weight, g	Sample Dup Weight, g	% RPD	Acceptance Limit	QC Within Control?
809035	0.0823	0.0871	2.8%	≤5%	Yes
809111	0.0469	0.0475	0.6%	5%	Yes

Duplicate Determination Difference

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

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

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

Jenny T.
Analyst Printed Name

Analyst Signature

Maksim G.
Reviewer Printed Name

Reviewer Signature

WetChem TDS_2012.xls

Total Dissolved Solids by SM 2540 C

TDS/EC CHECK

Batch: 07TDS13F
Date Analyzed: 7/19/13

Laboratory Number	EC	TDS/EC Ratio: 0.55-.9	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
808976-4	2800	0.76	1820	1.17
808976-5	1480	0.72	962	1.11
808976-7	1450	0.70	942.5	1.08
808976-8	1580	0.70	1027	1.08
808980	12.3	0.80	7.995	1.22
808987	7.78	0.80	5.057	1.23
808998-4	4880	0.83	3172	1.28
808998-5	2750	0.79	1787.5	1.22
809032	3790	0.73	2463.5	1.12
809035	6650	0.62	4322.5	0.95
809035D	6650	0.65	4322.5	1.01
LCS				
809048	2660	0.71	1729	1.09
809055	11.6	ND	7.54	ND
809067-4	1520	0.72	988	1.11
809067-5	1130	0.71	734.5	1.09
809069-3	931	0.56	605.15	0.87
809069-4	924	0.68	600.6	1.04
809069-5	1434	0.70	932.1	1.08
809069-6	1414	0.70	919.1	1.07
809069-7	1433	0.71	931.45	1.09
809111	1432	0.66	930.8	1.01
808111D	1432	0.66	930.8	1.02

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-422]

809 035

COC Number

TURNAROUND TIME 10 Days

DATE 07/16/13 PAGE 1 OF 1

COMPANY: E2

PROJECT NAME: PG&E Topock

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

ADDRESS: 155 Grand Ave Ste 1000, Oakland, CA 94612

P.O. NUMBER: 456827.01.DM TEAM: 1

SAMPLERS (SIGNATURE):

SAMPLE I.D.	DATE	TIME	DESCRIPTION	Cr6 (218.6) Lab Filtered	Total Metals (200.7) Cr, Mn	Specific Conductance (120.1)	TDS (SM2540C)	Turbidity (SM2130)									NUMBER OF CONTAINERS	COMMENTS
SC-700B-WDR-422	07/16/13	14:36	Water	x	x	x	x		x								3	pH = 6 (200.7)
																	TOTAL NUMBER OF CONTAINERS	

ALERT !!
Level III QC

For Sample Conditions
See Form Attached

CHAIN OF CUSTODY SIGNATURE RECORD

	Signature	Printed Name	Company/ Agency	Date/ Time
Signature (Relinquished)		GEORGE GLODIA	E-2	07-16-13 14:36
Signature (Received)		J. VALENTIN	ADVANCED COURIER	07-16-13 14:40
Signature (Relinquished)		J. VALENTIN	ADVANCED	1935 7/16/13
Signature (Received)		Marchead Bea	TLI	7/16/13 1935
Signature (Relinquished)				
Signature (Received)				

SAMPLE CONDITIONS

RECEIVED COOL ☑ WARM ☐ 4.2 °C

CUSTODY SEALED YES ☐ NO ☑

SPECIAL REQUIREMENTS:

041

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
7/17/13	809033-8	9.5	N/A	N/A	N/A	NE
	-9					
	-10					
	809034-1					
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
7/17/13	809035	7.0	2mL/100mL	9.5	9:50	TM
7/17/13	809036-1	9.05	N/A	N/A	N/A	TM
	-2	9.5				
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
	-13					
	-14					
7/17/13	809037-1	9.5	N/A	N/A	N/A	TM
	-2					

TM

MM 7-23-13 TM 7/22/13

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

TRUESDAIL LABORATORIES, INC.

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
809029 (1-5,7)	<1	<2	7/18/13	DC	yes			
809030 (1,2-11)	↓	↓	↓	↓	↓			
809031 (1-9)	↓	↓	↓	↓	↓			
809032 (1,3-12)	↓	↓	↓	↓	↓			
809033 (1-8,10)	↓	↓	↓	↓	↓			
809034 (1,3-11)	↓	↓	↓	↓	↓			
809035	↓	>2	↓	↓	↓	12:55		
809062 (11-13)	<1	>2	↓	↓	NO	DC ~~16~~ 16:40		
809093		TTLC	7/22/13	ES	Yes			
809111	<1	>2	↓	↓	Yes			
809120	<1	<2	7/23/13	↓	↓			
809121	↓	↓	↓	↓	↓			
809067 (1,3-9)	<1	<2	↓	ES	yes			
809068 (1,3-10)	↓	↓	↓	↓	↓			
809069 (1-9,11-13)	↓	↓	↓	↓	↓			
809113 (1-2,4-9)	↓	↓	↓	↓	↓			
809114	↓	↓	↓	↓	↓			
809132	<1	<2	7/24/13	DC	yes			
809136	↓	↓	↓	↓	↓			
809137	↓	↓	↓	↓	↓			
809138	↓	↓	↓	↓	↓			
809139	↓	↓	↓	↓	↓			
809140	↓	↓	↓	↓	↓			
809144 (1-3)	<1	>2	↓	↓	NO	10:50		
809146	↓	↓	↓	↓	↓	↓		
809151	↓	↓	↓	↓	yes	1200		
809178	DC ~~<2~~ <1	>2	7/25/13	DC	NO	13:10		
809186	>1	>2	↓	↓	yes			
809170	<1	<2	↓	↓	↓			
809187	>1	<2	7/26/13	DC	yes			
809189	↓	↓	↓	↓	↓			
809190	↓	↓	↓	↓	↓			
809179 (1-35)	<1	<2	↓	↓	yes			
809188	<1	>2	↓	↓	yes ~~NO~~ DC	14:30		

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

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: E 2 **Lab #** 809038

Date Delivered: 07/16/13 **Time:** 19:35 **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)? 4.2°C
7. Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)? ☒Yes ☐No ☐N/A
8. Were sample custody seals intact? ☐Yes ☐No ☒N/A
9. Does the number of samples received agree with COC? ☒Yes ☐No ☐N/A
10. Did sample labels correspond with the client ID's? ☒Yes ☐No ☐N/A
11. Did sample labels indicate proper preservation? ☐Yes ☐No ☒N/A
    Preserved (if yes) by: ☐Truesdail ☐Client
12. Were samples pH checked? pH = see c.o.c ☒Yes ☐No ☐N/A
13. Were all analyses within holding time at time of receipt? ☒Yes ☐No ☐N/A
    If not, notify Project Manager.
14. Have Project due dates been checked and accepted? ☒Yes ☐No ☐N/A
    Turn Around Time (TAT): ☐ RUSH ☒ Std
15. **Sample Matrix:** ☐Liquid ☐Drinking Water ☐Ground Water ☐Waste Water ☐Sludge ☐Soil ☐Wipe ☐Paint ☐Solid ☒Other Water
16. Comments: _____
17. Sample Check-In completed by Truesdail Log-In/Receiving: Lindie

ALERT II Level II 06

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

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

August 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-423 PROJECT, GROUNDWATER MONITORING, TLI NO.: 809188

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-423 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 July 25, 2013, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

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

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

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

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING
Established 1931
14201 FRANKLIN AVENUE
TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462
www.truesdail.com

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

Laboratory No.: 809188
Date: August 5, 2013
Collected: July 25, 2013
Received: July 25, 2013

ANALYST LIST

METHOD	PARAMETER	ANALYST
EPA 120.1	Specific Conductivity	Jenny Tankunakorn
SM 2540C	Total Dissolved Solids	Jenny Tankunakorn
SM 2130B	Turbidity	Kim Luck
EPA 200.8	Total Metals	Ethel Suico
EPA 218.6	Hexavalent Chromium	Naheed Eidinejad / Tom Martinez

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

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

Laboratory No.: 809188
Date Received: July 25, 2013

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

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
809188-001	SC-700B-WDR-423	E120.1	NONE	7/25/2013	10:24	EC	6480	umhos/cm	2.00
809188-001	SC-700B-WDR-423	E200.8	NONE	7/25/2013	10:24	Chromium	ND	ug/L	1.0
809188-001	SC-700B-WDR-423	E200.8	NONE	7/25/2013	10:24	Manganese	1.4	ug/L	0.50
809188-001	SC-700B-WDR-423	E218.6	LABFLT	7/25/2013	10:24	Chromium, Hexavalent	ND	ug/L	0.20
809188-001	SC-700B-WDR-423	SM2130B	NONE	7/25/2013	10:24	Turbidity	0.103	NTU	0.100
809188-001	SC-700B-WDR-423	SM2540C	NONE	7/25/2013	10:24	Total Dissolved Solids	4110	mg/L	125

ND: Non Detected (below reporting limit)
mg/L: Milligrams per liter.
Note: The following "Significant Figures" rule has been applied to all results:
Results below 0.01ppm will have two (2) significant figures.
Result above or equal to 0.01ppm will have three (3) significant figures.
Quality Control data will always have three (3) significant figures.

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

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING
Established 1931
14201 FRANKLIN AVENUE
TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462
www.truesdail.com

REPORT

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

Laboratory No. 809188

Printed 8/5/2013

Samples Received on 7/25/2013 2:30:00 PM

Field ID	Lab ID	Collected	Matrix
SC-700B-WDR-423	809188-001	07/25/2013 10:24	Water

Specific Conductivity - EPA 120.1 Batch 07EC13I

Parameter	Unit	Analyzed	DF	MDL	RL	Result
809188-001 Specific Conductivity	umhos/cm	07/26/2013	1.00	0.606	2.00	6480

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate — Lab ID = 809165-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	720	718	0.278	0 - 10

Lab Control Sample

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

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	689	706	97.6	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	908	1000	90.8	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.

Chrome VI by EPA 218.6

Batch 07CrH13T

Parameter	Unit	Analyzed	DF	MDL	RL	Result
809188-001 Chromium, Hexavalent	ug/L	07/30/2013 16:20	1.00	0.00920	0.20	ND

Method Blank

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

Duplicate — Lab ID = 809069-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	102	101	1.57	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.193	0.200	96.4	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.86	5.00	97.2	90 - 110

Matrix Spike — Lab ID = 809069-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.69	1.73(1.00)	95.8	90 - 110

Matrix Spike — Lab ID = 809069-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.68	1.72(1.00)	96.2	90 - 110

Matrix Spike — Lab ID = 809069-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	6.29	6.42(5.00)	97.4	90 - 110

Matrix Spike — Lab ID = 809069-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	7.02	7.15(5.00)	97.3	90 - 110

Matrix Spike — Lab ID = 809069-007

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	6.95	7.14(5.00)	96.1	90 - 110

Matrix Spike — Lab ID = 809069-009

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.86	1.93(1.00)	93.5	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.

Matrix Spike — Lab ID = 809069-010

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

Matrix Spike — Lab ID = 809069-011

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.50	1.54(1.00)	95.2	90 - 110

Matrix Spike — Lab ID = 809069-012

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.54	1.58(1.00)	96.6	90 - 110

Matrix Spike — Lab ID = 809069-013

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.04	1.05(1.00)	99.5	90 - 110

Matrix Spike — Lab ID = 809114-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	6.38	6.60(5.00)	95.7	90 - 110

Matrix Spike — Lab ID = 809179-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	8.70	8.92(5.00)	95.6	90 - 110

Matrix Spike — Lab ID = 809179-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	7.17	7.36(5.00)	96.3	90 - 110

Matrix Spike — Lab ID = 809179-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	8.16	8.34(5.00)	96.3	90 - 110

Matrix Spike — Lab ID = 809179-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.966	1.00(1.00)	96.6	90 - 110

Matrix Spike — Lab ID = 809179-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.14	9.29(5.00)	96.9	90 - 110

Matrix Spike — Lab ID = 809188-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.13	1.15(1.00)	98.3	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.87	5.00	97.3	90 - 110

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

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

Metals by EPA 200.8, Total

Batch 072913A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
809188-001 Chromium	ug/L	07/29/2013 14:49	1.00	0.0920	1.0	ND
Manganese	ug/L	07/29/2013 14:49	1.00	0.0860	0.50	1.4

Method Blank

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

Duplicate — Lab ID = 809188-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	1.00	ND	0	0	0 - 20
Manganese	ug/L	1.00	1.38	1.37	0.944	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.219	0.200	110	70 - 130
Manganese	ug/L	1.00	0.211	0.200	106	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	2.00	49.3	50.0	98.6	85 - 115
Manganese	ug/L	2.00	49.0	50.0	98.1	85 - 115

Matrix Spike — Lab ID = 809188-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	1.00	46.6	50.0(50.0)	93.3	75 - 125
Manganese	ug/L	1.00	46.8	51.4(50.0)	90.9	75 - 125

Matrix Spike Duplicate — Lab ID = 809188-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	1.00	46.8	50.0(50.0)	93.6	75 - 125
Manganese	ug/L	1.00	46.6	51.4(50.0)	90.4	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	19.9	20.0	99.4	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.6	20.0	97.9	90 - 110

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.

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.7	20.0	98.4	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	18.8	20.0	93.8	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	19.5	20.0	97.6	80 - 120

Total Dissolved Solids by SM 2540 C

Batch 07TDS13H

Parameter	Unit	Analyzed	DF	MDL	RL	Result
809188-001 Total Dissolved Solids	mg/L	07/26/2013	1.00	1.76	125	4110

Method Blank

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

Duplicate — Lab ID = 809188-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	4060	4110	1.22	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Dissolved Solids	mg/L	1.00	485	500	97.0	90 - 110

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

Client: E2 Consulting Engineers, Inc.

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

Printed 8/5/2013

Turbidity by SM 2130 B Batch 07TUC13O

Parameter	Unit	Analyzed	DF	MDL	RL	Result
809188-001 Turbidity	NTU	07/26/2013	1.00	0.0140	0.100	0.103

Method Blank

Parameter	Unit	DF	Result
Turbidity	NTU	1.00	ND

Duplicate — Lab ID = 809188-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Turbidity	NTU	1.00	0.106	0.103	2.87	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	7.52	8.00	94.0	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	7.45	8.00	93.1	90 - 110

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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

eh 3

Truesdail Laboratories, Inc.

Total Dissolved Solids by SM 2540 C

Calculations

Batch: 07TDS13H
Date Analyzed: 7/26/13

Laboratory Number	Sample volume, ml	Initial weight,g	1st Final weight,g	2nd Final weight,g	Weight Difference, g	Exceeds 0.5mg? Yes/No	Residue weight,g	Filterable residue, ppm	RL , ppm	Reported Value, ppm	DF
Blank	100	70.3965	70.3965	70.3965	0.0000	No	0.0000	0.0	25.0	ND	1
809151	20	50.7114	50.7919	50.7918	0.0001	No	0.0804	4020.0	125.0	4020.0	1
809165-1	100	74.3916	74.4359	74.4356	0.0003	No	0.0440	440.0	25.0	440.0	1
809165-2	100	73.1757	73.2198	73.2197	0.0001	No	0.0440	440.0	25.0	440.0	1
809165-3	100	72.4973	72.5416	72.5413	0.0003	No	0.0440	440.0	25.0	440.0	1
809165-4	100	72.4125	72.4566	72.4562	0.0004	No	0.0437	437.0	25.0	437.0	1
809179-1	100	69.1981	69.2351	69.2349	0.0002	No	0.0368	368.0	25.0	368.0	1
809179-2	100	74.0473	74.1049	74.1045	0.0004	No	0.0572	572.0	25.0	572.0	1
809179-3	100	69.4857	69.5169	69.5167	0.0002	No	0.0310	310.0	25.0	310.0	1
809179-5	100	76.1799	76.2143	76.2141	0.0002	No	0.0342	342.0	25.0	342.0	1
809188	20	49.4395	49.5222	49.5217	0.0005	No	0.0822	4110.0	125.0	4110.0	1
809188D	20	50.9341	51.0153	51.0153	0.0000	No	0.0812	4060.0	125.0	4060.0	1
LCS	100	76.2772	76.3261	76.3257	0.0004	No	0.0485	485.0	25.0	485.0	1

Calculation as follows:

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

Where:

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

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

Laboratory Control Sample (LCS) Summary

QC Std I.D.	Measurd Value, ppm	Theoretical Value, ppm	Percent Rec	Acceptance Limit	QC Within Control?
LCS1	485	500	97.0%	90-110%	Yes
LCSD					

LCS Recovery

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

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

Duplicate Determinations Difference Summary

Lab Number	Sample Weight, g	Sample Dup Weight, g	% RPD	Acceptance Limit	QC Within Control?
809188	0.0822	0.0812	0.6%	≤5%	Yes

Duplicate Determination Difference

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

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

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

Jenny T.
Analyst Printed Name

Analyst Signature

Maksim G.
Reviewer Printed Name

Reviewer Signature

WetChem TDS_2012.xls

Total Dissolved Solids by SM 2540 C

TDS/EC CHECK

Batch: 07TDS13H
Date Analyzed: 7/26/13

Laboratory Number	EC	TDS/EC Ratio: 0.55-.9	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
809151	6530	0.62	4244.5	0.95
809165-1	718	0.61	466.7	0.94
809165-2	716	0.61	465.4	0.95
809165-3	719	0.61	467.35	0.94
809165-4	718	0.61	466.7	0.94
809179-1	508	0.72	330.2	1.11
809179-2	880	0.65	572	1.00
809179-3	468	0.66	304.2	1.02
809179-5	477	0.72	310.05	1.10
809188	6480	0.63	4212	0.98
809188D	6480	0.63	4212	0.96
LCS				

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-423]

809188

COC Number

TURNAROUND TIME 10 Days

DATE 07/25/13 PAGE 1 OF 1

COMPANY: E2

PROJECT NAME: PG&E Topock

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

ADDRESS: 155 Grand Ave Ste 1000, Oakland, CA 94612

P.O. NUMBER: 456827.01.DM TEAM: 1

SAMPLERS (SIGNATURE):

Rec'd 07/25/13 Sarta 809188

SAMPLE I.D.	DATE	TIME	DESCRIPTION	Cr6 (218.6) Lab Filtered	Total Metals (200.7) Cr, Mn	Specific Conductance (120.1)	TDS (SM2540C)	Turbidity (SM2130)									NUMBER OF CONTAINERS	COMMENTS
SC-700B-WDR-423	07/25/13	10:24	Water	x	x	x	x		x								3	M-6 (200.7)
																	3	TOTAL NUMBER OF CONTAINERS

For Sample Conditions See Form Attached

ALERT !!
Level III QC

CHAIN OF CUSTODY SIGNATURE RECORD

	Printed Name	Company/ Agency	Date/ Time
Signature (Relinquished)	Ryan Phelps	CH2MHILL	7-25-13 10:35
Signature (Received)	DAVID CHIN	Truesdail	7/25/13 10:35
Signature (Relinquished)	DAVID CHIN	Alwin / Truesdail	7/25/13 2:30 pm
Signature (Received)	Linda	TLI	7/25/13 2:30 pm
Signature (Relinquished)			
Signature (Received)			

SAMPLE CONDITIONS

RECEIVED COOL ☑ WARM ☐ 4.9 °C

CUSTODY SEALED YES ☐ NO ☐

SPECIAL REQUIREMENTS:

041

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
7/25/13	809179-5	9.5	N/A	N/A	N/A	NE
7/25/13	809188	7.0	2ml /100mL	9.5	14:45	TM
7/31/13	809225	7.0	2ml /100ml	9.5	8:30	NE
7/31/13	809239-1	8.5	1ml/100ml	9.5	8.30	NE
	-2					
	-3	9.5	N/A	N/A	N/A	NE
	-4					NE
	-5	8.5	1ml/100ml	9.5	8:30	NE
	809240-1					
	-2					
	-3	9.5	N/A	N/A	N/A	NE
	-4	8.5	1ml/100ml	9.5	8:30	NE
	-5					
	-6					
	-7					
	809241-1	9.5	N/A	N/A	N/A	NE
	-2					
	-3					
	-4					
	-5					
	-6					
	809242	7.0	2ml/100ml	9.5	8:00	NE

7/31/13

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

TRUESDAIL LABORATORIES, INC.

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
809029 (1-5,7)	<1	<2	7/18/13	DC	yes			
809030 (1,2-11)	↓	↓	↓	↓	↓			
809031 (1-9)								
809032 (1,3-12)								
809033 (1-8,10)								
809034 (1,3-11)		↓						
809035	↓	>2	↓	↓	↓	12:55		
809062 (11-13)	<1	>2	↓	↓	NO	DC ~~14~~ 16:40		
809093		TTLC	7/22/13	ES	Yes			
809111	<1	>2	↓	↓	Yes			
809120	<1	<2	7/23/13	↓	↓			
809121	↓	↓	↓	↓	↓			
809067 (1,3-9)	<1	<2	↓	ES	yes			
809068 (1,3-10)	↓	↓	↓	↓	↓			
809069 (1-9,11-13)								
809113 (1-2,4-9)								
809114	↓	↓	↓	↓	↓			
809132	<1	<2	7/24/13	DC	yes			
809136	↓	↓	↓	↓	↓			
809137								
809138								
809139								
809140	↓	↓	↓	↓	↓			
809144 (1-3)	<1	>2	↓	↓	NO	10:50		
809146	↓	↓	↓	↓	↓	↓		
809151	↓	↓	↓	↓	yes	1200		
809178	DC ~~<1~~ <1	>2	7/25/13	DC	NO	13:10		
809186	>1	>2	↓	↓	yes			
809170	<1	<2	↓	↓	↓			
809187	>1	<2	7/26/13	DC	yes			
809189	↓	↓	↓	↓	↓			
809190	↓	↓	↓	↓	↓			
809179 (1-3,5)	<1	<2	↓	↓	yes			
809188	<1	>2	↓	↓	yes ~~NO~~ DC	14:30		

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

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: E2 **Lab #** 809188

Date Delivered: 07/25/13 **Time:** 14:30 **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)? 4.9 °C
7. Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)? ☒Yes ☐No ☐N/A
8. Were sample custody seals intact? ☐Yes ☐No ☒N/A
9. Does the number of samples received agree with COC? ☒Yes ☐No ☐N/A
10. Did sample labels correspond with the client ID's? ☒Yes ☐No ☐N/A
11. Did sample labels indicate proper preservation? ☐Yes ☐No ☒N/A
    Preserved (if yes) by: ☐Truesdail ☐Client
12. Were samples pH checked? pH = see c.o.c ☒Yes ☐No ☐N/A
13. Were all analyses within holding time at time of receipt? ☒Yes ☐No ☐N/A
    If not, notify Project Manager.
14. Have Project due dates been checked and accepted? ☒Yes ☐No ☐N/A
    Turn Around Time (TAT): ☐ RUSH ☒ Std
15. **Sample Matrix:** ☐Liquid ☐Drinking Water ☐Ground Water ☐Waste Water ☐Sludge ☐Soil ☐Wipe ☐Paint ☐Solid ☒Other Water
16. Comments:
17. Sample Check-In completed by Truesdail Log-In/Receiving: Linda

ALERT !! Level III QC

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

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

August 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-424 PROJECT, GROUNDWATER MONITORING, TLI NO.: 809242

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-424 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 July 30, 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

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

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

Laboratory No.: 809242
Date: August 14, 2013
Collected: July 30, 2013
Received: July 30, 2013

ANALYST LIST

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

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

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

Laboratory No.: 809242
Date Received: July 30, 2013

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

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
809242-001	SC-700B-WDR-424	E120.1	NONE	7/30/2013	8:20	EC	6300	umhos/cm	2.00
809242-001	SC-700B-WDR-424	E200.8	NONE	7/30/2013	8:20	Chromium	ND	ug/L	1.0
809242-001	SC-700B-WDR-424	E200.8	NONE	7/30/2013	8:20	Manganese	1.1	ug/L	0.50
809242-001	SC-700B-WDR-424	E218.6	LABFLT	7/30/2013	8:20	Chromium, Hexavalent	ND	ug/L	0.20
809242-001	SC-700B-WDR-424	SM2130B	NONE	7/30/2013	8:20	Turbidity	ND	NTU	0.100
809242-001	SC-700B-WDR-424	SM2540C	NONE	7/30/2013	8:20	Total Dissolved Solids	4380	mg/L	125

ND: Non Detected (below reporting limit)
mg/L: Milligrams per liter.
Note: The following "Significant Figures" rule has been applied to all results:
Results below 0.01ppm will have two (2) significant figures.
Result above or equal to 0.01ppm will have three (3) significant figures.
Quality Control data will always have three (3) significant figures.

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

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

REPORT

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

Laboratory No. 809242

Printed 8/14/2013

Samples Received on 7/30/2013 8:08:00 PM

Field ID	Lab ID	Collected	Matrix
SC-700B-WDR-424	809242-001	07/30/2013 08:20	Water

Specific Conductivity - EPA 120.1 Batch 07EC13J

Parameter	Unit	Analyzed	DF	MDL	RL	Result
809242-001 Specific Conductivity	umhos/cm	07/31/2013	1.00	0.606	2.00	6300

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate

Lab ID = 809242-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	6310	6300	0.159	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	720	706	102	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	721	706	102	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	932	1000	93.2	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	930	1000	93.0	90 - 110

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

Client: E2 Consulting Engineers, Inc.

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

Printed 8/14/2013

Metals by EPA 200.8, Total

Batch 080513A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
809242-001 Chromium	ug/L	08/05/2013 15:55	1.00	0.0920	1.0	ND
Manganese	ug/L	08/05/2013 15:55	1.00	0.0860	0.50	1.1

Method Blank

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

Duplicate — Lab ID = 809242-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	1.00	ND	0	0	0 - 20
Manganese	ug/L	1.00	1.08	1.09	1.01	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.191	0.200	95.5	70 - 130
Manganese	ug/L	1.00	0.204	0.200	102	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	50.0	50.0	100.	85 - 115
Manganese	ug/L	1.00	49.6	50.0	99.2	85 - 115

Matrix Spike — Lab ID = 809242-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	1.00	49.6	50.0(50.0)	99.1	75 - 125
Manganese	ug/L	1.00	50.2	51.1(50.0)	98.2	75 - 125

Matrix Spike Duplicate — Lab ID = 809242-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	1.00	49.5	50.0(50.0)	99.1	75 - 125
Manganese	ug/L	1.00	50.5	51.1(50.0)	98.8	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.5	20.0	97.6	90 - 110
Manganese	ug/L	1.00	19.6	20.0	98.0	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.9	20.0	99.4	90 - 110
Manganese	ug/L	1.00	19.9	20.0	99.7	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.

Client: E2 Consulting Engineers, Inc.

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

Chrome VI by EPA 218.6

Batch 08CrH13B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
809242-001 Chromium, Hexavalent	ug/L	08/01/2013 13:36	1.00	0.00920	0.20	ND

Method Blank

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

Duplicate — Lab ID = 809264-005

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.46	1.52	3.81	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	4.82	5.00	96.3	90 - 110

Matrix Spike — Lab ID = 809239-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.62	6.05(5.00)	91.4	90 - 110

Matrix Spike — Lab ID = 809239-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.61	5.81(5.00)	96.0	90 - 110

Matrix Spike — Lab ID = 809239-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	17.8	19.6(10.0)	81.1	90 - 110

Matrix Spike — Lab ID = 809239-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	31.1	32.6(25.0)	94.1	90 - 110

Matrix Spike — Lab ID = 809239-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	6.48	6.92(5.00)	91.3	90 - 110

Matrix Spike — Lab ID = 809239-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	6.20	6.51(5.00)	93.8	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.

Matrix Spike — Lab ID = 809239-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.90	5.19(5.00)	94.1	90 - 110

Matrix Spike — Lab ID = 809239-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.18	1.28(1.00)	90.0	90 - 110

Matrix Spike — Lab ID = 809239-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	6.36	6.43(5.00)	98.6	90 - 110

Matrix Spike — Lab ID = 809242-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.06	1.12(1.00)	94.3	90 - 110

Matrix Spike — Lab ID = 809264-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	8.31	8.60(5.00)	94.2	90 - 110

Matrix Spike — Lab ID = 809264-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	8.33	8.57(5.00)	95.2	90 - 110

Matrix Spike — Lab ID = 809264-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	6.04	6.30(5.00)	94.9	90 - 110

Matrix Spike — Lab ID = 809264-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	7.82	8.10(5.00)	94.3	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.83	5.00	96.6	90 - 110

MRCVS - Primary

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

MRCVS - Primary

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

MRCVS - Primary

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

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, 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	9.98	10.0	99.8	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.94	10.0	99.4	95 - 105

Total Dissolved Solids by SM 2540 C

Batch 08TDS13A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
809242-001 Total Dissolved Solids	mg/L	08/02/2013	1.00	1.76	125	4380

Method Blank

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

Duplicate — Lab ID = 809240-006

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	3300	3290	0.303	0 - 10

Duplicate — Lab ID = 809267-004

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	734	744	1.35	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Dissolved Solids	mg/L	1.00	493	500	98.6	90 - 110

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

Turbidity by SM 2130 B

Batch 07TUC13Q

Parameter	Unit	Analyzed	DF	MDL	RL	Result
809242-001 Turbidity	NTU	07/31/2013	1.00	0.0140	0.100	ND

Method Blank

Parameter	Unit	DF	Result
Turbidity	NTU	1.00	ND

Duplicate

Lab ID = 809249-003

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Turbidity	NTU	1.00	0.219	0.221	0.909	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	7.65	8.00	95.6	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	7.64	8.00	95.5	90 - 110

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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

Truesdail Laboratories, Inc.

4 ez

Total Dissolved Solids by SM 2540 C

Calculations

Batch: 08TDS13A
Date Analyzed: 8/2/13

Laboratory Number	Sample volume, ml	Initial weight,g	1st Final weight,g	2nd Final weight,g	Weight Difference, g	Exceeds 0.5mg? Yes/No	Residue weight,g	Filterable residue, ppm	RL , ppm	Reported Value, ppm	DF
Blank	100	78.3708	78.3708	78.3708	0.0000	No	0.0000	0.0	25.0	ND	1
809239-1	20	49.1218	49.2051	49.205	0.0001	No	0.0832	4160.0	125.0	4160.0	1
809239-2	50	51.0413	51.1591	51.1587	0.0004	No	0.1174	2348.0	50.0	2348.0	1
809239-3	50	49.5779	49.6737	49.6737	0.0000	No	0.0958	1916.0	50.0	1916.0	1
809239-5	20	50.1513	50.239	50.239	0.0000	No	0.0877	4385.0	125.0	4385.0	1
809240-1	20	51.7987	51.8784	51.878	0.0004	No	0.0793	3965.0	125.0	3965.0	1
809240-2	50	51.3449	51.3969	51.3965	0.0004	No	0.0516	1032.0	50.0	1032.0	1
809240-3	50	51.4883	51.5693	51.5692	0.0001	No	0.0809	1618.0	50.0	1618.0	1
809240-4	50	51.4227	51.5115	51.5113	0.0002	No	0.0886	1772.0	50.0	1772.0	1
809240-5	20	51.0735	51.1391	51.1391	0.0000	No	0.0656	3280.0	125.0	3280.0	1
809240-6	20	51.0503	51.1164	51.1161	0.0003	No	0.0658	3290.0	125.0	3290.0	1
809240-6D	20	50.4841	50.5502	50.5501	0.0001	No	0.0660	3300.0	125.0	3300.0	1
LCS	100	75.7560	75.8057	75.8053	0.0004	No	0.0493	493.0	25.0	493.0	1
809240-7	50	49.0610	49.122	49.1217	0.0003	No	0.0607	1214.0	50.0	1214.0	1
809242	20	50.1174	50.2054	50.205	0.0004	No	0.0876	4380.0	125.0	4380.0	1
809249-1	100	77.9899	78.0368	78.0368	0.0000	No	0.0469	469.0	25.0	469.0	1
809249-2	100	67.9757	68.0254	68.0254	0.0000	No	0.0497	497.0	25.0	497.0	1
809249-3	100	76.7925	76.844	76.8436	0.0004	No	0.0511	511.0	25.0	511.0	1
809249-4	100	67.0465	67.0974	67.0973	0.0001	No	0.0508	508.0	25.0	508.0	1
809267-2	100	77.2419	77.2786	77.2786	0.0000	No	0.0367	367.0	25.0	367.0	1
809267-3	100	71.9664	72.0177	72.0176	0.0001	No	0.0512	512.0	25.0	512.0	1
809267-4	50	49.1692	49.2067	49.2064	0.0003	No	0.0372	744.0	50.0	744.0	1
809267-4D	50	51.8418	51.8786	51.8785	0.0001	No	0.0367	734.0	50.0	734.0	1

Calculation as follows:

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

Where:

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

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

Laboratory Control Sample (LCS) Summary

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

LCS Recovery

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

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

Duplicate Determinations Difference Summary

Lab Number	Sample Weight, g	Sample Dup Weight, g	% RPD	Acceptance Limit	QC Within Control?
809240-6	0.0658	0.066	0.2%	≤5%	Yes
809267-4	0.0372	0.0367	0.7%	5%	Yes

Duplicate Determination Difference

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

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

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

Jenny T.
Analyst Printed Name

Analyst Signature

Maksim G.
Reviewer Printed Name

Reviewer Signature

WetChem TDS_2012.xls

Total Dissolved Solids by SM 2540 C

TDS/EC CHECK

Batch: 08TDS13A
Date Analyzed: 8/2/13

Laboratory Number	EC	TDS/EC Ratio: 0.55-.9	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
809239-1	5050	0.82	3282.5	1.27
809239-2	3000	0.78	1950	1.20
809239-3	2780	0.69	1807	1.06
809239-5	5450	0.80	3542.5	1.24
809240-1	4860	0.82	3159	1.26
809240-2	1470	0.70	955.5	1.08
809240-3	2170	0.75	1410.5	1.15
809240-4	2350	0.75	1527.5	1.16
809240-5	4020	0.82	2613	1.26
809240-6	4050	0.81	2632.5	1.25
809240-6D	4050	0.81	2632.5	1.25
LCS				
809240-7	1780	0.68	1157	1.05
809242	6300	0.70	4095	1.07
809249-1	761	0.62	494.65	0.95
809249-2	825	0.60	536.25	0.93
809249-3	838	0.61	544.7	0.94
809249-4	825	0.62	536.25	0.95
809267-2	512	0.72	332.8	1.10
809267-3	783	0.65	508.95	1.01
809267-4	1073	0.69	697.45	1.07
809267-4D	1073	0.68	697.45	1.05

809242

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-424]

COC Number

TURNAROUND TIME 10 Days

DATE 07/30/13 PAGE 1 OF 1

COMPANY: E2

PROJECT NAME: PG&E Topock

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

ADDRESS: 155 Grand Ave Ste 1000, Oakland, CA 94612

P.O. NUMBER: 456827.01.DM TEAM: 1

SAMPLERS (SIGNATURE):

SAMPLE I.D.	DATE	TIME	DESCRIPTION	Cr6 (218.6) Lab Filtered	Total Metals (200.7) Cr, Mn	Specific Conductance (120.1)	TDS (SM2540C)	Turbidity (SM2130)									NUMBER OF CONTAINERS	COMMENTS
SC-700B-WDR-424	07/30/13	8:20	Water	X	X	X	X		X								3	pH = 6 (200.7)
																	3	TOTAL NUMBER OF CONTAINERS

ALERT !!
Level III QC

For Sample Conditions See Form Attached

CHAIN OF CUSTODY SIGNATURE RECORD

	Printed Name	Company/ Agency	Date/ Time
Signature (Relinquished)	Ryan Phelps	CH2MHILL	7-30-13
Signature (Received)	DANA HAGEN	advanced Envirocorp	7/30/13 3:35pm
Signature (Relinquished)	DANA HAGEN	advanced	7/30/13 8:08pm
Signature (Received)	Marshal Brady	Truesdail	7/30/13 2008
Signature (Relinquished)			
Signature (Received)			

SAMPLE CONDITIONS

RECEIVED COOL ☑ WARM ☐ 3.6 °C

CUSTODY SEALED YES ☐ NO ☐

SPECIAL REQUIREMENTS:

042

Hexavalent Chromium

Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
7/25/13	809179-5	9.5	N/A	N/A	N/A	NE
7/25/13	809188	7.0	2ml /100mL	9.5	14:45	TM
7/31/13	809225	7.0	2ml /100ml	9.5	8:30	NE
7/31/13	809239-1	8.5	1ml/100ml	9.5	8.30	NE
	-2					
	-3	9.5	N/A	N/A	N/A	NE
	-4					NE
	-5	8.5	1ml/100ml	9.5	8:30	NE
	809240-1					
	-2					
	-3	9.5	N/A	N/A	N/A	NE
	-4	8.5	1ml/100ml	9.5	8:30	NE
	-5					
	-6					
	-7					
	809241-1	9.5	N/A	N/A	N/A	NE
	-2					
	-3					
	-4					
	-5					
	-6					
	809242	7.0	2ml/100ml	9.5	8:00	NE
7/31/13	809256-1	7.0	2ml/100ml	9.5	8:00	NE
	-2					
8/1/13	809264-1	9.5	N/A	N/A	N/A	NE
	-2					
	-3					
	-4					
	-5					
	809265-1					
	-2					

TRUESDAIL LABORATORIES, INC.

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
809257	<1	<2	8/1/13	ES	yes			
809252(1-19)	<1	>2			NO	2:00		
809279	<1	<2	8/2/13	ES	yes			
809286								
809287								
809239(1-3,5)	<1	<2	8/2/13	ES	yes			
809240(1-7)								
809241(1-5)								
809242		>2				10:00		TOTAL spl.
809264(1-5)		<2						
809265(1-9)								
809268(1,3-7)								
809295	<1	<2	8/5/13	ES	yes			
809296								
809301								
809302								
809298	TTLC				yes			Solid spl.
809266(1-4,6,9)	<1	<2	8/5/13	ES	yes			
809267(2-4)								
809284(1-4)								
809318	<1	<2	8/6/13	DV	yes			
809319								
809320								
809313-1,2								
809283(1-9)	<1	<2	8/6/13	ES	yes			(1-4 T/D)

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

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: E 2 **Lab #** 809242

Date Delivered: 07/30/13 **Time:** 20:08 **By:** ☐Mail ☐Field Service ☑Client

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

FALSE ALERT !! QC

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

Analytical Bench Log Book

WDR pH Results

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

	Sample Name	Date of sampling	Time of sampling	Date of analysis	Time of analysis	pH Meter #1, #2, or #3 etc. See cover Sheet for Serial Number	Date pH meter Calibrated	Time pH meter Calibrated	Slope of the Curve	Analyst Name (for the pH result)	pH Result
1	PE-1	6-4-13	12:30	6-4-13	12:35	METER #1	6-4-13	00:24	-54.2	CHRIS LEWIS	7.4
Notes:											
2	TW3D	6-4-13	12:30	6-4-13	12:35	METER	6-4-13	00:24	-54.2	CHRIS LEWIS	7.2
Notes:											
3	SC-700B	6-11-13	13:15	6-11-13	13:20	METER #1	6-11-13	00:30	-54.1	CHRIS LEWIS	7.0
Notes:											
4	SC-700B	6-18-13	11:15	6-18-13	11:20	METER #1	6-18-13	00:31	-53.6	CHRIS LEWIS	6.8
Notes:											
5	SC-700B	6-25-13	1430	6-25-13	1440	METER #1	6-25-13	00:32	-53.6	GLORIA	6.8
Notes:											
6	SC-700B.	7-2-13	1233	7-2-13	1236	METER #7	7-2-13	00:40	-53.8	J ADE ~~J. GUSTAFSON~~	6.9
Notes:											
7	SC-701	7-2-13	1220	7-2-13	1223	METER #7	7-2-13	00:40	-53.8	J ADE ~~J. GUSTAFSON~~	7.8
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-100 B	7-2-13	1225	7-2-13	1229	METER #1	7-2-13	00:40	-53.8	~~J. Gustafson~~ J. Aide	7.5
Notes											
	PE1	7-2-13	1324	7-2-13	1333	METER #1	7-2-13	00:40	-53.8	~~J. Gustafson~~ J. Aide	7.3
Notes:											
	TW3D	7-2-13	1324	7-2-13	1333	METER #1	7-2-13	00:40	-53.8	~~J. Gustafson~~ J. Aide	7.1
Notes:											
	SC-700	7-9-13	14:30	7-9-13	14:45	METER #1	7-9-13	00:35	-53.5	Ryan Phelps	6.9
Notes:											
	SC-700 B	07-16-13	14:30	07-16-13	14:35	METER #1	07-16-13	0215	-53.4	G. Gloria	7.1
Notes:											
	SC-700B	7-23-13	1400	7-23-13	1405	METER #1	7-23-13	0240	-53.8	Ryan Phelps	6.9
Notes:											
	SC-700 B	7-30-13	8:20	7-30-13	8:30	METER #1	7-30-13	0001	-53.5	Ryan Phelps	7.0
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

August 30, 2013

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

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK IM3PLANT-WDR-425 PROJECT, GROUNDWATER MONITORING,

TLI NO.: 809354

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-425 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 August 6, 2013, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

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

No violations or nonconformance actions occurred for this data package.

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

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING
Established 1931
14201 FRANKLIN AVENUE
TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462
www.truesdail.com

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

Laboratory No.: 809354
Date: August 30, 2013
Collected: August 6, 2013
Received: August 6, 2013

ANALYST LIST

METHOD	PARAMETER	ANALYST
EPA 120.1	Specific Conductivity	Jenny Tankunakorn
SM 2540C	Total Dissolved Solids	Jenny Tankunakorn
SM 2320B	Total Alkalinity	Kim Luck
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	Kim Luck
EPA 300.0	Anions	Giawad Ghenniwa
SM 4500-NH3 D	Ammonia	Maria Mangarova
SM 4500-NO2 B	Nitrite as N	Jenny Tankunakorn
EPA 200.7	Metals by ICP	Denise Chauv
EPA 200.8	Metals by ICP/MS	Ethel Suico
EPA 218.6	Hexavalent Chromium	Tom Martinez

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

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

Attention: Shawn Duffy

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

Laboratory No.: 809354
Date Received: August 6, 2013

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
809354-001	SC-700B-WDR-425	E120.1	NONE	8/6/2013	14:15	EC	6690	umhos/cm	2.00
809354-001	SC-700B-WDR-425	E200.7	NONE	8/6/2013	14:15	Aluminum	ND	ug/L	50.0
809354-001	SC-700B-WDR-425	E200.7	NONE	8/6/2013	14:15	BORON	919	ug/L	200
809354-001	SC-700B-WDR-425	E200.7	NONE	8/6/2013	14:15	Iron	ND	ug/L	20.0
809354-001	SC-700B-WDR-425	E200.7	NONE	8/6/2013	14:15	Zinc	ND	ug/L	20.0
809354-001	SC-700B-WDR-425	E200.8	NONE	8/6/2013	14:15	Antimony	ND	ug/L	2.0
809354-001	SC-700B-WDR-425	E200.8	NONE	8/6/2013	14:15	Arsenic	ND	ug/L	0.50
809354-001	SC-700B-WDR-425	E200.8	NONE	8/6/2013	14:15	Barium	10.5	ug/L	5.0
809354-001	SC-700B-WDR-425	E200.8	NONE	8/6/2013	14:15	Chromium	ND	ug/L	1.0
809354-001	SC-700B-WDR-425	E200.8	NONE	8/6/2013	14:15	Copper	ND	ug/L	5.0
809354-001	SC-700B-WDR-425	E200.8	NONE	8/6/2013	14:15	Lead	ND	ug/L	1.0
809354-001	SC-700B-WDR-425	E200.8	NONE	8/6/2013	14:15	Manganese	1.0	ug/L	0.50
809354-001	SC-700B-WDR-425	E200.8	NONE	8/6/2013	14:15	Molybdenum	18.0	ug/L	2.0
809354-001	SC-700B-WDR-425	E200.8	NONE	8/6/2013	14:15	Nickel	ND	ug/L	2.0
809354-001	SC-700B-WDR-425	E218.6	LABFLT	8/6/2013	14:15	Chromium, Hexavalent	ND	ug/L	0.20
809354-001	SC-700B-WDR-425	E300	NONE	8/6/2013	14:15	Fluoride	2.06	mg/L	0.500
809354-001	SC-700B-WDR-425	E300	NONE	8/6/2013	14:15	Nitrate as N	2.85	mg/L	0.500
809354-001	SC-700B-WDR-425	E300	NONE	8/6/2013	14:15	Sulfate	502	mg/L	25.0
809354-001	SC-700B-WDR-425	SM2130B	NONE	8/6/2013	14:15	Turbidity	ND	NTU	0.100
809354-001	SC-700B-WDR-425	SM2540C	NONE	8/6/2013	14:15	Total Dissolved Solids	4120	mg/L	125
809354-001	SC-700B-WDR-425	SM4500NH3D	NONE	8/6/2013	14:15	Ammonia-N	ND	mg/L	0.500
809354-001	SC-700B-WDR-425	SM4500NO2B	NONE	8/6/2013	14:15	Nitrite as N	ND	mg/L	0.0050

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

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
809354-002	SC-100B-WDR-425	E120.1	NONE	8/6/2013	13:35	EC	6930	umhos/cm	2.00
809354-002	SC-100B-WDR-425	E200.7	NONE	8/6/2013	13:35	Aluminum	ND	ug/L	50.0
809354-002	SC-100B-WDR-425	E200.7	NONE	8/6/2013	13:35	BORON	896	ug/L	200
809354-002	SC-100B-WDR-425	E200.7	LABFLT	8/6/2013	13:35	Iron	ND	ug/L	20.0
809354-002	SC-100B-WDR-425	E200.7	NONE	8/6/2013	13:35	Iron	ND	ug/L	20.0
809354-002	SC-100B-WDR-425	E200.7	NONE	8/6/2013	13:35	Zinc	ND	ug/L	20.0
809354-002	SC-100B-WDR-425	E200.8	NONE	8/6/2013	13:35	Antimony	ND	ug/L	2.0
809354-002	SC-100B-WDR-425	E200.8	NONE	8/6/2013	13:35	Arsenic	3.6	ug/L	0.50
809354-002	SC-100B-WDR-425	E200.8	NONE	8/6/2013	13:35	Barium	24.9	ug/L	5.0
809354-002	SC-100B-WDR-425	E200.8	NONE	8/6/2013	13:35	Chromium	676	ug/L	2.0
809354-002	SC-100B-WDR-425	E200.8	NONE	8/6/2013	13:35	Copper	ND	ug/L	5.0
809354-002	SC-100B-WDR-425	E200.8	NONE	8/6/2013	13:35	Lead	ND	ug/L	1.0
809354-002	SC-100B-WDR-425	E200.8	NONE	8/6/2013	13:35	Manganese	4.3	ug/L	0.50
809354-002	SC-100B-WDR-425	E200.8	LABFLT	8/6/2013	13:35	Manganese	4.3	ug/L	0.50
809354-002	SC-100B-WDR-425	E200.8	NONE	8/6/2013	13:35	Molybdenum	20.4	ug/L	2.0
809354-002	SC-100B-WDR-425	E200.8	NONE	8/6/2013	13:35	Nickel	ND	ug/L	2.0
809354-002	SC-100B-WDR-425	E218.6	LABFLT	8/6/2013	13:35	Chromium, Hexavalent	638	ug/L	10.0
809354-002	SC-100B-WDR-425	E300	NONE	8/6/2013	13:35	Fluoride	2.47	mg/L	0.500
809354-002	SC-100B-WDR-425	E300	NONE	8/6/2013	13:35	Nitrate as N	2.95	mg/L	0.500
809354-002	SC-100B-WDR-425	E300	NONE	8/6/2013	13:35	Sulfate	530	mg/L	50.0
809354-002	SC-100B-WDR-425	SM2130B	NONE	8/6/2013	13:35	Turbidity	ND	NTU	0.100
809354-002	SC-100B-WDR-425	SM2320B	NONE	8/6/2013	13:35	Alkalinity	145	mg/L	5.00
809354-002	SC-100B-WDR-425	SM2320B	NONE	8/6/2013	13:35	Alkalinity, Bicarbonate (As CaCO3)	145	mg/L	5.00
809354-002	SC-100B-WDR-425	SM2320B	NONE	8/6/2013	13:35	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
809354-002	SC-100B-WDR-425	SM2540C	NONE	8/6/2013	13:35	Total Dissolved Solids	4480	mg/L	125
809354-002	SC-100B-WDR-425	SM4500NH3D	NONE	8/6/2013	13:35	Ammonia-N	ND	mg/L	0.500
809354-002	SC-100B-WDR-425	SM4500NO2B	NONE	8/6/2013	13:35	Nitrite as N	ND	mg/L	0.0050
809354-002	SC-100B-WDR-425	SM4500-PB_E	NONE	8/6/2013	13:35	Total Phosphorous-P	ND	mg/L	0.0200
809354-002	SC-100B-WDR-425	SM4500SI	LABFLT	8/6/2013	13:35	Soluble Silica	20.0	mg/L	1.00
809354-002	SC-100B-WDR-425	SM5310C	NONE	8/6/2013	13:35	Total Organic Carbon	1.19	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
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. 809354

Printed 8/30/2013

Samples Received on 8/6/2013 8:05:00 PM

Field ID	Lab ID	Collected	Matrix
SC-700B-WDR-425	809354-001	08/06/2013 14:15	Water
SC-100B-WDR-425	809354-002	08/06/2013 13:35	Water

Anions By I.C. - EPA 300.0

Batch 08AN13F

Parameter	Unit	Analyzed	DF	MDL	RL	Result
809354-001 Fluoride	mg/L	08/07/2013 09:10	5.00	0.104	0.500	2.06
Nitrate as Nitrogen	mg/L	08/07/2013 09:10	5.00	0.0415	0.500	2.85
Sulfate	mg/L	08/07/2013 09:55	50.0	1.54	25.0	502
809354-002 Fluoride	mg/L	08/07/2013 09:21	5.00	0.104	0.500	2.47
Nitrate as Nitrogen	mg/L	08/07/2013 09:21	5.00	0.0415	0.500	2.95
Sulfate	mg/L	08/07/2013 10:07	100	3.07	50.0	530

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 = 809354-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Fluoride	mg/L	5.00	2.47	2.47	0.122	0 - 20
Sulfate	mg/L	100	526	530	0.836	0 - 20
Nitrate as Nitrogen	mg/L	5.00	2.97	2.95	0.743	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Fluoride	mg/L	1.00	4.21	4.00	105	90 - 110
Sulfate	mg/L	1.00	20.5	20.0	102	90 - 110
Nitrate as Nitrogen	mg/L	1.00	4.08	4.00	102	90 - 110

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

Matrix Spike Lab ID = 809354-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Fluoride	mg/L	5.00	22.7	22.5(20.0)	101	85 - 115
Sulfate	mg/L	100	1650	1530(1000)	112	85 - 115
Nitrate as Nitrogen	mg/L	5.00	23.7	23.0(20.0)	104	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	20.2	20.0	101	90 - 110
Nitrate as Nitrogen	mg/L	1.00	4.02	4.00	100	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Fluoride	mg/L	1.00	3.17	3.00	106	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Fluoride	mg/L	1.00	3.21	3.00	107	90 - 110
Sulfate	mg/L	1.00	15.4	15.0	103	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sulfate	mg/L	1.00	15.5	15.0	103	90 - 110
Nitrate as Nitrogen	mg/L	1.00	3.07	3.00	102	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrate as Nitrogen	mg/L	1.00	3.05	3.00	102	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrate as Nitrogen	mg/L	1.00	3.09	3.00	103	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrate as Nitrogen	mg/L	1.00	3.09	3.00	103	90 - 110

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

Client: E2 Consulting Engineers, Inc.

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

Nitrite SM 4500-NO2 B

Batch 08NO213C

Parameter	Unit	Analyzed	DF	MDL	RL	Result
809354-001 Nitrite as Nitrogen	mg/L	08/08/2013 11:45	1.00	0.000630	0.0050	ND
809354-002 Nitrite as Nitrogen	mg/L	08/08/2013 11:46	1.00	0.000630	0.0050	ND

Method Blank

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

Duplicate — Lab ID = 809328-010

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	0.0264	0.0280	94.3	90 - 110

Matrix Spike — Lab ID = 809354-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Nitrite as Nitrogen	mg/L	1.00	0.0269	0.0280(0.0280)	96.1	85 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrite as Nitrogen	mg/L	1.00	0.0264	0.0280	94.3	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrite as Nitrogen	mg/L	1.00	0.0195	0.0200	97.5	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrite as Nitrogen	mg/L	1.00	0.0195	0.0200	97.5	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

Alkalinity by SM 2320B

Batch 08ALK13B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
809354-002 Alkalinity as CaCO3	mg/L	08/08/2013	1.00	1.68	5.00	145
Bicarbonate (Calculated)	mg/L	08/08/2013	1.00	1.68	5.00	145
Carbonate (Calculated)	mg/L	08/08/2013	1.00	1.68	5.00	ND

Method Blank

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

Duplicate — Lab ID = 809354-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Alkalinity as CaCO3	mg/L	1.00	145	145	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	99.0	100	99.0	90 - 110

Matrix Spike — Lab ID = 809354-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Alkalinity as CaCO3	mg/L	1.00	255	245(100)	110	75 - 125

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

Specific Conductivity - EPA 120.1

Batch 08EC13A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
809354-001 Specific Conductivity	umhos/cm	08/07/2013	1.00	0.606	2.00	6690
809354-002 Specific Conductivity	umhos/cm	08/07/2013	1.00	0.606	2.00	6930

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate — Lab ID = 809355-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	7540	7530	0.133	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	765	706	108	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	765	706	108	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	950	1000	95.0	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	955	1000	95.5	90 - 110

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

Chrome VI by EPA 218.6

Batch 08CrH13F

Parameter	Unit	Analyzed	DF	MDL	RL	Result
809354-001 Chromium, Hexavalent	ug/L	08/07/2013 13:59	1.00	0.00920	0.20	ND
809354-002 Chromium, Hexavalent	ug/L	08/07/2013 14:09	50.0	0.460	10.0	638

Method Blank

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

Duplicate — Lab ID = 809354-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	633	638	0.810	0 - 20

Low Level Calibration Verification

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

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.83	5.00	96.7	90 - 110

Matrix Spike — Lab ID = 809354-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.09	1.13(1.00)	96.7	90 - 110

Matrix Spike — Lab ID = 809354-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	1380	1390(750)	99.2	90 - 110

Matrix Spike — Lab ID = 809355-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.84	10.0(5.00)	96.8	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.84	5.00	96.8	90 - 110

MRCVS - Primary

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

MRCVS - Primary

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

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

Client: E2 Consulting Engineers, Inc.

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

Metals by EPA 200.7, Total

Batch 081913A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
809354-001 Aluminum	ug/L	08/19/2013 12:39	1.00	6.24	50.0	ND
Boron	ug/L	08/19/2013 12:39	1.00	53.3	200	919
Iron	ug/L	08/19/2013 12:39	1.00	3.57	20.0	ND
Zinc	ug/L	08/19/2013 12:39	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 = 809354-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Aluminum	ug/L	1.00	ND	0	0	0 - 20
Iron	ug/L	1.00	ND	0	0	0 - 20
Zinc	ug/L	1.00	ND	0	0	0 - 20
Boron	ug/L	1.00	902	919	1.86	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Aluminum	ug/L	1.00	2100	2000	105	85 - 115
Iron	ug/L	1.00	2180	2000	109	85 - 115
Zinc	ug/L	1.00	2000	2000	100	85 - 115
Boron	ug/L	1.00	2000	2000	100	85 - 115

Matrix Spike — Lab ID = 809354-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Aluminum	ug/L	1.00	1560	2000(2000)	78.0	75 - 125
Iron	ug/L	1.00	1880	2000(2000)	94.2	75 - 125
Zinc	ug/L	1.00	1890	2000(2000)	94.3	75 - 125
Boron	ug/L	1.00	2790	2920(2000)	93.6	75 - 125

Matrix Spike Duplicate — Lab ID = 809354-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Aluminum	ug/L	1.00	1530	2000(2000)	76.6	75 - 125
Iron	ug/L	1.00	1860	2000(2000)	93.0	75 - 125
Zinc	ug/L	1.00	1990	2000(2000)	99.6	75 - 125
Boron	ug/L	1.00	2790	2920(2000)	93.8	75 - 125

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.

Metals by EPA 200.7, Total

Batch 082613A-Th2

Parameter	Unit	Analyzed	DF	MDL	RL	Result
809354-002 Aluminum	ug/L	08/26/2013 13:27	1.00	10.0	50.0	ND
Boron	ug/L	08/26/2013 13:27	1.00	6.00	200	896
Iron	ug/L	08/26/2013 13:27	1.00	9.50	20.0	ND
Zinc	ug/L	08/26/2013 13:27	1.00	7.00	20.0	ND

Method Blank

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

Duplicate — Lab ID = 809354-002

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	886	896	1.08	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Aluminum	ug/L	1.00	2030	2000	102	85 - 115
Iron	ug/L	1.00	2130	2000	106	85 - 115
Zinc	ug/L	1.00	2050	2000	103	85 - 115
Boron	ug/L	1.00	1890	2000	94.4	85 - 115

Matrix Spike — Lab ID = 809354-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Aluminum	ug/L	1.00	1590	2000(2000)	79.4	75 - 125
Iron	ug/L	1.00	1750	2000(2000)	87.6	75 - 125
Zinc	ug/L	1.00	2110	2000(2000)	106	75 - 125
Boron	ug/L	1.00	2630	2900(2000)	86.6	75 - 125

Matrix Spike Duplicate — Lab ID = 809354-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Aluminum	ug/L	1.00	1600	2000(2000)	80.1	75 - 125
Iron	ug/L	1.00	1820	2000(2000)	91.2	75 - 125
Zinc	ug/L	1.00	2180	2000(2000)	109	75 - 125
Boron	ug/L	1.00	2740	2900(2000)	92.2	75 - 125

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

Client: E2 Consulting Engineers, Inc.

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

Metals by EPA 200.8, Total

Batch 081213B

Parameter		Unit	Analyzed	DF	MDL	RL	Result
809354-001	Antimony	ug/L	08/13/2013 00:16	1.00	0.332	2.0	ND
	Arsenic	ug/L	08/13/2013 00:16	1.00	0.100	0.50	ND
	Barium	ug/L	08/13/2013 00:16	1.00	0.188	5.0	10.5
	Chromium	ug/L	08/13/2013 00:16	1.00	0.0920	1.0	ND
	Copper	ug/L	08/13/2013 00:16	1.00	0.257	5.0	ND
	Lead	ug/L	08/13/2013 00:16	1.00	0.0740	1.0	ND
	Manganese	ug/L	08/13/2013 00:16	1.00	0.0860	0.50	1.0
	Molybdenum	ug/L	08/13/2013 00:16	1.00	0.207	2.0	18.0
	Nickel	ug/L	08/13/2013 00:16	1.00	0.786	2.0	ND
809354-002	Antimony	ug/L	08/13/2013 00:40	1.00	0.332	2.0	ND
	Arsenic	ug/L	08/13/2013 00:40	1.00	0.100	0.50	3.6
	Copper	ug/L	08/13/2013 00:40	1.00	0.257	5.0	ND
	Lead	ug/L	08/13/2013 00:40	1.00	0.0740	1.0	ND
	Manganese	ug/L	08/13/2013 00:40	1.00	0.0860	0.50	4.3
	Molybdenum	ug/L	08/13/2013 00:40	1.00	0.207	2.0	20.4
	Nickel	ug/L	08/13/2013 00:40	1.00	0.786	2.0	ND

Method Blank

Parameter	Unit	DF	Result
Arsenic	ug/L	1.00	ND
Barium	ug/L	1.00	ND
Chromium	ug/L	1.00	ND
Nickel	ug/L	1.00	ND
Antimony	ug/L	1.00	ND
Copper	ug/L	1.00	ND
Lead	ug/L	1.00	ND
Manganese	ug/L	1.00	ND
Molybdenum	ug/L	1.00	ND

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

Duplicate

Lab ID = 809354-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Arsenic	ug/L	1.00	ND	0	0	0 - 20
Barium	ug/L	1.00	10.7	10.5	2.27	0 - 20
Chromium	ug/L	1.00	ND	0	0	0 - 20
Nickel	ug/L	1.00	ND	0	0	0 - 20
Antimony	ug/L	1.00	ND	0	0	0 - 20
Copper	ug/L	1.00	ND	0	0	0 - 20
Lead	ug/L	1.00	ND	0	0	0 - 20
Manganese	ug/L	1.00	1.02	1.03	1.47	0 - 20
Molybdenum	ug/L	1.00	18.9	18.0	5.08	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	0.453	0.500	90.6	70 - 130
Barium	ug/L	1.00	0.473	0.500	94.6	70 - 130
Chromium	ug/L	1.00	0.616	0.500	123	70 - 130
Nickel	ug/L	1.00	2.09	2.00	104	70 - 130
Antimony	ug/L	1.00	0.952	1.00	95.2	70 - 130
Copper	ug/L	1.00	1.12	1.00	112	70 - 130
Lead	ug/L	1.00	0.497	0.500	99.4	70 - 130
Manganese	ug/L	1.00	0.460	0.500	92.0	70 - 130
Molybdenum	ug/L	1.00	0.490	0.500	98.0	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	45.1	50.0	90.2	85 - 115
Barium	ug/L	1.00	49.2	50.0	98.3	85 - 115
Chromium	ug/L	1.00	49.2	50.0	98.4	85 - 115
Nickel	ug/L	1.00	49.0	50.0	98.0	85 - 115
Antimony	ug/L	1.00	47.1	50.0	94.2	85 - 115
Copper	ug/L	1.00	49.4	50.0	98.8	85 - 115
Lead	ug/L	1.00	48.9	50.0	97.8	85 - 115
Manganese	ug/L	1.00	50.0	50.0	99.9	85 - 115
Molybdenum	ug/L	1.00	48.1	50.0	96.3	85 - 115

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.

Matrix Spike Lab ID = 809354-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	1.00	47.9	50.0(50.0)	95.7	75 - 125
Barium	ug/L	1.00	58.0	60.5(50.0)	95.0	75 - 125
Chromium	ug/L	1.00	48.1	50.0(50.0)	96.2	75 - 125
Nickel	ug/L	1.00	45.5	50.0(50.0)	91.0	75 - 125
Antimony	ug/L	1.00	46.4	50.0(50.0)	92.7	75 - 125
Copper	ug/L	1.00	45.3	50.0(50.0)	90.6	75 - 125
Lead	ug/L	1.00	44.2	50.0(50.0)	88.4	75 - 125
Manganese	ug/L	1.00	48.8	51.0(50.0)	95.5	75 - 125
Molybdenum	ug/L	1.00	65.1	68.0(50.0)	94.3	75 - 125

Matrix Spike Duplicate Lab ID = 809354-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	1.00	47.6	50.0(50.0)	95.3	75 - 125
Barium	ug/L	1.00	57.8	60.5(50.0)	94.7	75 - 125
Chromium	ug/L	1.00	47.4	50.0(50.0)	94.8	75 - 125
Nickel	ug/L	1.00	45.3	50.0(50.0)	90.6	75 - 125
Antimony	ug/L	1.00	46.6	50.0(50.0)	93.2	75 - 125
Copper	ug/L	1.00	44.8	50.0(50.0)	89.6	75 - 125
Lead	ug/L	1.00	44.0	50.0(50.0)	88.1	75 - 125
Manganese	ug/L	1.00	48.0	51.0(50.0)	94.0	75 - 125
Molybdenum	ug/L	1.00	66.1	68.0(50.0)	96.1	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	18.9	20.0	94.5	90 - 110
Barium	ug/L	1.00	19.3	20.0	96.6	90 - 110
Chromium	ug/L	1.00	19.8	20.0	98.9	90 - 110
Nickel	ug/L	1.00	19.9	20.0	99.4	90 - 110
Antimony	ug/L	1.00	18.9	20.0	94.4	90 - 110
Copper	ug/L	1.00	20.0	20.0	100	90 - 110
Lead	ug/L	1.00	19.4	20.0	96.9	90 - 110
Manganese	ug/L	1.00	19.9	20.0	99.4	90 - 110
Molybdenum	ug/L	1.00	19.6	20.0	98.2	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	19.1	20.0	95.7	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.

Metals by EPA 200.8, Total

Batch 081413B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
809354-002 Barium	ug/L	08/14/2013 22:17	2.00	0.376	5.0	24.9
Chromium	ug/L	08/14/2013 21:40	10.0	0.920	2.0	676

Method Blank

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

Duplicate — Lab ID = 809354-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Barium	ug/L	1.00	10.2	10.6	3.50	0 - 20
Chromium	ug/L	1.00	ND	0	0	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Barium	ug/L	1.00	0.493	0.500	98.6	70 - 130
Chromium	ug/L	1.00	0.215	0.200	108	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Barium	ug/L	1.00	50.4	50.0	101	85 - 115
Chromium	ug/L	1.00	51.1	50.0	102	85 - 115

Matrix Spike — Lab ID = 809354-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Barium	ug/L	1.00	59.0	60.6(50.0)	96.8	75 - 125
Chromium	ug/L	1.00	47.1	50.0(50.0)	94.2	75 - 125

Matrix Spike Duplicate — Lab ID = 809354-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Barium	ug/L	1.00	62.1	60.6(50.0)	103	75 - 125
Chromium	ug/L	1.00	45.9	50.0(50.0)	91.8	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Barium	ug/L	1.00	20.1	20.0	100	90 - 110
Chromium	ug/L	1.00	19.8	20.0	98.9	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Barium	ug/L	1.00	19.7	20.0	98.7	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.

Interference Check Standard A

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

Interference Check Standard A

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

Interference Check Standard A

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

Interference Check Standard AB

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

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
Chromium	ug/L	1.00	19.3	20.0	96.6	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.7	20.0	98.5	80 - 120

Serial Dilution Lab ID = 809354-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Barium	ug/L	10.0	26.0	24.9	4.25	0 - 10
Chromium	ug/L	50.0	717	676	5.89	0 - 10

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.

Reactive Silica by SM4500-Si D

Batch 08Si13A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
809354-002 Silica	mg/L	08/07/2013	25.0	0.252	1.00	20.0

Method Blank

Parameter	Unit	DF	Result
Silica	mg/L	1.00	ND

Duplicate — Lab ID = 809354-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Silica	mg/L	25.0	20.6	20.0	3.15	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Silica	mg/L	1.00	0.195	0.206	94.6	90 - 110

Matrix Spike — Lab ID = 809354-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Silica	mg/L	25.0	26.2	25.2(5.15)	120	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Silica	mg/L	1.00	0.195	0.206	94.6	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Silica	mg/L	1.00	0.376	0.400	94.1	90 - 110

Total Dissolved Solids by SM 2540 C

Batch 08TDS13D

Parameter	Unit	Analyzed	DF	MDL	RL	Result
809354-001 Total Dissolved Solids	mg/L	08/12/2013	1.00	1.76	125	4120
809354-002 Total Dissolved Solids	mg/L	08/12/2013	1.00	1.76	125	4480

Method Blank

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

Duplicate — Lab ID = 809367-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	575	570	0.873	0 - 10

Lab Control Sample

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

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

Total Organic Carbon (T/DOC) SM 5310 C

Batch 08TOC13B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
809354-002 Total Organic Carbon	mg/L	08/08/2013 17:39	1.00	0.0877	0.300	1.19

Method Blank

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

Duplicate — Lab ID = 809315-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Organic Carbon	mg/L	1.00	7.72	6.76	13.2	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Organic Carbon	mg/L	1.00	9.71	10.0	97.1	90 - 110

Matrix Spike — Lab ID = 809354-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Total Organic Carbon	mg/L	1.00	9.45	11.2(10.0)	82.6	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Organic Carbon	mg/L	1.00	10.3	10.0	103	85 - 115

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Organic Carbon	mg/L	1.00	9.64	10.0	96.4	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Organic Carbon	mg/L	1.00	9.34	10.0	93.4	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Organic Carbon	mg/L	1.00	9.48	10.0	94.8	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.

Total Phosphate, SM 4500-PB,E

Batch 08TP13B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
809354-002 Phosphate, Total As P	mg/L	08/07/2013	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 = 809354-002

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	0.0697	0.0650	107	90 - 110

Matrix Spike — Lab ID = 809354-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Phosphate, Total As P	mg/L	1.00	0.0670	0.0650(0.0650)	103	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Phosphate, Total As P	mg/L	1.00	0.0697	0.0650	107	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Phosphate, Total As P	mg/L	1.00	0.0711	0.0660	108	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

Ammonia Nitrogen by SM4500-NH3D

Batch 08NH313A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
809354-001 Ammonia as N	mg/L	08/16/2013	1.00	0.0318	0.500	ND
809354-002 Ammonia as N	mg/L	08/16/2013	1.00	0.0318	0.500	ND

Method Blank

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

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	9.00	10.0	90.0	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	9.59	10.0	95.9	90 - 110

Matrix Spike — Lab ID = 809354-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	10.1	10.0(10.0)	101	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	6.12	6.00	102	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	5.67	6.00	94.6	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.

Metals by EPA 200.8, Dissolved

Batch 081213B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
809354-002 Manganese	ug/L	08/13/2013 02:17	1.00	0.0860	0.50	4.3

Method Blank

Parameter	Unit	DF	Result
Manganese	ug/L	1.00	ND

Duplicate — Lab ID = 809354-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Manganese	ug/L	1.00	4.17	4.31	3.28	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	0.460	0.500	92.0	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	50.0	50.0	99.9	85 - 115

Matrix Spike — Lab ID = 809354-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Manganese	ug/L	1.00	50.5	54.3(50.0)	92.4	75 - 125

Matrix Spike Duplicate — Lab ID = 809354-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Manganese	ug/L	1.00	51.0	54.3(50.0)	93.4	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	19.9	20.0	99.4	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	19.4	20.0	97.3	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	19.4	20.0	97.0	90 - 110

MRCVS - Primary

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

Metals by 200.7, Dissolved

Batch 081913A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
809354-002 Iron	ug/L	08/19/2013 14:35	1.00	3.57	20.0	ND

Method Blank

Parameter	Unit	DF	Result
Iron	ug/L	1.00	ND

Duplicate — Lab ID = 809354-002

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	52.2	50.0	104	85 - 115

Matrix Spike — Lab ID = 809354-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	48.9	50.0(50.0)	97.8	75 - 125

Matrix Spike Duplicate — Lab ID = 809354-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	49.9	50.0(50.0)	99.8	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5140	5000	103	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5440	5000	109	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5450	5000	109	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5350	5000	107	90 - 110

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2360	2000	118	80 - 120

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.

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2160	2000	108	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2320	2000	116	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2150	2000	108	80 - 120

Turbidity by SM 2130 B

Batch 08TUC13B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
809354-001 Turbidity	NTU	08/07/2013	1.00	0.0140	0.100	ND
809354-002 Turbidity	NTU	08/07/2013	1.00	0.0140	0.100	ND

Method Blank

Parameter	Unit	DF	Result
Turbidity	NTU	1.00	ND

Duplicate

Lab ID = 809332-003

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	8.50	8.00	106	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	8.50	8.00	106	90 - 110

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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

Truesdail Laboratories, Inc.

Total Dissolved Solids by SM 2540 C

Calculations

Batch: 08TDS13D
Date Analyzed: 8/12/13

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	71.3217	71.322	71.322	0.0000	No	0.0003	3.0	25.0	ND	1
809313-1	100	76.669	76.7149	76.7149	0.0000	No	0.0459	459.0	25.0	459.0	1
809313-2	100	72.0845	72.1327	72.1327	0.0000	No	0.0482	482.0	25.0	482.0	1
809328-17	50	51.8532	51.8921	51.8921	0.0000	No	0.0389	778.0	50.0	778.0	1
809332-13	100	71.3077	71.3638	71.3638	0.0000	No	0.0561	561.0	25.0	561.0	1
809354-1	20	51.2485	51.3311	51.331	0.0001	No	0.0825	4125.0	125.0	4125.0	1
809354-2	20	51.8362	51.9259	51.9257	0.0002	No	0.0895	4475.0	125.0	4475.0	1
809355-1	20	51.457	51.5115	51.5111	0.0004	No	0.0541	2705.0	125.0	2705.0	1
809355-2	10	50.4998	50.5457	50.5454	0.0003	No	0.0456	4560.0	250.0	4560.0	1
809367-1	100	75.0187	75.0723	75.072	0.0003	No	0.0533	533.0	25.0	533.0	1
809367-2	100	68.1224	68.1794	68.1794	0.0000	No	0.0570	570.0	25.0	570.0	1
809367-2D	100	76.5422	76.5997	76.5997	0.0000	No	0.0575	575.0	25.0	575.0	1
LCS	100	74.5999	74.6498	74.6498	0.0000	No	0.0499	499.0	25.0	499.0	1
809367-3	100	68.3708	68.4217	68.4213	0.0004	No	0.0505	505.0	25.0	505.0	1
809367-4	100	78.8052	78.8558	78.8558	0.0000	No	0.0506	506.0	25.0	506.0	1
809382-1	100	73.176	73.2125	73.2125	0.0000	No	0.0365	365.0	25.0	365.0	1
809382-2	100	76.1848	76.2374	76.2374	0.0000	No	0.0526	526.0	25.0	526.0	1
809382-3	100	65.6783	65.7108	65.7104	0.0004	No	0.0321	321.0	25.0	321.0	1
809382-4	100	75.2730	75.3238	75.3238	0.0000	No	0.0508	508.0	25.0	508.0	1
809382-5	100	76.2763	76.3231	76.3231	0.0000	No	0.0468	468.0	25.0	468.0	1
809382-6	100	70.3956	70.4591	70.4591	0.0000	No	0.0635	635.0	25.0	635.0	1
809382-7	100	72.4110	72.4563	72.4563	0.0000	No	0.0453	453.0	25.0	453.0	1
809384-7	100	67.8280	67.8781	67.8781	0.0000	No	0.0501	501.0	25.0	501.0	1
809384-7D	100	78.6154	78.6667	78.6667	0.0000	No	0.0513	513.0	25.0	513.0	1

Calculation as follows:

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

Where:

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

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

Laboratory Control Sample (LCS) Summary

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

LCS Recovery

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

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

Duplicate Determinations Difference Summary

Lab Number	Sample Weight, g	Sample Dup Weight, g	% RPD	Acceptance Limit	QC Within Control?
809367-2	0.057	0.0575	0.4%	≤5%	Yes
809384-7	0.0501	0.0513	1.2%	5%	Yes

Duplicate Determination Difference

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

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

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

Jenny T.
Analyst Printed Name

Analyst Signature

Maksim G.
Reviewer Printed Name

Reviewer Signature

WetChem TDS_2012.xls

Total Dissolved Solids by SM 2540 C

TDS/EC CHECK

Batch: 08TDS13D
Date Analyzed: 8/12/13

Laboratory Number	EC	TDS/EC Ratio: 0.55-.9	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
809313-1	789	0.58	512.85	0.89
809313-2	751	0.64	488.15	0.99
809328-17	1228	0.63	798.2	0.97
809332-13	844	0.66	548.6	1.02
809354-1	6690	0.62	4348.5	0.95
809354-2	6930	0.65	4504.5	0.99
809355-1	4200	0.64	2730	0.99
809355-2	7530	0.61	4894.5	0.93
809367-1	818	0.65	531.7	1.00
809367-2	925	0.62	601.25	0.95
809367-2D	925	0.62	601.25	0.96
LCS				
809367-3	787	0.64	511.55	0.99
809367-4	770	0.66	500.5	1.01
809382-1	600	0.61	390	0.94
809382-2	823	0.64	534.95	0.98
809382-3	533	0.60	346.45	0.93
809382-4	826	0.62	536.9	0.95
809382-5	778	0.60	505.7	0.93
809382-6	964	0.66	626.6	1.01
809382-7	729	0.62	473.85	0.96
809384-7	749	0.67	486.85	1.03
809384-7D	749	0.68	486.85	1.05

TRUESDAIL LABORATORIES, INC.

Alkalinity by SM 2320B

Calculations

Date of Analysis: 8/8/13

Analytical Batch: 08ALK13B
Matrix: Water
Date Calculated: 8/8/13

Lab ID	Sample pH	Sample Volume (ml)	N of HCL	Titrant Volume to reach pH 8.3	P Alkalinity as CaCO3	Titrant Volume to reach pH 4.5	Total mL titrant to reach pH 0.3 unit lower	Total Alkalinity as CaCO3	RL, ppm	Total Alkalinity Reported Value	HCO3 Conc. as $CaCO_3$ (ppm)	CO3 Alkalinity as $CaCO_3$ (ppm)	OH Alkalinity as $CaCO_3$ (ppm)	Low Alkalinity as $CaCO_3$ (<20ppm)
BLANK	7.00	50	0.02		0.0	0.00		0.0	5	ND	ND	ND	ND	
809328-21	8.01	50	0.02		0.0	5.50		110.0	5	110.0	110.0	ND	ND	
809328-17	7.44	50	0.02		0.0	4.75		95.0	5	95.0	95.0	ND	ND	
809354-2	7.46	50	0.02		0.0	7.25		145.0	5	145.0	145.0	ND	ND	
809384-1	8.03	50	0.02		0.0	5.75		115.0	5	115.0	115.0	ND	ND	
809354-2D	7.45	50	0.02		0.0	7.25		145.0	5	145.0	145.0	ND	ND	
809354-2MS	9.03	50	0.02		0.0	12.75		255.0	5	255.0	255.0	0	ND	
LCS	10.30	50	0.02	2.2	44.0	4.95		99.0	5	99.0	11.0	88	ND	
LCS	10.35	50	0.02	2.2	44.0	4.95		99.0	5	99.0	11.0	88	ND	

Calculations as follows:

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

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

Low Alkalinity: as mg/L CaCO3 = $\frac{(2 \times B - C) \times N \times 50000}{\text{mL sample}}$

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

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

Blank Summary

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

Laboratory Control Sample (LCS/LCSD) Summary

QC Std I.D.	Measured Value, ppm	Theoretical Value, ppm	% Recovery	Accetance Limit	QC Within Control?
LCS	99	100	99.0%	90-110	Yes
LCSD	99	100	99.0%	90-110	Yes

Duplicate Determination Difference Summary

QC Std I.D.	Measured Value, ppm	Dup Value, ppm	RPD	Accetance Limit	QC Within Control?
809354-2	145	145	0.0%	≤20%	Yes

Sample Matrix Spike (MS/MSD) Summary

Lab Number	Conc of Unspk spl	Dil Factor	Added Spk Conc	MS/MSD Amt	Measrd Conc of Spk Spl	Theor Conc of Spk Spl	MS/MSD % Rec	MS Accept Limit	QC Within Control?	RPD	RPD Accept Limit	QC Within Control?
809345-2	145	1	100	100	255	245.00	110%	75-125	Yes			
		1	100	100								

057

Kim
Analyst Printed Name
Alk_2012

Analyst Signature

~~Hope T.~~ Vinkesin
Reviewer Printed Name

Reviewer Signature

809354

Rec'd 08/06/13

S809354

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-425]

COC Number

TURNAROUND TIME 10 Days

DATE 08/06/13 PAGE 1 OF 1

COMPANY CH2M HILL /E2

PROJECT NAME PG&E Topock IM3

PHONE 530-229-3303 FAX 530-339-3303

ADDRESS 155 Grand Ave Ste 1000
Oakland, CA 94612

P.O. NUMBER 456827.01.DM

SAMPLERS (SIGNATURE)

	SAMPLE I.D.	DATE	TIME	DESCRIPTION	Cr(VI) (218.6) Lab Filtered	Alkalinity (2320-B)	EC (120.1)	TDS (2540 c)	Turb (2130)	Total Metals (200.7) See List Below	Ammonia (4500-NH3)	Total P (4500-P)	Anions (300.0) F, NO3, SO4	TOC (5310 C)	Dissolved Metals (200.7) Fe, Mn lab filtered	Soluable Silica - Reactive (4500-Si CorD)	NO2 (4500-NO2B)		NUMBER OF CONTAINERS	COMMENTS
1	SC-700B-WDR-425	08/06/13	1415		X		X	X	X	X	X		X				X		4	pH=2 (200.7-See above)
2	SC-100B-WDR-425	08/06/13	13:35		X	X	X	X	X	X	X	X	X	X	X	X	X		9	
																			13	TOTAL NUMBER OF CONTAINERS

For Sample Conditions
See Form Attached

ALERT !!
Level III QC

CHAIN OF CUSTODY SIGNATURE RECORD

	Printed Name	Company/ Agency	Date/ Time
Signature (Relinquished)	JAIDE	E2	8-6-13 1610
Signature (Received)	JAIDE LAM	Truesdail	8/6/13 16:10
Signature (Relinquished)	JAIDE LAM	TLI	8/6/13 20:05
Signature (Received)	Morhea Brady	TLI	8/6/13 2005
Signature (Relinquished)			
Signature (Received)			

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

127

Hexavalent Chromium

Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
8/2/13	809283-3	9.5	N/A	N/A	N/A	NE
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	809284-1					
	-2					
	-3					
	-4					
	-5					
8/5/13	809315	1.0	10 Drops 25% NaOH / 100mL	9.5	16:05	TM
8/6/13	809330-1	7.0	2mL / 100mL	9.5	15:45	TM
	-2					
8/7/13	809354-1	7.0	2mL / 100mL	9.5	8:30	NE
	-2					
8/7/13	809355-1	7.0	2mL / 100mL	9.5	8:30	NE
8/7/13	809357	7.0	2mL / 100mL	9.5	11:45	TM
8/7/13	809364-1	4.0	10 drops 25% NaOH / 100mL	9.5	4:10	TM
	-2	7.0	2mL / 100mL		4:15	
	-3	7.0				
	-4	7.0				

TM 8/8/13

TRUESDAIL LABORATORIES, INC.

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
809354(1-2)	<1	<2	8/12/13	ES	Yes			Total
-2	<1	>2			Yes	10:00		Diss (Filtered then acidify)
809355(1-2)								
809405(1-2,4)		<2						
809406								
809407								
809408(1,3-6)								
809410(1-4,6)								
809426-1,2	>1	<2	8/12/13	DR	yes			
809430	<1							
809416								
809402	>1							
809435	<1	<2	8/13/13	DR	NO			
809432					yes			
809431								
809404	<1							
809435	<1	<2	8/14/13	ES	yes			
809453								
809454								
809455								
809456								
809457								
809458								
809471(1-3)		>2			NO	4:00	8/16/13 10:00	pH<2
809472		<2			yes			
809473								
809474								
809475(1-2)		>2			NO	4:00	8/16/13 10:00	pH<2
809476		>2			NO	4:00		
809488		<2			yes			
809493-1,2	>1	<2	~~8/15/13~~	DR	yes			
809505								
809496(10-12)	<1	<2	8/16/13	ES	NO	11:00	8/20/13 10:00	pH<2
809524(1-2)								
809508-26								
809409(1-9)	- SOIL	—	8/19/13	ES	Yes			
809409(10)	<1	<2	8/15/13	ES	yes			
809411(1-3)								
809502(1-3)								
809438		>2				10:00		pH<2
809530	<1	<2	8/20/13	ES	yes			
809534(1-3)	>2							
809537								
809539	<1							

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

8/14/13

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: E2 **Lab #** 809354

Date Delivered: 08/06/13 **Time:** 2005 **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)? 4.2 °C
7. Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)? ☒ Yes ☐ No ☐ N/A
8. Were sample custody seals intact? ☒ Yes ☐ No ☐ N/A
9. Does the number of samples received agree with COC? ☒ Yes ☐ No ☐ N/A
10. Did sample labels correspond with the client ID's? ☒ Yes ☐ No ☐ N/A
11. Did sample labels indicate proper preservation? ☒ Yes ☐ No ☐ N/A
    Preserved (if yes) by: ☐ Truesdail ☒ Client
12. Were samples pH checked? pH = see C.O.C ☒ Yes ☐ No ☐ N/A
13. Were all analyses within holding time at time of receipt? ☒ Yes ☐ No ☐ N/A
    If not, notify Project Manager.
14. Have Project due dates been checked and accepted? ☒ Yes ☐ No ☐ N/A
    Turn Around Time (TAT): ☐ RUSH ☒ Std
15. **Sample Matrix:** ☐ Liquid ☐ Drinking Water ☐ Ground Water ☐ Waste Water ☐ Sludge ☐ Soil ☐ Wipe ☐ Paint ☐ Solid ☒ Other Water
16. Comments: _____
17. Sample Check-In completed by **Truesdail** Log-In/Receiving: Linda

ALERT !! Level II 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

August 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-426 PROJECT, GROUNDWATER MONITORING, TLI NO.: 809438

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-426 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 August 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

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

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

Laboratory No.: 809438
Date: August 28, 2013
Collected: August 12, 2013
Received: August 12, 2013

ANALYST LIST

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

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

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

Laboratory No.: 809438
Date Received: August 12, 2013

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

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
809438-001	SC-700B-WDR-426	E120.1	NONE	8/12/2013	7:30	EC	6680	umhos/cm	2.00
809438-001	SC-700B-WDR-426	E200.8	NONE	8/12/2013	7:30	Chromium	ND	ug/L	1.0
809438-001	SC-700B-WDR-426	E200.8	NONE	8/12/2013	7:30	Manganese	0.67	ug/L	0.50
809438-001	SC-700B-WDR-426	E218.6	LABFLT	8/12/2013	7:30	Chromium, Hexavalent	ND	ug/L	0.20
809438-001	SC-700B-WDR-426	SM2130B	NONE	8/12/2013	7:30	Turbidity	ND	NTU	0.100
809438-001	SC-700B-WDR-426	SM2540C	NONE	8/12/2013	7:30	Total Dissolved Solids	4060	mg/L	125

ND: Non Detected (below reporting limit)
mg/L: Milligrams per liter.
Note: The following "Significant Figures" rule has been applied to all results:
Results below 0.01ppm will have two (2) significant figures.
Result above or equal to 0.01ppm will have three (3) significant figures.
Quality Control data will always have three (3) significant figures.

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

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

REPORT

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

Laboratory No. 809438

Printed 8/28/2013

Samples Received on 8/12/2013 7:30:00 PM

Field ID	Lab ID	Collected	Matrix
SC-700B-WDR-426	809438-001	08/12/2013 07:30	Water

Specific Conductivity - EPA 120.1 Batch 08EC13C

Parameter	Unit	Analyzed	DF	MDL	RL	Result
809438-001 Specific Conductivity	umhos/cm	08/15/2013	1.00	0.606	2.00	6680

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate — Lab ID = 809493-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	668	664	0.601	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	719	706	102	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	1030	1000	103	90 - 110

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

Client: E2 Consulting Engineers, Inc.

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

Chrome VI by EPA 218.6

Batch 08CrH13I

Parameter	Unit	Analyzed	DF	MDL	RL	Result
809438-001 Chromium, Hexavalent	ug/L	08/13/2013 11:12	1.00	0.00920	0.20	ND

Method Blank

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

Duplicate — Lab ID = 809438-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.0839	0.0825	1.68	0 - 20

Low Level Calibration Verification

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

Lab Control Sample

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

Matrix Spike — Lab ID = 809438-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.08	1.08(1.00)	99.3	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.84	5.00	96.9	90 - 110

MRCVS - Primary

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

MRCVS - Primary

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

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

Client: E2 Consulting Engineers, Inc.

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

Metals by EPA 200.8, Total

Batch 081613A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
809438-001 Chromium	ug/L	08/16/2013 16:20	2.00	0.184	1.0	ND
Manganese	ug/L	08/16/2013 16:20	2.00	0.172	0.50	0.67

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 = 809411-001

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

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.198	0.200	99.0	70 - 130
Uranium	ug/L	1.00	0.196	0.200	98.0	70 - 130
Manganese	ug/L	1.00	0.211	0.200	106	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	2.00	50.3	50.0	101	85 - 115
Uranium	ug/L	2.00	48.0	50.0	96.0	85 - 115
Manganese	ug/L	2.00	50.4	50.0	101	85 - 115

Matrix Spike — Lab ID = 809411-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	48.7	50.0(50.0)	97.4	75 - 125
Uranium	ug/L	2.00	48.4	50.0(50.0)	96.7	75 - 125
Manganese	ug/L	2.00	48.3	50.0(50.0)	96.6	75 - 125

Matrix Spike Duplicate — Lab ID = 809411-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	49.2	50.0(50.0)	98.4	75 - 125
Uranium	ug/L	2.00	49.3	50.0(50.0)	98.6	75 - 125
Manganese	ug/L	2.00	48.8	50.0(50.0)	97.6	75 - 125

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

Total Dissolved Solids by SM 2540 C

Batch 08TDS13F

Parameter	Unit	Analyzed	DF	MDL	RL	Result
809438-001 Total Dissolved Solids	mg/L	08/16/2013	1.00	1.76	125	4060

Method Blank

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

Duplicate — Lab ID = 809438-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	4060	4060	0.123	0 - 10

Duplicate — Lab ID = 809493-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	450	439	2.47	0 - 10

Lab Control Sample

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

Turbidity by SM 2130 B

Batch 08TUC13J

Parameter	Unit	Analyzed	DF	MDL	RL	Result
809438-001 Turbidity	NTU	08/13/2013	1.00	0.0140	0.100	ND

Method Blank

Parameter	Unit	DF	Result
Turbidity	NTU	1.00	ND

Duplicate — Lab ID = 809438-001

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	8.65	8.00	108	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	8.68	8.00	108	90 - 110

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

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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

Truesdail Laboratories, Inc.

Total Dissolved Solids by SM 2540 C

Calculations

Batch: 08TDS13F
Date Analyzed: 8/16/13

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	110.7251	110.7254	110.7253	0.0001	No	0.0002	2.0	25.0	ND	1
809419-1	500	167.3421	167.3458	167.3458	0.0000	No	0.0037	7.4	5.0	7.4	1
809419-2	490	166.0017	166.0017	166.0017	0.0000	No	0.0000	0.0	5.1	ND	1
809426-1	100	111.3626	111.4058	111.4058	0.0000	No	0.0432	432.0	25.0	432.0	1
809426-2	100	112.9630	113.0077	113.0073	0.0004	No	0.0443	443.0	25.0	443.0	1
809438	20	50.1686	50.2499	50.2498	0.0001	No	0.0812	4060.0	125.0	4060.0	1
809483-1	100	49.5770	49.6124	49.6123	0.0001	No	0.0353	353.0	25.0	353.0	1
809483-2	100	51.0358	51.0705	51.0704	0.0001	No	0.0346	346.0	25.0	346.0	1
809483-3	100	50.7463	50.7881	50.7879	0.0002	No	0.0416	416.0	25.0	416.0	1
809483-4	100	51.0742	51.1153	51.1149	0.0004	No	0.0407	407.0	25.0	407.0	1
809492-1	100	49.4329	49.4726	49.4724	0.0002	No	0.0395	395.0	25.0	395.0	1
809438D	20	51.8470	51.9283	51.9281	0.0002	No	0.0811	4055.0	125.0	4055.0	1
LCS	100	112.9398	112.9896	112.9892	0.0004	No	0.0494	494.0	25.0	494.0	1
809493-1	100	47.5146	47.5573	47.5571	0.0002	No	0.0425	425.0	25.0	425.0	1
809493-2	100	49.3958	49.4401	49.4397	0.0004	No	0.0439	439.0	25.0	439.0	1
809493-2D	100	51.1614	51.2068	51.2064	0.0004	No	0.0450	450.0	25.0	450.0	1

Calculation as follows:

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

Where:

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

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

Laboratory Control Sample (LCS) Summary

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

LCS Recovery

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

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

Duplicate Determinations Difference Summary

Lab Number	Sample Weight, g	Sample Dup Weight, g	% RPD	Acceptance Limit	QC Within Control?
809438	0.0812	0.0811	0.1%	≤5%	Yes
809493-2	0.0439	0.045	1.2%	5%	Yes

Duplicate Determination Difference

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

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

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

Jenny T.
Analyst Printed Name

Analyst Signature

Maksim G.
Reviewer Printed Name

Reviewer Signature

WetChem TDS 2012.xls

Total Dissolved Solids by SM 2540 C

TDS/EC CHECK

Batch: 08TDS13F
Date Analyzed: 8/16/13

Laboratory Number	EC	TDS/EC Ratio: 0.55-.9	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
809419-1	13.5	0.55	8.775	0.84
809419-2	1.46	ND	0.949	ND
809426-1	687	0.63	446.55	0.97
809426-2	686	0.65	445.9	0.99
809438	6680	0.61	4342	0.94
809483-1	547	0.65	355.55	0.99
809483-2	528	0.66	343.2	1.01
809483-3	657	0.63	427.05	0.97
809483-4	670	0.61	435.5	0.93
809492-1	706	0.56	458.9	0.86
809438D	6680	0.61	4342	0.93
LCS				
809493-1	702	0.61	456.3	0.93
809493-2	664	0.66	431.6	1.02
809493-2D	664	0.68	431.6	1.04

809438

Rec'd 08/12/13

809438

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-426]

COC Number

TURNAROUND TIME 10 Days

DATE 08/12/13 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: 456827.01.DM TEAM: 1

SAMPLERS (SIGNATURE):

SAMPLE I.D.	DATE	TIME	DESCRIPTION	Cr6 (218.6) Lab Filtered	Total Metals (200.7) Cr, Mn	Specific Conductance (120.1)	TDS (SM2540C)	Turbidity (SM2130)									NUMBER OF CONTAINERS	COMMENTS
SC-700B-WDR-426	08/12/13	0730	Water	x	x	x	x		x								3	pH = 6 (200.7)
																	3	TOTAL NUMBER OF CONTAINERS

ALERT !!
Level III QC

For Sample Conditions See Form Attached

CHAIN OF CUSTODY SIGNATURE RECORD

	Printed Name	Company/ Agency	Date/ Time
Signature (Relinquished)	JAIDE	E2	8-12-13 0530
Signature (Received)	DAVID LAM	TDL	8/12/13 1530
Signature (Relinquished)	DAVID LAM	TDL	8/12/13 19:30
Signature (Received)	Marshea Brad	TLI	8/12/13 1930
Signature (Relinquished)			
Signature (Received)			

SAMPLE CONDITIONS

RECEIVED COOL ☑ WARM ☐ 4.5 °C

CUSTODY SEALED YES ☐ NO ☑

SPECIAL REQUIREMENTS:

036

Hexavalent Chromium

Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
8/9/13	809408-1	9.5	N/A	N/A	N/A	TM
	-2					
	-3					
	-4					
	-5					
	-6					
8/9/13	809409-10	9.5	N/A	N/A	N/A	TM
8/9/13	809410-1	9.5	N/A	N/A	N/A	TM
	-2					
	-3					
	-4					
	-5					
	-6					
8/12/13	809428-1	7.0	2ml/100ml	9.5	15:30	TM
	-2					
8/13/13	809438	7.0	2ml / 100ml	9.5	7:20	NE
8/13/13	809438	7.0	2ml / 100ml	9.5	8:30	NE
8/14/13	809498-1	7.0	2ml/100ml	9.5	17:15	TM
	-2					
	-3					
	-4					
8/19/13	809535	7.0	2ml/100ml	9.5	7:15	NE
	809552-1				14:20	NE
	-2					

NE 8/20/13

TRUESDAIL LABORATORIES, INC.

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
809354 (1-2)	<1	<2	8/12/13	ES	Yes			Total
-2	<1	>2	↓	↓	Yes	10:00		Diss (Filtered then acidify)
809355 (1-2)	↓	↓	↓	↓	↓	↓		↓
809405 (1-2,4)	↓	<2	↓	↓	↓			
809406	↓	↓	↓	↓	↓			
809407	↓	↓	↓	↓	↓			
809408 (1,3-6)	↓	↓	↓	↓	↓			
809410 (1-4,6)	↓	↓	↓	↓	↓			
809426-1,2	>1	<2	8/12/13	DL	yes			
809430	<1	↓	↓	↓	↓			
809416	↓	↓	↓	↓	↓			
809402	>1	↓	↓	↓	↓			
809435	<1	<2	8/13/13	DL	NO			
809432	↓	↓	↓	↓	yes			
809431	↓	↓	↓	↓	↓			
809404	<1	↓	↓	↓	↓			
809435	<1	<2	8/14/13	ES	yes			
809453	↓	↓	↓	↓	↓			
809454	↓	↓	↓	↓	↓			
809455	↓	↓	↓	↓	↓			
809456	↓	↓	↓	↓	↓			
809457	↓	↓	↓	↓	↓			
809458	↓	↓	↓	↓	↓			
809471 (1-3)	↓	>2	↓	↓	NO	4:00	8/16/13 10:00	pH<2
809472	↓	<2	↓	↓	yes			
809473	↓	↓	↓	↓	↓			
809474	↓	↓	↓	↓	↓			
809475 (1-2)	↓	>2	↓	↓	NO	4:00	8/16/13 10:00	pH<2
809476	↓	>2	↓	↓	NO	4:00	↓	↓
809488	↓	<2	↓	↓	yes			
809493-1,2	>1	<2	~~8/15/13~~	DL	yes			
809505	↓	↓	↓	↓	↓			
809496 (10-12)	<1	<2	8/16/13	ES	NO	11:00	8/20/13 10:00	pH<2
809524 (1-2)	↓	↓	↓	↓	↓	↓	↓	↓
809508-26	↓	↓	↓	↓	↓	↓	↓	↓
809409 (1-9)	- SOIL	—	8/19/13	ES	Yes			
809409 (10)	<1	<2	8/15/13	ES	yes			
809411 (1-3)	↓	↓	↓	↓	↓			
809502 (1-3)	↓	↓	↓	↓	↓			
809438	↓	>2	↓	↓	↓	10:00		pH<2
809530	<1	<2	8/20/13	ES	yes			
809534 (1-3)	>2	↓	↓	↓	↓			
809537	↓	↓	↓	↓	↓			
809539	<1	↓	↓	↓	↓			

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

8/14/13

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: E2 **Lab #** 809438

Date Delivered: 08 / 12 / 13 **Time:** 19:30 **By:** ☐ Mail ☐ Field Service ☒ Client

1. Was a Chain of Custody received and signed? ☒ Yes ☐ No ☐ N/A
2. Does Customer require an acknowledgement of the COC? ☐ Yes ☐ No ☒ N/A
3. Are there any special requirements or notes on the COC? ☐ Yes ☐ No ☒ N/A
4. If a letter was sent with the COC, does it match the COC? ☐ Yes ☐ No ☒ N/A
5. Were all requested analyses understood and acceptable? ☒ Yes ☐ No ☐ N/A
6. Were samples received in a chilled condition? ☒ Yes ☐ No ☐ N/A
   Temperature (if yes)? 4.5 °C
7. Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)? ☒ Yes ☐ No ☐ N/A
8. Were sample custody seals intact? ☐ Yes ☐ No ☒ N/A
9. Does the number of samples received agree with COC? ☒ Yes ☐ No ☐ N/A
10. Did sample labels correspond with the client ID's? ☒ Yes ☐ No ☐ N/A
11. Did sample labels indicate proper preservation? ☐ Yes ☐ No ☒ N/A
    Preserved (if yes) by: ☐ **Truesdail** ☐ Client
12. Were samples pH checked? pH = see c.o.c ☒ Yes ☐ No ☐ N/A
13. Were all analyses within holding time at time of receipt? ☒ Yes ☐ No ☐ N/A
    If not, notify Project Manager.
14. Have Project due dates been checked and accepted? ☒ Yes ☐ No ☐ N/A
    Turn Around Time (TAT): ☐ **RUSH** ☒ Std
15. **Sample Matrix:** ☐ Liquid ☐ Drinking Water ☐ Ground Water ☐ Waste Water ☐ Sludge ☐ Soil ☐ Wipe ☐ Paint ☐ Solid ☒ Other Water
16. Comments:
17. Sample Check-In completed by **Truesdail** Log-In/Receiving: 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

August 30, 2013

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

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK IM3PLANT-WDR-427 PROJECT, GROUNDWATER MONITORING, TLI NO.: 809535

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-427 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 August 16, 2013, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

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

Due to the late Friday arrival of the samples, the sample for Turbidity by SM 2130B was analyzed on August 19, 2013, which was past the 48-hour holding time.

No violations or nonconformance actions occurred for this data package.

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

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

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

Laboratory No.: 809535
Date: August 30, 2013
Collected: August 16, 2013
Received: August 16, 2013

ANALYST LIST

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

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

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

Laboratory No.: 809535
Date Received: August 16, 2013

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

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
809535-001	SC-700B-WDR-427	E120.1	NONE	8/16/2013	11:00	EC	6760	umhos/cm	2.00
809535-001	SC-700B-WDR-427	E200.8	NONE	8/16/2013	11:00	Chromium	ND	ug/L	1.0
809535-001	SC-700B-WDR-427	E200.8	NONE	8/16/2013	11:00	Manganese	0.95	ug/L	0.50
809535-001	SC-700B-WDR-427	E218.6	LABFLT	8/16/2013	11:00	Chromium, Hexavalent	0.30	ug/L	0.20
809535-001	SC-700B-WDR-427	SM2130B	NONE	8/16/2013	11:00	Turbidity	ND J	NTU	0.100
809535-001	SC-700B-WDR-427	SM2540C	NONE	8/16/2013	11:00	Total Dissolved Solids	4170	mg/L	125

ND: Non Detected (below reporting limit)
mg/L: Milligrams per liter.
Note: The following "Significant Figures" rule has been applied to all results:
Results below 0.01ppm will have two (2) significant figures.
Result above or equal to 0.01ppm will have three (3) significant figures.
Quality Control data will always have three (3) significant figures.

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

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

REPORT

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

Laboratory No. 809535

Printed 8/30/2013

Samples Received on 8/16/2013 7:45:00 PM

Field ID	Lab ID	Collected	Matrix
SC-700B-WDR-427	809535-001	08/16/2013 11:00	Water

Specific Conductivity - EPA 120.1 Batch 08EC13D

Parameter	Unit	Analyzed	DF	MDL	RL	Result
809535-001 Specific Conductivity	umhos/cm	08/20/2013	1.00	0.606	2.00	6760

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate — Lab ID = 809566-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	0.910	0.901	0.994	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	738	706	104	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	735	706	104	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	1060	1000	106	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

Chrome VI by EPA 218.6

Batch 08CrH13L

Parameter	Unit	Analyzed	DF	MDL	RL	Result
809535-001 Chromium, Hexavalent	ug/L	08/19/2013 14:51	1.00	0.00920	0.20	0.30

Method Blank

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

Duplicate — Lab ID = 809535-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.293	0.297	1.25	0 - 20

Low Level Calibration Verification

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

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.79	5.00	95.7	90 - 110

Matrix Spike — Lab ID = 809535-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.31	1.30(1.00)	101	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.85	5.00	96.9	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.99	10.0	99.9	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.98	10.0	99.8	95 - 105

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

Client: E2 Consulting Engineers, Inc.

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

Metals by EPA 200.8, Total

Batch 082313A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
809535-001 Chromium	ug/L	08/23/2013 15:47	1.00	0.0920	1.0	ND
Manganese	ug/L	08/23/2013 15:47	1.00	0.0860	0.50	0.95

Method Blank

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

Duplicate — Lab ID = 809535-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	1.00	ND	0	0	0 - 20
Manganese	ug/L	1.00	1.14	0.949	18.5	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.208	0.200	104	70 - 130
Manganese	ug/L	1.00	0.237	0.200	118	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	47.5	50.0	95.0	85 - 115
Manganese	ug/L	1.00	47.6	50.0	95.2	85 - 115

Matrix Spike — Lab ID = 809535-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	1.00	41.1	50.0(50.0)	82.2	75 - 125
Manganese	ug/L	1.00	42.7	50.9(50.0)	83.6	75 - 125

Matrix Spike Duplicate — Lab ID = 809535-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	1.00	45.5	50.0(50.0)	91.0	75 - 125
Manganese	ug/L	1.00	47.0	50.9(50.0)	92.1	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.4	20.0	96.9	90 - 110
Manganese	ug/L	1.00	19.3	20.0	96.7	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.2	20.0	96.2	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.

Total Dissolved Solids by SM 2540 C

Batch 08TDS13G

Parameter	Unit	Analyzed	DF	MDL	RL	Result
809535-001 Total Dissolved Solids	mg/L	08/20/2013	1.00	1.76	125	4170

Method Blank

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

Duplicate — Lab ID = 809452-003

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	710	704	0.849	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Dissolved Solids	mg/L	1.00	506	500	101	90 - 110

Turbidity by SM 2130 B

Batch 08TUC13L

Parameter	Unit	Analyzed	DF	MDL	RL	Result	
809535-001 Turbidity	NTU	08/19/2013	1.00	0.0140	0.100	ND	J

Method Blank

Parameter	Unit	DF	Result
Turbidity	NTU	1.00	ND

Duplicate — Lab ID = 809535-001

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	7.97	8.00	99.6	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	7.96	8.00	99.5	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

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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

Truesdail Laboratories, Inc.

Total Dissolved Solids by SM 2540 C

Calculations

Batch: 08TDS13G
Date Analyzed: 8/20/13

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	74.7049	74.7053	74.7053	0.0000	No	0.0004	4.0	25.0	ND	1
809538-1	1000	174.8061	174.8086	174.8085	0.0001	No	0.0024	2.4	2.5	ND	1
809538-2	1000	168.6252	168.6278	168.6277	0.0001	No	0.0025	2.5	2.5	ND	1
809566	1000	174.3906	174.3926	174.3926	0.0000	No	0.0020	2.0	2.5	ND	1
809525-1	50	49.7304	49.7704	49.7704	0.0000	No	0.0400	800.0	50.0	800.0	1
809535	20	50.7861	50.8699	50.8695	0.0004	No	0.0834	4170.0	125.0	4170.0	1
809548-1	100	74.2203	74.2675	74.2675	0.0000	No	0.0472	472.0	25.0	472.0	1
809548-2	100	78.369	78.4169	78.4169	0.0000	No	0.0479	479.0	25.0	479.0	1
809452-1	50	50.1275	50.1768	50.1764	0.0004	No	0.0489	978.0	50.0	978.0	1
809452-2	50	50.5728	50.6091	50.609	0.0001	No	0.0362	724.0	50.0	724.0	1
809452-3	50	50.3977	50.4329	50.4329	0.0000	No	0.0352	704.0	50.0	704.0	1
809452-3D	50	50.7547	50.7902	50.7902	0.0000	No	0.0355	710.0	50.0	710.0	1
LCS	100	75.7544	75.805	75.805	0.0000	No	0.0506	506.0	25.0	506.0	1
809452-4	50	47.8456	47.8834	47.883	0.0004	No	0.0374	748.0	50.0	748.0	1
809452-5	50	52.0614	52.1022	52.1019	0.0003	No	0.0405	810.0	50.0	810.0	1
809452-6	50	51.2287	51.2636	51.2634	0.0002	No	0.0347	694.0	50.0	694.0	1
809452-7	50	50.5420	50.5897	50.5897	0.0000	No	0.0477	954.0	50.0	954.0	1
809452-8	50	51.2280	51.2887	51.2885	0.0002	No	0.0605	1210.0	50.0	1210.0	1
809452-9	50	51.9316	51.9673	51.9673	0.0000	No	0.0357	714.0	50.0	714.0	1
809452-10	50	49.8801	49.9301	49.9301	0.0000	No	0.0500	1000.0	50.0	1000.0	1
809577	20	47.9579	48.0438	48.0437	0.0001	No	0.0858	4290.0	125.0	4290.0	1
809452-10D	50	50.6272	50.6774	50.6774	0.0000	No	0.0502	1004.0	50.0	1004.0	1

Calculation as follows:

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

Where:

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

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

Laboratory Control Sample (LCS) Summary

QC Std I.D.	Measurd Value, ppm	Theoretical Value, ppm	Percent Rec	Acceptance Limit	QC Within Control?
LCS1	506	500	101.2%	90-110%	Yes
LCSD					

LCS Recovery

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

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

Duplicate Determinations Difference Summary

Lab Number	Sample Weight, g	Sample Dup Weight, g	% RPD	Acceptance Limit	QC Within Control?
809452-3	0.0352	0.0355	0.4%	≤5%	Yes
809452-10	0.05	0.0502	0.2%	5%	Yes

Duplicate Determination Difference

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

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

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

Jenny T.
Analyst Printed Name

Analyst Signature

Maksim G.
Reviewer Printed Name

Reviewer Signature

WetChem TDS_2012.xls

Total Dissolved Solids by SM 2540 C

TDS/EC CHECK

Batch: 08TDS13G
Date Analyzed: 8/20/13

Laboratory Number	EC	TDS/EC Ratio: 0.55-.9	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
809538-1	11.4	ND	7.41	ND
809538-2	7.24	ND	4.706	ND
809566	0.901	ND	0.58565	ND
809525-1	1197	0.67	778.05	1.03
809535	6760	0.62	4394	0.95
809548-1	769	0.61	499.85	0.94
809548-2	718	0.67	466.7	1.03
809452-1	1340	0.73	871	1.12
809452-2	1070	0.68	695.5	1.04
809452-3	1080	0.65	702	1.00
809452-3D	1080	0.66	702	1.01
LCS				
809452-4	1100	0.68	715	1.05
809452-5	1200	0.68	780	1.04
809452-6	1040	0.67	676	1.03
809452-7	1250	0.76	812.5	1.17
809452-8	1540	0.79	1001	1.21
809452-9	1060	0.67	689	1.04
809452-10	1380	0.72	897	1.11
809577	6790	0.63	4413.5	0.97
809452-10D	1380	0.73	897	1.12

809535

Rec'd 8/16/13

S19a 809535

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-427]

COC Number

TURNAROUND TIME 10 Days

DATE 08/16/13 PAGE 1 OF 1

COMPANY E2

PROJECT NAME PG&E Topock

PHONE (530) 229-3303 FAX (530) 339-3303

ADDRESS 155 Grand Ave Ste 1000
Oakland, CA 94612

P.O. NUMBER 456827.01.DM TEAM 1

SAMPLERS (SIGNATURE

	SAMPLE I.D.	DATE	TIME	DESCRIPTION	Cr6 (218.6) Lab Filtered	Total Metals (200.7) Cr, Mn	Specific Conductance (120.1)	TDS (SM2540C)		Turbidity (SM2130)									NUMBER OF CONTAINERS	COMMENTS
-1	SC-700B-WDR-427	08/16/13	1100	Water	x	x	x	x		x									3	pH = 6 (200.7)
																			3	TOTAL NUMBER OF CONTAINERS

For Sample Conditions
See Form Attached

ALERT !!
Level III QC

CHAIN OF CUSTODY SIGNATURE RECORD

	Signature	Printed Name	Company/ Agency	Date/ Time
Signature (Relinquished)	Jol Rosenberg	Josh Rosenberg		8-16-13 15:20
Signature (Received)		DAVID LAM	TDL	8/16/13 15:20
Signature (Relinquished)		DAVID LAM	TDL	8/16/13 19:15
Signature (Received)		Michael Brad	TLI	1945
Signature (Relinquished)		Printed Name	Company/ Agency	Date/ Time
Signature (Received)		Printed Name	Company/ Agency	Date/ Time

SAMPLE CONDITIONS

RECEIVED COOL ☑ WARM ☐ 4.2 °C

CUSTODY SEALED YES ☐ NO ☐

SPECIAL REQUIREMENTS:

035

Hexavalent Chromium

Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
8/9/13	809408-1	9.5	N/A	N/A	N/A	TM
	-2					
	-3					
	-4					
	-5					
	-6					
8/9/13	809409-10	9.5	N/A	N/A	N/A	TM
8/9/13	809410-1	9.5	N/A	N/A	N/A	TM
	-2					
	-3					
	-4					
	-5					
	-6					
8/12/13	809428-1	7.0	2ml/100ml	9.5	15:30	TM
	-2					
8/13/13	809438	7.0	2ml / 100 ml	9.5	7:20	NE
8/13/13	809438	7.0	2ml, 100 ml	9.5	8:30	NE
8/14/13	809498-1	7.0	2ml/100ml	9.5	17:15	TM
	-2					
	-3					
	-4					
8/19/13	809535	7.0	2ml/100ml	9.5	7:15	NE
	809552-1				14:20	NE
	-2					

NE 8/20/13

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

TRUESDAIL LABORATORIES, INC.

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
809540	<1	<2	8/20/13	ES	Yes			
809548(1-2)	↓	↓	↓	↓	↓			
809570(1-4)	>2	>2	8/21/13	ES	yes	10:00	8/22 1:00	pH <2
809571	<1	<2						
809572								
809573								
809574								
809575		↓			↓			
809584(1-3)		>2			NO	10:00	8/22 1:00	pH <2
809587(1-3)								
809590								
809588	↓	↓	↓	↓	yes	10:00	↓	↓
809593	<1	>2	8/21/13	DC	NO	10:10	8/22 1:00	pH <2
809601	>1	>2	8/21/13	DC	yes	14:15	↓	↓
809612	>1	<2	8/22/13	DC	yes			
809609	↓	↓	↓	↓	↓			
809612-1,2	>1	>2		DC	NO	11:35	8/23 12:00	pH <2
809613-11-713								
809620-1-5	↓	↓	↓	↓	↓	↓	↓	
809535	<1	>2	8/22/13	ES	yes	10:00		TOTAL
809577	↓	↓	↓	↓	↓	↓		↓
809652	<1	<2	8/27/13	ES	yes			
809653								
809654	↓	↓	↓	↓	↓			
809624(1-3)	<1	<2	8/27/13	ES	yes			
809657(1-6)								
809658-2								
809659(1-2)	↓	↓	↓	↓	↓			
809648-1,2	>1	<2	8/28/13	DC	yes			
809677	<1	↓	↓	↓	↓			
809684	<1	>2	↓	↓	NO	14:10		
8097201-3	<1	>2	8/29/13	DC	NO	9:30		
809714	>1	<2			yes			
809721	<1	<2	↓	↓	↓			
809722-1,2	>1	<2	↓	↓	↓			
809711(10-12)	<1	>2	8/29/13	ES	NO	11:00		
809713(1-3)	↓	↓	↓	↓	↓	↓		
809725	>1	<2	8/30/13	ES	yes			
809739	↓	↓	↓	↓	↓			
809644(1-7)	TNC		↓	↓	yes			

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

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: E2 **Lab #** 809535

Date Delivered: 08 / 16 / 13 **Time:** 19:45 **By:** ☐ Mail ☐ Field Service ☒ Client

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

ALERT!! Level III QC

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

September 3, 2013

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

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK IM3PLANT-WDR-428 PROJECT, GROUNDWATER MONITORING, TLI NO.: 809577

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-428 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 August 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 violations or nonconformance actions occurred for this data package.

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

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

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

Laboratory No.: 809577
Date: September 3, 2013
Collected: August 20, 2013
Received: August 20, 2013

ANALYST LIST

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

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

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

Laboratory No.: 809577
Date Received: August 20, 2013

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

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
809577-001	SC-700B-WDR-428	E120.1	NONE	8/20/2013	11:30	EC	6790	umhos/cm	2.00
809577-001	SC-700B-WDR-428	E200.8	NONE	8/20/2013	11:30	Chromium	ND	ug/L	1.0
809577-001	SC-700B-WDR-428	E200.8	NONE	8/20/2013	11:30	Manganese	2.9	ug/L	0.50
809577-001	SC-700B-WDR-428	E218.6	LABFLT	8/20/2013	11:30	Chromium, Hexavalent	ND	ug/L	0.20
809577-001	SC-700B-WDR-428	SM2130B	NONE	8/20/2013	11:30	Turbidity	ND	NTU	0.100
809577-001	SC-700B-WDR-428	SM2540C	NONE	8/20/2013	11:30	Total Dissolved Solids	4290	mg/L	125

ND: Non Detected (below reporting limit)
mg/L: Milligrams per liter.
Note: The following "Significant Figures" rule has been applied to all results:
Results below 0.01ppm will have two (2) significant figures.
Result above or equal to 0.01ppm will have three (3) significant figures.
Quality Control data will always have three (3) significant figures.

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

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

REPORT

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

Laboratory No. 809577

Printed 9/3/2013

Samples Received on 8/20/2013 7:20:00 PM

Field ID	Lab ID	Collected	Matrix
SC-700B-WDR-428	809577-001	08/20/2013 11:30	Water

Specific Conductivity - EPA 120.1 Batch 08EC13E

Parameter	Unit	Analyzed	DF	MDL	RL	Result
809577-001 Specific Conductivity	umhos/cm	08/23/2013	1.00	0.606	2.00	6790

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate — Lab ID = 809577-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	6760	6790	0.443	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	735	706	104	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	731	706	104	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	1030	1000	103	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	1030	1000	103	90 - 110

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

Client: E2 Consulting Engineers, Inc.

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

Chrome VI by EPA 218.6

Batch 08CrH13N

Parameter	Unit	Analyzed	DF	MDL	RL	Result
809577-001 Chromium, Hexavalent	ug/L	08/22/2013 14:28	1.00	0.00920	0.20	ND

Method Blank

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

Duplicate — Lab ID = 809577-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.0943	0.0959	1.68	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.205	0.200	102	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.86	5.00	97.2	90 - 110

Matrix Spike — Lab ID = 809577-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.13	1.10(1.00)	103	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.85	5.00	97.1	90 - 110

MRCVS - Primary

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

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

Client: E2 Consulting Engineers, Inc.

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

Metals by EPA 200.8, Total

Batch 082313A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
809577-001 Chromium	ug/L	08/23/2013 16:23	1.00	0.0920	1.0	ND
Manganese	ug/L	08/23/2013 16:23	1.00	0.0860	0.50	2.9

Method Blank

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

Duplicate — Lab ID = 809535-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	1.00	ND	0	0	0 - 20
Manganese	ug/L	1.00	1.14	0.949	18.5	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.208	0.200	104	70 - 130
Manganese	ug/L	1.00	0.237	0.200	118	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	47.5	50.0	95.0	85 - 115
Manganese	ug/L	1.00	47.6	50.0	95.2	85 - 115

Matrix Spike — Lab ID = 809535-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	1.00	41.1	50.0(50.0)	82.2	75 - 125
Manganese	ug/L	1.00	42.7	50.9(50.0)	83.6	75 - 125

Matrix Spike Duplicate — Lab ID = 809535-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	1.00	45.5	50.0(50.0)	91.0	75 - 125
Manganese	ug/L	1.00	47.0	50.9(50.0)	92.1	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.4	20.0	96.9	90 - 110
Manganese	ug/L	1.00	19.3	20.0	96.7	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.2	20.0	96.2	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.

Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project
Project Number: 456827.01.DM Printed 9/3/2013

Total Dissolved Solids by SM 2540 C

Batch 08TDS13G

Parameter	Unit	Analyzed	DF	MDL	RL	Result
809577-001 Total Dissolved Solids	mg/L	08/20/2013	1.00	1.76	125	4290

Method Blank

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

Duplicate — Lab ID = 809452-003

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	710	704	0.849	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Dissolved Solids	mg/L	1.00	506	500	101	90 - 110

Turbidity by SM 2130 B

Batch 08TUC13M

Parameter	Unit	Analyzed	DF	MDL	RL	Result
809577-001 Turbidity	NTU	08/22/2013	1.00	0.0140	0.100	ND

Method Blank

Parameter	Unit	DF	Result
Turbidity	NTU	1.00	ND

Duplicate — Lab ID = 809615-012

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	8.76	8.00	110	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	8.77	8.00	110	90 - 110

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

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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.

6

e2

Total Dissolved Solids by SM 2540 C

Calculations

Batch: 08TDS13G
Date Analyzed: 8/20/13

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	74.7049	74.7053	74.7053	0.0000	No	0.0004	4.0	25.0	ND	1
809538-1	1000	174.8061	174.8086	174.8085	0.0001	No	0.0024	2.4	2.5	ND	1
809538-2	1000	168.6252	168.6278	168.6277	0.0001	No	0.0025	2.5	2.5	ND	1
809566	1000	174.3906	174.3926	174.3926	0.0000	No	0.0020	2.0	2.5	ND	1
809525-1	50	49.7304	49.7704	49.7704	0.0000	No	0.0400	800.0	50.0	800.0	1
809535	20	50.7861	50.8699	50.8695	0.0004	No	0.0834	4170.0	125.0	4170.0	1
809548-1	100	74.2203	74.2675	74.2675	0.0000	No	0.0472	472.0	25.0	472.0	1
809548-2	100	78.369	78.4169	78.4169	0.0000	No	0.0479	479.0	25.0	479.0	1
809452-1	50	50.1275	50.1768	50.1764	0.0004	No	0.0489	978.0	50.0	978.0	1
809452-2	50	50.5728	50.6091	50.609	0.0001	No	0.0362	724.0	50.0	724.0	1
809452-3	50	50.3977	50.4329	50.4329	0.0000	No	0.0352	704.0	50.0	704.0	1
809452-3D	50	50.7547	50.7902	50.7902	0.0000	No	0.0355	710.0	50.0	710.0	1
LCS	100	75.7544	75.805	75.805	0.0000	No	0.0506	506.0	25.0	506.0	1
809452-4	50	47.8456	47.8834	47.883	0.0004	No	0.0374	748.0	50.0	748.0	1
809452-5	50	52.0614	52.1022	52.1019	0.0003	No	0.0405	810.0	50.0	810.0	1
809452-6	50	51.2287	51.2636	51.2634	0.0002	No	0.0347	694.0	50.0	694.0	1
809452-7	50	50.5420	50.5897	50.5897	0.0000	No	0.0477	954.0	50.0	954.0	1
809452-8	50	51.2280	51.2887	51.2885	0.0002	No	0.0605	1210.0	50.0	1210.0	1
809452-9	50	51.9316	51.9673	51.9673	0.0000	No	0.0357	714.0	50.0	714.0	1
809452-10	50	49.8801	49.9301	49.9301	0.0000	No	0.0500	1000.0	50.0	1000.0	1
809577	20	47.9579	48.0438	48.0437	0.0001	No	0.0858	4290.0	125.0	4290.0	1
809452-10D	50	50.6272	50.6774	50.6774	0.0000	No	0.0502	1004.0	50.0	1004.0	1

Calculation as follows:

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

Where:

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

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

Laboratory Control Sample (LCS) Summary

QC Std I.D.	Measurd Value, ppm	Theoretical Value, ppm	Percent Rec	Acceptance Limit	QC Within Control?
LCS1	506	500	101.2%	90-110%	Yes
LCSD					

LCS Recovery

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

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

Duplicate Determinations Difference Summary

Lab Number	Sample Weight, g	Sample Dup Weight, g	% RPD	Acceptance Limit	QC Within Control?
809452-3	0.0352	0.0355	0.4%	≤5%	Yes
809452-10	0.05	0.0502	0.2%	5%	Yes

Duplicate Determination Difference

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

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

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

Jenny T.
Analyst Printed Name

Analyst Signature

Maksim G.
Reviewer Printed Name

Reviewer Signature

Total Dissolved Solids by SM 2540 C

TDS/EC CHECK

Batch: 08TDS13G
Date Analyzed: 8/20/13

Laboratory Number	EC	TDS/EC Ratio: 0.55-.9	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
809538-1	11.4	ND	7.41	ND
809538-2	7.24	ND	4.706	ND
809566	0.901	ND	0.58565	ND
809525-1	1197	0.67	778.05	1.03
809535	6760	0.62	4394	0.95
809548-1	769	0.61	499.85	0.94
809548-2	718	0.67	466.7	1.03
809452-1	1340	0.73	871	1.12
809452-2	1070	0.68	695.5	1.04
809452-3	1080	0.65	702	1.00
809452-3D	1080	0.66	702	1.01
LCS				
809452-4	1100	0.68	715	1.05
809452-5	1200	0.68	780	1.04
809452-6	1040	0.67	676	1.03
809452-7	1250	0.76	812.5	1.17
809452-8	1540	0.79	1001	1.21
809452-9	1060	0.67	689	1.04
809452-10	1380	0.72	897	1.11
809577	6790	0.63	4413.5	0.97
809452-10D	1380	0.73	897	1.12

809577

Rec'd 08/20/13

~~S-19~~ 809577

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-428]

COC Number

TURNAROUND TIME 10 Days

DATE 08/20/13 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 TEAM: 1

SAMPLERS (SIGNATURE):

SAMPLE I.D.	DATE	TIME	DESCRIPTION	Cr6 (218.6) Lab Filtered	Total Metals (200.7) Cr, Mn	Specific Conductance (120.1)	TDS (SM2540C)		Turbidity (SM2130)									NUMBER OF CONTAINERS	COMMENTS
SC-700B-WDR-428	08/20/13	1130	Water	X	X	X	X		X									3	pH=6 (200.7)
																		3	TOTAL NUMBER OF CONTAINERS

ALERT !!
Level III QC

For Sample Conditions
See Form Attached

CHAIN OF CUSTODY SIGNATURE RECORD

	Printed Name	Company/ Agency	Date/ Time
Signature (Relinquished)	J Aoe	E2	8-20-13 1530
Signature (Received)	David Lam	TDL	8/20/13 1530
Signature (Relinquished)	DAVID LAM	TDL	8/20/13 19:20
Signature (Received)	Leo Brady	TLI	8-20-13 1920
Signature (Relinquished)			
Signature (Received)	Shakumura	TLI	8/20/13 19:20

SAMPLE CONDITIONS

RECEIVED COOL ☑ WARM ☐ 4.5 °C

CUSTODY SEALED YES ☐ NO ☐

SPECIAL REQUIREMENTS:

035

Hexavalent Chromium

Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
8/9/13	809408-1	9.5	N/A	N/A	N/A	TM
	-2					
	-3					
	-4					
	-5					
	-6					
8/9/13	809409-10	9.5	N/A	N/A	N/A	TM
8/9/13	809410-1	9.5	N/A	N/A	N/A	TM
	-2					
	-3					
	-4					
	-5					
	-6					
8/12/13	809428-1	7.0	2ml/100ml	9.5	15:30	TM
	-2					
8/13/13	809438	7.0	2ml / 100 ml	9.5	7:20	NE
8/13/13	809438	7.0	2ml / 100 ml	9.5	8:30	NE
8/14/13	809498-1	7.0	2ml/100ml	9.5	17:15	TM
	-2					
	-3					
	-4					
8/19/13	809535	7.0	2ml / 100ml	9.5	7:15	NE
	809552-1				14:20	NE
	-2					
8/20/13	809567	7.0	2ml / 100ml	9.5	15:20	TM
8/21/13	809577	7.0	2ml / 100 ml	9.5	7:40	NE
8/22/13	809619-1	7.0			7:30	NE
	-2					NE

NE 8/23/13

TRUESDAIL LABORATORIES, INC.

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
809540	<1	<2	8/20/13	ES	Yes			
809548(1-2)	↓	↓	↓	↓	↓			
809570(1-4)	>2	>2	8/21/13	ES	yes	10:00	8/22 1:00	ph <2
809571	<1	<2	↓	↓	↓			
809572	↓	↓	↓	↓	↓			
809573	↓	↓	↓	↓	↓			
809574	↓	↓	↓	↓	↓			
809575	↓	↓	↓	↓	↓			
809584(1-3)	↓	>2	↓	↓	NO	10:00	8/22 1:00	ph <2
809587(1-3)	↓	↓	↓	↓	↓	↓	↓	↓
809590	↓	↓	↓	↓	↓	↓	↓	↓
809588	↓	↓	↓	↓	yes	10:00	↓	↓
809593	<1	>2	8/21/13	DC	NO	10:10	8/22 1:00	ph <2
809601	>1	>2	8/21/13	DC	yes	14:15	↓	↓
809612	>1	<2	8/22/13	DC	yes			
809609	↓	↓	↓	↓	↓			
809612-1,2	>1	>2	↓	DC	NO	11:35	8/23 12:00	ph <2
809613-11-713	↓	↓	↓	↓	↓	↓	↓	
809620-1-5	↓	↓	↓	↓	↓	↓	↓	
809535	<1	>2	8/22/13	ES	yes	10:00		TOTAL
809577	↓	↓	↓	↓	↓	↓		↓
809652	<1	<2	8/27/13	ES	yes			
809653	↓	↓	↓	↓	↓			
809654	↓	↓	↓	↓	↓			
809624(1-3)	<1	<2	8/27/13	ES	yes			
809657(1-6)	↓	↓	↓	↓	↓			
809658-2	↓	↓	↓	↓	↓			
809659(1-2)	↓	↓	↓	↓	↓			
809648-1,2	>1	<2	8/28/13	DC	yes			
809677	<1	↓	↓	↓	↓			
809684	<1	>2	↓	↓	NO	14:10		
8097201-3	<1	>2	8/29/13	DC	NO	9:30		
809714	>1	<2	↓	↓	yes			
809721	<1	<2	↓	↓	↓			
809722-1,2	>1	<2	↓	↓	↓			
809711(10-12)	<1	>2	8/29/13	ES	NO	11:00		
809713(1-3)	↓	↓	↓	↓	↓	↓		
809725	>1	<2	8/30/13	ES	yes			
809739	↓	↓	↓	↓	↓			
809644(1-7)	TTLC		↓	↓	yes			

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

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: E2 **Lab #** 809577

Date Delivered: 08/20/13 **Time:** 19:20 **By:** ☐ Mail ☐ Field Service ☑ Client

1. Was a Chain of Custody received and signed? ☑ Yes ☐ No ☐ N/A
2. Does Customer require an acknowledgement of the COC? ☐ Yes ☐ No ☑ N/A
3. Are there any special requirements or notes on the COC? ☐ Yes ☐ No ☑ N/A
4. If a letter was sent with the COC, does it match the COC? ☐ Yes ☐ No ☑ N/A
5. Were all requested analyses understood and acceptable? ☑ Yes ☐ No ☐ N/A
6. Were samples received in a chilled condition? ☑ Yes ☐ No ☐ N/A
   Temperature (if yes)? 4.5 °C
7. Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)? ☑ Yes ☐ No ☐ N/A
8. Were sample custody seals intact? ☐ Yes ☐ No ☑ N/A
9. Does the number of samples received agree with COC? ☑ Yes ☐ No ☐ N/A
10. Did sample labels correspond with the client ID's? ☑ Yes ☐ No ☐ N/A
11. Did sample labels indicate proper preservation? ☐ Yes ☐ No ☑ N/A
    Preserved (if yes) by: ☐ **Truesdail** ☐ Client
12. Were samples pH checked? pH = See c.o.c. ☑ Yes ☐ No ☐ N/A
13. Were all analyses within holding time at time of receipt? ☑ Yes ☐ No ☐ N/A
    If not, notify Project Manager.
14. Have Project due dates been checked and accepted? ☑ Yes ☐ No ☐ N/A
    Turn Around Time (TAT): ☐ **RUSH** ☑ Std
15. **Sample Matrix:** ☐ Liquid ☐ Drinking Water ☐ Ground Water ☐ Waste Water ☐ Sludge ☐ Soil ☐ Wipe ☐ Paint ☐ Solid ☑ Other Water
16. Comments:
17. Sample Check-In completed by **Truesdail** Log-In/Receiving: 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

September 9, 2013

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

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK IM3PLANT-WDR-429 PROJECT, GROUNDWATER MONITORING, TLI NO.: 809689

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-429 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 August 27, 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 violations or nonconformance actions occurred for this data package.

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

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

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

Laboratory No.: 809689
Date: September 9, 2013
Collected: August 27, 2013
Received: August 27, 2013

ANALYST LIST

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

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING
Established 1931
14201 FRANKLIN AVENUE · TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462 · www.truesdail.com

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

Laboratory No.: 809689
Date Received: August 27, 2013

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

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
809689-001	SC-700B-WDR-429	E120.1	NONE	8/27/2013	12:45	EC	7190	umhos/cm	2.00
809689-001	SC-700B-WDR-429	E200.8	NONE	8/27/2013	12:45	Chromium	ND	ug/L	1.0
809689-001	SC-700B-WDR-429	E200.8	NONE	8/27/2013	12:45	Manganese	1.3	ug/L	0.50
809689-001	SC-700B-WDR-429	E218.6	LABFLT	8/27/2013	12:45	Chromium, Hexavalent	ND	ug/L	0.20
809689-001	SC-700B-WDR-429	SM2130B	NONE	8/27/2013	12:45	Turbidity	ND	NTU	0.100
809689-001	SC-700B-WDR-429	SM2540C	NONE	8/27/2013	12:45	Total Dissolved Solids	4390	mg/L	250

ND: Non Detected (below reporting limit)
mg/L: Milligrams per liter.
Note: The following "Significant Figures" rule has been applied to all results:
Results below 0.01ppm will have two (2) significant figures.
Result above or equal to 0.01ppm will have three (3) significant figures.
Quality Control data will always have three (3) significant figures.

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

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

REPORT

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

Laboratory No. 809689

Printed 9/9/2013

Samples Received on 8/27/2013 8:00:00 PM

Field ID	Lab ID	Collected	Matrix
SC-700B-WDR-429	809689-001	08/27/2013 12:45	Water

Specific Conductivity - EPA 120.1 Batch 08EC13G

Parameter	Unit	Analyzed	DF	MDL	RL	Result
809689-001 Specific Conductivity	umhos/cm	08/29/2013	1.00	0.606	2.00	7190

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate — Lab ID = 809722-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	796	793	0.378	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	734	706	104	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	760	706	108	90 - 110

MRCVS - Primary

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

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

Client: E2 Consulting Engineers, Inc.

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

Chrome VI by EPA 218.6

Batch 08CrH13O

Parameter	Unit	Analyzed	DF	MDL	RL	Result
809689-001 Chromium, Hexavalent	ug/L	08/28/2013 08:42	1.00	0.00920	0.20	ND

Method Blank

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

Duplicate — Lab ID = 809658-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	13.6	13.6	0.235	0 - 20

Low Level Calibration Verification

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

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.84	5.00	96.7	90 - 110

Matrix Spike — Lab ID = 809657-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	6.74	6.73(5.00)	100	90 - 110

Matrix Spike — Lab ID = 809657-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	7.88	8.06(5.00)	96.4	90 - 110

Matrix Spike — Lab ID = 809657-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	7.64	8.02(5.00)	92.4	90 - 110

Matrix Spike — Lab ID = 809657-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	8.84	9.05(5.00)	95.9	90 - 110

Matrix Spike — Lab ID = 809657-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	8.24	8.43(5.00)	96.1	90 - 110

Matrix Spike — Lab ID = 809657-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	6.85	7.08(5.00)	95.3	90 - 110

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

Matrix Spike — Lab ID = 809658-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.983	1.00(1.00)	98.3	90 - 110

Matrix Spike — Lab ID = 809659-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	16.5	16.6(10.0)	99.2	90 - 110

Matrix Spike — Lab ID = 809659-003

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

Matrix Spike — Lab ID = 809689-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.23	1.19(1.00)	104	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.85	5.00	97.0	90 - 110

MRCVS - Primary

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

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	10.4	10.0	104	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	10.3	10.0	103	95 - 105

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

Client: E2 Consulting Engineers, Inc.

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

Metals by EPA 200.8, Total

Batch 090513A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
809689-001 Chromium	ug/L	09/05/2013 19:36	1.00	0.0920	1.0	ND
Manganese	ug/L	09/05/2013 19:36	1.00	0.0860	0.50	1.3

Method Blank

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

Duplicate

Lab ID = 809689-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Arsenic	ug/L	1.00	ND	0	0	0 - 20
Chromium	ug/L	1.00	ND	0	0	0 - 20
Nickel	ug/L	1.00	0.915	0	0	0 - 20
Copper	ug/L	1.00	ND	0	0	0 - 20
Manganese	ug/L	1.00	1.20	1.28	6.53	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	0.504	0.500	101	70 - 130
Chromium	ug/L	1.00	0.641	0.500	128	70 - 130
Nickel	ug/L	1.00	1.92	2.00	95.8	70 - 130
Copper	ug/L	1.00	0.950	1.00	95.0	70 - 130
Manganese	ug/L	1.00	0.541	0.500	108	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	49.1	50.0	98.2	85 - 115
Chromium	ug/L	1.00	48.9	50.0	97.9	85 - 115
Nickel	ug/L	1.00	48.9	50.0	97.7	85 - 115
Copper	ug/L	1.00	47.9	50.0	95.8	85 - 115
Manganese	ug/L	1.00	48.9	50.0	97.8	85 - 115

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 Printed 9/9/2013

Matrix Spike — Lab ID = 809689-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	1.00	50.4	50.0(50.0)	101	75 - 125
Chromium	ug/L	1.00	50.0	50.0(50.0)	99.9	75 - 125
Nickel	ug/L	1.00	46.0	50.0(50.0)	91.9	75 - 125
Copper	ug/L	1.00	44.7	50.0(50.0)	89.4	75 - 125
Manganese	ug/L	1.00	51.9	51.3(50.0)	101	75 - 125

Matrix Spike Duplicate — Lab ID = 809689-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	1.00	52.9	50.0(50.0)	106	75 - 125
Chromium	ug/L	1.00	52.9	50.0(50.0)	106	75 - 125
Nickel	ug/L	1.00	48.4	50.0(50.0)	96.7	75 - 125
Copper	ug/L	1.00	47.4	50.0(50.0)	94.8	75 - 125
Manganese	ug/L	1.00	53.3	51.3(50.0)	104	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	20.7	20.0	103	90 - 110
Chromium	ug/L	1.00	20.4	20.0	102	90 - 110
Nickel	ug/L	1.00	20.6	20.0	103	90 - 110
Copper	ug/L	1.00	20.2	20.0	101	90 - 110
Manganese	ug/L	1.00	20.5	20.0	102	90 - 110

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	19.6	20.0	98.2	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.1	20.0	101	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.8	20.0	99.3	90 - 110
Nickel	ug/L	1.00	19.7	20.0	98.6	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.

Total Dissolved Solids by SM 2540 C

Batch 08TDS13I

Parameter	Unit	Analyzed	DF	MDL	RL	Result
809689-001 Total Dissolved Solids	mg/L	08/30/2013	1.00	1.76	250	4390

Method Blank

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

Duplicate — Lab ID = 809689-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	4320	4390	1.61	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Dissolved Solids	mg/L	1.00	506	500	101	90 - 110

Turbidity by SM 2130 B

Batch 08TUC13P

Parameter	Unit	Analyzed	DF	MDL	RL	Result
809689-001 Turbidity	NTU	08/29/2013	1.00	0.0140	0.100	ND

Method Blank

Parameter	Unit	DF	Result
Turbidity	NTU	1.00	ND

Duplicate — Lab ID = 809689-001

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	8.30	8.00	104	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	8.28	8.00	104	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

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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

Truesdail Laboratories, Inc.

Total Dissolved Solids by SM 2540 C

Calculations

Batch: 08TDS13I
Date Analyzed: 8/30/13

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	78.3943	78.3943	78.3943	0.0000	No	0.0000	0.0	25.0	ND	1
809689	10	72.6356	72.6798	72.6795	0.0003	No	0.0439	4390.0	250.0	4390.0	1
809720-2	200	103.7312	103.7474	103.7474	0.0000	No	0.0162	81.0	12.5	81.0	1
809722-1	100	74.6558	74.7018	74.7018	0.0000	No	0.0460	460.0	25.0	460.0	1
809722-2	100	74.048	74.0935	74.0934	0.0001	No	0.0454	454.0	25.0	454.0	1
809694-1	100	68.3719	68.4227	68.4226	0.0001	No	0.0507	507.0	25.0	507.0	1
809694-2	100	76.1856	76.2319	76.2316	0.0003	No	0.0460	460.0	25.0	460.0	1
809694-3	100	71.3051	71.3553	71.3552	0.0001	No	0.0501	501.0	25.0	501.0	1
809694-4	100	65.6776	65.7282	65.7279	0.0003	No	0.0503	503.0	25.0	503.0	1
809689D	10	49.514	49.5574	49.5572	0.0002	No	0.0432	4320.0	250.0	4320.0	1
LCS	100	73.4405	73.4912	73.4911	0.0001	No	0.0506	506.0	25.0	506.0	1

Calculation as follows:

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

Where:

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

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

Laboratory Control Sample (LCS) Summary

QC Std I.D.	Measurd Value, ppm	Theoretical Value, ppm	Percent Rec	Acceptance Limit	QC Within Control?
LCS1	506	500	101.2%	90-110%	Yes
LCSD					

LCS Recovery

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

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

Duplicate Determinations Difference Summary

Lab Number	Sample Weight, g	Sample Dup Weight, g	% RPD	Acceptance Limit	QC Within Control?
809689	0.0439	0.0432	0.8%	≤5%	Yes

Duplicate Determination Difference

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

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

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

Jenny T.
Analyst Printed Name

Analyst Signature

Maksim G.
Reviewer Printed Name

Reviewer Signature

WetChem TDS_2012.xls

Total Dissolved Solids by SM 2540 C

TDS/EC CHECK

Batch: 08TDS13I
Date Analyzed: 8/30/13

Laboratory Number	EC	TDS/EC Ratio: 0.55-.9	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
809689	7190	0.61	4673.5	0.94
809720-2	142	0.57	92.3	0.88
809722-1	841	0.55	546.65	0.84
809722-2	793	0.57	515.45	0.88
809694-1	908	0.56	590.2	0.86
809694-2	821	0.56	533.65	0.86
809694-3	901	0.56	585.65	0.86
809694-4	896	0.56	582.4	0.86
809689D	7190	0.60	4673.5	0.92
LCS				

Rec'd 08/27/13
S20b 809689

809689

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-429]

COC Number
TURNAROUND TIME 10 Days
DATE 08/27/13 PAGE 1 OF 1

COMPANY: E2
PROJECT NAME: PG&E Topock
PHONE: (530) 229-3303 FAX: (530) 339-3303
ADDRESS: 155 Grand Ave Ste 1000, Oakland, CA 94612
P.O. NUMBER: 456827.01.DM TEAM: 1
SAMPLERS (SIGNATURE):

SAMPLE I.D.	DATE	TIME	DESCRIPTION	Cr6 (218.6) Lab Filtered	Total Metals (200.7) Cr, Mn	Specific Conductance (120.1)	TDS (SM2540C)	Turbidity (SM2130)								NUMBER OF CONTAINERS	COMMENTS
SC-700B-WDR-429	08/27/13	1245	Water	x	x	x	x		x							3	pH = 6 (200.7)
																3	TOTAL NUMBER OF CONTAINERS

ALERT !!
Level III QC

For Sample Conditions
See Form Attached

CHAIN OF CUSTODY SIGNATURE RECORD

	Printed Name	Company/ Agency	Date/ Time
Signature (Relinquished)	J ADE	E2	8/27/13 15:00
Signature (Received)	Hipolito	TCL	8-27-13 15:00
Signature (Relinquished)	Hipolito	TCL	8-27-13 20:00
Signature (Received)	Shelly Brady	TCL	8/27/13 20:00
Signature (Relinquished)			
Signature (Received)			

SAMPLE CONDITIONS
RECEIVED COOL ☑ WARM ☐ 3.9 °C
CUSTODY SEALED YES ☐ NO ☑

SPECIAL REQUIREMENTS:

043

Hexavalent Chromium

Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
8/27/13	809657-5	9.5	N/A	N/A	N/A	NE
↓	↓ -6	↓	↓	↓	↓	↓
8/27/13	809658-1	9.5	N/A	N/A	N/A	NE
↓	↓ -2	↓	↓	↓	↓	↓
8/27/13	809659-1	9.5	N/A	N/A	N/A	NE
↓	↓ -2	↓	↓	↓	↓	↓
↓	↓ -3	↓	↓	↓	↓	↓
8/27/13	809662-1	7.0	2ml/100ml	9.5	7:40	NE
↓	↓ -2	↓	↓	↓	↓	TM
8/28/13	809639	7.0	2ml/100ml	9.5	7:20	NE

NE 8/28/13

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

TRUESDAIL LABORATORIES, INC.

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
809776-1,2	71	<2	9/4/13	DL	yes			
809771	<1	>2	↓	↓	NO	1200		
809773 1-3	↓	↓	↓	↓	↓	↓		
809783-4,5,6	↓	>2	9/4/13	DL	NO	14:10		
809689	<1	>2	9/4/13	ES	Yes	11:00		pH <2
809726 (1-3)	↓	<2	↓	↓	↓			
809778 (1-2)	↓	>2	↓	↓	↓	11:00		filtered then acidify pH<2
809779 (-2)	↓	↓	↓	↓	↓	↓		↓
809779 (1-2)	↓	<2	↓	↓	↓			TOTAL
809785	>1	↓	9/4/13	DL	yes			
809796-1→4	>1	<2	9/5/13	DL	yes			
DL 9/5/13 ~~809720-2~~	~~<1~~	~~>2~~	~~↓~~	~~↓~~	~~NO~~	~~10:30~~		
809787	<1	<2	9/5/13	ES	yes			
809789	↓	↓	↓	↓	↓			
809789 (10-12)	↓	>2	↓	↓	NO	4:30		
809790 (1-2)	>2	<2	↓	↓	yes			
809800	<2	<2	↓	↓	↓			
809801	↓	↓	↓	↓	↓			
809802 (1-2)	↓	↓	↓	↓	↓			
809803	↓	↓	↓	↓	↓			
809814	↓	↓	↓	↓	↓			
809824	<1	<2	9/6/13	DL	yes			
809817-17,24	↓	>2	↓	↓	NO	10:45		
809818	↓	↓	↓	↓	↓	↓		
809834	<1	<2	9/6/13	ES	yes			
809835	↓	↓	↓	↓	↓			
809837	<1	>2	9/6/13	DL	NO	14:40		

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

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: E 2 **Lab #** 809689

Date Delivered: 08/27 / 13 **Time:** 20:00 **By:** ☐ Mail ☑ Field Service ☐ Client

1. Was a Chain of Custody received and signed? ☑ Yes ☐ No ☐ N/A
2. Does Customer require an acknowledgement of the COC? ☐ Yes ☐ No ☑ N/A
3. Are there any special requirements or notes on the COC? ☐ Yes ☐ No ☑ N/A
4. If a letter was sent with the COC, does it match the COC? ☐ Yes ☐ No ☑ N/A
5. Were all requested analyses understood and acceptable? ☑ Yes ☐ No ☐ N/A
6. Were samples received in a chilled condition? ☑ Yes ☐ No ☐ N/A
   Temperature (if yes)? 3.9 °C
7. Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc.)? ☑ Yes ☐ No ☐ N/A
8. Were sample custody seals intact? ☐ Yes ☐ No ☑ N/A
9. Does the number of samples received agree with COC? ☑ Yes ☐ No ☐ N/A
10. Did sample labels correspond with the client ID's? ☑ Yes ☐ No ☐ N/A
11. Did sample labels indicate proper preservation? ☐ Yes ☐ No ☑ N/A
    Preserved (if yes) by: ☐ **Truesdail** ☐ Client
12. Were samples pH checked? pH = See C.O.C. ☑ Yes ☐ No ☐ N/A
13. Were all analyses within holding time at time of receipt? ☑ Yes ☐ No ☐ N/A
    If not, notify Project Manager.
14. Have Project due dates been checked and accepted? ☑ Yes ☐ No ☐ N/A
    Turn Around Time (TAT): ☐ **RUSH** ☑ Std
15. **Sample Matrix:** ☐ Liquid ☐ Drinking Water ☐ Ground Water ☐ Waste Water ☐ Sludge ☐ Soil ☐ Wipe ☐ Paint ☐ Solid ☑ Other Water
16. Comments: _____
17. Sample Check-In completed by **Truesdail** Log-In/Receiving: Linda

ALERT !! Level III QC

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

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	8-6-13	1335	8-6-13	1340	METER #1	8-6-13	0001	53.3	Ryan Phelps	7.2
Notes: -										
SC-700B	8-6-13	1415	8-6-13	1430	METER #1	8-6-13	0001	53.3	[illegible]	6.9
Notes:										
SC-700B	8-12-13	0730	8-12-13	0740	METER #1	8-12-13	0001	54.5	[illegible]	6.8
Notes:										
SC-700B	8-16-13	1100	8-16-13	1108	METER #1	8-16-13	1000	-54.8	Ryan Phelps	7.2
Notes:										
SC-700B	8-20-13	11:30	8-20-13	1140	METER #1	8-20-13	.0001	-54.1	[illegible]	7.1
Notes:										
SC-700B	8-27-13	1245	8-27-13	1250	METER #1	8/27/13	.0030	-52.9	[illegible]	7.4
Notes:										
SC-700B	9-3-13	~~13:30~~ 14:20	9-3-13	15:04	METER #2	9-3-13	0120	-53.3	Ryan Phelps	7.1
Notes:										

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

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

September 17, 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-430 PROJECT, GROUNDWATER MONITORING,

TLI NO.: 809779

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-430 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 September 3, 2013, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

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

The Laboratory Control Sample Duplicate recovery for Ammonia as Nitrogen by SM 4500-NH3 D exceeded the acceptance limits. Because the sample results were below the reporting limit and all other QA/QC were within acceptable limits, the data was accepted.

No violations or nonconformance actions occurred for this data package.

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

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

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

Laboratory No.: 809779
Date: September 17, 2013
Collected: September 3, 2013
Received: September 3, 2013

ANALYST LIST

METHOD	PARAMETER	ANALYST
EPA 120.1	Specific Conductivity	Jenny Tankunakorn
SM 2540C	Total Dissolved Solids	Jenny Tankunakorn
SM 2320B	Total Alkalinity	Kim Luck
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	Kim Luck
EPA 300.0	Anions	Giawad Ghenniwa
SM 4500-NH3 D	Ammonia	Maria Mangarova
SM 4500-NO2 B	Nitrite as N	Jenny Tankunakorn
EPA 200.7	Metals by ICP	Denise Chauv
EPA 200.8	Metals by ICP/MS	Ethel Suico
EPA 218.6	Hexavalent Chromium	Naheed Eidinejad

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

Laboratory No.: 809779
Date Received: September 3, 2013

Attention: Shawn Duffy

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

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
809779-001	SC-700B-WDR-430	E120.1	NONE	9/3/2013	14:20	EC	7290	umhos/cm	2.00
809779-001	SC-700B-WDR-430	E200.7	NONE	9/3/2013	14:20	Aluminum	ND	ug/L	50.0
809779-001	SC-700B-WDR-430	E200.7	NONE	9/3/2013	14:20	BORON	923	ug/L	200
809779-001	SC-700B-WDR-430	E200.7	NONE	9/3/2013	14:20	Iron	ND	ug/L	20.0
809779-001	SC-700B-WDR-430	E200.7	NONE	9/3/2013	14:20	Zinc	ND	ug/L	20.0
809779-001	SC-700B-WDR-430	E200.8	NONE	9/3/2013	14:20	Antimony	ND	ug/L	2.0
809779-001	SC-700B-WDR-430	E200.8	NONE	9/3/2013	14:20	Arsenic	ND	ug/L	0.50
809779-001	SC-700B-WDR-430	E200.8	NONE	9/3/2013	14:20	Barium	10.4	ug/L	5.0
809779-001	SC-700B-WDR-430	E200.8	NONE	9/3/2013	14:20	Chromium	ND	ug/L	1.0
809779-001	SC-700B-WDR-430	E200.8	NONE	9/3/2013	14:20	Copper	ND	ug/L	5.0
809779-001	SC-700B-WDR-430	E200.8	NONE	9/3/2013	14:20	Lead	ND	ug/L	1.0
809779-001	SC-700B-WDR-430	E200.8	NONE	9/3/2013	14:20	Manganese	0.86	ug/L	0.50
809779-001	SC-700B-WDR-430	E200.8	NONE	9/3/2013	14:20	Molybdenum	20.5	ug/L	2.0
809779-001	SC-700B-WDR-430	E200.8	NONE	9/3/2013	14:20	Nickel	ND	ug/L	2.0
809779-001	SC-700B-WDR-430	E218.6	LABFLT	9/3/2013	14:20	Chromium, Hexavalent	ND	ug/L	0.20
809779-001	SC-700B-WDR-430	E300	NONE	9/3/2013	14:20	Fluoride	2.02	mg/L	0.500
809779-001	SC-700B-WDR-430	E300	NONE	9/3/2013	14:20	Nitrate as N	2.87	mg/L	0.500
809779-001	SC-700B-WDR-430	E300	NONE	9/3/2013	14:20	Sulfate	506	mg/L	25.0
809779-001	SC-700B-WDR-430	SM2130B	NONE	9/3/2013	14:20	Turbidity	ND	NTU	0.100
809779-001	SC-700B-WDR-430	SM2540C	NONE	9/3/2013	14:20	Total Dissolved Solids	4600	mg/L	250
809779-001	SC-700B-WDR-430	SM4500NH3D	NONE	9/3/2013	14:20	Ammonia-N	ND	mg/L	0.500
809779-001	SC-700B-WDR-430	SM4500NO2B	NONE	9/3/2013	14:20	Nitrite as N	ND	mg/L	0.0050

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

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
809779-002	SC-100B-WDR-430	E120.1	NONE	9/3/2013	14:00	EC	7260	umhos/cm	2.00
809779-002	SC-100B-WDR-430	E200.7	NONE	9/3/2013	14:00	Aluminum	ND	ug/L	50.0
809779-002	SC-100B-WDR-430	E200.7	NONE	9/3/2013	14:00	BORON	946	ug/L	200.0
809779-002	SC-100B-WDR-430	E200.7	NONE	9/3/2013	14:00	Iron	ND	ug/L	20.0
809779-002	SC-100B-WDR-430	E200.7	LABFLT	9/3/2013	14:00	Iron	ND	ug/L	20.0
809779-002	SC-100B-WDR-430	E200.7	NONE	9/3/2013	14:00	Zinc	ND	ug/L	20.0
809779-002	SC-100B-WDR-430	E200.8	NONE	9/3/2013	14:00	Antimony	ND	ug/L	2.0
809779-002	SC-100B-WDR-430	E200.8	NONE	9/3/2013	14:00	Arsenic	3.6	ug/L	0.50
809779-002	SC-100B-WDR-430	E200.8	NONE	9/3/2013	14:00	Barium	26.9	ug/L	5.0
809779-002	SC-100B-WDR-430	E200.8	NONE	9/3/2013	14:00	Chromium	694	ug/L	5.0
809779-002	SC-100B-WDR-430	E200.8	NONE	9/3/2013	14:00	Copper	ND	ug/L	5.0
809779-002	SC-100B-WDR-430	E200.8	NONE	9/3/2013	14:00	Lead	ND	ug/L	1.0
809779-002	SC-100B-WDR-430	E200.8	NONE	9/3/2013	14:00	Manganese	4.5	ug/L	0.50
809779-002	SC-100B-WDR-430	E200.8	LABFLT	9/3/2013	14:00	Manganese	4.2	ug/L	0.50
809779-002	SC-100B-WDR-430	E200.8	NONE	9/3/2013	14:00	Molybdenum	19.9	ug/L	2.0
809779-002	SC-100B-WDR-430	E200.8	NONE	9/3/2013	14:00	Nickel	ND	ug/L	2.0
809779-002	SC-100B-WDR-430	E218.6	LABFLT	9/3/2013	14:00	Chromium, Hexavalent	648	ug/L	10.0
809779-002	SC-100B-WDR-430	E300	NONE	9/3/2013	14:00	Fluoride	2.50	mg/L	0.500
809779-002	SC-100B-WDR-430	E300	NONE	9/3/2013	14:00	Nitrate as N	2.98	mg/L	0.500
809779-002	SC-100B-WDR-430	E300	NONE	9/3/2013	14:00	Sulfate	550	mg/L	50.0
809779-002	SC-100B-WDR-430	SM2130B	NONE	9/3/2013	14:00	Turbidity	ND	NTU	0.100
809779-002	SC-100B-WDR-430	SM2320B	NONE	9/3/2013	14:00	Alkalinity	165	mg/L	5.00
809779-002	SC-100B-WDR-430	SM2320B	NONE	9/3/2013	14:00	Alkalinity, Bicarbonate (As CaCO3)	165	mg/L	5.00
809779-002	SC-100B-WDR-430	SM2320B	NONE	9/3/2013	14:00	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
809779-002	SC-100B-WDR-430	SM2540C	NONE	9/3/2013	14:00	Total Dissolved Solids	4560	mg/L	250
809779-002	SC-100B-WDR-430	SM4500NH3D	NONE	9/3/2013	14:00	Ammonia-N	ND	mg/L	0.500
809779-002	SC-100B-WDR-430	SM4500NO2B	NONE	9/3/2013	14:00	Nitrite as N	ND	mg/L	0.0050
809779-002	SC-100B-WDR-430	SM4500-PB_E	NONE	9/3/2013	14:00	Total Phosphorous-P	ND	mg/L	0.0200
809779-002	SC-100B-WDR-430	SM4500SI	LABFLT	9/3/2013	14:00	Soluble Silica	20.5	mg/L	1.00
809779-002	SC-100B-WDR-430	SM5310C	NONE	9/3/2013	14:00	Total Organic Carbon	1.02	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
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: IM.CS.EX.AC
P.O. Number: PGEIM11111001
Release Number:

Laboratory No. 809779

Printed 9/17/2013

Samples Received on 9/3/2013 7:00:00 PM

Field ID	Lab ID	Collected	Matrix
SC-700B-WDR-430	809779-001	09/03/2013 14:20	Water
SC-100B-WDR-430	809779-002	09/03/2013 14:00	Water

Anions By I.C. - EPA 300.0 Batch 09AN13A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
809779-001 Fluoride	mg/L	09/04/2013 10:55	5.00	0.104	0.500	2.02
Nitrate as Nitrogen	mg/L	09/04/2013 10:55	5.00	0.0415	0.500	2.87
Sulfate	mg/L	09/04/2013 11:40	50.0	1.54	25.0	506
809779-002 Fluoride	mg/L	09/04/2013 11:06	5.00	0.104	0.500	2.50
Nitrate as Nitrogen	mg/L	09/04/2013 11:06	5.00	0.0415	0.500	2.98
Sulfate	mg/L	09/04/2013 11:52	100	3.07	50.0	550

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 = 809779-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Fluoride	mg/L	5.00	2.47	2.50	1.13	0 - 20
Sulfate	mg/L	100	550	550	0.0595	0 - 20
Nitrate as Nitrogen	mg/L	5.00	2.96	2.98	0.707	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Fluoride	mg/L	1.00	4.14	4.00	104	90 - 110
Sulfate	mg/L	1.00	20.1	20.0	100	90 - 110
Nitrate as Nitrogen	mg/L	1.00	4.01	4.00	100	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: IM.CS.EX.AC

Matrix Spike — Lab ID = 809779-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Fluoride	mg/L	5.00	22.1	22.5(20.0)	98.0	85 - 115
Sulfate	mg/L	100	1640	1550(1000)	109	85 - 115
Nitrate as Nitrogen	mg/L	5.00	23.7	23.0(20.0)	103	85 - 115

MRCCS - Secondary

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	20.0	20.0	100	90 - 110
Nitrate as Nitrogen	mg/L	1.00	4.00	4.00	100	90 - 110

MRCVS - Primary

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

MRCVS - Primary

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

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Fluoride	mg/L	1.00	3.18	3.00	106	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sulfate	mg/L	1.00	15.1	15.0	100	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sulfate	mg/L	1.00	15.1	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
Nitrate as Nitrogen	mg/L	1.00	3.00	3.00	100	90 - 110

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

MRCVS - Primary

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

Nitrite SM 4500-NO2 B

Batch 09NO213A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
809779-001 Nitrite as Nitrogen	mg/L	09/04/2013 14:15	1.00	0.000630	0.0050	ND
809779-002 Nitrite as Nitrogen	mg/L	09/04/2013 14:20	1.00	0.000630	0.0050	ND

Method Blank

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

Duplicate — Lab ID = 809779-002

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	0.0255	0.0280	91.1	90 - 110

Matrix Spike — Lab ID = 809779-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Nitrite as Nitrogen	mg/L	1.00	0.0260	0.0280(0.0280)	92.8	85 - 115

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrite as Nitrogen	mg/L	1.00	0.0255	0.0280	91.1	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrite as Nitrogen	mg/L	1.00	0.0188	0.0200	94.0	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrite as Nitrogen	mg/L	1.00	0.0188	0.0200	94.0	90 - 110

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

Client: E2 Consulting Engineers, Inc.

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

Alkalinity by SM 2320B

Batch 09ALK13A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
809779-002 Alkalinity as CaCO3	mg/L	09/05/2013	1.00	1.68	5.00	165
Bicarbonate (Calculated)	mg/L	09/05/2013	1.00	1.68	5.00	165
Carbonate (Calculated)	mg/L	09/05/2013	1.00	1.68	5.00	ND

Method Blank

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

Duplicate — Lab ID = 809779-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Alkalinity as CaCO3	mg/L	1.00	165	165	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	98.0	100	98.0	90 - 110

Matrix Spike — Lab ID = 809779-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Alkalinity as CaCO3	mg/L	1.00	246	265(100)	81.0	75 - 125

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: IM.CS.EX.AC

Specific Conductivity - EPA 120.1

Batch 09EC13A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
809779-001 Specific Conductivity	umhos/cm	09/05/2013	1.00	0.606	2.00	7290
809779-002 Specific Conductivity	umhos/cm	09/05/2013	1.00	0.606	2.00	7260

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate — Lab ID = 809694-004

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	900	896	0.445	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	734	706	104	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	736	706	104	90 - 110

MRCVS - Primary

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

MRCVS - Primary

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

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

Client: E2 Consulting Engineers, Inc.

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

Chrome VI by EPA 218.6

Batch 09CrH13A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
809779-001 Chromium, Hexavalent	ug/L	09/05/2013 13:19	1.00	0.00920	0.20	ND
809779-002 Chromium, Hexavalent	ug/L	09/05/2013 14:29	50.0	0.460	10.0	648

Method Blank

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

Duplicate — Lab ID = 809778-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.18	5.14	0.679	0 - 20

Low Level Calibration Verification

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

Lab Control Sample

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

Matrix Spike — Lab ID = 809778-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	15.2	15.1(10.0)	101	90 - 110

Matrix Spike — Lab ID = 809779-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.12	1.15(1.00)	97.4	90 - 110

Matrix Spike — Lab ID = 809779-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	1350	1400(750)	94.2	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.82	5.00	96.5	90 - 110

MRCVS - Primary

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

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

Metals by EPA 200.7, Total

Batch 091213A-Th2

Parameter	Unit	Analyzed	DF	MDL	RL	Result
809779-001 Aluminum	ug/L	09/12/2013 14:23	1.00	7.20	50.0	ND
Boron	ug/L	09/12/2013 14:23	1.00	4.10	200	923
Iron	ug/L	09/12/2013 14:23	1.00	3.00	20.0	ND
Zinc	ug/L	09/12/2013 14:23	1.00	5.10	20.0	ND
809779-002 Aluminum	ug/L	09/12/2013 14:49	1.00	7.20	50.0	ND
Boron	ug/L	09/12/2013 14:49	1.00	4.10	200	946
Iron	ug/L	09/12/2013 14:49	1.00	3.00	20.0	ND
Zinc	ug/L	09/12/2013 14:49	1.00	5.10	20.0	ND

Method Blank

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

Duplicate

Lab ID = 809779-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Aluminum	ug/L	1.00	ND	0	0	0 - 20
Iron	ug/L	1.00	ND	0	0	0 - 20
Zinc	ug/L	1.00	ND	0	0	0 - 20
Boron	ug/L	1.00	915	923	0.903	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Aluminum	ug/L	1.00	2120	2000	106	85 - 115
Iron	ug/L	1.00	2160	2000	108	85 - 115
Zinc	ug/L	1.00	2040	2000	102	85 - 115
Boron	ug/L	1.00	2070	2000	104	85 - 115

Matrix Spike

Lab ID = 809779-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Aluminum	ug/L	1.00	1520	2000(2000)	75.8	75 - 125
Iron	ug/L	1.00	1810	2000(2000)	90.7	75 - 125
Zinc	ug/L	1.00	2180	2000(2000)	109	75 - 125
Boron	ug/L	1.00	2710	2920(2000)	89.2	75 - 125

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: IM.CS.EX.AC

Matrix Spike Duplicate — Lab ID = 809779-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Aluminum	ug/L	1.00	1520	2000(2000)	76.1	75 - 125
Iron	ug/L	1.00	1870	2000(2000)	93.4	75 - 125
Zinc	ug/L	1.00	2220	2000(2000)	111	75 - 125
Boron	ug/L	1.00	2760	2920(2000)	92.1	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Aluminum	ug/L	1.00	5080	5000	102	95 - 105
Iron	ug/L	1.00	5060	5000	101	95 - 105
Zinc	ug/L	1.00	5180	5000	104	95 - 105
Boron	ug/L	1.00	5090	5000	102	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Aluminum	ug/L	1.00	5070	5000	101	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Aluminum	ug/L	1.00	5130	5000	103	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Aluminum	ug/L	1.00	5150	5000	103	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5190	5000	104	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5060	5000	101	90 - 110

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Zinc	ug/L	1.00	5080	5000	102	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Zinc	ug/L	1.00	5130	5000	103	90 - 110

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

Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project
Project Number: IM.CS.EX.AC

Metals by EPA 200.8, Total Batch 090513A

Parameter		Unit	Analyzed	DF	MDL	RL	Result
809779-001	Antimony	ug/L	09/05/2013 20:42	1.00	0.332	2.0	ND
	Arsenic	ug/L	09/05/2013 20:42	1.00	0.100	0.50	ND
	Barium	ug/L	09/05/2013 20:42	1.00	0.188	5.0	10.4
	Chromium	ug/L	09/05/2013 20:42	1.00	0.0920	1.0	ND
	Copper	ug/L	09/05/2013 20:42	1.00	0.257	5.0	ND
	Lead	ug/L	09/05/2013 20:42	1.00	0.0740	1.0	ND
	Manganese	ug/L	09/05/2013 20:42	1.00	0.0860	0.50	0.86
	Molybdenum	ug/L	09/05/2013 20:42	1.00	0.207	2.0	20.5
	Nickel	ug/L	09/05/2013 20:42	1.00	0.786	2.0	ND
809779-002	Antimony	ug/L	09/05/2013 20:48	1.00	0.332	2.0	ND
	Arsenic	ug/L	09/05/2013 20:48	1.00	0.100	0.50	3.6
	Barium	ug/L	09/05/2013 20:48	1.00	0.188	5.0	26.9
	Chromium	ug/L	09/05/2013 21:00	10.0	0.920	5.0	694
	Copper	ug/L	09/05/2013 20:48	1.00	0.257	5.0	ND
	Lead	ug/L	09/05/2013 20:48	1.00	0.0740	1.0	ND
	Manganese	ug/L	09/05/2013 20:48	1.00	0.0860	0.50	4.5
	Molybdenum	ug/L	09/05/2013 20:48	1.00	0.207	2.0	19.9
	Nickel	ug/L	09/05/2013 20:48	1.00	0.786	2.0	ND

Method Blank

Parameter	Unit	DF	Result
Arsenic	ug/L	1.00	ND
Barium	ug/L	1.00	ND
Chromium	ug/L	1.00	ND
Nickel	ug/L	1.00	ND
Antimony	ug/L	1.00	ND
Copper	ug/L	1.00	ND
Lead	ug/L	1.00	ND
Uranium	ug/L	1.00	ND
Manganese	ug/L	1.00	ND
Molybdenum	ug/L	1.00	ND

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: IM.CS.EX.AC

Duplicate

Lab ID = 809689-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Arsenic	ug/L	1.00	ND	0	0	0 - 20
Barium	ug/L	1.00	14.6	14.9	2.01	0 - 20
Chromium	ug/L	1.00	ND	0	0	0 - 20
Nickel	ug/L	1.00	0.915	0	0	0 - 20
Antimony	ug/L	1.00	ND	0	0	0 - 20
Copper	ug/L	1.00	ND	0	0	0 - 20
Lead	ug/L	1.00	ND	0	0	0 - 20
Uranium	ug/L	1.00	3.19	3.29	3.09	0 - 20
Manganese	ug/L	1.00	1.20	1.28	6.53	0 - 20
Molybdenum	ug/L	1.00	17.6	18.2	3.19	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	0.504	0.500	101	70 - 130
Barium	ug/L	1.00	0.556	0.500	111	70 - 130
Chromium	ug/L	1.00	0.641	0.500	128	70 - 130
Nickel	ug/L	1.00	1.92	2.00	95.8	70 - 130
Antimony	ug/L	1.00	0.982	1.00	98.2	70 - 130
Copper	ug/L	1.00	0.950	1.00	95.0	70 - 130
Lead	ug/L	1.00	0.496	0.500	99.2	70 - 130
Uranium	ug/L	1.00	0.473	0.500	94.6	70 - 130
Manganese	ug/L	1.00	0.541	0.500	108	70 - 130
Molybdenum	ug/L	1.00	0.488	0.500	97.6	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	49.1	50.0	98.2	85 - 115
Barium	ug/L	1.00	49.9	50.0	99.8	85 - 115
Chromium	ug/L	1.00	48.9	50.0	97.9	85 - 115
Nickel	ug/L	1.00	48.9	50.0	97.7	85 - 115
Antimony	ug/L	1.00	50.6	50.0	101	85 - 115
Copper	ug/L	1.00	47.9	50.0	95.8	85 - 115
Lead	ug/L	1.00	49.0	50.0	98.1	85 - 115
Uranium	ug/L	1.00	49.2	50.0	98.3	85 - 115
Manganese	ug/L	1.00	48.9	50.0	97.8	85 - 115
Molybdenum	ug/L	1.00	48.6	50.0	97.2	85 - 115

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: IM.CS.EX.AC

Matrix Spike — Lab ID = 809689-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	1.00	50.4	50.0(50.0)	101	75 - 125
Barium	ug/L	1.00	65.5	64.9(50.0)	101	75 - 125
Chromium	ug/L	1.00	50.0	50.0(50.0)	99.9	75 - 125
Nickel	ug/L	1.00	46.0	50.0(50.0)	91.9	75 - 125
Antimony	ug/L	1.00	51.0	50.0(50.0)	102	75 - 125
Copper	ug/L	1.00	44.7	50.0(50.0)	89.4	75 - 125
Lead	ug/L	1.00	44.1	50.0(50.0)	88.3	75 - 125
Uranium	ug/L	1.00	51.6	53.3(50.0)	96.7	75 - 125
Manganese	ug/L	1.00	51.9	51.3(50.0)	101	75 - 125
Molybdenum	ug/L	1.00	66.1	68.2(50.0)	95.7	75 - 125

Matrix Spike Duplicate — Lab ID = 809689-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	1.00	52.9	50.0(50.0)	106	75 - 125
Barium	ug/L	1.00	64.0	64.9(50.0)	98.2	75 - 125
Chromium	ug/L	1.00	52.9	50.0(50.0)	106	75 - 125
Nickel	ug/L	1.00	48.4	50.0(50.0)	96.7	75 - 125
Antimony	ug/L	1.00	49.6	50.0(50.0)	99.2	75 - 125
Copper	ug/L	1.00	47.4	50.0(50.0)	94.8	75 - 125
Lead	ug/L	1.00	42.7	50.0(50.0)	85.3	75 - 125
Uranium	ug/L	1.00	49.8	53.3(50.0)	92.9	75 - 125
Manganese	ug/L	1.00	53.3	51.3(50.0)	104	75 - 125
Molybdenum	ug/L	1.00	64.2	68.2(50.0)	92.1	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	20.7	20.0	103	90 - 110
Barium	ug/L	1.00	19.8	20.0	99.1	90 - 110
Chromium	ug/L	1.00	20.4	20.0	102	90 - 110
Nickel	ug/L	1.00	20.6	20.0	103	90 - 110
Antimony	ug/L	1.00	19.8	20.0	98.9	90 - 110
Copper	ug/L	1.00	20.2	20.0	101	90 - 110
Lead	ug/L	1.00	19.5	20.0	97.7	90 - 110
Uranium	ug/L	1.00	19.5	20.0	97.3	90 - 110
Manganese	ug/L	1.00	20.5	20.0	102	90 - 110
Molybdenum	ug/L	1.00	19.4	20.0	97.1	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.

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	20.3	20.0	102	80 - 120

Interference Check Standard AB

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

Interference Check Standard AB

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

Serial Dilution Lab ID = 809779-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Barium	ug/L	5.00	26.4	26.9	1.91	0 - 10
Chromium	ug/L	50.0	689	694	0.779	0 - 10
Molybdenum	ug/L	5.00	19.4	19.9	2.74	0 - 10

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.

Reactive Silica by SM4500-Si D

Batch 09Si13A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
809779-002 Silica	mg/L	09/10/2013	25.0	0.252	1.00	20.5

Method Blank

Parameter	Unit	DF	Result
Silica	mg/L	1.00	ND

Duplicate Lab ID = 809779-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Silica	mg/L	25.0	21.3	20.5	3.99	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Silica	mg/L	1.00	0.213	0.206	103	90 - 110

Matrix Spike Lab ID = 809779-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Silica	mg/L	25.0	25.9	25.6(5.15)	106	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Silica	mg/L	1.00	0.213	0.206	103	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Silica	mg/L	1.00	0.397	0.400	99.2	90 - 110

Total Dissolved Solids by SM 2540 C

Batch 09TDS13A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
809779-001 Total Dissolved Solids	mg/L	09/05/2013	1.00	1.76	250	4600
809779-002 Total Dissolved Solids	mg/L	09/05/2013	1.00	1.76	250	4560

Method Blank

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

Duplicate Lab ID = 809799-004

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	524	520	0.766	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

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

Total Organic Carbon (T/DOC) SM 5310 C

Batch 09TOC13C

Parameter	Unit	Analyzed	DF	MDL	RL	Result
809779-002 Total Organic Carbon	mg/L	09/09/2013 14:34	1.00	0.0877	0.300	1.02

Method Blank

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

Duplicate Lab ID = 809783-008

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Organic Carbon	mg/L	1.00	2.70	2.56	5.14	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Organic Carbon	mg/L	1.00	9.58	10.0	95.8	90 - 110

Matrix Spike Lab ID = 809779-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Total Organic Carbon	mg/L	1.00	9.74	11.0(10.0)	87.2	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Organic Carbon	mg/L	1.00	9.54	10.0	95.4	85 - 115

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Organic Carbon	mg/L	1.00	9.64	10.0	96.4	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Organic Carbon	mg/L	1.00	9.41	10.0	94.1	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Organic Carbon	mg/L	1.00	9.31	10.0	93.1	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.

Total Phosphate, SM 4500-PB,E

Batch 09TP13A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
809779-002 Phosphate, Total As P	mg/L	09/10/2013	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 = 809779-002

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	0.0689	0.0650	106	90 - 110

Matrix Spike Lab ID = 809779-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Phosphate, Total As P	mg/L	1.00	0.0721	0.0650(0.0650)	111	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Phosphate, Total As P	mg/L	1.00	0.0689	0.0650	106	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Phosphate, Total As P	mg/L	1.00	0.0709	0.0660	107	90 - 110

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

Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project
Project Number: IM.CS.EX.AC

Ammonia Nitrogen by SM4500-NH3D

Batch 09NH313A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
809779-001 Ammonia as N	mg/L	09/12/2013	1.00	0.0318	0.500	ND
809779-002 Ammonia as N	mg/L	09/12/2013	1.00	0.0318	0.500	ND

Method Blank

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

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	10.7	10.0	107	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	12.2	10.0	122	90 - 110

Matrix Spike

Lab ID = 809779-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	10.4	10.0(10.0)	104	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	6.21	6.00	104	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	5.83	6.00	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.

Metals by EPA 200.8, Dissolved

Batch 090613A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
809779-002 Manganese	ug/L	09/06/2013 14:36	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

Lab ID = 809778-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	2.00	5.38	5.39	0.167	0 - 20
Manganese	ug/L	2.00	53.7	53.7	0.0149	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	0.565	0.500	113	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	48.3	50.0	96.6	85 - 115
Manganese	ug/L	1.00	47.7	50.0	95.5	85 - 115

Matrix Spike

Lab ID = 809778-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	52.6	55.4(50.0)	94.4	75 - 125
Manganese	ug/L	2.00	102	104(50.0)	95.8	75 - 125

Matrix Spike Duplicate

Lab ID = 809778-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	50.5	55.4(50.0)	90.2	75 - 125
Manganese	ug/L	2.00	97.8	104(50.0)	88.2	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.2	20.0	96.0	90 - 110
Manganese	ug/L	1.00	19.1	20.0	95.3	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.4	20.0	96.9	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.

Metals by 200.7, Dissolved

Batch 091213A-Th2

Parameter	Unit	Analyzed	DF	MDL	RL	Result
809779-002 Iron	ug/L	09/12/2013 15:56	1.00	3.00	20.0	ND

Method Blank

Parameter	Unit	DF	Result
Iron	ug/L	1.00	ND

Duplicate

Lab ID = 809778-001

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	2160	2000	108	85 - 115

Matrix Spike

Lab ID = 809778-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	49.0	50.0(50.0)	98.0	75 - 125

Matrix Spike Duplicate

Lab ID = 809778-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	48.7	50.0(50.0)	97.4	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5060	5000	101	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5190	5000	104	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5060	5000	101	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	2270	2000	113	80 - 120

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.

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2210	2000	110	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2210	2000	110	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2150	2000	107	80 - 120

Turbidity by SM 2130 B Batch 07TUC13A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
809779-001 Turbidity	NTU	09/04/2013	1.00	0.0140	0.100	ND
809779-002 Turbidity	NTU	09/04/2013	1.00	0.0140	0.100	ND

Method Blank

Parameter	Unit	DF	Result
Turbidity	NTU	1.00	ND

Duplicate Lab ID = 809762-001

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	8.39	8.00	105	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	8.40	8.00	105	90 - 110

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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

Truesdail Laboratories, Inc.

Total Dissolved Solids by SM 2540 C

Calculations

Batch: 09TDS13A
Date Analyzed: 9/5/13

Laboratory Number	Sample volume, ml	Initial weight,g	1st Final weight,g	2nd Final weight,g	Weight Difference, g	Exceeds 0.5mg? Yes/No	Residue weight,g	Filterable residue, ppm	RL, ppm	Reported Value, ppm	DF
Blank	100	69.2056	69.2056	69.2056	0.0000	No	0.0000	0.0	25.0	ND	1
809767-14	100	73.1754	73.233	73.2329	0.0001	No	0.0575	575.0	25.0	575.0	1
809776-1	100	74.7083	74.7514	74.7514	0.0000	No	0.0431	431.0	25.0	431.0	1
809776-2	100	74.5998	74.6441	74.6439	0.0002	No	0.0441	441.0	25.0	441.0	1
809778-1	20	51.0342	51.0885	51.0883	0.0002	No	0.0541	2705.0	125.0	2705.0	1
809778-2	10	50.9342	50.9805	50.9805	0.0000	No	0.0463	4630.0	250.0	4630.0	1
809779-1	10	49.2718	49.3180	49.3178	0.0002	No	0.0460	4600.0	250.0	4600.0	1
809779-2	10	51.8288	51.8746	51.8744	0.0002	No	0.0456	4560.0	250.0	4560.0	1
809781-2	200	110.3607	110.3778	110.3774	0.0004	No	0.0167	83.5	12.5	83.5	1
809781-4	100	78.6128	78.6453	78.645	0.0003	No	0.0322	322.0	25.0	322.0	1
809783-7	100	78.8036	78.854	78.8536	0.0004	No	0.0500	500.0	25.0	500.0	1
809783-7D	100	70.3937	70.4443	70.4443	0.0000	No	0.0506	506.0	25.0	506.0	1
LCS	100	75.2744	75.324	75.3239	0.0001	No	0.0495	495.0	25.0	495.0	1
809802-1	100	72.3726	72.4163	72.4163	0.0000	No	0.0437	437.0	25.0	437.0	1
809802-2	100	70.8834	70.9283	70.9283	0.0000	No	0.0449	449.0	25.0	449.0	1
809799-1	100	75.0157	75.0681	75.0681	0.0000	No	0.0524	524.0	25.0	524.0	1
809799-2	100	68.1174	68.1692	68.1692	0.0000	No	0.0518	518.0	25.0	518.0	1
809799-3	100	72.0845	72.1364	72.1364	0.0000	No	0.0519	519.0	25.0	519.0	1
809799-4	100	75.2716	75.3236	75.3236	0.0000	No	0.0520	520.0	25.0	520.0	1
809799-4D	100	76.2767	76.3291	76.3291	0.0000	No	0.0524	524.0	25.0	524.0	1

Calculation as follows:

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

Where:

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

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

Laboratory Control Sample (LCS) Summary

QC Std I.D.	Measurd Value, ppm	Theoretical Value, ppm	Percent Rec	Acceptance Limit	QC Within Control?
LCS1	495	500	99.0%	90-110%	Yes
LCSD					

LCS Recovery

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

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

Duplicate Determinations Difference Summary

Lab Number	Sample Weight, g	Sample Dup Weight, g	% RPD	Acceptance Limit	QC Within Control?
809783-7	0.05	0.0506	0.6%	≤5%	Yes
809799-4	0.052	0.0524	0.4%	5%	Yes

Duplicate Determination Difference

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

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

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

Jenny T.
Analyst Printed Name

Analyst Signature

Maksim G.
Reviewer Printed Name

Reviewer Signature

WetChem TDS_2012.xls

Total Dissolved Solids by SM 2540 C

TDS/EC CHECK

Batch: 09TDS13A
Date Analyzed: 9/5/13

Laboratory Number	EC	TDS/EC Ratio: 0.55-.9	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
809767-14	872	0.66	566.8	1.01
809776-1	777	0.55	505.05	0.85
809776-2	750	0.59	487.5	0.90
809778-1	4330	0.62	2814.5	0.96
809778-2	7770	0.60	5050.5	0.92
809779-1	7290	0.63	4738.5	0.97
809779-2	7260	0.63	4719	0.97
809781-2	132	0.63	85.8	0.97
809781-4	511	0.63	332.15	0.97
809783-7	792	0.63	514.8	0.97
809783-7D	792	0.64	514.8	0.98
LCS				
809802-1	738	0.59	479.7	0.91
809802-2	687	0.65	446.55	1.01
809799-1	780	0.67	507	1.03
809799-2	775	0.67	503.75	1.03
809799-3	774	0.67	503.1	1.03
809799-4	777	0.67	505.05	1.03
809799-4D	777	0.67	505.05	1.04

TRUESDAIL LABORATORIES, INC.

Alkalinity by SM 2320B

Calculations

Date of Analysis: 9/4/13

Analytical Batch: 09ALK13A
Matrix: Water
Date Calculated: 9/5/13

Lab ID	Sample pH	Sample Volume (ml)	N of HCL	Titrant Volume to reach pH 8.3	P Alkalinity as CaCO3	Titrant Volume to reach pH 4.5	Total mL titrant to reach pH 0.3 unit lower	Total Alkalinity as CaCO3	RL, ppm	Total Alkalinity Reported Value	HCO3 Conc. as $CaCO_3$ (ppm)	CO3 Alkalinity as $CaCO_3$ (ppm)	OH Alkalinity as $CaCO_3$ (ppm)	Low Alkalinity as $CaCO_3$ (<20ppm)
BLANK	7.10	50	0.02		0.0	0.00		0.0	5	ND	ND	ND	ND	
809629-20	7.96	50	0.02		0.0	3.00		60.0	5	60.0	60.0	ND	ND	
809732-21	7.76	50	0.02		0.0	5.25		105.0	5	105.0	105.0	ND	ND	
809779-2	7.43	50	0.02		0.0	8.25		165.0	5	165.0	165.0	ND	ND	
809783-1	8.29	50	0.02		0.0	6.10		122.0	5	122.0	122.0	ND	ND	
809779-2D	7.44	50	0.02		0.0	8.25		165.0	5	165.0	165.0	ND	ND	
809779-2MS	9.00	50	0.02	1.5	30.0	12.30		246.0	5	246.0	186.0	60	ND	
LCS	10.30	50	0.02	2.2	44.0	4.95		99.0	5	99.0	11.0	88	ND	
LCS	10.25	50	0.02	2.2	44.0	4.90		98.0	5	98.0	10.0	88	ND	

Calculations as follows:

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

Where:

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

Low Alkalinity: as mg/L CaCO3 = $\frac{(2 \times B - C) \times N \times 50000}{\text{mL sample}}$

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

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

Blank Summary

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

Laboratory Control Sample (LCS/LCSD) Summary

QC Std I.D.	Measured Value, ppm	Theoretical Value, ppm	% Recovery	Accetance Limit	QC Within Control?
LCS	99	100	99.0%	90-110	Yes
LCSD	98	100	98.0%	90-110	Yes

Duplicate Determination Difference Summary

QC Std I.D.	Measured Value, ppm	Dup Value, ppm	RPD	Accetance Limit	QC Within Control?
809779-2	165	165	0.0%	≤20%	Yes

Sample Matrix Spike (MS/MSD) Summary

Lab Number	Conc of Unspk spl	Dil Factor	Added Spk Conc	MS/MSD Amt	Measrd Conc of Spk Spl	Theor Conc of Spk Spl	MS/MSD % Rec	MS Accept Limit	QC Within Control?	RPD	RPD Accept Limit	QC Within Control?
809779-2	165	1	100	100	246	265.00	81%	75-125	Yes			
		1	100	100								

Kim
Analyst Printed Name
Alk_2012

Analyst Signature

~~Hope T.~~ MAHSIN
Reviewer Printed Name

Reviewer Signature

047

809779

Rec'd 09/03/13

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-430]

COC Number 809779

TURNAROUND TIME 10 Days

DATE 9/03/13 PAGE 1 OF 1

COMPANY: CH2M HILL /E2

PROJECT NAME: PG&E Topock IM3

PHONE: 530-229-3303 FAX: 530-339-3303

ADDRESS: 155 Grand Ave Ste 1000, Oakland, CA 94612

P.O. NUMBER:

SAMPLERS (SIGNATURE):

	SAMPLE I.D.	DATE	TIME	DESCRIPTION	Cr(VI) (218.6) Lab Filtered	Alkalinity (2320-B)	EC (120.1)	TDS (2540 c)	Turb (2130)	Total Metals (200.7) See List Below	Ammonia (4500-NH3)	Total P (4500-P)	Anions (300.0) F, NO3, SO4	TOC (5310 C)	Dissolved Metals (200.7) Fe, Mn lab filtered	Soluable Silica - Reactive (4500-Si CorD)	NO2 (4500-NO2B)		NUMBER OF CONTAINERS	COMMENTS
-1	SC-700B-WDR-430	9/03/13	14:20		X		X	X	X	X	X		X				X		4	pH=2 (200.7)
-2	SC-100B-WDR-430	9/03/13	1400		X	X	X	X	X	X	X	X	X	X	X	X	X		9	
																			13	TOTAL NUMBER OF CONTAINERS

ALERT !!
Level III QC

CHAIN OF CUSTODY SIGNATURE RECORD

	Signature	Printed Name	Company/ Agency	Date/ Time
Signature (Relinquished)		Ryan Phelps	CH2MHILL	9-3-13 14:55
Signature (Received)		Thanh Ngo	TLI	1.5PM
Signature (Relinquished)		Thanh Ngo	TLI	19:00 PM
Signature (Received)		Marchel Brady	TLI	9:00 9/3/13
Signature (Relinquished)				
Signature (Received)				

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

Hexavalent Chromium

Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
8/27/13	809657-5	9.5	N/A	N/A	N/A	NE
↓	↓ -6	↓	↓	↓	↓	↓
8/27/13	809658-1	9.5	N/A	N/A	N/A	NE
↓	↓ -2	↓	↓	↓	↓	↓
8/27/13	809659-1	9.5	N/A	N/A	N/A	NE
↓	↓ -2	↓	↓	↓	↓	↓
↓	↓ -3	↓	↓	↓	↓	↓
8/27/13	809662-1	7.0	2ml/100ml	9.5	7:40	NE
↓	↓ -2	↓	↓	↓	↓	TM
8/28/13	809639	7.0	2ml/100ml	9.5	7:20	NE
9/4/13	809778-1	7.0	2ml/100ml	9.5	8:25	TM
↓	↓ -2	↓	↓	↓	↓	↓
9/4/13	809779-1	7.0	2mL/100mL	9.5	8:30	TM
↓	↓ -2	↓	↓	↓	↓	↓

NE 9/6/13

TRUESDAIL LABORATORIES, INC.

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
809776-1,2	71	<2	09/4/13	DC	yes			
809771	<1	>2	↓	↓	NO	1200		
809773 1-3	↓	↓	↓	↓	↓	↓		
809783-4,5,6	↓	>2	9/4/13	DC	NO	14:10		
809689	<1	>2	9/4/13	ES	Yes	11:00		pH <2
809726(1-3)	↓	<2	↓	↓	↓			
809778 (1-2)	↓	>2	↓	↓	↓	11:00		filtered then acidify pH<2
809779 (-2)	↓	↓	↓	↓	↓	↓		↓
809779(1-2)	↓	<2	↓	↓	↓			TO TAL
809785	71	↓	9/4/13	DC	yes			
809796-1-4	71	<2	9/5/13	DC	yes			
DC 9/5/13 ~~809720-3~~	~~<1~~	~~>2~~	~~↓~~	~~↓~~	~~NO~~	~~10:30~~		
809787	<1	<2	9/5/13	ES	Yes			
ES 9/5/13 ~~809789~~	↓	~~>2~~	↓	↓	↓			
809789(10-12)	↓	>2	↓	↓	NO	4:30	9/9/13 10:00	pH <2
809790(1-2)	>2	<2	↓	↓	yes			
809800	<2	<2	↓	↓	↓			
809801	↓	↓	↓	↓	↓			
809802(1-2)	↓	↓	↓	↓	↓			
809803	↓	↓	↓	↓	↓			
809814	↓	↓	↓	↓	↓			
809824	<1	<2	9/6/13	DC	yes			
809817-17,24	↓	>2	↓	↓	NO	10:45		
809818	↓	↓	↓	↓	↓	↓		
809834	<1	<2	9/6/13	ES	yes			
809835	↓	↓	↓	↓	↓			
809837	<1	>2	9/6/13	DC	NO	14:40	9/9/13 10:00	pH <2
809866-6	<1	>2	9/10/13	DC	NO	9:50		
809844	<1	<2	9/10/13	ES	Yes			
809845	↓	↓	↓	↓	↓			
809857	↓	↓	↓	↓	↓			
809852(1-2)	↓	↓	↓	↓	↓			
809811 (1-3)	<1	<2	9/10/13	ES	yes			
809860(1-2,4)	<1	>2	9/11/13	ES	NO	2:00		
809864	<1	<2	↓	↓	Yes			
809865	↓	↓	↓	↓	↓			
809866	↓	↓	↓	↓	↓			
809867	↓	↓	↓	↓	↓			
809868	↓	↓	↓	↓	↓			
809869	↓	↓	↓	↓	↓			
809875	↓	>2	↓	↓	NO	2:00		
809883(1-2)	↓	↓	↓	↓	↓	↓		
809885	>1	<2	↓	↓	Yes			
809886	↓	↓	↓	↓	↓			

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

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: E2 **Lab #** 809779

Date Delivered: 9/3/13 **Time:** 19:00 **By:** ☐Mail ☐Field Service ☑Client

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

ALERT !! Level III QC

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

September 23, 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-431 PROJECT, GROUNDWATER MONITORING, TLI NO.: 809878

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-431 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 September 10, 2013, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

The sample collection time was not recorded on the chain of custody. The sample collection time of 14:21 from the sample containers was used in the report per Mr. Shawn Duffy's request.

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

The straight run for the sample and associated matrix spike for sample SC-700B-WDR-391 for Hexavalent Chromium analysis by EPA 218.6 were just outside the retention time window. Because the matrix spike recovery and all other QA/QC were within acceptable limits, the data from the straight run was reported.

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

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

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

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

Laboratory No.: 809878
Date: September 23, 2013
Collected: September 10, 2013
Received: September 10, 2013

ANALYST LIST

METHOD	PARAMETER	ANALYST
EPA 120.1	Specific Conductivity	Jenny Tankunakorn
SM 2540C	Total Dissolved Solids	Jenny Tankunakorn
SM 2130B	Turbidity	Kim Luck
EPA 200.8	Total Metals	Ethel Suico
EPA 218.6	Hexavalent Chromium	Tom Martinez / Naheed Eidinejad

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

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

Laboratory No.: 809878
Date Received: September 10, 2013
Revision 1; September 26, 2013

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

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
809878-001	SC-700B-WDR-431	E120.1	NONE	9/10/2013	14:21	EC	7240	umhos/cm	2.00
809878-001	SC-700B-WDR-431	E200.8	NONE	9/10/2013	14:21	Chromium	ND	ug/L	1.0
809878-001	SC-700B-WDR-431	E200.8	NONE	9/10/2013	14:21	Manganese	1.3	ug/L	0.50
809878-001	SC-700B-WDR-431	E218.6	LABFLT	9/10/2013	14:21	Chromium, Hexavalent	0.27	ug/L	0.20
809878-001	SC-700B-WDR-431	SM2130B	NONE	9/10/2013	14:21	Turbidity	ND	NTU	0.100
809878-001	SC-700B-WDR-431	SM2540C	NONE	9/10/2013	14:21	Total Dissolved Solids	4500	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.

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

REPORT

Client: **E2 Consulting Engineers, Inc.**
155 Grand Avenue, Suite 800
Oakland, CA 94612
Attention: Shawn Duffy
Project Name: PG&E Topock Project
Project Number: IM.CS.EX.AC
P.O. Number: PGEIM11111001
Release Number:

Laboratory No. 809878

Printed 9/23/2013

Samples Received on 9/10/2013 7:30:00 PM

Field ID	Lab ID	Collected	Matrix
SC-700B-WDR-431	809878-001	09/10/2013 14:21	Water

Specific Conductivity - EPA 120.1 Batch 09EC13B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
809878-001 Specific Conductivity	umhos/cm	09/12/2013	1.00	0.606	2.00	7240

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate — Lab ID = 809858-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	1.70	1.64	3.59	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	714	706	101	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	756	706	107	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	1060	1000	106	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	1040	1000	104	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: IM.CS.EX.AC

Chrome VI by EPA 218.6

Batch 09CrH13B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
809878-001 Chromium, Hexavalent	ug/L	09/11/2013 08:05	1.00	0.00920	0.20	0.27

Method Blank

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

Duplicate — Lab ID = 809878-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	0.274	0.251	8.94	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.195	0.200	97.6	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 = 809878-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.25	1.27(1.00)	97.7	90 - 110

Matrix Spike — Lab ID = 809878-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.25	5.25(5.00)	100	90 - 110

Matrix Spike — Lab ID = 809879-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.02	1.00(1.00)	102	90 - 110

Matrix Spike — Lab ID = 809879-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	6.79	6.94(5.00)	97.0	90 - 110

Matrix Spike — Lab ID = 809879-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	6.94	6.96(5.00)	99.5	90 - 110

Matrix Spike — Lab ID = 809879-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.987	1.00(1.00)	98.7	90 - 110

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: IM.CS.EX.AC

Metals by EPA 200.8, Total

Batch 091213B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
809878-001 Chromium	ug/L	09/13/2013 08:01	2.00	0.184	1.0	ND
Manganese	ug/L	09/13/2013 08:01	2.00	0.172	0.50	1.3

Method Blank

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

Duplicate

Lab ID = 809878-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	2.00	ND	0	0	0 - 20
Manganese	ug/L	2.00	1.27	1.27	0.0787	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.185	0.200	92.5	70 - 130
Manganese	ug/L	1.00	0.207	0.200	104	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	48.9	50.0	97.8	85 - 115
Manganese	ug/L	1.00	51.4	50.0	103	85 - 115

Matrix Spike

Lab ID = 809878-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	48.1	50.0(50.0)	96.2	75 - 125
Manganese	ug/L	2.00	50.7	51.3(50.0)	98.9	75 - 125

Matrix Spike Duplicate

Lab ID = 809878-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	44.4	50.0(50.0)	88.8	75 - 125
Manganese	ug/L	2.00	46.9	51.3(50.0)	91.3	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.1	20.0	95.6	90 - 110
Manganese	ug/L	1.00	20.0	20.0	99.9	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.0	20.0	94.8	90 - 110

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.

Interference Check Standard A

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

Interference Check Standard A

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

Interference Check Standard A

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

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.9	20.0	104	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.3	20.0	101	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	22.0	20.0	110	80 - 120

Interference Check Standard AB

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

Total Dissolved Solids by SM 2540 C

Batch 09TDS13B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
809878-001 Total Dissolved Solids	mg/L	09/12/2013	1.00	1.76	250	4500

Method Blank

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

Duplicate — Lab ID = 809926-006

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	1120	1090	2.89	0 - 10

Lab Control Sample

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

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: IM.CS.EX.AC

Turbidity by SM 2130 B Batch 09TUC13G

Parameter	Unit	Analyzed	DF	MDL	RL	Result
809878-001 Turbidity	NTU	09/12/2013	1.00	0.0140	0.100	ND

Method Blank

Parameter	Unit	DF	Result
Turbidity	NTU	1.00	ND

Duplicate — Lab ID = 809878-001

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	7.56	8.00	94.5	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	7.54	8.00	94.2	90 - 110

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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

Truesdail Laboratories, Inc.

Total Dissolved Solids by SM 2540 C

Calculations

Batch: 09TDS13B
Date Analyzed: 9/12/13

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	67.4976	67.4976	67.4976	0.0000	No	0.0000	0.0	25.0	ND	1
809817-17	50	50.498	50.533	50.533	0.0000	No	0.0350	700.0	50.0	700.0	1
809842	100	74.7035	74.7512	74.7512	0.0000	No	0.0477	477.0	25.0	477.0	1
809852-1	100	74.7116	74.7572	74.7572	0.0000	No	0.0456	456.0	25.0	456.0	1
809852-2	100	75.7567	75.8035	75.8031	0.0004	No	0.0464	464.0	25.0	464.0	1
809860-2	200	106.0527	106.0725	106.0725	0.0000	No	0.0198	99.0	12.5	99.0	1
809860-4	100	67.0448	67.0755	67.0755	0.0000	No	0.0307	307.0	25.0	307.0	1
809878	10	50.5726	50.6176	50.6176	0.0000	No	0.0450	4500.0	250.0	4500.0	1
809909	100	66.7977	66.8505	66.8501	0.0004	No	0.0524	524.0	25.0	524.0	1
809925-1	50	47.9414	47.9907	47.9903	0.0004	No	0.0489	978.0	50.0	978.0	1
809925-2	100	72.4089	72.4392	72.4389	0.0003	No	0.0300	300.0	25.0	300.0	1
809817-17D	50	51.8292	51.8644	51.8641	0.0003	No	0.0349	698.0	50.0	698.0	1
LCS	100	78.3659	78.4158	78.4157	0.0001	No	0.0498	498.0	25.0	498.0	1
809925-3	100	72.4922	72.5721	72.5721	0.0000	No	0.0799	799.0	25.0	799.0	1
809925-4	100	73.5792	73.609	73.6089	0.0001	No	0.0297	297.0	25.0	297.0	1
809925-5	100	74.7336	74.7628	74.7627	0.0001	No	0.0291	291.0	25.0	291.0	1
809925-6	100	71.3206	71.3507	71.3505	0.0002	No	0.0299	299.0	25.0	299.0	1
809926-1	50	50.9438	50.996	50.9959	0.0001	No	0.0521	1042.0	50.0	1042.0	1
809926-2	50	47.5133	47.5774	47.577	0.0004	No	0.0637	1274.0	50.0	1274.0	1
809926-3	50	50.8423	50.9077	50.9073	0.0004	No	0.0650	1300.0	50.0	1300.0	1
809926-4	100	67.8224	67.8747	67.8745	0.0002	No	0.0521	521.0	25.0	521.0	1
809926-5	50	49.3893	49.4416	49.4415	0.0001	No	0.0522	1044.0	50.0	1044.0	1
809926-6	50	49.7243	49.7793	49.7789	0.0004	No	0.0546	1092.0	50.0	1092.0	1
809926-6D	50	49.6512	49.7076	49.7073	0.0003	No	0.0561	1122.0	50.0	1122.0	1

Calculation as follows:

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

Where:

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

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

Laboratory Control Sample (LCS) Summary

QC Std I.D.	Measurd Value, ppm	Theoretical Value, ppm	Percent Rec	Acceptance Limit	QC Within Control?
LCS1	498	500	99.6%	90-110%	Yes
LCSD					

LCS Recovery

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

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

Duplicate Determinations Difference Summary

Lab Number	Sample Weight, g	Sample Dup Weight, g	% RPD	Acceptance Limit	QC Within Control?
809817-17	0.035	0.0349	0.1%	≤5%	Yes
809926-6	0.0546	0.0561	1.4%	5%	Yes

Duplicate Determination Difference

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

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

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

Jenny T.
Analyst Printed Name

Analyst Signature

Maksim G.
Reviewer Printed Name

Reviewer Signature

WetChem TDS 2012.xls

Total Dissolved Solids by SM 2540 C

TDS/EC CHECK

Batch: 09TDS13B
Date Analyzed: 9/12/13

Laboratory Number	EC	TDS/EC Ratio: 0.55-.9	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
809817-17	1112	0.63	722.8	0.97
809842	735	0.65	477.75	1.00
809852-1	834	0.55	542.1	0.84
809852-2	812	0.57	527.8	0.88
809860-2	164	0.60	106.6	0.93
809860-4	523	0.59	339.95	0.90
809878	7240	0.62	4706	0.96
809909	760	0.69	494	1.06
809925-1	1333	0.73	866.45	1.13
809925-2	430	0.70	279.5	1.07
809817-17D	1112	0.63	722.8	0.97
LCS				
809925-3	984	0.81	639.6	1.25
809925-4	396	0.75	257.4	1.15
809925-5	424	0.69	275.6	1.06
809925-6	430	0.70	279.5	1.07
809926-1	1438	0.72	934.7	1.11
809926-2	1769	0.72	1149.85	1.11
809926-3	1777	0.73	1155.05	1.13
809926-4	683	0.76	443.95	1.17
809926-5	1407	0.74	914.55	1.14
809926-6	1604	0.68	1042.6	1.05
809926-6D	1604	0.70	1042.6	1.08

809878

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-431]

COC Number

TURNAROUND TIME 10 Days

DATE 09/10/13 PAGE 1 OF 1

COMPANY: E2

PROJECT NAME: PG&E Topock

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

ADDRESS: 155 Grand Ave Ste 1000, Oakland, CA 94612

P.O. NUMBER: 456827.01.DM TEAM: 1

SAMPLERS (SIGNATURE

Rec'd 09/10/13 S 809878

SAMPLE I.D.	DATE	TIME	DESCRIPTION	Cr6 (218.6) Lab Filtered	Total Metals (200.7) Cr, Mn	Specific Conductance (120.1)	TDS (SM2540C)	Turbidity (SM2130)								NUMBER OF CONTAINERS	COMMENTS
SC-700B-WDR-431	09/10/13		Water	x	x	x	x		x							3	pH=6 (200.7)
																3	TOTAL NUMBER OF CONTAINERS

ALERT !!
Level III QC

For Sample Conditions
See Form Attached

CHAIN OF CUSTODY SIGNATURE RECORD

	Printed Name	Company/ Agency	Date/ Time
Signature (Relinquished)	Ryan Phelps	CH2MHILL	9-10-13 1421
Signature (Received)	THANH NGO	TRUESDAIL	9-10-13 15:15 P.M
Signature (Relinquished)			
Signature (Received)	THANH NGO	TLI	9-10-13 19:30
Signature (Relinquished)			
Signature (Received)	Mardheal Brad	TLI	9/10/13, 1930

SAMPLE CONDITIONS

RECEIVED COOL ☑ WARM ☐ 4.2 °C

CUSTODY SEALED YES ☐ NO ☑

SPECIAL REQUIREMENTS:

038

Subject: RE: Topock SC700B sample time
From: <Shawn.Duffy@CH2M.com>
Date: Mon, 23 Sep 2013 19:03:16 +0000
To: <seanc@truesdail.com>

Please use the time from the sample container labels

Shawn

-----Original Message-----
From: Sean Condon [mailto:seanc@truesdail.com]
Sent: Monday, September 23, 2013 11:28 AM
To: Duffy, Shawn/RDD
Subject: Topock SC700B sample time

Hi Shawn,

There was no sample collection time on the COC for SC-700B-WDR-431 but the sample container had a time of 14:21. See attached COC.

--
Sean Condon
Project Manager
Truesdail Laboratories, Inc.
Phone: (714) 730-6239
Fax: (714) 730-6462

Hexavalent Chromium

Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
8/27/13	809657-5	9.5	N/A	N/A	N/A	NE
↓	↓ -6	↓	↓	↓	↓	↓
8/27/13	809658-1	9.5	N/A	N/A	N/A	NE
↓	↓ -2	↓	↓	↓	↓	↓
8/27/13	809659-1	9.5	N/A	N/A	N/A	NE
↓	↓ -2	↓	↓	↓	↓	↓
↓	↓ -3	↓	↓	↓	↓	↓
8/27/13	809662-1	7.0	2ml/100ml	9.5	7:40	NE
↓	↓ -2	↓	↓	↓	↓	TM
8/28/13	809639	7.0	2ml/100ml	9.5	7:20	NE
9/4/13	809778-1	7.0	2ml/100ml	9.5	8:25	TM
↓	↓ -2	↓	↓	↓	↓	↓
9/4/13	809779-1	7.0	2mL/100mL	9.5	8:30	TM
↓	↓ -2	↓	↓	↓	↓	↓
9/11/13	809878	7.0	2mL/100mL	9.5	8:05	TM
↓	809879-1	9.5	N/A	N/A	N/A	NE
↓	↓ -2	↓	↓	↓	↓	↓
↓	↓ -3	↓	↓	↓	↓	↓
↓	↓ -4	↓	↓	↓	↓	↓
↓	↓ -5	↓	↓	↓	↓	↓
↓	↓ -6	↓	↓	↓	↓	↓
↓	↓ -7	↓	↓	↓	↓	↓
9/12/13	809924-1	9.5	N/A	N/A	N/A	NE
↓	↓ -2	↓	↓	↓	↓	↓
↓	↓ -3	↓	↓	↓	↓	↓
9/12/13	809925-1	9.5	N/A	N/A	N/A	NE
↓	↓ -2	↓	↓	↓	↓	↓
↓	↓ -3	↓	↓	↓	↓	↓
↓	↓ -4	↓	↓	↓	↓	↓
↓	↓ -5	↓	↓	↓	↓	↓
↓	↓ -6	↓	↓	↓	↓	↓

NE 9/13/13

TRUESDAIL LABORATORIES, INC.

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
809887	>1	<2	9/11/13	ES	Yes			
809888	↓	↓	↓	↓	↓			
809878	<1	>2	9/11/13	ES	Yes	2:00		pH<2
809879(1-2,5-7)	<1	<2	↓	↓	↓			
809925(1-6)	<1	<2	9/11/13	ES	Yes			
809926(1-6)	↓	↓	↓	↓	↓			
809909	<1	~~<2~~	9/13/13	ES	NO	~~10:00~~	ES 9/13/13	
809921(1-2,4)	↓	>2	↓	↓	↓	10:02		pH<2
809923(10-20)	↓	↓	↓	↓	↓	↓		↓
809931(1-20	↓	↓	↓	↓	↓			
809932(1-2)	↓	<2	↓	↓	Yes			
809956	>1	<2	9/13/13	DL	yes			
809957	↓	↓	↓	↓	↓			
809960-1,2	<1	>2	↓	↓	NO	12:00		
809961	↓	↓		↓	↓	↓		
809950-1-3	↓	↓	↓	↓	↓			
809936(1-3)	<1	<2	9/13/13	ES	Yes			
809958-2	↓	↓	↓	↓	↓			
809959(1-5)								T/D
809970	<1	<2	9/13/13	DL	yes			
809972	↓	↓		↓	↓			
809966-1-4	↓	>2	↓	↓	NO	15:20		
809905-1-7	—	TTLC	9/16/13	DL	yes			
809985-1-20	<1	<2	9/17/13	DL	NO			
809986-1,2	>1	<2		↓	yes			
809987-1,2	<1	<2	↓		↓			
809989	<1	<2						
809990	<1	<2						

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

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: E 2 **Lab #** 809878

Date Delivered: 9 / 10 / 13 **Time:** 19:30 **By:** ☐ Mail ☑ Field Service ☐ Client

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

ALERT!! Level III QC

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

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

September 27, 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-432 PROJECT, GROUNDWATER MONITORING, TLI NO.: 810012

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-432 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 September 17, 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. Duffy's approval.

No violations or nonconformance actions occurred for this data package.

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

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

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

Laboratory No.: 810012
Date: September 27, 2013
Collected: September 17, 2013
Received: September 17, 2013

ANALYST LIST

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

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

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

Laboratory No.: 810012
Date Received: September 17, 2013

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

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
810012-001	SC-700B-WDR-432	E120.1	NONE	9/17/2013	11:35	EC	7060	umhos/cm	2.00
810012-001	SC-700B-WDR-432	E200.8	NONE	9/17/2013	11:35	Chromium	ND	ug/L	1.0
810012-001	SC-700B-WDR-432	E200.8	NONE	9/17/2013	11:35	Manganese	0.82	ug/L	0.50
810012-001	SC-700B-WDR-432	E218.6	LABFLT	9/17/2013	11:35	Chromium, Hexavalent	ND	ug/L	0.20
810012-001	SC-700B-WDR-432	SM2130B	NONE	9/17/2013	11:35	Turbidity	ND	NTU	0.100
810012-001	SC-700B-WDR-432	SM2540C	NONE	9/17/2013	11:35	Total Dissolved Solids	4540	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.

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

REPORT

Client: **E2 Consulting Engineers, Inc.**
155 Grand Avenue, Suite 800
Oakland, CA 94612
Attention: Shawn Duffy
Project Name: PG&E Topock Project
Project Number: IM.CS.EX.AC
P.O. Number: PGEIM11111001
Release Number:

Laboratory No. 810012

Printed 9/27/2013

Samples Received on 9/17/2013 8:10:00 PM

Field ID	Lab ID	Collected	Matrix
SC-700B-WDR-432	810012-001	09/17/2013 11:35	Water

Specific Conductivity - EPA 120.1 Batch 09EC13E

Parameter	Unit	Analyzed	DF	MDL	RL	Result
810012-001 Specific Conductivity	umhos/cm	09/19/2013	1.00	0.606	2.00	7060

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate — Lab ID = 810033-004

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	899	894	0.558	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	732	706	104	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	730	706	103	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	945	1000	94.5	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	945	1000	94.5	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: IM.CS.EX.AC

Chrome VI by EPA 218.6

Batch 09CrH13F

Parameter	Unit	Analyzed	DF	MDL	RL	Result
810012-001 Chromium, Hexavalent	ug/L	09/18/2013 12:32	1.00	0.00920	0.20	ND

Method Blank

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

Duplicate — Lab ID = 810013-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	10.0	9.96	0.519	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.188	0.200	94.0	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.89	5.00	97.9	90 - 110

Matrix Spike — Lab ID = 810012-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.18	1.12(1.00)	106	90 - 110

Matrix Spike — Lab ID = 810013-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	45.0	46.9(25.0)	92.5	90 - 110

Matrix Spike — Lab ID = 810013-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	19.7	20.0(10.0)	97.0	90 - 110

Matrix Spike — Lab ID = 810013-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	34.9	35.1(25.0)	99.1	90 - 110

Matrix Spike — Lab ID = 810013-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.05	1.00(1.00)	105	90 - 110

Matrix Spike — Lab ID = 810013-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.02	1.00(1.00)	102	90 - 110

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

Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project
Project Number: IM.CS.EX.AC

Metals by EPA 200.8, Total

Batch 091913A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
810012-001 Chromium	ug/L	09/19/2013 16:55	2.00	0.142	1.0	ND
Manganese	ug/L	09/19/2013 16:55	2.00	0.120	0.50	0.82

Method Blank

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

Duplicate

Lab ID = 810012-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	2.00	ND	0	0	0 - 20
Manganese	ug/L	2.00	0.728	0.817	11.5	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	0.220	0.200	110	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	50.0	50.0	100	85 - 115
Manganese	ug/L	1.00	49.9	50.0	99.8	85 - 115

Matrix Spike

Lab ID = 810012-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	48.0	50.0(50.0)	95.9	75 - 125
Manganese	ug/L	2.00	49.1	50.8(50.0)	96.6	75 - 125

Matrix Spike Duplicate

Lab ID = 810012-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	46.9	50.0(50.0)	93.8	75 - 125
Manganese	ug/L	2.00	47.6	50.8(50.0)	93.6	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
Manganese	ug/L	1.00	20.3	20.0	102	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.8	20.0	94.3	90 - 110

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

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	19.6	20.0	98.1	80 - 120

Total Dissolved Solids by SM 2540 C

Batch 09TDS13D

Parameter	Unit	Analyzed	DF	MDL	RL	Result
810012-001 Total Dissolved Solids	mg/L	09/20/2013	1.00	1.76	250	4540

Method Blank

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

Duplicate — Lab ID = 810037-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	435	427	1.86	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Dissolved Solids	mg/L	1.00	501	500	100	90 - 110

Turbidity by SM 2130 B

Batch 09TUC13L

Parameter	Unit	Analyzed	DF	MDL	RL	Result
810012-001 Turbidity	NTU	09/19/2013	1.00	0.0140	0.100	ND

Method Blank

Parameter	Unit	DF	Result
Turbidity	NTU	1.00	ND

Duplicate — Lab ID = 810038-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Turbidity	NTU	1.00	0.136	0.138	1.46	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	8.67	8.00	108	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	8.64	8.00	108	90 - 110

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

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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.

e2

5

Total Dissolved Solids by SM 2540 C

Calculations

Batch: 09TDS13D
Date Analyzed: 9/20/13

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	78.3925	78.3925	78.3925	0.0000	No	0.0000	0.0	25.0	ND	1
809986-1	100	66.8862	66.9291	66.9291	0.0000	No	0.0429	429.0	25.0	429.0	1
809986-2	100	68.3703	68.4166	68.4164	0.0002	No	0.0461	461.0	25.0	461.0	1
809998-2	200	109.3848	109.4074	109.4074	0.0000	No	0.0226	113.0	12.5	113.0	1
809998-4	100	72.5270	72.5624	72.562	0.0004	No	0.0350	350.0	25.0	350.0	1
810012	10	72.6337	72.6791	72.6791	0.0000	No	0.0454	4540.0	250.0	4540.0	1
810033-1	100	77.7759	77.8288	77.8288	0.0000	No	0.0529	529.0	25.0	529.0	1
810033-2	100	65.6755	65.7276	65.7276	0.0000	No	0.0521	521.0	25.0	521.0	1
810033-3	100	74.6528	74.7054	74.7054	0.0000	No	0.0526	526.0	25.0	526.0	1
810033-4	100	74.0458	74.0975	74.0975	0.0000	No	0.0517	517.0	25.0	517.0	1
810037-1	100	73.4375	73.4802	73.4802	0.0000	No	0.0427	427.0	25.0	427.0	1
810037-1D	100	73.1730	73.2167	73.2165	0.0002	No	0.0435	435.0	25.0	435.0	1
LCS	100	69.4842	69.5343	69.5343	0.0000	No	0.0501	501.0	25.0	501.0	1
810037-2	100	73.7933	73.8399	73.8399	0.0000	No	0.0466	466.0	25.0	466.0	1
810041-1	100	71.3014	71.3288	71.3286	0.0002	No	0.0272	272.0	25.0	272.0	1
810041-1D	100	77.9888	78.0158	78.0158	0.0000	No	0.0270	270.0	25.0	270.0	1

Calculation as follows:

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

Where:

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

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

Laboratory Control Sample (LCS) Summary

QC Std I.D.	Measurd Value, ppm	Theoretical Value, ppm	Percent Rec	Acceptance Limit	QC Within Control?
LCS1	500	501	99.8%	90-110%	Yes
LCSD					

LCS Recovery

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

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

Duplicate Determinations Difference Summary

Lab Number	Sample Weight, g	Sample Dup Weight, g	% RPD	Acceptance Limit	QC Within Control?
810037-1	0.427	0.435	0.9%	≤5%	Yes
810041-1	0.272	0.027	81.9%	5%	No

Duplicate Determination Difference

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

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

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

Jenny T.
Analyst Printed Name

Analyst Signature

Maksim G.
Reviewer Printed Name

Reviewer Signature

WetChem TDS_2012.xls

Total Dissolved Solids by SM 2540 C

TDS/EC CHECK

Batch: 09TDS13D
Date Analyzed: 9/20/13

Laboratory Number	EC	TDS/EC Ratio: 0.55-.9	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
809986-1	786	0.55	510.9	0.84
809986-2	752	0.61	488.8	0.94
809998-2	155	0.73	100.75	1.12
809998-4	494	0.71	321.1	1.09
810012	7060	0.64	4589	0.99
810033-1	901	0.59	585.65	0.90
810033-2	898	0.58	583.7	0.89
810033-3	889	0.59	577.85	0.91
810033-4	894	0.58	581.1	0.89
810037-1	780	0.55	507	0.84
810037-1D	780	0.56	507	0.86
LCS				
810037-2	791	0.59	514.15	0.91
810041-1	481	0.57	312.65	0.87
810041-1D	481	0.56	312.65	0.86

810012

Rec'd 09/17/13

S22b 810012

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-432]

COC Number

TURNAROUND TIME 10 Days

DATE 09/17/13 PAGE 1 OF 1

COMPANY: E2

PROJECT NAME: PG&E Topock

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

ADDRESS: 155 Grand Ave Ste 1000, Oakland, CA 94612

P.O. NUMBER: 456827.01.DM TEAM: 1

SAMPLERS (SIGNATURE

SAMPLE I.D.	DATE	TIME	DESCRIPTION	Cr6 (218.6) Lab Filtered	Total Metals (200.7) Cr, Mn	Specific Conductance (120.1)	TDS (SM2540C)	Turbidity (SM2130)								NUMBER OF CONTAINERS	COMMENTS
SC-700B-WDR-432	09/17/13	11:35	Water	X	X	X	X		X							3	pH=6 (200.7)
																3	TOTAL NUMBER OF CONTAINERS

ALERT !!
Level III QC

For Sample Conditions
See Form Attached

CHAIN OF CUSTODY SIGNATURE RECORD

	Printed Name	Company/ Agency	Date/ Time
Signature (Relinquished)	Ryan Phelps	CH2MHILL	9-17-13 15:35
Signature (Received)		TLI	9-17-13 15:35
Signature (Relinquished)		TLI	9-17-13 20:10
Signature (Received)	Marcin Brad	TLI	9/17/13 2010
Signature (Relinquished)			
Signature (Received)			

SAMPLE CONDITIONS

RECEIVED COOL ☑ WARM ☐ 3.8 °C

CUSTODY SEALED YES ☐ NO ☐

SPECIAL REQUIREMENTS:

042

Hexavalent Chromium

Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
9/12/13	809925-7	9.5	N/A	N/A	N/A	NE
	809926-1					
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
9/13/13	809958-2	9.5	N/A	N/A	N/A	NE
	809959-1					
	-2					
	-3					
	-4					
	-5					
9/18/13	810012	7.0	2 mL/100 mL	9.5	8:00	NE
	810013-1	9.5	N/A	N/A	N/A	NE
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
	-13					
	-14					
	-15					
	-16					

NE 9/19/13

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

TRUESDAIL LABORATORIES, INC.

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
809887	>1	<2	9/11/13	ES	Yes			
809888	↓	↓	↓	↓	↓			
809878	<1	>2	9/11/13	ES	Yes	2:00		pH<2
809879(1-2,5-7)	<1	<2	↓	↓	↓			
809925(1-6)	<1	<2	9/11/13	ES	Yes			
809926(1-6)	↓	↓	↓	↓	↓			
809909	<1	~~<2~~	9/13/13	ES	NO	~~10:00~~	ES 9/13/13	
809921(1-2,4)	↓	>2	↓	↓	↓	10:00		pH<2
809923(10-12)	↓	↓	↓	↓	↓	↓		↓
809931(1-20	↓	↓	↓	↓	↓	↓		↓
809932(1-2)	↓	<2	↓	↓	Yes			
809956	>1	<2	9/13/13	DL	yes			
809957	↓	↓	↓	↓	↓			
809960-1,2	<1	>2	↓	↓	NO	12:00		
809961	↓	↓	↓	↓	↓	↓		
809950-1→3	↓	↓	↓	↓	↓	↓		
809936(1-3)	<1	<2	9/13/13	ES	Yes			
809958-2	↓	↓	↓	↓	↓			
809959(1-5)	↓	↓	↓	↓	↓			T/D
809970	<1	<2	9/13/13	DL	yes			
809972	↓	↓	↓	↓	↓			
809966-1→4	↓	>2	↓	↓	NO	15:20		
809905-1→7	—	TTLC	9/16/13	DL	yes			
809985-1→20	<1	<2	9/17/13	DL	NO			
809986-1,2	>1	<2	↓	↓	yes			
809987-1,2	<1	<2	↓	↓	↓			
809989	<1	<2	↓	↓	↓			
809990	<1	<2	↓	↓	↓			
809995	DL ~~<1~~	<2	↓	↓	yes			
810001	>1	<2	9/18/13	DL	yes			
810003	↓	↓	↓	↓	↓			
810007-1,2,5,6	<1	>2	↓	↓	NO	12:00		
809998-1,2,4	↓	↓	↓	↓	↓	↓		
810009-1→3	↓	↓	↓	↓	↓	↓		
810012	<1	>2	9/18/13	ES	Yes	10:00		pH<2
810013(1-2,5-11,14-16, 20-22)	↓	<2	↓	↓	↓			
810025	>1	<2	9/19/13	DL	yes			
810026-10,12,13	<1	>2	↓	↓	NO	13:30		
810040	<1	<2	↓	↓	yes			
810037-1,2	<1	<2	↓	↓	↓			
810028	>1	<2	↓	↓	↓			
810064	>1	<2	↓	↓	yes			
810043(1-2)	<1	<2	9/20/13	ES	Yes			

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

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: E2 **Lab #** 810012

Date Delivered: 9 / 17 / 13 **Time:** 20:10 **By:** ☐ **Mail** ☐ **Field Service** ☒ **Client**

1. *Was a Chain of Custody received and signed?* ☒ Yes ☐ No ☐ N/A
2. *Does Customer require an acknowledgement of the COC?* ☐ Yes ☐ No ☒ N/A
3. *Are there any special requirements or notes on the COC?* ☐ Yes ☐ No ☒ N/A
4. *If a letter was sent with the COC, does it match the COC?* ☐ Yes ☐ No ☒ N/A
5. *Were all requested analyses understood and acceptable?* ☒ Yes ☐ No ☐ N/A
6. *Were samples received in a chilled condition?* ☒ Yes ☐ No ☐ N/A
   Temperature (if yes)? 3.8 °C
7. *Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)?* ☒ Yes ☐ No ☐ N/A
8. *Were sample custody seals intact?* ☐ Yes ☐ No ☒ N/A
9. *Does the number of samples received agree with COC?* ☒ Yes ☐ No ☐ N/A
10. *Did sample labels correspond with the client ID's?* ☒ Yes ☐ No ☐ N/A
11. *Did sample labels indicate proper preservation?* ☐ Yes ☐ No ☒ N/A
    Preserved (if yes) by: ☐ **Truesdail** ☐ *Client*
12. *Were samples pH checked? pH =* See C.O.C. ☒ Yes ☐ No ☐ N/A
13. *Were all analyses within holding time at time of receipt?* ☒ Yes ☐ No ☐ N/A
    If not, notify Project Manager.
14. *Have Project due dates been checked and accepted?* ☒ Yes ☐ No ☐ N/A
    Turn Around Time (TAT): ☐ **RUSH** ☒ *Std*
15. ***Sample Matrix:*** ☐ *Liquid* ☐ *Drinking Water* ☐ *Ground Water* ☐ *Waste Water* ☐ *Sludge* ☐ *Soil* ☐ *Wipe* ☐ *Paint* ☐ *Solid* ☒ *Other* Water
16. *Comments:* _____
17. *Sample Check-In completed by* **Truesdail** *Log-In/Receiving:* Linda

ALERT !! Level III QC

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

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

September 30, 2013

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

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK IM3PLANT-WDR-433 PROJECT, GROUNDWATER MONITORING, TLI NO.: 810110

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-433 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 September 24, 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. Duffy's approval.

No violations or nonconformance actions occurred for this data package.

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

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

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

Laboratory No.: 810110
Date: September 30, 2013
Collected: September 24, 2013
Received: September 24, 2013

ANALYST LIST

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

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

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

Laboratory No.: 810110
Date Received: September 24, 2013

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

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
810110-001	SC-700B-WDR-433	E120.1	NONE	9/24/2013	14:45	EC	7230	umhos/cm	2.00
810110-001	SC-700B-WDR-433	E200.8	NONE	9/24/2013	14:45	Chromium	ND	ug/L	1.0
810110-001	SC-700B-WDR-433	E200.8	NONE	9/24/2013	14:45	Manganese	1.5	ug/L	0.50
810110-001	SC-700B-WDR-433	E218.6	LABFLT	9/24/2013	14:45	Chromium, Hexavalent	ND	ug/L	0.20
810110-001	SC-700B-WDR-433	SM2130B	NONE	9/24/2013	14:45	Turbidity	ND	NTU	0.100
810110-001	SC-700B-WDR-433	SM2540C	NONE	9/24/2013	14:45	Total Dissolved Solids	4470	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.

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

REPORT

Client: **E2 Consulting Engineers, Inc.**
155 Grand Avenue, Suite 800
Oakland, CA 94612
Attention: Shawn Duffy
Project Name: PG&E Topock Project
Project Number: IM.CS.EX.AC
P.O. Number: PGEIM11111001
Release Number:

Laboratory No. 810110

Printed 9/30/2013

Samples Received on 9/24/2013 7:55:00 PM

Field ID	Lab ID	Collected	Matrix
SC-700B-WDR-433	810110-001	09/24/2013 14:45	Water

Specific Conductivity - EPA 120.1 Batch 09EC13G

Parameter	Unit	Analyzed	DF	MDL	RL	Result
810110-001 Specific Conductivity	umhos/cm	09/26/2013	1.00	0.606	2.00	7230

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate — Lab ID = 810110-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	7260	7230	0.414	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	749	706	106	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	747	706	106	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	960	1000	96.0	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	960	1000	96.0	90 - 110

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

Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project
Project Number: IM.CS.EX.AC

Chrome VI by EPA 218.6

Batch 09CrH13H

Parameter	Unit	Analyzed	DF	MDL	RL	Result
810110-001 Chromium, Hexavalent	ug/L	09/25/2013 10:57	1.00	0.00920	0.20	ND

Method Blank

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

Duplicate — Lab ID = 810110-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.131	0.124	5.64	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.197	0.200	98.4	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.87	5.00	97.3	90 - 110

Matrix Spike — Lab ID = 810110-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.14	1.12(1.00)	102	90 - 110

Matrix Spike — Lab ID = 810111-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	85.5	86.8(50.0)	97.3	90 - 110

Matrix Spike — Lab ID = 810111-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	38.3	38.9(25.0)	97.7	90 - 110

Matrix Spike — Lab ID = 810111-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	31.7	32.5(25.0)	96.7	90 - 110

Matrix Spike — Lab ID = 810111-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.98	5.00(5.00)	99.6	90 - 110

Matrix Spike — Lab ID = 810111-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.08	1.00(1.00)	108	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: IM.CS.EX.AC

Metals by EPA 200.8, Total

Batch 092513A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
810110-001 Chromium	ug/L	09/25/2013 14:30	1.00	0.0710	1.0	ND
Manganese	ug/L	09/25/2013 14:30	1.00	0.0600	0.50	1.5

Method Blank

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

Duplicate

Lab ID = 810110-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	1.00	ND	0	0	0 - 20
Manganese	ug/L	1.00	1.53	1.51	1.05	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.213	0.200	106	70 - 130
Manganese	ug/L	1.00	0.206	0.200	103	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	49.3	50.0	98.6	85 - 115
Manganese	ug/L	1.00	49.5	50.0	99.0	85 - 115

Matrix Spike

Lab ID = 810110-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	1.00	49.0	50.0(50.0)	98.1	75 - 125
Manganese	ug/L	1.00	50.9	51.5(50.0)	98.9	75 - 125

Matrix Spike Duplicate

Lab ID = 810110-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	1.00	48.9	50.0(50.0)	97.8	75 - 125
Manganese	ug/L	1.00	50.4	51.5(50.0)	97.7	75 - 125

MRCCS - Secondary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.1	20.0	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.

Total Dissolved Solids by SM 2540 C

Batch 09TDS13E

Parameter	Unit	Analyzed	DF	MDL	RL	Result
810110-001 Total Dissolved Solids	mg/L	09/25/2013	1.00	1.76	250	4470

Method Blank

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

Duplicate — Lab ID = 810110-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	4490	4470	0.446	0 - 10

Duplicate — Lab ID = 810144-003

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	1100	1100	0.182	0 - 10

Lab Control Sample

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

Turbidity by SM 2130 B

Batch 09TUC13O

Parameter	Unit	Analyzed	DF	MDL	RL	Result
810110-001 Turbidity	NTU	09/26/2013	1.00	0.0140	0.100	ND

Method Blank

Parameter	Unit	DF	Result
Turbidity	NTU	1.00	ND

Duplicate — Lab ID = 810140-002

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	8.01	8.00	100	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	8.05	8.00	101	90 - 110

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

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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

Truesdail Laboratories, Inc.

(4) e2

Total Dissolved Solids by SM 2540 C

Calculations

Batch: 09TDS13E
Date Analyzed: 9/25/13

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	71.9650	71.9656	71.9656	0.0000	No	0.0006	6.0	25.0	ND	1
810090-1	100	75.2747	75.3148	75.3148	0.0000	No	0.0401	401.0	25.0	401.0	1
810090-2	100	75.2723	75.3154	75.3154	0.0000	No	0.0431	431.0	25.0	431.0	1
810092-2	200	103.7311	103.7539	103.7539	0.0000	No	0.0228	114.0	12.5	114.0	1
810092-4	100	72.4921	72.5278	72.5278	0.0000	No	0.0357	357.0	25.0	357.0	1
810110	10	50.932	50.9767	50.9767	0.0000	No	0.0447	4470.0	250.0	4470.0	1
810118-1	100	67.8242	67.8503	67.8503	0.0000	No	0.0261	261.0	25.0	261.0	1
810118-2	100	76.2776	76.299	76.299	0.0000	No	0.0214	214.0	25.0	214.0	1
810120-1	485	166.0086	166.0121	166.0121	0.0000	No	0.0035	7.2	5.2	7.2	1
810143-1	100	74.7355	74.7664	74.7664	0.0000	No	0.0309	309.0	25.0	309.0	1
810143-2	100	78.3646	78.3919	78.3919	0.0000	No	0.0273	273.0	25.0	273.0	1
810110D	10	51.0328	51.0777	51.0777	0.0000	No	0.0449	4490.0	250.0	4490.0	1
LCS	100	76.1823	76.2321	76.2321	0.0000	No	0.0498	498.0	25.0	498.0	1
810143-3	100	76.5376	76.5766	76.5766	0.0000	No	0.0390	390.0	25.0	390.0	1
810144-1	100	67.9707	68.0194	68.0194	0.0000	No	0.0487	487.0	25.0	487.0	1
810144-3	50	50.4951	50.5501	50.5501	0.0000	No	0.0550	1100.0	50.0	1100.0	1
810144-3D	50	74.7092	74.7641	74.7641	0.0000	No	0.0549	1098.0	50.0	1098.0	1

Calculation as follows:

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

Where:

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

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

Laboratory Control Sample (LCS) Summary

QC Std I.D.	Measurd Value, ppm	Theoretical Value, ppm	Percent Rec	Acceptance Limit	QC Within Control?
LCS1	498	500	99.6%	90-110%	Yes
LCSD					

LCS Recovery

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

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

Duplicate Determinations Difference Summary

Lab Number	Sample Weight, g	Sample Dup Weight, g	% RPD	Acceptance Limit	QC Within Control?
810110	0.0447	0.0449	0.2%	≤5%	Yes
810144-3	0.055	0.0549	0.1%	5%	Yes

Duplicate Determination Difference

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

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

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

Jenny T.
Analyst Printed Name

Analyst Signature

Maksim G.
Reviewer Printed Name

Reviewer Signature

~~027018~~

WetChem TDS_2012.xls

Total Dissolved Solids by SM 2540 C

TDS/EC CHECK

Batch: 09TDS13E
Date Analyzed: 9/25/13

Laboratory Number	EC	TDS/EC Ratio: 0.55-.9	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
810090-1	690	0.58	448.5	0.89
810090-2	682	0.63	443.3	0.97
810092-2	197	0.58	128.05	0.89
810092-4	600	0.60	390	0.92
810110	7230	0.62	4699.5	0.95
810118-1	445	0.59	289.25	0.90
810118-2	364	0.59	236.6	0.90
810120-1	11.5	0.63	7.475	0.97
810143-1	479	0.65	311.35	0.99
810143-2	443	0.62	287.95	0.95
810110D	7230	0.62	4699.5	0.96
LCS				
810143-3	631	0.62	410.15	0.95
810144-1	669	0.73	434.85	1.12
810144-3	1552	0.71	1008.8	1.09
810144-3D	1552	0.71	1008.8	1.09

9/26/13

810110

810110
Rec'd 09/24/13
CH2M

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-433]

COC Number

TURNAROUND TIME 5 Days

DATE 09/24/13 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

SAMPLERS (SIGNATURE)

SAMPLE I.D.	DATE	TIME	DESCRIPTION	Cr6 (218.6) Lab Filtered	Total Metals (200.7) Cr, Mn	Specific Conductance (120.1)	TDS (SM2540C)	Turbidity (SM2130)									NUMBER OF CONTAINERS	COMMENTS
SC-700B-WDR-433	09/24/13	1445	Water	x	x	x	x		x								3	pH=6 (200.7)
																	3	TOTAL NUMBER OF CONTAINERS

For Sample Conditions
See Form Attached

ALERT !!
Level III QC

RUSH

CHAIN OF CUSTODY SIGNATURE RECORD

	Printed Name	Company/ Agency	Date/ Time
Signature (Relinquished)	Ryan Phelps	CH2MHILL	9-24-13 15:15
Signature (Received)	THANH NGO	TLI	9-24-13 15:15
Signature (Relinquished)	THANH NGO	TLI	9-24-13 19:55
Signature (Received)	Marcheal Bon	TLI	9/24/13/1955
Signature (Relinquished)			
Signature (Received)			

SAMPLE CONDITIONS

RECEIVED COOL ☑ WARM ☐ 4.3 °C

CUSTODY SEALED YES ☐ NO ☐

SPECIAL REQUIREMENTS:

020-042

Hexavalent Chromium

Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
9/18/13	810013-17	9.5	N/A	N/A	N/A	NE
	-18					
	-19					
	-20					
	-21					
	-22					
	-23					
	-24					
9/25/13	810110	7.0	2 ml / 100 ml	9.5	8:50	NE
TM 9/25/13 9/25/13	810111-1	~~9.0~~ 9.5	2 N/A	N/A	N/A	TM
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
	-13					
	-14					
	-15					
	-16					
	-17					
	-18					
	-19					
	-20					
	-21					
	-22					

AS 9/25/13

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

TRUESDAIL LABORATORIES, INC.

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
810077	<1	<2	9/23/13	DL	yes			
810088	<1	<2	9/24/13	ES	Yes			
810090 (1-2)	↓	↓	↓	↓	↓			
810094	<1	DL 9/24/13 <2 ~~>2~~	9/24/13	DL	yes			
810095	↓	↓	↓	↓	↓			
810096								
810097								
810098	↓	↓	↓	↓	↓			
810113	<1	<2	9/25/13	DL	yes			
810116-1,2	↓	>2	↓	DL	NO	8:40		
810110	<1	>2	9/25/13	ES	yes	10:00		pH <2
810111 (1-5, 9-13,	<1	<2	↓	↓	↓			
15-19, 22-24)	↓	↓						
810126	~~>1~~ <1	DL 9/25/13 <2	9/25/13	DL	yes			
810114(1-5)	<1	>2	9/25/13	ES	NO	2:00		
810132-1-3	<1	>2	9/25/13	DL	NO	15:35		
810143-1-3	<1	<2	9/26/13	DL	yes			
810144-1,3	↓	↓	↓	↓	↓			-3 NTU>1
810137-10,11,12	<1	>2	9/26/13	DL	NO	9:00		
810145	<1	<2	9/27/13	DL	yes			
810138-1,2	>1	<2						
810139	>1	<2	↓	↓	↓			
810144-3	>1	>2	9/26/13	ES	yes	10:00		Filtered then acid
810159-2-8	<1	<2	9/27/13	DL	yes			
810147-1,2,3	<1	<2	↓	↓	↓			
810167-1-10	<1	>2	9/27/13	DL	NO	12:10		
810159-2,4,7,10	<1	>2						
19-21, 27	↓	↓	↓	↓	↓	↓		
810171	<1	<2	9/27/13	DL	yes			

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

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: E2 **Lab #** 810110

Date Delivered: 9/24/13 **Time:** 14:55 **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)? 4.3 °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 C.O.C. ☑Yes ☐No ☐N/A
13. Were all analyses within holding time at time of receipt? ☑Yes ☐No ☐N/A
    If not, notify Project Manager.
14. Have Project due dates been checked and accepted? ☑Yes ☐No ☐N/A
    Turn Around Time (TAT): ☑ **RUSH** ☐ Std
15. **Sample Matrix:** ☐Liquid ☐Drinking Water ☐Ground Water ☐Waste Water ☐Sludge ☐Soil ☐Wipe ☐Paint ☐Solid ☑Other Water
16. Comments:
17. Sample Check-In completed by **Truesdail** Log-In/Receiving: Linda

ALERT !! Level III QC

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

Analytical Bench Log Book

WDR pH Results

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

	Sample Name	Date of sampling	Time of sampling	Date of analysis	Time of analysis	pH Meter #1, #2, or #3 etc. See cover Sheet for Serial Number	Date pH meter Calibrated	Time pH meter Calibrated	Slope of the Curve	Analyst Name (for the pH result)	pH Result
1	SC-100B	9-3-13	1400	9-3-13	15:05	METER #2	9-3-13	0120	-53.3	Ryan Phelps	7.2
Notes:											
2	SC-700B ~~SC-700B~~	9-10-13	14:20	9-10-13	14:25	METER #2	9-10-13	03:30	-54.3	Ryan Phelps	7.0
Notes:											
3	SC-700B	9-17-13	11:35	9-17-13	11:45	METER #2	9-17-13	00:55	-53.8	Ryan Phelps	7.1
Notes:											
4	SC-700B	9-24-13	1450 ~~1450~~	9-24-13	1450	METER #2	9-24-13	00:45	-53.3	Ryan Phelps	7.1
Notes:											
5											
Notes:											
6											
Notes:											
7											
Notes:											

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