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

April 15, 2014

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 First Quarter 2014 Monitoring Report
PG&E Topock Compressor Station, Needles, California
Interim Measure No. 3 Groundwater Treatment System
(Document ID: PGE20140415A)

Dear Ms. Innis and Mr. Perdue:

Enclosed is the First Quarter 2014 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 572,744,682 gallons of water and removed approximately 6,090 pounds of total chromium from August 1, 2005 through March 31, 2014.

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 First Quarter 2014 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 First Quarter 2014 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: April 15, 2014 Who Created this Document?: (i.e. PG&E, DTSC, DOI, Other) PG&E Document ID Number: PGE20140415A
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 First Quarter 2014 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.

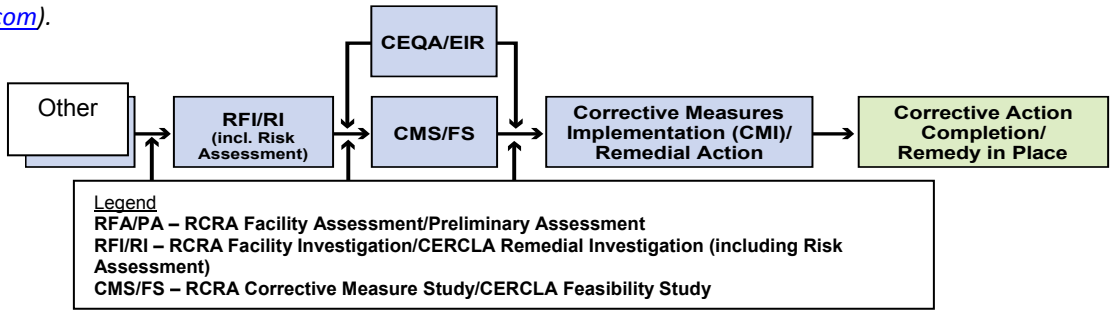
How is this information related to the Final Remedy or Regulatory Requirements?

The Topock IM-3 First Quarter 2014 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

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

Document ID: PGE20140415A

PG&E Topock Compressor Station
Needles, California

Prepared for

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

on behalf of

Pacific Gas and Electric Company

April 15, 2014

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

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

PG&E Topock Compressor Station
Needles, California

Prepared for

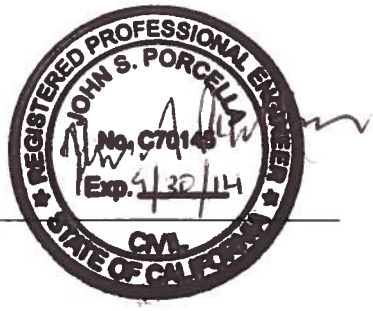
United States Department of the Interior
and
Colorado River Basin Regional Water Quality Control Board

on behalf of

Pacific Gas and Electric Company

April 15, 2014

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



John Porcella, P.E.
Project Engineer

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A First Quarter 2014 Laboratory Analytical Reports

Acronyms and Abbreviations

ARARs	Applicable or Relevant and Appropriate Requirements
DOI	United States Department of the Interior
gpm	gallons per minute
IM	Interim Measure
IW	injection well
MRP	Monitoring and Reporting Program
PG&E	Pacific Gas and Electric Company
PST	Pacific Standard Time
Regional Water Board	Colorado River Basin Regional Water Quality Control Board
RO	reverse osmosis
Truesdail	Truesdail Laboratories, Inc.
WDR	Waste Discharge Requirements

SECTION 1

Introduction

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

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

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

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

SECTION 2

Sampling Station Locations

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

SECTION 3

Description of Activities

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

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

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

During the First Quarter 2014, extraction wells TW-3D and PE-1 operated at a target pumping rate of 135 gallons per minute (gpm), excluding periods of planned and unplanned downtime. Extraction wells TW-2D and TW-2S were not operated during First Quarter 2014. The recorded operational run time for the IM-3 groundwater extraction system (combined or individual pumping), by month, was approximately:

- 98.7 percent during January 2014
- 99.0 percent during February 2014
- 97.3 percent during March 2014

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

- **Treated effluent**: Treated water that is discharged to the injection well(s).
- **Reverse osmosis (RO) concentrate (brine)**: Treatment byproduct that is transported and disposed of offsite at a permitted facility.
- **Sludge:** Treatment byproduct that is transported offsite for disposal at a permitted facility. Disposal occurs each time a sludge waste storage bin reaches capacity or within 90 days of the start date for accumulation in the storage container.

Activities during the First Quarter 2014 are detailed in Section 4.

SECTION 4

Groundwater Treatment System Flow Rates

The First Quarter 2014 treatment system monthly average flow rates (influent, effluent, and reverse osmosis concentrate) are presented in Table 2.

The system influent flow rate was measured by flow meters at groundwater extraction wells TW-2S, TW-2D, TW-3D, and PE-1 (Figure TP-PR-10-10-03). The treatment system effluent flow rate was measured by flow meters in the piping into injection wells IW-2 and IW-3 (Figure TP-PR-10-10-11). The RO concentrate flow rate was measured by a flow meter at the piping carrying water from RO concentrate tank T-701 to the truck load-out station (Figure PR-10-04).

The IM-3 facility treated approximately 17,089,728 gallons of extracted groundwater during the First Quarter 2014. The IM-3 facility also treated approximately 1,860 gallons of water generated from the groundwater monitoring program, and approximately 20,900 gallons of injection well backwashing/re-development water.

Eight containers of solids (sludge) were transported offsite from the IM-3 facility during First Quarter 2014.

Periods of planned and unplanned extraction system downtime (that together resulted in approximately 1.7 percent downtime during First Quarter 2014) are summarized below. The times shown are in Pacific Standard Time (PST) to be consistent with other data collected (e.g., water level data) at the site.

4.1 January 2014

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

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

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

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

4.2 February 2014

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

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

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

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

4.3 March 2014

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

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

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

- **March 5, 2014 (planned):** The extraction well system was offline from 12:26 pm to 12:28 pm during installation of a riser extension on the leak detection system sensors. Extraction system downtime was 2 minutes.
- **March 6, 2014 (planned):** The extraction well system was offline from 7:06 a.m. to 7:08 a.m., from 7:48 a.m. to 7:50 a.m., from 11:28 a.m. to 11:30 a.m., from 11:34 a.m. to 11:44 a.m., from 11:48 a.m. to 11:50 a.m., and from 11:58 a.m. to 12:00 p.m. due to testing of critical alarms and leak detection system. Extraction system downtime was 20 minutes.

- **March 12, 2014 (unplanned):** The extraction well system was offline from 12:40 p.m. to 1:38 p.m. due to a high level alarm in the Pre-Treated Water Tank (T-500) caused by a Microfilter shutdown. Extraction system downtime was 58 minutes.
- **March 31, 2014 (planned):** The extraction well system was offline from 5:32 a.m. to 12:00 a.m. for the semiannual maintenance shutdown event. Extraction system downtime was 18 hours, 28 minutes.

SECTION 5

Sampling and Analytical Procedures

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

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

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

During the First Quarter 2014, analysis of pH was conducted by field method pursuant to the Regional Water Board letter dated October 16, 2007 (subject: Clarification of Monitoring and Reporting Program Requirements), authorizing pH measurements to be conducted in the field. The field method pH samples were collected at the designated sampling locations and field tested within 15 minutes of sampling.

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

Influent, effluent, RO concentrate, and sludge sampling frequency were in accordance with the MRP.

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

SECTION 6

Analytical Results

Laboratory reports for samples collected in the First Quarter 2014 were prepared by certified analytical laboratories, and are presented in Appendix A.

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

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

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

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

SECTION 7

Conclusions

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

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

SECTION 8

Certification

Certification Statement:

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

Signature _____

Name: Curt Russell

Company: Pacific Gas and Electric Company

Title: Topock Site Manager

Date: April 15, 2014

Tables

TABLE 1
Sampling Station Descriptions
First Quarter 2014 Monitoring Report for Interim Measure No. 3 Groundwater Treatment System

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

Note:
= Sequential sample identification number at each sample station.
[a] The sample event number is included at the end of the sample ID (e.g., SC-100B-WDR-015).

TABLE 2
Flow Monitoring Results
First Quarter 2014 Monitoring Report for Interim Measure No. 3 Groundwater Treatment System

Parameter	System Influent[a,b] (gpm)	System Effluent[b] (gpm)	Reverse Osmosis Concentrate[b] (gpm)
January 2014 Average Monthly Flowrate	132.3	133.1	0.6
February 2014 Average Monthly Flowrate	132.7	132.1	1.1
March 2014 Average Monthly Flowrate	130.7	130.6	1.0

Notes:
gpm: gallons per minute
[a] Extraction wells TW-3D and PE-1 were operated during the First Quarter 2014. Extraction wells TW-2D and TW-2S were not operated during the First Quarter 2014.
[b] The difference between influent flow rate and the sum of the effluent and reverse osmosis concentrate flow rates during the First Quarter 2014 is approximately 0.73 percent.

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

Parameter	Sample Collection Dates	Results
Influent	January 7, 2014	See Table 4
	February 4, 2014	
	March 4, 2014	
Effluent	January 7, 2014	See Table 5
	January 14, 2014	
	January 21, 2014	
	January 28, 2014	
	February 4, 2014	
	February 11, 2014	
	February 18, 2014	
	February 25, 2014	
	March 4, 2014	
	March 11, 2014	
	March 18, 2014	
	March 25, 2014	
	March 31, 2014	
Reverse Osmosis Concentrate	January 7, 2014	See Table 6
Sludge[a]	January 7, 2014	See Table 7

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

TABLE 4
Topock IM-3 Waste Discharge Applicable or Relevant and Appropriate Requirements (ARARs)
Influent Monitoring Results [a]
First Quarter 2014 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	---	0.710	0.300	7.20	0.0318	0.0700	0.0520	0.590	0.0041	0.190	0.104	0.0190	0.0600	0.100	0.240	0.0415	0.00063	1.54	3.00	5.10
Sample ID	Date																							
SC-100B-WDR-448	**1/7/2014**	**4520**	**0.134**	**6770**	**7.2**	**730**	**640**	**ND (20.0)**	**ND (0.500)**	**ND (2.00)**	**3.40**	**27.5**	**1.04**	**ND (5.00)**	**2.40**	**ND (1.00)**	**4.50**	**18.6**	**ND (2.00)**	**3.13**	**ND (0.0050)**	**523**	**25.3**	**ND (20.0)**
RL		125	0.100	2.00	---	5.00	10.0	20.0	0.500	2.00	0.500	5.00	0.0200	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-452	**2/4/2014**	**4480**	**0.103**	**6620**	**7.1**	**702**	**692**	**ND (50.0)**	**ND (0.500)**	**ND (2.00)**	**3.40**	**26.3**	**1.00**	**ND (5.00)**	**2.33**	**ND (1.00)**	**5.10**	**18.6**	**ND (2.00)**	**3.16**	**ND (0.0050)**	**555**	**ND (20.0)**	**ND (20.0)**
RL		125	0.100	2.00	---	5.00	10.0	50.0	0.500	2.00	0.500	5.00	0.0500	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-456	**3/4/2014**	**4620**	**0.102**	**6810**	**7.3**	**636**	**621**	**ND (20.0)**	**ND (0.500)**	**ND (2.00)**	**3.20**	**23.1**	**0.836**	**ND (5.00)**	**2.30**	**ND (1.00)**	**5.60**	**17.3**	**ND (2.00)**	**2.97**	**ND (0.0050)**	**526**	**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	0.0500	5.00	0.500	1.00	0.500	2.00	2.00	0.500	0.0050	25.0	20.0	20.0

NOTES:

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

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

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

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

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

Effluent Limits[b] Ave. Monthly	NA	NA	NA	6.5-8.4	25	8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Max Daily	NA	NA	NA	6.5-8.4	50	16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sampling Frequency			**Weekly**													**Monthly**								
Analytes	TDS	Turbidity	Specific Conductance	Field pH[e]	Chromium	Hexavalent Chromium	Aluminium	Ammonia (as N)	Antimony	Arsenic	Barium	Boron	Copper	Fluoride	Lead	Manganese	Molybdenum	Nickel	Nitrate (as N)	Nitrite (as N)	Sulfate	Iron	Zinc
Units[c]	mg/L	NTU	µmhos/cm	pH units	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	mg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	mg/L	µg/L	µg/L
MDL[d]	1.76	0.0140	0.100	---	0.0300	0.0060	7.20	0.0318	0.0700	0.0520	0.590	0.0041	0.190	0.104	0.0190	0.0260	0.100	0.240	0.0415	0.00063	0.768	3.00	5.10
Sample ID **Date**																								
SC-700B-WDR-448 1/7/2014	**4490**	**ND (0.100)**	**6750**	**7.00**	**ND (1.00)J**	**1.70 J**	**43.1**	**ND (0.500)**	**ND (2.00)**	**ND (0.500)**	**12.2**	**1.07**	**ND (5.00)**	**2.08**	**ND (1.00)**	**4.00**	**18.6**	**ND (2.00)**	**3.11**	**ND (0.0050)**	**507**	**ND (20.0)**	**ND (20.0)**
RL	125	0.100	2.00	---	1.00	1.00	20.0	0.500	2.00	0.500	5.00	0.0200	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-449 1/14/2014	**4360**	**ND (0.100)**	**7300**	**6.90**	**ND (1.00)**	**ND (0.200)**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**6.10**	**---**	**---**	**---**	**---**	**---**	**---**	**---**
RL	250	0.100	2.00	---	1.00	0.200	---	---	---	---	---	---	---	---	---	0.500	---	---	---	---	---	---	---
SC-700B-WDR-450 1/21/2014	**4660**	**ND (0.100)**	**6680**	**6.90**	**ND (1.00)**	**ND (0.200)**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**3.10**	**---**	**---**	**---**	**---**	**---**	**---**	**---**
RL	125	0.100	2.00	---	1.00	0.200	---	---	---	---	---	---	---	---	---	0.500	---	---	---	---	---	---	---
SC-700B-WDR-451 1/28/2014	**4570**	**ND (0.100)**	**6600**	**6.80**	**ND (1.00)**	**ND (0.200)**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**1.00**	**---**	**---**	**---**	**---**	**---**	**---**	**---**
RL	125	0.100	2.00	---	1.00	0.200	---	---	---	---	---	---	---	---	---	0.500	---	---	---	---	---	---	---
SC-700B-WDR-452 2/4/2014	**4360**	**ND (0.100)**	**6430**	**6.80**	**ND (1.00)**	**0.530**	**ND (50.0)**	**ND (0.500)**	**ND (2.00)**	**ND (0.500)**	**11.1**	**0.903**	**ND (5.00)**	**1.89**	**ND (1.00)**	**4.40**	**11.8**	**ND (2.00)**	**2.94**	**ND (0.0050)**	**510**	**ND (20.0)**	**ND (20.0)**
RL	125	0.100	2.00	---	1.00	0.200	50.0	0.500	2.00	0.500	5.00	0.0500	5.00	0.500	1.00	0.500	2.00	2.00	0.500	0.0050	12.5	20.0	20.0
SC-700B-WDR-453 2/11/2014	**4280**	**ND (0.100)**	**6420**	**7.00**	**1.20**	**0.700**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**2.30**	**---**	**---**	**---**	**---**	**---**	**---**	**---**
RL	125	0.100	2.00	---	1.00	0.200	---	---	---	---	---	---	---	---	---	0.500	---	---	---	---	---	---	---
SC-700B-WDR-454 2/18/2014	**4380**	**0.123**	**6540**	**7.10**	**ND (1.00)**	**0.450**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**2.00**	**---**	**---**	**---**	**---**	**---**	**---**	**---**
RL	125	0.100	2.00	---	1.00	0.200	---	---	---	---	---	---	---	---	---	0.500	---	---	---	---	---	---	---
SC-700B-WDR-455 2/25/2014	**4490**	**0.134**	**6720**	**6.80**	**ND (1.00)**	**0.380**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**2.40**	**---**	**---**	**---**	**---**	**---**	**---**	**---**
RL	125	0.100	2.00	---	1.00	0.200	---	---	---	---	---	---	---	---	---	1.00	---	---	---	---	---	---	---
SC-700B-WDR-456 3/4/2014	**4540**	**0.108**	**6800**	**7.00**	**ND (1.00)**	**0.220**	**ND (20.0)**	**ND (0.500)**	**ND (2.00)**	**ND (0.500)**	**9.50**	**0.828**	**ND (5.00)**	**1.97**	**ND (1.00)**	**2.20**	**18.3**	**3.00**	**3.04**	**ND (0.0050)**	**516**	**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	0.0500	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-457 3/11/2014	**4380**	**ND (0.100)**	**6890**	**7.10**	**ND (1.00)**	**ND (0.200)**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**4.00**	**---**	**---**	**---**	**---**	**---**	**---**	**---**
RL	125	0.100	2.00	---	1.00	0.200	---	---	---	---	---	---	---	---	---	0.500	---	---	---	---	---	---	---
SC-700B-WDR-458 3/18/2014	**4420**	**0.105**	**6840**	**7.20**	**ND (1.00)**	**ND (0.200)**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**0.980**	**---**	**---**	**---**	**---**	**---**	**---**	**---**
RL	125	0.100	2.00	---	1.00	0.200	---	---	---	---	---	---	---	---	---	0.500	---	---	---	---	---	---	---
SC-700B-WDR-459 3/25/2014	**4280**	**ND (0.100)**	**6630**	**7.10**	**ND (1.00)**	**ND (0.200)**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**0.810**	**---**	**---**	**---**	**---**	**---**	**---**	**---**
RL	125	0.100	2.00	---	1.00	0.200	---	---	---	---	---	---	---	---	---	0.500	---	---	---	---	---	---	---
SC-700B-WDR-460 3/31/2014	**4100**	**ND (0.100)**	**6400**	**6.90**	**ND (1.00)**	**ND (0.200)**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**ND (0.500)J**	**---**	**---**	**---**	**---**	**---**	**---**	**---**
RL	50.0	0.100	0.100	---	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]
First Quarter 2014 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	---	0.000071	0.000060	0.000070	0.000052	0.00059	0.00036	0.000050	0.000080	0.00019	0.104	0.000095	0.000050	0.000080	0.00024	0.00015	0.000058	0.00018	0.000070	0.0051
Sample ID	Date																						
SC-701-WDR-448	**1/7/2014**	**20600**	**27200**	**7.8**	**0.00300**	**ND (0.0020)**	**ND (0.0020)**	**ND (0.00050)**	**0.0638**	**ND (0.0020)**	**ND (0.0020)**	**ND (0.0050)**	**ND (0.0050)**	**10.4**	**ND (0.0050)**	**0.0873**	**ND (0.00040)**	**0.00780**	**0.0200**	**ND (0.0050)**	**ND (0.0050)**	**ND (0.0050)**	**ND (0.0200)**
RL		500	2.00	---	0.0010	0.0020	0.0020	0.00050	0.0050	0.0020	0.0020	0.0050	0.0050	0.500	0.0050	0.0020	0.00040	0.0020	0.0050	0.0050	0.0050	0.0050	0.0200

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

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

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

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

TABLE 7
Topock IM-3 Waste Discharge Applicable or Relevant and Appropriate Requirements (ARARs)
Sludge Monitoring Results[a]
First Quarter 2014 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

Sampling Frequency		Quarterly																		
	Analytes	Chromium	Hexavalent Chromium	Antimony	Arsenic	Barium	Beryllium	Cadmium	Cobalt	Copper	Fluoride	Lead	Molybdenum	Mercury	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
	Units[b]	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
	MDL	0.0140	0.0112	0.00018	0.0188	0.0106	0.00018	0.0025	0.0020	0.0264	0.0209	0.00072	0.00025	0.000080	0.0040	0.0064	0.00014	0.00015	0.0056	0.0102
Sample ID	**Date**																			
SC-Sludge-WDR-448	**1/7/2014**	**3020**	**33.7**	**ND (5.00)**	**ND (5.00)**	**62.9**	**ND (1.00)**	**6.33**	**ND (10.0)**	**12.6**	**22.4**	**ND (5.00)**	**ND (10.0)**	**0.117**	**13.4**	**ND (5.00)**	**ND (5.00)**	**ND (5.00)**	**32.2**	**31.1**
RL		11.5	4.36	5.00	5.00	10.0	1.00	2.12	10.0	8.49	4.36	5.00	10.0	0.100	5.00	5.00	5.00	5.00	5.00	10.0

NOTES:

(---) = not required by the ARARs Monitoring and Reporting Program
J = concentration or reporting limits estimated by laboratory or validation
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
First Quarter 2014 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician
SC-100B	SC-100B-WDR-448	Ron Phelps	1/7/2014	1:30:00 PM	TLI	EPA 120.1	SC	1/9/2014	Jenny Tankunakorn
					TLI	EPA 200.7	AL	1/27/2014	Maria Mangarova
					TLI	EPA 200.7	B	1/27/2014	Maria Mangarova
					TLI	EPA 200.7	FE	2/10/2014	Maria Mangarova
					TLI	EPA 200.7	ZN	1/27/2014	Maria Mangarova
					TLI	EPA 200.8	AS	1/15/2014	Ethel Suico
					TLI	EPA 200.8	BA	1/16/2014	Ethel Suico
					TLI	EPA 200.8	CR	1/15/2014	Ethel Suico
					TLI	EPA 200.8	CU	1/15/2014	Ethel Suico
					TLI	EPA 200.8	MN	1/15/2014	Ethel Suico
					TLI	EPA 200.8	MO	1/16/2014	Ethel Suico
					TLI	EPA 200.8	NI	1/15/2014	Ethel Suico
					TLI	EPA 200.8	PB	1/15/2014	Ethel Suico
					TLI	EPA 200.8	SB	1/16/2014	Ethel Suico
					TLI	EPA 218.6	CR6	1/8/2014	Naheed Eidinejad
					TLI	EPA 300.0	FL	1/8/2014	Giawad Ghenniwa
					TLI	EPA 300.0	NO3N	1/8/2014	Giawad Ghenniwa
					TLI	EPA 300.0	SO4	1/17/2014	Giawad Ghenniwa
					FIELD	HACH	PH	1/7/2014	Ron Phelps
					TLI	SM2130B	TRB	1/8/2014	Felipe Mendoza
					TLI	SM2540C	TDS	1/7/2014	Jenny Tankunakorn
					TLI	SM4500NH3D	NH3N	1/22/2014	Himani Vaishnav/Maria Mangarova
					TLI	SM4500NO2B	NO2N	1/9/2014	Jenny Tankunakorn
SC-100B	SC-100B-WDR-452	Chris Lentz	2/4/2014	1:10:00 PM	TLI	EPA 120.1	SC	2/5/2014	Jenny Tankunakorn
					TLI	EPA 200.7	AL	2/18/2014	Maria Mangarova
					TLI	EPA 200.7	B	2/18/2014	Maria Mangarova
					TLI	EPA 200.7	FE	2/18/2014	Maria Mangarova
					TLI	EPA 200.7	FETD	2/25/2014	Maria Mangarova
					TLI	EPA 200.7	ZN	2/18/2014	Maria Mangarova
					TLI	EPA 200.8	AS	2/10/2014	Ethel Suico
					TLI	EPA 200.8	BA	2/10/2014	Ethel Suico
					TLI	EPA 200.8	CR	2/11/2014	Ethel Suico
					TLI	EPA 200.8	CU	2/10/2014	Ethel Suico
					TLI	EPA 200.8	MN	2/10/2014	Ethel Suico
					TLI	EPA 200.8	MND	2/11/2014	Ethel Suico
					TLI	EPA 200.8	MO	2/10/2014	Ethel Suico

TABLE 8
Topock IM-3 Waste Discharge Applicable or Relevant and Appropriate Requirements (ARARs)
Monitoring Information
First Quarter 2014 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician
SC-100B	SC-100B-WDR-452	Chris Lentz	2/4/2014	1:10:00 PM	TLI	EPA 200.8	NI	2/11/2014	Ethel Suico
					TLI	EPA 200.8	PB	2/10/2014	Ethel Suico
					TLI	EPA 200.8	SB	2/10/2014	Ethel Suico
					TLI	EPA 218.6	CR6	2/5/2014	Naheed Eidinejad
					TLI	EPA 300.0	FL	2/5/2014	Giawad Ghenniwa
					TLI	EPA 300.0	NO3N	2/5/2014	Giawad Ghenniwa
					TLI	EPA 300.0	SO4	2/5/2014	Giawad Ghenniwa
					FIELD	HACH	PH	2/4/2014	Chris Lentz
					TLI	SM 2320B	ALKB	2/10/2014	Himani Vaishnav
					TLI	SM 2320B	ALKC	2/10/2014	Himani Vaishnav
					TLI	SM2130B	TRB	2/5/2014	Felipe Mendoza
					TLI	SM2540C	TDS	2/5/2014	Jenny Tankunakorn
					TLI	SM4500NH3D	NH3N	2/19/2014	Maksim Gorbunov/Himani Vaishnav
					TLI	SM4500NO2B	NO2N	2/5/2014	Jenny Tankunakorn
SC-100B	SC-100B-WDR-456	Ryan Phelps	3/4/2014	3:00:00 PM	TLI	EPA 120.1	SC	3/7/2014	Jenny Tankunakorn
					TLI	EPA 200.7	AL	3/18/2014	Maria Mangarova
					TLI	EPA 200.7	B	3/17/2014	Maria Mangarova
					TLI	EPA 200.7	FE	3/17/2014	Maria Mangarova
					TLI	EPA 200.7	FETD	3/20/2014	Maria Mangarova
					TLI	EPA 200.7	ZN	3/17/2014	Maria Mangarova
					TLI	EPA 200.8	AS	3/11/2014	Ethel Suico
					TLI	EPA 200.8	BA	3/11/2014	Ethel Suico
					TLI	EPA 200.8	CR	3/11/2014	Ethel Suico
					TLI	EPA 200.8	CU	3/12/2014	Ethel Suico
					TLI	EPA 200.8	MN	3/11/2014	Ethel Suico
					TLI	EPA 200.8	MND	3/11/2014	Ethel Suico
					TLI	EPA 200.8	MO	3/11/2014	Ethel Suico
					TLI	EPA 200.8	NI	3/12/2014	Ethel Suico
					TLI	EPA 200.8	PB	3/11/2014	Ethel Suico
					TLI	EPA 200.8	SB	3/11/2014	Ethel Suico
					TLI	EPA 218.6	CR6	3/5/2014	Naheed Eidinejad
					TLI	EPA 300.0	FL	3/5/2014	Giawad Ghenniwa
					TLI	EPA 300.0	NO3N	3/5/2014	Giawad Ghenniwa
					TLI	EPA 300.0	SO4	3/5/2014	Giawad Ghenniwa
					FIELD	HACH	PH	3/4/2014	Ryan Phelps
					TLI	SM 2320B	ALKB	3/7/2014	Himani Vaishnav/Felipe Mendoza

TABLE 8
Topock IM-3 Waste Discharge Applicable or Relevant and Appropriate Requirements (ARARs)
Monitoring Information
First Quarter 2014 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician
SC-100B	SC-100B-WDR-456	Ryan Phelps	3/4/2014	3:00:00 PM	TLI	SM 2320B	ALKC	3/7/2014	Himani Vaishnav/Felipe Mendoza
					TLI	SM2130B	TRB	3/5/2014	Felipe Mendoza
					TLI	SM2540C	TDS	3/7/2014	Jenny Tankunakorn
					TLI	SM4500NH3D	NH3N	3/18/2014	Felipe Mendoza
					TLI	SM4500NO2B	NO2N	3/5/2014	Jenny Tankunakorn
SC-700B	SC-700B-WDR-448	Ron Phelps	1/7/2014	1:30:00 PM	TLI	EPA 120.1	SC	1/9/2014	Jenny Tankunakorn
					TLI	EPA 200.7	AL	1/27/2014	Maria Mangarova
					TLI	EPA 200.7	B	1/27/2014	Maria Mangarova
					TLI	EPA 200.7	FE	2/10/2014	Maria Mangarova
					TLI	EPA 200.7	ZN	1/27/2014	Maria Mangarova
					TLI	EPA 200.8	AS	1/15/2014	Ethel Suico
					TLI	EPA 200.8	BA	1/16/2014	Ethel Suico
					TLI	EPA 200.8	CR	1/15/2014	Ethel Suico
					TLI	EPA 200.8	CU	1/15/2014	Ethel Suico
					TLI	EPA 200.8	MN	1/15/2014	Ethel Suico
					TLI	EPA 200.8	MO	1/16/2014	Ethel Suico
					TLI	EPA 200.8	NI	1/15/2014	Ethel Suico
					TLI	EPA 200.8	PB	1/15/2014	Ethel Suico
					TLI	EPA 200.8	SB	1/16/2014	Ethel Suico
					TLI	EPA 218.6	CR6	1/8/2014	Naheed Eidinejad
					TLI	EPA 300.0	FL	1/8/2014	Giawad Ghenniwa
					TLI	EPA 300.0	NO3N	1/8/2014	Giawad Ghenniwa
					TLI	EPA 300.0	SO4	1/17/2014	Giawad Ghenniwa
					FIELD	HACH	PH	1/7/2014	Ron Phelps
					TLI	SM2130B	TRB	1/8/2014	Felipe Mendoza
					TLI	SM2540C	TDS	1/7/2014	Jenny Tankunakorn
					TLI	SM4500NH3D	NH3N	1/22/2014	Himani Vaishnav/Maria Mangarova
					TLI	SM4500NO2B	NO2N	1/9/2014	Jenny Tankunakorn
SC-700B	SC-700B-WDR-449	Chris Lentz	1/14/2014	11:30:00 AM	TLI	EPA 120.1	SC	1/16/2014	Jenny Tankunakorn
					TLI	EPA 200.8	CR	1/25/2014	Ethel Suico
					TLI	EPA 200.8	MN	1/25/2014	Ethel Suico
					TLI	EPA 218.6	CR6	1/15/2014	Naheed Eidinejad
					FIELD	HACH	PH	1/14/2014	Chris Lentz
					TLI	SM2130B	TRB	1/15/2014	Himani Vaishnav
					TLI	SM2540C	TDS	1/17/2014	Jenny Tankunakorn

TABLE 8
Topock IM-3 Waste Discharge Applicable or Relevant and Appropriate Requirements (ARARs)
Monitoring Information
First Quarter 2014 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician
SC-700B	SC-700B-WDR-450	Josh Rosenberg	1/21/2014	3:24:00 PM	TLI	EPA 120.1	SC	1/29/2014	Jenny Tankunakorn
					TLI	EPA 200.8	CR	1/28/2014	Ethel Suico
					TLI	EPA 200.8	MN	1/28/2014	Ethel Suico
					TLI	EPA 218.6	CR6	1/22/2014	Naheed Eidinejad
					FIELD	HACH	PH	1/21/2014	Josh Rosenberg
					TLI	SM2130B	TRB	1/22/2014	Felipe Mendoza
					TLI	SM2540C	TDS	1/22/2014	Jenny Tankunakorn
SC-700B	SC-700B-WDR-451	Chris Lentz	1/28/2014	2:20:00 PM	TLI	EPA 120.1	SC	1/29/2014	Jenny Tankunakorn
					TLI	EPA 200.8	CR	2/10/2014	Ethel Suico
					TLI	EPA 200.8	MN	2/10/2014	Ethel Suico
					TLI	EPA 218.6	CR6	1/29/2014	Felipe Mendoza
					FIELD	HACH	PH	1/28/2014	Chris Lentz
					TLI	SM2130B	TRB	1/30/2014	Himani Vaishnav
					TLI	SM2540C	TDS	1/29/2014	Jenny Tankunakorn
SC-700B	SC-700B-WDR-452	Chris Lentz	2/4/2014	1:10:00 PM	TLI	EPA 120.1	SC	2/5/2014	Jenny Tankunakorn
					TLI	EPA 200.7	AL	2/18/2014	Maria Mangarova
					TLI	EPA 200.7	B	2/18/2014	Maria Mangarova
					TLI	EPA 200.7	FE	2/18/2014	Maria Mangarova
					TLI	EPA 200.7	ZN	2/18/2014	Maria Mangarova
					TLI	EPA 200.8	AS	2/10/2014	Ethel Suico
					TLI	EPA 200.8	BA	2/10/2014	Ethel Suico
					TLI	EPA 200.8	CR	2/10/2014	Ethel Suico
					TLI	EPA 200.8	CU	2/10/2014	Ethel Suico
					TLI	EPA 200.8	MN	2/10/2014	Ethel Suico
					TLI	EPA 200.8	MO	2/10/2014	Ethel Suico
					TLI	EPA 200.8	NI	2/11/2014	Ethel Suico
					TLI	EPA 200.8	PB	2/10/2014	Ethel Suico
					TLI	EPA 200.8	SB	2/10/2014	Ethel Suico
					TLI	EPA 218.6	CR6	2/5/2014	Naheed Eidinejad
					TLI	EPA 300.0	FL	2/5/2014	Giawad Ghenniwa
					TLI	EPA 300.0	NO3N	2/5/2014	Giawad Ghenniwa
					TLI	EPA 300.0	SO4	2/5/2014	Giawad Ghenniwa
					FIELD	HACH	PH	2/4/2014	Chris Lentz
					TLI	SM2130B	TRB	2/5/2014	Felipe Mendoza
					TLI	SM2540C	TDS	2/5/2014	Jenny Tankunakorn

TABLE 8
Topock IM-3 Waste Discharge Applicable or Relevant and Appropriate Requirements (ARARs)
Monitoring Information
First Quarter 2014 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician
SC-700B	SC-700B-WDR-452	Chris Lentz	2/4/2014	1:10:00 PM	TLI	SM4500NH3D	NH3N	2/19/2014	Maksim Gorbunov/Himani Vaishnav
					TLI	SM4500NO2B	NO2N	2/5/2014	Jenny Tankunakorn
SC-700B	SC-700B-WDR-453	Chris Lentz	2/11/2014	2:25:00 PM	TLI	EPA 120.1	SC	2/14/2014	Jenny Tankunakorn
					TLI	EPA 200.8	CR	2/14/2014	Ethel Suico
					TLI	EPA 200.8	MN	2/14/2014	Ethel Suico
					TLI	EPA 218.6	CR6	2/12/2014	Naheed Eidinejad
					FIELD	HACH	PH	2/11/2014	Chris Lentz
					TLI	SM2130B	TRB	2/12/2014	Felipe Mendoza
					TLI	SM2540C	TDS	2/12/2014	Jenny Tankunakorn
SC-700B	SC-700B-WDR-454	Chris Lentz	2/18/2014	1:00:00 PM	TLI	EPA 120.1	SC	2/25/2014	Jenny Tankunakorn
					TLI	EPA 200.8	CR	2/20/2014	Ethel Suico
					TLI	EPA 200.8	MN	2/20/2014	Ethel Suico
					TLI	EPA 218.6	CR6	2/19/2014	Naheed Eidinejad
					FIELD	HACH	PH	2/18/2014	Chris Lentz
					TLI	SM2130B	TRB	2/19/2014	Felipe Mendoza
					TLI	SM2540C	TDS	2/19/2014	Jenny Tankunakorn
SC-700B	SC-700B-WDR-455	Ryan Phelps	2/25/2014		TLI	EPA 120.1	SC	3/7/2014	Jenny Tankunakorn
					TLI	EPA 200.8	CR	2/27/2014	Ethel Suico
					TLI	EPA 200.8	MN	2/27/2014	Ethel Suico
					TLI	EPA 218.6	CR6	2/26/2014	Felipe Mendoza
					FIELD	HACH	PH	2/25/2014	Ryan Phelps
					TLI	SM2130B	TRB	2/27/2014	Felipe Mendoza
					TLI	SM2540C	TDS	2/28/2014	Jenny Tankunakorn
SC-700B	SC-700B-WDR-456	Ryan Phelps	3/4/2014	3:00:00 PM	TLI	EPA 120.1	SC	3/7/2014	Jenny Tankunakorn
					TLI	EPA 200.7	AL	3/18/2014	Maria Mangarova
					TLI	EPA 200.7	B	3/17/2014	Maria Mangarova
					TLI	EPA 200.7	FE	3/17/2014	Maria Mangarova
					TLI	EPA 200.7	ZN	3/17/2014	Maria Mangarova
					TLI	EPA 200.8	AS	3/11/2014	Ethel Suico
					TLI	EPA 200.8	BA	3/11/2014	Ethel Suico
					TLI	EPA 200.8	CR	3/11/2014	Ethel Suico
					TLI	EPA 200.8	CU	3/12/2014	Ethel Suico
					TLI	EPA 200.8	MN	3/11/2014	Ethel Suico
					TLI	EPA 200.8	MO	3/11/2014	Ethel Suico
					TLI	EPA 200.8	NI	3/12/2014	Ethel Suico

TABLE 8
Topock IM-3 Waste Discharge Applicable or Relevant and Appropriate Requirements (ARARs)
Monitoring Information
First Quarter 2014 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician
SC-700B	SC-700B-WDR-456	Ryan Phelps	3/4/2014	3:00:00 PM	TLI	EPA 200.8	PB	3/11/2014	Ethel Suico
					TLI	EPA 200.8	SB	3/11/2014	Ethel Suico
					TLI	EPA 218.6	CR6	3/5/2014	Naheed Eidinejad
					TLI	EPA 300.0	FL	3/5/2014	Giawad Ghenniwa
					TLI	EPA 300.0	NO3N	3/5/2014	Giawad Ghenniwa
					TLI	EPA 300.0	SO4	3/5/2014	Giawad Ghenniwa
					FIELD	HACH	PH	3/4/2014	Ryan Phelps
					TLI	SM2130B	TRB	3/5/2014	Felipe Mendoza
					TLI	SM2540C	TDS	3/7/2014	Jenny Tankunakorn
					TLI	SM4500NH3D	NH3N	3/18/2014	Felipe Mendoza
					TLI	SM4500NO2B	NO2N	3/5/2014	Jenny Tankunakorn
SC-700B	SC-700B-WDR-457	Ryan Phelps	3/11/2014	8:28:00 AM	TLI	EPA 120.1	SC	3/14/2014	Jenny Tankunakorn
					TLI	EPA 200.8	CR	3/14/2014	Ethel Suico
					TLI	EPA 200.8	MN	3/14/2014	Ethel Suico
					TLI	EPA 218.6	CR6	3/12/2014	Naheed Eidinejad
					FIELD	HACH	PH	3/11/2014	Ron Phelps
					TLI	SM2130B	TRB	3/13/2014	Felipe Mendoza
					TLI	SM2540C	TDS	3/12/2014	Jenny Tankunakorn
SC-700B	SC-700B-WDR-458	Ryan Phelps	3/18/2014	1:25:00 PM	TLI	EPA 120.1	SC	3/20/2014	Jenny Tankunakorn
					TLI	EPA 200.8	CR	3/20/2014	Ethel Suico
					TLI	EPA 200.8	MN	3/20/2014	Ethel Suico
					TLI	EPA 218.6	CR6	3/19/2014	Naheed Eidinejad
					FIELD	HACH	PH	3/18/2014	Ron Phelps
					TLI	SM2130B	TRB	3/19/2014	Felipe Mendoza
					TLI	SM2540C	TDS	3/20/2014	Jenny Tankunakorn
SC-700B	SC-700B-WDR-459	Ryan Phelps	3/25/2014	12:48:00 PM	TLI	EPA 120.1	SC	3/27/2014	Jenny Tankunakorn
					TLI	EPA 200.8	CR	3/27/2014	Ethel Suico
					TLI	EPA 200.8	MN	3/27/2014	Ethel Suico
					TLI	EPA 218.6	CR6	3/26/2014	Naheed Eidinejad
					FIELD	HACH	PH	3/25/2014	Ron Phelps
					TLI	SM2130B	TRB	3/26/2014	Himani Vaishnav
					TLI	SM2540C	TDS	3/26/2014	Jenny Tankunakorn
SC-700B	SC-700B-WDR-460	Ryan Phelps	3/31/2014	8:10:00 AM	AVTS	EPA 120.1	SC	3/31/2014	Luisa Cabasug
					AVTS	EPA 180.1	TRB	4/1/2014	Luisa Cabasug
					AVTS	EPA 200.8	CR	4/1/2014	Claire ignacio

TABLE 8
Topock IM-3 Waste Discharge Applicable or Relevant and Appropriate Requirements (ARARs)
Monitoring Information
First Quarter 2014 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician
SC-700B	SC-700B-WDR-460	Ryan Phelps	3/31/2014	8:10:00 AM	AVTS	EPA 200.8	MN	4/1/2014	Claire ignacio
					AVTS	EPA 218.6	CR6	4/1/2014	Ryan Balilu
					FIELD	HACH	PH	3/31/2014	Ryan Phelps
					AVTS	SM2540C	TDS	4/1/2014	Luisa Cabasug
SC-701	SC-701-WDR-448	Ron Phelps	1/7/2014	1:30:00 PM	TLI	EPA 120.1	SC	1/9/2014	Jenny Tankunakorn
					TLI	EPA 200.7	ZN	1/27/2014	Maria Mangarova
					TLI	EPA 200.8	AG	1/17/2014	Ethel Suico
					TLI	EPA 200.8	AS	1/15/2014	Ethel Suico
					TLI	EPA 200.8	BA	1/16/2014	Ethel Suico
					TLI	EPA 200.8	BE	1/16/2014	Ethel Suico
					TLI	EPA 200.8	CD	1/15/2014	Ethel Suico
					TLI	EPA 200.8	CO	1/15/2014	Ethel Suico
					TLI	EPA 200.8	CR	1/15/2014	Ethel Suico
					TLI	EPA 200.8	CU	1/15/2014	Ethel Suico
					TLI	EPA 200.8	HG	1/16/2014	Ethel Suico
					TLI	EPA 200.8	MN	1/15/2014	Ethel Suico
					TLI	EPA 200.8	MO	1/16/2014	Ethel Suico
					TLI	EPA 200.8	NI	1/15/2014	Ethel Suico
					TLI	EPA 200.8	PB	1/15/2014	Ethel Suico
					TLI	EPA 200.8	SB	1/16/2014	Ethel Suico
					TLI	EPA 200.8	SE	1/15/2014	Ethel Suico
					TLI	EPA 200.8	TL	1/15/2014	Ethel Suico
					TLI	EPA 200.8	V	1/15/2014	Ethel Suico
					TLI	EPA 218.6	CR6	1/8/2014	Naheed Eidinejad
					TLI	EPA 300.0	FL	1/8/2014	Giawad Ghenniwa
					FIELD	HACH	PH	1/7/2014	Ron Phelps
					TLI	SM2540C	TDS	1/7/2014	Jenny Tankunakorn
Phase Separator	SC-Sludge-WDR-448	Ron Phelps	1/7/2014	1:30:00 PM	TLI	EPA 300.0	FL	1/8/2014	Giawad Ghenniwa
					TLI	EPA 6010B	AS	2/4/2014	Maria Mangarova
					TLI	EPA 6010B	BA	2/4/2014	Maria Mangarova
					TLI	EPA 6010B	CD	2/4/2014	Maria Mangarova
					TLI	EPA 6010B	CO	2/4/2014	Maria Mangarova
					TLI	EPA 6010B	CR	2/18/2014	Maria Mangarova
					TLI	EPA 6010B	CU	2/4/2014	Maria Mangarova
					TLI	EPA 6010B	MN	2/4/2014	Maria Mangarova

TABLE 8
Topock IM-3 Waste Discharge Applicable or Relevant and Appropriate Requirements (ARARs)
Monitoring Information
First Quarter 2014 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician
Phase Separator	SC-Sludge-WDR-448	Ron Phelps	1/7/2014	1:30:00 PM	TLI	EPA 6010B	NI	2/4/2014	Maria Mangarova
					TLI	EPA 6010B	SE	2/4/2014	Maria Mangarova
					TLI	EPA 6010B	V	2/4/2014	Maria Mangarova
					TLI	EPA 6010B	ZN	2/4/2014	Maria Mangarova
					TLI	SM2540B	MOIST	1/8/2014	Himani Vaishnav
					TLI	SW 6020A	AG	2/20/2014	Ethel Suico
					TLI	SW 6020A	BE	2/19/2014	Ethel Suico
					TLI	SW 6020A	HG	1/30/2014	Ethel Suico
					TLI	SW 6020A	MO	2/19/2014	Ethel Suico
					TLI	SW 6020A	PB	2/19/2014	Ethel Suico
					TLI	SW 6020A	SB	2/19/2014	Ethel Suico
					TLI	SW 6020A	TL	2/19/2014	Ethel Suico
					TLI	SW 7199	CR6	1/14/2014	Felipe Mendoza

NOTES:

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

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

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

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

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

Figures

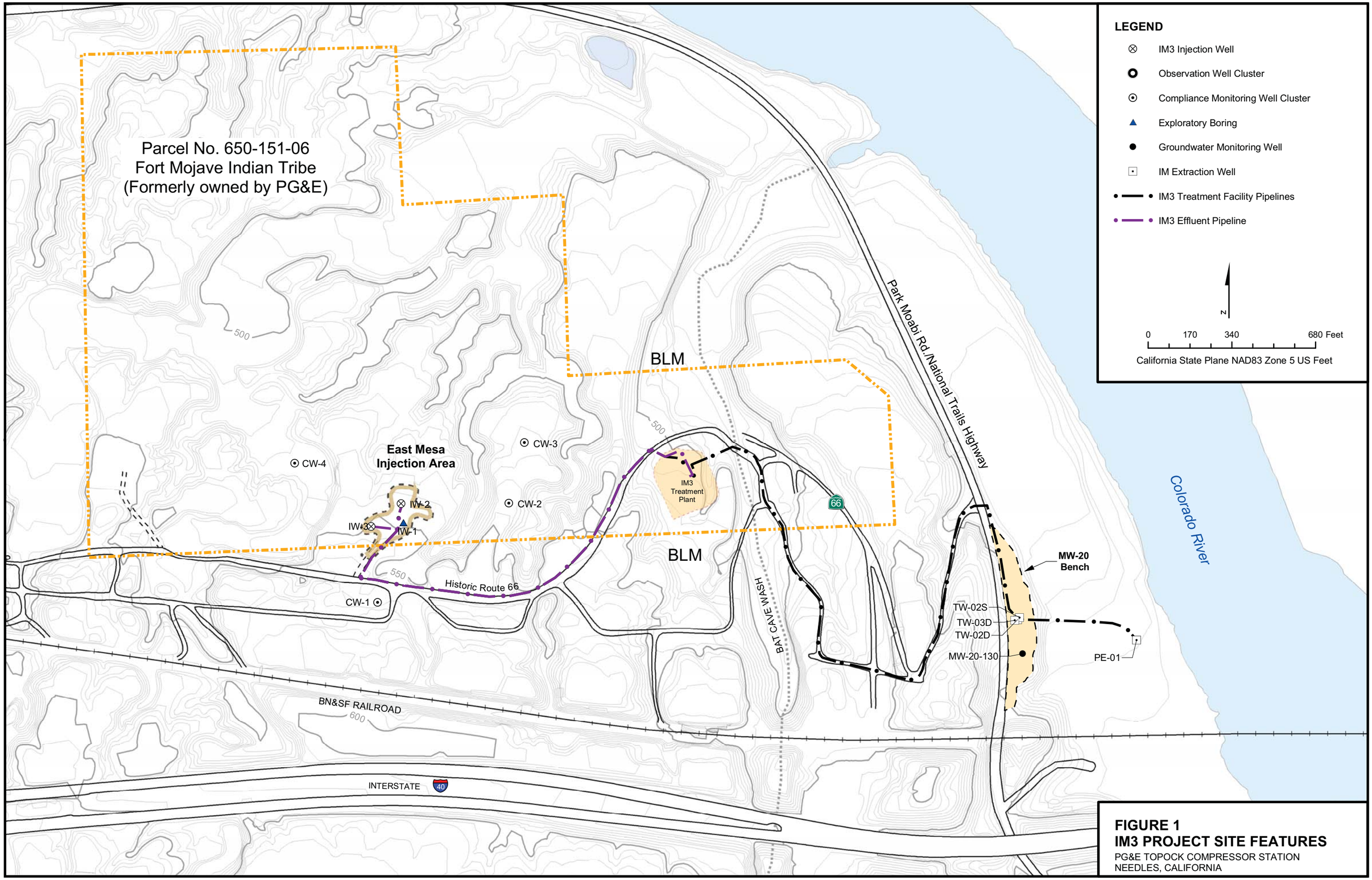
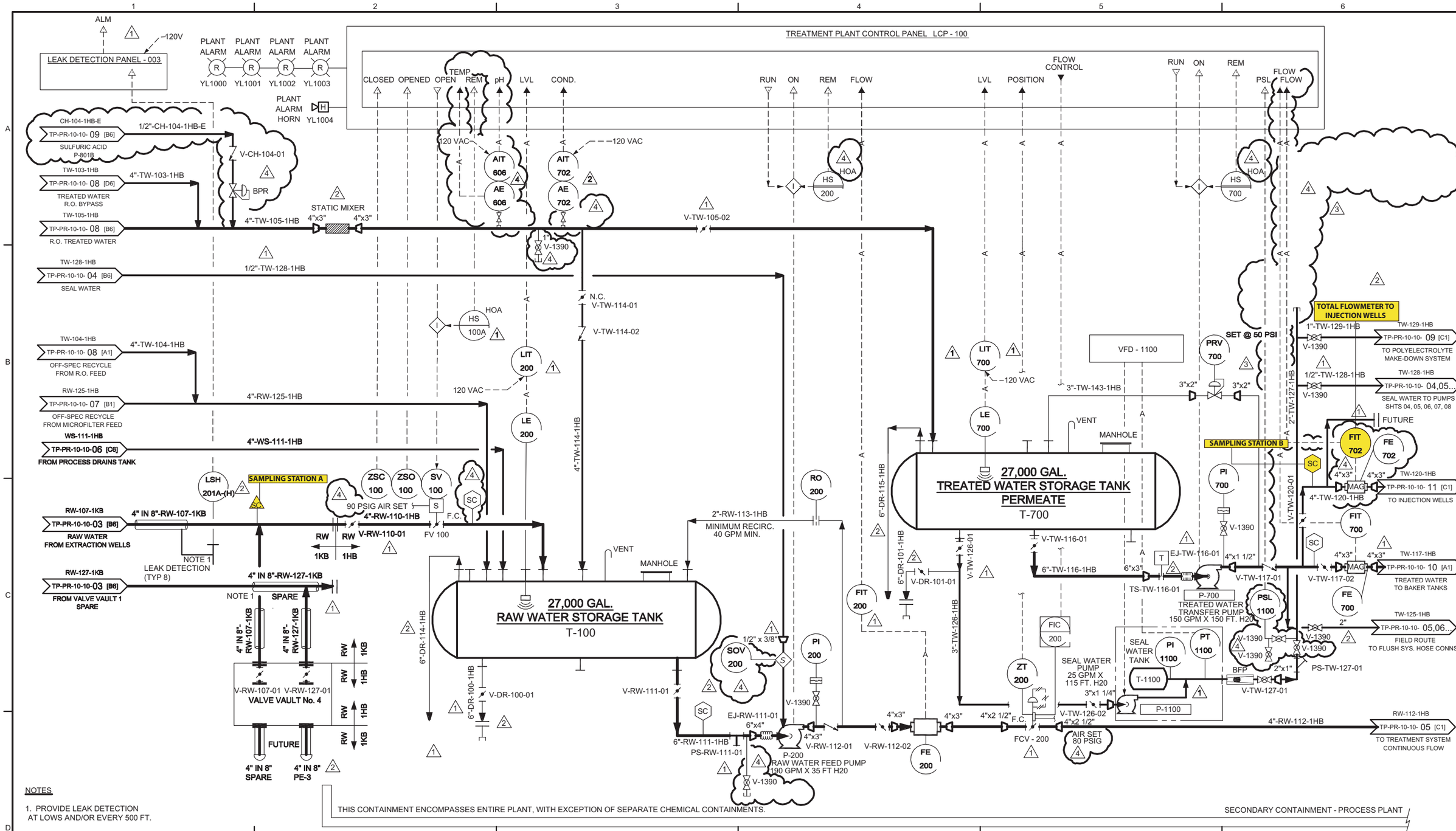


FIGURE 1
IM3 PROJECT SITE FEATURES
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

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



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:

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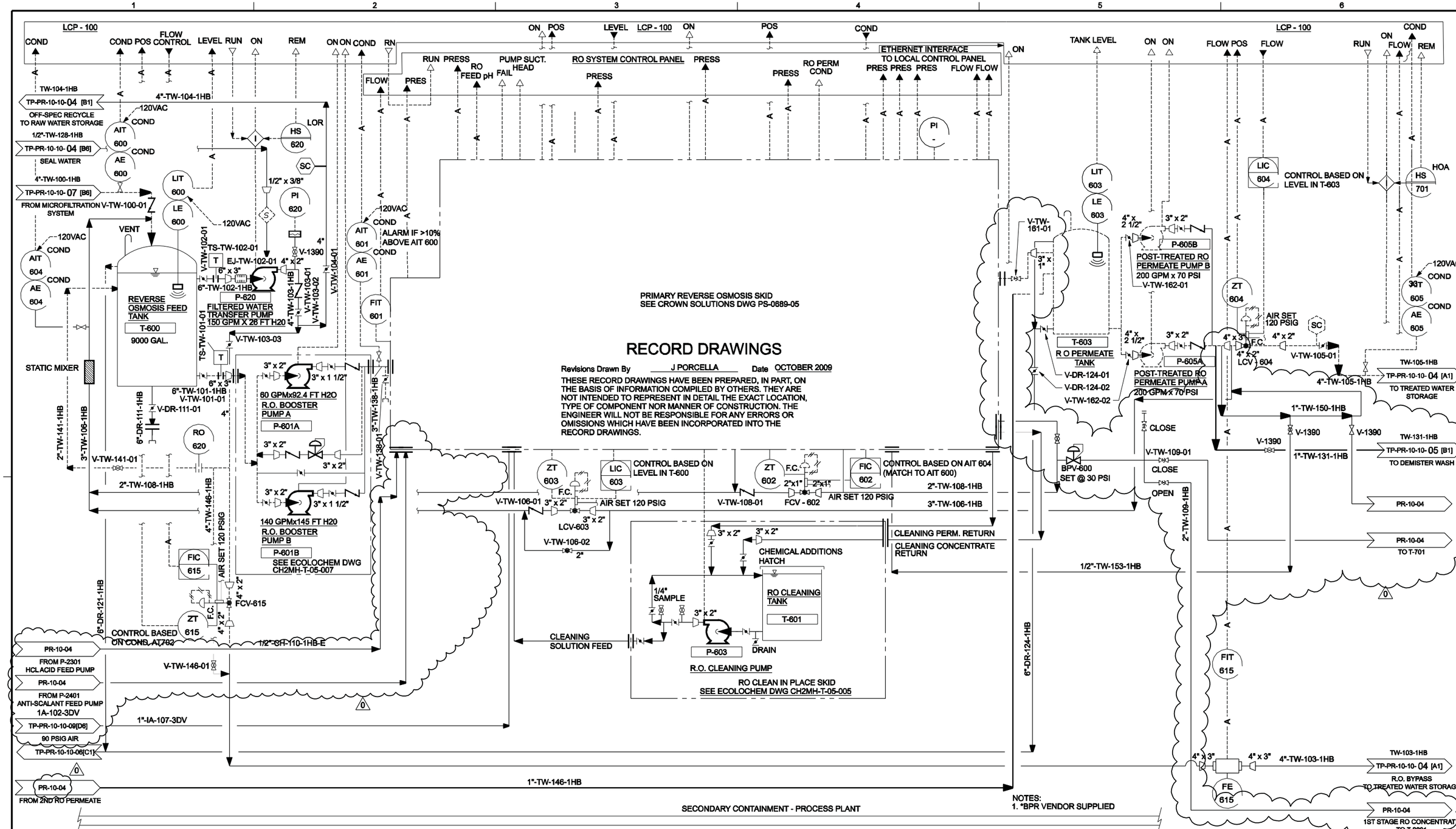

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ORIGINALLY STAMPED AND SIGNED BY:
JOHN PORCELLA
CALIFORNIA PE NO. C70145
ON 04-01-2009
**

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"

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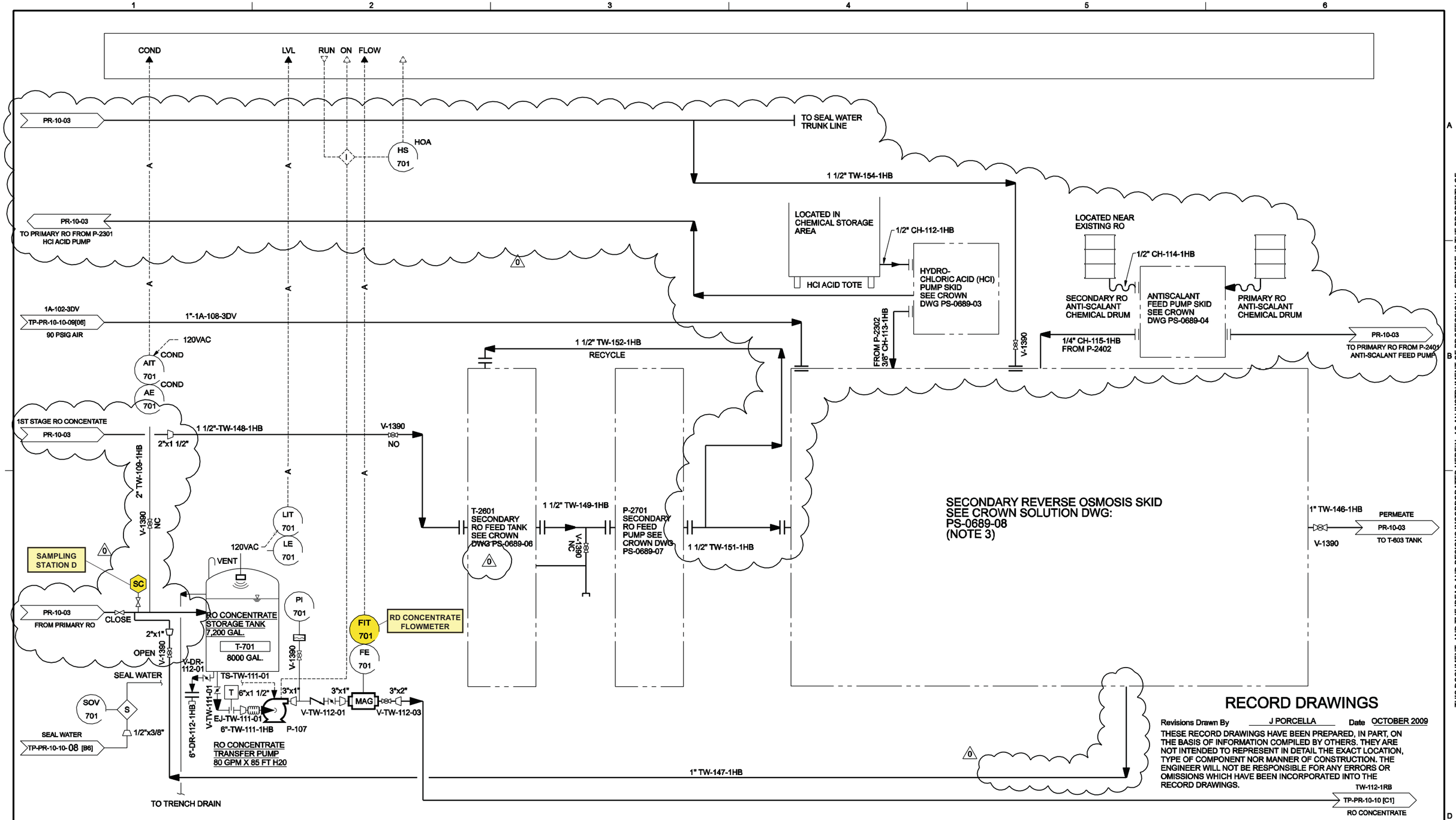

RECORD DRAWINGS

Revisions Drawn By J PORCELLA Date OCTOBER 2009

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

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** 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

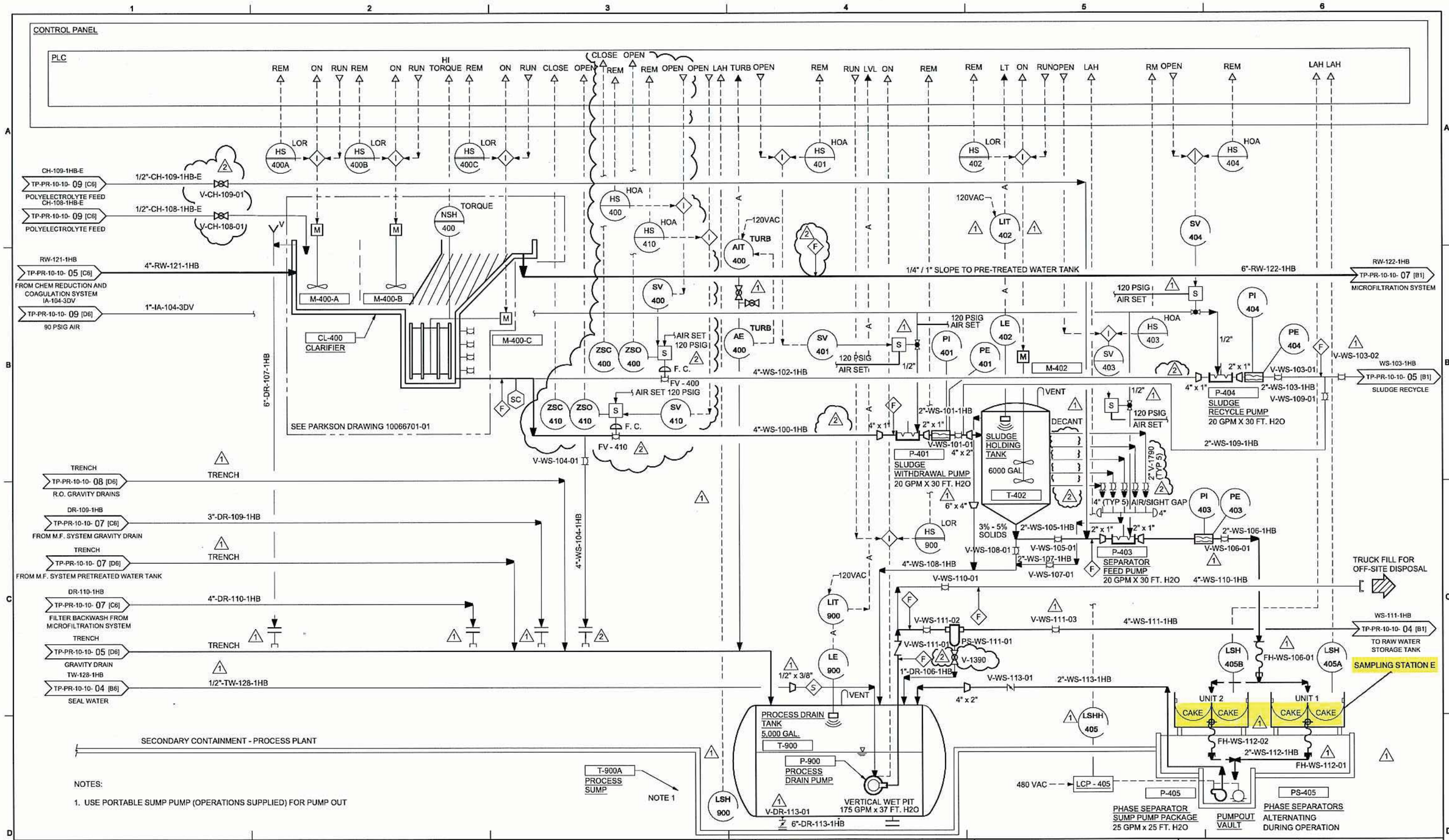
CH2MHILL

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"

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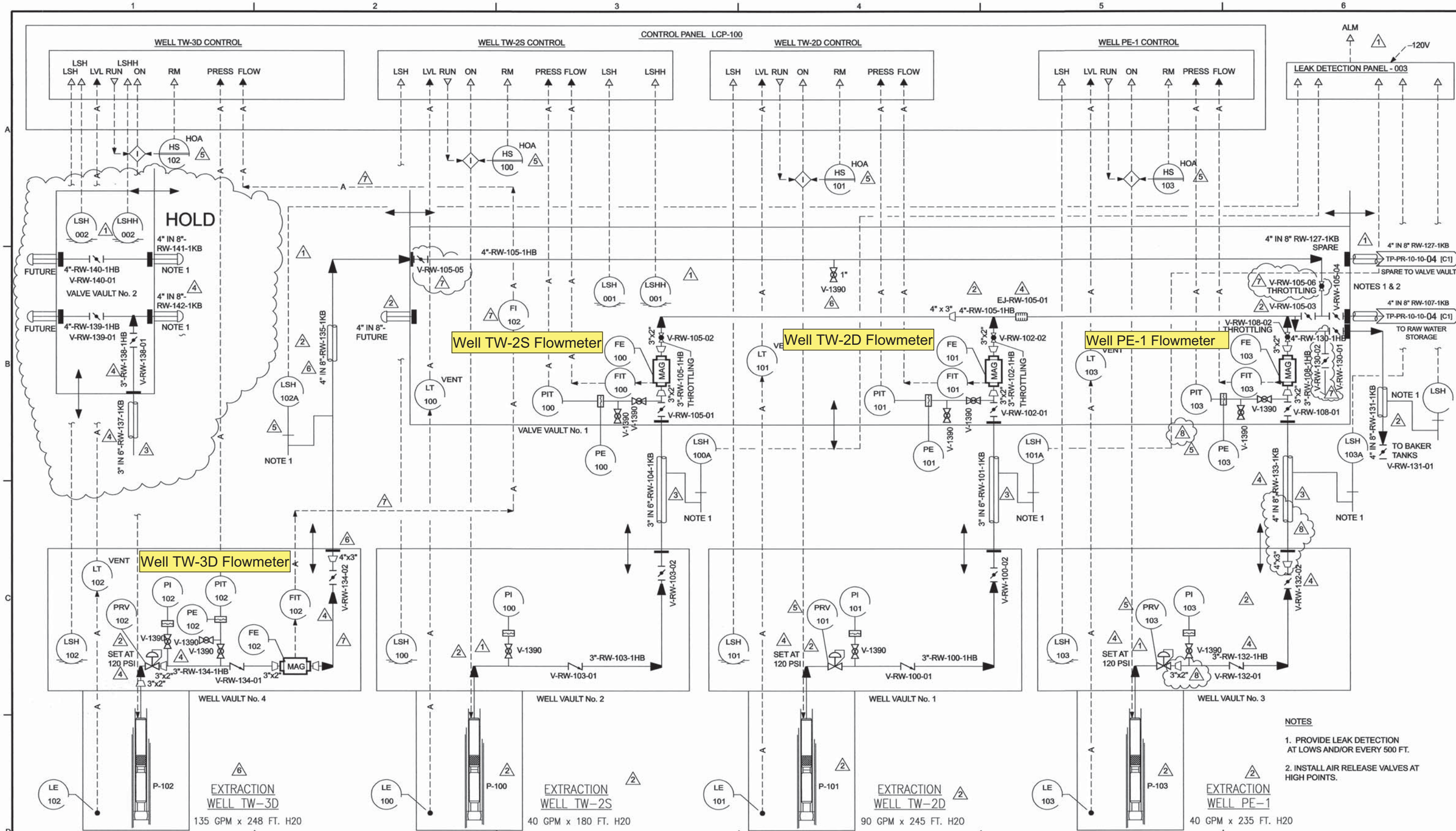

NO.	DATE	REVISION	BY	CHK
8	12/07/05	REMOVED PE-1 HOLDS	JBW	SDH
1	10/13/04	REVISED AND APPROVED FOR CONSTRUCTION	EFC	AJ
2	01/23/05	REVISED AND APPROVED FOR CONSTRUCTION	EFC	AJ
3	03/16/05	DELETED NOTES. APPROVED FOR CONSTRUCTION	EFC	AJ
4	07/20/05	RELIEF VALVE SETTINGS. WELL PE-1 LINE TAGS. HOLDS REMOVED. 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

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BAR IS ONE INCH
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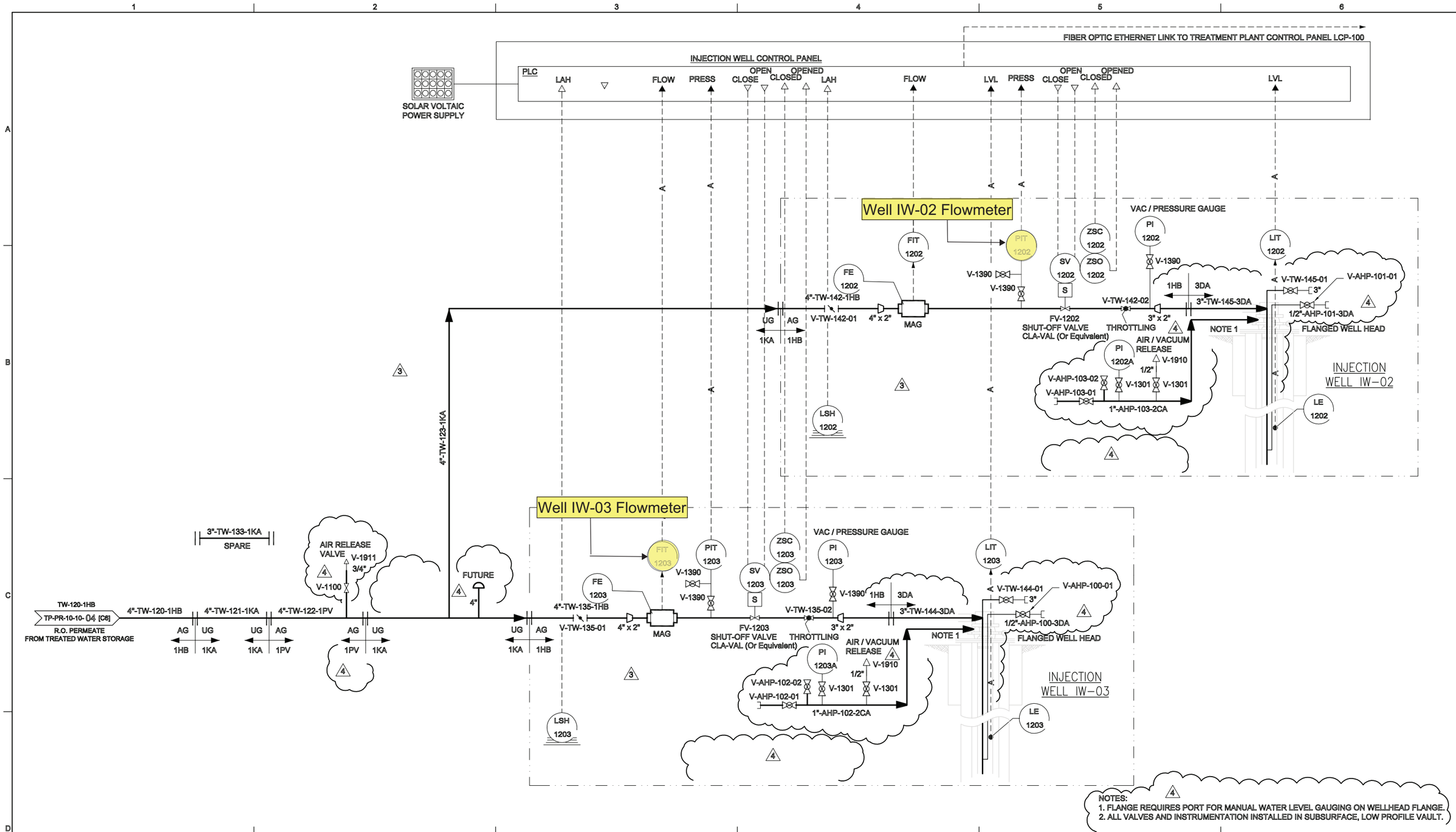
FILENAME: tppr101003.dwg PLOT DATE: 19-OCT-2005 PLOT TIME:



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

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PROCESS AND INSTRUMENTATION DIAGRAM
SHEET 11
INJECTION WELLS

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

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

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Appendix A
First Quarter 2014 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

February 20, 2014

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

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK IM3PLANT-WDR-448 PROJECT, SLUDGE MONITORING,

TLI NO.: 811625

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-448 project sludge monitoring. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, quality control data and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data have been included under Section 5.

The samples were received and delivered with the chain of custody on January 7, 2014, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

All final results and associated dilution factors are reported on a dry weight basis, except Percent Moisture and STLC for Chromium.

No violations or nonconformance actions occurred for this data package.

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

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.
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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.: 428648.IM.CS.EX.AC

Laboratory No.: 811625
Date: February 20, 2014
Collected: January 7, 2014
Received: January 7, 2014

ANALYST LIST

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

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

Attention: Shawn Duffy

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

Laboratory No.: 811625
Date Received: January 7, 2014

Analytical Results Summary

Lab I.D.	Sample I.D.	Sample Time	SW 7199 Hexavalent Chromium mg/kg	EPA 300.0 Fluoride mg/kg	SM 2540 B % Moisture %
811625	SC-Sludge-WDR-448	13:00	33.7	22.4	54.1

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

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

005

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

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Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy
Project Name: PG&E Topock Project
Project No.: 428648.IM.CS.EX.AC
P.O. No.: PGEIM11111001

Laboratory No.: 811625
Date Received: January 7, 2014

Analytical Results Summary

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

Lab I.D.	Sample ID	Date of Analysis: Time Coll.	Antimony SW 6020A 02/19/14 mg/kg	Arsenic SW 6010B 02/04/14 mg/kg	Barium SW 6010B 02/04/14 mg/kg	Beryllium SW 6020A 02/19/14 mg/kg	Cadmium SW 6010B 02/04/14 mg/kg	Chromium SW 6010B 02/18/14 mg/kg	Cobalt SW 6010B 02/04/14 mg/kg	Copper SW 6010B 02/04/14 mg/kg	Lead SW 6020A 02/19/14 mg/kg
811625	SC-Sludge-WDR-448	13:00	ND	ND	62.9	ND	6.33	3020	ND	12.6	ND

Lab I.D.	Sample ID	Date of Analysis: Time Coll.	Manganese SW 6010B 02/04/14 mg/kg	Mercury SW 6020A 01/30/14 mg/kg	Molybdenum SW 6020A 02/19/14 mg/kg	Nickel SW 6010B 02/04/14 mg/kg	Selenium SW 6010B 02/04/14 mg/kg	Silver SW 6020A 02/20/14 mg/kg	Thallium SW 6020A 02/19/14 mg/kg	Vanadium SW 6010B 02/04/14 mg/kg	Zinc SW 6010B 02/04/14 mg/kg
811625	SC-Sludge-WDR-448	13:00	271	0.117	ND	13.4	ND	ND	ND	32.2	31.1

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

006

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www.truesdail.com

REPORT

Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy
Sample: One (1) Soil Sample
Project Name: PG&E Topock Project
Project No.: 428648.IM.CS.EX.AC
P.O. No.: PGEIM11111001
Prep. Batch: 01CrH14G

Laboratory No.: 811625
Date: February 20, 2014
Collected: January 7, 2014
Received: January 7, 2014
Prep/ Analyzed: January 14, 2014
Analytical Batch: 01CrH14G

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
811625	SC-Sludge-WDR-448	13:00	22:35	mg/kg	5.00	4.36	33.7

QA/QC Summary

QC STD I.D.	Laboratory Number	Sample Concentration	Duplicate Concentration	Relative Percent Difference	Acceptance limits	QC Within Control
Duplicate	811625	33.7	37.0	9.34%	≤ 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	811625	33.7	10.0	174	174	198	208	94.0%	75-125%	Yes
IMS	811625	33.7	100	2511	2511	2330	2545	91.5%	75-125%	Yes
PDMS	811625	33.7	10.0	17.4	174	204	208	97.9%	85-115%	Yes

QC Std I.D.	Measured Concentration	Theoretical Concentration	Percent Recovery	Acceptance Limits	QC Within Control
Blank	ND	<0.400	---	<0.400	Yes
MRCCS	1.97	2.00	98.5%	90% - 110%	Yes
MRCVS#1	2.01	2.00	101%	90% - 110%	Yes
LLCS	0.0107	0.0100	107%	70% - 130%	Yes
LCS	1.96	2.00	98.1%	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.

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www.truesdail.com

REPORT

Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy
Sample: One (1) Soil Sample
Project Name: PG&E Topock Project
Project No.: 428648.IM.CS.EX.AC
P.O. No.: PGEIM11111001

Laboratory No.: 811625
Date: February 20, 2014
Collected: January 7, 2014
Received: January 7, 2014
Prep/ Analyzed: January 8, 2014
Analytical Batch: 01SOLID14A

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

Analytical Results % Moisture

TLI I.D.	Field I.D.	Sample Time	Units	Results
811625	SC-Sludge-WDR-448	13:00	%	54.1

QA/QC Summary

QC STD I.D.	Laboratory Number	Concentration	Duplicate Concentration	Relative Percent Difference	Acceptance limits	QC Within Control
Duplicate	811625	54.1	53.6	0.93%	≤ 20%	Yes

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

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi, Manager
Analytical Services

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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.: 428648.IM.CS.EX.AC
P.O. No.: PGEIM11111001

Laboratory No.: 811625
Date: February 20, 2014
Collected: January 7, 2014
Received: January 7, 2014
Prep/ Analyzed: January 8, 2014
Analytical Batch: 01AN14H

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
811625	SC-Sludge-WDR-448	13:00	13:26	mg/kg	1.00	4.36	22.4

QA/QC Summary

QC STD I.D.	Laboratory Number	Concentration	Duplicate Concentration	Relative Percent Difference	Acceptance limits	QC Within Control
Duplicate	811626-2	2.40	2.41	0.42%	≤ 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	811626-2	2.40	5.00	4.00	20.0	23.0	22.4	103%	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	4.22	4.00	105%	90% - 110%	Yes
MRCVS#1	3.20	3.00	107%	90% - 110%	Yes
MRCVS#2	3.19	3.00	106%	90% - 110%	Yes
LCS	4.21	4.00	105%	90% - 110%	Yes

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

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi, Manager
Analytical Services

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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.: 428648.IM.CS.EX.AC
P.O. No.: PGEIM11111001
Investigation: Total Metal Analyses as Requested

Laboratory No.: 811625
Reported: February 20, 2014
Collected: January 7, 2014
Received: January 7, 2014
Analyzed: See Below

Analytical Results

SAMPLE ID: SC-Sludge-WDR-448 **Time Collected:** 13:00 **LAB ID:** 811625

Parameter	Method	Reported Value	DF	Units	RL	Batch	Date Analyzed	Time Analyzed
Antimony	SW 6020A	ND	5.00	mg/kg	5.00	021914A	02/19/14	21:51
Arsenic	SW 6010B	ND	2.00	mg/kg	5.00	020414A-Th1	02/04/14	16:19
Barium	SW 6010B	62.9	2.00	mg/kg	10.0	020414A-Th1	02/04/14	16:19
Beryllium	SW 6020A	ND	5.00	mg/kg	1.00	021914B-ICPMS-1	02/19/14	17:23
Cadmium	SW 6010B	6.33	2.00	mg/kg	2.12	020414A-Th1	02/04/14	16:19
Chromium	SW 6010B	3020	10.0	mg/kg	11.5	021814A-Th2	02/18/14	13:54
Cobalt	SW 6010B	ND	2.00	mg/kg	10.0	020414A-Th1	02/04/14	16:19
Copper	SW 6010B	12.6	2.00	mg/kg	8.49	020414A-Th1	02/04/14	16:19
Lead	SW 6020A	ND	5.00	mg/kg	5.00	021914A	02/19/14	21:51
Manganese	SW 6010B	271	2.00	mg/kg	8.49	020414A-Th1	02/04/14	16:19
Mercury	SW 6020A	0.117	2.00	mg/kg	0.100	013114A-ICPMS-1	01/30/14	13:33
Molybdenum	SW 6020A	ND	5.00	mg/kg	10.0	021914A	02/19/14	21:51
Nickel	SW 6010B	13.4	2.00	mg/kg	5.00	020414A-Th1	02/04/14	16:19
Selenium	SW 6010B	ND	2.00	mg/kg	5.00	020414A-Th1	02/04/14	16:19
Silver	SW 6020A	ND	5.00	mg/kg	5.00	022014A	02/20/14	13:43
Thallium	SW 6020A	ND	5.00	mg/kg	5.00	021914A	02/19/14	21:51
Vanadium	SW 6010B	32.2	2.00	mg/kg	5.00	020414A-Th1	02/04/14	16:19
Zinc	SW 6010B	31.1	2.00	mg/kg	10.0	020414A-Th1	02/04/14	16:19

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

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TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING
Established 1931
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(714) 730-6239 · FAX (714) 730-6462 · www.truesdail.com

Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy
Samples: One (1) Soil Sample
Project Name: PG&E Topock Project
Project No.: 428648.IM.CS.EX.AC
P.O. No.: PGEIM11111001

Laboratory No.: 811625
Reported: February 20, 2014
Collected: January 7, 2014
Received: January 7, 2014

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 6020A	021914A	mg/kg	ND	5.00	0.0203	0.0200	102%	90-110%	0.0202	0.0200	101%	90-110%
Arsenic	SW 6010B	020414A-Th1	mg/kg	ND	5.00	4.92	5.00	98.4%	90-110%	4.98	5.00	99.7%	90-110%
Barium	SW 6010B	020414A-Th1	mg/kg	ND	10.0	5.34	5.00	107%	90-110%	5.20	5.00	104%	90-110%
Beryllium	SW 6020A	021914B-ICPMS-1	mg/kg	ND	1.00	0.0185	0.0200	92.7%	90-110%	0.0190	0.0200	95.1%	90-110%
Cadmium	SW 6010B	020414A-Th1	mg/kg	ND	1.00	4.98	5.00	99.7%	90-110%	5.00	5.00	100%	90-110%
Chromium	SW 6010B	021814A-Th2	mg/kg	ND	5.00	5.32	5.00	106%	90-110%	5.26	5.00	105%	90-110%
Cobalt	SW 6010B	020414A-Th1	mg/kg	ND	10.0	4.98	5.00	99.5%	90-110%	4.88	5.00	97.6%	90-110%
Copper	SW 6010B	020414A-Th1	mg/kg	ND	5.00	5.26	5.00	105%	90-110%	5.10	5.00	102%	90-110%
Lead	SW 6020A	021914A	mg/kg	ND	5.00	0.0194	0.0200	97.2%	90-110%	0.0190	0.0200	94.9%	90-110%
Manganese	SW 6010B	020414A-Th1	mg/kg	ND	4.00	5.39	5.00	108%	90-110%	4.86	5.00	97.2%	90-110%
Mercury	SW 6020A	013114A-ICPMS-1	mg/kg	ND	0.100	0.00198	0.00200	99.2%	90-110%	0.00194	0.00200	97.0%	90-110%
Molybdenum	SW 6020A	021914A	mg/kg	ND	10.0	0.0199	0.0200	99.7%	90-110%	0.0193	0.0200	96.5%	90-110%
Nickel	SW 6010B	020414A-Th1	mg/kg	ND	5.00	5.02	5.00	100%	90-110%	5.02	5.00	100%	90-110%
Selenium	SW 6010B	020414A-Th1	mg/kg	ND	5.00	5.00	5.00	100%	90-110%	5.17	5.00	103%	90-110%
Silver	SW 6020A	022014A	mg/kg	ND	5.00	0.0182	0.0200	90.9%	90-110%	0.0194	0.0200	97.0%	90-110%
Thallium	SW 6020A	021914A	mg/kg	ND	5.00	0.0191	0.0200	95.6%	90-110%	0.0189	0.0200	94.5%	90-110%
Vanadium	SW 6010B	020414A-Th1	mg/kg	ND	5.00	5.10	5.00	102%	90-110%	5.38	5.00	108%	90-110%
Zinc	SW 6010B	020414A-Th1	mg/kg	ND	10.0	5.17	5.00	103%	90-110%	5.22	5.00	104%	90-110%

020

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			INTERFERENCE CHECK STANDARD (ICS A+B #1)				INTERFERENCE CHECK STANDARD (ICS A+B #2)			
Parameter	**Method**	**Units**	**ICS Obs.**	**ICS Theo.**	**% Rec.**	**Control Limits**	**ICS Obs.**	**ICS Theo.**	**% Rec.**	**Control Limits**
Arsenic	SW 6010B	mg/kg	2.01	2.00	101%	80-120%	1.98	2.00	99.2%	80-120%
Cadmium	SW 6010B	mg/kg	2.06	2.00	103%	80-120%	1.95	2.00	97.4%	80-120%
Chromium	SW 6010B	mg/kg	2.14	2.00	107%	80-120%	2.15	2.00	107%	80-120%
Cobalt	SW 6010B	mg/kg	2.08	2.00	104%	80-120%	1.94	2.00	96.9%	80-120%
Copper	SW 6010B	mg/kg	2.12	2.00	106%	80-120%	2.04	2.00	102%	80-120%
Manganese	SW 6010B	mg/kg	2.19	2.00	110%	80-120%	2.00	2.00	99.9%	80-120%
Mercury	SW 6020A	mg/kg	0.00194	0.00200	97.0%	80-120%	0.00187	0.00200	93.5%	80-120%
Nickel	SW 6010B	mg/kg	2.08	2.00	104%	80-120%	1.98	2.00	98.9%	80-120%
Silver	SW 6020A	mg/kg	0.0192	0.0200	95.9%	80-120%	0.0187	0.0200	93.7%	80-120%
Zinc	SW 6010B	mg/kg	2.16	2.00	108%	80-120%	2.09	2.00	104%	80-120%

			LABORATORY CONTROL SAMPLES				SAMPLE DUPLICATES				
Parameter	**Method**	**Units**	**LCS Obs.**	**LCS Theo.**	**% Rec.**	**Control Limits**	**SAMPLE ID**	**SAMPLE RESULT**	**DUP RESULT**	**% RPD**	**Precision Control Limits %**
Antimony	SW 6020A	mg/kg	0.0499	0.0500	99.9%	85-115%	811625	ND	ND	0.00%	≤20
Arsenic	SW 6010B	mg/kg	1.90	2.00	95.2%	85-115%					
Barium	SW 6010B	mg/kg	2.11	2.00	106%	85-115%					
Beryllium	SW 6020A	mg/kg	0.0460	0.0500	92.0%	85-115%	811625	ND	ND	0.00%	≤20
Cadmium	SW 6010B	mg/kg	1.95	2.00	97.4%	85-115%					
Chromium	SW 6010B	mg/kg	2.12	2.00	106%	85-115%	811625	3020	2910	3.71%	≤20
Cobalt	SW 6010B	mg/kg	1.97	2.00	98.7%	85-115%					
Copper	SW 6010B	mg/kg	2.11	2.00	106%	85-115%					
Lead	SW 6020A	mg/kg	0.0457	0.0500	91.4%	85-115%	811625	ND	ND	0.00%	≤20
Manganese	SW 6010B	mg/kg	2.17	2.00	108%	85-115%					
Mercury	SW 6020A	mg/kg	0.00441	0.00500	88.2%	85-115%	811625	0.117	0.121	3.19%	≤20
Molybdenum	SW 6020A	mg/kg	0.0469	0.0500	93.9%	85-115%	811625	ND	ND	0.00%	≤20
Nickel	SW 6010B	mg/kg	1.99	2.00	99.6%	85-115%					
Selenium	SW 6010B	mg/kg	1.77	2.00	88.6%	85-115%					
Silver	SW 6020A	mg/kg	0.0446	0.0500	89.3%	85-115%	811625	ND	ND	0.00%	≤20
Thallium	SW 6020A	mg/kg	0.0451	0.0500	90.1%	85-115%	811625	ND	ND	0.00%	≤20
Vanadium	SW 6010B	mg/kg	2.11	2.00	106%	85-115%					
Zinc	SW 6010B	mg/kg	1.86	2.00	93.2%	85-115%					

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MATRIX SPIKE

Sample ID	Parameter	Method	Units	Sample Result	DF	Spike Level	Total Amt. of Spike	Theo. Value	MS Obs.	% Rec.	Accuracy Control Limits %
811625	Antimony	SW 6020A	mg/kg	0.00	5.00	0.920	4.60	4.60	4.10	89.1%	75-125%
811625	Arsenic	SW 6010B	mg/kg	0.00	2.00	91.0	182	182	174	95.7%	75-125%
811625	Barium	SW 6010B	mg/kg	62.9	2.00	91.0	182	245	248	102%	75-125%
811625	Beryllium	SW 6020A	mg/kg	0.00	5.00	0.920	4.60	4.60	3.53	76.8%	75-125%
811625	Cadmium	SW 6010B	mg/kg	6.33	2.00	91.0	182	188	165	87.1%	75-125%
811625	Chromium	SW 6010B	mg/kg	3020	10.0	230	2303	5323	5140	92.1%	75-125%
811625	Cobalt	SW 6010B	mg/kg	0.00	2.00	91.0	182	182	152	83.6%	75-125%
811625	Copper	SW 6010B	mg/kg	12.6	2.00	91.0	182	194	175	89.3%	75-125%
811625	Lead	SW 6020A	mg/kg	0.00	5.00	0.920	4.60	4.60	4.03	87.6%	75-125%
811625	Manganese	SW 6010B	mg/kg	271	2.00	91.0	182	453	424	84.5%	75-125%
811625	Mercury	SW 6020A	mg/kg	0.117	2.00	0.230	0.460	0.577	0.536	91.1%	75-125%
811625	Molybdenum	SW 6020A	mg/kg	6.19	5.00	0.910	4.55	10.74	10.3	90.0%	75-125%
811625	Nickel	SW 6010B	mg/kg	13.4	2.00	91.0	182	195	166	83.9%	75-125%
811625	Selenium	SW 6010B	mg/kg	0.00	2.00	91.0	182	182	137	75.5%	75-125%
811625	Silver	SW 6020A	mg/kg	0.00	5.00	0.920	4.60	4.60	3.70	80.4%	75-125%
811625	Thallium	SW 6020A	mg/kg	0.00	5.00	0.920	4.60	4.60	3.62	78.7%	75-125%
811625	Vanadium	SW 6010B	mg/kg	32.2	2.00	91.0	182	214	192	87.9%	75-125%
811625	Zinc	SW 6010B	mg/kg	31.1	2.00	91.0	182	213	199	92.1%	75-125%

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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 %
811625	Antimony	SW 6020A	mg/kg	0.00	5.00	1.14	5.70	5.70	5.08	89.1%	75-125%
811625	Arsenic	SW 6010B	mg/kg	0.00	2.00	94.4	189	189	182	96.5%	75-125%
811625	Barium	SW 6010B	mg/kg	62.9	2.00	94.4	189	252	249	98.5%	75-125%
811625	Beryllium	SW 6020A	mg/kg	0.00	5.00	1.14	5.70	5.70	4.61	80.8%	75-125%
811625	Cadmium	SW 6010B	mg/kg	6.33	2.00	94.4	189	195	166	84.8%	75-125%
811625	Cobalt	SW 6010B	mg/kg	0.00	2.00	94.4	189	189	155	81.9%	75-125%
811625	Copper	SW 6010B	mg/kg	12.6	2.00	94.4	189	201	180	88.7%	75-125%
811625	Lead	SW 6020A	mg/kg	0.00	5.00	1.14	5.70	5.70	4.99	87.4%	75-125%
811625	Manganese	SW 6010B	mg/kg	271	2.00	94.4	189	459	436	87.8%	75-125%
811625	Mercury	SW 6020A	mg/kg	0.117	2.00	0.285	0.570	0.688	0.632	90.3%	75-125%
811625	Molybdenum	SW 6020A	mg/kg	6.19	5.00	1.14	5.70	11.9	11.3	89.5%	75-125%
811625	Nickel	SW 6010B	mg/kg	13.4	2.00	94.4	189	202	168	81.9%	75-125%
811625	Selenium	SW 6010B	mg/kg	0.00	2.00	94.4	189	189	144	76.1%	75-125%
811625	Silver	SW 6020A	mg/kg	0.00	5.00	1.14	5.70	5.70	4.64	81.3%	75-125%
811625	Thallium	SW 6020A	mg/kg	0.00	5.00	1.14	5.70	5.70	4.62	80.9%	75-125%
811625	Vanadium	SW 6010B	mg/kg	32.2	2.00	94.4	189	221	200	88.9%	75-125%
811625	Zinc	SW 6010B	mg/kg	31.1	2.00	94.4	189	220	202	90.4%	75-125%

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

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

Mona Nassimi, Manager
Analytical Services

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Dry Weight Calculations

Date Calculated: 2/20/2014
Sample I.D. 811625

	Sample Result Wet Weight mg/kg	Dilution Factor	% Moisture %	Sample Result Dry* Weight mg/kg	Reported Value mg/kg	Reporting Limit Wet Weight mg/kg	Reporting Limit Dry Weight mg/kg
Fluoride	10.283	---	54.1	22.4153	22.4	2.00	4.36
Hexavalent Chromium	15.4461	---	54.1	33.6701	33.7	2.00	4.36
Hexavalent Chromium - Dup	16.9588	---	54.1	36.9674	37.0	2.00	4.36
Hexavalent Chromium - MS	90.6085	---	54.1	197.512	198	4.00	8.72
Hexavalent Chromium - IMS	1069.486	---	54.1	2331.304	2330	40.0	87.2
Hexavalent Chromium - PDMS	93.7570	---	54.1	204.375	204	4.00	8.72
Antimony	ND	5.00	54.1	ND	ND	0.2641	5.00
Arsenic	1.700	2.00	54.1	3.7057	ND	1.9480	5.00
Barium	28.84	2.00	54.1	62.8665	62.9	1.9480	10.0
Beryllium	ND	5.00	54.1	ND	ND	0.2641	1.00
Cadmium	2.906	2.00	54.1	6.3346	6.33	0.9740	2.12
Chromium	1387	10.0	54.1	3023.4332	3020	5.2815	11.5
Cobalt	1.019	2.00	54.1	2.2213	ND	0.9740	10.0
Copper	5.764	2.00	54.1	12.5646	12.6	3.8960	8.49
Lead	ND	5.00	54.1	ND	ND	0.2641	5.00
Manganese	124.2	2.00	54.1	270.7357	271	3.8960	8.49
Mercury	0.05370	2.00	54.1	0.11706	0.117	0.0195	0.100
Molybdenum	2.8411909	5.00	54.1	6.1933	ND	0.2641	10.0
Nickel	6.165	2.00	54.1	13.4387	13.4	0.9740	5.00
Selenium	ND	2.00	54.1	ND	ND	0.9740	5.00
Silver	ND	5.00	54.1	ND	ND	0.2641	5.00
Thallium	ND	5.00	54.1	ND	ND	0.2641	5.00
Vanadium	14.79	2.00	54.1	32.2398	32.2	0.9740	5.00
Zinc	14.29	2.00	54.1	31.1499	31.1	1.9480	10.0

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

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

TRUESDAIL LABORATORIES, INC.

Dry Weight Calculations

Date Calculated: 2/20/2014

	Sample Result Wet Weight mg/kg	Dilution Factor	% Moisture %	Sample Result Dry* Weight mg/kg	Reported Value mg/kg	Reporting Limit Wet Weight mg/kg	Reporting Limit Dry Weight mg/kg
Sample Duplicate: 811625							
Antimony	ND	5.00	54.1	ND	ND	0.2371	5.00
Beryllium	ND	5.00	54.1	ND	ND	0.2371	1.00
Chromium	1334	10.0	54.1	2907.9019	2910	4.7411	10.3
Lead	ND	5.00	54.1	ND	ND	0.2371	5.00
Mercury	0.05544	2.00	54.1	0.12085	0.121	0.0211	0.100
Molybdenum	2.7197696	5.00	54.1	5.9287	ND	0.2371	10.0
Silver	ND	5.00	54.1	ND	ND	0.2371	5.00
Thallium	ND	5.00	54.1	ND	ND	0.2371	5.00
Matrix Spike: 811625							
Antimony	1.8799305	5.00	54.1	4.09794	4.10	0.2111	5.00
Arsenic	79.91	2.00	54.1	174.1907	174	1.6692	5.00
Barium	114.0	2.00	54.1	248.5014	248	1.6692	10.0
Beryllium	1.621	5.00	54.1	3.5335	3.53	0.2111	1.00
Cadmium	75.57	2.00	54.1	164.7302	165	0.8346	1.82
Chromium	2359	10.0	54.1	5142.2343	5140	5.2815	11.5
Cobalt	70.00	2.00	54.1	152.5886	152	0.8346	10.0
Copper	80.33	2.00	54.1	175.1063	175	3.3383	7.28
Lead	1.8487161	5.00	54.1	4.02990	4.03	0.2111	5.00
Manganese	194.7	2.00	54.1	424.4142	424	3.3383	7.28
Mercury	0.2461	2.00	54.1	0.536458	0.536	0.0169	0.100
Molybdenum	4.7185714	5.00	54.1	10.2857	10.3	0.2086	10.0
Nickel	76.41	2.00	54.1	166.5613	166	0.8346	5.00
Selenium	63.01	2.00	54.1	137.3515	137	0.8346	5.00
Silver	1.697	5.00	54.1	3.6992	3.70	0.2111	5.00
Thallium	1.6633057	5.00	54.1	3.62573	3.62	0.2111	5.00
Vanadium	88.12	2.00	54.1	192.0872	192	0.8346	5.00
Zinc	91.12	2.00	54.1	198.6267	199	1.6692	10.0

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

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

TRUESDAIL LABORATORIES, INC.

Dry Weight Calculations

Date Calculated: 2/20/2014

	Sample Result Wet Weight mg/kg	Dilution Factor	% Moisture %	Sample Result Dry* Weight mg/kg	Reported Value mg/kg	Reporting Limit Wet Weight mg/kg	Reporting Limit Dry Weight mg/kg
Matrix Spike Duplicate: 811625							
Antimony	2.3315486	5.00	54.1	5.08239	5.08	0.2617	5.00
Arsenic	83.53	2.00	54.1	182.0817	182	1.7319	5.00
Barium	114.1	2.00	54.1	248.7193	249	1.7319	10.0
Beryllium	2.115	5.00	54.1	4.6104	4.61	0.2617	1.00
Cadmium	76.34	2.00	54.1	166.4087	166	0.8660	1.89
Cobalt	70.95	2.00	54.1	154.6594	155	0.8660	10.0
Copper	82.57	2.00	54.1	179.9891	180	3.4638	7.55
Lead	2.2875019	5.00	54.1	4.9864	4.99	0.2617	5.00
Manganese	200.2	2.00	54.1	436.4033	436	3.4638	7.55
Mercury	0.2901	2.00	54.1	0.632371	0.632	0.0209	0.100
Molybdenum	5.1826257	5.00	54.1	11.2973	11.3	0.2617	10.0
Nickel	77.06	2.00	54.1	167.9782	168	0.8660	5.00
Selenium	65.86	2.00	54.1	143.5640	144	0.8660	5.00
Silver	2.127	5.00	54.1	4.6365	4.64	0.2617	5.00
Thallium	2.1180159	5.00	54.1	4.61693	4.62	0.2617	5.00
Vanadium	91.98	2.00	54.1	200.5014	200	0.8660	5.00
Zinc	92.55	2.00	54.1	201.7439	202	1.7319	10.0

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

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

eg

TRUESDAIL LABORATORIES, INC.

TOTAL SOLIDS BY SM 2540 B

Date of Analysis: 01/08/14

Analytical Batch: 01SOLID14A
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
811413-1	1	1.3259	2.004	3.3299	3.2853	1.9594	97.774	2.226
811413-2	2	1.3271	2.0152	3.3423	3.2924	1.9653	97.524	2.476
811625	3	1.332	2.0022	3.3342	2.2505	0.9185	45.875	54.125
811625 D	4	1.3294	2.0442	3.3736	2.2774	0.9480	46.375	53.625

Relative Percent Difference

Sample ID	Sample	Sample Dup	RPD
811625	54.125	53.625	0.9

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

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

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

01SOLID14A.xls1/9/14

811625

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-448]

TURNAROUND TIME 10 Days
DATE 01/07/14 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: 428648.IM.CS.EX.AC
SAMPLERS (SIGNATURE

Rec'd 1/07/14
Sec 811625

SAMPLE I.D.	DATE	TIME	DESCRIPTION	Anions (300.0) F	Bioassay 96hr Acute	Metals (6010B) Title 22, (includes Mercury)	Cr6 (7199)	Metals (6010B) Mn										NUMBER OF CONTAINERS	COMMENTS
SC-Sludge-WDR-448	01/07/14	13:00	Sludge	X		X	X	X										4	
																		4	TOTAL NUMBER OF CONTAINERS

CHAIN OF CUSTODY SIGNATURE RECORD

	Printed Name	Company/ Agency	Date/ Time
Signature (Relinquished)	Ron Phelps	CH2M HILL	1-7-14 15:30
Signature (Received)	THANH NGO	TRUESDAIL	1-7-14 15:30
Signature (Relinquished)	THANH NGO	TRUESDAIL	1-7-14 1950
Signature (Received)	Marchead Brady	TLI	1/7/14 1950
Signature (Relinquished)			
Signature (Received)			

SAMPLE CONDITIONS
RECEIVED COOL ☒ WARM ☐ 6° C
CUSTODY SEALED YES ☐ NO ☒

SPECIAL REQUIREMENTS:

059

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: E2 **Lab #** 811625

Date Delivered: 01/07/14 **Time:** 19:50 **By:** ❑Mail ☑Field Service ❑Client

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

ALERT!! LEVEL III QC

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February 12, 2014

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

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK IM3PLANT-WDR-448 PROJECT, GROUNDWATER MONITORING,

TLI NO.: 811626

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-448 project groundwater monitoring. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, quality control data and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data have been included under Section 5.

The samples were received and delivered with the chain of custody on January 7, 2014, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

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

Due to the discrepancy between the Total Chromium (ND<1.0 ug/L) and Hexavalent Chromium (1.7 ug/L) results for sample SC-700B-WDR-448, sample from the Total Chromium and Hexavalent Chromium sample containers were digested and analyzed for Total Chromium. The results were ND<1.0 ug/L and 1.6 ug/L, respectively. Mr. Shawn Duffy of CH2M Hill was notified and the original results were reported.

The internal standard for sample SC-701-WDR-448 analyzed straight for Total Cadmium and Thallium by EPA 200.8 were outside the recovery limits of 70% - 130% as a result of matrix interference. Therefore, the samples were re-analyzed at a 2x dilution. The internal standards were within acceptable limits. The internal standards for Total Lead and Mercury analyzed straight and at a 2x dilution were outside the recovery limits and therefore were analyzed at a 5x dilution. The internal standard for Total Beryllium analyzed straight, and at 2x and 5x dilutions were also outside the recovery limits and therefore were analyzed at a 10x dilution. Due to the dilutions, the reporting limits for these metals exceed the Contract Required Detection Limits. All other QA/QC were within acceptable limits.

The recovery for the Total Zinc matrix spike by EPA 200.7 just exceeded the recovery limits of 75% to 125%. Because the sample results were below the reporting limit and all other QA/QC were within acceptable limits, the data was accepted.

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

TRUESDAIL LABORATORIES, INC.

February 12, 2014

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

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

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www.truesdail.com

Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy
Sample: Three (3) Groundwaters
Project Name: PG&E Topock Project
Project No.: 428648.IM.CS.EX.AC

Laboratory No.: **811626**
Date: February 10, 2014
Collected: January 7, 2014
Received: January 7, 2014

ANALYST LIST

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

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

Laboratory No.: 811626
Date Received: January 7, 2014

Attention: Shawn Duffy

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

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
811626-001	SC-700B-WDR-448	E120.1	NONE	1/7/2014	13:30	EC	6750	umhos/cm	2.00
811626-001	SC-700B-WDR-448	E200.7	NONE	1/7/2014	13:30	Aluminum	43.1	ug/L	20.0
811626-001	SC-700B-WDR-448	E200.7	NONE	1/7/2014	13:30	BORON	1070	ug/L	20.0
811626-001	SC-700B-WDR-448	E200.7	NONE	1/7/2014	13:30	Iron	ND	ug/L	20.0
811626-001	SC-700B-WDR-448	E200.7	NONE	1/7/2014	13:30	Zinc	ND	ug/L	20.0
811626-001	SC-700B-WDR-448	E200.8	NONE	1/7/2014	13:30	Antimony	ND	ug/L	2.0
811626-001	SC-700B-WDR-448	E200.8	NONE	1/7/2014	13:30	Arsenic	ND	ug/L	0.50
811626-001	SC-700B-WDR-448	E200.8	NONE	1/7/2014	13:30	Barium	12.2	ug/L	5.0
811626-001	SC-700B-WDR-448	E200.8	NONE	1/7/2014	13:30	Chromium	ND	ug/L	1.0
811626-001	SC-700B-WDR-448	E200.8	NONE	1/7/2014	13:30	Copper	ND	ug/L	5.0
811626-001	SC-700B-WDR-448	E200.8	NONE	1/7/2014	13:30	Lead	ND	ug/L	1.0
811626-001	SC-700B-WDR-448	E200.8	NONE	1/7/2014	13:30	Manganese	4.0	ug/L	0.50
811626-001	SC-700B-WDR-448	E200.8	NONE	1/7/2014	13:30	Molybdenum	18.6	ug/L	2.0
811626-001	SC-700B-WDR-448	E200.8	NONE	1/7/2014	13:30	Nickel	ND	ug/L	2.0
811626-001	SC-700B-WDR-448	E218.6	LABFLT	1/7/2014	13:30	Chromium, Hexavalent	1.7	ug/L	1.0
811626-001	SC-700B-WDR-448	E300	NONE	1/7/2014	13:30	Fluoride	2.08	mg/L	0.500
811626-001	SC-700B-WDR-448	E300	NONE	1/7/2014	13:30	Nitrate as N	3.11	mg/L	0.500
811626-001	SC-700B-WDR-448	E300	NONE	1/7/2014	13:30	Sulfate	507	mg/L	50.0
811626-001	SC-700B-WDR-448	SM2130B	NONE	1/7/2014	13:30	Turbidity	ND	NTU	0.100
811626-001	SC-700B-WDR-448	SM2540C	NONE	1/7/2014	13:30	Total Dissolved Solids	4490	mg/L	125
811626-001	SC-700B-WDR-448	SM4500NH3D	NONE	1/7/2014	13:30	Ammonia-N	ND	mg/L	0.500
811626-001	SC-700B-WDR-448	SM4500NO2B	NONE	1/7/2014	13:30	Nitrite as N	ND	mg/L	0.0050

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Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
811626-002	SC-100B-WDR-448	E120.1	NONE	1/7/2014	13:30	EC	6770	umhos/cm	2.00
811626-002	SC-100B-WDR-448	E200.7	NONE	1/7/2014	13:30	Aluminum	ND	ug/L	20.0
811626-002	SC-100B-WDR-448	E200.7	NONE	1/7/2014	13:30	BORON	1040	ug/L	20.0
811626-002	SC-100B-WDR-448	E200.7	NONE	1/7/2014	13:30	Iron	25.3	ug/L	20.0
811626-002	SC-100B-WDR-448	E200.7	NONE	1/7/2014	13:30	Zinc	ND	ug/L	20.0
811626-002	SC-100B-WDR-448	E200.8	NONE	1/7/2014	13:30	Antimony	ND	ug/L	2.0
811626-002	SC-100B-WDR-448	E200.8	NONE	1/7/2014	13:30	Arsenic	3.4	ug/L	0.50
811626-002	SC-100B-WDR-448	E200.8	NONE	1/7/2014	13:30	Barium	27.5	ug/L	5.0
811626-002	SC-100B-WDR-448	E200.8	NONE	1/7/2014	13:30	Chromium	730	ug/L	5.0
811626-002	SC-100B-WDR-448	E200.8	NONE	1/7/2014	13:30	Copper	ND	ug/L	5.0
811626-002	SC-100B-WDR-448	E200.8	NONE	1/7/2014	13:30	Lead	ND	ug/L	1.0
811626-002	SC-100B-WDR-448	E200.8	NONE	1/7/2014	13:30	Manganese	4.5	ug/L	0.50
811626-002	SC-100B-WDR-448	E200.8	NONE	1/7/2014	13:30	Molybdenum	18.6	ug/L	2.0
811626-002	SC-100B-WDR-448	E200.8	NONE	1/7/2014	13:30	Nickel	ND	ug/L	2.0
811626-002	SC-100B-WDR-448	E218.6	LABFLT	1/7/2014	13:30	Chromium, Hexavalent	640	ug/L	10.0
811626-002	SC-100B-WDR-448	E300	NONE	1/7/2014	13:30	Fluoride	2.40	mg/L	0.500
811626-002	SC-100B-WDR-448	E300	NONE	1/7/2014	13:30	Nitrate as N	3.13	mg/L	0.500
811626-002	SC-100B-WDR-448	E300	NONE	1/7/2014	13:30	Sulfate	523	mg/L	25.0
811626-002	SC-100B-WDR-448	SM2130B	NONE	1/7/2014	13:30	Turbidity	0.134	NTU	0.100
811626-002	SC-100B-WDR-448	SM2540C	NONE	1/7/2014	13:30	Total Dissolved Solids	4520	mg/L	125
811626-002	SC-100B-WDR-448	SM4500NH3D	NONE	1/7/2014	13:30	Ammonia-N	ND	mg/L	0.500
811626-002	SC-100B-WDR-448	SM4500NO2B	NONE	1/7/2014	13:30	Nitrite as N	ND	mg/L	0.0050

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Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
811626-003	SC-701-WDR-448	E120.1	NONE	1/7/2014	13:30	EC	27200	umhos/cm	2.00
811626-003	SC-701-WDR-448	E200.7	NONE	1/7/2014	13:30	Zinc	ND	ug/L	20.0
811626-003	SC-701-WDR-448	E200.8	NONE	1/7/2014	13:30	Antimony	ND	ug/L	2.0
811626-003	SC-701-WDR-448	E200.8	NONE	1/7/2014	13:30	Arsenic	ND	ug/L	0.50
811626-003	SC-701-WDR-448	E200.8	NONE	1/7/2014	13:30	Barium	63.8	ug/L	5.0
811626-003	SC-701-WDR-448	E200.8	NONE	1/7/2014	13:30	Beryllium	ND	ug/L	2.0
811626-003	SC-701-WDR-448	E200.8	NONE	1/7/2014	13:30	Cadmium	ND	ug/L	2.0
811626-003	SC-701-WDR-448	E200.8	NONE	1/7/2014	13:30	Chromium	3.0	ug/L	1.0
811626-003	SC-701-WDR-448	E200.8	NONE	1/7/2014	13:30	Cobalt	ND	ug/L	5.0
811626-003	SC-701-WDR-448	E200.8	NONE	1/7/2014	13:30	Copper	ND	ug/L	5.0
811626-003	SC-701-WDR-448	E200.8	NONE	1/7/2014	13:30	Lead	ND	ug/L	5.0
811626-003	SC-701-WDR-448	E200.8	NONE	1/7/2014	13:30	Manganese	15.3	ug/L	0.50
811626-003	SC-701-WDR-448	E200.8	NONE	1/7/2014	13:30	Mercury	ND	ug/L	0.40
811626-003	SC-701-WDR-448	E200.8	NONE	1/7/2014	13:30	Molybdenum	87.3	ug/L	2.0
811626-003	SC-701-WDR-448	E200.8	NONE	1/7/2014	13:30	Nickel	7.8	ug/L	2.0
811626-003	SC-701-WDR-448	E200.8	NONE	1/7/2014	13:30	Selenium	20.0	ug/L	5.0
811626-003	SC-701-WDR-448	E200.8	NONE	1/7/2014	13:30	Silver	ND	ug/L	5.0
811626-003	SC-701-WDR-448	E200.8	NONE	1/7/2014	13:30	Thallium	ND	ug/L	5.0
811626-003	SC-701-WDR-448	E200.8	NONE	1/7/2014	13:30	Vanadium	ND	ug/L	5.0
811626-003	SC-701-WDR-448	E218.6	LABFLT	1/7/2014	13:30	Chromium, Hexavalent	ND	ug/L	2.0
811626-003	SC-701-WDR-448	E300	NONE	1/7/2014	13:30	Fluoride	10.4	mg/L	0.500
811626-003	SC-701-WDR-448	SM2540C	NONE	1/7/2014	13:30	Total Dissolved Solids	20600	mg/L	500

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

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

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REPORT

Client: **E2 Consulting Engineers, Inc.**
155 Grand Avenue, Suite 800
Oakland, CA 94612
Attention: Shawn Duffy
Project Name: PG&E Topock Project
Project Number: 428648.IM.CS.EX.AC
P.O. Number: PGEIM11111001
Release Number:

Laboratory No. 811626

Printed 2/12/2014

Samples Received on 1/7/2014 7:50:00 PM

Field ID	Lab ID	Collected	Matrix
SC-700B-WDR-448	811626-001	01/07/2014 13:30	Water
SC-100B-WDR-448	811626-002	01/07/2014 13:30	Water
SC-701-WDR-448	811626-003	01/07/2014 13:30	Water

Anions By I.C. - EPA 300.0 Batch 01AN14H

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811626-001 Fluoride	mg/L	01/08/2014 12:29	5.00	0.104	0.500	2.08
Nitrate as Nitrogen	mg/L	01/08/2014 12:29	5.00	0.0415	0.500	3.11
811626-002 Fluoride	mg/L	01/08/2014 12:40	5.00	0.104	0.500	2.40
Nitrate as Nitrogen	mg/L	01/08/2014 12:40	5.00	0.0415	0.500	3.13
811626-003 Fluoride	mg/L	01/08/2014 13:15	5.00	0.104	0.500	10.4

Method Blank

Parameter	Unit	DF	Result
Fluoride	mg/L	1.00	ND
Nitrate (as NO3)	mg/L	1.00	ND
Sulfate	mg/L	1.00	ND
Nitrate as Nitrogen	mg/L	1.00	ND

Duplicate Lab ID = 811623-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Sulfate	mg/L	100	554	560	1.01	0 - 20

Duplicate Lab ID = 811626-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Fluoride	mg/L	5.00	2.41	2.40	0.457	0 - 20
Nitrate (as NO3)	mg/L	5.00	13.9	13.8	0.571	0 - 20
Nitrate as Nitrogen	mg/L	5.00	3.14	3.13	0.160	0 - 20

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Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Fluoride	mg/L	1.00	4.21	4.00	105	90 - 110
Nitrate (as NO3)	mg/L	1.00	17.9	17.7	101	90 - 110
Sulfate	mg/L	1.00	20.5	20.0	102	90 - 110
Nitrate as Nitrogen	mg/L	1.00	4.04	4.00	101	90 - 110

Matrix Spike — Lab ID = 811623-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Sulfate	mg/L	100	1700	1560(1000)	114	85 - 115

Matrix Spike — Lab ID = 811626-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Fluoride	mg/L	5.00	23.0	22.4(20.0)	103	85 - 115
Nitrate (as NO3)	mg/L	5.00	105	104(89.9)	102	85 - 115
Nitrate as Nitrogen	mg/L	5.00	23.7	23.1(20.0)	103	85 - 115

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Fluoride	mg/L	1.00	4.22	4.00	105	90 - 110
Nitrate (as NO3)	mg/L	1.00	18.0	17.7	102	90 - 110
Sulfate	mg/L	1.00	20.4	20.0	102	90 - 110
Nitrate as Nitrogen	mg/L	1.00	4.07	4.00	102	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Fluoride	mg/L	1.00	3.19	3.00	106	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Fluoride	mg/L	1.00	3.20	3.00	107	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrate (as NO3)	mg/L	1.00	13.5	13.3	101	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrate (as NO3)	mg/L	1.00	12.2	13.3	91.8	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrate (as NO3)	mg/L	1.00	13.4	13.3	101	90 - 110

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Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project
Project Number: 428648.IM.CS.EX.AC Printed 2/12/2014

Anions By I.C. - EPA 300.0

Batch 01AN14Q

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811626-001 Sulfate	mg/L	01/17/2014 15:19	100	3.07	50.0	507
811626-002 Sulfate	mg/L	01/17/2014 15:55	50.0	1.54	25.0	523

Method Blank

Parameter	Unit	DF	Result
Sulfate	mg/L	1.00	ND

Duplicate — Lab ID = 811626-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Sulfate	mg/L	100	517	507	1.98	0 - 20

Lab Control Sample

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

Matrix Spike — Lab ID = 811626-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Sulfate	mg/L	100	1060	1010(500)	110	85 - 115

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sulfate	mg/L	1.00	20.1	20.0	101	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sulfate	mg/L	1.00	14.9	15.0	99.2	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sulfate	mg/L	1.00	15.2	15.0	101	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sulfate	mg/L	1.00	15.0	15.0	99.9	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sulfate	mg/L	1.00	15.1	15.0	100	90 - 110

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Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project
Project Number: 428648.IM.CS.EX.AC Printed 2/12/2014

Nitrite SM 4500-NO2 B Batch 01NO214C

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811626-001 Nitrite as Nitrogen	mg/L	01/09/2014 11:18	1.00	0.000630	0.0050	ND
811626-002 Nitrite as Nitrogen	mg/L	01/09/2014 11:19	1.00	0.000630	0.0050	ND

Method Blank

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

Duplicate — Lab ID = 811626-001

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

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrite as Nitrogen	mg/L	1.00	0.0221	0.0230	96.1	90 - 110

Matrix Spike — Lab ID = 811626-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Nitrite as Nitrogen	mg/L	1.00	0.0214	0.0230(0.0230)	93.0	85 - 115

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrite as Nitrogen	mg/L	1.00	0.0221	0.0230	96.1	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrite as Nitrogen	mg/L	1.00	0.0196	0.0200	98.0	90 - 110

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Specific Conductivity - EPA 120.1 Batch 01EC14C

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811626-001 Specific Conductivity	umhos/cm	01/09/2014	1.00	0.606	2.00	6750
811626-002 Specific Conductivity	umhos/cm	01/09/2014	1.00	0.606	2.00	6770
811626-003 Specific Conductivity	umhos/cm	01/09/2014	1.00	0.606	2.00	27200

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate — Lab ID = 811647-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	754	749	0.665	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	764	706	108	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	766	706	108	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	999	1000	99.9	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	997	1000	99.7	90 - 110

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Chrome VI by EPA 218.6

Batch 01CrH14B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811626-001 Chromium, Hexavalent	ug/L	01/08/2014 16:30	5.00	0.0300	1.0	1.7
811626-002 Chromium, Hexavalent	ug/L	01/08/2014 17:00	50.0	0.300	10.0	640
811626-003 Chromium, Hexavalent	ug/L	01/08/2014 17:41	10.0	0.0600	2.0	ND

Method Blank

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

Duplicate — Lab ID = 811623-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.49	5.49	0.0656	0 - 20

Low Level Calibration Verification

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

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.93	5.00	98.7	90 - 110

Matrix Spike — Lab ID = 811623-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	15.4	15.5(10.0)	99.1	90 - 110

Matrix Spike — Lab ID = 811626-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	6.66	6.69(5.00)	99.3	90 - 110

Matrix Spike — Lab ID = 811626-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	6.50	6.69(5.00)	96.3	90 - 110

Matrix Spike — Lab ID = 811626-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	1350	1390(750)	94.6	90 - 110

Matrix Spike — Lab ID = 811626-003

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

Matrix Spike — Lab ID = 811626-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.80	5.95(5.00)	97.0	90 - 110

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Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project
Project Number: 428648.IM.CS.EX.AC Printed 2/12/2014

Matrix Spike Lab ID = 811626-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	10.0	10.5	11.0(10.0)	95.9	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.95	5.00	99.1	90 - 110

MRCVS - Primary

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

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	9.93	10.0	99.3	95 - 105

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Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project
Project Number: 428648.IM.CS.EX.AC Printed 2/12/2014

Metals by EPA 200.7, Total

Batch 012714A-Th2

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811626-001 Aluminum	ug/L	01/27/2014 16:12	1.00	7.20	20.0	43.1
Boron	ug/L	01/27/2014 16:12	1.00	4.10	20.0	1070
Zinc	ug/L	01/27/2014 16:12	1.00	5.10	20.0	ND
811626-002 Aluminum	ug/L	01/27/2014 15:47	1.00	7.20	20.0	ND
Boron	ug/L	01/27/2014 15:47	1.00	4.10	20.0	1040
Zinc	ug/L	01/27/2014 15:47	1.00	5.10	20.0	ND
811626-003 Zinc	ug/L	01/27/2014 16:19	1.00	5.10	20.0	ND

Method Blank

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

Duplicate

Lab ID = 811626-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Aluminum	ug/L	1.00	ND	0	0	0 - 20
Zinc	ug/L	1.00	ND	0	0	0 - 20
Boron	ug/L	1.00	1060	1040	1.72	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Aluminum	ug/L	1.00	2070	2000	104	85 - 115
Zinc	ug/L	1.00	2200	2000	110	85 - 115
Boron	ug/L	1.00	1990	2000	99.3	85 - 115

Matrix Spike

Lab ID = 811626-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Aluminum	ug/L	1.00	2010	2000(2000)	101	75 - 125
Zinc	ug/L	1.00	2520	2000(2000)	126	75 - 125
Boron	ug/L	1.00	3070	3040(2000)	101	75 - 125

Matrix Spike Duplicate

Lab ID = 811626-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Aluminum	ug/L	1.00	1950	2000(2000)	97.4	
Zinc	ug/L	1.00	2340	2000(2000)	117	
Boron	ug/L	1.00	3060	3040(2000)	101	

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Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project Page 12 of 36
Project Number: 428648.IM.CS.EX.AC Printed 2/12/2014

Metals by EPA 200.7, Total Batch 021014A-Th2

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811626-001 Iron	ug/L	02/10/2014 16:32	1.00	3.00	20.0	ND
811626-002 Iron	ug/L	02/10/2014 15:28	1.00	3.00	20.0	25.3

Method Blank

Parameter	Unit	DF	Result
Iron	ug/L	1.00	ND

Duplicate — Lab ID = 811626-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Iron	ug/L	1.00	25.7	25.3	1.57	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2140	2000	107	85 - 115

Matrix Spike — Lab ID = 811626-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	2010	2020(2000)	99.3	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5080	5000	102	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5470	5000	109	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5200	5000	104	90 - 110

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2320	2000	116	80 - 120

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

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Metals by EPA 200.8, Total Batch 011514A

Parameter		Unit	Analyzed	DF	MDL	RL	Result
811626-001	Arsenic	ug/L	01/15/2014 15:48	1.00	0.0520	0.50	ND
	Chromium	ug/L	01/15/2014 15:48	1.00	0.0710	1.0	ND
	Copper	ug/L	01/15/2014 15:48	1.00	0.190	5.0	ND
	Lead	ug/L	01/15/2014 15:48	1.00	0.0190	1.0	ND
	Manganese	ug/L	01/15/2014 15:48	1.00	0.0600	0.50	4.0
	Nickel	ug/L	01/15/2014 15:48	1.00	0.240	2.0	ND
811626-002	Arsenic	ug/L	01/15/2014 16:42	1.00	0.0520	0.50	3.4
	Chromium	ug/L	01/15/2014 16:30	10.0	0.710	5.0	730
	Copper	ug/L	01/15/2014 16:42	1.00	0.190	5.0	ND
	Lead	ug/L	01/15/2014 16:42	1.00	0.0190	1.0	ND
	Manganese	ug/L	01/15/2014 16:42	1.00	0.0600	0.50	4.5
	Nickel	ug/L	01/15/2014 16:42	1.00	0.240	2.0	ND
811626-003	Arsenic	ug/L	01/15/2014 16:54	1.00	0.0520	0.50	ND
	Cadmium	ug/L	01/15/2014 17:00	2.00	0.0500	2.0	ND
	Chromium	ug/L	01/15/2014 16:54	1.00	0.0710	1.0	3.0
	Cobalt	ug/L	01/15/2014 17:00	2.00	0.0800	5.0	ND
	Copper	ug/L	01/15/2014 16:54	1.00	0.190	5.0	ND
	Lead	ug/L	01/15/2014 17:06	5.00	0.0950	5.0	ND
	Manganese	ug/L	01/15/2014 16:54	1.00	0.0600	0.50	15.3
	Nickel	ug/L	01/15/2014 16:54	1.00	0.240	2.0	7.8
	Selenium	ug/L	01/15/2014 16:54	1.00	0.148	5.0	20.0
	Thallium	ug/L	01/15/2014 17:06	5.00	0.180	5.0	ND
	Vanadium	ug/L	01/15/2014 16:54	1.00	0.0700	5.0	ND

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Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project
Project Number: 428648.IM.CS.EX.AC Printed 2/12/2014

Method Blank

Parameter	Unit	DF	Result
Arsenic	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
Thallium	ug/L	1.00	ND
Uranium	ug/L	1.00	ND
Vanadium	ug/L	1.00	ND
Manganese	ug/L	1.00	ND

Duplicate Lab ID = 811626-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Arsenic	ug/L	1.00	ND	0	0	0 - 20
Cadmium	ug/L	1.00	ND	0	0	0 - 20
Cobalt	ug/L	1.00	ND	0	0	0 - 20
Chromium	ug/L	1.00	ND	0	0	0 - 20
Nickel	ug/L	1.00	ND	0	0	0 - 20
Selenium	ug/L	1.00	ND	0	0	0 - 20
Copper	ug/L	1.00	ND	0	0	0 - 20
Lead	ug/L	1.00	ND	0	0	0 - 20
Thallium	ug/L	1.00	ND	0	0	0 - 20
Uranium	ug/L	1.00	2.54	2.54	0.208	0 - 20
Vanadium	ug/L	1.00	ND	0	0	0 - 20
Manganese	ug/L	1.00	3.83	3.98	3.75	0 - 20

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Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project
Project Number: 428648.IM.CS.EX.AC Printed 2/12/2014

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	0.489	0.500	97.7	70 - 130
Cadmium	ug/L	1.00	0.218	0.200	109	70 - 130
Cobalt	ug/L	1.00	0.465	0.500	93.0	70 - 130
Chromium	ug/L	1.00	0.552	0.500	110	70 - 130
Nickel	ug/L	1.00	1.17	1.00	117	70 - 130
Selenium	ug/L	1.00	1.73	2.00	86.6	70 - 130
Copper	ug/L	1.00	1.08	1.00	108	70 - 130
Lead	ug/L	1.00	0.486	0.500	97.3	70 - 130
Thallium	ug/L	1.00	0.215	0.200	107	70 - 130
Uranium	ug/L	1.00	0.186	0.200	93.0	70 - 130
Vanadium	ug/L	1.00	0.245	0.200	123	70 - 130
Manganese	ug/L	1.00	0.235	0.200	117	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	47.7	50.0	95.4	85 - 115
Cadmium	ug/L	1.00	44.2	50.0	88.5	85 - 115
Cobalt	ug/L	1.00	47.3	50.0	94.7	85 - 115
Chromium	ug/L	1.00	48.0	50.0	96.1	85 - 115
Nickel	ug/L	1.00	47.4	50.0	94.8	85 - 115
Selenium	ug/L	1.00	46.5	50.0	92.9	85 - 115
Copper	ug/L	1.00	48.8	50.0	97.5	85 - 115
Lead	ug/L	1.00	45.9	50.0	91.7	85 - 115
Thallium	ug/L	1.00	46.2	50.0	92.3	85 - 115
Uranium	ug/L	1.00	46.4	50.0	92.8	85 - 115
Vanadium	ug/L	1.00	48.1	50.0	96.3	85 - 115
Manganese	ug/L	1.00	49.0	50.0	98.0	85 - 115

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Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project
Project Number: 428648.IM.CS.EX.AC Printed 2/12/2014

Matrix Spike Lab ID = 811626-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	1.00	50.2	50.0(50.0)	100	75 - 125
Cadmium	ug/L	1.00	41.8	50.0(50.0)	83.5	75 - 125
Cobalt	ug/L	1.00	44.8	50.0(50.0)	89.5	75 - 125
Chromium	ug/L	1.00	49.1	50.0(50.0)	98.3	75 - 125
Nickel	ug/L	1.00	46.7	50.0(50.0)	93.5	75 - 125
Selenium	ug/L	1.00	50.5	50.0(50.0)	101	75 - 125
Copper	ug/L	1.00	45.6	50.0(50.0)	91.2	75 - 125
Lead	ug/L	1.00	42.7	50.0(50.0)	85.4	75 - 125
Thallium	ug/L	1.00	42.1	50.0(50.0)	84.2	75 - 125
Uranium	ug/L	1.00	49.4	52.5(50.0)	93.7	75 - 125
Vanadium	ug/L	1.00	51.0	50.0(50.0)	102	75 - 125
Manganese	ug/L	1.00	51.7	54.0(50.0)	95.4	75 - 125

Matrix Spike Duplicate Lab ID = 811626-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	1.00	48.8	50.0(50.0)	97.7	75 - 125
Cadmium	ug/L	1.00	39.3	50.0(50.0)	78.7	75 - 125
Cobalt	ug/L	1.00	41.9	50.0(50.0)	83.8	75 - 125
Chromium	ug/L	1.00	47.8	50.0(50.0)	95.6	75 - 125
Nickel	ug/L	1.00	45.2	50.0(50.0)	90.5	75 - 125
Selenium	ug/L	1.00	48.9	50.0(50.0)	97.9	75 - 125
Copper	ug/L	1.00	44.3	50.0(50.0)	88.5	75 - 125
Lead	ug/L	1.00	40.7	50.0(50.0)	81.3	75 - 125
Thallium	ug/L	1.00	40.6	50.0(50.0)	81.2	75 - 125
Uranium	ug/L	1.00	47.8	52.5(50.0)	90.5	75 - 125
Vanadium	ug/L	1.00	49.7	50.0(50.0)	99.3	75 - 125
Manganese	ug/L	1.00	50.1	54.0(50.0)	92.2	75 - 125

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Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project
Project Number: 428648.IM.CS.EX.AC Printed 2/12/2014

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	18.8	20.0	94.2	80 - 120

Serial Dilution — Lab ID = 811582-003

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Uranium	ug/L	10.0	26.0	26.5	1.78	0 - 10

Serial Dilution — Lab ID = 811626-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	50.0	708	730	3.10	0 - 10

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Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project
Project Number: 428648.IM.CS.EX.AC Printed 2/12/2014

Metals by EPA 200.8, Total Batch 011514D

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811626-001 Antimony	ug/L	01/16/2014 14:30	2.00	0.0696	2.0	ND
Barium	ug/L	01/16/2014 14:30	2.00	0.594	5.0	12.2
Molybdenum	ug/L	01/16/2014 14:30	2.00	0.100	2.0	18.6
811626-002 Antimony	ug/L	01/16/2014 15:06	2.00	0.0696	2.0	ND
Barium	ug/L	01/16/2014 15:06	2.00	0.594	5.0	27.5
Molybdenum	ug/L	01/16/2014 15:06	2.00	0.100	2.0	18.6
811626-003 Antimony	ug/L	01/16/2014 15:19	2.00	0.0696	2.0	ND
Barium	ug/L	01/16/2014 15:19	2.00	0.594	5.0	63.8
Beryllium	ug/L	01/16/2014 15:31	10.0	0.362	2.0	ND
Mercury	ug/L	01/16/2014 15:19	2.00	0.0800	0.40	ND
Molybdenum	ug/L	01/16/2014 15:13	1.00	0.0500	2.0	87.3

Method Blank

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

Duplicate Lab ID = 811626-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Barium	ug/L	2.00	12.5	12.2	2.13	0 - 20
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
Molybdenum	ug/L	2.00	18.6	18.6	0.220	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Barium	ug/L	1.00	0.998	1.00	99.8	70 - 130
Beryllium	ug/L	1.00	0.248	0.200	124	70 - 130
Mercury	ug/L	1.00	0.178	0.200	89.0	70 - 130
Antimony	ug/L	1.00	0.463	0.500	92.6	70 - 130
Molybdenum	ug/L	1.00	0.192	0.200	96.0	70 - 130

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Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Barium	ug/L	2.00	50.5	50.0	101	85 - 115
Beryllium	ug/L	2.00	48.9	50.0	97.8	85 - 115
Mercury	ug/L	2.00	5.05	5.00	101	85 - 115
Antimony	ug/L	2.00	48.4	50.0	96.9	85 - 115
Molybdenum	ug/L	2.00	49.0	50.0	98.0	85 - 115

Matrix Spike — Lab ID = 811626-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Barium	ug/L	2.00	55.9	62.2(50.0)	87.4	75 - 125
Beryllium	ug/L	2.00	39.8	50.0(50.0)	79.6	75 - 125
Mercury	ug/L	2.00	4.42	5.00(5.00)	88.5	75 - 125
Antimony	ug/L	2.00	43.1	50.0(50.0)	86.2	75 - 125
Molybdenum	ug/L	2.00	61.9	68.6(50.0)	86.6	75 - 125

Matrix Spike Duplicate — Lab ID = 811626-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Barium	ug/L	2.00	57.0	62.2(50.0)	89.6	75 - 125
Beryllium	ug/L	2.00	39.8	50.0(50.0)	79.7	75 - 125
Mercury	ug/L	2.00	4.52	5.00(5.00)	90.4	75 - 125
Antimony	ug/L	2.00	44.1	50.0(50.0)	88.2	75 - 125
Molybdenum	ug/L	2.00	63.0	68.6(50.0)	88.8	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Barium	ug/L	1.00	19.1	20.0	95.6	90 - 110
Beryllium	ug/L	1.00	19.3	20.0	96.7	90 - 110
Mercury	ug/L	1.00	1.94	2.00	97.2	90 - 110
Antimony	ug/L	1.00	18.4	20.0	91.9	90 - 110
Molybdenum	ug/L	1.00	18.1	20.0	90.6	90 - 110

MRCVS - Primary

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

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Beryllium	ug/L	1.00	19.9	20.0	99.6	90 - 110

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Interference Check Standard A

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

Interference Check Standard A

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

Interference Check Standard AB

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

Interference Check Standard AB

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

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Mercury	ug/L	1.00	1.92	2.00	96.2	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Mercury	ug/L	1.00	2.03	2.00	102	80 - 120
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		
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 = 811626-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Barium	ug/L	10.0	28.2	27.5	2.68	0 - 10

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Client: E2 Consulting Engineers, Inc.

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

Printed 2/12/2014

Serial Dilution

Lab ID = 811626-003

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Molybdenum	ug/L	5.00	90.7	87.3	3.84	0 - 10

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Metals by EPA 200.8, Total Batch 011714A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811626-003 Silver	ug/L	01/17/2014 17:07	2.00	0.0584	5.0	ND

Method Blank

Parameter	Unit	DF	Result
Silver	ug/L	1.00	ND

Duplicate — Lab ID = 811626-001

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

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Silver	ug/L	1.00	0.476	0.500	95.2	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Silver	ug/L	2.00	48.5	50.0	97.0	85 - 115

Matrix Spike — Lab ID = 811626-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Silver	ug/L	2.00	41.4	50.0(50.0)	82.9	75 - 125

Matrix Spike Duplicate — Lab ID = 811626-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Silver	ug/L	2.00	43.0	50.0(50.0)	86.1	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Silver	ug/L	1.00	18.9	20.0	94.4	90 - 110

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Silver	ug/L	1.00	19.5	20.0	97.3	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Silver	ug/L	1.00	19.9	20.0	99.4	90 - 110

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Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project
Project Number: 428648.IM.CS.EX.AC Printed 2/12/2014

Total Dissolved Solids by SM 2540 C Batch 01TDS14B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811626-001 Total Dissolved Solids	mg/L	01/07/2014	1.00	1.76	125	4490
811626-002 Total Dissolved Solids	mg/L	01/07/2014	1.00	1.76	125	4520
811626-003 Total Dissolved Solids	mg/L	01/07/2014	1.00	1.76	500	20600

Method Blank

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

Duplicate — Lab ID = 811574-007

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	529	530	0.189	0 - 10

Duplicate — Lab ID = 811611-004

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	413	404	2.20	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Dissolved Solids	mg/L	1.00	495	500	99.0	90 - 110

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Ammonia Nitrogen by SM4500-NH3D

Batch 01NH314B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811626-001 Ammonia as N	mg/L	01/22/2014	1.00	0.0318	0.500	ND
811626-002 Ammonia as N	mg/L	01/22/2014	1.00	0.0318	0.500	ND

Method Blank

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

Duplicate

Lab ID = 811626-002

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

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	7.41	8.00	92.6	90 - 110

Matrix Spike

Lab ID = 811626-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	9.16	10.0(10.0)	91.6	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	6.10	6.00	102	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	6.16	6.00	102	90 - 110

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Client: E2 Consulting Engineers, Inc.

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

Printed 2/12/2014

Turbidity by SM 2130 B Batch 01TUC14D

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811626-001 Turbidity	NTU	01/08/2014	1.00	0.0140	0.100	ND
811626-002 Turbidity	NTU	01/08/2014	1.00	0.0140	0.100	0.134

Method Blank

Parameter	Unit	DF	Result
Turbidity	NTU	1.00	ND

Duplicate — Lab ID = 811626-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Turbidity	NTU	1.00	0.118	0.134	12.7	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	8.55	8.00	107	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

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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Truesdail Laboratories, Inc.

Total Dissolved Solids by SM 2540 C

Calculations

Batch: 01TDS14B
Date Analyzed: 1/7/2014

Laboratory Number	Sample volume, mL	Initial weight, g	1st Final weight, g	2nd Final weight, g	Weight Difference, g	Exceeds 0.5mg? Yes/No	Residue weight, g	Filterable residue, ppm	RL, ppm	Reported Value, ppm	DF
Blank	100	78.3690	78.3690	78.3690	0.0000	No	0.0000	0.0	25.0	ND	1
811574-7	100	77.2316	77.2848	77.2846	0.0002	No	0.0530	530.0	25.0	530.0	1
811577-1	100	77.4922	77.5344	77.5344	0.0000	No	0.0422	422.0	25.0	422.0	1
811577-2	100	70.3840	70.4265	70.4264	0.0001	No	0.0424	424.0	25.0	424.0	1
811596-1	100	76.0252	76.0674	76.0674	0.0000	No	0.0422	422.0	25.0	422.0	1
811596-2	100	66.6941	66.7373	66.7370	0.0003	No	0.0429	429.0	25.0	429.0	1
811611-2	100	78.7842	78.8004	78.8004	0.0000	No	0.0162	162.0	25.0	162.0	1
811611-4	100	75.7502	75.7906	75.7906	0.0000	No	0.0404	404.0	25.0	404.0	1
811551-1	100	79.7960	79.8423	79.8421	0.0002	No	0.0461	461.0	25.0	461.0	1
811551-2	100	75.6059	75.6536	75.6536	0.0000	No	0.0477	477.0	25.0	477.0	1
811551-3	100	69.1891	69.2380	69.2376	0.0004	No	0.0485	485.0	25.0	485.0	1
811574-7 Dup	100	72.4842	72.5371	72.5371	0.0000	No	0.0529	529.0	25.0	529.0	1
LCS	100	78.6042	78.6538	78.6537	0.0001	No	0.0495	495.0	25.0	495.0	1
811551-4	100	76.7865	76.8343	76.8341	0.0002	No	0.0476	476.0	25.0	476.0	1
811623-1	20	29.2555	29.3091	29.3092	-0.0001	No	0.0537	2685.0	125.0	2685.0	1
811623-2	10	29.4759	29.5277	29.5273	0.0004	No	0.0514	5140.0	250.0	5140.0	1
811626-1	20	30.3638	30.4536	30.4536	0.0000	No	0.0898	4490.0	125.0	4490.0	1
811626-2	20	30.4175	30.5078	30.5078	0.0000	No	0.0903	4515.0	125.0	4515.0	1
811626-3	5	29.3252	29.4285	29.4282	0.0003	No	0.1030	20600.0	500.0	20600.0	1
811636-14	100	74.3760	74.4345	74.4345	0.0000	No	0.0585	585.0	25.0	585.0	1
811611-4 Dup	100	77.4781	77.5194	77.5194	0.0000	No	0.0413	413.0	25.0	413.0	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?
LCS	495.0	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?
811574-7	0.0530	0.0529	0.1%	≤5%	Yes
811611-4	0.0404	0.0413	1.1%	≤5%	Yes

Duplicate Determination Difference

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

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

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 01TDS14B

Total Dissolved Solids by SM 2540 C

TDS/EC CHECK

Batch: 01TDS14B
Date Analyzed: 1/7/2014

Laboratory Number	EC	TDS/EC Ratio: 0.55-0.90	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
811574-7	819	0.65	532.35	1.00
811577-1	773	0.55	502.45	0.84
811577-2	728	0.58	473.2	0.90
811596-1	748	0.56	486.2	0.87
811596-2	718	0.60	466.7	0.92
811611-2	278	0.58	180.7	0.90
811611-4	670	0.60	435.5	0.93
811551-1	812	0.57	527.8	0.87
811551-2	806	0.59	523.9	0.91
811551-3	809	0.60	525.85	0.92
811574-7 Dup	819	0.65	532.35	0.99
LCS				
811551-4	819	0.58	532.35	0.89
811623-1	3960	0.68	2574	1.04
811623-2	7290	0.71	4738.5	1.08
811626-1	6750	0.67	4387.5	1.02
811626-2	6770	0.67	4400.5	1.03
811626-3	27200	0.76	17680	1.17
811636-14	822	0.71	534.3	1.09
811611-4 Dup	670	0.62	435.5	0.95

811626

Rec'd 1/07/14

S9c 811626

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

[IM3Plant-WDR-448]

TURNAROUND TIME 10 Days
DATE 01/07/14 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 428648.IM.CS.EX.AC
SAMPLERS (SIGNATURE [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-448	01/07/14	13:30		X		X	X	X	X	X		X			X			4	PH=7 Metals
-2	SC-100B-WDR-448	01/07/14	13:30		X		X	X	X	X	X		X			X			4	
-3	SC-701-WDR-448	01/07/14	13:30		X	X	X	X				X			X				4	
																			12	TOTAL NUMBER OF CONTAINERS

CHAIN OF CUSTODY SIGNATURE RECORD

Signature	Printed Name	Company/ Agency	Date/ Time
(Relinquished) [signature]	Ron Phelps	CH2M HILL	1-7-14 15:30
(Received) [signature]	THANH NGO	TRUESDAIL	1-7-14 1530
(Relinquished) [signature]	THANH NGO	TRUESDAIL	1-7-14 1950
(Received) [signature]	Marcheal Brat	TL	1/7/14@1950
(Relinquished)			
(Received)			

SAMPLE CONDITIONS

RECEIVED COOL ☒ WARM ☐ 6° 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
12/23/13	811496	7.0	2mL/100mL	9.5	18:30	MVG
	811497-1	7.0	2mL/100mL	9.5	18:40	MVG
	811497-2	9.5	N/A	N/A	N/A	
	811498-1					
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
	-13					
	-14					
	-15					
	-16					
12/30/13	811544	7.0	2mL/100mL	MVG ~~N/~~ 9.5	20:00	MVG
NE 01/8/14	811623-1	7.00	2ml/100ml	9.5	8:00	NE
	-2					
01/8/14	811624-1	9.5	N/A	N/A	N/A	NE
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	811626-1	7.0	2ml/100ml	9.5	8:00	NE
	-2					

NE 1/10/14

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

Hexavalent Chromium

Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
1/3/14	811626-3	7.0	2ml/100 ml	9.5	8:00	NE
1/9/14	811651-1	9.5	N/A	N/A	N/A	NE
	-2					
	-3					
	-4					
	811652-1					
	-2					
	811653-1					
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
	-13					
	-14					
	15					
	811654-1					
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					

NE
1/10/14

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

TRUESDAIL LABORATORIES, INC.
Metals

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest (Y/N)	Time of Adjustment to pH 2	Date/Time of 2nd pH check	Comments
811620	<1	<2	1/9/14	ES	yes			
811621								
811634								
811643								
811647 (1-2)								
811649-4								
811611 (1-2,4)		>2			No	5:00	1/13/14 10:00	pH <2
811617								
811635 (10-12)								
811648 (1-7)								
811650 (1-4)								
811662 (1-3)								
811598 (1-4)	<1	<2	1/10/14	ES	yes			
811623 (1-2)		>2				11:00		Filtered then acidify
811624 (1-7)		<2						
811651 (1-4)								
811652 (1-2)								
811653 (1-15)	<1	<2	1/10/14	ES	yes			
811654 (1-15)	<1	<2	1/14/14	ES	yes			
811626 (1-3)	<1	>2	1/15/14	ES	yes	10:30		pH <2
811582 (1-3)		<2						
811628 (1-3)								
811655 (1-7)								
811731	<1	<2	1/15/14	ES	yes			
811728								
811707								
811708								
811709								
811710								
811729								
811735								
811736								
811703-6		>2			No	1:00		
811711 (1-2,4)								
811739								
811788 (1-3,6-13)	<1	<2	1/16/14	KK	yes	—	—	dissolved bottles
811788 (1-3,6-13)	<1	<2	1/16/14	KK	yes	—	—	total bottles
811747 (1-3,6-14)	<1	<2	1/16/14	KK	yes	—	—	total bottles
811747 (1-3,6-14,16)	<1	<2	1/16/14	KK	yes	—	—	dissolved
811688 (1-6)	<1	<2	1/16/14	KK	yes			
811750-1	<1	<2	1/16/14	KK	yes			
811748	<1	>2	1/17/14	KK	yes			total
811799 (1-3)	<1	<2	1/17/14	KK	yes			total
811751 (1-8)	<1	<2	1/17/14	KK	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 #** 811626

Date Delivered: 01/07/14 **Time:** 19:50 **By:** ☐Mail ☑Field Service ☐Client

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

ALERT !!! Level III QC

TRUESDAIL LABORATORIES, INC.
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Established 1931

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

January 29, 2014

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

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK IM3PLANT-WDR-449 PROJECT, GROUNDWATER MONITORING, TLI NO.: 811748

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-449 project groundwater monitoring for Hexavalent and Total Chromium, Total Manganese, Turbidity, Specific Conductivity, and Total Dissolved Solids. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, quality control data and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data have been included under Section 5.

The samples were received and delivered with the chain of custody on January 14, 2014, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

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

The straight run for the matrix spike on sample SC-700B-WDR-449 for Hexavalent Chromium analysis by EPA 218.6 was just outside the retention time window. Because the matrix spike recovery and all other QA/QC were within acceptable limits, the data from the straight run was reported.

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

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

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

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Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy
Sample: One (1) Groundwater Sample
Project Name: PG&E Topock Project
Project No.: 428648.IM.CS.EX.AC

Laboratory No.: 811748
Date: January 29, 2014
Collected: January 14, 2014
Received: January 14, 2014

ANALYST LIST

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

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

Laboratory No.: 811748
Date Received: January 14, 2014

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

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
811748-001	SC-700B-WDR-449	E120.1	NONE	1/14/2014	11:30	EC	7300	umhos/cm	2.00
811748-001	SC-700B-WDR-449	E200.8	NONE	1/14/2014	11:30	Chromium	ND	ug/L	1.0
811748-001	SC-700B-WDR-449	E200.8	NONE	1/14/2014	11:30	Manganese	6.1	ug/L	0.50
811748-001	SC-700B-WDR-449	E218.6	LABFLT	1/14/2014	11:30	Chromium, Hexavalent	ND	ug/L	0.20
811748-001	SC-700B-WDR-449	SM2130B	NONE	1/14/2014	11:30	Turbidity	ND	NTU	0.100
811748-001	SC-700B-WDR-449	SM2540C	NONE	1/14/2014	11:30	Total Dissolved Solids	4360	mg/L	250

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

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

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REPORT

Client: **E2 Consulting Engineers, Inc.**
155 Grand Avenue, Suite 800
Oakland, CA 94612
Attention: Shawn Duffy
Project Name: PG&E Topock Project
Project Number: 428648.IM.CS.EX.AC
P.O. Number: PGEIM11111001
Release Number:

Laboratory No. 811748

Printed 1/29/2014

Samples Received on 1/14/2014 11:50:00 PM

Field ID	Lab ID	Collected	Matrix
SC-700B-WDR-449	811748-001	01/14/2014 11:30	Water

Specific Conductivity - EPA 120.1 Batch 01EC14E

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811748-001 Specific Conductivity	umhos/cm	01/16/2014	1.00	0.606	2.00	7300

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate — Lab ID = 811747-007

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	875	873	0.229	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	721	706	102	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	967	1000	96.7	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	968	1000	96.8	90 - 110

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Client: E2 Consulting Engineers, Inc.

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

Chrome VI by EPA 218.6

Batch 01CrH14F

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811748-001 Chromium, Hexavalent	ug/L	01/15/2014 21:48	1.00	0.00600	0.20	ND

Method Blank

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

Duplicate — Lab ID = 811654-008

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	8.45	8.46	0.124	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.195	0.200	97.4	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.03	5.00	101	90 - 110

Matrix Spike — Lab ID = 811654-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	8.42	8.60(5.00)	96.4	90 - 110

Matrix Spike — Lab ID = 811654-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	8.64	8.57(5.00)	101	90 - 110

Matrix Spike — Lab ID = 811654-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	6.84	6.65(5.00)	104	90 - 110

Matrix Spike — Lab ID = 811654-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	6.57	6.73(5.00)	96.7	90 - 110

Matrix Spike — Lab ID = 811654-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	7.97	7.88(5.00)	102	90 - 110

Matrix Spike — Lab ID = 811654-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	8.03	7.90(5.00)	102	90 - 110

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Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project
Project Number: 428648.IM.CS.EX.AC

Printed 2/21/2014
Revised

Matrix Spike — Lab ID = 811654-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	6.49	6.33(5.00)	103	90 - 110

Matrix Spike — Lab ID = 811654-007

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	7.98	7.90(5.00)	102	90 - 110

Matrix Spike — Lab ID = 811654-008

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	18.4	18.5(10.0)	99.6	90 - 110

Matrix Spike — Lab ID = 811654-009

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	15.3	15.2(10.0)	102	90 - 110

Matrix Spike — Lab ID = 811654-010

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	15.2	15.2(10.0)	100	90 - 110.

Matrix Spike — Lab ID = 811654-011

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.78	1.74(1.00)	104	90 - 110.

Matrix Spike — Lab ID = 811654-012

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.76	9.69(5.00)	101	90 - 110

Matrix Spike — Lab ID = 811654-013

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.68	9.55(5.00)	102	90 - 110

Matrix Spike — Lab ID = 811654-014

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.47	9.34(5.00)	102	90 - 110

Matrix Spike — Lab ID = 811654-015

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	7.33	7.22(5.00)	102	90 - 110

Matrix Spike — Lab ID = 811748-001

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

Matrix Spike — Lab ID = 811748-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.06	1.06(1.00)	100	90 - 110

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Client: E2 Consulting Engineers, Inc.

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

Metals by EPA 200.8, Total

Batch 012514A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811748-001 Chromium	ug/L	01/25/2014 18:10	1.00	0.0710	1.0	ND
Manganese	ug/L	01/25/2014 18:10	1.00	0.0600	0.50	6.1

Method Blank

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

Duplicate

Lab ID = 811747-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	1.00	ND	0	0	0 - 20
Manganese	ug/L	1.00	4.84	4.74	2.02	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.196	0.200	98.0	70 - 130
Manganese	ug/L	1.00	0.198	0.200	99.1	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	51.1	50.0	102	85 - 115
Manganese	ug/L	1.00	50.9	50.0	102	85 - 115

Matrix Spike

Lab ID = 811747-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	1.00	49.6	50.0(50.0)	99.2	75 - 125
Manganese	ug/L	1.00	52.5	54.7(50.0)	95.5	75 - 125

Matrix Spike Duplicate

Lab ID = 811747-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	1.00	48.9	50.0(50.0)	97.7	75 - 125
Manganese	ug/L	1.00	52.6	54.7(50.0)	95.7	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.1	20.0	95.4	90 - 110
Manganese	ug/L	1.00	19.3	20.0	96.6	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.4	20.0	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.

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.8	20.0	94.1	80 - 120

Interference Check Standard AB

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

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

Total Dissolved Solids by SM 2540 C

Batch 01TDS14F

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811748-001 Total Dissolved Solids	mg/L	01/17/2014	1.00	1.76	250	4360

Method Blank

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

Duplicate — Lab ID = 811748-001

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

Duplicate — Lab ID = 811776-004

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	509	495	2.79	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Dissolved Solids	mg/L	1.00	505	500	101	90 - 110

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Client: E2 Consulting Engineers, Inc.

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

Printed 1/29/2014

Turbidity by SM 2130 B

Batch 01TUC14I

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811748-001 Turbidity	NTU	01/15/2014	1.00	0.0140	0.100	ND

Method Blank

Parameter	Unit	DF	Result
Turbidity	NTU	1.00	ND

Duplicate

Lab ID = 811726-002

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	7.28	8.00	91.0	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	7.39	8.00	92.4	90 - 110

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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Truesdail Laboratories, Inc.

e2

Total Dissolved Solids by SM 2540 C

Calculations

Batch: 01TDS14F
Date Analyzed: 1/17/2014

Laboratory Number	Sample volume, mL	Initial weight, g	1st Final weight, g	2nd Final weight, g	Weight Difference, g	Exceeds 0.5mg? Yes/No	Residue weight, g	Filterable residue, ppm	RL, ppm	Reported Value, ppm	DF
Blank	100	78.6128	78.6128	78.6128	0.0000	No	0.0000	0.0	25.0	ND	1
811690-1	100	75.2649	75.3073	75.3073	0.0000	No	0.0424	424.0	25.0	424.0	1
811690-2	100	75.8053	75.8499	75.8495	0.0004	No	0.0442	442.0	25.0	442.0	1
811711-2	100	73.4304	73.4430	73.4427	0.0003	No	0.0123	123.0	25.0	123.0	1
811711-4	100	75.4023	75.4394	75.4394	0.0000	No	0.0371	371.0	25.0	371.0	1
811748	10	28.8537	28.8976	28.8973	0.0003	No	0.0436	4360.0	250.0	4360.0	1
811749-2	20	28.7586	28.8301	28.8299	0.0002	No	0.0713	3565.0	125.0	3565.0	1
811749-3	20	30.3503	30.4337	30.4335	0.0002	No	0.0832	4160.0	125.0	4160.0	1
811749-4	20	29.4734	29.5401	29.5397	0.0004	No	0.0663	3315.0	125.0	3315.0	1
811749-6	20	29.3299	29.4019	29.4019	0.0000	No	0.0720	3600.0	125.0	3600.0	1
811749-8	20	29.3254	29.4186	29.4183	0.0003	No	0.0929	4645.0	125.0	4645.0	1
811748 Dup	10	29.3209	29.3646	29.3645	0.0001	No	0.0436	4360.0	250.0	4360.0	1
LCS	100	74.7303	74.7811	74.7808	0.0003	No	0.0505	505.0	25.0	505.0	1
811749-9	20	29.3966	29.4702	29.4698	0.0004	No	0.0732	3660.0	125.0	3660.0	1
811749-10	50	51.6292	51.7735	51.7735	0.0000	No	0.1443	2886.0	50.0	2886.0	1
811749-11	50	49.2685	49.4202	49.4201	0.0001	No	0.1516	3032.0	50.0	3032.0	1
811749-12	50	50.6205	50.7753	50.7751	0.0002	No	0.1546	3092.0	50.0	3092.0	1
811749-14	20	28.7423	28.8128	28.8128	0.0000	No	0.0705	3525.0	125.0	3525.0	1
811749-15	20	28.9665	29.0294	29.0293	0.0001	No	0.0628	3140.0	125.0	3140.0	1
811776-1	100	75.2613	75.3118	75.3114	0.0004	No	0.0501	501.0	25.0	501.0	1
811776-2	100	78.7914	78.8425	78.8424	0.0001	No	0.0510	510.0	25.0	510.0	1
811776-3	100	78.3881	78.4379	78.4378	0.0001	No	0.0497	497.0	25.0	497.0	1
811776-4	100	69.4751	69.5249	69.5246	0.0003	No	0.0495	495.0	25.0	495.0	1
811776-4 Dup	100	79.2536	79.3047	79.3045	0.0002	No	0.0509	509.0	25.0	509.0	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?
LCS	505.0	500	101.0%	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?
811748	0.0436	0.0436	0.0%	≤5%	Yes
811776-4	0.0495	0.0509	1.4%	≤5%	Yes

Duplicate Determination Difference

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

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

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

Jenny T.
Analyst Printed Name

Analyst Signature

Maksim G.
Reviewer Printed Name

Reviewer Signature

WetChem 01TDS14F

Total Dissolved Solids by SM 2540 C

TDS/EC CHECK

Batch: 01TDS14F
Date Analyzed: 1/17/2014

Laboratory Number	EC	TDS/EC Ratio: 0.55-0.90	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
811690-1	776	0.55	504.4	0.84
811690-2	732	0.60	475.8	0.93
811711-2	216	0.57	140.4	0.88
811711-4	576	0.64	374.4	0.99
811748	7300	0.60	4745	0.92
811749-2	4320	0.83	2808	1.27
811749-3	4960	0.84	3224	1.29
811749-4	4300	0.77	2795	1.19
811749-6	4550	0.79	2957.5	1.22
811749-8	5290	0.88	3438.5	1.35
811748 Dup	7300	0.60	4745	0.92
LCS				
811749-9	4660	0.79	3029	1.21
811749-10	3530	0.82	2294.5	1.26
811749-11	3710	0.82	2411.5	1.26
811749-12	3880	0.80	2522	1.23
811749-14	4410	0.80	2866.5	1.23
811749-15	4110	0.76	2671.5	1.18
811776-1	865	0.58	562.25	0.89
811776-2	871	0.59	566.15	0.90
811776-3	857	0.58	557.05	0.89
811776-4	856	0.58	556.4	0.89
811776-4 Dup	856	0.59	556.4	0.91

Rec'd 01/14/14
SLLh 811748

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-449]

811748

COC Number

TURNAROUND TIME 10 Days

DATE 01/14/14 PAGE 1 OF 1

COMPANY: E2

PROJECT NAME: PG&E Topock

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

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

P.O. NUMBER: 428648.IM.CS.EX.AC TEAM: 1

SAMPLERS (SIGNATURE): Chris Lentz

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-449	01/14/14	11:30	Water	x	x	x	x	x	3	pH = 6 (200.7)
									3	TOTAL NUMBER OF CONTAINERS

Please Provide a preliminary Result for the TDS ASAP

ALERT !!
Level III QC

For Sample Conditions
See Form Attached

CHAIN OF CUSTODY SIGNATURE RECORD

	Signature	Printed Name	Company/ Agency	Date/ Time
Signature (Relinquished)	Chris Lentz	CHRIS LENTZ	CH2MHILL	1-14-14
Signature (Received)	Thanh Ngo	THANH NGO	TRUESDAIL	1915
Signature (Relinquished)	Thanh Ngo	THANH NGO	TRUESDAIL	1-14-14 2350
Signature (Received)	J. B. David	JAY B. DAVID	TLI	1/14/14 2350
Signature (Relinquished)				
Signature (Received)				

SAMPLE CONDITIONS

RECEIVED COOL ☑ WARM ☐ 3.3 °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
1/15/14	811747-12	9.5	N/A	N/A	N/A	NE
	-13					
	-14					
	-15					
	811748	7:0	2 ml / 100 ml	9.5	8:00	NE
	811749-1					
	-5					
	-~~8~~					
	-13					
	811753-1	9.5	N/A	N/A	N/A	NE
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
	-13					
	811750-1					
	-2					
	811751-1					
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					

N.E.
1/21/14

TRUESDAIL LABORATORIES, INC.
Metals

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest (Y/N)	Time of Adjustment to pH 2	Date/Time of 2nd pH check	Comments
811620	<1	<2	1/9/14	ES	yes			
811621								
811634								
811643								
811647 (1-2)								
811649-4								
811611 (1-2,4)		>2			No	5:00	1/13/14 10:00	pH <2
811617								
811635 (10-12)								
811648 (1-7)								
811650 (1-4)								
811662 (1-3)								
811598 (1-4)	<1	<2	1/10/14	ES	yes			
811623 (1-2)		>2				11:00		Filtered then acidify
811624 (1-7)		<2						
811651 (1-4)								
811652 (1-2)								
811653 (1-15)	<1	<2	1/10/14	ES	yes			
811654 (1-15)	<1	<2	1/14/14	ES	yes			
811626 (1-3)	<1	>2	1/15/14	ES	yes	10:30		pH <2
811582 (1-3)		<2						
811628 (1-3)								
811655 (1-7)								
811731	<1	<2	1/15/14	ES	yes			
811728								
811707								
811708								
811709								
811710								
811729								
811735								
811736								
811703-6		>2			No	1:00		
811711 (1-2,4)								
811739								
811788 (1-3,6-13)	<1	<2	1/16/14	KK	yes	—	—	dissolved bottles
811788 (1-3,6-13)	<1	<2	1/16/14	KK	yes	-	-	total bottles
811747 (1-3,6-14)	<1	<2	1/16/14	KK	yes	—	-	total bottles
811747 (1-3,6-14,16)	<1	<2	1/16/14	KK	yes	-	-	dissolved
811698 (1-6)	<1	<2	1/16/14	KK	yes			
811750-1	<1	<2	1/16/14	KK	yes			
811748	<1	>2	1/17/14	KK	yes			total
811799 (1-3)	<1	<2	1/17/14	KK	yes			total
811751 (1-8)	<1	<2	1/17/14	KK	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 #** 811748

Date Delivered: 01/14/14 **Time:** 23:50 **By:** ☐Mail ☑Field Service ☐Client

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

ALERT!! Level III QC

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

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Established 1931

14201 FRANKLIN AVENUE
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(714) 730-6239 · FAX (714) 730-6462
www.truesdail.com

February 12, 2014

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

Dear Mr. Duffy:

SUBJECT: REVISED CASE NARRATIVE PG&E TOPOCK IM3PLANT-WDR-450 PROJECT, GROUNDWATER MONITORING, TLI NO.: 811876

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-450 project groundwater monitoring for Hexavalent and Total Chromium, Total Manganese, Turbidity, Specific Conductivity, and Total Dissolved Solids. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, quality control data and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data have been included under Section 5.

The samples were received and delivered with the chain of custody on January 21, 2014, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

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

The straight run for the sample and associated matrix spike on sample SC-700B-WDR-450 for Hexavalent Chromium analysis by EPA 218.6 were just outside the retention time window. Because the matrix spike recovery and all other QA/QC were within acceptable limits, the data from the straight run was reported.

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

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

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.

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Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy
Sample: One (1) Groundwater Sample
Project Name: PG&E Topock Project
Project No.: 428648.IM.CS.EX.AC

Laboratory No.: 811876
Date: February 9, 2014
Collected: January 21, 2014
Received: January 21, 2014

ANALYST LIST

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

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

Laboratory No.: 811876
Date Received: January 21, 2014

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

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
811876-001	SC-700B-WDR-450	E120.1	NONE	1/21/2014	15:24	EC	6680	umhos/cm	2.00
811876-001	SC-700B-WDR-450	E200.8	NONE	1/21/2014	15:24	Chromium	ND	ug/L	1.0
811876-001	SC-700B-WDR-450	E200.8	NONE	1/21/2014	15:24	Manganese	3.1	ug/L	0.50
811876-001	SC-700B-WDR-450	E218.6	LABFLT	1/21/2014	15:24	Chromium, Hexavalent	ND	ug/L	0.20
811876-001	SC-700B-WDR-450	SM2130B	NONE	1/21/2014	15:24	Turbidity	ND	NTU	0.100
811876-001	SC-700B-WDR-450	SM2540C	NONE	1/21/2014	15:24	Total Dissolved Solids	4660	mg/L	125

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

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REPORT

Client: **E2 Consulting Engineers, Inc.**
155 Grand Avenue, Suite 800
Oakland, CA 94612
Attention: Shawn Duffy
Project Name: PG&E Topock Project
Project Number: 428648.IM.CS.EX.AC
P.O. Number: PGEIM11111001
Release Number:

Laboratory No. 811876

Printed 2/9/2014

Samples Received on 1/21/2014 11:35:00 PM

Field ID	Lab ID	Collected	Matrix
SC-700B-WDR-450	811876-001	01/21/2014 15:24	Water

Specific Conductivity - EPA 120.1 Batch 01EC141

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811876-001 Specific Conductivity	umhos/cm	01/29/2014	1.00	0.606	2.00	6680

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate — Lab ID = 811939-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	383	381	0.524	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	722	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	945	1000	94.5	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	947	1000	94.7	90 - 110

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Chrome VI by EPA 218.6 Batch 01CrH14T

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811876-001 Chromium, Hexavalent	ug/L	01/22/2014 10:18	1.00	0.00600	0.20	ND

Method Blank

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

Duplicate — Lab ID = 811840-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	8.40	8.42	0.210	0 - 20

Low Level Calibration Verification

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

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.10	5.00	102	90 - 110

Matrix Spike — Lab ID = 811839-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.09	1.04(1.00)	105	90 - 110

Matrix Spike — Lab ID = 811839-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	7.53	7.50(5.00)	100	90 - 110

Matrix Spike — Lab ID = 811839-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	7.42	7.38(5.00)	101	90 - 110

Matrix Spike — Lab ID = 811839-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	7.02	6.96(5.00)	101	90 - 110

Matrix Spike — Lab ID = 811839-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	6.81	6.72(5.00)	102	90 - 110

Matrix Spike — Lab ID = 811839-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.38	1.32(1.00)	106	90 - 110

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Matrix Spike — Lab ID = 811840-007

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.28	9.09(5.00)	104	90 - 110

Matrix Spike — Lab ID = 811840-008

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.07	1.00(1.00)	107	90 - 110

Matrix Spike — Lab ID = 811876-001

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 = 811876-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.32	5.00(5.00)	106	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.03	5.00	100	90 - 110

MRCVS - Primary

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

MRCVS - Primary

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

MRCVS - Primary

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

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Metals by EPA 200.8, Total Batch 012814A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811876-001 Chromium	ug/L	01/28/2014 17:18	2.00	0.142	1.0	ND
Manganese	ug/L	01/28/2014 17:18	2.00	0.120	0.50	3.1

Method Blank

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

Duplicate Lab ID = 811876-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	2.00	ND	0	0	0 - 20
Manganese	ug/L	2.00	3.16	3.14	0.806	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.218	0.200	109	70 - 130
Manganese	ug/L	1.00	0.231	0.200	116	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	50.6	50.0	101	85 - 115
Manganese	ug/L	1.00	50.4	50.0	101	85 - 115

Matrix Spike Lab ID = 811876-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	47.8	50.0(50.0)	95.6	75 - 125
Manganese	ug/L	2.00	50.2	53.1(50.0)	94.0	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.6	20.0	97.8	90 - 110
Manganese	ug/L	1.00	19.9	20.0	99.5	90 - 110

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.8	20.0	99.1	90 - 110

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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

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	19.3	20.0	96.4	80 - 120

Total Dissolved Solids by SM 2540 C Batch 01TDS14H

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811876-001 Total Dissolved Solids	mg/L	01/22/2014	1.00	1.76	125	4660

Method Blank

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

Duplicate Lab ID = 811786-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	4080	4160	1.82	0 - 10

Duplicate Lab ID = 811876-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	4660	4660	0.107	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Dissolved Solids	mg/L	1.00	488	500	97.6	90 - 110

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Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project
Project Number: 428648.IM.CS.EX.AC Printed 2/9/2014

Turbidity by SM 2130 B Batch 01TUC14K

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811876-001 Turbidity	NTU	01/22/2014	1.00	0.0140	0.100	ND

Method Blank

Parameter	Unit	DF	Result
Turbidity	NTU	1.00	ND

Duplicate — Lab ID = 811851-010

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Turbidity	NTU	1.00	0.153	0.138	10.3	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	7.95	8.00	99.4	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

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Truesdail Laboratories, Inc.

e2

Total Dissolved Solids by SM 2540 C

Calculations

Batch: 01TDS14H
Date Analyzed: 1/22/2014

Laboratory Number	Sample volume, mL	Initial weight, g	1st Final weight, g	2nd Final weight, g	Weight Difference, g	Exceeds 0.5mg? Yes/No	Residue weight, g	Filterable residue, ppm	RL, ppm	Reported Value, ppm	DF
Blank	100	68.3719	68.3725	68.3721	0.0004	No	0.0002	2.0	25.0	ND	1
811783-1	100	79.1512	79.1824	79.1820	0.0004	No	0.0308	308.0	25.0	308.0	1
811783-2	100	79.0570	79.0987	79.0987	0.0000	No	0.0417	417.0	25.0	417.0	1
811783-5	100	72.7602	72.8163	72.8160	0.0003	No	0.0558	558.0	25.0	558.0	1
811784-5	100	74.5950	74.6412	74.6412	0.0000	No	0.0462	462.0	25.0	462.0	1
811784-6	100	78.2911	78.3406	78.3402	0.0004	No	0.0491	491.0	25.0	491.0	1
811784-7	100	67.0351	67.0844	67.0840	0.0004	No	0.0489	489.0	25.0	489.0	1
811784-8	100	74.6956	74.7561	74.7559	0.0002	No	0.0603	603.0	25.0	603.0	1
811785-7	50	51.7129	51.7685	51.7684	0.0001	No	0.0555	1110.0	50.0	1110.0	1
811785-10	50	51.2256	51.2719	51.2717	0.0002	No	0.0461	922.0	50.0	922.0	1
811786-2	20	29.1646	29.2483	29.2479	0.0004	No	0.0833	4165.0	125.0	4165.0	1
811786-2 ~~811766~~-2 Dup	20	29.3964	29.4781	29.4781	0.0000	No	0.0817	4085.0	125.0	4085.0	1
LCS	100	75.7445	75.7933	75.7933	0.0000	No	0.0488	488.0	25.0	488.0	1
811786-3	20	30.1424	30.2289	30.2261	0.0028	Yes	0.0837	4185.0	125.0	4185.0	1
811786-9	50	51.4339	51.4946	51.4945	0.0001	No	0.0606	1212.0	50.0	1212.0	1
811786-10	50	50.3220	50.4401	50.4398	0.0003	No	0.1178	2356.0	50.0	2356.0	1
811825-6	100	68.5462	68.5788	68.5785	0.0003	No	0.0323	323.0	25.0	323.0	1
811827	500	168.6162	168.6224	168.6224	0.0000	No	0.0062	12.4	5.0	12.4	1
811846	367	167.3371	167.3406	167.3406	0.0000	No	0.0035	9.5	6.8	9.5	1
811860-1	100	69.7572	69.8036	69.8034	0.0002	No	0.0462	462.0	25.0	462.0	1
811860-2	100	69.7887	69.8358	69.8354	0.0004	No	0.0467	467.0	25.0	467.0	1
811876	20	30.3371	30.4304	30.4303	0.0001	No	0.0932	4660.0	125.0	4660.0	1
811876 Dup	20	29.4709	29.5645	29.5642	0.0003	No	0.0933	4665.0	125.0	4665.0	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?
LCS	488.0	500	97.6%	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?
811786-2 ~~811766~~-2	0.0833	0.0817	1.0%	≤5%	Yes
811876	0.0932	0.0933	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

WetChem 01TDS14H

Total Dissolved Solids by SM 2540 C

TDS/EC CHECK

Batch: 01TDS14H
Date Analyzed: 1/22/2014

Laboratory Number	EC	TDS/EC Ratio: 0.55-0.90	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
811783-1	465	0.66	302.25	1.02
811783-2	621	0.67	403.65	1.03
811783-5	861	0.65	559.65	1.00
811784-5	653	0.71	424.45	1.09
811784-6	755	0.65	490.75	1.00
811784-7	756	0.65	491.4	1.00
811784-8	899	0.67	584.35	1.03
811785-7	1513	0.73	983.45	1.13
811785-10	1275	0.72	828.75	1.11
811786-2	4670	0.89	3035.5	1.37
811768-2 Dup	4670	0.87	3035.5	1.35
LCS				
811786-3	4720	0.89	3068	1.36
811786-9	1620	0.75	1053	1.15
811786-10	2930	0.80	1904.5	1.24
811825-6	539	0.60	350.35	0.92
811827	16	0.78	10.4	1.19
811846	17.3	0.55	11.245	0.85
811860-1	735	0.63	477.75	0.97
811860-2	685	0.68	445.25	1.05
811876	6680	0.70	4342	1.07
811876 Dup	6680	0.70	4342	1.07

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-450]

811 876

COC Number

TURNAROUND TIME 10 Days

DATE 01/21/14 PAGE 1 OF 1

COMPANY: E2

PROJECT NAME: PG&E Topock

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

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

P.O. NUMBER: 428648.IM.CS.EX.AC TEAM: 1

SAMPLERS (SIGNATURE): Josh Rosenberg

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-450	01/21/14	1524	Water	x	x	x	x		x							3	DHEG (200.7)
																	TOTAL NUMBER OF CONTAINERS

Please Provide a preliminary Result for the TDS ASAP

ALERT !!
Level III QC

CHAIN OF CUSTODY SIGNATURE RECORD

	Signature	Printed Name	Company/ Agency	Date/ Time
Signature (Relinquished)	James Gustafson	James Gustafson	E-2	1-21-14 18:40
Signature (Received)	Thanh Ngo	THANH NGO	TRUESDAIL	1-21-14 1840
Signature (Relinquished)	Thanh Ngo	THANH NGO	" "	1-21-14 2335
Signature (Received)	J. B. David	JAY B. DAVID	TLI	1/21/14 2335
Signature (Relinquished)				
Signature (Received)				

SAMPLE CONDITIONS

RECEIVED COOL ☑ WARM ☐ 4.2 °C

CUSTODY SEALED YES ☐ NO ☑

SPECIAL REQUIREMENTS:

Hexavalent Chromium

Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
1/21/14	811842-3	9.5	N/A	N/A	N/A	NE
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	811843-1					
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	811844-1					
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
1/22/14	811876	7.00	2ml/100ml	9.5	8:00	NE
	811877-1	9.5	N/A	N/A	N/A	NE
	-2					
	-3					

NE
1/25/14

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

MM

TRUESDAIL LABORATORIES, INC.
Metals

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest (Y/N)	Time of Adjustment to pH 2	Date/Time of 2nd pH check	Comments
811829 (1-9)	<1	<2	1/25/14	ES	yes			
811824 (1-5)	↓	↓	↓	↓	↓			
811826 (1-7)								
811839 (1-9)								
811840 (1-7)								
811841 (1,3-8)								
811842 (1,3-11)	↓	↓	↓	↓	↓			
811843 (1-9)	<1	<2	1/25/14	KK	yes			
811844 (1-6,8)	↓	↓	↓	↓	↓			
811876	↓	>2	↓	↓	↓			Total
811884 (1-3)	↓	<2	↓	↓	↓			↓
811878 (1,3-9)	<1	<2	1/25/14	KK	yes			
811879 (1-11)	<1	<2	↓	↓	↓			
811880 (1-8,10-14)	<1	<2	1/25/14	KK	yes			
811877 (1-8)	↓	↓	↓	↓	↓			
811881 (1,3-10)	↓	↓	↓	↓	↓			
116728-744,46	>1	>2	1/27/14	KK	yes			Racing Blood P
811950	<1	<2	1/28/14	ES	yes			
811962	<1	<2	1/28/14	KK	yes			
118722-26,28-3346-50	>1	>2	1/28/14	KK	yes			Racing Blood Plas
811882 (1-8)	<1	<2	1/29/14	ES	yes			
811909 (1-8)	↓	↓	↓	↓	↓			
811910 (1-2,4-8)								
811911 (1,3-8)								
811912 (1,3-9)								
811913 (1-9)								
811914 (1-7,9-10)								
811927 (1-7,5-10)								
811928 (1,3-11)								
811929 (1-6,8)	↓	↓	↓	↓	↓			
811782 (1,3-10)	<1	<2	1/19/14	KK	yes			
811783 (1-2,4-6)	↓	↓	↓	↓	↓			

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 #** 811876

Date Delivered: 01/21/14 **Time:** 23:35 **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: 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-700B	1-7-14	13:30	1-7-14	13:35	METER #2	1-7-14	00:36	-55.6	RON PHELPS	7.0
Notes:											
2	SC-100B	1-7-14	13:30	1-7-14	13:35	METER #2	1-7-14	00:36	-55.6	RON PHELPS	7.2
Notes:											
3	S-701	1-7-14	13:30	1-7-14	13:35	METER #2	1-7-14	00:36	-55.6	RON PHELPS	7.8
Notes:											
4	SC-700B	1-14-14	11:30	1-14-14	11:35	METER #2	1-14-14	00:43	-55.4	CHRIS LENTZ	6.9
Notes											
5	SC-700B	1-21-14	15:24	1-21-14	15:28	METER #2	1-21-14	04:24	-55.4	Josh Rosenberg	6.9
Notes:											
6	SC-700B	1-28-14	14:15	1-28-14	14:20	METER #2	1-28-14	04:26	-55.8	Chris Lentz	6.8
Notes:											

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

TRUESDAIL LABORATORIES, INC.

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www.truesdail.com

February 12, 2014

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

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK IM3PLANT-WDR-451 PROJECT, GROUNDWATER MONITORING, TLI NO.: 811976

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-451 project groundwater monitoring for Hexavalent and Total Chromium, Total Manganese, Turbidity, Specific Conductivity, and Total Dissolved Solids. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, quality control data and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data have been included under Section 5.

The samples were received and delivered with the chain of custody on January 28, 2014, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

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

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

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Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy
Sample: One (1) Groundwater Sample
Project Name: PG&E Topock Project
Project No.: 428648.IM.CS.EX.AC

Laboratory No.: 811976
Date: February 12, 2014
Collected: January 28, 2014
Received: January 28, 2014

ANALYST LIST

METHOD	PARAMETER	ANALYST
EPA 120.1	Specific Conductivity	Jenny Tankunakorn
SM 2540C	Total Dissolved Solids	Jenny Tankunakorn
SM 2130B	Turbidity	Himani Vaishnav
EPA 200.8	Total Metals	Ethel Suico
EPA 218.6	Hexavalent Chromium	Felipe Mendoza

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

Laboratory No.: 811976
Date Received: January 28, 2014

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

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
811976-001	SC-700B-WDR-451	E120.1	NONE	1/28/2014	14:20	EC	6600	umhos/cm	2.00
811976-001	SC-700B-WDR-451	E200.8	NONE	1/28/2014	14:20	Chromium	ND	ug/L	1.0
811976-001	SC-700B-WDR-451	E200.8	NONE	1/28/2014	14:20	Manganese	1.0	ug/L	0.50
811976-001	SC-700B-WDR-451	E218.6	LABFLT	1/28/2014	14:20	Chromium, Hexavalent	ND	ug/L	0.20
811976-001	SC-700B-WDR-451	SM2130B	NONE	1/28/2014	14:20	Turbidity	ND	NTU	0.100
811976-001	SC-700B-WDR-451	SM2540C	NONE	1/28/2014	14:20	Total Dissolved Solids	4570	mg/L	125

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

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

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REPORT

Client: **E2 Consulting Engineers, Inc.**
155 Grand Avenue, Suite 800
Oakland, CA 94612
Attention: Shawn Duffy
Project Name: PG&E Topock Project
Project Number: 428648.IM.CS.EX.AC
P.O. Number: PGEIM11111001
Release Number:

Laboratory No. 811976

Printed 2/12/2014

Samples Received on 1/28/2014 6:45:00 PM

Field ID	Lab ID	Collected	Matrix
SC-700B-WDR-451	811976-001	01/28/2014 14:20	Water

Specific Conductivity - EPA 120.1 Batch 01EC14I

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811976-001 Specific Conductivity	umhos/cm	01/29/2014	1.00	0.606	2.00	6600

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate — Lab ID = 811939-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	383	381	0.524	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	722	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	945	1000	94.5	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	947	1000	94.7	90 - 110

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Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project
Project Number: 428648.IM.CS.EX.AC Printed 2/12/2014

Chrome VI by EPA 218.6

Batch 01CrH14AH

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811976-001 Chromium, Hexavalent	ug/L	01/29/2014 12:26	1.00	0.00600	0.20	ND

Method Blank

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

Duplicate — Lab ID = 811976-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.154	0.175	12.8	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.185	0.200	92.6	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.99	5.00	99.8	90 - 110

Matrix Spike — Lab ID = 811975-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	630	638(375)	97.9	90 - 110

Matrix Spike — Lab ID = 811975-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	98.8	96.3(50.0)	105	90 - 110

Matrix Spike — Lab ID = 811976-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.18	1.18(1.00)	101	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.02	5.00	100	90 - 110

MRCVS - Primary

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

MRCVS - Primary

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

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Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project
Project Number: 428648.IM.CS.EX.AC Printed 2/12/2014

Metals by EPA 200.8, Total

Batch 021014A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811976-001 Chromium	ug/L	02/10/2014 19:40	2.00	0.142	1.0	ND
Manganese	ug/L	02/10/2014 19:40	2.00	0.120	0.50	1.0

Method Blank

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

Duplicate — Lab ID = 812052-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	2.00	ND	0	0	0 - 20
Manganese	ug/L	2.00	4.34	4.42	1.92	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.501	0.500	100	70 - 130
Manganese	ug/L	1.00	0.224	0.200	112	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	50.1	50.0	100	85 - 115
Manganese	ug/L	1.00	49.6	50.0	99.2	85 - 115

Matrix Spike — Lab ID = 812052-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	48.4	50.0(50.0)	96.8	75 - 125
Manganese	ug/L	2.00	52.4	54.4(50.0)	95.9	75 - 125

Matrix Spike Duplicate — Lab ID = 812052-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	48.8	50.0(50.0)	97.5	75 - 125
Manganese	ug/L	2.00	52.2	54.4(50.0)	95.6	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.1	20.0	101	90 - 110
Manganese	ug/L	1.00	20.2	20.0	101	90 - 110

MRCVS - Primary

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

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Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	20.2	20.0	101	80 - 120

Total Dissolved Solids by SM 2540 C

Batch 01TDS14K

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811976-001 Total Dissolved Solids	mg/L	01/29/2014	1.00	1.76	125	4570

Method Blank

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

Duplicate — Lab ID = 811940-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	4120	4060	1.47	0 - 10

Duplicate — Lab ID = 811976-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	4510	4570	1.32	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

Turbidity by SM 2130 B

Batch 01TUC14R

Parameter	Unit	Analyzed	DF	MDL	RL	Result
811976-001 Turbidity	NTU	01/30/2014	1.00	0.0140	0.100	ND

Method Blank

Parameter	Unit	DF	Result
Turbidity	NTU	1.00	ND

Duplicate — Lab ID = 811986-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Turbidity	NTU	1.00	0.179	0.159	11.8	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	7.28	8.00	91.0	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	7.22	8.00	90.2	90 - 110

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Client: E2 Consulting Engineers, Inc.

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

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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Truesdail Laboratories, Inc.

Total Dissolved Solids by SM 2540 C

Calculations

Batch: 01TDS14K
Date Analyzed: 1/29/2014

Laboratory Number	Sample volume, mL	Initial weight, g	1st Final weight, g	2nd Final weight, g	Weight Difference, g	Exceeds 0.5mg? Yes/No	Residue weight, g	Filterable residue, ppm	RL, ppm	Reported Value, ppm	DF
Blank	100	79.4941	79.4945	79.4943	0.0002	No	0.0002	2.0	25.0	ND	1
811913-1	50	48.4755	48.5900	48.5900	0.0000	No	0.1145	2290.0	50.0	2290.0	1
811913-2	50	49.8796	50.0312	50.0310	0.0002	No	0.1514	3028.0	50.0	3028.0	1
811913-3	50	47.9537	48.0204	48.0204	0.0000	No	0.0667	1334.0	50.0	1334.0	1
811913-4	100	75.0101	75.0604	75.0603	0.0001	No	0.0502	502.0	25.0	502.0	1
811913-5	50	49.1125	49.1787	49.1787	0.0000	No	0.0662	1324.0	50.0	1324.0	1
811913-6	100	66.8763	66.9221	66.9221	0.0000	No	0.0458	458.0	25.0	458.0	1
811913-7	50	50.1492	50.2151	50.2151	0.0000	No	0.0659	1318.0	50.0	1318.0	1
811913-8	50	50.4942	50.5434	50.5430	0.0004	No	0.0488	976.0	50.0	976.0	1
811913-9	50	50.9499	51.0103	51.0103	0.0000	No	0.0604	1208.0	50.0	1208.0	1
811940-1	20	30.4225	30.5038	30.5038	0.0000	No	0.0813	4065.0	125.0	4065.0	1
811940-1 Dup	20	29.3787	29.4615	29.4611	0.0004	No	0.0824	4120.0	125.0	4120.0	1
LCS	100	76.8045	76.8542	76.8540	0.0002	No	0.0495	495.0	25.0	495.0	1
811940-3	50	50.5478	50.6288	50.6288	0.0000	No	0.0810	1620.0	50.0	1620.0	1
811940-4	20	29.4830	29.5733	29.5733	0.0000	No	0.0903	4515.0	125.0	4515.0	1
811941-1	50	50.0158	50.1140	50.1140	0.0000	No	0.0982	1964.0	50.0	1964.0	1
811941-2	100	68.3653	68.3901	68.3900	0.0001	No	0.0247	247.0	25.0	247.0	1
811942-1	50	51.0690	51.1916	51.1916	0.0000	No	0.1226	2452.0	50.0	2452.0	1
811942-3	50	51.3344	51.3924	51.3924	0.0000	No	0.0580	1160.0	50.0	1160.0	1
811942-4	50	47.7596	47.8245	47.8245	0.0000	No	0.0649	1298.0	50.0	1298.0	1
811942-5	50	51.8303	51.8675	51.8675	0.0000	No	0.0372	744.0	50.0	744.0	1
811942-6	50	51.7877	51.8447	51.8447	0.0000	No	0.0570	1140.0	50.0	1140.0	1
811976	20	28.4737	28.5651	28.5651	0.0000	No	0.0914	4570.0	125.0	4570.0	1
811976 Dup	20	29.3295	29.4199	29.4197	0.0002	No	0.0902	4510.0	125.0	4510.0	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?
LCS	495.0	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?
811940-1	0.0813	0.0824	0.7%	≤5%	Yes
811976	0.0914	0.0902	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 01TDS14K

Total Dissolved Solids by SM 2540 C

TDS/EC CHECK

Batch: 01TDS14K
Date Analyzed: 1/29/2014

Laboratory Number	EC	TDS/EC Ratio: 0.55-0.90	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
811913-1	2810	0.81	1826.5	1.25
811913-2	3830	0.79	2489.5	1.22
811913-3	1710	0.78	1111.5	1.20
811913-4	756	0.66	491.4	1.02
811913-5	1784	0.74	1159.6	1.14
811913-6	679	0.67	441.35	1.04
811913-7	1709	0.77	1110.85	1.19
811913-8	1371	0.71	891.15	1.10
811913-9	1608	0.75	1045.2	1.16
811940-1	4860	0.84	3159	1.29
811940-1 Dup	4860	0.85	3159	1.30
LCS				
811940-3	2140	0.76	1391	1.16
811940-4	5370	0.84	3490.5	1.29
811941-1	2650	0.74	1722.5	1.14
811941-2	402	0.61	261.3	0.95
811942-1	3090	0.79	2008.5	1.22
811942-3	1573	0.74	1022.45	1.13
811942-4	1795	0.72	1166.75	1.11
811942-5	1058	0.70	687.7	1.08
811942-6	1555	0.73	1010.75	1.13
811976	6600	0.69	4290	1.07
811976 Dup	6600	0.68	4290	1.05

811976

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

CHAIN OF CUSTODY RECORD

[IM3Plant-WDR-451]

COC Number

TURNAROUND TIME 10 Days

DATE 01/28/14 PAGE 1 OF 1

COMPANY: E2

PROJECT NAME: PG&E Topock

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

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

P.O. NUMBER: 428648.IM.CS.EX.AC TEAM: 1

SAMPLERS (SIGNATURE):

Rec'd 01/28/14

S12c 811976

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-451	01/28/14	14:20	Water	X	X	X	X	X	3	pH=7 (200.7)
									3	TOTAL NUMBER OF CONTAINERS

Please Provide a preliminary Result for the TDS ASAP

ALERT !!
Level III QC

For Sample Conditions
See Form Attached

CHAIN OF CUSTODY SIGNATURE RECORD

	Printed Name	Company/ Agency	Date/ Time
Signature (Relinquished)	CHRIS LEAOR	CH2M HILL	1-28-14 1430
Signature (Received)	THANH NGO	TRUESDAIL	1-28-14 1430
Signature (Relinquished)	THANH NGO		1-28-14 1845
Signature (Received)	Marchea Brady	TLI	1/28/14@1845
Signature (Relinquished)			
Signature (Received)			

SAMPLE CONDITIONS

RECEIVED COOL ☑ WARM ☐ 4.2°C

CUSTODY SEALED YES ☐ NO ☑

SPECIAL REQUIREMENTS:

Hexavalent Chromium

Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
1/24/14	811931-4	9.5	N/A	N/A	N/A	NR
	-5					
	-6					
1/25/14	889410-1	9.5	N/A	N/A	N/A	NE
	-2					
	-3					
	-4					
	811941-1					
	-2					
	-3					
	811942-1					
	-2					
	-3					
	-4					
	-5					
	-6					
	811943-1					
	-2					
	-3					
	-4					
	-5					
	811944-1					
	-2					
	-3					
	-4					
	-5					
1/29/14	811975-1	9.5	N/A	N/A	N/A	NE
	-2					
	811976	7.00	2ml, 100ml	9.5	8:45	Felipe

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

TRUESDAIL LABORATORIES, INC.
Metals

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest (Y/N)	Time of Adjustment to pH 2	Date/Time of 2nd pH check	Comments
811041	↓	<2	2/5/14	KK	YES			
812042	↓	↓	↓	↓	↓			
812062 (1-3)	<1	>2	2/5/14	KK	yes	2pm	2/6/14 @ 8am	
811976	<1	>2	2/6/14	ES	yes	3:00	↓	pH <2
812005 (1-3)	↓	<2	↓	↓	↓			
812052 (1-2)	↓	>2	↓	↓	↓	3:00	2/6/14 @ 8am	pH <2
812081 (1-5)	↓	>2	↓	↓	↓			T/D
812051 (1-2)	<1	>2	2/7/14	KK	yes			lab filtered
812052 (-2)	<1	>2	↓	↓	↓			↓

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

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: E2 **Lab #** 81976

Date Delivered: 01/28/14 **Time:** 18:45 **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

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

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Established 1931

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

February 27, 2014

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

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK IM3PLANT-WDR-452 PROJECT, GROUNDWATER MONITORING,

TLI NO.: 812052

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-452 project groundwater monitoring. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, quality control data and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data have been included under Section 5.

The samples were received and delivered with the chain of custody on February 4, 2014, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

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

The straight runs for the sample and associated matrix spike on sample SC-700B-WDR-452 for Hexavalent Chromium analysis by EPA 218.6 were just outside the retention time window. Because the matrix spike recovery and all other QA/QC were within acceptable limits, the data from the straight run was reported.

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

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

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.

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www.truesdail.com

Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy
Sample: Two (2) Groundwaters
Project Name: PG&E Topock Project
Project No.: 428648.IM.CS.EX.AC

Laboratory No.: 812052
Date: February 27, 2014
Collected: February 4, 2014
Received: February 4, 2014

ANALYST LIST

METHOD	PARAMETER	ANALYST
EPA 120.1	Specific Conductivity	Jenny Tankunakorn
SM 2540C	Total Dissolved Solids	Jenny Tankunakorn
SM 2320B	Total Alkalinity	Himani Vaishnav
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	Felipe Mendoza
EPA 300.0	Anions	Giawad Ghenniwa
SM 4500-NH3 D	Ammonia	Maksim Gorbunov / Himani Vaishnav
SM 4500-NO2 B	Nitrite as N	Jenny Tankunakorn
EPA 200.7	Metals by ICP	Maria Mangarova
EPA 200.8	Metals by ICP/MS	Ethel Suico
EPA 218.6	Hexavalent Chromium	Naheed Eidinejad

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

Attention: Shawn Duffy

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

Laboratory No.: 812052
Date Received: February 4, 2014

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
812052-001	SC-700B-WDR-452	E120.1	NONE	2/4/2014	13:10	EC	6430	umhos/cm	2.00
812052-001	SC-700B-WDR-452	E200.7	NONE	2/4/2014	13:10	Aluminum	ND	ug/L	50.0
812052-001	SC-700B-WDR-452	E200.7	NONE	2/4/2014	13:10	BORON	903	ug/L	50.0
812052-001	SC-700B-WDR-452	E200.7	NONE	2/4/2014	13:10	Iron	ND	ug/L	20.0
812052-001	SC-700B-WDR-452	E200.7	NONE	2/4/2014	13:10	Zinc	ND	ug/L	20.0
812052-001	SC-700B-WDR-452	E200.8	NONE	2/4/2014	13:10	Antimony	ND	ug/L	2.0
812052-001	SC-700B-WDR-452	E200.8	NONE	2/4/2014	13:10	Arsenic	ND	ug/L	0.50
812052-001	SC-700B-WDR-452	E200.8	NONE	2/4/2014	13:10	Barium	11.1	ug/L	5.0
812052-001	SC-700B-WDR-452	E200.8	NONE	2/4/2014	13:10	Chromium	ND	ug/L	1.0
812052-001	SC-700B-WDR-452	E200.8	NONE	2/4/2014	13:10	Copper	ND	ug/L	5.0
812052-001	SC-700B-WDR-452	E200.8	NONE	2/4/2014	13:10	Lead	ND	ug/L	1.0
812052-001	SC-700B-WDR-452	E200.8	NONE	2/4/2014	13:10	Manganese	4.4	ug/L	0.50
812052-001	SC-700B-WDR-452	E200.8	NONE	2/4/2014	13:10	Molybdenum	11.8	ug/L	2.0
812052-001	SC-700B-WDR-452	E200.8	NONE	2/4/2014	13:10	Nickel	ND	ug/L	2.0
812052-001	SC-700B-WDR-452	E218.6	LABFLT	2/4/2014	13:10	Chromium, Hexavalent	0.53	ug/L	0.20
812052-001	SC-700B-WDR-452	E300	NONE	2/4/2014	13:10	Fluoride	1.89	mg/L	0.500
812052-001	SC-700B-WDR-452	E300	NONE	2/4/2014	13:10	Nitrate as N	2.94	mg/L	0.500
812052-001	SC-700B-WDR-452	E300	NONE	2/4/2014	13:10	Sulfate	510	mg/L	12.5
812052-001	SC-700B-WDR-452	SM2130B	NONE	2/4/2014	13:10	Turbidity	ND	NTU	0.100
812052-001	SC-700B-WDR-452	SM2540C	NONE	2/4/2014	13:10	Total Dissolved Solids	4360	mg/L	125
812052-001	SC-700B-WDR-452	SM4500NH3D	NONE	2/4/2014	13:10	Ammonia-N	ND	mg/L	0.500
812052-001	SC-700B-WDR-452	SM4500NO2B	NONE	2/4/2014	13:10	Nitrite as N	ND	mg/L	0.0050

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TRUESDAIL LABORATORIES, INC.

Report Continued

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
812052-002	SC-100B-WDR-452	E120.1	NONE	2/4/2014	13:10	EC	6620	umhos/cm	2.00
812052-002	SC-100B-WDR-452	E200.7	NONE	2/4/2014	13:10	Aluminum	ND	ug/L	50.0
812052-002	SC-100B-WDR-452	E200.7	NONE	2/4/2014	13:10	BORON	1000	ug/L	50.0
812052-002	SC-100B-WDR-452	E200.7	NONE	2/4/2014	13:10	Iron	ND	ug/L	20.0
812052-002	SC-100B-WDR-452	E200.7	LABFLT	2/4/2014	13:10	Iron	ND	ug/L	20.0
812052-002	SC-100B-WDR-452	E200.7	NONE	2/4/2014	13:10	Zinc	ND	ug/L	20.0
812052-002	SC-100B-WDR-452	E200.8	NONE	2/4/2014	13:10	Antimony	ND	ug/L	2.0
812052-002	SC-100B-WDR-452	E200.8	NONE	2/4/2014	13:10	Arsenic	3.4	ug/L	0.50
812052-002	SC-100B-WDR-452	E200.8	NONE	2/4/2014	13:10	Barium	26.3	ug/L	5.0
812052-002	SC-100B-WDR-452	E200.8	NONE	2/4/2014	13:10	Chromium	702	ug/L	5.0
812052-002	SC-100B-WDR-452	E200.8	NONE	2/4/2014	13:10	Copper	ND	ug/L	5.0
812052-002	SC-100B-WDR-452	E200.8	NONE	2/4/2014	13:10	Lead	ND	ug/L	1.0
812052-002	SC-100B-WDR-452	E200.8	NONE	2/4/2014	13:10	Manganese	5.1	ug/L	0.50
812052-002	SC-100B-WDR-452	E200.8	LABFLT	2/4/2014	13:10	Manganese	4.5	ug/L	0.50
812052-002	SC-100B-WDR-452	E200.8	NONE	2/4/2014	13:10	Molybdenum	18.6	ug/L	2.0
812052-002	SC-100B-WDR-452	E200.8	NONE	2/4/2014	13:10	Nickel	ND	ug/L	2.0
812052-002	SC-100B-WDR-452	E218.6	LABFLT	2/4/2014	13:10	Chromium, Hexavalent	692	ug/L	10.0
812052-002	SC-100B-WDR-452	E300	NONE	2/4/2014	13:10	Fluoride	2.33	mg/L	0.500
812052-002	SC-100B-WDR-452	E300	NONE	2/4/2014	13:10	Nitrate as N	3.16	mg/L	0.500
812052-002	SC-100B-WDR-452	E300	NONE	2/4/2014	13:10	Sulfate	555	mg/L	50.0
812052-002	SC-100B-WDR-452	SM2130B	NONE	2/4/2014	13:10	Turbidity	0.103	NTU	0.100
812052-002	SC-100B-WDR-452	SM2320B	NONE	2/4/2014	13:10	Alkalinity	151	mg/L	5.00
812052-002	SC-100B-WDR-452	SM2320B	NONE	2/4/2014	13:10	Alkalinity, Bicarbonate (As CaCO3)	151	mg/L	5.00
812052-002	SC-100B-WDR-452	SM2320B	NONE	2/4/2014	13:10	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
812052-002	SC-100B-WDR-452	SM2540C	NONE	2/4/2014	13:10	Total Dissolved Solids	4480	mg/L	125
812052-002	SC-100B-WDR-452	SM4500NH3D	NONE	2/4/2014	13:10	Ammonia-N	ND	mg/L	0.500
812052-002	SC-100B-WDR-452	SM4500NO2B	NONE	2/4/2014	13:10	Nitrite as N	ND	mg/L	0.0050
812052-002	SC-100B-WDR-452	SM4500-PB_E	NONE	2/4/2014	13:10	Total Phosphorous-P	ND	mg/L	0.0200
812052-002	SC-100B-WDR-452	SM4500SI	LABFLT	2/4/2014	13:10	Soluble Silica	22.9	mg/L	0.0400
812052-002	SC-100B-WDR-452	SM5310C	NONE	2/4/2014	13:10	Total Organic Carbon	ND	mg/L	0.300

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

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

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REPORT

Client: **E2 Consulting Engineers, Inc.**
155 Grand Avenue, Suite 800
Oakland, CA 94612
Attention: Shawn Duffy
Project Name: PG&E Topock Project
Project Number: 428648.IM.CS.EX.AC
P.O. Number: PGEIM11111001
Release Number:

Laboratory No. 812052

Printed 2/27/2014

Samples Received on 2/4/2014 6:20:00 PM

Field ID	Lab ID	Collected	Matrix
SC-700B-WDR-452	812052-001	02/04/2014 13:10	Water
SC-100B-WDR-452	812052-002	02/04/2014 13:10	Water

Anions By I.C. - EPA 300.0 Batch 02AN14C

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812052-001 Fluoride	mg/L	02/05/2014 10:25	5.00	0.104	0.500	1.89
Nitrate as Nitrogen	mg/L	02/05/2014 10:25	5.00	0.0415	0.500	2.94
Sulfate	mg/L	02/05/2014 15:34	25.0	0.768	12.5	510
812052-002 Fluoride	mg/L	02/05/2014 10:36	5.00	0.104	0.500	2.33
Nitrate as Nitrogen	mg/L	02/05/2014 10:36	5.00	0.0415	0.500	3.16
Sulfate	mg/L	02/05/2014 12:32	100	3.07	50.0	555

Method Blank

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

Duplicate — Lab ID = 812027-004

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chloride	mg/L	50.0	98.6	100	1.44	0 - 20

Duplicate — Lab ID = 812052-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Fluoride	mg/L	5.00	2.32	2.33	0.387	0 - 20
Sulfate	mg/L	100	555	555	0.0187	0 - 20
Nitrate as Nitrogen	mg/L	5.00	3.20	3.16	1.10	0 - 20

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Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chloride	mg/L	1.00	4.06	4.00	101	90 - 110
Fluoride	mg/L	1.00	4.19	4.00	105	90 - 110
Sulfate	mg/L	1.00	20.5	20.0	103	90 - 110
Nitrate as Nitrogen	mg/L	1.00	4.05	4.00	101	90 - 110

Matrix Spike — Lab ID = 812027-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chloride	mg/L	50.0	300	300(200)	99.8	85 - 115

Matrix Spike — Lab ID = 812052-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Fluoride	mg/L	5.00	23.4	22.3(20.0)	105	85 - 115
Sulfate	mg/L	100	1680	1560(1000)	112	85 - 115
Nitrate as Nitrogen	mg/L	5.00	24.4	23.2(20.0)	106	85 - 115

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chloride	mg/L	1.00	3.89	4.00	97.3	90 - 110
Fluoride	mg/L	1.00	4.07	4.00	102	90 - 110
Sulfate	mg/L	1.00	19.8	20.0	98.8	90 - 110
Nitrate as Nitrogen	mg/L	1.00	3.95	4.00	98.8	90 - 110

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chloride	mg/L	1.00	2.90	3.00	96.6	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chloride	mg/L	1.00	2.96	3.00	98.7	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chloride	mg/L	1.00	2.92	3.00	97.5	90 - 110

MRCVS - Primary

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

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Client: E2 Consulting Engineers, Inc.

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

Nitrite SM 4500-NO2 B

Batch 02NO214B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812052-001 Nitrite as Nitrogen	mg/L	02/05/2014 14:33	1.00	0.000630	0.0050	ND
812052-002 Nitrite as Nitrogen	mg/L	02/05/2014 14:34	1.00	0.000630	0.0050	ND

Method Blank

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

Duplicate — Lab ID = 812052-002

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	0.0212	0.0230	92.2	90 - 110

Matrix Spike — Lab ID = 812052-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Nitrite as Nitrogen	mg/L	1.00	0.0225	0.0230(0.0230)	97.8	85 - 115

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrite as Nitrogen	mg/L	1.00	0.0212	0.0230	92.2	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrite as Nitrogen	mg/L	1.00	0.0191	0.0200	95.5	90 - 110

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Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project
Project Number: 428648.IM.CS.EX.AC Printed 2/27/2014

Alkalinity by SM 2320B

Batch 02ALK14A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812052-002 Alkalinity as CaCO3	mg/L	02/10/2014	1.00	1.68	5.00	151
Bicarbonate (Calculated)	mg/L	02/10/2014	1.00	1.68	5.00	151
Carbonate (Calculated)	mg/L	02/10/2014	1.00	1.68	5.00	ND

Method Blank

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

Duplicate — Lab ID = 812089-020

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Alkalinity as CaCO3	mg/L	1.00	122	124	1.63	0 - 20

Lab Control Sample

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

Lab Control Sample Duplicate

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

Matrix Spike — Lab ID = 812052-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Alkalinity as CaCO3	mg/L	1.00	246	251(100)	95.0	75 - 125

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Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project
Project Number: 428648.IM.CS.EX.AC Printed 2/27/2014

Specific Conductivity - EPA 120.1

Batch 02EC14A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812052-001 Specific Conductivity	umhos/cm	02/05/2014	1.00	0.606	2.00	6430
812052-002 Specific Conductivity	umhos/cm	02/05/2014	1.00	0.606	2.00	6620

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate — Lab ID = 812052-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	6630	6620	0.151	0 - 10

Lab Control Sample

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

MRCCS - Secondary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	1040	1000	104	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	1040	1000	104	90 - 110

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Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project
Project Number: 428648.IM.CS.EX.AC

Chrome VI by EPA 218.6

Batch 02CrH14 B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812052-001 Chromium, Hexavalent	ug/L	02/05/2014 11:17	1.00	0.00600	0.20	0.53
812052-002 Chromium, Hexavalent	ug/L	02/05/2014 11:27	50.0	0.300	10.0	692

Method Blank

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

Duplicate — Lab ID = 812051-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.55	5.57	0.324	0 - 20

Low Level Calibration Verification

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

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.18	5.00	104	90 - 110

Matrix Spike — Lab ID = 812051-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	15.7	15.6(10.0)	101	90 - 110

Matrix Spike — Lab ID = 812052-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.63	1.53(1.00)	109	90 - 110

Matrix Spike — Lab ID = 812052-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.83	5.52(5.00)	106	90 - 110

Matrix Spike — Lab ID = 812052-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	1460	1440(750)	103	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.04	5.00	101	90 - 110

MRCVS - Primary

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

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Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project
Project Number: 428648.IM.CS.EX.AC Printed 2/27/2014

Metals by EPA 200.7, Total

Batch 021814B-Th2

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812052-001 Aluminum	ug/L	02/18/2014 17:32	1.00	7.20	50.0	ND
Boron	ug/L	02/18/2014 17:32	1.00	4.10	50.0	903
Iron	ug/L	02/18/2014 17:32	1.00	3.00	20.0	ND
Zinc	ug/L	02/18/2014 17:32	1.00	5.10	20.0	ND
812052-002 Aluminum	ug/L	02/18/2014 17:45	1.00	7.20	50.0	ND
Boron	ug/L	02/18/2014 17:45	1.00	4.10	50.0	1000
Iron	ug/L	02/18/2014 17:45	1.00	3.00	20.0	ND
Zinc	ug/L	02/18/2014 17:45	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 = 812052-001

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	905	903	0.221	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Aluminum	ug/L	1.00	2190	2000	109	85 - 115
Iron	ug/L	1.00	2300	2000	115	85 - 115
Zinc	ug/L	1.00	2240	2000	112	85 - 115
Boron	ug/L	1.00	2070	2000	104	85 - 115

Matrix Spike — Lab ID = 812052-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Aluminum	ug/L	1.00	1770	2000(2000)	88.6	75 - 125
Iron	ug/L	1.00	2030	2000(2000)	102	75 - 125
Zinc	ug/L	1.00	2430	2000(2000)	121	75 - 125
Boron	ug/L	1.00	2960	3000(2000)	98.0	75 - 125

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Matrix Spike Duplicate Lab ID = 812052-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Aluminum	ug/L	1.00	1730	2000(2000)	86.6	75 - 125
Iron	ug/L	1.00	1980	2000(2000)	99.2	75 - 125
Zinc	ug/L	1.00	2400	2000(2000)	120	75 - 125
Boron	ug/L	1.00	2930	3000(2000)	96.5	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Aluminum	ug/L	1.00	4960	5000	99.1	95 - 105
Iron	ug/L	1.00	5080	5000	102	95 - 105
Zinc	ug/L	1.00	5080	5000	102	95 - 105
Boron	ug/L	1.00	4930	5000	98.6	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Aluminum	ug/L	1.00	5080	5000	102	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Aluminum	ug/L	1.00	5270	5000	105	90 - 110

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5410	5000	108	90 - 110

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Zinc	ug/L	1.00	5370	5000	107	90 - 110
Boron	ug/L	1.00	5270	5000	105	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Boron	ug/L	1.00	5040	5000	101	90 - 110

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Metals by EPA 200.8, Total Batch 021014A

Parameter		Unit	Analyzed	DF	MDL	RL	Result
812052-001	Antimony	ug/L	02/10/2014 18:57	2.00	0.0700	2.0	ND
	Arsenic	ug/L	02/10/2014 18:57	2.00	0.100	0.50	ND
	Barium	ug/L	02/10/2014 18:57	2.00	0.594	5.0	11.1
	Chromium	ug/L	02/10/2014 18:57	2.00	0.142	1.0	ND
	Copper	ug/L	02/10/2014 18:57	2.00	0.380	5.0	ND
	Lead	ug/L	02/10/2014 18:57	2.00	0.286	1.0	ND
	Manganese	ug/L	02/10/2014 18:57	2.00	0.120	0.50	4.4
	Molybdenum	ug/L	02/10/2014 18:57	2.00	0.100	2.0	11.8
812052-002	Antimony	ug/L	02/10/2014 19:34	2.00	0.0700	2.0	ND
	Arsenic	ug/L	02/10/2014 19:34	2.00	0.100	0.50	3.4
	Barium	ug/L	02/10/2014 19:34	2.00	0.594	5.0	26.3
	Copper	ug/L	02/10/2014 19:34	2.00	0.380	5.0	ND
	Lead	ug/L	02/10/2014 19:34	2.00	0.286	1.0	ND
	Manganese	ug/L	02/10/2014 19:34	2.00	0.120	0.50	5.1
	Molybdenum	ug/L	02/10/2014 19:34	2.00	0.100	2.0	18.6

Method Blank

Parameter	Unit	DF	Result
Arsenic	ug/L	1.00	ND
Barium	ug/L	1.00	ND
Chromium	ug/L	1.00	ND
Antimony	ug/L	1.00	ND
Copper	ug/L	1.00	ND
Lead	ug/L	1.00	ND
Manganese	ug/L	1.00	ND
Molybdenum	ug/L	1.00	ND

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Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project
Project Number: 428648.IM.CS.EX.AC Printed 2/27/2014

Duplicate Lab ID = 812052-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Arsenic	ug/L	2.00	ND	0	0	0 - 20
Barium	ug/L	2.00	11.0	11.1	0.933	0 - 20
Chromium	ug/L	2.00	ND	0	0	0 - 20
Antimony	ug/L	2.00	ND	0	0	0 - 20
Copper	ug/L	2.00	ND	0	0	0 - 20
Lead	ug/L	2.00	ND	0	0	0 - 20
Manganese	ug/L	2.00	4.34	4.42	1.92	0 - 20
Molybdenum	ug/L	2.00	11.6	11.8	1.81	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	0.222	0.200	111	70 - 130
Barium	ug/L	1.00	0.951	1.00	95.1	70 - 130
Chromium	ug/L	1.00	0.501	0.500	100	70 - 130
Antimony	ug/L	1.00	0.205	0.200	102	70 - 130
Copper	ug/L	1.00	0.748	1.00	74.8	70 - 130
Lead	ug/L	1.00	0.499	0.500	99.8	70 - 130
Manganese	ug/L	1.00	0.224	0.200	112	70 - 130
Molybdenum	ug/L	1.00	0.219	0.200	109	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	50.7	50.0	101	85 - 115
Barium	ug/L	1.00	48.3	50.0	96.6	85 - 115
Chromium	ug/L	1.00	50.1	50.0	100	85 - 115
Antimony	ug/L	1.00	49.6	50.0	99.3	85 - 115
Copper	ug/L	1.00	54.0	50.0	108	85 - 115
Lead	ug/L	1.00	48.7	50.0	97.4	85 - 115
Manganese	ug/L	1.00	49.6	50.0	99.2	85 - 115
Molybdenum	ug/L	1.00	50.5	50.0	101	85 - 115

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Matrix Spike — Lab ID = 812052-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	2.00	50.5	50.0(50.0)	101	75 - 125
Barium	ug/L	2.00	60.0	61.1(50.0)	97.9	75 - 125
Chromium	ug/L	2.00	48.4	50.0(50.0)	96.8	75 - 125
Antimony	ug/L	2.00	50.1	50.0(50.0)	100	75 - 125
Copper	ug/L	2.00	46.7	50.0(50.0)	93.5	75 - 125
Lead	ug/L	2.00	45.7	50.0(50.0)	91.3	75 - 125
Manganese	ug/L	2.00	52.4	54.4(50.0)	95.9	75 - 125
Molybdenum	ug/L	2.00	61.3	61.8(50.0)	99.0	75 - 125

Matrix Spike Duplicate — Lab ID = 812052-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	2.00	50.4	50.0(50.0)	101	75 - 125
Barium	ug/L	2.00	60.2	61.1(50.0)	98.2	75 - 125
Chromium	ug/L	2.00	48.8	50.0(50.0)	97.5	75 - 125
Antimony	ug/L	2.00	49.7	50.0(50.0)	99.5	75 - 125
Copper	ug/L	2.00	49.2	50.0(50.0)	98.4	75 - 125
Lead	ug/L	2.00	46.3	50.0(50.0)	92.6	75 - 125
Manganese	ug/L	2.00	52.2	54.4(50.0)	95.6	75 - 125
Molybdenum	ug/L	2.00	62.1	61.8(50.0)	101	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	20.2	20.0	101	90 - 110
Barium	ug/L	1.00	19.6	20.0	97.8	90 - 110
Chromium	ug/L	1.00	20.1	20.0	101	90 - 110
Antimony	ug/L	1.00	20.1	20.0	100	90 - 110
Copper	ug/L	1.00	20.2	20.0	101	90 - 110
Lead	ug/L	1.00	19.5	20.0	97.4	90 - 110
Manganese	ug/L	1.00	20.2	20.0	101	90 - 110
Molybdenum	ug/L	1.00	20.1	20.0	100	90 - 110

MRCVS - Primary

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

MRCVS - Primary

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

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Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	20.2	20.0	101	80 - 120

Interference Check Standard AB

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

Interference Check Standard AB

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

Serial Dilution Lab ID = 812052-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Barium	ug/L	10.0	28.2	26.3	6.95	0 - 10

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Metals by EPA 200.8, Total

Batch 021114A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812052-001 Nickel	ug/L	02/11/2014 15:08	2.00	0.480	2.0	ND
812052-002 Chromium	ug/L	02/11/2014 16:33	10.0	0.710	5.0	702
Nickel	ug/L	02/11/2014 15:45	2.00	0.480	2.0	ND

Method Blank

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

Duplicate

Lab ID = 812052-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	2.00	ND	0	0	0 - 20
Nickel	ug/L	2.00	ND	0	0	0 - 20
Uranium	ug/L	2.00	1.50	1.51	0.531	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.561	0.500	112	70 - 130
Nickel	ug/L	1.00	1.10	1.00	110	70 - 130
Uranium	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	48.1	50.0	96.2	85 - 115
Nickel	ug/L	2.00	48.8	50.0	97.7	85 - 115
Uranium	ug/L	2.00	51.4	50.0	103	85 - 115

Matrix Spike

Lab ID = 812052-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	47.4	50.0(50.0)	94.7	75 - 125
Nickel	ug/L	2.00	46.5	50.0(50.0)	92.9	75 - 125
Uranium	ug/L	2.00	47.0	51.5(50.0)	91.0	75 - 125

Matrix Spike Duplicate

Lab ID = 812052-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	47.2	50.0(50.0)	94.3	75 - 125
Nickel	ug/L	2.00	45.8	50.0(50.0)	91.7	75 - 125
Uranium	ug/L	2.00	48.4	51.5(50.0)	93.8	75 - 125

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Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nickel	ug/L	1.00	19.6	20.0	97.9	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nickel	ug/L	1.00	20.6	20.0	103	80 - 120

Interference Check Standard AB

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

Interference Check Standard AB

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

Serial Dilution Lab ID = 812005-003

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Uranium	ug/L	10.0	28.6	27.7	3.07	0 - 10

Serial Dilution Lab ID = 812052-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	50.0	702	702	0.0507	0 - 10

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Reactive Silica by SM4500-Si D

Batch 02Si14A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812052-002 Silica	mg/L	02/12/2014	1.00	0.0101	0.0400	22.9

Method Blank

Parameter	Unit	DF	Result
Silica	mg/L	1.00	ND

Duplicate — Lab ID = 812052-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Silica	mg/L	1.00	23.2	22.9	1.51	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Silica	mg/L	1.00	0.202	0.206	97.8	90 - 110

Matrix Spike — Lab ID = 812100-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Silica	mg/L	1.00	0.202	0.206(0.206)	97.8	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Silica	mg/L	1.00	0.202	0.206	97.8	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Silica	mg/L	1.00	0.378	0.400	94.5	90 - 110

Total Dissolved Solids by SM 2540 C

Batch 02TDS14A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812052-001 Total Dissolved Solids	mg/L	02/05/2014	1.00	1.76	125	4360
812052-002 Total Dissolved Solids	mg/L	02/05/2014	1.00	1.76	125	4480

Method Blank

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

Duplicate — Lab ID = 812060-007

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	559	574	2.65	0 - 10

Lab Control Sample

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

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Total Organic Carbon (T/DOC) SM 5310 C Batch 02TOC14C

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812052-002 Total Organic Carbon	mg/L	02/07/2014 10:39	1.00	0.0877	0.300	ND

Method Blank

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

Duplicate — Lab ID = 812052-002

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

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Organic Carbon	mg/L	1.00	9.83	10.0	98.3	90 - 110

Matrix Spike — Lab ID = 812060-008

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Total Organic Carbon	mg/L	1.00	12.8	12.9(10.0)	98.6	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Organic Carbon	mg/L	1.00	10.4	10.0	104	85 - 115

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Organic Carbon	mg/L	1.00	10.6	10.0	106	90 - 110

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Total Phosphate, SM 4500-PB,E Batch 02TP14A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812052-002 Phosphate, Total As P	mg/L	02/12/2014	1.00	0.00300	0.0200	ND

Method Blank

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

Duplicate — Lab ID = 812052-002

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	0.0599	0.0650	92.2	90 - 110

Matrix Spike — Lab ID = 812052-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Phosphate, Total As P	mg/L	1.00	0.0613	0.0650(0.0650)	94.3	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Phosphate, Total As P	mg/L	1.00	0.0599	0.0650	92.2	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Phosphate, Total As P	mg/L	1.00	0.0639	0.0660	96.8	90 - 110

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Client: E2 Consulting Engineers, Inc.

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

Ammonia Nitrogen by SM4500-NH3D

Batch 02NH314A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812052-001 Ammonia as N	mg/L	02/19/2014	1.00	0.0318	0.500	ND
812052-002 Ammonia as N	mg/L	02/19/2014	1.00	0.0318	0.500	ND

Method Blank

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

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	7.25	8.00	90.6	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	7.52	8.00	94.0	90 - 110

Matrix Spike — Lab ID = 812052-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	9.56	10.0(10.0)	95.6	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	6.56	6.00	109	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	6.22	6.00	104	90 - 110

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Metals by EPA 200.8, Dissolved Batch 021014B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812052-002 Manganese	ug/L	02/11/2014 01:00	1.00	0.0600	0.50	4.5

Method Blank

Parameter	Unit	DF	Result
Manganese	ug/L	1.00	ND

Duplicate — Lab ID = 812051-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Manganese	ug/L	2.00	6.76	6.59	2.51	0 - 20

Low Level Calibration Verification

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

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	47.6	50.0	95.3	85 - 115

Matrix Spike — Lab ID = 812051-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Manganese	ug/L	2.00	52.5	56.6(50.0)	91.9	75 - 125

Matrix Spike Duplicate — Lab ID = 812051-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Manganese	ug/L	2.00	54.5	56.6(50.0)	95.9	75 - 125

MRCCS - Secondary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	19.7	20.0	98.7	90 - 110

MRCVS - Primary

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

Interference Check Standard A

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

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Metals by 200.7, Dissolved

Batch 022514A-Th2

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812052-002 Iron	ug/L	02/25/2014 18:25	1.00	3.00	20.0	ND

Method Blank

Parameter	Unit	DF	Result
Iron	ug/L	1.00	ND

Duplicate — Lab ID = 812052-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Iron	ug/L	1.00	24.4	25.0	2.43	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2120	2000	106	85 - 115

Matrix Spike — Lab ID = 812052-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	1860	2020(2000)	91.8	75 - 125

Matrix Spike Duplicate — Lab ID = 812052-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	1860	2020(2000)	91.6	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	4960	5000	99.3	95 - 105

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5150	5000	103	90 - 110

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2180	2000	109	80 - 120

Interference Check Standard A

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

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Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2120	2000	106	80 - 120

Interference Check Standard AB

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

Turbidity by SM 2130 B

Batch 02TUC14C

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812052-001 Turbidity	NTU	02/05/2014	1.00	0.0140	0.100	ND
812052-002 Turbidity	NTU	02/05/2014	1.00	0.0140	0.100	0.103

Method Blank

Parameter	Unit	DF	Result
Turbidity	NTU	1.00	ND

Duplicate Lab ID = 812049-026

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Turbidity	NTU	1.00	0.157	0.148	5.90	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	8.47	8.00	106	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	7.60	8.00	95.0	90 - 110

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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Truesdail Laboratories, Inc.

Total Dissolved Solids by SM 2540 C

Calculations

Batch: 02TDS14A
Date Analyzed: 2/5/2014

Laboratory Number	Sample volume, mL	Initial weight, g	1st Final weight, g	2nd Final weight, g	Weight Difference, g	Exceeds 0.5mg? Yes/No	Residue weight, g	Filterable residue, ppm	RL, ppm	Reported Value, ppm	DF
Blank	100	76.2767	76.2769	76.2768	0.0001	No	0.0001	1.0	25.0	ND	1
812019	1000	173.2009	173.2027	173.2027	0.0000	No	0.0018	1.8	2.5	ND	1
812023-1	100	80.5727	80.6154	80.6154	0.0000	No	0.0427	427.0	25.0	427.0	1
812023-2	100	74.1439	74.1988	74.1988	0.0000	No	0.0549	549.0	25.0	549.0	1
812027-2	100	67.9655	67.9797	67.9797	0.0000	No	0.0142	142.0	25.0	142.0	1
812027-4	100	74.4532	74.4951	74.4948	0.0003	No	0.0416	416.0	25.0	416.0	1
812051-1	20	30.5001	30.5531	30.5527	0.0004	No	0.0526	2630.0	125.0	2630.0	1
812051-2	10	28.8153	28.8675	28.8672	0.0003	No	0.0519	5190.0	250.0	5190.0	1
812052-1	20	30.3627	30.4502	30.4498	0.0004	No	0.0871	4355.0	125.0	4355.0	1
812052-2	20	29.4886	29.5784	29.5783	0.0001	No	0.0897	4485.0	125.0	4485.0	1
812060-7	100	73.7906	73.8481	73.8480	0.0001	No	0.0574	574.0	25.0	574.0	1
812060-7 Dup	100	75.2752	75.3311	75.3311	0.0000	No	0.0559	559.0	25.0	559.0	1
LCS	100	71.3158	71.3657	71.3657	0.0000	No	0.0499	499.0	25.0	499.0	1
812063-4	100	74.7028	74.7577	74.7577	0.0000	No	0.0549	549.0	25.0	549.0	1
812065-1	100	72.4043	72.4556	72.4554	0.0002	No	0.0511	511.0	25.0	511.0	1
812065-2	100	78.3615	78.4127	78.4126	0.0001	No	0.0511	511.0	25.0	511.0	1
812065-3	100	74.6429	74.6949	74.6945	0.0004	No	0.0516	516.0	25.0	516.0	1
812065-4	100	122.3289	122.3876	122.3876	0.0000	No	0.0587	587.0	25.0	587.0	1
812080-1	100	121.4788	121.5049	121.5049	0.0000	No	0.0261	261.0	25.0	261.0	1
812071-1	100	74.7290	74.7748	74.7748	0.0000	No	0.0458	458.0	25.0	458.0	1
812071-2	100	78.7919	78.8385	78.8381	0.0004	No	0.0462	462.0	25.0	462.0	1
812063-4 Dup	100	77.9828	78.0390	78.0386	0.0004	No	0.0558	558.0	25.0	558.0	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?
LCS	499.0	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?
812060-7	0.0574	0.0559	1.3%	≤5%	Yes
812063-4	0.0549	0.0558	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 02TDS14A

Total Dissolved Solids by SM 2540 C

TDS/EC CHECK

Batch: 02TDS14A
Date Analyzed: 2/5/2014

Laboratory Number	EC	TDS/EC Ratio: 0.55-0.90	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
812019	13.4	ND	8.71	ND
812023-1	769	0.56	499.85	0.85
812023-2	728	0.75	473.2	1.16
812027-2	257	0.55	167.05	0.85
812027-4	672	0.62	436.8	0.95
812051-1	3830	0.69	2489.5	1.06
812051-2	7570	0.69	4920.5	1.05
812052-1	6430	0.68	4179.5	1.04
812052-2	6620	0.68	4303	1.04
812060-7	744	0.77	483.6	1.19
812060-7 Dup	744	0.75	483.6	1.16
LCS				
812063-4	688	0.80	447.2	1.23
812065-1	726	0.70	471.9	1.08
812065-2	727	0.70	472.55	1.08
812065-3	758	0.68	492.7	1.05
812065-4	749	0.78	486.85	1.21
812080-1	346	0.75	224.9	1.16
812071-1	738	0.62	479.7	0.95
812071-2	686	0.67	445.9	1.04
812063-4 Dup	688	0.81	447.2	1.25

TRUESDAIL LABORATORIES, INC.

Alkalinity by SM 2320B

Calculations

Analytical Batch:	02ALK14A
Matrix:	WATER
Date of Analysis:	2/10/14

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	5.19	50	0.02	0.00	0.0	0.00		0.0	5	ND	ND	ND	ND	
811648-1	7.91	50	0.02	0.00	0.0	7.40		148.0	5	148.0	148.0	ND	ND	
811648-2	7.90	50	0.02	0.00	0.0	7.90		158.0	5	158.0	158.0	ND	ND	
811648-3	8.00	50	0.02	0.00	0.0	7.40		148.0	5	148.0	148.0	ND	ND	
811648-4	7.80	50	0.02	0.00	0.0	7.70		154.0	5	154.0	154.0	ND	ND	
811648-5	7.81	50	0.02	0.00	0.0	7.60		152.0	5	152.0	152.0	ND	ND	
811648-6	7.85	50	0.02	0.00	0.0	8.30		166.0	5	166.0	166.0	ND	ND	
811648-7	7.80	50	0.02	0.00	0.0	8.90		178.0	5	178.0	178.0	ND	ND	
812006-21	8.16	50	0.02	0.00	0.0	5.65		113.0	5	113.0	113.0	ND	ND	
812060-1	8.17	50	0.02	0.00	0.0	6.60		132.0	5	132.0	132.0	ND	ND	
812089-20	8.16	50	0.02	0.00	0.0	6.20		124.0	5	124.0	124.0	ND	ND	
812089-20 DUP	8.14	50	0.02	0.00	0.0	6.10		122.0	5	122.0	122.0	ND	ND	
LCS	10.37	50	0.02	2.0	40.0	4.95		99.0	5	99.0	19.0	80	ND	
LCSD	10.36	50	0.02	2.1	41.0	5.00		100.0	5	100.0	18.0	82	ND	
812089-16	7.57	50	0.02	0.0	0.0	5.60		112.0	5	112.0	112.0	ND	ND	
812051-1	7.58	50	0.02	0.0	0.0	10.85		217.0	5	217.0	217.0	ND	ND	
812051-2	7.55	50	0.02	0.0	0.0	6.75		135.0	5	135.0	135.0	ND	ND	
812052-2	7.54	50	0.02	0.0	0.0	7.55		151.0	5	151.0	151.0	ND	ND	
812130	8.27	50	0.02	0.0	0.0	9.40		188.0	5	188.0	188.0	ND	ND	
812052-2 MS	8.95	50	0.02	0.0	0.0	12.30		246.0	5	246.0	246.0	0	ND	

Calculations as follows:

T or P = $\left(\frac{A \times N \times 50000}{mL\ sample}\right)$

Where:

T = Total Alkalinity, mg CaCO3/L

P = Phenolphthalein Alkalinity, mg CaCO3/L

A = mL standard acid used

N = normality of standard acid

Low Alkalinity: as mg/L CaCO3 = $\frac{(2 \times B - C) \times N \times 50000}{mL\ sample}$

Where:

B = mL titrant to first recorded pH

C = Total mL titrant to reach pH 0.3 unit lower

N = Normality of standard acid

LCS = Laboratory Control Standard/Duplicate

MS/MSD = Matrix Spike/Duplicate

ND = Not Detected (below the reporting limit)

Blank Summary

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

Laboratory Control Sample (LCS/LCSD) Summary

QC Std I.D.	Measured Value, ppm	Theoretical Value, ppm	% Recovery	Accetance Limit	QC Within Control?
LCS	99	100	99.0%	90-110	Yes
LCSD	100	100	100.0%	90-110	Yes

Duplicate Determination Difference Summary

Lab Number I.D.	Measured Value, ppm	Dup Value, ppm	RPD	Accetance Limit	QC Within Control?
812089-20	124	122	1.6%	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?
812052-2	151	1	100	100	246	251.00	95%	75-125	Yes			
				0								

Himani Vaishnav
Analyst Printed Name

Analyst Signature

Maksim Gorbunov
Reviewer Printed Name

Reviewer Signature

0214A.xls

054

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812052

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-452]

Rec'd 02/04/14

COC Number S13a 812052

TURNAROUND TIME 10 Days

DATE 02/04/14 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: 428648.IM.CS.EX.AC

SAMPLERS (SIGNATURE: Chris Lenz

	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-452	02/04/14	13:10		X		X	X	X	X	X		X				X			pH=7 (200.7)
-2	SC-100B-WDR-452	02/04/14	13:10		X	X	X	X	X	X	X	X	X	X	X	X	X			
																			13	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)	Chris Lenz	CHRIS LENZ	CH2M HILL	2-4-14 14:15
Signature (Received)	Thanh Ngo	THANH NGO	TRUESDAIL	2-4-14 1415
Signature (Relinquished)	Thanh Ngo	THANH NGO	TLI	2-4-14 1820
Signature (Received)	Michael Brady	Marcher/Brady	TLI	2/4/14 @1820
Signature (Relinquished)				
Signature (Received)				

SAMPLE CONDITIONS

RECEIVED COOL ☑ WARM ☐ 21 °C

CUSTODY SEALED YES ☐ NO ☑

SPECIAL REQUIREMENTS:

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

121

Hexavalent Chromium

Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
2/5/14	812052-1	7.00	2ml/100ml	9.5	8:00	NE
↓	↓ -2	↓	↓	↓	↓	↓

NE
02/05/14

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

TRUESDAIL LABORATORIES, INC.
Metals

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest (Y/N)	Time of Adjustment to pH 2	Date/Time of 2nd pH check	Comments
811041	1	<2	2/5/14	EK	YES			
812042	↓	↓	↓	↓	↓			
812062 (1-3)	<1	>2	2/5/14	EK	YES	2pm	2/6/14 @ 8am	
811976	<1	>2	2/6/14	ES	yes	3:00	↓	pH <2
812005 (1-3)	↓	<2	↓	↓	↓			
812052 (1-2)	↓	>2	↓	↓	↓	3:00	2/6/14 @ 8am	pH <2
812081 (1-5)	↓	>2	↓	↓	↓			T/D
812051 (1-2)	<1	>2	2/7/14	EK	YES	10:00		lab filtered
812052 (-2)	<1	>2	↓	↓	↓ 2/12/14	↓		↓
812089 (16,23)	<1	>2	2/12/14	ES	ES ~~yes~~ NO	10:00		
812130	<1	<2	↓	↓	yes			
812098	↓	↓	↓	↓	↓			
812101								
812112								
812113 (1-3)								
812110								
812142								
812147								
812148								
812149								
812150								
812151								
812114								
812145								
812091								
812071 (1-2								
812123 (1-4)								
812128 (1-2)								
812121								
812122		↓			↓			
812062 (1-4)		>2			NO	10:00	2/13/14 1:00	pH <2
812161		↓	↓	↓	↓	↓	↓	↓
812134		↓	↓	↓	↓	↓	↓	↓
812072 (10-12)	↓	↓	↓	↓	↓	↓	↓	↓
812162	<1	>2	2/13/14	ES	yes	3:00		pH <2
812163 (1-4)	↓	<2	↓	↓	↓			
812165 (1-3)	↓	↓	↓	↓	↓			
812172 (10-12)	<1	>2	2/14/14	ES	NO	2:00	2/18/14 10:00	pH <2
812198 (1-3)	↓	↓	↓	↓	↓	↓	↓	↓
812174 (1-2)	>1	<2	↓	↓	yes			
812180	<1	↓	↓	↓	↓			
812184	↓	↓	↓	↓	↓			
812189	↓	↓	↓	↓	↓			
812190	>1	↓	↓	↓	↓			

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

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: E2 **Lab #** 812052

Date Delivered: 02/04/14 **Time:** 8:20 **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)? 2.1 °C
7. Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)? ☒Yes ☐No ☐N/A
8. Were sample custody seals intact? ☐Yes ☐No ☒N/A
9. Does the number of samples received agree with COC? ☒Yes ☐No ☐N/A
10. Did sample labels correspond with the client ID's? ☒Yes ☐No ☐N/A
11. Did sample labels indicate proper preservation? ☐Yes ☐No ☒N/A
    Preserved (if yes) by: ☐**Truesdail** ☐Client
12. Were samples pH checked? pH = see c.o.c. ☒Yes ☐No ☐N/A
13. Were all analyses within holding time at time of receipt? ☒Yes ☐No ☐N/A
    If not, notify Project Manager.
14. Have Project due dates been checked and accepted? ☒Yes ☐No ☐N/A
    Turn Around Time (TAT): ☐ **RUSH** ☒ Std
15. **Sample Matrix:** ☐Liquid ☐Drinking Water ☐Ground Water ☐Waste Water ☐Sludge ☐Soil ☐Wipe ☐Paint ☐Solid ☒Other Water
16. Comments: _____
17. Sample Check-In completed by **Truesdail** Log-In/Receiving: Linda

ALERT !!
Level III QC

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

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

February 24, 2014

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

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK IM3PLANT-WDR-453 PROJECT, GROUNDWATER MONITORING, TLI NO.: 812162

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-453 project groundwater monitoring for Hexavalent and Total Chromium, Total Manganese, Turbidity, Specific Conductivity, and Total Dissolved Solids. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, quality control data and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data have been included under Section 5.

The samples were received and delivered with the chain of custody on February 11, 2014, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

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

The straight runs for the sample and associated matrix spike on sample SC-700B-WDR-453 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 violations or nonconformance actions occurred for this data package.

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

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.

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Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy
Sample: One (1) Groundwater Sample
Project Name: PG&E Topock Project
Project No.: 428648.IM.CS.EX.AC

Laboratory No.: 812162
Date: February 24, 2014
Collected: February 11, 2014
Received: February 11, 2014

ANALYST LIST

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

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

Laboratory No.: 812162
Date Received: February 11, 2014

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

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
812162-001	SC-700B-WDR-453	E120.1	NONE	2/11/2014	14:25	EC	6420	umhos/cm	2.00
812162-001	SC-700B-WDR-453	E200.8	NONE	2/11/2014	14:25	Chromium	1.2	ug/L	1.0
812162-001	SC-700B-WDR-453	E200.8	NONE	2/11/2014	14:25	Manganese	2.3	ug/L	0.50
812162-001	SC-700B-WDR-453	E218.6	LABFLT	2/11/2014	14:25	Chromium, Hexavalent	0.70	ug/L	0.20
812162-001	SC-700B-WDR-453	SM2130B	NONE	2/11/2014	14:25	Turbidity	ND	NTU	0.100
812162-001	SC-700B-WDR-453	SM2540C	NONE	2/11/2014	14:25	Total Dissolved Solids	4280	mg/L	125

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

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REPORT

Client: **E2 Consulting Engineers, Inc.**
155 Grand Avenue, Suite 800
Oakland, CA 94612
Attention: Shawn Duffy
Project Name: PG & E Topock
Project Number: 428648.IM.CS.EX.AC
P.O. Number: PGEIM11111001
Release Number:

Laboratory No. 812162

Printed 2/24/2014

Samples Received on 2/11/2014 7:40:00 PM

Field ID	Lab ID	Collected	Matrix
SC-700B-WDR-453	812162-001	02/11/2014 14:25	Water

Specific Conductivity - EPA 120.1 Batch 02EC14B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812162-001 Specific Conductivity	umhos/cm	02/14/2014	1.00	0.606	2.00	6420

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate — Lab ID = 812111-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	76.1	76.0	0.131	0 - 10

Lab Control Sample

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

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	679	706	96.2	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

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Client: E2 Consulting Engineers, Inc.

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

Chrome VI by EPA 218.6

Batch 02CrH14 D

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812162-001 Chromium, Hexavalent	ug/L	02/12/2014 10:14	1.00	0.00600	0.20	0.70

Method Blank

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

Duplicate — Lab ID = 812162-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	0.687	0.696	1.24	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.199	0.200	99.5	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 = 812162-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.52	5.69(5.00)	96.7	90 - 110

Matrix Spike — Lab ID = 812162-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.69	1.70(1.00)	99.4	90 - 110

Matrix Spike — Lab ID = 812163-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.951	1.00(1.00)	95.1	90 - 110

Matrix Spike — Lab ID = 812163-002

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

Matrix Spike — Lab ID = 812163-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.925	1.00(1.00)	92.5	90 - 110

Matrix Spike — Lab ID = 812163-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.935	1.00(1.00)	93.5	90 - 110

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Client: E2 Consulting Engineers, Inc.

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

Metals by EPA 200.8, Total

Batch 021414A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812162-001 Chromium	ug/L	02/14/2014 14:48	1.00	0.0710	1.0	1.2
Manganese	ug/L	02/14/2014 14:48	1.00	0.0600	0.50	2.3

Method Blank

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

Duplicate

Lab ID = 812162-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	1.00	1.12	1.23	9.45	0 - 20
Uranium	ug/L	2.00	ND	0	0	0 - 20
Manganese	ug/L	1.00	2.04	2.30	12.2	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.493	0.500	98.6	70 - 130
Uranium	ug/L	1.00	0.167	0.200	83.5	70 - 130
Manganese	ug/L	1.00	0.634	0.500	127	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	47.4	50.0	94.9	85 - 115
Uranium	ug/L	1.00	49.7	50.0	99.5	85 - 115
Manganese	ug/L	1.00	47.8	50.0	95.5	85 - 115

Matrix Spike

Lab ID = 812162-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	1.00	50.6	51.2(50.0)	98.8	75 - 125
Uranium	ug/L	2.00	39.6	50.0(50.0)	79.2	75 - 125
Manganese	ug/L	1.00	51.4	52.3(50.0)	98.2	75 - 125

Matrix Spike Duplicate

Lab ID = 812162-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	1.00	49.4	51.2(50.0)	96.3	75 - 125
Uranium	ug/L	2.00	40.7	50.0(50.0)	81.4	75 - 125
Manganese	ug/L	1.00	49.8	52.3(50.0)	94.9	75 - 125

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Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.2	20.0	95.9	80 - 120

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
Uranium	ug/L	1.00	ND	0		

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Uranium	ug/L	1.00	ND	0		
Manganese	ug/L	1.00	19.9	20.0	99.4	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	19.9	20.0	99.7	80 - 120

Total Dissolved Solids by SM 2540 C

Batch 02TDS14B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812162-001 Total Dissolved Solids	mg/L	02/12/2014	1.00	1.76	125	4280

Method Blank

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

Duplicate — Lab ID = 812089-016

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	726	738	1.64	0 - 10

Duplicate — Lab ID = 812128-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	420	414	1.44	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

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Client: E2 Consulting Engineers, Inc.

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

Printed 2/24/2014

Turbidity by SM 2130 B

Batch 02TUC14G

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812162-001 Turbidity	NTU	02/12/2014	1.00	0.0140	0.100	ND

Method Blank

Parameter	Unit	DF	Result
Turbidity	NTU	1.00	ND

Duplicate

Lab ID = 812162-001

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	7.84	8.00	98.0	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	7.37	8.00	92.1	90 - 110

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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Truesdail Laboratories, Inc.

E2

Total Dissolved Solids by SM 2540 C

Calculations

Batch: 02TDS14B
Date Analyzed: 2/12/2014

Laboratory Number	Sample volume, mL	Initial weight, g	1st Final weight, g	2nd Final weight, g	Weight Difference, g	Exceeds 0.5mg? Yes/No	Residue weight, g	Filterable residue, ppm	RL, ppm	Reported Value, ppm	DF
Blank	100	68.1174	68.1178	68.1178	0.0000	No	0.0004	4.0	25.0	ND	1
812081-1	100	79.2562	79.2850	79.2846	0.0004	No	0.0284	284.0	25.0	284.0	1
812081-2	100	74.6974	74.7271	74.7266	0.0005	No	0.0292	292.0	25.0	292.0	1
812081-3	100	74.5963	74.6258	74.6255	0.0003	No	0.0292	292.0	25.0	292.0	1
812081-4	100	75.8080	75.8334	75.8334	0.0000	No	0.0254	254.0	25.0	254.0	1
812081-5	100	67.0354	67.0680	67.0680	0.0000	No	0.0326	326.0	25.0	326.0	1
812082-1	50	51.8162	51.8647	51.8645	0.0002	No	0.0483	966.0	50.0	966.0	1
812082-2	100	75.2673	75.3156	75.3156	0.0000	No	0.0483	483.0	25.0	483.0	1
812082-3	100	75.7430	75.7986	75.7986	0.0000	No	0.0556	556.0	25.0	556.0	1
812082-4	100	79.1531	79.2128	79.2128	0.0000	No	0.0597	597.0	25.0	597.0	1
812089-16	50	72.6345	72.6718	72.6714	0.0004	No	0.0369	738.0	50.0	738.0	1
812089-16 Dup	50	51.4858	51.5225	51.5221	0.0004	No	0.0363	726.0	50.0	726.0	1
LCS	100	69.7910	69.8395	69.8395	0.0000	No	0.0485	485.0	25.0	485.0	1
812128-1	100	78.3910	78.4310	78.4306	0.0004	No	0.0396	396.0	25.0	396.0	1
812128-2	100	68.5441	68.5855	68.5855	0.0000	No	0.0414	414.0	25.0	414.0	1
812162	20	49.8081	49.8940	49.8937	0.0003	No	0.0856	4280.0	125.0	4280.0	1
812174-1	100	79.0575	79.1004	79.1004	0.0000	No	0.0429	429.0	25.0	429.0	1
812174-2	100	69.7594	69.8033	69.8033	0.0000	No	0.0439	439.0	25.0	439.0	1
812128-2 Dup	100	78.2905	78.3326	78.3325	0.0001	No	0.0420	420.0	25.0	420.0	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?
LCS	485.0	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?
812089-16	0.0369	0.0363	0.8%	≤5%	Yes
812128-2	0.0414	0.0420	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 02TDS14B

Total Dissolved Solids by SM 2540 C

TDS/EC CHECK

Batch: 02TDS14B
Date Analyzed: 2/12/2014

Laboratory Number	EC	TDS/EC Ratio: 0.55-0.90	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
812081-1	339	0.84	220.35	1.29
812081-2	354	0.82	230.1	1.27
812081-3	377	0.77	245.05	1.19
812081-4	305	0.83	198.25	1.28
812081-5	388	0.84	252.2	1.29
812082-1	1530	0.63	994.5	0.97
812082-2	684	0.71	444.6	1.09
812082-3	738	0.75	479.7	1.16
812082-4	801	0.75	520.65	1.15
812089-16	1028	0.72	668.2	1.10
812089-16 Dup	1028	0.71	668.2	1.09
LCS				
812128-1	609	0.65	395.85	1.00
812128-2	582	0.71	378.3	1.09
812162	6420	0.67	4173	1.03
812174-1	718	0.60	466.7	0.92
812174-2	658	0.67	427.7	1.03
812128-2 Dup	582	0.72	378.3	1.11

812162

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CHAIN OF CUSTODY RECORD

[IM3Plant-WDR-453]

COC Number
TURNAROUND TIME 10 Days
DATE 02/11/14 PAGE 1 OF 1

COMPANY E2
PROJECT NAME PG&E Topock
PHONE (530) 229-3303 FAX (530) 339-3303
ADDRESS 155 Grand Ave Ste 1000
Oakland, CA 94612
P.O. NUMBER 428648.IM.CS.EX.AC TEAM 1
SAMPLERS (SIGNATURE [signature]

Rec'd 02/11/14
~~S14a~~ 812162

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-453	02/11/14	14:25	Water	x	x	x	x		x								3	pH=7 (200.7)
																	3	TOTAL NUMBER OF CONTAINERS

Please Provide a preliminary Result for the TDS ASAP

ALERT !!
Level III QC

For Sample Conditions
See Form Attached

CHAIN OF CUSTODY SIGNATURE RECORD

Signature (Relinquished)	[signature]	Printed Name	CHRIS LENTZ	Company/ Agency	CH2M HILL	Date/ Time	2/11/14 15:20
Signature (Received)	[signature]	Printed Name	THANH NGO	Company/ Agency	TRUESDAIL	Date/ Time	2-11-14 1520
Signature (Relinquished)	[signature]	Printed Name	THANH NGO	Company/ Agency	TRUESDAIL	Date/ Time	2-11-14 1940
Signature (Received)	[signature]	Printed Name	Marchea Brady	Company/ Agency	TLI	Date/ Time	2/11/14 @ 1940
Signature (Relinquished)		Printed Name		Company/ Agency		Date/ Time	
Signature (Received)		Printed Name		Company/ Agency		Date/ Time	

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

SPECIAL REQUIREMENTS:

Hexavalent Chromium

Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
2/5/14	812052-1	7.00	2ml/100ml	9.5	8:00	NE
	-2					
2/6/14	812081-1	9.5	N/A	N/A	N/A	NE
	-2					
	-3					
	-4					
	-5					
2/12/14	812162	7.00	2ml/100ml	9.5	7:30	NE
	812163-1	9.5	N/A	N/A	N/A	NE
	-2					
	-3					
	-4					
	-5					
	-6					

NE
2/12/14

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

TRUESDAIL LABORATORIES, INC.
Metals

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest (Y/N)	Time of Adjustment to pH 2	Date/Time of 2nd pH check	Comments
812041	1	<2	2/5/14	KK	YES			
812042	↓	↓	↓	↓	↓			
812062 (1-3)	<1	>2	2/5/14	KK	YES	2pm	2/6/14 @ 8am	
811976	<1	>2	2/6/14	ES	yes	3:00	↓	pH <2
812005 (1-3)	↓	<2	↓	↓	↓			
812052 (1-2)	↓	>2	↓	↓	↓	3:00	2/6/14 @ 8am	pH <2
812081 (1-5)	↓	>2	↓	↓	↓			T/D
812051 (1-2)	<1	>2	2/7/14	KK	yes	10:00		lab filtered
812052 (-2)	<1	>2	↓	↓	↓	↓		↓
812089 (16,23)	<1	>2	2/12/14	ES	ES ~~yes~~ 2/12/14 NO	10:00		
812130	<1	<2	↓	↓	yes			
812098	↓	↓	↓	↓	↓			
812101	↓	↓	↓	↓	↓			
812112	↓	↓	↓	↓	↓			
812113 (1-3)	↓	↓	↓	↓	↓			
812110	↓	↓	↓	↓	↓			
812142	↓	↓	↓	↓	↓			
812147	↓	↓	↓	↓	↓			
812148	↓	↓	↓	↓	↓			
812149	↓	↓	↓	↓	↓			
812150	↓	↓	↓	↓	↓			
812151	↓	↓	↓	↓	↓			
812114	↓	↓	↓	↓	↓			
812145	↓	↓	↓	↓	↓			
812091	↓	↓	↓	↓	↓			
812071 (1-2	↓	↓	↓	↓	↓			
812123 (1-4)	↓	↓	↓	↓	↓			
812128 (1-2)	↓	↓	↓	↓	↓			
812121	↓	↓	↓	↓	↓			
812122	↓	↓	↓	↓	↓			
812062 (1-4)	↓	>2	↓	↓	NO	10:00	2/13/14 1:00	pH <2
812161	↓	↓	↓	↓	↓	↓	↓ ↓	↓
812134	↓	↓	↓	↓	↓	↓	↓ ↓	↓
812072 (10-12)	↓	↓	↓	↓	↓	↓	↓ ↓	↓
812162	<1	>2	2/13/14	ES	yes	3:00		pH <2
812163 (1-4)	↓	<2	↓	↓	↓			
812165 (1-3)	↓	↓	↓	↓	↓			
812172 (10-12)	<1	>2	2/14/14	ES	NO	2:00	2/18/14 10:00	pH <2
812198 (1-3)	↓	↓	↓	↓	↓	↓	↓	↓
812174 (1-2)	>1	<2	↓	↓	yes			
812180	<1	↓	↓	↓	↓			
812184	↓	↓	↓	↓	↓			
812189	↓	↓	↓	↓	↓			
812190	>1	↓	↓	↓	↓			

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

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: E2 **Lab #** 812162

Date Delivered: 02/11/14 **Time:** 19:40 **By:** ☐Mail ☑Field Service ☐Client

1. Was a Chain of Custody received and signed? ☑Yes ☐No ☐N/A
2. Does Customer require an acknowledgement of the COC? ☐Yes ☑No ☐N/A
3. Are there any special requirements or notes on the COC? ☐Yes ☑No ☐N/A
4. If a letter was sent with the COC, does it match the COC? ☐Yes ☐No ☑N/A
5. Were all requested analyses understood and acceptable? ☑Yes ☐No ☐N/A
6. Were samples received in a chilled condition? ☑Yes ☐No ☐N/A
   Temperature (if yes)? 4.8 °C
7. Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)? ☑Yes ☐No ☐N/A
8. Were sample custody seals intact? ☐Yes ☐No ☑N/A
9. Does the number of samples received agree with COC? ☑Yes ☐No ☐N/A
10. Did sample labels correspond with the client ID's? ☑Yes ☐No ☐N/A
11. Did sample labels indicate proper preservation? ☐Yes ☐No ☑N/A
    Preserved (if yes) by: ☐**Truesdail** ☐Client
12. Were samples pH checked? pH = See C.O.C ☑Yes ☐No ☐N/A
13. Were all analyses within holding time at time of receipt? ☑Yes ☐No ☐N/A
    If not, notify Project Manager.
14. Have Project due dates been checked and accepted? ☑Yes ☐No ☐N/A
    Turn Around Time (TAT): ☐ **RUSH** ☑ Std
15. **Sample Matrix:** ☐Liquid ☐Drinking Water ☐Ground Water ☐Waste Water ☐Sludge ☐Soil ☐Wipe ☐Paint ☐Solid ☑Other Water
16. Comments:
17. Sample Check-In completed by **Truesdail** Log-In/Receiving: Linda

ALERT!! Level III QC

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

TRUESDAIL LABORATORIES, INC.

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Established 1931

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www.truesdail.com

March 3, 2014

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

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK IM3PLANT-WDR-454 PROJECT, GROUNDWATER MONITORING, TLI NO.: 812254

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-454 project groundwater monitoring for Hexavalent and Total Chromium, Total Manganese, Turbidity, Specific Conductivity, and Total Dissolved Solids. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, quality control data and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data have been included under Section 5.

The samples were received and delivered with the chain of custody on February 18, 2014, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

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

The straight runs for the sample and associated matrix spike on sample SC-700B-WDR-454 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 violations or nonconformance actions occurred for this data package.

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

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

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Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy
Sample: One (1) Groundwater Sample
Project Name: PG&E Topock Project
Project No.: 428648.IM.CS.EX.AC

Laboratory No.: 812254
Date: March 3, 2014
Collected: February 18, 2014
Received: February 18, 2014

ANALYST LIST

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

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

Laboratory No.: 812254
Date Received: February 18, 2014

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

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
812254-001	SC-700B-WDR-454	E120.1	NONE	2/18/2014	13:00	EC	6540	umhos/cm	2.00
812254-001	SC-700B-WDR-454	E200.8	NONE	2/18/2014	13:00	Chromium	ND	ug/L	1.0
812254-001	SC-700B-WDR-454	E200.8	NONE	2/18/2014	13:00	Manganese	2.0	ug/L	0.50
812254-001	SC-700B-WDR-454	E218.6	LABFLT	2/18/2014	13:00	Chromium, Hexavalent	0.45	ug/L	0.20
812254-001	SC-700B-WDR-454	SM2130B	NONE	2/18/2014	13:00	Turbidity	0.123	NTU	0.10
812254-001	SC-700B-WDR-454	SM2540C	NONE	2/18/2014	13:00	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.

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REPORT

Client: **E2 Consulting Engineers, Inc.**
155 Grand Avenue, Suite 800
Oakland, CA 94612
Attention: Shawn Duffy
Project Name: PG&E Topock Project
Project Number: 428648.IM.CS.EX.AC
P.O. Number: PGEIM11111001
Release Number:

Laboratory No. 812254

Printed 3/3/2014

Samples Received on 2/18/2014 7:40:00 PM

Field ID	Lab ID	Collected	Matrix
SC-700B-WDR-454	812254-001	02/18/2014 13:00	Water

Specific Conductivity - EPA 120.1 Batch 02EC14E

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812254-001 Specific Conductivity	umhos/cm	02/25/2014	1.00	0.606	2.00	6540

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate — Lab ID = 812276-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	694	692	0.289	0 - 10

Lab Control Sample

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

MRCCS - Secondary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	985	1000	98.5	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	985	1000	98.5	90 - 110

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Client: E2 Consulting Engineers, Inc.

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

Chrome VI by EPA 218.6

Batch 02CrH14 E

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812254-001 Chromium, Hexavalent	ug/L	02/19/2014 10:51	1.00	0.00600	0.20	0.45

Method Blank

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

Duplicate — Lab ID = 812256-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.113	0.0926	19.6	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.195	0.200	97.4	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.87	5.00	97.5	90 - 110

Matrix Spike — Lab ID = 812254-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.42	1.45(1.00)	97.8	90 - 110

Matrix Spike — Lab ID = 812254-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.30	5.44(5.00)	97.2	90 - 110

Matrix Spike — Lab ID = 812256-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.08	1.09(1.00)	98.9	90 - 110

Matrix Spike — Lab ID = 812256-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.938	1.00(1.00)	93.8	90 - 110

Matrix Spike — Lab ID = 812256-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	92.7	92.2(50.0)	101	90 - 110

Matrix Spike — Lab ID = 812256-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.03	1.03(1.00)	99.8	90 - 110

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Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project Page 6 of 9
Project Number: 428648.IM.CS.EX.AC Printed 3/3/2014

Metals by EPA 200.8, Total

Batch 022014B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812254-001 Chromium	ug/L	02/20/2014 19:58	1.00	0.0710	1.0	ND
Manganese	ug/L	02/20/2014 19:58	1.00	0.0600	0.50	2.0

Method Blank

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

Duplicate — Lab ID = 812255-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	1.00	15.5	15.5	0.150	0 - 20
Manganese	ug/L	1.00	2.91	2.84	2.36	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.510	0.500	102	70 - 130
Manganese	ug/L	1.00	0.477	0.500	95.4	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	50.9	50.0	102	85 - 115
Manganese	ug/L	1.00	51.6	50.0	103	85 - 115

Matrix Spike — Lab ID = 812255-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	1.00	65.7	65.5(50.0)	100	75 - 125
Manganese	ug/L	1.00	55.6	52.8(50.0)	105	75 - 125

Matrix Spike Duplicate — Lab ID = 812255-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	1.00	64.9	65.5(50.0)	98.7	75 - 125
Manganese	ug/L	1.00	54.5	52.8(50.0)	103	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.2	20.0	101	90 - 110
Manganese	ug/L	1.00	19.8	20.0	98.8	90 - 110

MRCVS - Primary

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

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Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	19.8	20.0	99.2	80 - 120

Total Dissolved Solids by SM 2540 C

Batch 02TDS14C

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812254-001 Total Dissolved Solids	mg/L	02/19/2014	1.00	1.76	125	4380

Method Blank

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

Duplicate — Lab ID = 812254-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	4540	4380	3.70	0 - 10

Lab Control Sample

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

Turbidity by SM 2130 B

Batch 02TUC14J

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812254-001 Turbidity	NTU	02/19/2014	1.00	0.0140	0.100	0.123

Method Blank

Parameter	Unit	DF	Result
Turbidity	NTU	1.00	ND

Duplicate — Lab ID = 812229-002

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	8.65	8.00	108	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	8.78	8.00	110	90 - 110

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Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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Truesdail Laboratories, Inc.

Total Dissolved Solids by SM 2540 C

Calculations

Batch: 02TDS14C
Date Analyzed: 2/19/2014

Laboratory Number	Sample volume, mL	Initial weight, g	1st Final weight, g	2nd Final weight, g	Weight Difference, g	Exceeds 0.5mg? Yes/No	Residue weight, g	Filterable residue, ppm	RL, ppm	Reported Value, ppm	DF
Blank	100	75.0157	75.0163	75.0159	0.0004	No	0.0002	2.0	25.0	ND	1
812146-1	50	59.5096	59.5708	59.5703	0.0005	No	0.0607	1214.0	50.0	1214.0	1
812146-2	100	77.0674	77.1241	77.1240	0.0001	No	0.0566	566.0	25.0	566.0	1
812146-3	50	61.9623	62.0090	62.0086	0.0004	No	0.0463	926.0	50.0	926.0	1
812146-4	50	60.4451	60.4872	60.4868	0.0004	No	0.0417	833.2	50.0	833.2	1
812146-5	100	79.7928	79.8639	79.8635	0.0004	No	0.0707	707.0	25.0	707.0	1
812146-6	100	71.2994	71.3589	71.3589	0.0000	No	0.0595	595.0	25.0	595.0	1
812146-7	50	58.4455	58.4945	58.4945	0.0000	No	0.0490	980.0	50.0	980.0	1
812146-8	50	58.9261	58.9855	58.9851	0.0004	No	0.0590	1180.0	50.0	1180.0	1
812146-9	50	60.4145	60.4613	60.4609	0.0004	No	0.0464	928.0	50.0	928.0	1
812146-10	50	58.6535	58.7049	58.7047	0.0002	No	0.0512	1024.0	50.0	1024.0	1
812146-10 Dup	50	59.1922	59.2424	59.2420	0.0004	No	0.0498	996.0	50.0	996.0	1
LCS	100	67.8074	67.8591	67.8589	0.0002	No	0.0515	515.0	25.0	515.0	1
812154	1000	174.7902	174.7925	174.7925	0.0000	No	0.0023	2.3	2.5	ND	1
812178-1	100	72.0853	72.1363	72.1363	0.0000	No	0.0510	510.0	25.0	510.0	1
812178-2	100	70.8786	70.9297	70.9294	0.0003	No	0.0508	508.0	25.0	508.0	1
812178-3	100	74.0316	74.0839	74.0838	0.0001	No	0.0522	522.0	25.0	522.0	1
812178-4	100	75.2622	75.3139	75.3136	0.0003	No	0.0514	514.0	25.0	514.0	1
812199	100	73.4319	73.4839	73.4837	0.0002	No	0.0518	518.0	25.0	518.0	1
812204	100	78.2381	78.2736	78.2735	0.0001	No	0.0354	354.0	25.0	354.0	1
812213-1	400	174.3880	174.3908	174.3908	0.0000	No	0.0028	7.0	6.3	7.0	1
812213-2	400	158.8694	158.8695	158.8695	0.0000	No	0.0001	0.2	6.3	ND	1
812254	20	30.3850	30.4729	30.4725	0.0004	No	0.0875	4375.0	125.0	4375.0	1
812254 Dup	20	29.4770	29.5684	29.5679	0.0005	No	0.0909	4545.0	125.0	4545.0	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?
LCS	515.0	500	**103.0%**	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?
812146-10	0.0512	0.0498	**1.4%**	≤5%	**Yes**
812254	0.0875	0.0909	**1.9%**	≤5%	**Yes**

Duplicate Determination Difference

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

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

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

Jenny T.
Analyst Printed Name

Analyst Signature

Maksim G.
Reviewer Printed Name

Reviewer Signature

Total Dissolved Solids by SM 2540 C

TDS/EC CHECK

Batch: 02TDS14C
Date Analyzed: 2/19/2014

Laboratory Number	EC	TDS/EC Ratio: 0.55-0.90	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
812146-1	1493	0.81	970.45	1.25
812146-2	815	0.69	529.75	1.07
812146-3	1237	0.75	804.05	1.15
812146-4	1025	0.81	666.25	1.25
812146-5	981	0.72	637.65	1.11
812146-6	880	0.68	572	1.04
812146-7	1235	0.79	802.75	1.22
812146-8	1475	0.80	958.75	1.23
812146-9	1237	0.75	804.05	1.15
812146-10	1298	0.79	843.7	1.21
812146-10 Dup	1298	0.77	843.7	1.18
LCS				
812154	8.33	ND	5.4145	ND
812178-1	776	0.66	504.4	1.01
812178-2	803	0.63	521.95	0.97
812178-3	764	0.68	496.6	1.05
812178-4	768	0.67	499.2	1.03
812199	707	0.73	459.55	1.13
812204	444	0.80	288.6	1.23
812213-1	9.98	0.70	6.487	1.08
812213-2	1.28	ND	0.832	ND
812254	6540	0.67	4251	1.03
812254 Dup	6540	0.69	4251	1.07

812254

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CHAIN OF CUSTODY RECORD

[IM3Plant-WDR-454]

Rec'd 02/18/14

COC Number ~~S14d~~ 812254

TURNAROUND TIME 10 Days

DATE 02/18/14 PAGE 1 OF 1

COMPANY: E2

PROJECT NAME: PG&E Topock

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

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

P.O. NUMBER: 428648.IM.CS.EX.AC TEAM: 1

SAMPLERS (SIGNATURE): Chris Lent

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-454	02/18/14	13:00	Water	X	X	X	X		X								3	pH-7 (200.7)
																	3	TOTAL NUMBER OF CONTAINERS

Please Provide a preliminary Result for the TDS ASAP

ALERT !!
Level III QC

For Sample Conditions
See Form Attached

CHAIN OF CUSTODY SIGNATURE RECORD

	Printed Name	Company/ Agency	Date/ Time
Signature (Relinquished)	CHRIS LENT	CH2MHILL	2-18-14 15:10
Signature (Received)	THANH NGO	TRUESDAIL	2-18-14 15:18
Signature (Relinquished)	THANH NGO	TRUESDAIL	2-18-14 19:40
Signature (Received)	Marchal Brady	TLI	2/18/14 1940
Signature (Relinquished)			
Signature (Received)			

SAMPLE CONDITIONS

RECEIVED COOL ☑ WARM ☐ 3.0 °C °F

CUSTODY SEALED YES ☐ NO ☒

SPECIAL REQUIREMENTS:

Hexavalent Chromium

Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
2/5/14	812052-1	7.00	2ml/100ml	9.5	8:00	NE
	-2					
2/6/14	812081-1	9.5	N/A	N/A	N/A	NE
	-2					
	-3					
	-4					
	-5					
2/12/14	812162	7.00	2ml/100ml	9.5	7:30	NE
	812163-1	9.5	N/A	N/A	N/A	NE
	-2					
	-3					
	-4					
	-5					
	-6					
2/19/14	812244	7.0	2ml/100ml	9.5	7:30	NE
	812254					
	812255-1	9.5	N/A	N/A	N/A	NE
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
	-13					
	812256-1					
	-2					

NE
2/21/14

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

TRUESDAIL LABORATORIES, INC.
Metals

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest (Y/N)	Time of Adjustment to pH 2	Date/Time of 2nd pH check	Comments
812191	<1	<2	2/14/14	ES	yes			
812192								
812204								
812205								
812206	>1							
812197								
812221	<1							
812225	>1							
812234 (1-2)	<1	<2	2/19/14	ES	yes			
812238								
812237								
812246 (1-3)	<1	>2			No	11:00	2/24/14 @ 12:00	pH <2
812251 (1,2-4)								
812239	<1	<2			yes			
812255 (1-5, 10-11)	<1	<2	2/20/14	ES	yes			
812256 (1-7, 10-11)								
812257 (1-4)								
812254		>2				11:00		pH <2
812260 (1,2,4)	<1	>2	2/21/14	ES	NO	2:00	2/24/14 @ 12	pH <2
812263		<2			yes			
812264								
812265								
812266								
812267								
812276 (1-2)	>1							
812291 (10-12)	<1	>2 ES	2/21/14		NO	2:00	2/24/14 @ 12	pH <2
812292 (1-2)		>2						
812310					yes			
812319	<1	<2	2/25/14	ES	yes			
812320								
812328 (1-2)								
812321		>2			NO	10:00		
812330 (1-2,4)		>2						
812339	<1	<2	2/26/14	ES	yes			
812340								
812346 (1-2)	<1	>2			NO	10:00		
812350 (1-2)								

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

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: E2 **Lab #** 812254

Date Delivered: 02/18/14 **Time:** 19:40 **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)? 3.0°C
7. Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)? ☑Yes ☐No ☐N/A
8. Were sample custody seals intact? ☐Yes ☐No ☑N/A
9. Does the number of samples received agree with COC? ☑Yes ☐No ☐N/A
10. Did sample labels correspond with the client ID's? ☑Yes ☐No ☐N/A
11. Did sample labels indicate proper preservation? ☐Yes ☐No ☑N/A
    Preserved (if yes) by: ☐**Truesdail** ☐Client
12. Were samples pH checked? pH = SEE C.O.C. ☑Yes ☐No ☐N/A
13. Were all analyses within holding time at time of receipt? ☑Yes ☐No ☐N/A
    If not, notify Project Manager.
14. Have Project due dates been checked and accepted? ☑Yes ☐No ☐N/A
    Turn Around Time (TAT): ☐ **RUSH** ☑ Std
15. **Sample Matrix:** ☐Liquid ☐Drinking Water ☐Ground Water ☐Waste Water ☐Sludge ☐Soil ☐Wipe ☐Paint ☐Solid ☑Other Water
16. Comments: _____
17. Sample Check-In completed by **Truesdail** Log-In/Receiving: 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

March 11, 2014

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

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK IM3PLANT-WDR-455 PROJECT, GROUNDWATER MONITORING, TLI NO.: 812353

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-455 project groundwater monitoring for Hexavalent and Total Chromium, Total Manganese, Turbidity, Specific Conductivity, and Total Dissolved Solids. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, quality control data and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data have been included under Section 5.

The samples were received and delivered with the chain of custody on February 25, 2014, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

The sample collection time was not recorded on the chain of custody. The sample collection time of 14:05 from the sample containers was used in the report with Mr. Duffy's approval.

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

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Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy
Sample: One (1) Groundwater Sample
Project Name: PG&E Topock Project
Project No.: 428648.IM.CS.EX.AC

Laboratory No.: 812351
Date: March 11, 2014
Collected: February 25, 2014
Received: February 25, 2014

ANALYST LIST

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

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

Laboratory No.: 812351
Date Received: February 25, 2014

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

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
812351-001	SC-700B-WDR-455	E120.1	NONE	2/25/2014	14:05	EC	6720	umhos/cm	2.00
812351-001	SC-700B-WDR-455	E200.8	NONE	2/25/2014	14:05	Chromium	ND	ug/L	1.0
812351-001	SC-700B-WDR-455	E200.8	NONE	2/25/2014	14:05	Manganese	2.4	ug/L	0.50
812351-001	SC-700B-WDR-455	E218.6	LABFLT	2/25/2014	14:05	Chromium, Hexavalent	0.38	ug/L	0.20
812351-001	SC-700B-WDR-455	SM2130B	NONE	2/25/2014	14:05	Turbidity	0.134	NTU	0.100
812351-001	SC-700B-WDR-455	SM2540C	NONE	2/25/2014	14:05	Total Dissolved Solids	4490	mg/L	125

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

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REPORT

Client: **E2 Consulting Engineers, Inc.**
155 Grand Avenue, Suite 800
Oakland, CA 94612
Attention: Shawn Duffy
Project Name: PG&E Topock Project
Project Number: 428648.IM.CS.EX.AC
P.O. Number: PGEIM11111001
Release Number:

Laboratory No. 812351

Printed 3/11/2014

Samples Received on 2/25/2014 6:50:00 PM

Field ID	Lab ID	Collected	Matrix
SC-700B-WDR-455	812351-001	02/25/2014 14:05	Water

Specific Conductivity - EPA 120.1 Batch 03EC14D

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812351-001 Specific Conductivity	umhos/cm	03/07/2014	1.00	0.606	2.00	6720

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate — Lab ID = 812485-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	6840	6810	0.440	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	645	706	91.4	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	648	706	91.8	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	910	1000	91.0	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	910	1000	91.0	90 - 110

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Client: E2 Consulting Engineers, Inc.

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

Printed 3/11/2014

Chrome VI by EPA 218.6

Batch 02CrH14H

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812351-001 Chromium, Hexavalent	ug/L	02/26/2014 12:14	1.00	0.00600	0.20	0.38

Method Blank

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

Duplicate — Lab ID = 812352-004

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

Low Level Calibration Verification

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

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.90	5.00	98.0	90 - 110

Matrix Spike — Lab ID = 812351-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.45	1.38(1.00)	106	90 - 110

Matrix Spike — Lab ID = 812352-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.41	1.32(1.00)	109	90 - 110

Matrix Spike — Lab ID = 812352-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	10.0	265	271(150)	96.1	90 - 110

Matrix Spike — Lab ID = 812352-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	96.5	98.5(50.0)	95.9	90 - 110

Matrix Spike — Lab ID = 812352-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.999	1.00(1.00)	99.9	90 - 110

Matrix Spike — Lab ID = 812352-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.990	1.00(1.00)	99.0	90 - 110

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Client: E2 Consulting Engineers, Inc.

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

Printed 3/11/2014

Metals by EPA 200.8, Total

Batch 022714A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812351-001 Chromium	ug/L	02/27/2014 16:49	2.00	0.142	1.0	ND
Manganese	ug/L	02/27/2014 16:49	2.00	0.120	0.50	2.4

Method Blank

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

Duplicate — Lab ID = 812351-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	2.00	ND	0	0	0 - 20
Manganese	ug/L	2.00	2.31	2.41	4.15	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.556	0.500	111	70 - 130
Manganese	ug/L	1.00	0.236	0.200	118	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	46.8	50.0	93.7	85 - 115
Manganese	ug/L	1.00	46.8	50.0	93.5	85 - 115

Matrix Spike — Lab ID = 812351-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	47.6	50.0(50.0)	95.2	75 - 125
Manganese	ug/L	2.00	49.7	52.4(50.0)	94.6	75 - 125

Matrix Spike Duplicate — Lab ID = 812351-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	46.4	50.0(50.0)	92.9	75 - 125
Manganese	ug/L	2.00	48.7	52.4(50.0)	92.5	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.6	20.0	98.0	90 - 110
Manganese	ug/L	1.00	19.3	20.0	96.7	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.5	20.0	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: 428648.IM.CS.EX.AC

Interference Check Standard AB

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

Total Dissolved Solids by SM 2540 C

Batch 02TDS14E

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812351-001 Total Dissolved Solids	mg/L	02/28/2014	1.00	1.76	125	4490

Method Blank

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

Duplicate

Lab ID = 812351-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	4530	4490	0.887	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 02TUC14N

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812351-001 Turbidity	NTU	02/27/2014	1.00	0.0140	0.100	0.134

Method Blank

Parameter	Unit	DF	Result
Turbidity	NTU	1.00	ND

Duplicate

Lab ID = 812358-004

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Turbidity	NTU	1.00	0.132	0.110	18.2	0 - 20

Lab Control Sample

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

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	8.64	8.00	108	90 - 110

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Client: E2 Consulting Engineers, Inc.

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

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: 02TDS14E
Date Analyzed: 2/28/2014

Laboratory Number	Sample volume, mL	Initial weight, g	1st Final weight, g	2nd Final weight, g	Weight Difference, g	Exceeds 0.5mg? Yes/No	Residue weight, g	Filterable residue, ppm	RL, ppm	Reported Value, ppm	DF
Blank	100	78.2903	78.2910	78.2908	0.0002	No	0.0005	5.0	25.0	ND	1
812330-2	100	76.0266	76.0382	76.0382	0.0000	No	0.0116	116.0	25.0	116.0	1
812330-4	100	77.1143	77.1501	77.1497	0.0004	No	0.0354	354.0	25.0	354.0	1
812351	20	29.3260	29.4158	29.4158	0.0000	No	0.0898	4490.0	125.0	4490.0	1
812358-1	100	74.1422	74.1955	74.1952	0.0003	No	0.0530	530.0	25.0	530.0	1
812358-2	100	74.7012	74.7534	74.7534	0.0000	No	0.0522	522.0	25.0	522.0	1
812358-3	100	78.3610	78.4139	78.4138	0.0001	No	0.0528	528.0	25.0	528.0	1
812358-4	100	72.4034	72.4555	72.4555	0.0000	No	0.0521	521.0	25.0	521.0	1
812375-1	100	80.5705	80.6154	80.6153	0.0001	No	0.0448	448.0	25.0	448.0	1
812375-2	100	74.8848	74.9313	74.9312	0.0001	No	0.0464	464.0	25.0	464.0	1
812361	485	167.3415	167.3424	167.3424	0.0000	No	0.0009	1.9	5.2	ND	1
812351 Dup	20	30.5219	30.6125	30.6125	0.0000	No	0.0906	4530.0	125.0	4530.0	1
LCS	100	72.0817	72.1315	72.1315	0.0000	No	0.0498	498.0	25.0	498.0	1
812377	200	121.4782	121.5011	121.5010	0.0001	No	0.0228	114.0	12.5	114.0	1
812378	100	122.3272	122.3400	122.3397	0.0003	No	0.0125	125.0	25.0	125.0	1
812406-1	100	67.9641	68.0120	68.0120	0.0000	No	0.0479	479.0	25.0	479.0	1
812406-2	200	110.9421	110.9525	110.9525	0.0000	No	0.0104	51.8	12.5	51.8	1
812406-1 Dup	100	68.7304	68.7755	68.7754	0.0001	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?
LCS	498.0	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?
812351	0.0898	0.0906	**0.4%**	≤5%	**Yes**
812406-1	0.0479	0.0450	**3.1%**	≤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

WetChem 02TDS14E

Total Dissolved Solids by SM 2540 C

TDS/EC CHECK

Batch: 02TDS14E
Date Analyzed: 2/28/2014

Laboratory Number	EC	TDS/EC Ratio: 0.55-0.90	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
812330-2	200	0.58	130	0.89
812330-4	579	0.61	376.35	0.94
812351	6720	0.67	4368	1.03
812358-1	820	0.65	533	0.99
812358-2	813	0.64	528.45	0.99
812358-3	817	0.65	531.05	0.99
812358-4	819	0.64	532.35	0.98
812375-1	744	0.60	483.6	0.93
812375-2	687	0.68	446.55	1.04
812361	7.47	ND	4.8555	ND
812351 Dup	6720	0.67	4368	1.04
LCS				
812377	73.1	1.56	47.515	2.40
812378	133.4	0.94	86.71	1.44
812406-1	618	0.78	401.7	1.19
812406-2	67.8	0.76	44.07	1.18
812406-1 Dup	618	0.73	401.7	1.12

* } Caramel.

812351

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-455]

COC Number

TURNAROUND TIME 10 Days

DATE 02/25/14 PAGE 1 OF 1

COMPANY: E2

PROJECT NAME: PG&E Topock

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

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

P.O. NUMBER: 428648.IM.CS.EX.AC TEAM: 1

SAMPLERS (SIGNATURE):

Rec'd 02/25/14 S136 812351

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-455	02/25/14		Water	x	x	x	x		x								3	pH=7 (200.7)
																	3	TOTAL NUMBER OF CONTAINERS

Please Provide a preliminary Result for the TDS ASAP

ALERT !!
Level III QC

For Sample Conditions
See Form Attached

CHAIN OF CUSTODY SIGNATURE RECORD

	Printed Name	Company/ Agency	Date/ Time
Signature (Relinquished)	Ryan Phelps	CH2MHill	2-25-14 14:10
Signature (Received)	THANH NGO	TRUESDAIL	2-25-14 14:10
Signature (Relinquished)	THANH NGO		2-25-14 1850
Signature (Received)	Marcheal Brad	TLI	1850
Signature (Relinquished)			
Signature (Received)			

SAMPLE CONDITIONS

RECEIVED COOL ☒ WARM ☐ 4.5 °C

CUSTODY SEALED YES ☐ NO ☒

SPECIAL REQUIREMENTS:

041

Subject: RE: IM3Plant-WDR COC
From: <Shawn.Duffy@CH2M.com>
Date: Wed, 26 Feb 2014 17:44:20 +0000
To: <seanc@truesdail.com>

Please use the time on the sample containers.

Shawn

-----Original Message-----
From: Sean Condon [mailto:seanc@truesdail.com]
Sent: Wednesday, February 26, 2014 9:46 AM
To: Duffy, Shawn/RDD
Subject: IM3Plant-WDR COC

Hi Shawn,

There is no sample time on the weekly WDR COC (see attached) but the bottles say 14:05.

--
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
2/19/14	812256-3	9.5	N/A	N/A	N/A	NE
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	812257-1					
	-2					
	-3					
	-4					
	-5					
	-6					
2/20/14	812283-1	7.00	2ml/100ml	9.5	7:30	NE
	-2					
2/21/14	812302	7.00	1ml/50ml	9.5	7:15	NE
2/25/14	812326-1					
	-2					
2/26/14	812347-1	8.00	5 pieces of 25% NaOH / 100 ml	9.5	7:30	NE
	-2	9.00	3 pieces of 25% NaOH / 100 ml			
	812351	7.00	2ml/100ml	9.5	7:30	~~NE~~ Felipe
	812352-1	9.5	N/A	N/A	N/A	NE
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					

M

TRUESDAIL LABORATORIES, INC.
Metals

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest (Y/N)	Time of Adjustment to pH 2	Date/Time of 2nd pH check	Comments
812191	<1	<2	2/14/14	ES	yes			
812192	↓	↓	↓	↓	↓			
812204	↓	↓	↓	↓	↓			
812205	↓	↓	↓	↓	↓			
812206	>1	↓	↓	↓	↓			
812197	↓	↓	↓	↓	↓			
812221	<1	↓	↓	↓	↓			
812225	>1	↓	↓	↓	↓			
812234 (1-2)	<1	<2	2/19/14	ES	yes			
812238	↓	↓	↓	↓	↓			
812237	↓	↓	↓	↓	↓			
812246 (1-3)	<1	>2	↓	↓	No	11:00	2/24/14 @ 12:00	pH <2
812251 (1,3-4)	↓	↓	↓	↓	↓	↓	↓	↓
812239	<1	<2	↓	↓	yes			
812255 (1-5,10-13)	<1	<2	2/20/14	ES	yes			
812256 (1-7,10-11)	↓	↓	↓	↓	↓			
812257 (1-4)	↓	↓	↓	↓	↓			
812254	↓	>2	↓	↓	↓	11:00		pH <2
812260 (1-2,4)	<1	>2	2/21/14	ES	NO	2:00	2/24/14 @ 12	pH <2
812263	↓	<2	↓	↓	yes			
812264	↓	↓	↓	↓	↓			
812265	↓	↓	↓	↓	↓			
812266	↓	↓	↓	↓	↓			
812267	↓	↓	↓	↓	↓			
812276 (1-2)	>1	↓	↓	↓	↓			
812291 (10-12)	<1	>2 ES 2/21/14	↓	↓	NO	2:00	2/24/14 @ 12	pH <2
812292 (1-2)	↓	>2	↓	↓	↓	↓	↓	↓
812310	↓	↓	↓	↓	yes			
812319	<1	<2	2/25/14	ES	yes			
812320	↓	↓	↓	↓	↓			
812328 (1-2)	↓	↓	↓	↓	↓			
812321	↓	>2	↓	↓	NO	10:00	2/26/14 @ 12	pH <2
812330 (1-2,4)	↓	>2	↓	↓	↓	↓	↓	↓
812339	<1	<2	2/26/14	ES	yes			
812340	↓	↓	↓	↓	↓			
812346 (1-2)	<1	>2	↓	↓	NO	10:00		
812356 (1-2)	↓	↓	↓	↓	↓	↓		
812351	<1	>2	2/27/14	ES	yes	11:00		pH <2
812352 (1-3,6-13)	↓	<2	↓	↓	↓			
812353 (1,5-12,15)	↓	↓	↓	↓	↓			
812366	<1	>2	2/27/14	ES	NO	5:00		
812365 (10-12)	↓	↓	↓	↓	↓	↓		
812368 (1-3)	↓	↓	↓	↓	↓			
812369	>1	<2	↓	↓	yes			

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

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: E2 **Lab #** 812351

Date Delivered: 2 / 25 / 14 **Time:** 18:50 **By:** ☐ Mail ☒ Field Service ☐ Client

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

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
SC-700B	2-4-14	13:00	2-4-14	13:10	METER #2	2-4-14	04:23	-55.4	CHRIS LENTZ	6.8

Notes:

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

An ytical 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	2-4-14	13:00	2-4-14	13:10	METER #2	2-4-14	04:23	-55.4	CHRIS LENTZ	7.1
Notes:											
2	SC-700B	2-11-14	14:20	2-11-14	14:25	METER 2	2-11-14	04:26	-55.6	CHRIS LENTZ	7.0
Notes:											
3	SC-700B	2-18-14	13:00	2-18-14	1305	METER #1	2-18-14	04:25	-55.4	CHRIS LENTZ	7.1
Notes:											
4	SC-700B	2-25-14	1406	2-25-14	1415	METER #1	2-25-14	4:15	-55.2	Ryan Phelps	6.8
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

March 25, 2014

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

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK IM3PLANT-WDR-456 PROJECT, GROUNDWATER MONITORING,

TLI NO.: 812485

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-456 project groundwater monitoring. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, quality control data and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data have been included under Section 5.

The samples were received and delivered with the chain of custody on March 4, 2014, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

Mr. Duffy provided a revised chain of custody with the sample collection times added.

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

The straight runs for the sample and associated matrix spike on sample SC-700B-WDR-456 for Hexavalent Chromium analysis by EPA 218.6 were just outside the retention time window. Because the matrix spike recovery and all other QA/QC were within acceptable limits, the data from the straight run was reported.

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

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

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.
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www.truesdail.com

Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy
Sample: Two (2) Groundwaters
Project Name: PG&E Topock Project
Project No.: 428648.IM.CS.EX.AC

Laboratory No.: **812485**
Date: March 25, 2014
Collected: March 4, 2014
Received: March 4, 2014

ANALYST LIST

METHOD	PARAMETER	ANALYST
EPA 120.1	Specific Conductivity	Jenny Tankunakorn
SM 2540C	Total Dissolved Solids	Jenny Tankunakorn
SM 2320B	Total Alkalinity	Himani Vaishnav / Felipe Mendoza
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	Felipe Mendoza
EPA 300.0	Anions	Giawad Ghenniwa
SM 4500-NH3 D	Ammonia	Felipe Mendoza
SM 4500-NO2 B	Nitrite as N	Jenny Tankunakorn
EPA 200.7	Metals by ICP	Maria Mangarova
EPA 200.8	Metals by ICP/MS	Ethel Suico
EPA 218.6	Hexavalent Chromium	Naheed Eidinejad

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

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

Attention: Shawn Duffy

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

Laboratory No.: 812485
Date Received: March 4, 2014

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
812485-001	SC-700B-WDR-456	E120.1	NONE	3/4/2014	15:00	EC	6800	umhos/cm	2.00
812485-001	SC-700B-WDR-456	E200.7	NONE	3/4/2014	15:00	Aluminum	ND	ug/L	20.0
812485-001	SC-700B-WDR-456	E200.7	NONE	3/4/2014	15:00	BORON	828	ug/L	50.0
812485-001	SC-700B-WDR-456	E200.7	NONE	3/4/2014	15:00	Iron	ND	ug/L	20.0
812485-001	SC-700B-WDR-456	E200.7	NONE	3/4/2014	15:00	Zinc	ND	ug/L	20.0
812485-001	SC-700B-WDR-456	E200.8	NONE	3/4/2014	15:00	Antimony	ND	ug/L	2.0
812485-001	SC-700B-WDR-456	E200.8	NONE	3/4/2014	15:00	Arsenic	ND	ug/L	0.50
812485-001	SC-700B-WDR-456	E200.8	NONE	3/4/2014	15:00	Barium	9.5	ug/L	5.0
812485-001	SC-700B-WDR-456	E200.8	NONE	3/4/2014	15:00	Chromium	ND	ug/L	1.0
812485-001	SC-700B-WDR-456	E200.8	NONE	3/4/2014	15:00	Copper	ND	ug/L	5.0
812485-001	SC-700B-WDR-456	E200.8	NONE	3/4/2014	15:00	Lead	ND	ug/L	1.0
812485-001	SC-700B-WDR-456	E200.8	NONE	3/4/2014	15:00	Manganese	2.2	ug/L	0.50
812485-001	SC-700B-WDR-456	E200.8	NONE	3/4/2014	15:00	Molybdenum	18.3	ug/L	2.0
812485-001	SC-700B-WDR-456	E200.8	NONE	3/4/2014	15:00	Nickel	3.0	ug/L	2.0
812485-001	SC-700B-WDR-456	E218.6	LABFLT	3/4/2014	15:00	Chromium, Hexavalent	0.22	ug/L	0.20
812485-001	SC-700B-WDR-456	E300	NONE	3/4/2014	15:00	Fluoride	1.97	mg/L	0.500
812485-001	SC-700B-WDR-456	E300	NONE	3/4/2014	15:00	Nitrate as N	3.04	mg/L	0.500
812485-001	SC-700B-WDR-456	E300	NONE	3/4/2014	15:00	Sulfate	516	mg/L	25.0
812485-001	SC-700B-WDR-456	SM2130B	NONE	3/4/2014	15:00	Turbidity	0.108	NTU	0.100
812485-001	SC-700B-WDR-456	SM2540C	NONE	3/4/2014	15:00	Total Dissolved Solids	4540	mg/L	125
812485-001	SC-700B-WDR-456	SM4500NH3D	NONE	3/4/2014	15:00	Ammonia-N	ND	mg/L	0.500
812485-001	SC-700B-WDR-456	SM4500NO2B	NONE	3/4/2014	15:00	Nitrite as N	ND	mg/L	0.0050

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Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
812485-002	SC-100B-WDR-456	E120.1	NONE	3/4/2014	15:00	EC	6810	umhos/cm	2.00
812485-002	SC-100B-WDR-456	E200.7	NONE	3/4/2014	15:00	Aluminum	ND	ug/L	20.0
812485-002	SC-100B-WDR-456	E200.7	NONE	3/4/2014	15:00	BORON	836	ug/L	50.0
812485-002	SC-100B-WDR-456	E200.7	LABFLT	3/4/2014	15:00	Iron	ND	ug/L	20.0
812485-002	SC-100B-WDR-456	E200.7	NONE	3/4/2014	15:00	Iron	ND	ug/L	20.0
812485-002	SC-100B-WDR-456	E200.7	NONE	3/4/2014	15:00	Zinc	ND	ug/L	20.0
812485-002	SC-100B-WDR-456	E200.8	NONE	3/4/2014	15:00	Antimony	ND	ug/L	2.0
812485-002	SC-100B-WDR-456	E200.8	NONE	3/4/2014	15:00	Arsenic	3.2	ug/L	0.50
812485-002	SC-100B-WDR-456	E200.8	NONE	3/4/2014	15:00	Barium	23.1	ug/L	5.0
812485-002	SC-100B-WDR-456	E200.8	NONE	3/4/2014	15:00	Chromium	636	ug/L	2.0
812485-002	SC-100B-WDR-456	E200.8	NONE	3/4/2014	15:00	Copper	ND	ug/L	5.0
812485-002	SC-100B-WDR-456	E200.8	NONE	3/4/2014	15:00	Lead	ND	ug/L	1.0
812485-002	SC-100B-WDR-456	E200.8	LABFLT	3/4/2014	15:00	Manganese	5.2	ug/L	0.50
812485-002	SC-100B-WDR-456	E200.8	NONE	3/4/2014	15:00	Manganese	5.6	ug/L	0.50
812485-002	SC-100B-WDR-456	E200.8	NONE	3/4/2014	15:00	Molybdenum	17.3	ug/L	2.0
812485-002	SC-100B-WDR-456	E200.8	NONE	3/4/2014	15:00	Nickel	ND	ug/L	2.0
812485-002	SC-100B-WDR-456	E218.6	LABFLT	3/4/2014	15:00	Chromium, Hexavalent	621	ug/L	10.0
812485-002	SC-100B-WDR-456	E300	NONE	3/4/2014	15:00	Fluoride	2.30	mg/L	0.500
812485-002	SC-100B-WDR-456	E300	NONE	3/4/2014	15:00	Nitrate as N	2.97	mg/L	0.500
812485-002	SC-100B-WDR-456	E300	NONE	3/4/2014	15:00	Sulfate	526	mg/L	25.0
812485-002	SC-100B-WDR-456	SM2130B	NONE	3/4/2014	15:00	Turbidity	0.102	NTU	0.100
812485-002	SC-100B-WDR-456	SM2320B	NONE	3/4/2014	15:00	Alkalinity	157	mg/L	5.00
812485-002	SC-100B-WDR-456	SM2320B	NONE	3/4/2014	15:00	Alkalinity, Bicarbonate (As CaCO3)	157	mg/L	5.00
812485-002	SC-100B-WDR-456	SM2320B	NONE	3/4/2014	15:00	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
812485-002	SC-100B-WDR-456	SM2540C	NONE	3/4/2014	15:00	Total Dissolved Solids	4620	mg/L	125
812485-002	SC-100B-WDR-456	SM4500NH3D	NONE	3/4/2014	15:00	Ammonia-N	ND	mg/L	0.500
812485-002	SC-100B-WDR-456	SM4500NO2B	NONE	3/4/2014	15:00	Nitrite as N	ND	mg/L	0.0050
812485-002	SC-100B-WDR-456	SM4500-PB_E	NONE	3/4/2014	15:00	Total Phosphorous-P	ND	mg/L	0.0200
812485-002	SC-100B-WDR-456	SM4500SI	LABFLT	3/4/2014	15:00	Soluble Silica	20.5	mg/L	1.00
812485-002	SC-100B-WDR-456	SM5310C	NONE	3/4/2014	15:00	Total Organic Carbon	0.921	mg/L	0.300

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

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

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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: 428648.IM.CS.EX.AC
P.O. Number: PGEIM11111001
Release Number:

Laboratory No. 812485

Printed 3/25/2014

Samples Received on 3/4/2014 7:10:00 PM

Field ID	Lab ID	Collected	Matrix
SC-700B-WDR-456	812485-001	03/04/2014 15:00	Water
SC-100B-WDR-456	812485-002	03/04/2014 15:00	Water

Anions By I.C. - EPA 300.0 Batch 03AN14B

Parameter		Unit	Analyzed	DF	MDL	RL	Result
812485-001	Fluoride	mg/L	03/05/2014 12:46	5.00	0.104	0.500	1.97
	Nitrate as Nitrogen	mg/L	03/05/2014 12:46	5.00	0.0415	0.500	3.04
	Sulfate	mg/L	03/05/2014 15:49	50.0	1.54	25.0	516
812485-002	Fluoride	mg/L	03/05/2014 12:57	5.00	0.104	0.500	2.30
	Nitrate as Nitrogen	mg/L	03/05/2014 12:57	5.00	0.0415	0.500	2.97
	Sulfate	mg/L	03/05/2014 16:00	50.0	1.54	25.0	526

Method Blank

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

Duplicate Lab ID = 812485-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Fluoride	mg/L	5.00	2.30	2.30	0.130	0 - 20
Nitrate as Nitrogen	mg/L	5.00	2.95	2.97	0.540	0 - 20

Duplicate Lab ID = 812495-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chloride	mg/L	25.0	78.3	79.7	1.80	0 - 20
Sulfate	mg/L	25.0	190	194	1.77	0 - 20

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Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chloride	mg/L	1.00	3.99	4.00	99.8	90 - 110
Fluoride	mg/L	1.00	4.16	4.00	104	90 - 110
Sulfate	mg/L	1.00	19.7	20.0	98.7	90 - 110
Nitrate as Nitrogen	mg/L	1.00	3.96	4.00	99.0	90 - 110

Matrix Spike Lab ID = 812485-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Fluoride	mg/L	5.00	22.4	22.3(20.0)	101	85 - 115
Nitrate as Nitrogen	mg/L	5.00	22.5	23.0(20.0)	97.7	85 - 115

Matrix Spike Lab ID = 812495-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chloride	mg/L	25.0	177	180(100)	97.6	85 - 115
Sulfate	mg/L	25.0	422	444(250)	91.2	85 - 115

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chloride	mg/L	1.00	4.00	4.00	100.	90 - 110
Fluoride	mg/L	1.00	4.18	4.00	104	90 - 110
Sulfate	mg/L	1.00	20.1	20.0	100	90 - 110
Nitrate as Nitrogen	mg/L	1.00	4.02	4.00	100	90 - 110

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chloride	mg/L	1.00	3.00	3.00	100	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chloride	mg/L	1.00	2.98	3.00	99.2	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chloride	mg/L	1.00	2.86	3.00	95.3	90 - 110

MRCVS - Primary

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

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Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project
Project Number: 428648.IM.CS.EX.AC Printed 3/25/2014

Nitrite SM 4500-NO2 B

Batch 03NO214A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812485-001 Nitrite as Nitrogen	mg/L	03/05/2014 16:57	1.00	0.000630	0.0050	ND
812485-002 Nitrite as Nitrogen	mg/L	03/05/2014 17:02	1.00	0.000630	0.0050	ND

Method Blank

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

Duplicate — Lab ID = 812485-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Nitrite as Nitrogen	mg/L	1.00	ND	0	0	90 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrite as Nitrogen	mg/L	1.00	0.0207	0.0230	90.0	90 - 110

Matrix Spike — Lab ID = 812485-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Nitrite as Nitrogen	mg/L	1.00	0.0236	0.0230(0.0230)	103	85 - 115

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrite as Nitrogen	mg/L	1.00	0.0207	0.0230	90.0	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrite as Nitrogen	mg/L	1.00	0.0187	0.0200	93.5	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrite as Nitrogen	mg/L	1.00	0.0187	0.0200	93.5	90 - 110

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Alkalinity by SM 2320B

Batch 03ALK14A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812485-002 Alkalinity as CaCO3	mg/L	03/07/2014	1.00	1.68	5.00	157
Bicarbonate (Calculated)	mg/L	03/07/2014	1.00	1.68	5.00	157
Carbonate (Calculated)	mg/L	03/07/2014	1.00	1.68	5.00	ND

Method Blank

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

Duplicate — Lab ID = 812484-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Alkalinity as CaCO3	mg/L	1.00	149	150	0.669	0 - 20

Lab Control Sample

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

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Alkalinity as CaCO3	mg/L	1.00	103	100	103	90 - 110

Matrix Spike — Lab ID = 812484-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Alkalinity as CaCO3	mg/L	1.00	239	250(100)	89.0	75 - 125

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Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project Page 6 of 35
Project Number: 428648.IM.CS.EX.AC Printed 3/25/2014

Specific Conductivity - EPA 120.1

Batch 03EC14D

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812485-001 Specific Conductivity	umhos/cm	03/07/2014	1.00	0.606	2.00	6800
812485-002 Specific Conductivity	umhos/cm	03/07/2014	1.00	0.606	2.00	6810

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate — Lab ID = 812485-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	6840	6810	0.440	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	645	706	91.4	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	648	706	91.8	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	910	1000	91.0	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	910	1000	91.0	90 - 110

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Chrome VI by EPA 218.6

Batch 03CrH14 A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812485-001 Chromium, Hexavalent	ug/L	03/05/2014 10:46	1.00	0.00600	0.20	0.22
812485-002 Chromium, Hexavalent	ug/L	03/05/2014 10:57	50.0	0.300	10.0	621

Method Blank

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

Duplicate — Lab ID = 812484-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.73	4.82	1.89	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.211	0.200	106	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.98	5.00	99.6	90 - 110

Matrix Spike — Lab ID = 812484-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.56	9.82(5.00)	94.8	90 - 110

Matrix Spike — Lab ID = 812485-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.27	1.22(1.00)	105	90 - 110

Matrix Spike — Lab ID = 812485-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.27	5.25(5.00)	100	90 - 110

Matrix Spike — Lab ID = 812485-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	1380	1370(750)	100	90 - 110

Matrix Spike — Lab ID = 812486-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	7.50	7.33(5.00)	103	90 - 110

Matrix Spike — Lab ID = 812486-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	7.27	7.35(5.00)	98.4	90 - 110

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Metals by EPA 200.7, Total

Batch 031714A-Th1

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812485-001 Boron	ug/L	03/17/2014 16:02	1.00	4.10	50.0	828
Iron	ug/L	03/17/2014 16:02	1.00	3.00	20.0	ND
Zinc	ug/L	03/17/2014 16:02	1.00	5.10	20.0	ND
812485-002 Boron	ug/L	03/17/2014 15:38	1.00	4.10	50.0	836
Iron	ug/L	03/17/2014 15:38	1.00	3.00	20.0	ND
Zinc	ug/L	03/17/2014 15:38	1.00	5.10	20.0	ND

Method Blank

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

Duplicate

Lab ID = 812485-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Iron	ug/L	1.00	ND	0	0	0 - 20
Zinc	ug/L	1.00	ND	0	0	0 - 20
Boron	ug/L	1.00	863	836	3.21	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2030	2000	102	85 - 115
Zinc	ug/L	1.00	1850	2000	92.6	85 - 115
Boron	ug/L	1.00	1920	2000	95.8	85 - 115

Matrix Spike

Lab ID = 812485-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	1710	2000(2000)	85.6	75 - 125
Zinc	ug/L	1.00	1980	2000(2000)	99.2	75 - 125
Boron	ug/L	1.00	2510	2840(2000)	83.9	75 - 125

Matrix Spike Duplicate

Lab ID = 812485-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	1730	2000(2000)	86.6	75 - 125
Zinc	ug/L	1.00	2090	2000(2000)	105	75 - 125
Boron	ug/L	1.00	2600	2840(2000)	88.0	75 - 125

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Metals by EPA 200.7, Total Batch 031814A-Th2

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812485-001 Aluminum	ug/L	03/18/2014 18:12	1.00	7.20	20.0	ND
812485-002 Aluminum	ug/L	03/18/2014 17:45	1.00	7.20	20.0	ND

Method Blank

Parameter	Unit	DF	Result
Aluminum	ug/L	1.00	ND

Duplicate — Lab ID = 812485-002

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

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Aluminum	ug/L	1.00	1930	2000	96.6	85 - 115

Matrix Spike — Lab ID = 812485-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Aluminum	ug/L	1.00	1580	2000(2000)	78.8	75 - 125

Matrix Spike Duplicate — Lab ID = 812485-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Aluminum	ug/L	1.00	1620	2000(2000)	81.0	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Aluminum	ug/L	1.00	5080	5000	102	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Aluminum	ug/L	1.00	4890	5000	97.8	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Aluminum	ug/L	1.00	5190	5000	104	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Aluminum	ug/L	1.00	4940	5000	98.8	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Aluminum	ug/L	1.00	4970	5000	99.4	90 - 110

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Metals by EPA 200.8, Total Batch 031114B

Parameter		Unit	Analyzed	DF	MDL	RL	Result
812485-001	Antimony	ug/L	03/11/2014 18:44	2.00	0.0696	2.0	ND
	Arsenic	ug/L	03/11/2014 18:44	2.00	0.100	0.50	ND
	Barium	ug/L	03/11/2014 18:44	2.00	0.594	5.0	9.5
	Chromium	ug/L	03/11/2014 18:44	2.00	0.142	1.0	ND
	Lead	ug/L	03/11/2014 18:44	2.00	0.286	1.0	ND
	Manganese	ug/L	03/11/2014 18:44	2.00	0.120	0.50	2.2
	Molybdenum	ug/L	03/11/2014 18:44	2.00	0.100	2.0	18.3
812485-002	Antimony	ug/L	03/11/2014 19:39	2.00	0.0696	2.0	ND
	Arsenic	ug/L	03/11/2014 19:39	2.00	0.100	0.50	3.2
	Barium	ug/L	03/11/2014 19:39	2.00	0.594	5.0	23.1
	Chromium	ug/L	03/11/2014 19:45	10.0	0.710	2.0	636
	Lead	ug/L	03/11/2014 19:39	2.00	0.286	1.0	ND
	Manganese	ug/L	03/11/2014 19:39	2.00	0.120	0.50	5.6
	Molybdenum	ug/L	03/11/2014 19:39	2.00	0.100	2.0	17.3

Method Blank

Parameter	Unit	DF	Result
Arsenic	ug/L	1.00	ND
Barium	ug/L	1.00	ND
Chromium	ug/L	1.00	ND
Antimony	ug/L	1.00	ND
Lead	ug/L	1.00	ND
Manganese	ug/L	1.00	ND
Molybdenum	ug/L	1.00	ND

Duplicate Lab ID = 812485-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Arsenic	ug/L	2.00	ND	0	0	0 - 20
Barium	ug/L	2.00	9.92	9.47	4.62	0 - 20
Chromium	ug/L	2.00	ND	0	0	0 - 20
Antimony	ug/L	2.00	ND	0	0	0 - 20
Lead	ug/L	2.00	ND	0	0	0 - 20
Manganese	ug/L	2.00	2.45	2.15	13.2	0 - 20
Molybdenum	ug/L	2.00	19.3	18.3	5.36	0 - 20

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Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	0.193	0.200	96.4	70 - 130
Barium	ug/L	1.00	0.948	1.00	94.8	70 - 130
Chromium	ug/L	1.00	0.192	0.200	96.2	70 - 130
Antimony	ug/L	1.00	0.198	0.200	98.9	70 - 130
Lead	ug/L	1.00	0.444	0.500	88.8	70 - 130
Manganese	ug/L	1.00	0.212	0.200	106	70 - 130
Molybdenum	ug/L	1.00	0.204	0.200	102	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	49.8	50.0	99.7	85 - 115
Barium	ug/L	1.00	47.1	50.0	94.2	85 - 115
Chromium	ug/L	1.00	49.7	50.0	99.3	85 - 115
Antimony	ug/L	1.00	47.5	50.0	94.9	85 - 115
Lead	ug/L	1.00	46.2	50.0	92.5	85 - 115
Manganese	ug/L	1.00	49.1	50.0	98.2	85 - 115
Molybdenum	ug/L	1.00	47.6	50.0	95.3	85 - 115

Matrix Spike Lab ID = 812485-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	2.00	47.0	50.0(50.0)	94.1	75 - 125
Barium	ug/L	2.00	53.2	59.5(50.0)	87.5	75 - 125
Chromium	ug/L	2.00	46.1	50.0(50.0)	92.2	75 - 125
Antimony	ug/L	2.00	45.0	50.0(50.0)	89.9	75 - 125
Lead	ug/L	2.00	39.4	50.0(50.0)	78.7	75 - 125
Manganese	ug/L	2.00	47.9	52.2(50.0)	91.6	75 - 125
Molybdenum	ug/L	2.00	64.6	68.3(50.0)	92.7	75 - 125

Matrix Spike Duplicate Lab ID = 812485-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	2.00	47.4	50.0(50.0)	94.8	75 - 125
Barium	ug/L	2.00	53.6	59.5(50.0)	88.2	75 - 125
Chromium	ug/L	2.00	45.9	50.0(50.0)	91.7	75 - 125
Antimony	ug/L	2.00	45.3	50.0(50.0)	90.6	75 - 125
Lead	ug/L	2.00	39.8	50.0(50.0)	79.6	75 - 125
Manganese	ug/L	2.00	47.6	52.2(50.0)	90.9	75 - 125
Molybdenum	ug/L	2.00	64.9	68.3(50.0)	93.2	75 - 125

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Interference Check Standard AB

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

Serial Dilution Lab ID = 812485-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	50.0	633	636	0.494	0 - 10

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Metals by EPA 200.8, Total

Batch 031214A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812485-001 Copper	ug/L	03/12/2014 16:54	2.00	0.380	5.0	ND
Nickel	ug/L	03/12/2014 16:54	2.00	0.480	2.0	3.0
812485-002 Copper	ug/L	03/12/2014 17:43	2.00	0.380	5.0	ND
Nickel	ug/L	03/12/2014 17:43	2.00	0.480	2.0	ND

Method Blank

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

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nickel	ug/L	1.00	0.493	0.500	98.6	70 - 130
Copper	ug/L	1.00	0.504	0.500	101	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nickel	ug/L	1.00	51.5	50.0	103	85 - 115
Copper	ug/L	1.00	54.2	50.0	108	85 - 115

Matrix Spike

Lab ID = 812485-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Nickel	ug/L	2.00	48.0	53.0(50.0)	89.9	75 - 125
Copper	ug/L	2.00	47.6	50.0(50.0)	95.2	75 - 125

Matrix Spike Duplicate

Lab ID = 812485-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Nickel	ug/L	2.00	46.5	53.0(50.0)	86.9	75 - 125
Copper	ug/L	2.00	49.1	50.0(50.0)	98.2	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nickel	ug/L	1.00	19.3	20.0	96.3	90 - 110
Copper	ug/L	1.00	19.5	20.0	97.5	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nickel	ug/L	1.00	19.8	20.0	98.9	90 - 110

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Reactive Silica by SM4500-Si D Batch 03Si14A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812485-002 Silica	mg/L	03/13/2014	25.0	0.252	1.00	20.5

Method Blank

Parameter	Unit	DF	Result
Silica	mg/L	1.00	ND

Duplicate — Lab ID = 812485-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Silica	mg/L	25.0	20.9	20.5	1.99	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Silica	mg/L	1.00	0.188	0.206	91.4	90 - 110

Matrix Spike — Lab ID = 812485-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Silica	mg/L	25.0	24.8	25.6(5.15)	84.0	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Silica	mg/L	1.00	0.188	0.206	91.4	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Silica	mg/L	1.00	0.404	0.400	101	90 - 110

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Total Dissolved Solids by SM 2540 C Batch 03TDS14A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812485-001 Total Dissolved Solids	mg/L	03/07/2014	1.00	1.76	125	4540
812485-002 Total Dissolved Solids	mg/L	03/07/2014	1.00	1.76	125	4620

Method Blank

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

Duplicate — Lab ID = 812500-003

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	526	518	1.53	0 - 10

Duplicate — Lab ID = 812525-016

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	670	686	2.36	0 - 10

Lab Control Sample

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

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Total Organic Carbon (T/DOC) SM 5310 C Batch 03TOC14G

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812485-002 Total Organic Carbon	mg/L	03/12/2014 16:06	1.00	0.0877	0.300	0.921

Method Blank

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

Duplicate — Lab ID = 812443-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Organic Carbon	mg/L	1.00	1.57	1.64	4.49	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Organic Carbon	mg/L	1.00	5.60	5.00	112	90 - 110

Matrix Spike — Lab ID = 812513-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Total Organic Carbon	mg/L	1.00	12.0	11.2(10.0)	108	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Organic Carbon	mg/L	1.00	5.85	5.00	117	85 - 115

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Organic Carbon	mg/L	1.00	10.8	10.0	108	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Organic Carbon	mg/L	1.00	9.12	10.0	91.2	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Organic Carbon	mg/L	1.00	9.26	10.0	92.6	90 - 110

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Total Phosphate, SM 4500-PB,E Batch 03TP14A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812485-002 Phosphate, Total As P	mg/L	03/13/2014	1.00	0.00460	0.0200	ND

Method Blank

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

Duplicate — Lab ID = 812485-002

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	0.0613	0.0650	94.3	90 - 110

Matrix Spike — Lab ID = 812485-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Phosphate, Total As P	mg/L	1.00	0.0570	0.0650(0.0650)	87.7	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Phosphate, Total As P	mg/L	1.00	0.0613	0.0650	94.3	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Phosphate, Total As P	mg/L	1.00	0.0639	0.0660	96.8	90 - 110

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Ammonia Nitrogen by SM4500-NH3D

Batch 03NH314A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812485-001 Ammonia as N	mg/L	03/18/2014	1.00	0.0318	0.500	ND
812485-002 Ammonia as N	mg/L	03/18/2014	1.00	0.0318	0.500	ND

Method Blank

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

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	8.79	8.00	110	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	8.09	8.00	101	90 - 110

Matrix Spike — Lab ID = 812485-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	8.42	10.0(10.0)	84.2	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	5.73	6.00	95.6	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	5.61	6.00	93.5	90 - 110

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Metals by EPA 200.8, Dissolved Batch 031114A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812485-002 Manganese	ug/L	03/11/2014 15:15	1.00	0.0600	0.50	5.2

Method Blank

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

Duplicate — Lab ID = 812484-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	1.00	4.95	4.85	2.10	0 - 20
Manganese	ug/L	1.00	55.4	56.0	1.05	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	46.7	50.0	93.3	85 - 115
Manganese	ug/L	1.00	46.7	50.0	93.5	85 - 115

Matrix Spike — Lab ID = 812484-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	1.00	48.0	54.8(50.0)	86.3	75 - 125
Manganese	ug/L	1.00	97.4	106(50.0)	82.8	75 - 125

Matrix Spike Duplicate — Lab ID = 812484-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	1.00	48.2	54.8(50.0)	86.7	75 - 125
Manganese	ug/L	1.00	98.7	106(50.0)	85.4	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.8	20.0	99.0	90 - 110
Manganese	ug/L	1.00	19.8	20.0	99.2	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.8	20.0	98.9	90 - 110

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	19.9	20.0	99.6	90 - 110

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Metals by 200.7, Dissolved Batch 032014A-Th2

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812485-002 Iron	ug/L	03/20/2014 17:34	1.00	3.00	20.0	ND

Method Blank

Parameter	Unit	DF	Result
Calcium	ug/L	1.00	ND
Iron	ug/L	1.00	ND
Sodium	ug/L	1.00	ND
Magnesium	ug/L	1.00	ND

Duplicate Lab ID = 812484-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Calcium	ug/L	100	234000	234000	0.0427	0 - 20
Iron	ug/L	1.00	ND	0	0	0 - 20
Sodium	ug/L	500	1560000	1490000	4.46	0 - 20
Magnesium	ug/L	10.0	40500	39200	3.24	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	2000	2000	99.8	85 - 115
Iron	ug/L	1.00	2130	2000	107	85 - 115
Sodium	ug/L	1.00	1760	2000	87.9	85 - 115
Magnesium	ug/L	1.00	2060	2000	103	85 - 115

Matrix Spike Lab ID = 812484-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Calcium	ug/L	100	432000	434000(200000)	99.0	75 - 125
Iron	ug/L	1.00	2050	2000(2000)	102	75 - 125
Sodium	ug/L	500	2560000	2490000(10000C	106	75 - 125
Magnesium	ug/L	10.0	61000	59200(20000)	109	75 - 125

Matrix Spike Duplicate Lab ID = 812484-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	2040	2000(2000)	102	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	5020	5000	100	95 - 105
Iron	ug/L	1.00	5160	5000	103	95 - 105
Sodium	ug/L	1.00	4870	5000	97.4	95 - 105
Magnesium	ug/L	1.00	5220	5000	104	95 - 105

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Turbidity by SM 2130 B Batch 03TUB14B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812485-001 Turbidity	NTU	03/05/2014	1.00	0.0140	0.100	0.108
812485-002 Turbidity	NTU	03/05/2014	1.00	0.0140	0.100	0.102

Method Blank

Parameter	Unit	DF	Result
Turbidity	NTU	1.00	ND

Duplicate Lab ID = 812469-019

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Turbidity	NTU	1.00	0.106	0.0900	16.3	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	8.60	8.00	108	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	8.48	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.

8 e 2

Total Dissolved Solids by SM 2540 C

Calculations

Batch: 03TDS14A
Date Analyzed: 3/7/2014

Laboratory Number	Sample volume, mL	Initial weight, g	1st Final weight, g	2nd Final weight, g	Weight Difference, g	Exceeds 0.5mg? Yes/No	Residue weight, g	Filterable residue, ppm	RL, ppm	Reported Value, ppm	DF
Blank	100	77.2329	77.2335	77.2332	0.0003	No	0.0003	3.0	25.0	ND	1
812484-1	20	29.4722	29.5226	29.5224	0.0002	No	0.0502	2510.0	125.0	2510.0	1
812484-2	10	28.8330	28.8837	28.8835	0.0002	No	0.0505	5050.0	250.0	5050.0	1
812485-1	20	30.3384	30.4291	30.4291	0.0000	No	0.0907	4535.0	125.0	4535.0	1
812485-2	20	29.3299	29.4223	29.4223	0.0000	No	0.0924	4620.0	125.0	4620.0	1
812458	100	72.3704	72.4504	72.4504	0.0000	No	0.0800	800.0	25.0	800.0	1
812495-7	100	75.2751	75.3286	75.3284	0.0002	No	0.0533	533.0	25.0	533.0	1
812499-1	100	74.4561	74.4840	74.4839	0.0001	No	0.0278	278.0	25.0	278.0	1
812500-1	100	75.8091	75.8614	75.8614	0.0000	No	0.0523	523.0	25.0	523.0	1
812500-2	100	75.6085	75.6614	75.6610	0.0004	No	0.0525	525.0	25.0	525.0	1
812500-3	100	72.5312	72.5834	72.5830	0.0004	No	0.0518	518.0	25.0	518.0	1
812500-3 Dup	100	76.5330	76.5860	76.5856	0.0004	No	0.0526	526.0	25.0	526.0	1
LCS	100	76.2510	76.3004	76.3004	0.0000	No	0.0494	494.0	25.0	494.0	1
812500-4	100	65.6766	65.7291	65.7291	0.0000	No	0.0525	525.0	25.0	525.0	1
812514-1	100	77.7729	77.8123	77.8123	0.0000	No	0.0394	394.0	25.0	394.0	1
812514-2	100	76.7906	76.8302	76.8300	0.0002	No	0.0394	394.0	25.0	394.0	1
812525-16	50	51.3349	51.3694	51.3692	0.0002	No	0.0343	686.0	50.0	686.0	1
812431-1	100	68.1111	68.1485	68.1485	0.0000	No	0.0374	374.0	25.0	374.0	1
812431-2	100	67.4857	67.5233	67.5233	0.0000	No	0.0376	376.0	25.0	376.0	1
812525-16 Dup	50	49.1128	49.1466	49.1463	0.0003	No	0.0335	670.0	50.0	670.0	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?
LCS	494.0	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?
812500-3	0.0518	0.0526	0.8%	≤5%	Yes
812525-16	0.0343	0.0335	1.2%	≤5%	Yes

Duplicate Determination Difference

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

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

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: 03TDS14A
Date Analyzed: 3/7/2014

Laboratory Number	EC	TDS/EC Ratio: 0.55-0.90	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
812484-1	3680	0.68	2392	1.05
812484-2	7981	0.63	5187.65	0.97
812485-1	6800	0.67	4420	1.03
812485-2	6810	0.68	4426.5	1.04
812458	881	0.91	572.65	1.40
812495-7	769	0.69	499.85	1.07
812499-1	486	0.57	315.9	0.88
812500-1	912	0.57	592.8	0.88
812500-2	879	0.60	571.35	0.92
812500-3	929	0.56	603.85	0.86
812500-3 Dup	929	0.57	603.85	0.87
LCS				
812500-4	894	0.59	581.1	0.90
812514-1	722	0.55	469.3	0.84
812514-2	689	0.57	447.85	0.88
812525-16	1009	0.68	655.85	1.05
812431-1	685	0.55	445.25	0.84
812431-2	645	0.58	419.25	0.90
812525-16 Dup	1009	0.66	655.85	1.02

← Rechecked Confirm. A.

TRUESDAIL LABORATORIES, INC.

Alkalinity by SM 2320B

Calculations

Analytical Batch:	03ALK14A
Matrix:	WATER
Date of Analysis:	3/7/2014

Lab ID	Sample pH	Sample Volume (ml)	N of HCL	Titrant Volume to reach pH 8.3	P Alkalinity as CaCO3	Titrant Volume to reach pH 4.5	Total mL titrant to reach pH 0.3 unit lower	Total Alkalinity as CaCO3	RL, ppm	Total Alkalinity Reported Value	HCO3 Conc. as $CaCO_3$ (ppm)	CO3 Alkalinity as $CaCO_3$ (ppm)	OH Alkalinity as $CaCO_3$ (ppm)	Low Alkalinity as $CaCO_3$ (<20ppm)
BLANK	4.98	50	0.02	0.00	0.0	0.00		0.0	5	ND	ND	ND	ND	
812394-21	7.90	50	0.02	0.00	0.0	5.45		109.0	5	109.0	109.0	ND	ND	
812395-1	8.99	50	0.02	2.05	41.0	10.90		218.0	5	218.0	136.0	82	ND	
812395-2	2.15	50	0.02	0.00	0.0	0.00		0.0	5	ND	ND	ND	ND	
812395-3	9.38	50	0.02	4.10	82.0	11.10		222.0	5	222.0	58.0	164	ND	
812395-4	1.72	50	0.02	0.00	0.0	0.00		0.0	5	ND	ND	ND	ND	
812395-5	9.12	50	0.02	7.05	141.0	24.50		490.0	5	490.0	208.0	282	ND	
812395-6	6.72	50	0.02	0.00	0.0	6.00		120.0	5	120.0	120.0	ND	ND	
812395-7	8.48	50	0.02	0.30	6.0	10.65		213.0	5	213.0	201.0	12	ND	
812484-1	7.76	50	0.02	0.00	0.0	10.75		215.0	5	215.0	215.0	ND	ND	
812484-2	7.72	50	0.02	0.00	0.0	7.50		150.0	5	150.0	150.0	ND	ND	
812485-2	7.54	50	0.02	0.00	0.0	7.85		157.0	5	157.0	157.0	ND	ND	
812525-16	7.88	50	0.02	0.0	0.0	5.80		116.0	5	116.0	116.0	ND	ND	
812525-20	8.04	50	0.02	0.0	0.0	6.35		127.0	5	127.0	127.0	ND	ND	
LCS	10.48	50	0.02	1.9	38.0	5.25		105.0	5	105.0	29.0	76	ND	
LCSD	10.40	50	0.02	1.8	36.0	5.15		103.0	5	103.0	31.0	72	ND	
LCS	10.43	50	0.02	2.1	41.0	4.95		99.0	5	99.0	17.0	82	ND	
LCS	10.35	50	0.02	2.0	39.0	5.05		101.0	5	101.0	23.0	78	ND	
812484-2 DUP	7.70	50	0.02	0.0	0.0	7.45		149.0	5	149.0	149.0	ND	ND	
812484-2 MS	9.03	50	0.02	2.0	40.0	11.95		239.0	5	239.0	159.0	80	ND	

Calculations as follows:

T or P = $\left(\frac{A \times N \times 50000}{mL\ sample}\right)$

Where:

T = Total Alkalinity, mg CaCO3/L

P = Phenolphthalein Alkalinity, mg CaCO3/L

A = mL standard acid used

N = normality of standard acid

Low Alkalinity: as mg/L CaCO3 = $\frac{(2 \times B - C) \times N \times 50000}{mL\ sample}$

Where:

B = mL titrant to first recorded pH

C = Total mL titrant to reach pH 0.3 unit lower

N = Normality of standard acid

LCS = Laboratory Control Standard/Duplicate

MS/MSD = Matrix Spike/Duplicate

ND = Not Detected (below the reporting limit)

Blank Summary

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

Laboratory Control Sample (LCS/LCSD) Summary

QC Std I.D.	Measured Value, ppm	Theoretical Value, ppm	% Recovery	Accetance Limit	QC Within Control?
LCS	105	100	105.0%	90-110	Yes
LCSD	103	100	103.0%	90-110	Yes

Duplicate Determination Difference Summary

Lab Number I.D.	Measured Value, ppm	Dup Value, ppm	RPD	Accetance Limit	QC Within Control?
812484-2	150	149	0.7%	≤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?
812484-2	150	1	100	100	239	250.00	89%	75-125	Yes			
				0								

Himani/Felipe		Maksim Gorbunov	
Analyst Printed Name	Analyst Signature	Reviewer Printed Name	Reviewer Signature

0314A

061

Please make the corrections listed below.

03/6/2014

812485

Rec'd 03/04/14

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-456]

COC Number ~~Sma~~ 812485
TURNAROUND TIME 10 Days
DATE 03/04/14 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: 428648.IM.CS.EX.AC
SAMPLERS (SIGNATURE: Ryan Phelps

	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-456	03/04/14	15:00	SPD	X		X	X	X	X	X		X				X			pH=7
-2	SC-100B-WDR-456	03/04/14	15:00		X	X	X	X	X	X	X	X	X	X	X	X	X			pH=2 (Total) pH=7 (Diss)
																			~~10~~ 13	TOTAL NUMBER OF CONTAINERS

ALERT II
Level III QC

For Sample Conditions
See Form Attached

CHAIN OF CUSTODY SIGNATURE RECORD

	Signature	Printed Name	Company/ Agency	Date/ Time
Signature (Relinquished)	[signature]	Ryan Phelps	CH2MHILL	3-4-14 15:20
Signature (Received)	Shah Ngo	THANH NGO	TRUESDAIL	3-4-14 1520
Signature (Relinquished)	Shah Ngo	THANH NGO	TLI	3-4-14 1910
Signature (Received)	Marcheal Brady	Marcheal Brady	TLI	3/4/14@1910
Signature (Relinquished)				
Signature (Received)				

SAMPLE CONDITIONS

RECEIVED COOL ☒ WARM ☐ 4.8 °C

CUSTODY SEALED YES ☐ NO ☒

SPECIAL REQUIREMENTS:

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

812485

CHAIN OF CUSTODY RECORD

[IM3Plant-WDR-456]

TRUESDAIL LABORATORIES, INC.
14201 Franklin Avenue, Tustin, CA 92780-7008
(714)730-6239 FAX: (714) 730-6462
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Rec'd 03/04/14

COC Number ~~S-17a~~ 812485

TURNAROUND TIME 10 Days

DATE 03/04/14 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: 428648.IM.CS.EX.AC

SAMPLERS (SIGNATURE: Ryan Phelps

	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-456	03/04/14			X		X	X	X	X	X		X				X			pH = 7 (200.7)
-2	SC-100B-WDR-456	03/04/14			X	X	X	X	X	X	X	X	X	X	X	X	X			pH=7 (TOTAL) pH=7 (DISS) 200.7

ALERT !!
Level III QC

For Sample Conditions
See Form Attached

~~10~~ 13 TOTAL NUMBER OF CONTAINERS

CHAIN OF CUSTODY SIGNATURE RECORD

	Signature	Printed Name	Company/ Agency	Date/ Time
Signature (Relinquished)	[signature]	Ryan Phelps	CH2MHILL	3-4-14 15:20
Signature (Received)	Thanh Ngo	THANH NGO	TRUESDAIL	3-4-14 1520
Signature (Relinquished)	Thanh Ngo	THANH NGO	TLI	3-4-14 1910
Signature (Received)	Marcheal Brady	Marcheal Brady	TLI	3/4/14@1910
Signature (Relinquished)				
Signature (Received)				

SAMPLE CONDITIONS

RECEIVED COOL ☒ WARM ☐ 4.8 °C

CUSTODY SEALED YES ☐ NO ☒

SPECIAL REQUIREMENTS:

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

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Hexavalent Chromium

Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
2/26/14	812352 -9	9.5	N/A	N/A	N/A	NE
	-10					
	-11					
	-12					
	-13					
	812353 -1					
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
	-13					
	-14					
	-15					
2/27/14	812376-1	7.00	2ml/100ml	9.5	7:30	NE
	-2					
2/27/14	813395-1	7.00	.5ml/25ml	9.5	16:40	NE
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
3/5/14	812484-1	7.00	2ml/100ml	9.5	7:30	NE
	812485-1					

NE
3/6/14

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

Hexavalent Chromium

Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
3/5/14	812485-2	7.00	1 mL/100 mL	9.5	7:30	NE
	812486-1	9.5	N/A	N/A	N/A	NE
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
	-13					
	-14					
	-15					
3/6/14	812535-1	7.00	1 mL/50 mL	9.5	7:15	NE
	-3					

NE
3/6/14

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

TRUESDAIL LABORATORIES, INC.
Metals

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest (Y/N)	Time of Adjustment to pH 2	Date/Time of 2nd pH check	Comments
812520	ES 3/10/14 <1	<2	3/10/14	ES	Yes			
812522(1-5)	ES >1	↓	↓	↓	↓			
812524	>1	↓	↓	↓	↓			
812525	<1	>2	↓	↓	No	10:00	12:00 3/11/14	pH <2
812547	<1	<2	↓	↓	Yes			
812555(1-4)	>1	↓	↓	↓	↓			
812557	<1	>2	↓	↓	No	10:00	12:00 3/11/14	pH <2
812558	<1	<2	↓	↓	Yes			
812484(1-2)	<1	>2	3/10/14	ES	Yes	2:00		Filtered from acidify
TOTAL 812485(-2)	<1	<2	↓	↓	↓			
-1	<1	>2	↓	↓	↓	2:00		pH <2
DISS -2	<1	>2	↓	↓	↓	2:00		Filtered from acidify
812486(1-5,7-11,14-15)	<1	<2	↓	↓	↓			
812579	<1	<2	3/12/14	MM	Yes			
812581	↓	↓	↓	↓	↓			
812563	<1	<2	3/12/14	MM	Yes			
812575	↓	↓	↓	↓	↓			
812576	↓	↓	↓	↓	↓			
812577	↓	↓	↓	↓	↓			
812578	↓	↓	↓	↓	↓			
812585	↓	↓	↓	↓	↓			
812589	↓	↓	↓	↓	↓			
812568	>1	>2	3/13/14	ES	Yes	10:00		pH<2
812608	<1	<2	↓	↓	↓			
812614(1-2	>1	↓	↓	↓	↓			
812618	>1	↓	↓	↓	↓			
812597(1-2	<1	>2	↓	↓	No	10:00	3/17/14 10:00	pH <2
812569	↓	↓	↓	↓	↓	↓	↓	↓
812605(1-2)	↓	↓	↓	↓	↓	↓	↓	↓
812615(10-12)	↓	↓	↓	↓	↓	↓	↓	↓
812632(1-4,7-13)	<1	<2	3/14/14	ES	Yes			Total/DISSOLVED
812594	<1	>2	↓	↓	↓	2:30		pH <2
812619(1-4)	<1	>2	3/17/14	ES	No	11:00		
812624(1-3)	↓	↓	↓	↓	↓	↓		
812639	↓	<2	↓	↓	Yes			
812640(1-2)	>1	↓	↓	↓	↓			
812641	↓	↓	↓	↓	↓			
812633(1-4,7-14,16)	<1	<2	3/17/14	ES	Yes			ES 3/17/14 ~~Total~~/DISSOLVED
633(3-4,7-14,16)	↓	↓	↓	↓	↓			TOTAL
812644	>1	<2	3/18/14	MM	Yes			
812645	↓	↓	↓	↓	↓			
812651(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.

ALERT !!
Level III QC

Sample Integrity & Analysis Discrepancy Form

Client: E 2 **Lab #** 812485

Date Delivered: 03 / 04 / 14 **Time:** 19:10 **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)? 4.8 °C
7. Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)? ☒Yes ☐No ☐N/A
8. Were sample custody seals intact? ☐Yes ☐No ☒N/A
9. Does the number of samples received agree with COC? ☒Yes ☐No ☐N/A
10. Did sample labels correspond with the client ID's? ☒Yes ☐No ☐N/A
11. Did sample labels indicate proper preservation? ☒Yes ☐No ☐N/A
    Preserved (if yes) by: ☒Truesdail ☐Client
12. Were samples pH checked? pH = See C.O.C ☒Yes ☐No ☐N/A
13. Were all analyses within holding time at time of receipt? ☒Yes ☐No ☐N/A
    If not, notify Project Manager.
14. Have Project due dates been checked and accepted? ☒Yes ☐No ☐N/A
    Turn Around Time (TAT): ☐ RUSH ☒ Std
15. **Sample Matrix:** ☐Liquid ☐Drinking Water ☐Ground Water ☐Waste Water ☐Sludge ☐Soil ☐Wipe ☐Paint ☐Solid ☒Other Water
16. Comments: _____
17. Sample Check-In completed by **Truesdail** Log-In/Receiving: Linda

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

March 25, 2014

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

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK IM3PLANT-WDR-457 PROJECT, GROUNDWATER MONITORING, TLI NO.: 812594

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-457 project groundwater monitoring for Hexavalent and Total Chromium, Total Manganese, Turbidity, Specific Conductivity, and Total Dissolved Solids. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, quality control data and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data have been included under Section 5.

The samples were received and delivered with the chain of custody on March 11, 2014, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

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

The straight runs for the sample and associated matrix spike on sample SC-700B-WDR-457 for Hexavalent Chromium analysis by EPA 218.6 were just outside the retention time window. Because the matrix spike recovery and all other QA/QC were within acceptable limits, the data from the straight run was reported.

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

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

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy
Sample: One (1) Groundwater Sample
Project Name: PG&E Topock Project
Project No.: 428648.IM.CS.EX.AC

Laboratory No.: 812594
Date: March 25, 2014
Collected: March 11, 2014
Received: March 11, 2014

ANALYST LIST

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

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

Laboratory No.: 812594
Date Received: March 11, 2014

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

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
812594-001	SC-700B-WDR-457	E120.1	NONE	3/11/2014	8:20	EC	6890	umhos/cm	2.00
812594-001	SC-700B-WDR-457	E200.8	NONE	3/11/2014	8:20	Chromium	ND	ug/L	1.0
812594-001	SC-700B-WDR-457	E200.8	NONE	3/11/2014	8:20	Manganese	4.0	ug/L	0.50
812594-001	SC-700B-WDR-457	E218.6	LABFLT	3/11/2014	8:20	Chromium, Hexavalent	ND	ug/L	0.20
812594-001	SC-700B-WDR-457	SM2130B	NONE	3/11/2014	8:20	Turbidity	ND	NTU	0.100
812594-001	SC-700B-WDR-457	SM2540C	NONE	3/11/2014	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.

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REPORT

Client: **E2 Consulting Engineers, Inc.**
155 Grand Avenue, Suite 800
Oakland, CA 94612
Attention: Shawn Duffy
Project Name: PG&E Topock Project
Project Number: 428648.IM.CS.EX.AC
P.O. Number: PGEIM11111001
Release Number:

Laboratory No. 812594

Printed 3/25/2014

Samples Received on 3/11/2014 6:50:00 PM

Field ID	Lab ID	Collected	Matrix
SC-700B-WDR-457	812594-001	03/11/2014 08:20	Water

Specific Conductivity - EPA 120.1 Batch 03EC14H

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812594-001 Specific Conductivity	umhos/cm	03/14/2014	1.00	0.606	2.00	6890

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate — Lab ID = 812563-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	663	665	0.301	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	663	706	93.9	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	655	706	92.8	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	912	1000	91.2	90 - 110

MRCVS - Primary

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

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Client: E2 Consulting Engineers, Inc.

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

Chrome VI by EPA 218.6

Batch 03CrH14 B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812594-001 Chromium, Hexavalent	ug/L	03/12/2014 11:07	1.00	0.00600	0.20	ND

Method Blank

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

Duplicate — Lab ID = 812594-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	ND	0.0290	0	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.192	0.200	95.9	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.96	5.00	99.2	90 - 110

Matrix Spike — Lab ID = 812594-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.83	5.02(5.00)	96.3	90 - 110

Matrix Spike — Lab ID = 812594-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.08	1.03(1.00)	106	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.98	5.00	99.6	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.63	10.0	96.3	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

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Client: E2 Consulting Engineers, Inc.

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

Metals by EPA 200.8, Total

Batch 031414A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812594-001 Chromium	ug/L	03/14/2014 18:39	2.00	0.142	1.0	ND
Manganese	ug/L	03/14/2014 18:39	2.00	0.120	0.50	4.0

Method Blank

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

Duplicate

Lab ID = 812594-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	2.00	ND	0	0	0 - 20
Manganese	ug/L	2.00	4.18	4.04	3.37	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.432	0.500	86.5	70 - 130
Manganese	ug/L	1.00	0.227	0.200	114	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	46.6	50.0	93.1	85 - 115

Matrix Spike

Lab ID = 812594-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	47.4	50.0(50.0)	94.9	75 - 125
Manganese	ug/L	2.00	51.7	54.0(50.0)	95.3	75 - 125

Matrix Spike Duplicate

Lab ID = 812594-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	46.7	50.0(50.0)	93.4	75 - 125
Manganese	ug/L	2.00	50.0	54.0(50.0)	92.0	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	19.6	20.0	97.9	90 - 110

MRCVS - Primary

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

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Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	19.6	20.0	97.8	80 - 120

Total Dissolved Solids by SM 2540 C

Batch 03TDS14B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812594-001 Total Dissolved Solids	mg/L	03/12/2014	1.00	1.76	125	4380

Method Blank

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

Duplicate — Lab ID = 812594-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	4430	4380	1.14	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Dissolved Solids	mg/L	1.00	478	500	95.6	90 - 110

Turbidity by SM 2130 B

Batch 03TUB14F

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812594-001 Turbidity	NTU	03/13/2014	1.00	0.0140	0.100	ND

Method Blank

Parameter	Unit	DF	Result
Turbidity	NTU	1.00	ND

Duplicate — Lab ID = 812626-006

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Turbidity	NTU	1.00	ND	0.105	0	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	7.38	8.00	92.2	90 - 110

Lab Control Sample Duplicate

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

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Client: E2 Consulting Engineers, Inc.

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

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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6 e2

Truesdail Laboratories, Inc.

Total Dissolved Solids by SM 2540 C

Calculations

Batch: 03TDS14B
Date Analyzed: 3/12/2014

Laboratory Number	Sample volume, mL	Initial weight, g	1st Final weight, g	2nd Final weight, g	Weight Difference, g	Exceeds 0.5mg? Yes/No	Residue weight, g	Filterable residue, ppm	RL, ppm	Reported Value, ppm	DF
Blank	100	74.7049	74.7053	74.7053	0.0000	No	0.0004	4.0	25.0	ND	1
812594	20	47.5147	47.6026	47.6024	0.0002	No	0.0877	4385.0	125.0	4385.0	1
812563-1	100	77.9064	77.9435	77.9432	0.0003	No	0.0368	368.0	25.0	368.0	1
812563-2	100	78.6109	78.6511	78.6508	0.0003	No	0.0399	399.0	25.0	399.0	1
812605-1	100	79.4988	79.5377	79.5376	0.0001	No	0.0388	388.0	25.0	388.0	1
812605-2	100	74.6453	74.7030	74.7027	0.0003	No	0.0574	574.0	25.0	574.0	1
812610-1	100	78.7856	78.8369	78.8369	0.0000	No	0.0513	513.0	25.0	513.0	1
812610-2	100	75.7430	75.7929	75.7928	0.0001	No	0.0498	498.0	25.0	498.0	1
812610-3	100	69.7900	69.8397	69.8397	0.0000	No	0.0497	497.0	25.0	497.0	1
812610-4	100	79.2575	79.3066	79.3066	0.0000	No	0.0491	491.0	25.0	491.0	1
812614-1	100	78.3890	78.4313	78.4313	0.0000	No	0.0423	423.0	25.0	423.0	1
812594 Dup	20	51.7749	51.8637	51.8635	0.0002	No	0.0886	4430.0	125.0	4430.0	1
LCS	100	74.7155	74.7633	74.7633	0.0000	No	0.0478	478.0	25.0	478.0	1
812614-2	100	68.5432	68.5879	68.5875	0.0004	No	0.0443	443.0	25.0	443.0	1
812619-1	50	51.6338	51.6815	51.6815	0.0000	No	0.0477	954.0	50.0	954.0	1
812619-2	100	76.8049	76.8567	76.8567	0.0000	No	0.0518	518.0	25.0	518.0	1
812619-3	100	69.4737	69.5317	69.5317	0.0000	No	0.0580	580.0	25.0	580.0	1
812619-4	100	75.7496	75.8107	75.8107	0.0000	No	0.0611	611.0	25.0	611.0	1
812651-1	100	78.9011	78.9429	78.9429	0.0000	No	0.0418	418.0	25.0	418.0	1
812651-2	100	66.7929	66.8368	66.8368	0.0000	No	0.0439	439.0	25.0	439.0	1
812605-2 Dup	100	75.2676	75.3266	75.3265	0.0001	No	0.0589	589.0	25.0	589.0	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?
LCS	478.0	500	95.6%	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?
812594	0.0877	0.0886	0.5%	≤5%	Yes
812605-2	0.0574	0.0589	1.3%	≤5%	Yes

Duplicate Determination Difference

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

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

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

Jenny T.
Analyst Printed Name

Analyst Signature

Maksim G.
Reviewer Printed Name

Reviewer Signature

WetChem 03TDS14B

Total Dissolved Solids by SM 2540 C

TDS/EC CHECK

Batch: 03TDS14B
Date Analyzed: 3/12/2014

Laboratory Number	EC	TDS/EC Ratio: 0.55-0.90	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
812594	6890	0.64	4478.5	0.98
812563-1	665	0.55	432.25	0.85
812563-2	625	0.64	406.25	0.98
812605-1	515	0.75	334.75	1.16
812605-2	851	0.67	553.15	1.04
812610-1	834	0.62	542.1	0.95
812610-2	814	0.61	529.1	0.94
812610-3	798	0.62	518.7	0.96
812610-4	792	0.62	514.8	0.95
812614-1	727	0.58	472.55	0.90
812594 Dup	6890	0.64	4478.5	0.99
LCS				
812614-2	659	0.67	428.35	1.03
812619-1	1555	0.61	1010.75	0.94
812619-2	782	0.66	508.3	1.02
812619-3	836	0.69	543.4	1.07
812619-4	956	0.64	621.4	0.98
812651-1	718	0.58	466.7	0.90
812651-2	651	0.67	423.15	1.04
812605-2 Dup	851	0.69	553.15	1.06

812594

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

CHAIN OF CUSTODY RECORD

[IM3Plant-WDR-457]

COC Number

TURNAROUND TIME 10 Days

DATE 03/11/14 PAGE 1 OF 1

COMPANY: E2

PROJECT NAME: PG&E Topock

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

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

P.O. NUMBER: 428648.IM.CS.EX.AC TEAM: 1

SAMPLERS (SIGNATURE):

Rec'd 03/12/14

Seal 812594

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-457	03/11/14	8:24	Water	X	X	X	X		X								3	pH=7 (200.7)
																	3	TOTAL NUMBER OF CONTAINERS

Please Provide a preliminary Result for the TDS ASAP

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	3-11-14 14:30
Signature (Received)	THANH NGO	TRUESDAIL	3-11-14 1430
Signature (Relinquished)	THANH NGO	TRUESDAIL	3-11-14 1850
Signature (Received)	Marchealdra	TLI	3/11/14 1850
Signature (Relinquished)			
Signature (Received)			

SAMPLE CONDITIONS

RECEIVED COOL ☒ WARM ☐ 5.9 °C

CUSTODY SEALED YES ☐ NO ☒

SPECIAL REQUIREMENTS:

037

Hexavalent Chromium

Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
3/5/14	812485-2	7.00	1ml/100ml	9.5	7:30	NE
	812486-1	9.5	N/A	N/A	N/A	NE
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
	-13					
	-14					
	-15					
3/6/14	812535-1	7.00	1ml/50ml	9.5	7:15	NE
	-3					
3/10/14	812566-1	7.00	1ml/50ml	9.5	14:50	NE
	-2					
3/11/14	812587-1	7.00	.5ml/25ml	9.5	15:10	NE
	-2					
3/12/14	812594	7.00	1ml/100ml	9.5	7:40	NE

NE
3/12/14

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

TRUESDAIL LABORATORIES, INC.
Metals

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest (Y/N)	Time of Adjustment to pH 2	Date/Time of 2nd pH check	Comments
812520	3/10/14 ES <1	<2	3/10/14	ES	Yes			
812522(1-5)	ES >1	↓	↓	↓	↓			
812524	>1	↓	↓	↓	↓			
812525	<1	>2	↓	↓	No	10:00	12:00 3/11/14	pH <2
812547	<1	<2	↓	↓	Yes			
812555(1-4)	>1	↓	↓	↓	↓			
812557	<1	>2	↓	↓	No	10:00	12:00 3/11/14	pH <2
812558	<1	<2	↓	↓	Yes			
812484(1-2)	<1	>2	3/10/14	ES	Yes	2:00		Filtered then acidify
Total 812485(-2)	<1	<2	↓	↓	↓			
-1	<1	>2	↓	↓	↓	2:00		pH <2
Diss -2	<1	>2	↓	↓	↓	2:00		Filtered then acidify
812486(1-5,7-11,14-15)	<1	<2	↓	↓	↓			
812579	<1	<2	3/12/14	MM	Yes			
812581	↓	↓	↓	↓	↓			
812563	<1	<2	3/12/14	MM	Yes			
812575	↓	↓	↓	↓	↓			
812576	↓	↓	↓	↓	↓			
812577	↓	↓	↓	↓	↓			
812578	↓	↓	↓	↓	↓			
812585	↓	↓	↓	↓	↓			
812589	↓	↓	↓	↓	↓			
812568	>1	>2	3/13/14	ES	Yes	10:00		pH<2
812608	<1	<2	↓	↓	↓			
812614(1-2	>1	↓	↓	↓	↓			
812618	>1	↓	↓	↓	↓			
812597(1-2	<1	>2	↓	↓	No	10:00	3/17/14 10:00	pH <2
812569	↓	↓	↓	↓	↓	↓	↓	↓
812605(1-2)	↓	↓	↓	↓	↓	↓	↓	↓
812615(10-12)	↓	↓	↓	↓	↓	↓	↓	↓
812632(1-4,7-13)	<1	<2	3/14/14	ES	Yes			Total/DISSOLVED
812594	<1	>2	↓	↓	↓	2:30		pH<2
812619(1-4)	<1	>2	3/17/14	ES	No	11:00		
812624(1-3)	↓	↓	↓	↓	↓	↓		
812639	↓	<2	↓	↓	Yes			
812640(1-2)	>1	↓	↓	↓	↓			
812641	↓	↓	↓	↓	↓			
812633(1-4,7-14,16)	<1	<2	3/17/14	ES	Yes			ES 3/17/14 ~~Total~~/DISSOLVED
633(3-4,7-14,16)	↓	↓	↓	↓	↓			TOTAL
812644	>1	<2	3/18/14	MM	Yes			
812645	↓	↓	↓	↓	↓			
812651(1-2)	↓	↓	↓	↓	↓			

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

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: E2 **Lab #** 812594

Date Delivered: 03/11/14 **Time:** 18:50 **By:** ☐Mail ☑Field Service ☐Client

1. Was a Chain of Custody received and signed? ☑Yes ☐No ☐N/A
2. Does Customer require an acknowledgement of the COC? ☐Yes ☑No ☐N/A
3. Are there any special requirements or notes on the COC? ☐Yes ☑No ☐N/A
4. If a letter was sent with the COC, does it match the COC? ☐Yes ☐No ☑N/A
5. Were all requested analyses understood and acceptable? ☑Yes ☐No ☐N/A
6. Were samples received in a chilled condition? ☑Yes ☐No ☐N/A
   Temperature (if yes)? 5.9 °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

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

March 28, 2014

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

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK IM3PLANT-WDR-458 PROJECT, GROUNDWATER MONITORING, TLI NO.: 812677

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-458 project groundwater monitoring for Hexavalent and Total Chromium, Total Manganese, Turbidity, Specific Conductivity, and Total Dissolved Solids. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, quality control data and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data have been included under Section 5.

The samples were received and delivered with the chain of custody on March 18, 2014, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

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

The straight runs for the sample and associated matrix spike on sample SC-700B-WDR-458 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

for Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.
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Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy
Sample: One (1) Groundwater Sample
Project Name: PG&E Topock Project
Project No.: 428648.IM.CS.EX.AC

Laboratory No.: 812677
Date: March 28, 2014
Collected: March 18, 2014
Received: March 18, 2014

ANALYST LIST

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

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

Laboratory No.: 812677
Date Received: March 18, 2014

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

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
812677-001	SC-700B-WDR-458	E120.1	NONE	3/18/2014	13:25	EC	6840	umhos/cm	2.00
812677-001	SC-700B-WDR-458	E200.8	NONE	3/18/2014	13:25	Chromium	ND	ug/L	1.0
812677-001	SC-700B-WDR-458	E200.8	NONE	3/18/2014	13:25	Manganese	0.98	ug/L	0.50
812677-001	SC-700B-WDR-458	E218.6	LABFLT	3/18/2014	13:25	Chromium, Hexavalent	ND	ug/L	0.20
812677-001	SC-700B-WDR-458	SM2130B	NONE	3/18/2014	13:25	Turbidity	0.105	NTU	0.100
812677-001	SC-700B-WDR-458	SM2540C	NONE	3/18/2014	13:25	Total Dissolved Solids	4420	mg/L	125

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

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REPORT

Client: **E2 Consulting Engineers, Inc.**
155 Grand Avenue, Suite 800
Oakland, CA 94612
Attention: Shawn Duffy
Project Name: PG&E Topock Project
Project Number: 428648.IM.CS.EX.AC
P.O. Number: PGEIM11111001
Release Number:

Laboratory No. 812677

Printed 3/28/2014

Samples Received on 3/18/2014 6:50:00 PM

Field ID	Lab ID	Collected	Matrix
SC-700B-WDR-458	812677-001	03/18/2014 13:25	Water

Specific Conductivity - EPA 120.1

Batch 03EC14L

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812677-001 Specific Conductivity	umhos/cm	03/20/2014	1.00	0.606	2.00	6840

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate

Lab ID = 812708-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	1.68	1.66	1.20	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	707	706	100	90 - 110

MRCCS - Secondary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	1000	1000	100	90 - 110

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Client: E2 Consulting Engineers, Inc.

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

Chrome VI by EPA 218.6

Batch 03CrH14 E

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812677-001 Chromium, Hexavalent	ug/L	03/19/2014 10:44	1.00	0.00600	0.20	ND

Method Blank

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

Duplicate — Lab ID = 812677-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	0.152	0.155	1.89	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.201	0.200	100	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.08	5.00	102	90 - 110

Matrix Spike — Lab ID = 812632-014

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.03	1.00(1.00)	103	90 - 110

Matrix Spike — Lab ID = 812677-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.27	5.16(5.00)	102	90 - 110

Matrix Spike — Lab ID = 812677-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.22	1.15(1.00)	107	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.01	5.00	100	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	9.92	10.0	99.2	95 - 105

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Client: E2 Consulting Engineers, Inc.

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

Metals by EPA 200.8, Total

Batch 032014A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812677-001 Chromium	ug/L	03/20/2014 16:30	2.00	0.142	1.0	ND
Manganese	ug/L	03/20/2014 16:30	2.00	0.120	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 = 812677-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	2.00	ND	0	0	0 - 20
Manganese	ug/L	2.00	0.849	0.977	14.0	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.575	0.500	115	70 - 130
Manganese	ug/L	1.00	0.184	0.200	92.0	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	46.1	50.0	92.1	85 - 115
Manganese	ug/L	1.00	45.7	50.0	91.5	85 - 115

Matrix Spike

Lab ID = 812677-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	44.8	50.0(50.0)	89.5	75 - 125
Manganese	ug/L	2.00	43.5	51.0(50.0)	85.0	75 - 125

Matrix Spike Duplicate

Lab ID = 812677-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	45.1	50.0(50.0)	90.3	75 - 125
Manganese	ug/L	2.00	44.5	51.0(50.0)	87.1	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.3	20.0	102	90 - 110
Manganese	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	20.4	20.0	102	90 - 110

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Client: E2 Consulting Engineers, Inc.

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

Printed 3/28/2014

Total Dissolved Solids by SM 2540 C

Batch 3TDS14C

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812677-001 Total Dissolved Solids	mg/L	03/20/2014	1.00	1.76	125	4420

Method Blank

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

Duplicate — Lab ID = 812677-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	4440	4420	0.451	0 - 10

Duplicate — Lab ID = 812707-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	34600	34600	0.0963	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Dissolved Solids	mg/L	1.00	505	500	101	90 - 110

Turbidity by SM 2130 B

Batch 03TUB14J

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812677-001 Turbidity	NTU	03/19/2014	1.00	0.0140	0.100	0.105

Method Blank

Parameter	Unit	DF	Result
Turbidity	NTU	1.00	ND

Duplicate — Lab ID = 812677-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Turbidity	NTU	1.00	0.114	0.105	8.22	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	7.73	8.00	96.6	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	7.69	8.00	96.1	90 - 110

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Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

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Truesdail Laboratories, Inc.

6
e2

Total Dissolved Solids by SM 2540 C

Calculations

Batch: 03TDS14C
Date Analyzed: 3/20/2014

Laboratory Number	Sample volume, mL	Initial weight, g	1st Final weight, g	2nd Final weight, g	Weight Difference, g	Exceeds 0.5mg? Yes/No	Residue weight, g	Filterable residue, ppm	RL, ppm	Reported Value, ppm	DF
Blank	100	79.7951	79.7956	79.7953	0.0003	No	0.0002	2.0	25.0	ND	1
812677	20	29.3260	29.4149	29.4144	0.0005	No	0.0884	4420.0	125.0	4420.0	1
812658-2	100	76.5037	76.5175	76.5175	0.0000	No	0.0138	138.0	25.0	138.0	1
812658-4	100	71.9559	71.9977	71.9973	0.0004	No	0.0414	414.0	25.0	414.0	1
812680	50	59.9058	59.9541	59.9540	0.0001	No	0.0482	964.0	50.0	964.0	1
812688-1	100	76.1731	76.2213	76.2210	0.0003	No	0.0479	479.0	25.0	479.0	1
812688-2	100	73.1682	73.2182	73.2181	0.0001	No	0.0499	499.0	25.0	499.0	1
812688-3	100	75.1538	75.2024	75.2020	0.0004	No	0.0482	482.0	25.0	482.0	1
812688-4	100	72.7602	72.8086	72.8082	0.0004	No	0.0480	480.0	25.0	480.0	1
812691-1	100	76.2736	76.3144	76.3140	0.0004	No	0.0404	404.0	25.0	404.0	1
812691-2	100	78.7942	78.8379	78.8379	0.0000	No	0.0437	437.0	25.0	437.0	1
812677 Dup	20	30.3515	30.4407	30.4403	0.0004	No	0.0888	4440.0	125.0	4440.0	1
LCS	100	67.0364	67.0869	67.0869	0.0000	No	0.0505	505.0	25.0	505.0	1
812692-1	3	29.3200	29.5127	29.5124	0.0003	No	0.1924	64133.3	833.3	64133.3	1
812692-2	1	30.0515	30.1676	30.1676	0.0000	No	0.1161	116100.0	2500.0	116100.0	1
812692-3	50	58.9477	59.0251	59.0248	0.0003	No	0.0771	1542.0	50.0	1542.0	1
812692-4	3	29.5519	29.6825	29.6825	0.0000	No	0.1306	43533.3	833.3	43533.3	1
812692-5	1	28.7590	28.8777	28.8777	0.0000	No	0.1187	118700.0	2500.0	118700.0	1
812692-6	10	30.4193	30.5822	30.5822	0.0000	No	0.1629	16290.0	250.0	16290.0	1
812692-7	3	28.6296	28.7470	28.7470	0.0000	No	0.1174	39133.3	833.3	39133.3	1
812692-8	1	29.5359	29.6570	29.6570	0.0000	No	0.1211	121100.0	2500.0	121100.0	1
812692-9	50	60.0680	60.1472	60.1472	0.0000	No	0.0792	1584.0	50.0	1584.0	1
812707	3	28.7834	28.8871	28.8871	0.0000	No	0.1037	34566.7	833.3	34566.7	1
812707 Dup	3	30.1415	30.2452	30.2452	0.0000	No	0.1037	34566.7	833.3	34566.7	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?
LCS	505.0	500	101.0%	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?
812677	0.0884	0.0888	0.2%	≤5%	Yes
812707	0.1037	0.1037	0.0%	≤5%	Yes

Duplicate Determination Difference

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

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

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

Jenny T.
Analyst Printed Name

Analyst Signature

Maksim G.
Reviewer Printed Name

Reviewer Signature

Total Dissolved Solids by SM 2540 C

TDS/EC CHECK

Batch: 03TDS14C
Date Analyzed: 3/20/2014

Laboratory Number	EC	TDS/EC Ratio: 0.55-0.90	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
812677	6840	0.65	4446	0.99
812658-2	234	0.59	152.1	0.91
812658-4	618	0.67	401.7	1.03
812680	1509	0.64	980.85	0.98
812688-1	759	0.63	493.35	0.97
812688-2	776	0.64	504.4	0.99
812688-3	846	0.57	549.9	0.88
812688-4	798	0.60	518.7	0.93
812691-1	680	0.59	442	0.91
812691-2	621	0.70	403.65	1.08
812677 Dup	6840	0.65	4446	1.00
LCS				
812692-1	42400	1.51	27560	2.33
812692-2	93900	1.24	61035	1.90
812692-3	2150	0.72	1397.5	1.10
812692-4	38100	1.14	24765	1.76
812692-5	109900	1.08	71435	1.66
812692-6	15900	1.02	10335	1.58
812692-7	41700	0.94	27105	1.44
812692-8	105600	1.15	68640	1.76
812692-9	2270	0.70	1475.5	1.07
812707	36100	0.96	23465	1.47
812707 Dup	36100	0.96	23465	1.47

812677

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-458]

Rec'd 03/18/14

COC Number ~~S-87~~ 812677

TURNAROUND TIME 10 Days

DATE 03/18/14 PAGE 1 OF 1

COMPANY E2

PROJECT NAME PG&E Topock

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

ADDRESS 155 Grand Ave Ste 1000
Oakland, CA 94612

P.O. NUMBER 428648.IM.CS.EX.AC TEAM 1

SAMPLERS (SIGNATURE

SAMPLE I.D.	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-458	03/18/14	13:25	Water	x	x	x	x		x								3	pH=7 (200.7)
																	3	TOTAL NUMBER OF CONTAINERS

Please Provide a preliminary Result for the TDS ASAP

ALERT !!
Level III QC

For Sample Conditions
See Form Attached

CHAIN OF CUSTODY SIGNATURE RECORD

	Printed Name	Company/ Agency	Date/ Time
Signature (Relinquished)	Ryan Phelps	CH2MHILL	3-18-14 14:10
Signature (Received)	THANH NGO	TRUESDAIL	3-18-14 1410
Signature (Relinquished)	THANH NGO	TLI	3-18-14 1850
Signature (Received)	Marshall Brad	TLI	3/18/14 1850
Signature (Relinquished)			
Signature (Received)			

SAMPLE CONDITIONS

RECEIVED COOL ☑ WARM ☐ 6.0 °C °F

CUSTODY SEALED YES ☐ NO ☒

SPECIAL REQUIREMENTS:

037

Hexavalent Chromium

Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
3/14/14	812632-6	9.5	N/A	N/A	N/A	NE
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
	-13					
	812633-1					
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
	-13					
	-14					
	-15					
	-16					
3/17/14	812650-1	7.00	.5ml/25ml	9.5	15:20	NE
	-2					
3/18/14	812659-1	7.00	.5ml/25ml	9.5	15:40	NE
	-2					
3/19/14	812677	7.00	2ml/100ml	9.5	7:25	NE
	812693		.5ml/25ml	9.5	15:20	
3/20/14	812707	5.5 pH	2ml/100ml	9.5	7:20	NE

NE
3/20/14

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

TRUESDAIL LABORATORIES, INC.
Metals

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest (Y/N)	Time of Adjustment to pH 2	Date/Time of 2nd pH check	Comments
812664	<1	<2	03/19/14	MM	Yes			
812667								
812665								
812663								
812680	>1							
812677	<1	>2	3/20/14	ES	Yes	10:00		pH<2
812707	>1	<2						
812659 (1-2,4)	<1	>2	3/20/14	ES	No	10:00	3/25/14 10:00	pH<2
812699 (10-12)								
812672 (1-2,5,7,8)								
812700 (1-2)								-3 TU>1
812691 (1-2)								-1 TU>1
812710 (1-3)	<1	>2	3/24/14	KK	No	11 am		
812692 (1-9)	<1	>2			yes			
812728	<1	>2			yes			Rush
3/24/14 812725	>1	<2			yes			Rush
81[illegible]2705 (1-7)	<1	>2			No	11 am		
812736 (2)	>1	<2	3/24/14	KK	yes			
812752 (1-2)	<1	>2	3/26/14	KK	No	3:45 pm		
812745 (1,2,4)	<1	>2						
812751 (1-3)	<1	>2						
812742 (1-12)	N/A	N/A	3/26/14	KK/KD	yes			
812753	<1	>2	3/27/14	KK/KD	yes			pH<2
812750	<1	>2	3/27/14		yes			
812740	<1	<2						
812741	>1	<2						
812767 (1-20)	<1	<2			No	~~0930~~ 3/27/14 KD		
812759 (1-4)	<1	>2			No	0930		
812766 (1,2)	>2	<2			yes			
812757 (10-12)	<1	>2			3/27/14 KD No	0930		
812778 (1-4)	<1	>2	03/28/14	KK	No	10:45 am		
812779 (1-4)	<1							
812782-3	<1							

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

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: E2 **Lab #** 812677

Date Delivered: 03 / 18 / 14 **Time:** 18:50 **By:** ☐ Mail ☒ Field Service ☐ Client

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

ALERT !!
Level III QC

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

TRUESDAIL LABORATORIES, INC.

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Established 1931

14201 FRANKLIN AVENUE
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www.truesdail.com

March 31, 2014

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

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK IM3PLANT-WDR-459 PROJECT, GROUNDWATER MONITORING, TLI NO.: 812753

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-459 project groundwater monitoring for Hexavalent and Total Chromium, Total Manganese, Turbidity, Specific Conductivity, and Total Dissolved Solids. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, quality control data and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data have been included under Section 5.

The samples were received and delivered with the chain of custody on March 25, 2014, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

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

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.

Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

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Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy
Sample: One (1) Groundwater Sample
Project Name: PG&E Topock Project
Project No.: 428648.IM.CS.EX.AC

Laboratory No.: **812753**
Date: March 31, 2014
Collected: March 25, 2014
Received: March 25, 2014

ANALYST LIST

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

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

Laboratory No.: 812753
Date Received: March 25, 2014

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

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
812753-001	SC-700B-WDR-459	E120.1	NONE	3/25/2014	12:48	EC	6630	umhos/cm	2.00
812753-001	SC-700B-WDR-459	E200.8	NONE	3/25/2014	12:48	Chromium	ND	ug/L	1.0
812753-001	SC-700B-WDR-459	E200.8	NONE	3/25/2014	12:48	Manganese	0.81	ug/L	0.50
812753-001	SC-700B-WDR-459	E218.6	LABFLT	3/25/2014	12:48	Chromium, Hexavalent	ND	ug/L	0.20
812753-001	SC-700B-WDR-459	SM2130B	NONE	3/25/2014	12:48	Turbidity	ND	NTU	0.100
812753-001	SC-700B-WDR-459	SM2540C	NONE	3/25/2014	12:48	Total Dissolved Solids	4280	mg/L	125

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

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

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REPORT

Client: **E2 Consulting Engineers, Inc.**
155 Grand Avenue, Suite 800
Oakland, CA 94612
Attention: Shawn Duffy
Project Name: PG&E Topock Project
Project Number: 428648.IM.CS.EX.AC
P.O. Number: PGEIM11111001
Release Number:

Laboratory No. 812753

Printed 3/31/2014

Samples Received on 3/25/2014 5:45:00 PM

Field ID	Lab ID	Collected	Matrix
SC-700B-WDR-459	812753-001	03/25/2014 12:48	Water

Specific Conductivity - EPA 120.1

Batch 03EC14N

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812753-001 Specific Conductivity	umhos/cm	03/27/2014	1.00	0.606	2.00	6630

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate — Lab ID = 812753-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	6640	6630	0.151	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	663	706	93.9	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	667	706	94.5	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	938	1000	93.8	90 - 110

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Client: E2 Consulting Engineers, Inc.

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

Chrome VI by EPA 218.6

Batch 03CrH14 G

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812753-001 Chromium, Hexavalent	ug/L	03/26/2014 22:21	1.00	0.00600	0.20	ND

Method Blank

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

Duplicate — Lab ID = 812753-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.0931	0.0976	4.72	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.194	0.200	96.9	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.03	5.00	100	90 - 110

Matrix Spike — Lab ID = 812753-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.11	5.10(5.00)	100	90 - 110

Matrix Spike — Lab ID = 812753-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.17	1.10(1.00)	108	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.03	5.00	101	90 - 110

MRCVS - Primary

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

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Client: E2 Consulting Engineers, Inc.

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

Metals by EPA 200.8, Total

Batch 032714A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812753-001 Chromium	ug/L	03/27/2014 15:14	1.00	0.0710	1.0	ND
Manganese	ug/L	03/27/2014 15:14	1.00	0.0600	0.50	0.81

Method Blank

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

Duplicate

Lab ID = 812753-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	1.00	ND	0	0	0 - 20
Manganese	ug/L	1.00	0.916	0.811	12.1	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.206	0.200	103	70 - 130
Manganese	ug/L	1.00	0.351	0.500	70.1	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	50.5	50.0	101	85 - 115
Manganese	ug/L	1.00	48.4	50.0	96.7	85 - 115

Matrix Spike

Lab ID = 812753-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	1.00	47.9	50.0(50.0)	95.8	75 - 125
Manganese	ug/L	1.00	46.4	50.8(50.0)	91.3	75 - 125

Matrix Spike Duplicate

Lab ID = 812753-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	1.00	47.4	50.0(50.0)	94.8	75 - 125
Manganese	ug/L	1.00	45.9	50.8(50.0)	90.1	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.3	20.0	101	90 - 110
Manganese	ug/L	1.00	20.0	20.0	100	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.5	20.0	103	90 - 110

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Interference Check Standard AB

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

Total Dissolved Solids by SM 2540 C

Batch 03TDS14D

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812753-001 Total Dissolved Solids	mg/L	03/26/2014	1.00	1.76	125	4280

Method Blank

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

Duplicate — Lab ID = 812753-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	4400	4280	2.65	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

Turbidity by SM 2130 B

Batch 03TUB14M

Parameter	Unit	Analyzed	DF	MDL	RL	Result
812753-001 Turbidity	NTU	03/26/2014	1.00	0.0140	0.100	ND

Method Blank

Parameter	Unit	DF	Result
Turbidity	NTU	1.00	ND

Duplicate — Lab ID = 812746-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Turbidity	NTU	1.00	0.165	0.183	10.3	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	7.88	8.00	98.5	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	7.46	8.00	93.2	90 - 110

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Client: E2 Consulting Engineers, Inc.

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

Printed 3/31/2014

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: 03TDS14D
Date Analyzed: 3/26/2014

Laboratory Number	Sample volume, mL	Initial weight, g	1st Final weight, g	2nd Final weight, g	Weight Difference, g	Exceeds 0.5mg? Yes/No	Residue weight, g	Filterable residue, ppm	RL, ppm	Reported Value, ppm	DF
Blank	100	66.6953	66.6953	66.6953	0.0000	No	0.0000	0.0	25.0	ND	1
812736-1	100	72.4853	72.5253	72.5253	0.0000	No	0.0400	400.0	25.0	400.0	1
812736-2	100	77.9850	78.0286	78.0285	0.0001	No	0.0435	435.0	25.0	435.0	1
812745-2	100	69.2243	69.2386	69.2386	0.0000	No	0.0143	143.0	25.0	143.0	1
812745-4	100	77.4942	77.5296	77.5293	0.0003	No	0.0351	351.0	25.0	351.0	1
812753	20	29.5566	29.6422	29.6422	0.0000	No	0.0856	4280.0	125.0	4280.0	1
812762-1	100	78.2900	78.3409	78.3405	0.0004	No	0.0505	505.0	25.0	505.0	1
812762-2	100	73.7909	73.8386	73.8386	0.0000	No	0.0477	477.0	25.0	477.0	1
812762-3	100	79.0568	79.1078	79.1076	0.0002	No	0.0508	508.0	25.0	508.0	1
812762-4	100	74.7331	74.7855	74.7855	0.0000	No	0.0524	524.0	25.0	524.0	1
812766-1	100	74.5955	74.6365	74.6364	0.0001	No	0.0409	409.0	25.0	409.0	1
812753 Dup	20	29.3961	29.4840	29.4840	0.0000	No	0.0879	4395.0	125.0	4395.0	1
LCS	100	71.3158	71.3657	71.3653	0.0004	No	0.0495	495.0	25.0	495.0	1
812766-2	100	79.1510	79.1969	79.1968	0.0001	No	0.0458	458.0	25.0	458.0	1
812766-2 Dup	100	74.3820	74.4270	74.4266	0.0004	No	0.0446	446.0	25.0	446.0	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?
LCS	495.0	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?
812753	0.0856	0.0879	1.3%	≤5%	Yes
812766-2	0.0458	0.0446	1.3%	≤5%	Yes

Duplicate Determination Difference

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

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

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

Jenny T.
Analyst Printed Name

Analyst Signature

Maksim G.
Reviewer Printed Name

Reviewer Signature

Total Dissolved Solids by SM 2540 C

TDS/EC CHECK

Batch: 03TDS14D
Date Analyzed: 3/26/2014

Laboratory Number	EC	TDS/EC Ratio: 0.55-0.90	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
812736-1	729	0.55	473.85	0.84
812736-2	704	0.62	457.6	0.95
812745-2	255	0.56	165.75	0.86
812745-4	570	0.62	370.5	0.95
812753	6630	0.65	4309.5	0.99
812762-1	844	0.60	548.6	0.92
812762-2	831	0.57	540.15	0.88
812762-3	859	0.59	558.35	0.91
812762-4	898	0.58	583.7	0.90
812766-1	732	0.56	475.8	0.86
812753 Dup	6630	0.66	4309.5	1.02
LCS				
812766-2	698	0.66	453.7	1.01
812766-2 Dup	698	0.64	453.7	0.98

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-459] 812753

COC Number

TURNAROUND TIME 5 Days

DATE 03/25/14 PAGE 1 OF 1

COMPANY: E2

PROJECT NAME: PG&E Topock

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

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

P.O. NUMBER: 428648.IM.CS.EX.AC TEAM: 1

SAMPLERS (SIGNATURE)

Rec'd 03/25/14 Sub 812753

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-459	03/25/14	1248	Water	X	X	X	X		X								3	pH=7 (200.7)
																	3	TOTAL NUMBER OF CONTAINERS

Please Provide a preliminary Result for the TDS ASAP

RUSH

For Sample Conditions See Form Attached

RUSH

ALERT !!
Level III QC

CHAIN OF CUSTODY SIGNATURE RECORD

	Signature	Printed Name	Company/ Agency	Date/ Time
Relinquished		Ryan Phelps	CH2MHILL	3-25-14 12:55
Received	Mike Brunet	Mike Brunet	TLI	3.25.14 1:15
Relinquished	Mike Brunet	Mike Brunet	TLI	3.25.14 5:45
Received	Linda	Shakuwina	TLI	3-25-14 5:45
Relinquished				
Received				

SAMPLE CONDITIONS

RECEIVED COOL ☑ WARM ☐ 4.6°C °F

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
3/26/14	812753	7.00	2ml/100ml	9.5	7:30	NE

NE
3/26/14

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

TRUESDAIL LABORATORIES, INC.
Metals

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest (Y/N)	Time of Adjustment to pH 2	Date/Time of 2nd pH check	Comments
812664	<1	<2	03/19/14	MM	Yes			
812667								
812665								
812663								
812680	>1							
812677	<1	>2	3/20/14	ES	Yes	10:00		pH<2
812707	>1	<2						
812659 (1-2,4)	<1	>2	3/20/14	ES	NO	10:00	3/25/14 10:00	pH<2
812669 (10-12)								
812672 (1-2,5,7)								
812700 (1-2)								-3 TU>1
812691 (1-2)								-1 TU>1
812710 (1-3)	<1	>2	3/24/14	KK	NO	11 am		
812692 (1-9)	<1	>2			yes			
812728	<1	>2			yes			Rush
812725	>1	<2			yes			Rush
812705 (1-7)	<1	>2			NO	11 am		
812736 (2)	>1	<2	3/24/14	KK	yes			
812752 (1-2)	<1	>2	3/26/14	KK	NO	3:45 pm		
812745 (1,2,4)	<1	>2						
812751 (1-3)	<1	>2						
812742 (1-7)	N/A	N/A	3/26/14	KK/KD	Yes			
812753	<1	>2	3/27/14	KK/KD	Yes			pH<2
812750	<1	>2	3/27/14		Yes			
812740	<1	<2						
812741	>1	<2						
812767 (1-20)	<1	<2			NO	~~0930~~ 3/27/14 KD		
812759 (1-4)	<1	>2			NO	0930		
812766 (1,2)	>1	<2			Yes			
812757 (10-12)	<1	>2			NO	0930		
812778 (1-4)	<1	>2	03/28/14	KK	NO	10:45am		
812779 (1-4)	<1							
812782-3	<1							

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

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: E2 **Lab #** 812753

Date Delivered: 03/25/14 **Time:** 17:45 **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)? 4.6 °C
7. Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)? ☑Yes ☐No ☐N/A
8. Were sample custody seals intact? ☐Yes ☐No ☑N/A
9. Does the number of samples received agree with COC? ☑Yes ☐No ☐N/A
10. Did sample labels correspond with the client ID's? ☑Yes ☐No ☐N/A
11. Did sample labels indicate proper preservation? ☐Yes ☐No ☑N/A
    Preserved (if yes) by: ☐**Truesdail** ☐Client
12. Were samples pH checked? pH = see C.O.C ☑Yes ☐No ☐N/A
13. Were all analyses within holding time at time of receipt? ☑Yes ☐No ☐N/A
    If not, notify Project Manager.
14. Have Project due dates been checked and accepted? ☑Yes ☐No ☐N/A
    Turn Around Time (TAT): ☐ **RUSH** ☑ Std
15. **Sample Matrix:** ☐Liquid ☐Drinking Water ☐Ground Water ☐Waste Water ☐Sludge ☐Soil ☐Wipe ☐Paint ☐Solid ☑Other Water
16. Comments: _____
17. Sample Check-In completed by **Truesdail** Log-In/Receiving: Linda

RUSH

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

April 04, 2014

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

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

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

Workorder No.: N012241

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

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on March 31, 2014 by Advanced Technology Laboratories, Inc. . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

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

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

Sincerely,

Jose Tenorio Jr.
Laboratory Director

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

WORKORDER: N012241

ANALYST LIST

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

Advanced Technology Laboratories, Inc. **Date:** *04-Apr-14*

CLIENT: CH2M HILL
Project: PG&E Topock, 428648.IM.CS.EX.AC
Lab Order: N012241

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

Samples were received intact with proper chain of custody documentation.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Samples were analyzed within method holding time.

Analytical Comments for EPA 200.8:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Manganese possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Advanced Technology Laboratories, Inc.
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Advanced Technology Laboratories, Inc.

Date: *04-Apr-14*

CLIENT: CH2M HILL
Project: PG&E Topock, 428648.IM.CS.EX.AC
Lab Order: N012241
Contract No: IM3Plant-WDR-

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N012241-001A	SC-700B-WDR-460	Water	3/31/2014 7:50:00 AM	3/31/2014	4/4/2014
N012241-001B	SC-700B-WDR-460	Water	3/31/2014 7:50:00 AM	3/31/2014	4/4/2014
N012241-001C	SC-700B-WDR-460	Water	3/31/2014 7:50:00 AM	3/31/2014	4/4/2014

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *04-Apr-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	SC-700B-WDR-460
Lab Order:	N012241	**Collection Date:**	3/31/2014 7:50:00 AM
Project:	PG&E Topock, 428648.IM.CS.EX.AC	**Matrix:**	WATER
Lab ID:	N012241-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
EPA 120.1							
RunID: **WETCHEM_140331B**	QC Batch: **R92898**			PrepDate:			Analyst: **LCC**
Specific Conductance	6400	0.10	0.10		umhos/cm	1	3/31/2014

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

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Advanced Technology Laboratories, Inc.

Date: *04-Apr-14*

CLIENT: CH2M HILL
Work Order: N012241
Project: PG&E Topock, 428648.IM.CS.EX.AC

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: **N012241-001C-DUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **92898**
Client ID: **ZZZZZZ** Batch ID: **R92898** TestNo: **EPA 120.1** Analysis Date: **3/31/2014** SeqNo: **1751169**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	6420.000	0.10						6380	0.625	10	

Qualifiers:

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

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *04-Apr-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	SC-700B-WDR-460
Lab Order:	N012241	**Collection Date:**	3/31/2014 7:50:00 AM
Project:	PG&E Topock, 428648.IM.CS.EX.AC	**Matrix:**	WATER
Lab ID:	N012241-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **WETCHEM_140401C**	QC Batch: **45308**			PrepDate:		**4/1/2014**	Analyst: **LCC**
Total Dissolved Solids (Residue, Filterable)	4100	50	50		mg/L	1	4/1/2014 08:16 AM

Qualifiers:

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

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Advanced Technology Laboratories, Inc.

Date: *04-Apr-14*

CLIENT: CH2M HILL
Work Order: N012241
Project: PG&E Topock, 428648.IM.CS.EX.AC

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.1_2540C_W

Sample ID: **MB-45308** SampType: **MBLK** TestCode: **160.1_2540C_** Units: **mg/L** Prep Date: **4/1/2014** RunNo: **92928**
Client ID: **PBW** Batch ID: **45308** TestNo: **SM2540C** Analysis Date: **4/1/2014** SeqNo: **1752141**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	ND	10									

Sample ID: **LCS-45308** SampType: **LCS** TestCode: **160.1_2540C_** Units: **mg/L** Prep Date: **4/1/2014** RunNo: **92928**
Client ID: **LCSW** Batch ID: **45308** TestNo: **SM2540C** Analysis Date: **4/1/2014** SeqNo: **1752142**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	971.000	10	1000	0	97.1	80	120				

Sample ID: **N012236-001A-DUP** SampType: **DUP** TestCode: **160.1_2540C_** Units: **mg/L** Prep Date: **4/1/2014** RunNo: **92928**
Client ID: **ZZZZZZ** Batch ID: **45308** TestNo: **SM2540C** Analysis Date: **4/1/2014** SeqNo: **1752144**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	1065.000	10						1072	0.655	5	

Qualifiers:

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

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *04-Apr-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	SC-700B-WDR-460
Lab Order:	N012241	**Collection Date:**	3/31/2014 7:50:00 AM
Project:	PG&E Topock, 428648.IM.CS.EX.AC	**Matrix:**	WATER
Lab ID:	N012241-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TURBIDITY							
			EPA 180.1				
RunID: **WETCHEM_140401A**	QC Batch: **R92904**			PrepDate:			Analyst: **LCC**
Turbidity	ND	0.10	0.10		NTU	1	4/1/2014

Qualifiers:

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

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Advanced Technology Laboratories, Inc.

Date: *04-Apr-14*

CLIENT: CH2M HILL
Work Order: N012241
Project: PG&E Topock, 428648.IM.CS.EX.AC

ANALYTICAL QC SUMMARY REPORT

TestCode: 180.1_W

Sample ID: **N012241-001C-DUP** SampType: **DUP** TestCode: **180.1_W** Units: **NTU** Prep Date: RunNo: **92904**
Client ID: **ZZZZZZ** Batch ID: **R92904** TestNo: **EPA 180.1** Analysis Date: **4/1/2014** SeqNo: **1751298**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Turbidity	ND	0.10						0	0	30	

Qualifiers:

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

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *04-Apr-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	SC-700B-WDR-460
Lab Order:	N012241	**Collection Date:**	3/31/2014 7:50:00 AM
Project:	PG&E Topock, 428648.IM.CS.EX.AC	**Matrix:**	WATER
Lab ID:	N012241-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ICPMS METALS							
			EPA 200.8				
RunID: **ICP7_140401A**	QC Batch: **45307**			PrepDate:		**4/1/2014**	Analyst: **CEI**
Manganese	ND	0.026	0.50		µg/L	1	4/1/2014 12:51 PM

Qualifiers:

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

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Advanced Technology Laboratories, Inc.

Date: *04-Apr-14*

CLIENT: CH2M HILL
Work Order: N012241
Project: PG&E Topock, 428648.IM.CS.EX.AC

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID: **MB-45307** SampType: **MBLK** TestCode: **200.8_W** Units: **µg/L** Prep Date: **4/1/2014** RunNo: **92909**
Client ID: **PBW** Batch ID: **45307** TestNo: **EPA 200.8** Analysis Date: **4/1/2014** SeqNo: **1751609**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Sample ID: **LCS-45307** SampType: **LCS** TestCode: **200.8_W** Units: **µg/L** Prep Date: **4/1/2014** RunNo: **92909**
Client ID: **LCSW** Batch ID: **45307** TestNo: **EPA 200.8** Analysis Date: **4/1/2014** SeqNo: **1751610**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	103.957	0.50	100.0	0	104	85	115				

Sample ID: **N012241-001B-MS** SampType: **MS** TestCode: **200.8_W** Units: **µg/L** Prep Date: **4/1/2014** RunNo: **92909**
Client ID: **ZZZZZZ** Batch ID: **45307** TestNo: **EPA 200.8** Analysis Date: **4/1/2014** SeqNo: **1751616**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	46.856	0.50	100.0	0	46.9	75	125				S

Sample ID: **N012241-001B-MSD** SampType: **MSD** TestCode: **200.8_W** Units: **µg/L** Prep Date: **4/1/2014** RunNo: **92909**
Client ID: **ZZZZZZ** Batch ID: **45307** TestNo: **EPA 200.8** Analysis Date: **4/1/2014** SeqNo: **1751617**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	47.464	0.50	100.0	0	47.5	75	125	46.86	1.29	20	S

Qualifiers:

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

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Advanced Technology Laboratories, Inc.

ANALYTICAL RESULTS

Print Date: *04-Apr-14*

CLIENT:	CH2M HILL	**Client Sample ID:**	SC-700B-WDR-460
Lab Order:	N012241	**Collection Date:**	3/31/2014 7:50:00 AM
Project:	PG&E Topock, 428648.IM.CS.EX.AC	**Matrix:**	WATER
Lab ID:	N012241-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
EPA 218.6							
RunID: **IC6_140401A** QC Batch: **R92929** PrepDate: Analyst: **RB**							
Hexavalent Chromium	ND	0.016	0.20		µg/L	1	4/1/2014 03:45 PM
ICP-MS METALS							
EPA 200.8							
RunID: **ICP7_140401A** QC Batch: **45307** PrepDate: **4/1/2014** Analyst: **CEI**							
Chromium	ND	0.030	1.0		µg/L	1	4/1/2014 12:51 PM

Qualifiers:

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

Advanced Technology Laboratories, Inc.

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Advanced Technology Laboratories, Inc.

Date: *04-Apr-14*

CLIENT: CH2M HILL
Work Order: N012241
Project: PG&E Topock, 428648.IM.CS.EX.AC

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W_CRPGE

Sample ID: **MB-45307** SampType: **MBLK** TestCode: **200.8_W_CR** Units: **µg/L** Prep Date: **4/1/2014** RunNo: **92909**
Client ID: **PBW** Batch ID: **45307** TestNo: **EPA 200.8** Analysis Date: **4/1/2014** SeqNo: **1751714**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID: **LCS-45307** SampType: **LCS** TestCode: **200.8_W_CR** Units: **µg/L** Prep Date: **4/1/2014** RunNo: **92909**
Client ID: **LCSW** Batch ID: **45307** TestNo: **EPA 200.8** Analysis Date: **4/1/2014** SeqNo: **1751715**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.454	1.0	10.00	0	105	85	115				

Sample ID: **N012241-001B-MS** SampType: **MS** TestCode: **200.8_W_CR** Units: **µg/L** Prep Date: **4/1/2014** RunNo: **92909**
Client ID: **ZZZZZZ** Batch ID: **45307** TestNo: **EPA 200.8** Analysis Date: **4/1/2014** SeqNo: **1751721**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.110	1.0	10.00	0.04568	90.6	75	125				

Sample ID: **N012241-001B-MSD** SampType: **MSD** TestCode: **200.8_W_CR** Units: **µg/L** Prep Date: **4/1/2014** RunNo: **92909**
Client ID: **ZZZZZZ** Batch ID: **45307** TestNo: **EPA 200.8** Analysis Date: **4/1/2014** SeqNo: **1751722**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.050	1.0	10.00	0.04568	90.0	75	125	9.110	0.661	20	

Qualifiers:

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

Advanced Technology Laboratories, Inc.
3151 W. Post Rd Las Vegas, NV 89118 Tel: 702-307-2659 Fax: 702-307-2691

CLIENT: CH2M HILL
Work Order: N012241
Project: PG&E Topock, 428648.IM.CS.EX.AC

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **MB-R92929** SampType: **MBLK** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **92929**
Client ID: **PBW** Batch ID: **R92929** TestNo: **EPA 218.6** Analysis Date: **4/1/2014** SeqNo: **1752149**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID: **LCS-R92929** SampType: **LCS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **92929**
Client ID: **LCSW** Batch ID: **R92929** TestNo: **EPA 218.6** Analysis Date: **4/1/2014** SeqNo: **1752150**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.031	0.20	5.000	0	101	90	110				

Sample ID: **N012241-001ADUP** SampType: **DUP** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **92929**
Client ID: **ZZZZZZ** Batch ID: **R92929** TestNo: **EPA 218.6** Analysis Date: **4/1/2014** SeqNo: **1752152**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.130	0.20						0.1024	0	20	

Sample ID: **N012241-001A-MS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **92929**
Client ID: **ZZZZZZ** Batch ID: **R92929** TestNo: **EPA 218.6** Analysis Date: **4/1/2014** SeqNo: **1752153**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.033	0.20	1.000	0.1024	93.0	90	110				

Sample ID: **N012241-001A-MSD** SampType: **MSD** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **92929**
Client ID: **ZZZZZZ** Batch ID: **R92929** TestNo: **EPA 218.6** Analysis Date: **4/1/2014** SeqNo: **1752154**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.136	0.20	1.000	0.1024	103	90	110	1.033	9.51	20	

Qualifiers:

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

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(702) 307-2659 FAX: (702) 307-2691

CHAIN OF CUSTODY RECORD

[IM3Plant-WDR-460]

COC Number

TURNAROUND TIME 5 Days

DATE 03/31/14 PAGE 1 OF 1

COMPANY CH2M HILL

PROJECT NAME PG&E Topock

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

ADDRESS 155 Grand Ave Ste 1000
Oakland, CA 94612

P.O. NUMBER 428648.IM.CS.EX.AC TEAM 1

SAMPLERS (SIGNATURE)

SAMPLE I.D.	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-460	03/31/14		Water	x	x	x	x		x							3	N012241-1
																3	TOTAL NUMBER OF CONTAINERS

Please Provide a preliminary Result for the TDS ASAP

CHAIN OF CUSTODY SIGNATURE RECORD

	Printed Name	Company/ Agency	Date/ Time
Signature (Relinquished)	Ryan Phelps	CH2MHILL	3-31-14 1405
Signature (Received) HERSEY SAYAS	HERSEY SAYAS	ATL	31MAR14 1406
Signature (Relinquished) HERSEY SAYAS	HERSEY SAYAS	ATL	31MAR14 1609
Signature (Received) Amanda Cortes	Amanda Cortes	ATL	3/31/14 1609
Signature (Relinquished)			
Signature (Received)			

SAMPLE CONDITIONS

RECEIVED COOL ☑ WARM ☐ 4.1 °C

CUSTODY SEALED YES ☐ NO ☑

SPECIAL REQUIREMENTS:

Advanced Technology Laboratories, Inc.

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

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

Cooler Received/Opened On:	3/31/2014	Workorder:	N012241
Rep sample Temp (Deg C):	4.1	IR Gun ID:	2
Temp Blank:	☐ Yes ☑ No		
Carrier name:	ATL		
Last 4 digits of Tracking No.:	N/A	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

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

Comments:

Checklist Completed By AC Flores 03/31/2014

Reviewed By: 04/01/14

Sample Control

From: Marlon B. Cartin [marlon@atl-labs.com]
Sent: Tuesday, April 01, 2014 8:04 AM
To: Shawn.Duffy@CH2M.com
Cc: 'Sample Control'; amanda.cortes@assetlaboratories.com
Subject: Topock sample
Attachments: N012241_COC.pdf

Hi Shawn!

The sample we got from IM3 yesterday is requesting for Cr and Mn by 200.7. We normally do this by 200.8. Attached is the COC.

Please confirm if this is accurate.

Thanks,

Marlon B. Cartin

Advanced Technology Laboratories, Inc.

dba **ASSET LABORATORIES**
3151 W. Post Road
Las Vegas, NV 89118
Phone: 702-307-2659 ext 410
Mobile: 702-439-0421
www.atl-labs.com

Advanced Technology Laboratories, Inc. is a full-service environmental lab providing organic and inorganic analyses of soil, water, wastewater, storm water and hazardous waste samples. ATL is accredited by the State of California, NELAP and State of Nevada and holds various SBE, DBE and MBE certificates and a USDA soil permit. ATL takes pride in providing our customers with quick turnaround time, excellent customer service and defensible data while offering very competitive rates. Advanced Technology Labs, Inc. - Your Partner for Quality Environmental Testing

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<<...>>

ATLInc Reports

From: Glen Gesmundo [glen@atl-labs.com]
Sent: Tuesday, April 01, 2014 9:47 AM
To: shawn.duffy@ch2m.com
Cc: Erlene.Contreras@CH2M.com; Sample Control
Subject: PG&E Topock, 428648.IM.CS.EX.AC
Attachments: N012241_COC.pdf

Hi Shawn,

Per conversation, we will be replacing the method 200.7 to 200.8 for Chromium and Manganese which is consistent with the methods we are using for PG&E projects.

Thanks,

Glen Gesmundo

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Your Partner for Quality Environmental Testing

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Sample Control

From: amanda cortes [amanda.cortes@assetlaboratories.com]
Sent: Tuesday, April 01, 2014 9:01 AM
To: shawn.duffy@ch2m.com
Cc: 'Marlon B. Cartin'; 'Sample Control'; 'Hanah Glodoviza'
Subject: IM3 Plant sample

Hello, Shawn,

Regarding the sample that was received yesterday from the IM3 Plant, there is no collection time on the COC. Taking it from the sample bottles, collection time was 0810. Please confirm collection time.

Thank you,
Amanda

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ATLInc Reports

From: Shawn.Duffy@CH2M.com
Sent: Tuesday, April 01, 2014 10:59 AM
To: amanda.cortes@assetlaboratories.com
Cc: marlon@atl-labs.com; samplecontrol@atl-labs.com; hanah.glodoviza@atl-labs.com; Erlene.Contreras@CH2M.com; Priya.Kumar@CH2M.com
Subject: RE: IM3 Plant sample

Please use the sample time on the sample containers

Shawn

From: amanda cortes [mailto:amanda.cortes@assetlaboratories.com]
Sent: Tuesday, April 01, 2014 9:01 AM
To: Duffy, Shawn/RDD
Cc: 'Marlon B. Cartin'; 'Sample Control'; 'Hanah Glodoviza'
Subject: IM3 Plant sample

Hello, Shawn,

Regarding the sample that was received yesterday from the IM3 Plant, there is no collection time on the COC. Taking it from the sample bottles, collection time was 0810. Please confirm collection time.

Thank you,
Amanda

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SAMPLE CALCULATION

METHOD: SM 2540C
TEST NAME: Total Filterable Residue
MATRIX: Water

FORMULA:

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

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

Where:

A = weight in g of dish + residue after drying
B = weight of dish in g
C = volume of sample used in mL

For **N012241-001C,** TDS concentration in mg/L is calculated as follows:

$$\text{TDS, mg/L} = \frac{(61.1094-61.0267)*1000000}{20}$$

4135 mg/L

Reporting result in two significant figures,

TDS =4100 mg/L

4/2/2014

TOTAL DISSOLVED SOLIDS, TDS

TDS, mg/L = (A-B) X 1000000 / C

WHERE:
A = weight in grams of dish + residue after drying
B = weight of dish in grams
C = volume of sample used in mL

Date Started: 4/1/2014								TDS/CONDUCTIVITY
Date Finished: 4/2/2014	vol	initial	final	calc	prep fact	TDS, mg/L	CONDUCTIVITY	RATIO
MB-45308	100	60.0014	60.0015	1	1	1.00		
LCS-45308	100	60.351	60.4481	971	1	971.00		
N012236-001A	100	61.3256	61.4328	1072	1	1072.00	1584	0.68
N012236-001A-DUP	100	61.1343	61.2408	1065	1	1065.00	1584	0.67
N012241-001C	20	61.0267	61.1094	827	5	4135.00	7090	0.58

4/2/2014

Sample Calculation

METHOD: EPA 200.8
TEST NAME: Heavy Metals by ICP-MS
MATRIX: Aqueous

FORMULA:

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

Chromium, ug/L = A * DF * PF

where:

A = ug/L, calculated concentration
DF = dilution factor
PF = Final Vol. of Digestate in mL / Vol. of Sample used in mL

For Sample **N012241-001B**, the concentration in ug/L is calculated as follows:

Chromium, ug/L = 0.0456773049599951 * 1 * (25/25)

= 0.0456773049599951

Reporting result in two significant figures:

Chromium, ug/L = 0.046

Since PQL of Chromium is 1.0 ug/L,

Chromium, ug/L = ND

Advanced Technology Laboratories, Inc.

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N012241
Test Method: EPA 200.8
Analysis Date: 04/01/14

Matrix: Water
Batch No.: 45307

Instrument ID: ICP-MS #2
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Cr. The calculated value is <25X RL. PS @2X passed criteria.
Dilution test is not applicable to Mn. The calculated value is <25X RL. PS ~~@5X passed criteria~~. PS @2x is low biased at 78.7%

Sample ID	Analyte	&Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N012241-001B-DT 5X	Chromium	µg/L	0	NA	0.045677305	100.00%	10
N012241-001B-DT ~~25X~~ 5x	Manganese	µg/L	0	NA	0		10

Note: NA - Not applicable

Nancy 4/4/2014
for

Advanced Technology Laboratories, Inc.

Date: *01-Apr-14*

CLIENT: CH2M HILL
Work Order: N012241
Project: PG&E Topock, 428648.IM.CS.EX.AC

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID: **N012241-001B-PS** SampType: **PS** TestCode: **200.8_W** Units: **µg/L** Prep Date: RunNo: **92909**
Client ID: **ZZZZZZ** Batch ID: **45307** TestNo: **EPA 200.8** Analysis Date: **4/1/2014** SeqNo: **1751620**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	~~449.324~~	~~2.5~~	~~500.0~~	0	~~89.9~~	80	120				
	157.3	1	200		78.7						

MS / MSD @1x and 5X are biased low possibly due to matrix interference

Nancy 4/4/2014
for

Qualifiers:

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

CLIENT: CH2M HILL
Work Order: N012241
Project: PG&E Topock, 428648.IM.CS.EX.AC

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W_CRPGE

Sample ID: **N012241-001B-PS** SampType: **PS** TestCode: **200.8_W_CR** Units: **µg/L** Prep Date: RunNo: **92909**
Client ID: **ZZZZZZ** Batch ID: **45307** TestNo: **EPA 200.8** Analysis Date: **4/1/2014** SeqNo: **1751720**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.897	2.0	20.00	0.04568	99.3	80	120				

Qualifiers:

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

Sample Calculation

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

FORMULA:

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

Cr^{+6}, µg/L = A * DF

where:

A = µg/L, IC Cr^{+6} calculated concentration
DF = dilution factor

For **N012241-001A** concentration in µg/L is calculated as follows:

Cr^{+6}, µg/L = 0.1024 * 1

= 0.1024

Since PQL is 0.20 µg/L,

Cr^{+6}, µg/L = ND

Nancy 4/4/2014

Analytical Bench Log Book

WDR pH Results

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

Sample Name	Date of sampling	Time of sampling	Date of analysis	Time of analysis	pH Meter #1, #2, or #3 etc. See cover Sheet for Serial Number	Date pH meter Calibrated	Time pH meter Calibrated	Slope of the Curve	Analyst Name (for the pH result)	pH Result
SC-700B	3-4-14	~~15:04~~ 1500 RMP	3-4-14	15:04	METER 1	3-4-14	4:31	-54.6	Ryan Phelps	7.0
Notes:										
SC-100B	3-4-14	~~15:08~~ 15:00 RMP	3-4-14	15:08	METER	3-4-14	4:31	-54.6	Ryan Phelps	7.3
Notes:										
SC-700B	3-11-14	0820	3-11-14	0824	Meter #2	3-11-14	04:27	-53.8	Ron Phelps	7.1
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
1	SC-700B	3-18-14	1325	3-18-14	1329	METER #2	3-18-14	00:55	-54.7	Ryan Phelps	7.2
Notes:											
2	SC-700B	3-25-14	1248	3-25-14	1252	METER #2	3-25-14	0429	-54.4	Ryan Phelps	7.1
Notes:											
3	SC-700B	3-31-14	7:50	3-31-14	7:55	METER #2	3-31-14	0402	-54.2	Ryan Phelps	6.9
Notes:											
4											
Notes:											
5											
Notes:											
6											
Notes:											
7											
Notes:											

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