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October 15, 2014

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Denver, CO 80225-0007

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

Subject: **Topock IM-3 Third Quarter 2014 Monitoring Report**
PG&E Topock Compressor Station, Needles, California
Interim Measure No. 3 Groundwater Treatment System
(Document ID: PGE20141015A)

Dear Ms. Innis and Mr. Perdue:

Enclosed is the Third 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 605,612,891 gallons of water and removed approximately 8,066 pounds of total chromium from August 1, 2005 through September 30, 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 Third 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 Third 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: October 15, 2014

Who Created this Document?: (i.e. PG&E, DTSC, DOI, Other)

PG&E

Document ID Number:

PGE20141015A

Priority Status: ☐ **HIGH** ☐ **MED** ☒ **LOW**

Is this time critical? ☐ Yes ☒ No

Type of Document:

☐ Draft ☒ Report ☐ Letter ☐ Memo

☐ Other / Explain:

Action Required:

☒ Information Only ☐ Review & Comment

Return to: ________________________

By Date:__________________________

☐ Other / Explain:

What does this information pertain to?

☐ Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA)/Preliminary Assessment (PA)

☐ RCRA Facility Investigation (RFI)/Remedial Investigation (RI) (including Risk Assessment)

☐ Corrective Measures Study (CMS)/Feasibility Study (FS)

☐ Corrective Measures Implementation (CMI)/Remedial Action

☐ California Environmental Quality Act (CEQA)/Environmental Impact Report (EIR)

☒ Interim Measures

☐ Other / Explain:

Is this a Regulatory Requirement?

☒ Yes

☐ No

If no, why is the document needed?

What is the consequence of NOT doing this item? What is the consequence of DOING this item?

Submittal of this report is a compliance requirement of the ARARs for waste discharge as documented in Attachment A to the Letter Agreement issued July 26, 2011.

Other Justification/s:

☐ Permit ☐ Other / Explain:

Brief Summary of attached document:

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

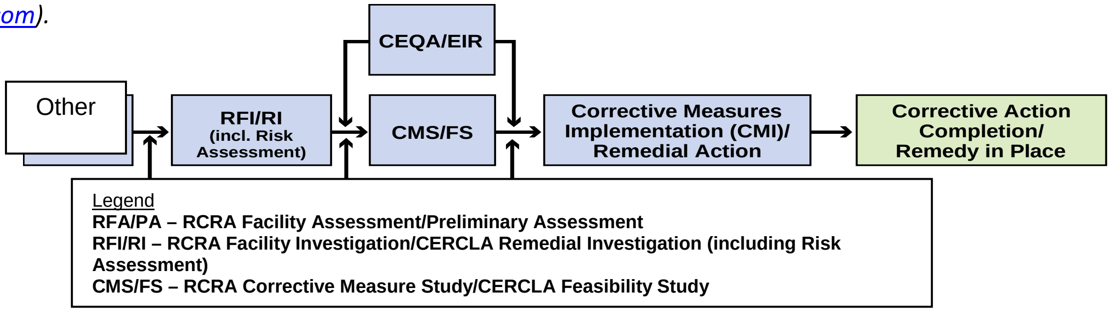
The Topock IM-3 Third Quarter 2014 Monitoring Report is related to the Interim Measure. PG&E is currently operating the IM-3 groundwater treatment system as authorized by the U.S. Department of the Interior (DOI) Waste Discharge Applicable or Relevant and Appropriate Requirements (ARARs) as documented 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

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

Document ID: PGE20141015A

PG&E Topock Compressor Station
Needles, California

Prepared for

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

on behalf of

Pacific Gas and Electric Company

October 15, 2014

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

Third 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

October 15, 2014

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

DENNIS FINK
No. C68986
Exp. 12/2015

Dennis Fink

Dennis Fink, P.E.
Project Engineer

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A Third 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 Third 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 Third Quarter 2014, extraction wells TW-2D, 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 well TW-2S was not operated during Third Quarter 2014. The recorded operational run time for the IM-3 groundwater extraction system (combined or individual pumping), by month, was approximately:

- 95.5 percent during July 2014
- 85.1 percent during August 2014
- 97.8 percent during September 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 Third Quarter 2014 are detailed in Section 4.

SECTION 4

Groundwater Treatment System Flow Rates

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

The system influent flow rate was measured by 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 16,536,726 gallons of extracted groundwater during the Third Quarter 2014. The IM-3 facility also treated approximately 12,350 gallons of injection well backwashing/re-development water.

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

Periods of planned and unplanned extraction system downtime (that together resulted in approximately 7.2 percent downtime during Third 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 July 2014

During July 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 July 2014. The operational run time for the IM-3 groundwater extraction system (combined or individual pumping) was 95.5 percent during the July 2014 reporting period.

The IM-3 facility treated approximately 5,781,399 gallons of extracted groundwater during July 2014.

Periods of planned and unplanned extraction system down time (that together resulted in approximately 4.5 percent of downtime during July 2014) are summarized below.

- **July 2, 2014 (planned):** The extraction well system was offline from 9:24 a.m. to 9:32 a.m., from 9:34 a.m. to 9:54 a.m., from 10:00 a.m. to 10:08 a.m., and from 10:14 a.m. to 10:24 a.m. due to testing of critical alarms and leak detection system. Extraction system downtime was 46 minutes.

- **July 3-4, 2014 (planned):** The extraction well system was offline from 10:40 p.m. on July 3, 2014 to 12:00 a.m. on July 4, 2014 to perform training on generator maintenance, replacement of the strainer on the Raw Water Tank (T-100), and flow meter FSL-201 cleaning. Extraction system downtime was 1 hour, 20 minutes.

- **July 8, 2014 (unplanned):** The extraction well system was offline from 6:26 p.m. to 6:38 p.m., from 6:40 p.m. to 6:50 p.m., from 9:50 p.m. to 9:56 p.m. and from 10:34 p.m. to 10:36 p.m. to switch to/from backup generator power as a precautionary measure due to strong thunderstorms in the area. Extraction system downtime was 30 minutes.

- **July 9, 2014 (unplanned):** The extraction well system was offline from 12:54 p.m. to 1:04 p.m. due to loss of power from the City of Needles Power caused by repairs in the area. Extraction system downtime was 10 minutes.

- **July 10, 2014 (unplanned):** The extraction well system was offline from 9:14 a.m. to 9:20 a.m. and from 10:48 a.m. to 10:52 a.m. due to switch to/from backup generator power as a precautionary measure due to strong thunderstorms in the area. Extraction system downtime was 10 minutes.

- **July 23, 2014 (unplanned):** The extraction well system was offline from 2:04 p.m. to 2:08 p.m. to collect water level measurements from the extraction wells. Extraction system downtime was 4 minutes.
- **July 25-26, 2014 (unplanned):** The extraction well system was offline from 5:26 p.m. on July 25, 2014 to 6:08 p.m. on July 26, 2014 and from 10:20 p.m. to 10:26 p.m. on July 26, 2014 due to power supply and Input/Output (I/O) board failure in the Programmable Logical Controller (PLC). Extraction system downtime was 24 hours, 48 minutes.
- **July 28, 2014 (unplanned):** The extraction well system was offline from 7:32 p.m. to 7:42 p.m. and from 9:44 p.m. to 9:50 p.m. to switch to/from backup generator power as a precautionary measure due to strong thunderstorms in the area. Extraction system downtime was 16 minutes.
- **July 28, 2014 (planned):** The extraction well system was offline from 7:46 a.m. to 12:56 p.m. for new surge protection equipment to be installed around the treatment plant. Extraction system downtime was 5 hours, 10 minutes.

4.2 August 2014

During August 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 August 2014. The operational run time for the IM-3 groundwater extraction system (combined or individual pumping) was 85.1 percent during the August 2014 reporting period.

The IM-3 facility treated approximately 5,180,653 gallons of extracted groundwater during August 2014. Two containers of solids from the IM-3 facility were transported offsite during August 2014.

Periods of planned and unplanned extraction system down time (that together resulted in approximately 14.9 percent of downtime during August 2014) are summarized below.

- **August 3, 2014 (unplanned):** The extraction well system was offline from 1:02 p.m. to 1:32 p.m. due to loss of power from the City of Needles. The facility was transferred to backup generator power during this time. Extraction system downtime was 30 minutes.
- **August 3-4, 2014 (unplanned):** The extraction well system was offline from 11:46 p.m. on August 3, 2014 to 12:04 a.m. on August 4, 2014 to return the facility to City of Needles power. Extraction system downtime was 18 minutes.
- **August 4, 2014 (planned):** The extraction well system was offline from 10:46 a.m. to 10:48 a.m., from 10:50 a.m. to 10:52 a.m., from 11:10 a.m. to 11:12 a.m., and from 11:20 a.m. to 11:24 a.m. due to testing of critical alarms and leak detection system. Extraction system downtime was 10 minutes.
- **August 12, 2014 (unplanned):** The extraction well system was offline from 2:46 p.m. to 3:04 p.m. due to loss of power from the City of Needles. The facility was transferred to backup generator power during this time. Extraction system downtime was 18 minutes.
- **August 13, 2014 (unplanned):** The extraction well system was offline from 1:06 p.m. to 1:12 p.m. to return the facility to City of Needles power. Extraction system downtime was 6 minutes.
- **August 15, 2014 (unplanned):** The extraction well system was offline from 10:54 a.m. to 10:56 a.m. and from 12:26 p.m. to 12:28 p.m. due to switch to/from backup generator power due to loss of power from the City of Needles. Extraction system downtime was 4 minutes.
- **August 18-22, 2014 (planned):** The extraction well system was offline from 6:08 a.m. on August 18, 2014 to 8:10 a.m. on August 22, 2014 and from 8:18 a.m. to 8:52 a.m., 9:02 a.m. to 9:16 a.m., and 11:48 to

1:46 p.m. on August 22, 2014 for semiannual scheduled maintenance. Extraction system downtime was 4 days, 4 hours and 48 minutes.

- **August 22, 2014 (unplanned):** The extraction well system was offline 4:26 p.m. to 10:14 p.m. due to loss of communication with the Programmable Logical Controller (PLC). Extraction system downtime was 5 hours, 38 minutes.
- **August 22-23, 2014 (unplanned):** The extraction well system was offline from 11:08 p.m. on August 22, 2014 to 12:08 a.m. on August 23, 2014 to place the facility in recirculation for tank level management. Extraction system downtime was 1 hour.
- **August 27, 2014 (unplanned):** The extraction well system was offline from 1:28 p.m. to 12:48 p.m. to repair leaks at the chemical loop and RO system. Extraction system downtime was 20 minutes.
- **August 31, 2014 (unplanned):** The extraction well system was offline from 9:56 a.m. to 11:36 a.m. to replace the Microfilter modules. Extraction system downtime was 1 hour, 40 minutes.

4.3 September 2014

During September 2014, extraction wells TW-3D and PE-1 operated at a target pump rate of 135 gpm excluding periods of planned and unplanned downtime. Extraction well TW-2D operated on September 23 and 24, 2014. Extraction well TW-2S was not operated during September 2014. The operational run time for the IM-3 groundwater extraction system (combined or individual pumping) was 97.8 percent during the September 2014 reporting period.

The IM-3 facility treated approximately 5,574,674 gallons of extracted groundwater during September 2014. The IM-3 facility treated 12,350 gallons of injection well backwashing/re-development water. Four containers of solids from the IM-3 facility were transported offsite during September 2014.

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

- **September 3, 2014 (planned):** The extraction well system was offline from 11:20 a.m. to 11:26 a.m., from 11:34 a.m. to 11:38 a.m., 11:40 a.m. to 11:44 a.m. and from 11:48 a.m. to 12:04 p.m. due to testing of critical alarms and leak detection system. Extraction system downtime was 30 minutes.
- **September 10, 2014 (unplanned):** The extraction well system was offline from 12:10 a.m. to 12:38 a.m. to clean the microfilter strainer. Extraction system downtime was 28 minutes.
- **September 10, 2014 (unplanned):** The extraction well system was offline from 1:00 p.m. to 1:08 p.m., from 1:22 p.m. to 1:30 p.m., and from 2:22 p.m. to 2:30 p.m. due to loss of power from the City of Needles. The facility was placed on generator power during this time. Extraction system downtime was 24 minutes.
- **September 10, 2014 (unplanned):** The extraction well system was offline from 4:32 p.m. to 5:16 p.m. and from 5:26 p.m. to 6:28 p.m. to clean the microfilter strainer, clean flow control valve 201, troubleshoot an issue with the Permeate Pump (P-605), and return the facility to power from the City of Needles. Extraction system downtime was 1 hour, 46 minutes.
- **September 12, 2014 (unplanned):** The extraction well system was offline from 6:44 a.m. to 7:02 a.m. for maintenance by the City of Needles power company. Extraction system downtime was 18 minutes.
- **September 13, 2014 (unplanned):** The extraction well system was offline from 5:56 a.m. to 6:14 a.m. to change the microfilter strainer. Extraction system downtime was 18 minutes.

- **September 16, 2014 (unplanned):** The extraction well system was offline from 3:38 p.m. to 3:54 p.m. and 7:24 p.m. to 7:34 p.m. to switch the facility onto and off of generator power due to strong storms in the area. Extraction system downtime was 26 minutes.
- **September 18, 2014 (unplanned):** The extraction well system was offline from 12:32 p.m. to 4:18 p.m. and from 4:20 p.m. to 4:34 p.m. to change the microfilter modules, replace a fuse at extraction well PE-1, and repair an electrical connection in the extraction well TW-3D control panel. Extraction system downtime was 4 hours.
- **September 19, 2014 (unplanned):** The extraction well system was offline from 10:16 p.m. to 10:44 p.m. to replace the air pressure mass flow meter at the #2 Iron Oxidation Tank (T-301B). Extraction system downtime was 28 minutes.
- **September 21, 2014 (unplanned):** The extraction well system was offline from 3:40 a.m. to 4:28 a.m. to place the facility in recirculation due to an out of specification process monitoring sample. Extraction system downtime was 48 minutes.
- **September 23, 2014 (planned):** The extraction well system was offline from 8:00 a.m. to 12:48 p.m. for AquaGard injection at extraction wells PE-1 and TW-2D. Extraction system downtime was 4 hours, 48 minutes.
- **September 24, 2014 (unplanned):** The extraction well system was offline from 4:28 a.m. to 4:30 a.m. due to loss of power from the City of Needles. Extraction system downtime was 2 minutes.
- **September 24, 2014 (unplanned):** The extraction well system was offline from 10:08 a.m. to 11:30 a.m. due to a low-level alarm in the Raw Water Storage Tank (T-100). Extraction system downtime was 1 hour, 22 minutes.

SECTION 5

Sampling and Analytical Procedures

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

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

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

During the Third Quarter 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.

Analytical Results

Laboratory reports for samples collected in the Third 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: October 15, 2014

Tables

TABLE 1

Sampling Station Descriptions

Third 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

Third 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)
July 2014 Average Monthly Flowrate	129.5	129.2	0.3
August 2014 Average Monthly Flowrate	116.1	116.0	0.2
September 2014 Average Monthly Flowrate	129.0	131.8	0.4

Notes:

gpm: gallons per minute

[a] Extraction wells TW-2D, TW-3D and PE-1 were operated during the Third Quarter 2014. Extraction well TW-2S was not operated during the Third Quarter 2014.

[b] The difference between influent flow rate and the sum of the effluent and reverse osmosis concentrate flow rates during the Third Quarter 2014 is approximately 0.83 percent.

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

Parameter	Sample Collection Dates	Results
Influent	July 1, 2014 August 5, 2014 September 2, 2014	See Table 4
Effluent	July 1, 2014 July 8, 2014 July 15, 2014 July 22, 2014 July 29, 2014 August 5, 2014 August 12, 2014 August 18, 2014 August 22, 2014 August 26, 2014 September 2, 2014 September 9, 2014 September 16, 2014 September 23, 2014 September 30, 2014	See Table 5
Reverse Osmosis Concentrate	July 1, 2014	See Table 6
Sludge[a]	July 1, 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]

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

Sampling Frequency		Monthly																						
	Analytes	TDS	Turbidity	Specific Conductance	Field pH [c]	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	0.150	7.20	0.0318	0.0350	0.0500	0.300	0.0041	0.190	0.104	0.140	0.0600	0.0500	0.240	0.0415	0.00063	0.768	3.00	5.10
Sample ID	**Date**																							
SC-100B-WDR-474	**7/1/2014**	**4370**	**0.121**	**7380**	**7.2**	**546**	**562**	**ND (50.0)**	**ND (0.500)**	**ND (2.00)**	**3.60**	**28.0**	**0.796**	**ND (1.00)**	**2.40**	**ND (1.00)**	**7.60**	**19.5**	**ND (2.00)**	**2.68**	**ND (0.0050)**	**497**	**ND (20.0)**	**ND (20.0)**
RL		250	0.100	2.00	---	5.00	5.00	50.0	0.500	2.00	0.500	5.00	0.0200	1.00	0.500	1.00	0.500	2.00	2.00	0.500	0.0050	12.5	20.0	20.0
SC-100B-WDR-479	**8/5/2014**	**4300**	**0.110**	**7250**	**7.4**	**609**	**547**	**ND (50.0)**	**ND (0.500)**	**ND (2.00)**	**3.80**	**27.5**	**0.960**	**ND (1.00)**	**2.38**	**ND (1.00)**	**4.10**	**22.9**	**ND (2.00)**	**2.66**	**ND (0.0050)**	**490**	**ND (20.0)**	**ND (20.0)**
RL		250	0.100	2.00	---	5.00	5.00	50.0	0.500	2.00	0.500	5.00	0.0500	1.00	0.500	1.00	0.500	2.00	2.00	0.500	0.0050	12.5	20.0	20.0
SC-100B-WDR-484	**9/2/2014**	**4520**	**0.107**	**7260**	**7.1**	**640**	**568**	**ND (20.0)**	**ND (0.500)**	**ND (2.00)**	**3.40**	**26.3**	**0.845**	**ND (2.50)**	**2.23**	**ND (1.00)**	**6.90**	**20.6**	**ND (2.00)**	**2.74**	**ND (0.0050)**	**496**	**ND (20.0)**	**ND (20.0)**
RL		250	0.100	2.00	---	2.00	5.00	20.0	0.500	2.00	0.500	5.00	0.0500	2.50	0.500	1.00	1.00	2.00	2.00	0.500	0.0050	12.5	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]

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

Effluent Limits[b]	Ave. Monthly	NA	NA	NA	6.5-8.4	25	8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Max Daily	NA	NA	NA	6.5-8.4	50	16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sampling Frequency		**Weekly**						**Monthly**																
Analytes		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	0.606	---	0.0710	0.0060	7.20	0.0318	0.0350	0.0500	0.300	0.0041	0.190	0.104	0.140	0.0600	0.0500	0.240	0.0415	0.00063	0.768	3.00	5.10
Sample ID	**Date**																							
SC-700B-WDR-474	**7/1/2014**	**4440**	**ND (0.100)**	**7520**	**6.90**	**ND (1.00)**	**ND (0.200)**	**ND (50.0)**	**ND (0.500)**	**ND (2.00)**	**ND (0.500)**	**14.0**	**0.791**	**1.00**	**2.01**	**ND (1.00)**	**0.860**	**21.2**	**2.10**	**2.70**	**ND (0.0050)**	**518**	**ND (20.0)**	**ND (20.0)**
RL		250	0.100	2.00	---	1.00	0.200	50.0	0.500	2.00	0.500	5.00	0.0200	1.00	0.500	1.00	0.500	2.00	2.00	0.500	0.0050	25.0	20.0	20.0
SC-700B-WDR-475	**7/8/2014**	**4200**	**0.126**	**7390**	**6.90**	**ND (1.00)**	**ND (0.200)**	---	---	---	---	---	---	---	---	---	**6.70**	---	---	---	---	---	---	---
RL		250	0.100	2.00	---	1.00	0.200	---	---	---	---	---	---	---	---	---	0.500	---	---	---	---	---	---	---
SC-700B-WDR-476	**7/15/2014**	**4380**	**0.131**	**7500**	**7.00**	**ND (1.00)**	**0.200**	---	---	---	---	---	---	---	---	---	**2.40**	---	---	---	---	---	---	---
RL		250	0.100	2.00	---	1.00	0.200	---	---	---	---	---	---	---	---	---	0.500	---	---	---	---	---	---	---
SC-700B-WDR-477	**7/22/2014**	**4390**	**0.224**	**7440**	**7.00**	**ND (1.00)**	**ND (0.200)**	---	---	---	---	---	---	---	---	---	**1.70**	---	---	---	---	---	---	---
RL		250	0.100	2.00	---	1.00	0.200	---	---	---	---	---	---	---	---	---	0.500	---	---	---	---	---	---	---
SC-700B-WDR-478	**7/29/2014**	**4400**	**ND (0.100)**	**7440**	**7.20**	**ND (1.00)**	**ND (0.200)**	---	---	---	---	---	---	---	---	---	**11.1**	---	---	---	---	---	---	---
RL		250	0.100	2.00	---	1.00	0.200	---	---	---	---	---	---	---	---	---	0.500	---	---	---	---	---	---	---
SC-700B-WDR-479	**8/5/2014**	**4380**	**ND (0.100)**	**7340**	**7.20**	**ND (1.00)**	**ND (0.200)**	**ND (50.0)**	**ND (0.500)**	**ND (2.00)**	**0.560**	**12.9**	**0.918**	**ND (1.00)**	**2.10**	**ND (1.00)**	**3.90**	**22.7**	**2.00**	**2.66**	**ND (0.0050)**	**496**	**ND (20.0)**	**ND (20.0)**
RL		250	0.100	2.00	---	1.00	0.200	50.0	0.500	2.00	0.500	5.00	0.0500	1.00	0.500	1.00	0.500	2.00	2.00	0.500	0.0050	12.5	20.0	20.0
SC-700B-WDR-480	**8/12/2014**	**4400**	**0.147**	**7350**	**6.90**	**ND (1.00)**	**0.250**	---	---	---	---	---	---	---	---	---	**1.60**	---	---	---	---	---	---	---
RL		250	0.100	2.00	---	1.00	0.200	---	---	---	---	---	---	---	---	---	0.500	---	---	---	---	---	---	---
SC-700B-WDR-481	**8/18/2014**	**4300**	**0.138**	**7360**	**7.00**	**ND (1.00)**	**ND (0.200)**	---	---	---	---	---	---	---	---	---	**4.40**	---	---	---	---	---	---	---
RL		250	0.100	2.00	---	1.00	0.200	---	---	---	---	---	---	---	---	---	0.500	---	---	---	---	---	---	---
SC-700B-WDR-482	**8/22/2014**	**4580**	**ND (0.100)**	**7470**	**7.40**	**1.10**	**0.820**	---	---	---	---	---	---	---	---	---	**11.2**	---	---	---	---	---	---	---
RL		250	0.100	2.00	---	1.00	0.200	---	---	---	---	---	---	---	---	---	1.00	---	---	---	---	---	---	---
SC-700B-WDR-483	**8/26/2014**	**4290**	**0.116**	**7290**	**6.90**	**ND (1.00)**	**0.200**	---	---	---	---	---	---	---	---	---	**1.10**	---	---	---	---	---	---	---
RL		250	0.100	2.00	---	1.00	0.200	---	---	---	---	---	---	---	---	---	1.00	---	---	---	---	---	---	---
SC-700B-WDR-484	**9/2/2014**	**4480**	**0.127**	**7250**	**6.80**	**ND (1.00)**	**ND (0.200)**	**ND (20.0)**	**ND (0.500)**	**ND (2.00)**	**ND (0.500)**	**11.4**	**0.835**	**ND (1.00)**	**1.99**	**ND (1.00)**	**17.0**	**19.9**	**2.10**	**2.68**	**ND (0.0050)**	**488**	**ND (20.0)**	**ND (20.0)**
RL		250	0.100	2.00	---	1.00	0.200	20.0	0.500	2.00	0.500	5.00	0.0500	1.00	0.500	1.00	1.00	2.00	2.00	0.500	0.0050	12.5	20.0	20.0
SC-700B-WDR-485	**9/9/2014**	**4410**	**0.124**	**7200**	**7.00**	**ND (1.00)**	**ND (0.200)**	---	---	---	---	---	---	---	---	---	**3.50**	---	---	---	---	---	---	---
RL		250	0.100	2.00	---	1.00	0.200	---	---	---	---	---	---	---	---	---	0.500	---	---	---	---	---	---	---
SC-700B-WDR-486	**9/16/2014**	**4440**	**ND (0.100)**	**7250**	**7.00**	**ND (1.00)**	**0.320**	---	---	---	---	---	---	---	---	---	**1.70**	---	---	---	---	---	---	---
RL		250	0.100	2.00	---	1.00	0.200	---	---	---	---	---	---	---	---	---	0.500	---	---	---	---	---	---	---
SC-700B-WDR-487	**9/23/2014**	**4080**	**0.100**	**6860**	**6.90**	**1.80**	**ND (0.200)**	---	---	---	---	---	---	---	---	---	**10.5**	---	---	---	---	---	---	---
RL		125	0.100	2.00	---	1.00	0.200	---	---	---	---	---	---	---	---	---	0.500	---	---	---	---	---	---	---
SC-700B-WDR-488	**9/30/2014**	**4370**	**ND (0.100)**	**7150**	**6.80**	**3.50**	**ND (0.200)**	---	---	---	---	---	---	---	---	---	**10.6**	---	---	---	---	---	---	---
RL		250	0.100	2.00	---	1.00	0.200	---	---	---	---	---	---	---	---	---	0.500	---	---	---	---	---	---	---

NOTES:

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

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

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

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

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

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

TABLE 6
Topock IM-3 Waste Discharge Applicable or Relevant and Appropriate Requirements (ARARs)
Reverse Osmosis Concentrate Monitoring Results[a]
Third Quarter 2014 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

Sampling Frequency		**Quarterly**																						
Analytes		TDS	Specific Conductance	Field[c] pH	Chromium	Hexavalent Chromium	Antimony	Arsenic	Barium	Beryllium	Cadmium	Cobalt	Copper	Fluoride	Lead	Molybdenum	Mercury	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
Units[b]		mg/L	µmhos/cm	pH units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
MDL		1.76	0.606	---	0.00036	0.000032	0.00018	0.00025	0.0015	0.00036	0.00020	0.000080	0.00095	0.104	0.00072	0.00010	0.000080	0.0012	0.0032	0.00014	0.00015	0.00035	0.0051
Sample ID	**Date**																						
SC-701-WDR-474	**7/1/2014**	**9090**	**14300**	**8.0**	**ND (0.0025)**	**ND (0.0010)**	**ND (0.0020)**	**ND (0.0010)**	**0.0271**	**ND (0.0020)**	**ND (0.0010)**	**ND (0.0050)**	**0.00290**	**4.50**	**ND (0.0025)**	**0.0428**	**ND (0.00040)**	**0.00640**	**ND (0.0100)**	**ND (0.0050)**	**ND (0.0010)**	**ND (0.0050)**	**ND (0.0200)**
RL		250	2.00	---	0.0025	0.0010	0.0020	0.0010	0.0050	0.0020	0.0010	0.0050	0.0025	0.500	0.0025	0.0020	0.00040	0.0050	0.0100	0.0050	0.0010	0.0050	0.0200

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

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

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

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

TABLE 7

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

Sludge Monitoring Results[a]

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

Sampling Frequency		**Quarterly**																			Annually
	Analytes	Chromium	Hexavalent Chromium	Antimony	Arsenic	Barium	Beryllium	Cadmium	Cobalt	Copper	Fluoride	Lead	Molybdenum	Mercury	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc	Bioassay
	Units [b]	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	% Survival
	MDL	0.0140	0.0112	0.0694	0.0188	0.0106	0.00036	0.0025	0.0020	0.0264	0.0209	0.0040	0.0216	0.00040	0.0040	0.0064	0.0032	0.0456	0.0056	0.0102	at 750 mg/L [c]
Sample ID	**Date**																				
SC-Sludge-WDR-474	**7/1/2014**	**2350**	**46.0**	**31.1**	**ND (5.00)**	**52.2**	**ND (1.00)**	**4.82**	**ND (10.0)**	**29.5**	**18.8**	**ND (5.00)**	**ND (10.0)**	**ND (0.174)**	**17.1**	**ND (5.00)**	**ND (5.00)**	**ND (8.72)**	**30.2**	**17.3**	100
RL		8.72	4.16	12.2	5.00	10.0	1.00	1.74	10.0	6.97	4.16	5.00	10.0	0.174	5.00	5.00	5.00	8.72	5.00	10.0	100

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.

[c] Sludge shall have an aquatic bioassay test performed each time sludge is transported offsite, unless transport is more frequent than quaterly, in which case the sampling frequency

TABLE 8

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

Monitoring Information

Third 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-474	Chris Lentz	7/1/2014	10:05:00 AM	TLI	EPA 120.1	SC	7/3/2014	Jenny Tankunakorn
					TLI	EPA 200.7	AL	7/18/2014	Ethel Suico
					TLI	EPA 200.7	B	7/22/2014	Ethel Suico
					TLI	EPA 200.7	FE	7/18/2014	Ethel Suico
					TLI	EPA 200.7	ZN	7/18/2014	Ethel Suico
					TLI	EPA 200.8	AS	7/15/2014	Ethel Suico
					TLI	EPA 200.8	BA	7/15/2014	Ethel Suico
					TLI	EPA 200.8	CR	7/15/2014	Ethel Suico
					TLI	EPA 200.8	CU	7/15/2014	Ethel Suico
					TLI	EPA 200.8	MN	7/15/2014	Ethel Suico
					TLI	EPA 200.8	MO	7/15/2014	Ethel Suico
					TLI	EPA 200.8	NI	7/15/2014	Ethel Suico
					TLI	EPA 200.8	PB	7/15/2014	Ethel Suico
					TLI	EPA 200.8	SB	7/15/2014	Ethel Suico
					TLI	EPA 218.6	CR6	7/9/2014	Naheed Eidinejad
					TLI	EPA 300.0	FL	7/2/2014	Giawad Ghenniwa
					TLI	EPA 300.0	NO3N	7/2/2014	Giawad Ghenniwa
					TLI	EPA 300.0	SO4	7/2/2014	Giawad Ghenniwa
					FIELD	HACH	PH	7/1/2014	Chris Lentz
					TLI	SM 2540C	TDS	7/3/2014	Jenny Tankunakorn
					TLI	SM2130B	TRB	7/3/2014	Jennine Ta
					TLI	SM4500NH3D	NH3N	7/15/2014	Maksim Grobunov
					TLI	SM4500NO2B	NO2N	7/2/2014	Jenny Tankunakorn
SC-100B	SC-100B-WDR-479	Chris Lentz	8/5/2014	2:45:00 PM	TLI	EPA 120.1	SC	8/7/2014	Jenny Tankunakorn
					TLI	EPA 200.7	AL	8/21/2014	Ethel Suico
					TLI	EPA 200.7	B	8/21/2014	Ethel Suico
					TLI	EPA 200.7	FE	8/21/2014	Ethel Suico
					TLI	EPA 200.7	FETD	8/21/2014	Ethel Suico
					TLI	EPA 200.7	ZN	8/21/2014	Ethel Suico
					TLI	EPA 200.8	AS	8/20/2014	Ethel Suico
					TLI	EPA 200.8	BA	8/20/2014	Ethel Suico
					TLI	EPA 200.8	CR	8/21/2014	Ethel Suico
					TLI	EPA 200.8	CU	9/3/2014	Ethel Suico
					TLI	EPA 200.8	MN	8/20/2014	Ethel Suico
					TLI	EPA 200.8	MND	8/21/2014	Ethel Suico
					TLI	EPA 200.8	MO	8/20/2014	Ethel Suico

TABLE 8

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

Monitoring Information

Third 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-479	Chris Lentz	8/5/2014	2:45:00 PM	TLI	EPA 200.8	NI	8/20/2014	Ethel Suico
					TLI	EPA 200.8	PB	8/20/2014	Ethel Suico
					TLI	EPA 200.8	SB	8/20/2014	Ethel Suico
					TLI	EPA 218.6	CR6	8/6/2014	Naheed Eidinejad
					TLI	EPA 300.0	FL	8/6/2014	Giawad Ghenniwa
					TLI	EPA 300.0	NO3N	8/6/2014	Giawad Ghenniwa
					TLI	EPA 300.0	SO4	8/6/2014	Giawad Ghenniwa
					FIELD	HACH	PH	8/5/2014	Chris Lentz
					TLI	SM 2320B	ALKB	8/11/2014	Alex Luna
					TLI	SM 2320B	ALKC	8/11/2014	Alex Luna
					TLI	SM 2540C	TDS	8/6/2014	Jenny Tankunakorn
					TLI	SM2130B	TRB	8/6/2014	Jennine Ta
					TLI	SM4500NH3D	NH3N	8/19/2014	Maksim Gorbunov
					TLI	SM4500NO2B	NO2N	8/6/2014	Jenny Tankunakorn
SC-100B	SC-100B-WDR-484	Cameron Stan	9/2/2014	2:00:00 PM	TLI	EPA 120.1	SC	9/4/2014	Jenny Tankunakorn
					TLI	EPA 200.7	AL	9/9/2014	Ethel Suico
					TLI	EPA 200.7	B	9/9/2014	Ethel Suico
					TLI	EPA 200.7	FE	9/9/2014	Ethel Suico
					TLI	EPA 200.7	FETD	9/9/2014	Ethel Suico
					TLI	EPA 200.7	ZN	9/9/2014	Ethel Suico
					TLI	EPA 200.8	AS	9/4/2014	Ethel Suico
					TLI	EPA 200.8	BA	9/4/2014	Ethel Suico
					TLI	EPA 200.8	CR	9/5/2014	Ethel Suico
					TLI	EPA 200.8	CU	9/4/2014	Ethel Suico
					TLI	EPA 200.8	MN	9/4/2014	Ethel Suico
					TLI	EPA 200.8	MND	9/8/2014	Ethel Suico
					TLI	EPA 200.8	MO	9/4/2014	Ethel Suico
					TLI	EPA 200.8	NI	9/4/2014	Ethel Suico
					TLI	EPA 200.8	PB	9/4/2014	Ethel Suico
					TLI	EPA 200.8	SB	9/4/2014	Ethel Suico
					TLI	EPA 218.6	CR6	9/3/2014	Naheed Eidinejad
					TLI	EPA 300.0	FL	9/3/2014	Giawad Ghenniwa
					TLI	EPA 300.0	NO3N	9/3/2014	Giawad Ghenniwa
					TLI	EPA 300.0	SO4	9/3/2014	Giawad Ghenniwa
					FIELD	HACH	PH	9/2/2014	Ron Phelps
					TLI	SM 2320B	ALKB	9/4/2014	Alex Luna

TABLE 8

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

Monitoring Information

Third 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-484	Cameron Stan	9/2/2014	2:00:00 PM	TLI	SM 2320B	ALKC	9/4/2014	Alex Luna
					TLI	SM 2540C	TDS	9/3/2014	Jenny Tankunakorn
					TLI	SM2130B	TRB	9/3/2014	Jennine Ta
					TLI	SM4500NH3D	NH3N	9/16/2014	Maksim Gorbunov
					TLI	SM4500NO2B	NO2N	9/3/2014	Jenny Tankunakorn
SC-700B	SC-700B-WDR-474	Chris Lentz	7/1/2014	10:05:00 AM	TLI	EPA 120.1	SC	7/3/2014	Jenny Tankunakorn
					TLI	EPA 200.7	AL	7/18/2014	Ethel Suico
					TLI	EPA 200.7	B	7/22/2014	Ethel Suico
					TLI	EPA 200.7	FE	7/18/2014	Ethel Suico
					TLI	EPA 200.7	ZN	7/18/2014	Ethel Suico
					TLI	EPA 200.8	AS	7/15/2014	Ethel Suico
					TLI	EPA 200.8	BA	7/15/2014	Ethel Suico
					TLI	EPA 200.8	CR	7/15/2014	Ethel Suico
					TLI	EPA 200.8	CU	7/15/2014	Ethel Suico
					TLI	EPA 200.8	MN	7/15/2014	Ethel Suico
					TLI	EPA 200.8	MO	7/15/2014	Ethel Suico
					TLI	EPA 200.8	NI	7/15/2014	Ethel Suico
					TLI	EPA 200.8	PB	7/15/2014	Ethel Suico
					TLI	EPA 200.8	SB	7/15/2014	Ethel Suico
					TLI	EPA 218.6	CR6	7/2/2014	Naheed Eidinejad
					TLI	EPA 300.0	FL	7/2/2014	Giawad Ghenniwa
					TLI	EPA 300.0	NO3N	7/2/2014	Giawad Ghenniwa
					TLI	EPA 300.0	SO4	7/2/2014	Giawad Ghenniwa
					FIELD	HACH	PH	7/1/2014	Chris Lentz
					TLI	SM 2540C	TDS	7/3/2014	Jenny Tankunakorn
					TLI	SM2130B	TRB	7/3/2014	Jennine Ta
					TLI	SM4500NH3D	NH3N	7/15/2014	Maksim Grobunov
					TLI	SM4500NO2B	NO2N	7/2/2014	Jenny Tankunakorn
SC-700B	SC-700B-WDR-475	Chris Lentz	7/8/2014	10:25:00 AM	TLI	EPA 120.1	SC	7/9/2014	Jenny Tankunakorn
					TLI	EPA 200.8	CR	7/15/2014	Ethel Suico
					TLI	EPA 200.8	MN	7/15/2014	Ethel Suico
					TLI	EPA 218.6	CR6	7/9/2014	Naheed Eidinejad
					FIELD	HACH	PH	7/8/2014	Chris Lentz
					TLI	SM 2540C	TDS	7/9/2014	Jenny Tankunakorn
					TLI	SM2130B	TRB	7/9/2014	Jennine Ta

TABLE 8

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

Monitoring Information

Third 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-476	Chris Lentz	7/15/2014	9:20:00 AM	TLI	EPA 120.1	SC	7/16/2014	Jenny Tankunakorn
					TLI	EPA 200.8	CR	7/29/2014	Ethel Suico
					TLI	EPA 200.8	MN	7/29/2014	Ethel Suico
					TLI	EPA 218.6	CR6	7/30/2014	Naheed Eidinejad
					FIELD	HACH	PH	7/15/2014	Chris Lentz
					TLI	SM 2540C	TDS	7/17/2014	Jenny Tankunakorn
					TLI	SM2130B	TRB	7/17/2014	Jennine Ta
SC-700B	SC-700B-WDR-477	Ron Phelps	7/22/2014	10:30:00 AM	TLI	EPA 120.1	SC	7/24/2014	Jenny Tankunakorn
					TLI	EPA 200.8	CR	7/29/2014	Ethel Suico
					TLI	EPA 200.8	MN	7/29/2014	Ethel Suico
					TLI	EPA 218.6	CR6	7/25/2014	Naheed Eidinejad
					FIELD	HACH	PH	7/22/2014	Ron Phelps
					TLI	SM 2540C	TDS	7/23/2014	Jenny Tankunakorn
					TLI	SM2130B	TRB	7/24/2014	Jennine Ta
SC-700B	SC-700B-WDR-478	Chris Lentz	7/29/2014	11:50:00 AM	TLI	EPA 120.1	SC	7/30/2014	Jenny Tankunakorn
					TLI	EPA 200.8	CR	8/7/2014	Ethel Suico
					TLI	EPA 200.8	MN	8/7/2014	Ethel Suico
					TLI	EPA 218.6	CR6	7/30/2014	Naheed Eidinejad
					FIELD	HACH	PH	7/29/2014	Chris Lentz
					TLI	SM 2540C	TDS	7/30/2014	Jenny Tankunakorn
					TLI	SM2130B	TRB	7/30/2014	Jennine Ta
SC-700B	SC-700B-WDR-479	Chris Lentz	8/5/2014	2:45:00 PM	TLI	EPA 120.1	SC	8/7/2014	Jenny Tankunakorn
					TLI	EPA 200.7	AL	8/21/2014	Ethel Suico
					TLI	EPA 200.7	B	8/21/2014	Ethel Suico
					TLI	EPA 200.7	FE	8/21/2014	Ethel Suico
					TLI	EPA 200.7	ZN	8/21/2014	Ethel Suico
					TLI	EPA 200.8	AS	8/20/2014	Ethel Suico
					TLI	EPA 200.8	BA	8/20/2014	Ethel Suico
					TLI	EPA 200.8	CR	8/20/2014	Ethel Suico
					TLI	EPA 200.8	CU	9/3/2014	Ethel Suico
					TLI	EPA 200.8	MN	8/20/2014	Ethel Suico
					TLI	EPA 200.8	MO	8/20/2014	Ethel Suico
					TLI	EPA 200.8	NI	8/20/2014	Ethel Suico
					TLI	EPA 200.8	PB	8/20/2014	Ethel Suico
					TLI	EPA 200.8	SB	8/20/2014	Ethel Suico

TABLE 8

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

Monitoring Information

Third 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-479	Chris Lentz	8/5/2014	2:45:00 PM	TLI	EPA 218.6	CR6	8/6/2014	Naheed Eidinejad
					TLI	EPA 300.0	FL	8/6/2014	Giawad Ghenniwa
					TLI	EPA 300.0	NO3N	8/6/2014	Giawad Ghenniwa
					TLI	EPA 300.0	SO4	8/6/2014	Giawad Ghenniwa
					FIELD	HACH	PH	8/5/2014	Chris Lentz
					TLI	SM 2540C	TDS	8/6/2014	Jenny Tankunakorn
					TLI	SM2130B	TRB	8/6/2014	Jennine Ta
					TLI	SM4500NH3D	NH3N	8/19/2014	Maksim Gorbunov
					TLI	SM4500NO2B	NO2N	8/6/2014	Jenny Tankunakorn
SC-700B	SC-700B-WDR-480	Ryan Phelps	8/12/2014	11:45:00 AM	TLI	EPA 120.1	SC	8/14/2014	Jenny Tankunakorn
					TLI	EPA 200.8	CR	8/20/2014	Ethel Suico
					TLI	EPA 200.8	MN	8/20/2014	Ethel Suico
					TLI	EPA 218.6	CR6	8/13/2014	Naheed Eidinejad
					FIELD	HACH	PH	8/12/2014	Cameron Stone
					TLI	SM 2540C	TDS	8/13/2014	Jenny Tankunakorn
					TLI	SM2130B	TRB	8/13/2014	Jennine Ta
SC-700B	SC-700B-WDR-481	Ryan Phelps	8/18/2014		TLI	EPA 120.1	SC	8/25/2014	Jenny Tankunakorn
					TLI	EPA 200.8	CR	8/20/2014	Ethel Suico
					TLI	EPA 200.8	MN	8/20/2014	Ethel Suico
					TLI	EPA 218.6	CR6	8/22/2014	Naheed Eidinejad
					FIELD	HACH	PH	8/18/2014	Josh R
					TLI	SM 2540C	TDS	8/19/2014	Jenny Tankunakorn
					TLI	SM2130B	TRB	8/19/2014	Jennine Ta
SC-700B	SC-700B-WDR-482	Josh Rosenberg	8/22/2014	3:00:00 PM	TLI	EPA 120.1	SC	8/25/2014	Jenny Tankunakorn
					TLI	EPA 200.8	CR	9/5/2014	Ethel Suico
					TLI	EPA 200.8	MN	9/4/2014	Ethel Suico
					TLI	EPA 218.6	CR6	8/29/2014	Naheed Eidinejad
					FIELD	HACH	PH	8/22/2014	Ron Phelps
					TLI	SM 2540C	TDS	8/27/2014	Jenny Tankunakorn
					TLI	SM2130B	TRB	8/23/2014	Maksim Gorbunov
SC-700B	SC-700B-WDR-483	Chris Lentz	8/26/2014	2:00:00 PM	TLI	EPA 120.1	SC	8/29/2014	Jenny Tankunakorn
					TLI	EPA 200.8	CR	9/5/2014	Ethel Suico
					TLI	EPA 200.8	MN	9/4/2014	Ethel Suico
					TLI	EPA 218.6	CR6	8/29/2014	Naheed Eidinejad
					FIELD	HACH	PH	8/26/2014	Chris Lentz

TABLE 8

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

Monitoring Information

Third 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-483	Chris Lentz	8/26/2014	2:00:00 PM	TLI	SM 2540C	TDS	8/27/2014	Jenny Tankunakorn
					TLI	SM2130B	TRB	8/27/2014	Jennine Ta
SC-700B	SC-700B-WDR-484	Cameron Stan	9/2/2014	2:00:00 PM	TLI	EPA 120.1	SC	9/4/2014	Jenny Tankunakorn
					TLI	EPA 200.7	AL	9/9/2014	Ethel Suico
					TLI	EPA 200.7	B	9/9/2014	Ethel Suico
					TLI	EPA 200.7	FE	9/9/2014	Ethel Suico
					TLI	EPA 200.7	ZN	9/9/2014	Ethel Suico
					TLI	EPA 200.8	AS	9/4/2014	Ethel Suico
					TLI	EPA 200.8	BA	9/4/2014	Ethel Suico
					TLI	EPA 200.8	CR	9/5/2014	Ethel Suico
					TLI	EPA 200.8	CU	9/4/2014	Ethel Suico
					TLI	EPA 200.8	MN	9/4/2014	Ethel Suico
					TLI	EPA 200.8	MO	9/4/2014	Ethel Suico
					TLI	EPA 200.8	NI	9/4/2014	Ethel Suico
					TLI	EPA 200.8	PB	9/4/2014	Ethel Suico
					TLI	EPA 200.8	SB	9/4/2014	Ethel Suico
					TLI	EPA 218.6	CR6	9/3/2014	Naheed Eidinejad
					TLI	EPA 300.0	FL	9/3/2014	Giawad Ghenniwa
					TLI	EPA 300.0	NO3N	9/3/2014	Giawad Ghenniwa
					TLI	EPA 300.0	SO4	9/3/2014	Giawad Ghenniwa
					FIELD	HACH	PH	9/2/2014	Ron Phelps
					TLI	SM 2540C	TDS	9/3/2014	Jenny Tankunakorn
					TLI	SM2130B	TRB	9/3/2014	Jennine Ta
					TLI	SM4500NH3D	NH3N	9/16/2014	Maksim Gorbunov
					TLI	SM4500NO2B	NO2N	9/3/2014	Jenny Tankunakorn
SC-700B	SC-700B-WDR-485	Ron Phelps	9/9/2014	10:00:00 AM	TLI	EPA 120.1	SC	9/10/2014	Jenny Tankunakorn
					TLI	EPA 200.8	CR	9/22/2014	Ethel Suico
					TLI	EPA 200.8	MN	9/22/2014	Ethel Suico
					TLI	EPA 218.6	CR6	9/10/2014	Naheed Eidinejad
					FIELD	HACH	PH	9/9/2014	Ron Phelps
					TLI	SM 2540C	TDS	9/11/2014	Jenny Tankunakorn
					TLI	SM2130B	TRB	9/10/2014	Jennine Ta
SC-700B	SC-700B-WDR-486	Chris Lentz	9/16/2014	1:30:00 PM	TLI	EPA 120.1	SC	9/17/2014	Jenny Tankunakorn
					TLI	EPA 200.8	CR	9/22/2014	Ethel Suico
					TLI	EPA 200.8	MN	9/22/2014	Ethel Suico

TABLE 8

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

Monitoring Information

Third 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-486	Chris Lentz	9/16/2014	1:30:00 PM	TLI	EPA 218.6	CR6	9/19/2014	Naheed Eidinejad
					FIELD	HACH	PH	9/16/2014	Chris Lentz
					TLI	SM 2540C	TDS	9/17/2014	Jenny Tankunakorn
					TLI	SM2130B	TRB	9/17/2014	Jennine Ta
SC-700B	SC-700B-WDR-487	Chris Lentz	9/23/2014	8:10:00 AM	TLI	EPA 120.1	SC	9/29/2014	Jenny Tankunakorn
					TLI	EPA 200.8	CR	9/29/2014	Ethel Suico
					TLI	EPA 200.8	MN	9/29/2014	Ethel Suico
					TLI	EPA 218.6	CR6	9/24/2014	Naheed Eidinejad
					FIELD	HACH	PH	9/23/2014	Chris Lentz
					TLI	SM 2540C	TDS	9/23/2014	Jenny Tankunakorn
					TLI	SM2130B	TRB	9/24/2014	Jennine Ta
SC-700B	SC-700B-WDR-488	Chris Lentz	9/30/2014	7:40:00 AM	TLI	EPA 120.1	SC	10/3/2014	Jenny Tankunakorn
					TLI	EPA 200.8	CR	10/6/2014	Ethel Suico
					TLI	EPA 200.8	MN	10/6/2014	Ethel Suico
					TLI	EPA 218.6	CR6	10/1/2014	Naheed Eidinejad
					FIELD	HACH	PH	9/30/2014	Chris Lentz
					TLI	SM 2540C	TDS	9/30/2014	Jenny Tankunakorn
					TLI	SM2130B	TRB	10/1/2014	Jennine Ta
SC-701	SC-701-WDR-474	Chris Lentz	7/1/2014	10:05:00 AM	TLI	EPA 120.1	SC	7/3/2014	Jenny Tankunakorn
					TLI	EPA 200.7	SE	7/18/2014	Ethel Suico
					TLI	EPA 200.7	ZN	7/18/2014	Ethel Suico
					TLI	EPA 200.8	AG	7/15/2014	Ethel Suico
					TLI	EPA 200.8	AS	7/15/2014	Ethel Suico
					TLI	EPA 200.8	BA	7/15/2014	Ethel Suico
					TLI	EPA 200.8	BE	7/17/2014	Ethel Suico
					TLI	EPA 200.8	CD	7/15/2014	Ethel Suico
					TLI	EPA 200.8	CO	7/15/2014	Ethel Suico
					TLI	EPA 200.8	CR	7/15/2014	Ethel Suico
					TLI	EPA 200.8	CU	7/15/2014	Ethel Suico
					TLI	EPA 200.8	HG	7/15/2014	Ethel Suico
					TLI	EPA 200.8	MN	7/15/2014	Ethel Suico
					TLI	EPA 200.8	MO	7/15/2014	Ethel Suico
					TLI	EPA 200.8	NI	7/15/2014	Ethel Suico
					TLI	EPA 200.8	PB	7/15/2014	Ethel Suico
					TLI	EPA 200.8	SB	7/15/2014	Ethel Suico

TABLE 8

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

Monitoring Information

Third 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-701	SC-701-WDR-474	Chris Lentz	7/1/2014	10:05:00 AM	TLI	EPA 200.8	TL	7/15/2014	Ethel Suico
					TLI	EPA 200.8	V	7/15/2014	Ethel Suico
					TLI	EPA 218.6	CR6	7/2/2014	Naheed Eidinejad
					TLI	EPA 300.0	FL	7/2/2014	Giawad Ghenniwa
					FIELD	HACH	PH	7/1/2014	Chris Lentz
					TLI	SM 2540C	TDS	7/3/2014	Jenny Tankunakorn
Phase Separator	SC-Sludge-WDR-474	Chris Lentz	7/1/2014	9:00:00 AM	TLI	EPA 300.0	FL	7/2/2014	Giawad Ghenniwa
					TLI	EPA 6010B	AG	7/11/2014	Ethel Suico
					TLI	EPA 6010B	AS	7/11/2014	Ethel Suico
					TLI	EPA 6010B	BA	7/11/2014	Ethel Suico
					TLI	EPA 6010B	CD	7/11/2014	Ethel Suico
					TLI	EPA 6010B	CO	7/11/2014	Ethel Suico
					TLI	EPA 6010B	CR	7/11/2014	Ethel Suico
					TLI	EPA 6010B	CU	7/11/2014	Ethel Suico
					TLI	EPA 6010B	MN	7/11/2014	Ethel Suico
					TLI	EPA 6010B	MO	7/11/2014	Ethel Suico
					TLI	EPA 6010B	NI	7/11/2014	Ethel Suico
					TLI	EPA 6010B	PB	7/11/2014	Ethel Suico
					TLI	EPA 6010B	SB	7/11/2014	Ethel Suico
					TLI	EPA 6010B	SE	7/11/2014	Ethel Suico
					TLI	EPA 6010B	TL	7/11/2014	Ethel Suico
					TLI	EPA 6010B	V	7/11/2014	Ethel Suico
					TLI	EPA 6010B	ZN	7/11/2014	Ethel Suico
					TLI	SM2540B	MOIST	7/10/2014	Naheed Eidinejad
					TLI	SW 6020A	BE	7/18/2014	Ethel Suico
					TLI	SW 6020A	HG	7/18/2014	Ethel Suico
					TLI	SW 7199	CR6	7/14/2014	Naheed Eidinejad

TABLE 8

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

Monitoring Information

Third 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-474	Chris Lentz	07/1/2014	9:00:00 AM	ATL	96-Hour Acute Aquatic Toxicity Screening Test	BIO	7/04//2014 - 07/08/2014	Joseph A. LeMay

NOTES:

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

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

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

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

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

Figures

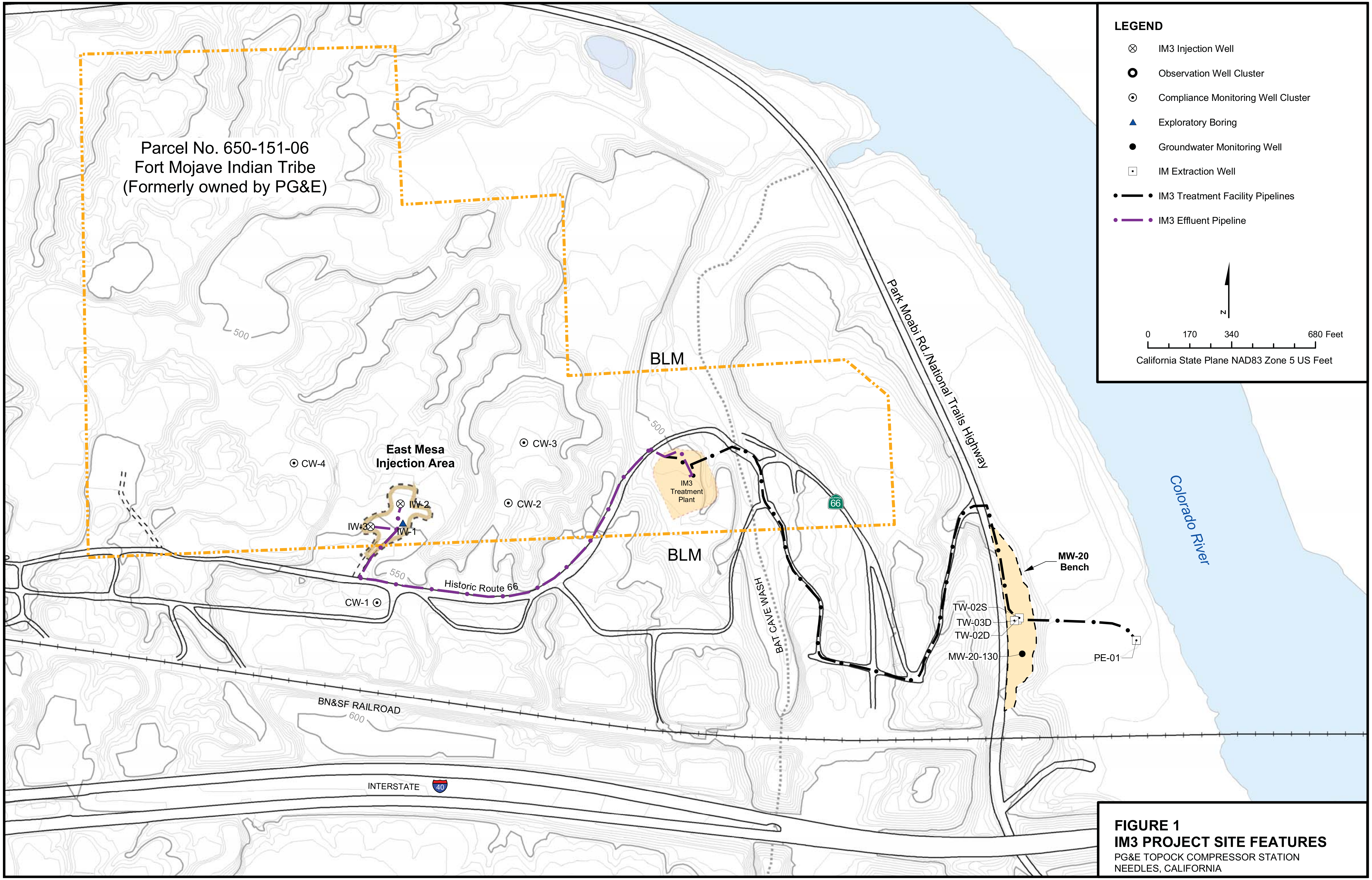
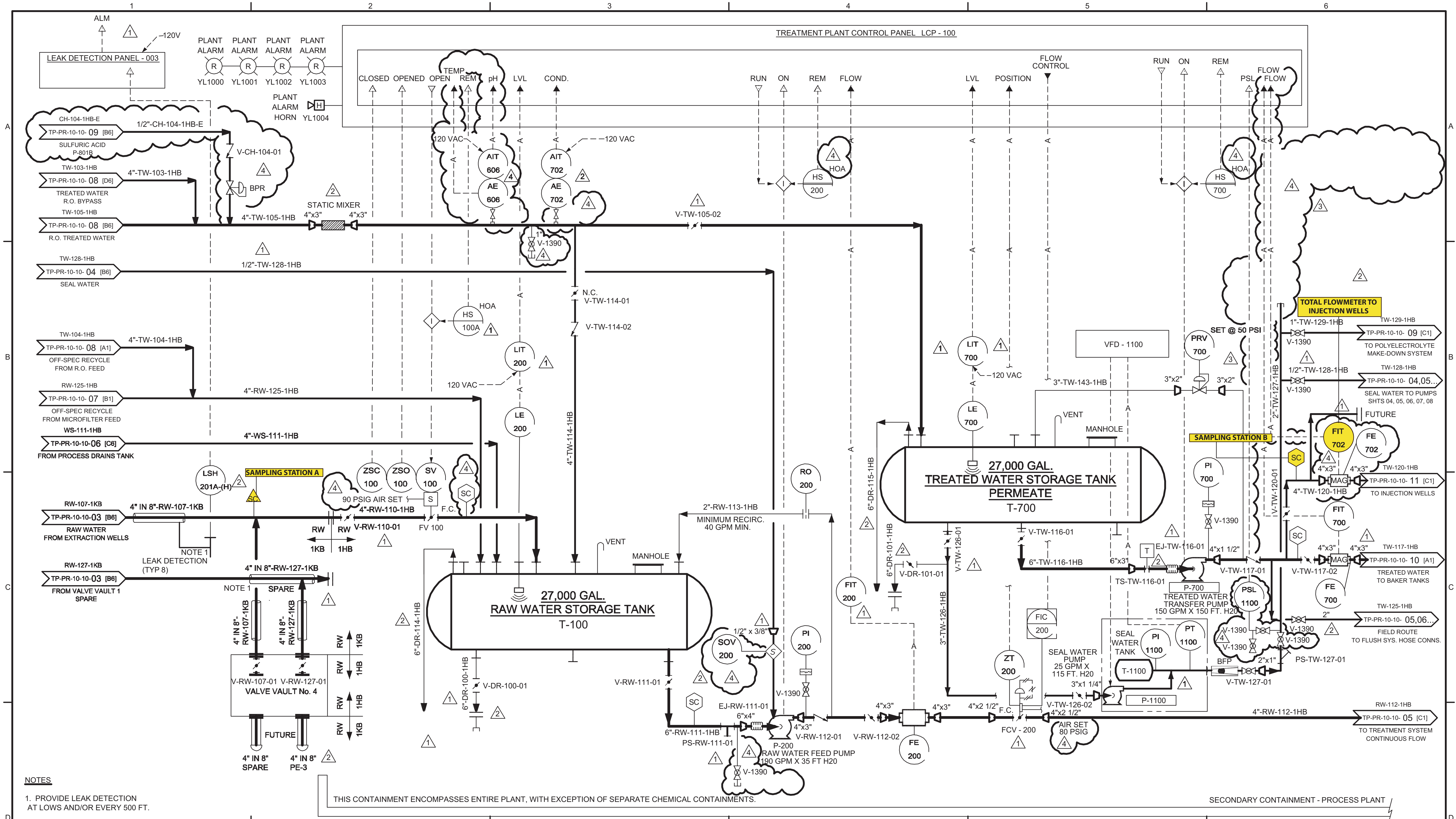


FIGURE 1
IM3 PROJECT SITE FEATURES

PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

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



NOTES

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

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

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

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

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

PROJ NO. 315994

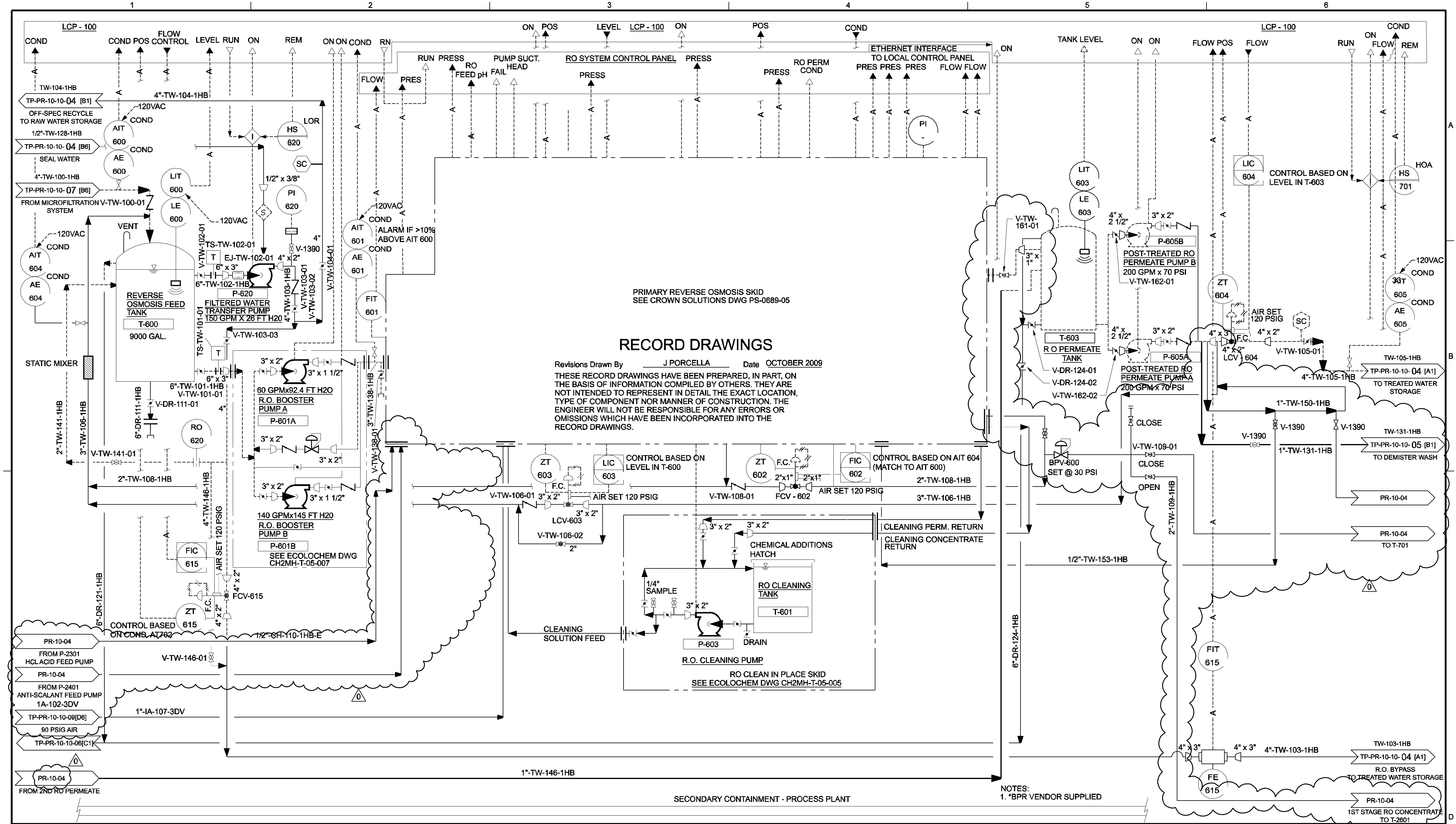
CH2MHILL

PROCESS AND INSTRUMENTATION DIAGRAM
SHEET 04
STORAGE AREA

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

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

BAR IS ONE INCH



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.

NOTES:
1. *BPR VENDOR SUPPLIED

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

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

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

REVISION APPROVAL — REV 0 — DATE 10/02/09

DISCIPLINE	REVIEWED	DISCIPLINE	REVIEWED
CIVIL	SJ	ELECTRICAL	FH
STRUCTURAL		INST & CONTROL	JG
MECHANICAL	SJ	ARCHITECTURAL	
PROCESS	DF	ENVIRONMENTAL	
PIPING	SJ	GEN. ARRANG.	SJ

PRINT DISTRIBUTION

DATE	
STATUS	
REV.	
CLIENT	
FIELD	
INTRA CO.	

STATUS

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

SCALE NONE

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

PROJ NO. 362032

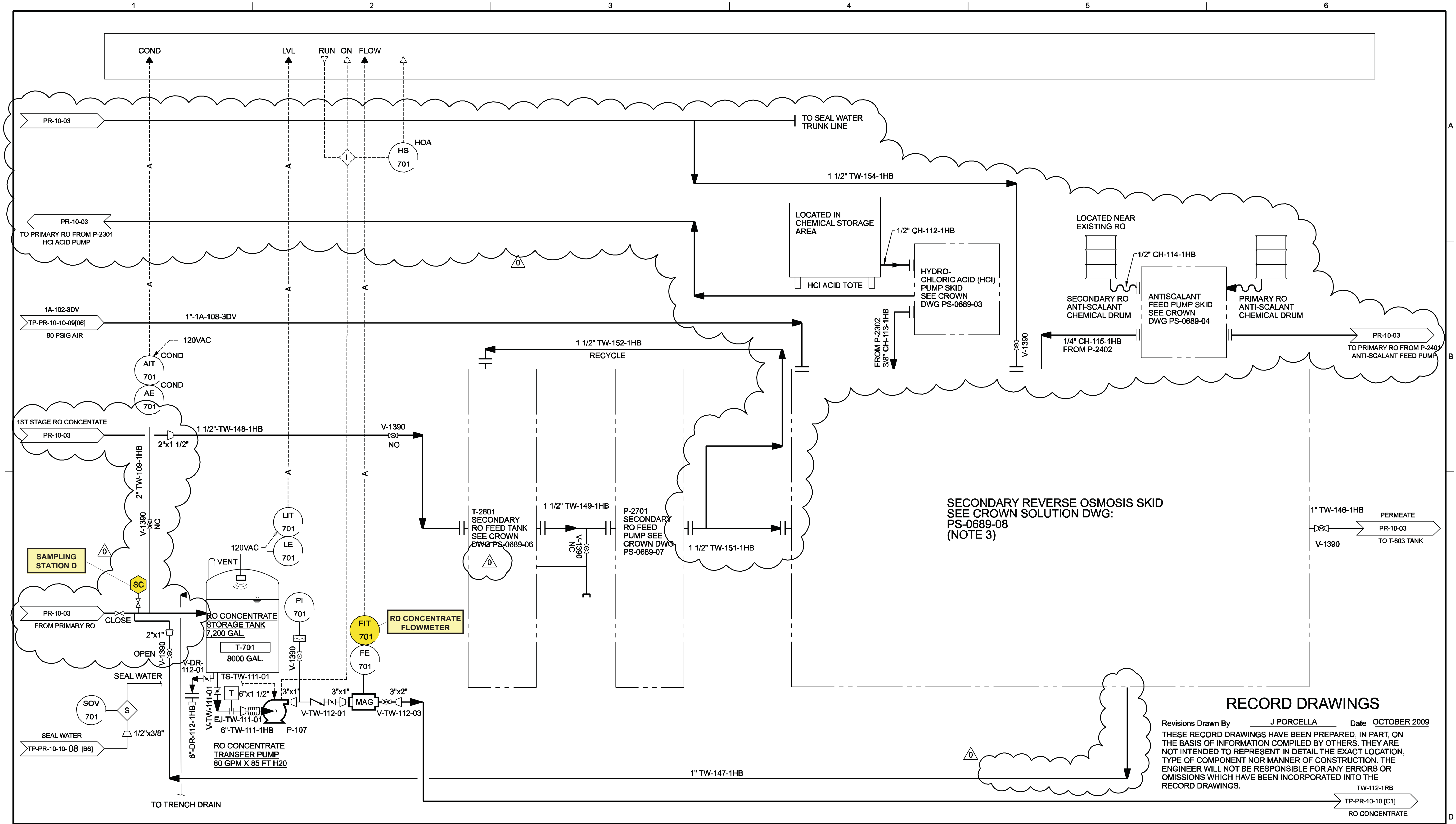
CH2MHILL

PROCESS AND INSTRUMENTATION DIAGRAM
REVERSE OSMOSIS SYSTEM
SHEET ONE OF TWO

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

BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

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



RECORD DRAWINGS

Revisions Drawn By J PORCELLA Date OCTOBER 2009

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

**
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 TWO OF TWO

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

BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

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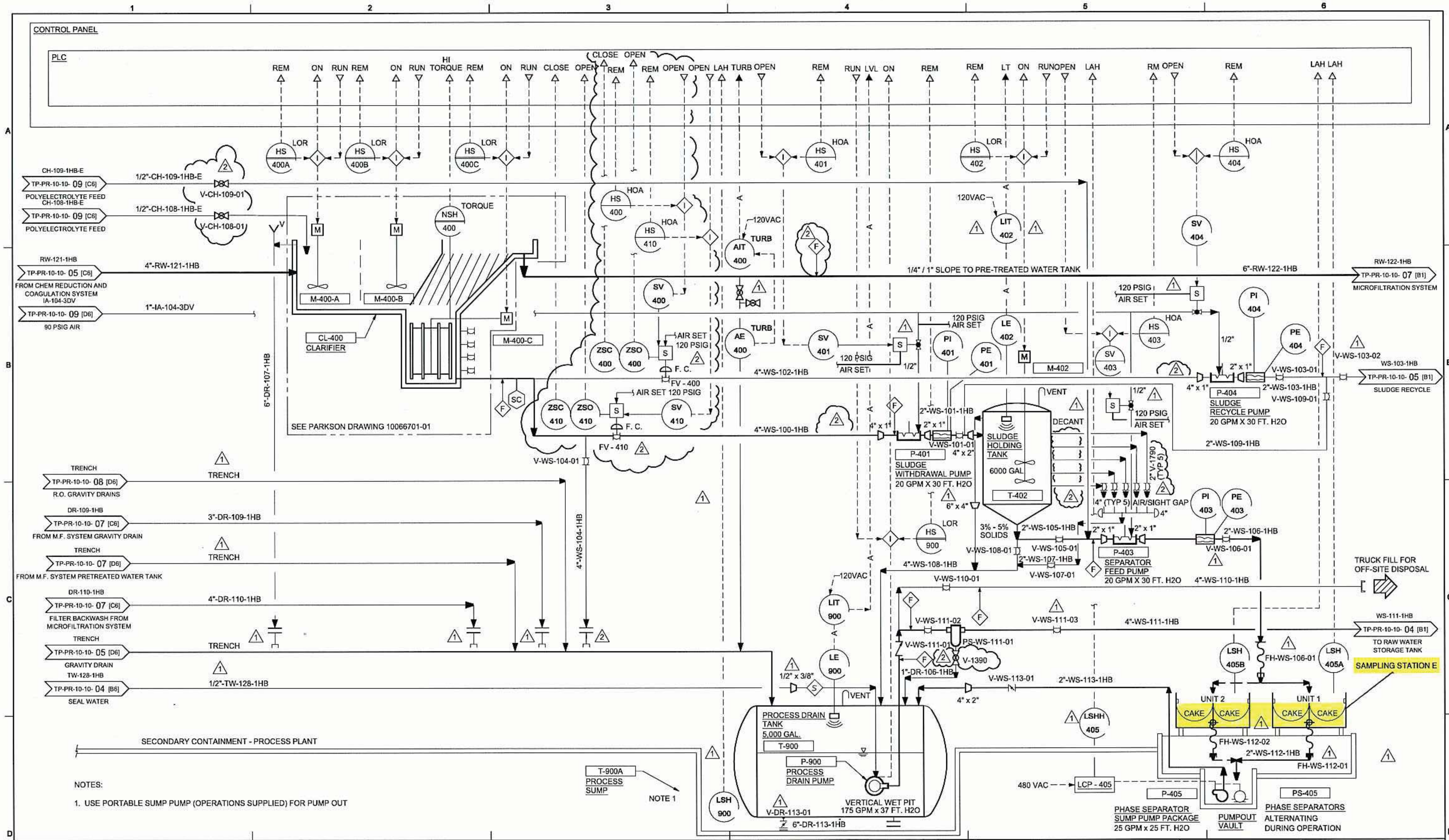


NOTES:

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

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

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

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

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	2	01/23/05		

SCALE NONE

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

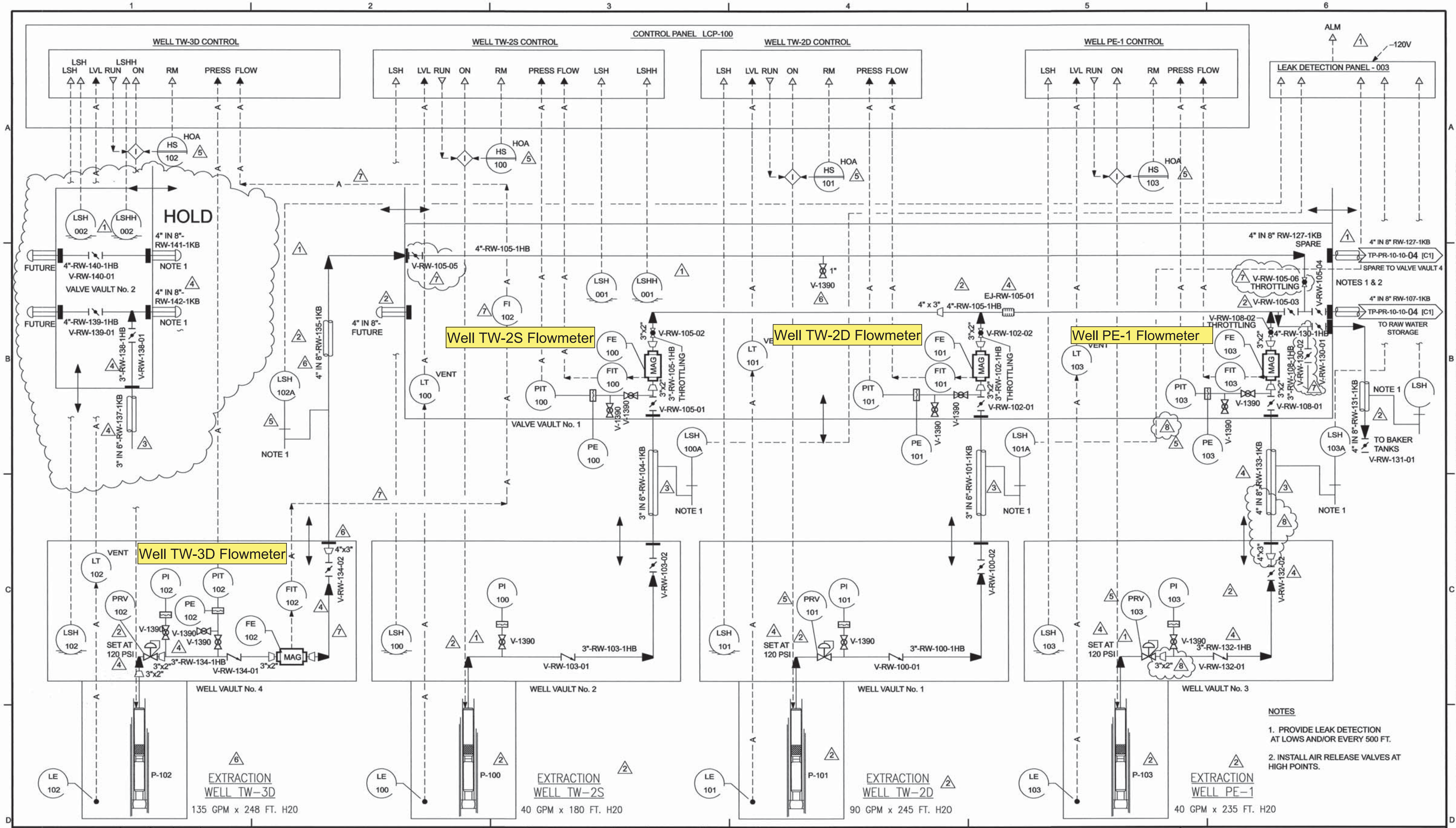
CH2MHILL

PROCESS AND INSTRUMENTATION DIAGRAM
SHEET 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"



NOTES

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

2. INSTALL AIR RELEASE VALVES AT HIGH POINTS.

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

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	12/9/05	AJ for KLM	AJ

SCALE NONE

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

PROJ NO. 315994

CH2MHILL

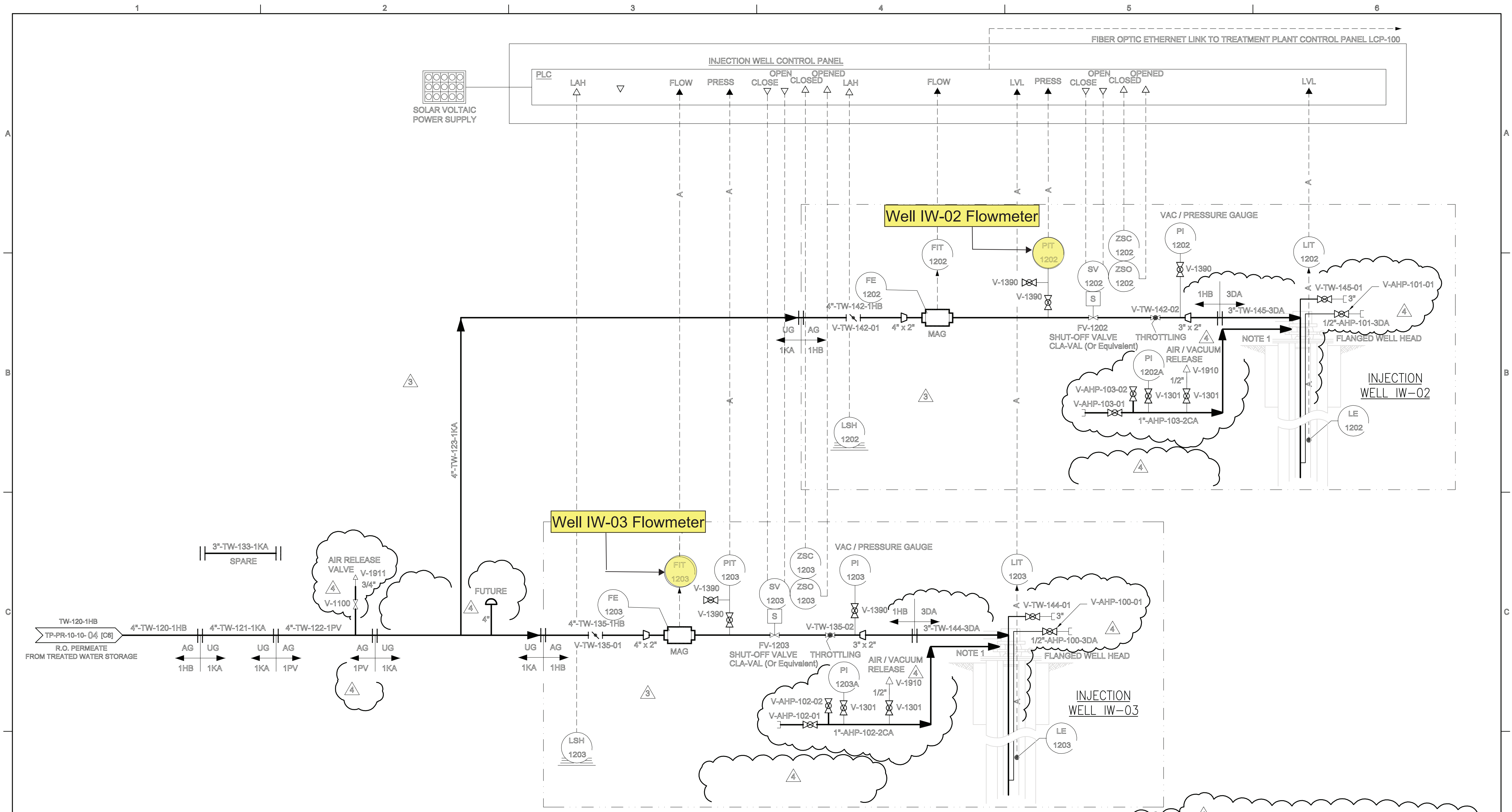
PROCESS AND INSTRUMENTATION DIAGRAM
SHEET 03
EXTRACTION WELLS
PE-1, TW-2D, TW-2S AND TW-3D

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

BAR IS ONE INCH

tppr101003.dwg 12/07/2005 01:06:58 PM

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



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

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

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

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

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

SCALE NONE

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

PROJ NO. 315994

CH2MHILL

PROCESS AND INSTRUMENTATION DIAGRAM
SHEET 11
INJECTION WELLS

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

BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

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

Appendix A

Third 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

July 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-474 PROJECT, GROUNDWATER MONITORING,

TLI NO.: 815006

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-474 project groundwater monitoring. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, quality control data and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data have been included under Section 5.

The samples were received and delivered with the chain of custody on July 1, 2014, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

Samples were analyzed and recorded in the raw data as SDG 14G0026 but are reported as SDG 815006 in all final report pages.

The straight runs for the sample and associated matrix spike on sample SC-700B-WDR-474 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.

fo-
Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

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

Laboratory No.: **815006**
Date: July 31, 2014
Collected: July 1, 2014
Received: July 1, 2014

ANALYST LIST

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

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

Laboratory No.: **815006**
Date Received: **July 1, 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
815006-001	SC-700B-WDR-474	E120.1	NONE	7/1/2014	10:05	EC	7520	umhos/cm	2.00
815006-001	SC-700B-WDR-474	SM2540C	NONE	7/1/2014	10:05	Total Dissolved Solids	4440	mg/L	250
815006-001	SC-700B-WDR-474	SM2130B	NONE	7/1/2014	10:05	Turbidity	ND	NTU	0.100
815006-001	SC-700B-WDR-474	SM4500NO2B	NONE	7/1/2014	10:05	Nitrite as N	ND	mg/L	0.0050
815006-001	SC-700B-WDR-474	SM4500NH3D	NONE	7/1/2014	10:05	Ammonia-N	ND	mg/L	0.500
815006-001	SC-700B-WDR-474	E200.8	NONE	7/1/2014	10:05	Arsenic	ND	ug/L	0.500
815006-001	SC-700B-WDR-474	E200.8	NONE	7/1/2014	10:05	Barium	14.0	ug/L	5.0
815006-001	SC-700B-WDR-474	E200.8	NONE	7/1/2014	10:05	Chromium	ND	ug/L	1.0
815006-001	SC-700B-WDR-474	E200.8	NONE	7/1/2014	10:05	Nickel	2.1	ug/L	2.0
815006-001	SC-700B-WDR-474	E200.8	NONE	7/1/2014	10:05	Antimony	ND	ug/L	2.0
815006-001	SC-700B-WDR-474	E200.8	NONE	7/1/2014	10:05	Copper	1.0	ug/L	1.0
815006-001	SC-700B-WDR-474	E200.8	NONE	7/1/2014	10:05	Lead	ND	ug/L	1.0
815006-001	SC-700B-WDR-474	E200.8	NONE	7/1/2014	10:05	Manganese	0.86	ug/L	0.50
815006-001	SC-700B-WDR-474	E200.8	NONE	7/1/2014	10:05	Molybdenum	21.2	ug/L	2.0
815006-001	SC-700B-WDR-474	E200.7	NONE	7/1/2014	10:05	Aluminum	ND	ug/L	50.0
815006-001	SC-700B-WDR-474	E200.7	NONE	7/1/2014	10:05	Iron	ND	ug/L	20.0
815006-001	SC-700B-WDR-474	E200.7	NONE	7/1/2014	10:05	Zinc	ND	ug/L	20.0
815006-001	SC-700B-WDR-474	E300	NONE	7/1/2014	10:05	Fluoride	2.01	mg/L	0.500
815006-001	SC-700B-WDR-474	E300	NONE	7/1/2014	10:05	Sulfate	518	mg/L	25.0
815006-001	SC-700B-WDR-474	E300	NONE	7/1/2014	10:05	Nitrate as N	2.70	mg/L	0.500
815006-001	SC-700B-WDR-474	E218.6	LABFLT	7/1/2014	10:05	Chromium, Hexavalent	ND	ug/L	0.200
815006-001	SC-700B-WDR-474	E200.7	NONE	7/1/2014	10:05	BORON	791	ug/L	20.0

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
815006-002	SC-100B-WDR-474	E120.1	NONE	7/1/2014	10:05	EC	7380	umhos/cm	2.00
815006-002	SC-100B-WDR-474	SM2540C	NONE	7/1/2014	10:05	Total Dissolved Solids	4370	mg/L	250
815006-002	SC-100B-WDR-474	SM2130B	NONE	7/1/2014	10:05	Turbidity	0.121	NTU	0.100
815006-002	SC-100B-WDR-474	SM4500NO2B	NONE	7/1/2014	10:05	Nitrite as N	ND	mg/L	0.0050
815006-002	SC-100B-WDR-474	SM4500NH3D	NONE	7/1/2014	10:05	Ammonia-N	ND	mg/L	0.500
815006-002	SC-100B-WDR-474	E200.8	NONE	7/1/2014	10:05	Arsenic	3.6	ug/L	0.50
815006-002	SC-100B-WDR-474	E200.8	NONE	7/1/2014	10:05	Barium	28.0	ug/L	5.0
815006-002	SC-100B-WDR-474	E200.8	NONE	7/1/2014	10:05	Chromium	546	ug/L	5.0
815006-002	SC-100B-WDR-474	E200.8	NONE	7/1/2014	10:05	Nickel	ND	ug/L	2.0
815006-002	SC-100B-WDR-474	E200.8	NONE	7/1/2014	10:05	Antimony	ND	ug/L	2.0
815006-002	SC-100B-WDR-474	E200.8	NONE	7/1/2014	10:05	Copper	ND	ug/L	1.0
815006-002	SC-100B-WDR-474	E200.8	NONE	7/1/2014	10:05	Lead	ND	ug/L	1.0
815006-002	SC-100B-WDR-474	E200.8	NONE	7/1/2014	10:05	Manganese	7.6	ug/L	0.50
815006-002	SC-100B-WDR-474	E200.8	NONE	7/1/2014	10:05	Molybdenum	19.5	ug/L	2.0
815006-002	SC-100B-WDR-474	E200.7	NONE	7/1/2014	10:05	Aluminum	ND	ug/L	50.0
815006-002	SC-100B-WDR-474	E200.7	NONE	7/1/2014	10:05	Iron	ND	ug/L	20.0
815006-002	SC-100B-WDR-474	E200.7	NONE	7/1/2014	10:05	Zinc	ND	ug/L	20.0
815006-002	SC-100B-WDR-474	E300	NONE	7/1/2014	10:05	Fluoride	2.40	mg/L	0.500
815006-002	SC-100B-WDR-474	E300	NONE	7/1/2014	10:05	Sulfate	497	mg/L	12.5
815006-002	SC-100B-WDR-474	E300	NONE	7/1/2014	10:05	Nitrate as N	2.68	mg/L	0.500
815006-002	SC-100B-WDR-474	E218.6	LABFLT	7/1/2014	10:05	Chromium, Hexavalent	562	ug/L	5.0
815006-002	SC-100B-WDR-474	E200.7	NONE	7/1/2014	10:05	BORON	796	ug/L	20.0

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
815006-003	SC-701-WDR-474	E120.1	NONE	7/1/2014	10:05	EC	14300	umhos/cm	2.00
815006-003	SC-701-WDR-474	SM2540C	NONE	7/1/2014	10:05	Total Dissolved Solids	9090	mg/L	250
815006-003	SC-701-WDR-474	E200.8	NONE	7/1/2014	10:05	Arsenic	ND	ug/L	1.0
815006-003	SC-701-WDR-474	E200.8	NONE	7/1/2014	10:05	Barium	27.1	ug/L	5.0
815006-003	SC-701-WDR-474	E200.8	NONE	7/1/2014	10:05	Cadmium	ND	ug/L	1.0
815006-003	SC-701-WDR-474	E200.8	NONE	7/1/2014	10:05	Chromium	ND	ug/L	2.5
815006-003	SC-701-WDR-474	E200.8	NONE	7/1/2014	10:05	Nickel	6.4	ug/L	5.0
815006-003	SC-701-WDR-474	E200.8	NONE	7/1/2014	10:05	Antimony	ND	ug/L	2.0
815006-003	SC-701-WDR-474	E200.8	NONE	7/1/2014	10:05	Copper	2.9	ug/L	2.5
815006-003	SC-701-WDR-474	E200.8	NONE	7/1/2014	10:05	Lead	ND	ug/L	2.5
815006-003	SC-701-WDR-474	E200.8	NONE	7/1/2014	10:05	Silver	ND	ug/L	5.0
815006-003	SC-701-WDR-474	E200.8	NONE	7/1/2014	10:05	Thallium	ND	ug/L	1.0
815006-003	SC-701-WDR-474	E200.8	NONE	7/1/2014	10:05	Vanadium	ND	ug/L	5.0
815006-003	SC-701-WDR-474	E200.8	NONE	7/1/2014	10:05	Manganese	ND	ug/L	5.0
815006-003	SC-701-WDR-474	E200.8	NONE	7/1/2014	10:05	Cobalt	ND	ug/L	5.0
815006-003	SC-701-WDR-474	E200.8	NONE	7/1/2014	10:05	Mercury	ND	ug/L	0.40
815006-003	SC-701-WDR-474	E200.8	NONE	7/1/2014	10:05	Molybdenum	42.8	ug/L	2.0
815006-003	SC-701-WDR-474	E200.8	NONE	7/1/2014	10:05	Beryllium	ND	ug/L	2.0
815006-003	SC-701-WDR-474	E200.7	NONE	7/1/2014	10:05	Selenium	ND	ug/L	10.0
815006-003	SC-701-WDR-474	E200.7	NONE	7/1/2014	10:05	Zinc	ND	ug/L	20.0
815006-003	SC-701-WDR-474	E300	NONE	7/1/2014	10:05	Fluoride	4.50	mg/L	0.500
815006-003	SC-701-WDR-474	E218.6	LABFLT	7/1/2014	10:05	Chromium, Hexavalent	ND	ug/L	1.0

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

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

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REPORT

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

Laboratory No. 815006
Page 1 of 33
Printed 7/31/2014

Samples Received on 7/1/2014 6:50:00 PM

Field ID	Lab ID	Collected	Matrix
SC-700B-WDR-474	815006-001	07/01/2014 10:05	Water
SC-100B-WDR-474	815006-002	07/01/2014 10:05	Water
SC-701-WDR-474	815006-003	07/01/2014 10:05	Water

Anions By I.C. - EPA 300.0

Batch 1407191

Parameter		Unit	Analyzed	DF	MDL	RL	Result
815006-001	Fluoride	mg/L	07/02/2014 12:16	5.00	0.104	0.500	2.01
	Nitrate as Nitrogen	mg/L	07/02/2014 12:16	5.00	0.0415	0.500	2.70
	Sulfate	mg/L	07/02/2014 13:13	50.0	1.54	25.0	518
815006-002	Fluoride	mg/L	07/02/2014 12:28	5.00	0.104	0.500	2.40
	Nitrate as Nitrogen	mg/L	07/02/2014 12:28	5.00	0.0415	0.500	2.68
	Sulfate	mg/L	07/02/2014 14:05	25.0	0.768	12.5	497
815006-003	Fluoride	mg/L	07/02/2014 13:02	5.00	0.104	0.500	4.50

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 = 815006-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Fluoride	mg/L	5.00	2.36	2.01	16.2	0 - 20
Nitrate as Nitrogen	mg/L	5.00	2.71	2.70	0.443	0 - 20

Duplicate

Lab ID = 815006-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Sulfate	mg/L	50.0	505	497	1.63	0 - 20

Duplicate Lab ID = 815015-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chloride	mg/L	25.0	78.2	74.0	5.57	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chloride	mg/L	1.00	3.97	4.00	99.3	90 - 110
Fluoride	mg/L	1.00	4.15	4.00	104	90 - 110
Sulfate	mg/L	1.00	20.2	20.0	101	90 - 110
Nitrate as Nitrogen	mg/L	1.00	4.05	4.00	101	90 - 110

Matrix Spike Lab ID = 815006-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Fluoride	mg/L	5.00	22.8	22.0(20.0)	104	85 - 115
Nitrate as Nitrogen	mg/L	5.00	23.2	22.7(20.0)	102	85 - 115

Matrix Spike Lab ID = 815006-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Sulfate	mg/L	50.0	1010	997(500)	103	85 - 115

Matrix Spike Lab ID = 815015-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chloride	mg/L	25.0	177	174(100)	103	85 - 115

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chloride	mg/L	1.00	3.96	4.00	99.1	90 - 110
Fluoride	mg/L	1.00	4.18	4.00	104	90 - 110
Sulfate	mg/L	1.00	20.1	20.0	101	90 - 110
Nitrate as Nitrogen	mg/L	1.00	4.04	4.00	101	90 - 110

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chloride	mg/L	1.00	3.04	3.00	102	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chloride	mg/L	1.00	2.94	3.00	98.0	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrate as Nitrogen	mg/L	1.00	2.97	3.00	99.2	90 - 110

Nitrite SM 4500-NO2 B

Batch 1407023

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815006-001 Nitrite as Nitrogen	mg/L	07/02/2014	1.00	0.000630	0.0050	ND
815006-002 Nitrite as Nitrogen	mg/L	07/02/2014	1.00	0.000630	0.0050	ND

Method Blank

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

Duplicate Lab ID = 815006-001

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

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrite as Nitrogen	mg/L	1.00	0.0209	0.0230	90.9	90 - 110

Matrix Spike Lab ID = 815006-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Nitrite as Nitrogen	mg/L	1.00	0.0209	0.0230(0.0230)	90.9	85 - 115

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrite as Nitrogen	mg/L	1.00	0.0209	0.0230	90.9	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrite as Nitrogen	mg/L	1.00	0.0192	0.0200	96.0	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrite as Nitrogen	mg/L	1.00	0.0209	0.0200	104	90 - 110

Specific Conductivity - EPA 120.1

Batch 1407050

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815006-001 Specific Conductivity	umhos/cm	07/03/2014	1.00	0.606	2.00	7520
815006-002 Specific Conductivity	umhos/cm	07/03/2014	1.00	0.606	2.00	7380
815006-003 Specific Conductivity	umhos/cm	07/03/2014	1.00	0.606	2.00	14300

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate

Lab ID = 815006-003

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	14300	14300	0.140	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	740	706	105	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	740	706	105	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

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 1407138

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815006-002 Chromium, Hexavalent	ug/L	07/09/2014 17:15	25.0	0.158	5.0	562

Method Blank

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

Duplicate

Lab ID = 815010-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	0.182	0.188	3.24	0 - 20

Low Level Calibration Verification

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

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.12	5.00	102	90 - 110

Matrix Spike

Lab ID = 815006-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	1170	1190(625)	97.8	90 - 110

Matrix Spike

Lab ID = 815010-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.90	5.19(5.00)	94.2	90 - 110

Matrix Spike

Lab ID = 815010-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.07	1.11(1.00)	96.5	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.13	5.00	102	90 - 110

MRCVS - Primary

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

Chrome VI by EPA 218.6

Batch 1407054

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815006-001 Chromium, Hexavalent	ug/L	07/02/2014 12:48	1.00	0.00630	0.20	ND
815006-003 Chromium, Hexavalent	ug/L	07/02/2014 14:29	5.00	0.0315	1.0	ND

Method Blank

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

Duplicate Lab ID = 815009-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	3.57	3.58	0.235	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.197	0.200	98.5	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 = 815006-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.14	5.15(5.00)	99.8	90 - 110

Matrix Spike Lab ID = 815006-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.19	1.19(1.00)	100	90 - 110

Matrix Spike Lab ID = 815006-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	1070	1190(625)	80.8	90 - 110

Matrix Spike Lab ID = 815006-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.41	5.87(5.00)	90.8	90 - 110

Matrix Spike Lab ID = 815006-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.93	1.90(1.00)	102	90 - 110

Matrix Spike Lab ID = 815009-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	8.55	8.58(5.00)	99.4	90 - 110

Metals by EPA 200.7, Total

Batch 071814A-Th2

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815006-001 Aluminum	ug/L	07/18/2014 14:17	1.00	7.20	50.0	ND
815006-002 Aluminum	ug/L	07/18/2014 14:22	1.00	7.20	50.0	ND
815006-003 Selenium	ug/L	07/18/2014 16:10	1.00	3.20	10.0	ND

Method Blank

Parameter	Unit	DF	Result
Aluminum	ug/L	1.00	ND
Selenium	ug/L	1.00	ND

Duplicate Lab ID = 815006-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Aluminum	ug/L	1.00	ND	0	0	0 - 20
Selenium	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	1880	2000	94.0	85 - 115
Selenium	ug/L	1.00	1870	2000	93.4	85 - 115

Matrix Spike Lab ID = 815006-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Aluminum	ug/L	1.00	1830	2000(2000)	91.4	75 - 125
Selenium	ug/L	1.00	2050	2000(2000)	102	75 - 125

Matrix Spike Duplicate Lab ID = 815006-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Aluminum	ug/L	1.00	1820	2000(2000)	91.0	75 - 125
Selenium	ug/L	1.00	2040	2000(2000)	102	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Aluminum	ug/L	1.00	4850	5000	97.1	95 - 105
Selenium	ug/L	1.00	4910	5000	98.3	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Aluminum	ug/L	1.00	4850	5000	97.0	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Aluminum	ug/L	1.00	4870	5000	97.3	90 - 110

Metals by EPA 200.7, Total

Batch 071814A-Th1

Parameter		Unit	Analyzed	DF	MDL	RL	Result
815006-001	Iron	ug/L	07/18/2014 16:52	1.00	3.00	20.0	ND
	Zinc	ug/L	07/18/2014 16:52	1.00	5.10	20.0	ND
815006-002	Iron	ug/L	07/18/2014 16:58	1.00	3.00	20.0	ND
	Zinc	ug/L	07/18/2014 16:58	1.00	5.10	20.0	ND
815006-003	Zinc	ug/L	07/18/2014 17:21	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

Duplicate — Lab ID = 815006-002

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

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	2280	2000	114	85 - 115
Zinc	ug/L	1.00	1860	2000	93.0	85 - 115

Matrix Spike — Lab ID = 815006-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	1990	2000(2000)	99.5	75 - 125
Zinc	ug/L	1.00	2020	2000(2000)	101	75 - 125

Matrix Spike Duplicate — Lab ID = 815006-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	2020	2000(2000)	101	75 - 125
Zinc	ug/L	1.00	2010	2000(2000)	101	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5240	5000	105	95 - 105
Zinc	ug/L	1.00	5240	5000	105	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5390	5000	108	90 - 110

Metals by EPA 200.7, Total

Batch 072214A-Th1

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815006-001 Boron	ug/L	07/22/2014 13:21	1.00	4.10	20.0	791
815006-002 Boron	ug/L	07/22/2014 13:27	1.00	4.10	20.0	796

Method Blank

Parameter	Unit	DF	Result
Boron	ug/L	1.00	ND

Duplicate

Lab ID = 815006-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Boron	ug/L	1.00	802	796	0.776	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Boron	ug/L	1.00	1850	2000	92.3	85 - 115

Matrix Spike

Lab ID = 815006-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Boron	ug/L	1.00	2400	2800(2000)	80.2	75 - 125

Matrix Spike Duplicate

Lab ID = 815006-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Boron	ug/L	1.00	2400	2800(2000)	80.4	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Boron	ug/L	1.00	4780	5000	95.6	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Boron	ug/L	1.00	4770	5000	95.4	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Boron	ug/L	1.00	4680	5000	93.7	90 - 110

Interference Check Standard A

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

Interference Check Standard A

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

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 071414D

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815006-001 Antimony	ug/L	07/15/2014 09:49	1.00	0.0350	2.0	ND
Arsenic	ug/L	07/15/2014 09:49	1.00	0.0500	0.50	ND
Barium	ug/L	07/15/2014 09:49	1.00	0.297	2.0	14.0
Chromium	ug/L	07/15/2014 09:49	1.00	0.0710	1.0	ND
Copper	ug/L	07/15/2014 09:49	1.00	0.190	1.0	1.0
Lead	ug/L	07/15/2014 09:49	1.00	0.143	1.0	ND
Manganese	ug/L	07/15/2014 09:49	1.00	0.0600	0.50	0.86
Molybdenum	ug/L	07/15/2014 09:49	1.00	0.0500	2.0	21.2
Nickel	ug/L	07/15/2014 09:49	1.00	0.240	2.0	2.1
815006-002 Antimony	ug/L	07/15/2014 10:52	1.00	0.0350	2.0	ND
Arsenic	ug/L	07/15/2014 10:52	1.00	0.0500	0.50	3.6
Barium	ug/L	07/15/2014 10:52	1.00	0.297	2.0	28.0
Chromium	ug/L	07/15/2014 11:05	10.0	0.710	5.0	546
Copper	ug/L	07/15/2014 10:52	1.00	0.190	1.0	ND
Lead	ug/L	07/15/2014 10:52	1.00	0.143	1.0	ND
Manganese	ug/L	07/15/2014 10:52	1.00	0.0600	0.50	7.6
Molybdenum	ug/L	07/15/2014 10:52	1.00	0.0500	2.0	19.5
Nickel	ug/L	07/15/2014 10:52	1.00	0.240	2.0	ND
815006-003 Antimony	ug/L	07/15/2014 11:24	5.00	0.175	2.0	ND
Arsenic	ug/L	07/15/2014 11:24	5.00	0.250	1.0	ND
Barium	ug/L	07/15/2014 11:24	5.00	1.48	5.0	27.1
Cadmium	ug/L	07/15/2014 11:24	5.00	0.200	1.0	ND
Chromium	ug/L	07/15/2014 11:24	5.00	0.355	2.5	ND
Copper	ug/L	07/15/2014 11:24	5.00	0.950	2.5	2.9
Lead	ug/L	07/15/2014 11:24	5.00	0.715	2.5	ND
Manganese	ug/L	07/15/2014 11:43	10.0	0.600	5.0	ND
Nickel	ug/L	07/15/2014 11:24	5.00	1.20	5.0	6.4
Silver	ug/L	07/15/2014 11:24	5.00	0.145	5.0	ND
Thallium	ug/L	07/15/2014 11:24	5.00	0.150	1.0	ND
Vanadium	ug/L	07/15/2014 11:24	5.00	0.350	5.0	ND

Method Blank

Parameter	Unit	DF	Result
Arsenic	ug/L	1.00	ND
Barium	ug/L	1.00	ND
Cadmium	ug/L	1.00	ND
Chromium	ug/L	1.00	ND
Nickel	ug/L	1.00	ND
Antimony	ug/L	1.00	ND
Copper	ug/L	1.00	ND
Lead	ug/L	1.00	ND
Silver	ug/L	1.00	ND
Thallium	ug/L	1.00	ND
Vanadium	ug/L	1.00	ND
Manganese	ug/L	1.00	ND
Molybdenum	ug/L	1.00	ND

Duplicate

Lab ID = 815006-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Arsenic	ug/L	1.00	ND	0	0	0 - 20
Barium	ug/L	1.00	13.9	14.0	0.516	0 - 20
Cadmium	ug/L	1.00	ND	0	0	0 - 20
Chromium	ug/L	1.00	ND	0	0	0 - 20
Nickel	ug/L	1.00	1.97	2.15	8.69	0 - 20
Antimony	ug/L	1.00	ND	0	0	0 - 20
Copper	ug/L	1.00	0.943	1.01	6.86	0 - 20
Lead	ug/L	1.00	ND	0	0	0 - 20
Silver	ug/L	1.00	ND	0	0	0 - 20
Thallium	ug/L	1.00	ND	0	0	0 - 20
Vanadium	ug/L	1.00	ND	0	0	0 - 20
Manganese	ug/L	1.00	0.850	0.864	1.63	0 - 20
Molybdenum	ug/L	1.00	20.1	21.2	5.13	0 - 20

Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project Page 18 of 33

Project Number: 428648.IM.CS.EX.AC Printed 7/31/2014

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	0.214	0.200	107	70 - 130
Barium	ug/L	1.00	0.969	1.00	96.9	70 - 130
Cadmium	ug/L	1.00	0.207	0.200	104	70 - 130
Chromium	ug/L	1.00	0.436	0.500	87.2	70 - 130
Nickel	ug/L	1.00	0.895	1.00	89.5	70 - 130
Antimony	ug/L	1.00	0.210	0.200	105	70 - 130
Copper	ug/L	1.00	0.510	0.500	102	70 - 130
Lead	ug/L	1.00	0.493	0.500	98.6	70 - 130
Silver	ug/L	1.00	0.204	0.200	102	70 - 130
Thallium	ug/L	1.00	0.193	0.200	96.5	70 - 130
Vanadium	ug/L	1.00	0.162	0.200	81.0	70 - 130
Manganese	ug/L	1.00	0.468	0.500	93.6	70 - 130
Molybdenum	ug/L	1.00	0.193	0.200	96.5	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	2.00	50.0	50.0	99.9	85 - 115
Barium	ug/L	2.00	50.7	50.0	101	85 - 115
Cadmium	ug/L	2.00	51.0	50.0	102	85 - 115
Chromium	ug/L	2.00	52.2	50.0	104	85 - 115
Nickel	ug/L	2.00	52.6	50.0	105	85 - 115
Antimony	ug/L	2.00	51.2	50.0	102	85 - 115
Copper	ug/L	2.00	53.2	50.0	106	85 - 115
Lead	ug/L	2.00	50.6	50.0	101	85 - 115
Silver	ug/L	2.00	53.8	50.0	108	85 - 115
Thallium	ug/L	2.00	50.7	50.0	101	85 - 115
Vanadium	ug/L	2.00	51.9	50.0	104	85 - 115
Manganese	ug/L	2.00	51.3	50.0	102	85 - 115
Molybdenum	ug/L	2.00	49.8	50.0	99.7	85 - 115

Matrix Spike Lab ID = 815006-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	1.00	52.0	50.0(50.0)	104	75 - 125
Barium	ug/L	1.00	62.9	64.0(50.0)	97.9	75 - 125
Cadmium	ug/L	1.00	43.5	50.0(50.0)	87.1	75 - 125
Chromium	ug/L	1.00	43.8	50.0(50.0)	87.5	75 - 125
Nickel	ug/L	1.00	42.2	52.2(50.0)	80.0	75 - 125
Antimony	ug/L	1.00	51.9	50.0(50.0)	104	75 - 125
Copper	ug/L	1.00	41.9	51.0(50.0)	81.8	75 - 125
Lead	ug/L	1.00	41.1	50.0(50.0)	82.3	75 - 125
Silver	ug/L	1.00	44.2	50.0(50.0)	88.3	75 - 125
Thallium	ug/L	1.00	39.0	50.0(50.0)	78.0	75 - 125
Vanadium	ug/L	1.00	45.8	50.0(50.0)	91.5	75 - 125
Manganese	ug/L	1.00	44.8	50.9(50.0)	87.9	75 - 125
Molybdenum	ug/L	1.00	68.2	71.2(50.0)	94.1	75 - 125

Matrix Spike Duplicate Lab ID = 815006-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	1.00	52.2	50.0(50.0)	104	75 - 125
Barium	ug/L	1.00	60.5	64.0(50.0)	93.0	75 - 125
Cadmium	ug/L	1.00	43.4	50.0(50.0)	86.8	75 - 125
Chromium	ug/L	1.00	47.8	50.0(50.0)	95.5	75 - 125
Nickel	ug/L	1.00	47.1	52.2(50.0)	89.9	75 - 125
Antimony	ug/L	1.00	49.4	50.0(50.0)	98.8	75 - 125
Copper	ug/L	1.00	47.6	51.0(50.0)	93.2	75 - 125
Lead	ug/L	1.00	42.0	50.0(50.0)	84.0	75 - 125
Silver	ug/L	1.00	44.3	50.0(50.0)	88.5	75 - 125
Thallium	ug/L	1.00	40.5	50.0(50.0)	81.0	75 - 125
Vanadium	ug/L	1.00	49.4	50.0(50.0)	98.8	75 - 125
Manganese	ug/L	1.00	47.3	50.9(50.0)	92.8	75 - 125
Molybdenum	ug/L	1.00	68.2	71.2(50.0)	94.1	75 - 125

Serial Dilution

Lab ID = 815006-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Barium	ug/L	5.00	27.5	28.0	1.65	0 - 10
Chromium	ug/L	50.0	558	546	2.11	0 - 10

Metals by EPA 200.8, Total

Batch 071514A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815006-003 Cobalt	ug/L	07/15/2014 19:28	2.00	0.0800	5.0	ND
Mercury	ug/L	07/15/2014 19:28	2.00	0.0800	0.40	ND
Molybdenum	ug/L	07/15/2014 19:28	2.00	0.100	2.0	42.8

Method Blank

Parameter	Unit	DF	Result
Cobalt	ug/L	1.00	ND
Mercury	ug/L	1.00	ND
Molybdenum	ug/L	1.00	ND

Duplicate

Lab ID = 815006-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Cobalt	ug/L	2.00	ND	0	0	0 - 20
Mercury	ug/L	2.00	ND	0	0	0 - 20
Molybdenum	ug/L	2.00	20.8	21.5	3.09	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Cobalt	ug/L	1.00	0.208	0.200	104	70 - 130
Mercury	ug/L	1.00	0.169	0.200	84.4	70 - 130
Molybdenum	ug/L	1.00	0.523	0.500	104	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Cobalt	ug/L	2.00	51.8	50.0	104	85 - 115
Mercury	ug/L	2.00	4.57	5.00	91.4	85 - 115
Molybdenum	ug/L	2.00	51.0	50.0	102	85 - 115

Matrix Spike

Lab ID = 815006-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Cobalt	ug/L	2.00	45.2	50.0(50.0)	90.4	75 - 125
Mercury	ug/L	2.00	4.30	5.00(5.00)	86.1	75 - 125
Molybdenum	ug/L	2.00	67.2	71.5(50.0)	91.3	75 - 125

Matrix Spike Duplicate

Lab ID = 815006-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Cobalt	ug/L	2.00	48.3	50.0(50.0)	96.6	75 - 125
Mercury	ug/L	2.00	4.45	5.00(5.00)	89.0	75 - 125
Molybdenum	ug/L	2.00	70.6	71.5(50.0)	98.1	75 - 125

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
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
Cobalt	ug/L	1.00	20.7	20.0	104	80 - 120

Interference Check Standard AB

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

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Mercury	ug/L	1.00	1.62	2.00	81.2	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Mercury	ug/L	1.00	1.84	2.00	91.8	80 - 120

Interference Check Standard AB

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

Interference Check Standard AB

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

Serial Dilution Lab ID = 815006-003

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Molybdenum	ug/L	10.0	40.3	42.8	5.97	0 - 10

Metals by EPA 200.8, Total

Batch 071714A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815006-003 Beryllium	ug/L	07/17/2014 14:43	10.0	0.360	2.0	ND

Method Blank

Parameter	Unit	DF	Result
Beryllium	ug/L	1.00	ND

Duplicate Lab ID = 815006-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Beryllium	ug/L	10.0	ND	0	0	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Beryllium	ug/L	1.00	0.238	0.200	119	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Beryllium	ug/L	2.00	51.2	50.0	102	85 - 115

Matrix Spike Lab ID = 815006-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Beryllium	ug/L	10.0	47.0	50.0(50.0)	93.9	75 - 125

Matrix Spike Duplicate Lab ID = 815006-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Beryllium	ug/L	10.0	48.2	50.0(50.0)	96.4	75 - 125

MRCCS - Secondary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Beryllium	ug/L	1.00	18.6	20.0	93.0	90 - 110

MRCVS - Primary

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

Interference Check Standard A

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

Interference Check Standard A

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

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
Beryllium	ug/L	1.00	ND	0		

Total Dissolved Solids by SM 2540 C

Batch 1407051

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815006-001 Total Dissolved Solids	mg/L	07/03/2014	1.00	1.76	250	4440
815006-002 Total Dissolved Solids	mg/L	07/03/2014	1.00	1.76	250	4370
815006-003 Total Dissolved Solids	mg/L	07/03/2014	1.00	1.76	250	9090

Method Blank

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

Duplicate

Lab ID = 815012-017

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	696	750	7.47	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Dissolved Solids	mg/L	1.00	511	500	102	90 - 110

Ammonia Nitrogen by SM4500-NH3D

Batch 07NH314A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815006-001 Ammonia as N	mg/L	07/15/2014	1.00	0.0318	0.500	ND
815006-002 Ammonia as N	mg/L	07/15/2014	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	8.10	8.00	101	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	8.19	8.00	102	90 - 110

Matrix Spike

Lab ID = 815006-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	11.0	10.0(10.0)	110	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	6.38	6.00	106	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	6.58	6.00	110	90 - 110

Turbidity by SM 2130 B Batch 1407085

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815006-001 Turbidity	NTU	07/03/2014	1.00	0.0140	0.100	ND
815006-002 Turbidity	NTU	07/03/2014	1.00	0.0140	0.100	0.121

Method Blank

Parameter	Unit	DF	Result
Turbidity	NTU	1.00	ND

Duplicate Lab ID = 815013-004

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Turbidity	NTU	1.00	0.202	0.199	1.50	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	8.39	8.00	105	90 - 110

Lab Control Sample Duplicate

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

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

Mona Nassimi
Manager, Analytical Services

Truesdail Laboratories, Inc.

Total Dissolved Solids by SM 2540 C

Calculations

1407051

Batch: ~~8/19/5749~~
Date Analyzed: 7/3/2014

	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	76.1726	76.1729	76.1727	0.0002	No	0.0001	1.0	25.0	ND	1
	14F0420-01C	100	71.9505	71.9995	71.9995	0.0000	No	0.0490	490.0	25.0	490.0	1
	14F0420-02B	100	66.8723	66.9252	66.9251	0.0001	No	0.0528	528.0	25.0	528.0	1
	14G0016-08D	100	75.1457	75.2040	75.2039	0.0001	No	0.0582	582.0	25.0	582.0	1
915006-1	14G0026-01C	10	30.0515	30.0959	30.0959	0.0000	No	0.0444	4440.0	250.0	4440.0	1
-2	14G0026-02C	10	29.5359	29.5798	29.5796	0.0002	No	0.0437	4370.0	250.0	4370.0	1
-3	14G0026-03D	10	29.6285	29.7195	29.7194	0.0001	No	0.0909	9090.0	250.0	9090.0	1
915009-1	14G0038-01D	20	28.9287	28.9788	28.9788	0.0000	No	0.0501	2505.0	125.0	2505.0	1
-2	14G0038-02D	10	28.7600	28.8098	28.8097	0.0001	No	0.0497	4970.0	250.0	4970.0	1
	14G0041-07A	100	72.0762	72.1169	72.1165	0.0004	No	0.0403	403.0	25.0	403.0	1
	14F0420-01 Dup	100	62.6148	62.6637	62.6637	0.0000	No	0.0489	489.0	25.0	489.0	1
	LCS	100	72.4748	72.5259	72.5259	0.0000	No	0.0511	511.0	25.0	511.0	1
	14G0047-01B	100	75.2581	75.2838	75.2836	0.0002	No	0.0255	255.0	25.0	255.0	1
	14G0058-01D	100	78.2386	78.2892	78.2891	0.0001	No	0.0505	505.0	25.0	505.0	1
	14G0058-02D	100	69.1708	69.2243	69.2243	0.0000	No	0.0535	535.0	25.0	535.0	1
	14G0061-01B	100	80.8525	80.9036	80.9035	0.0001	No	0.0510	510.0	25.0	510.0	1
	14G0061-02B	100	77.0643	77.1153	77.1153	0.0000	No	0.0510	510.0	25.0	510.0	1
	14G0061-03B	100	73.4309	73.4796	73.4792	0.0004	No	0.0483	483.0	25.0	483.0	1
	14G0061-04B	100	68.7212	68.7685	68.7683	0.0002	No	0.0471	471.0	25.0	471.0	1
	14G0083-17F	50	59.9005	59.9380	59.9380	0.0000	No	0.0375	750.0	50.0	750.0	1
	14G0083-17 Dup	50	47.9454	47.9804	47.9802	0.0002	No	0.0348	696.0	50.0	696.0	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	511.0	500	102.2%	90-110%	Yes
LCSD					

LCS Recovery

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

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

Duplicate Determinations Difference Summary

Lab Number	Sample Weight, g	Sample Dup Weight, g	% RPD	Acceptance Limit	QC Within Control?
14F0420-01	0.0490	0.0489	0.1%	≤5%	Yes
14G0083-17	0.0375	0.0348	3.7%	≤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 06TDS14F

Total Dissolved Solids by SM 2540 C

TDS/EC CHECK

1407051

Batch: ~~5/15/5752~~

Date Analyzed: 7/3/2014

Laboratory Number	EC	TDS/EC Ratio: 0.55-0.90	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
14F0420-01C	976	0.50	634.4	0.77
14F0420-02B	884	0.60	574.6	0.92
14G0016-08D	927	0.63	602.55	0.97
14G0026-01C	7520	0.59	4888	0.91
14G0026-02C	7380	0.59	4797	0.91
14G0026-03D	14300	0.64	9295	0.98
14G0038-01D	4420	0.57	2873	0.87
14G0038-02D	8170	0.61	5310.5	0.94
14G0041-07A	691	0.58	449.15	0.90
14F0420-01 Dup	976	0.50	634.4	0.77
LCS				
14G0047-01B	407	0.63	264.55	0.96
14G0058-01D	938	0.54	609.7	0.83
14G0058-02D	867	0.62	563.55	0.95
14G0061-01B	912	0.56	592.8	0.86
14G0061-02B	912	0.56	592.8	0.86
14G0061-03B	865	0.56	562.25	0.86
14G0061-04B	858	0.55	557.7	0.84
14G0083-17F	1261	0.59	819.65	0.92
14G0083-17 Dup	1261	0.55	819.65	0.85

815006/14G0026

TRUESDAIL LABORATORIES, INC.
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CHAIN OF CUSTODY RECORD

[IM3Plant-WDR-474]

TURNAROUND TIME 10 Days
DATE 07/01/14 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

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, 200.8) See List Below	Ammonia (4500-NH3)	Anions (300.0) F	Anions (300.0) F, NO3, SO4	TOC (5310 C)	Total Metals (200.8) Mn	NO2 (4500-NO2B)			NUMBER OF CONTAINERS	COMMENTS
SC-700B-WDR-474	07/01/14	10:05		X		X	X	X	X	X		X			X			4	
SC-100B-WDR-474	07/01/14	10:05		X		X	X	X	X	X		X			X			4	Mn=6 (Metals)
SC-701-WDR-474	07/01/14	10:05		X	X	X	X				X			X				4	
																		16	TOTAL NUMBER OF CONTAINERS

ALERT !!
Level III QC

CHAIN OF CUSTODY SIGNATURE RECORD

Signature		Printed Name	Company/ Agency	Date/ Time
Signature (Relinquished)	Chris	CHRIS LENTZ	CH2M HILL	7-1-14 1435
Signature (Received)		THANH NGO	TRUESDAIL	7-1-14 1435
Signature (Relinquished)		THANH NGO	TRUESDAIL	7-1-14 1850
Signature (Received)		Maksim Gorbunov	Truesdail	7/1/14 1850
Signature (Relinquished)				
Signature (Received)				

SAMPLE CONDITIONS

RECEIVED COOL ☑ WARM ☐ 4.2°C

CUSTODY SEALED YES ☐ NO ☐

SPECIAL REQUIREMENTS:

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

Please Provide a preliminary Result for the Cr6 and TDS ASAP.

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
06/25/14	14F0377-01	9.5	N/A	N/A	N/A	NE
↓	-02	↓	↓	↓	↓	↓
↓	-03	↓	↓	↓	↓	↓
↓	-04	↓	↓	↓	↓	↓
↓	-05	↓	↓	↓	↓	↓
↓	-06	↓	↓	↓	↓	↓
↓	-07	↓	↓	↓	↓	↓
6/26/14	14F0394-1	9.5	N/A	N/A	N/A	NE
	-2	↓	↓	↓	↓	↓
6/27/14	14F0395-01	↓	↓	↓	↓	↓
↓	-02	↓	↓	↓	↓	↓
↓	-03	↓	↓	↓	↓	↓
↓	-04	↓	↓	↓	↓	↓
6/27/14	14F0404-1	9.5	N/A	N/A	N/A	NE
↓	-2	↓	↓	↓	↓	↓
↓	-3	↓	↓	↓	↓	↓
↓	-4	↓	↓	↓	↓	↓
↓	-5	↓	↓	↓	↓	↓
↓	-6	↓	↓	↓	↓	↓
7/2/14	14G0026-1	7.00	2ml/100ml	9.5	8:00	NE
↓	-2	↓	↓	↓	↓	↓
↓	-3	↓	↓	↓	↓	↓
↓	14G0038-1	↓	↓	↓	↓	↓
↓	-2	↓	↓	↓	↓	↓

NE
7/11/14

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest (Y/N)	Time of Adjustment to pH 2	Date/Time of 2nd pH check	Comments
14G0169-2	>1	<2	7/11/14	KD	Y			
14G0170-6	↓	↓	↓	↓	↓			
14G0172-2	↓	↓	↓	↓	↓			
14G0173-2	↓	↓	↓	↓	↓			
14G0174-2	↓	↓	↓	↓	↓			
14G0175-1	↓	↓	↓	↓	↓			
14G0177-2	↓	↓	↓	↓	↓			
14G0026(1-3)	<1	>2	7/14/14	ES	yes	9:08		pH <2
14G0136	↓	↓	↓	↓	↓	↓		↓
14G0038(1-2)	↓	↓	↓	↓ E 7/17/14	↓	↓		Filtered, then acidify
14G0215(1-3)	<1	<2	7/17/14	~~ES~~ EL	yes			
14G0218	↓	↓	↓	↓	↓			
219	↓	↓	↓	↓	↓			
221-2	↓	↓	↓	↓	↓			
222-2	>1	↓	↓	↓	↓			
223-2	↓	↓	↓	↓	↓			
224-1	↓	↓	↓	↓	↓			
225-2	↓	↓	↓	↓	↓			
226-2	↓	↓	↓	↓	↓			
232	<1	↓	↓	↓	↓			
234	>1	↓	↓	↓	↓			
236-2	<1	↓	↓	↓	↓			
237-2	>1	↓	↓	↓	↓			
247(1-2)	↓	↓	↓	↓	↓			
252	<1	↓	↓	↓	↓			
14G0230(1-2)	<1	>2	7/18/14	ES	yes	10:00	7/21/14 @10:00	pH <2
(5-7,8)						↓	↓	
14G0243(1-3)	↓	↓	↓	↓	↓	↓	↓	
14G0251(10-12)	↓	↓	↓	↓	↓	↓	↓	
14G0263	↓	↓	↓	↓	↓	↓	↓	
14G0298-5	<1	>2	7/22/14	ES	No	10:00	7/23/14 @12	pH <2
14G0312	<1	<2	7/23/14	ES	yes			
14G0316-1	>1	↓	↓	↓	↓			
14G0322-(1-3)	<1	>2	↓	↓	No	10:00	7/24/14 @1:00	pH <2
14G0288	↓	↓	↓	↓	Yes			
14G0306-2	↓	↓	↓	↓	↓			
14G0307-2	↓	↓	↓	↓	↓			
14G0308-1	↓	↓	↓	↓	↓			
14G0309-2	↓	↓	↓	↓	↓			
14G0310-2	>1	↓	↓	↓	↓			
14G0320-2	↓	↓	↓	↓	↓			
14G0285	>1	↓	↓	↓	↓			
14G0287-1	<1	↓	↓	↓	↓			
14G0293(1-2)	>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.

7/25/14

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

August 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-474 PROJECT, SLUDGE MONITORING,

TLI NO.: 815008

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-474 project sludge monitoring. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, quality control data and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data have been included under Section 5.

The samples were received and delivered with the chain of custody on July 1, 2014, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

Sample SC-Sludge-WDR-474 was analyzed as sample I.D. 14G0037-01 in the raw data but is reported as 815008 in all final report pages.

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

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

Michael Ngo
Quality Assurance/Quality Control Officer

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.: 815008
Date: August 11, 2014
Collected: July 1, 2014
Received: July 1, 2014

ANALYST LIST

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

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

Laboratory No.: **815008**
Date Received: **July 1, 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 I.D.	Sample I.D.	Sample Time	SW 7199 *Hexavalent Chromium* **mg/kg**	EPA 300.0 *Fluoride* **mg/kg**	SM 2540 B *% Moisture* **%**
815008	SC-Sludge-WDR-474	09:00	46.0	18.8	51.9

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

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

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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.: 815008
Date Received: July 1, 2014

Analytical Results Summary

METALS ANALYSIS: Total Metal Analyses as Requested

Lab I.D.	Sample ID	*Date of Analysis:* Time Coll.	Antimony SW 6010B 07/11/14 mg/kg	Arsenic SW 6010B 07/11/14 mg/kg	Barium SW 6010B 07/11/14 mg/kg	Beryllium SW 6020A 07/18/14 mg/kg	Cadmium SW 6010B 07/11/14 mg/kg	Chromium SW 6010B 07/11/14 mg/kg	Cobalt SW 6010B 07/11/14 mg/kg	Copper SW 6010B 07/11/14 mg/kg	Lead SW 6010B 07/11/14 mg/kg
815008	SC-Sludge-WDR-474	09:00	31.1	ND	52.2	ND	4.82	2350	ND	29.5	ND

Lab I.D.	Sample ID	*Date of Analysis:* Time Coll.	Manganese SW 6010B 07/11/14 mg/kg	Mercury SW 6020A 07/18/14 mg/kg	Molybdenum SW 6010B 07/11/14 mg/kg	Nickel SW 6010B 07/11/14 mg/kg	Selenium SW 6010B 07/11/14 mg/kg	Silver SW 6010B 07/11/14 mg/kg	Thallium SW 6010B 07/11/14 mg/kg	Vanadium SW 6010B 07/11/14 mg/kg	Zinc SW 6010B 07/11/14 mg/kg
815008	SC-Sludge-WDR-474	09:00	216	ND	ND	17.1	ND	ND	ND	30.2	17.3

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

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REPORT

Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy
Sample: One (1) Soil Sample
Project Name: PG&E Topock Project
Project No.: 428648.IM.CS.EX.AC
P.O. No.: PGEIM11111001
Prep. Batch: 1407350

Laboratory No.: 815008
Date: August 11, 2014
Collected: July 1, 2014
Received: July 1, 2014
Prep/ Analyzed: July 14, 2014
Analytical Batch: 1407350

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
815008	SC-Sludge-WDR-474	09:00	14:05	mg/kg	5.00	4.16	46.0

QA/QC Summary

QC STD I.D.	Laboratory Number	Sample Concentration	Duplicate Concentration	Relative Percent Difference	Acceptance limits	QC Within Control
Duplicate	815008	46.0	45.6	0.80%	≤ 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	815008	46.0	10.0	16.6	16.6	61.5	62.6	93.4%	75-125%	Yes
IMS	815008	46.0	100	2529	2529	2160	2575	83.6%	75-125%	Yes
PDMS	815008	46.0	10.0	16.6	166	209	212	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	2.04	2.00	102%	90% - 110%	Yes
MRCVS#1	2.12	2.00	106%	90% - 110%	Yes
LLCS	0.0105	0.0100	105%	70% - 130%	Yes
LCS	2.05	2.00	103%	80% - 120%	Yes

ND: Below the reporting limit (Not Detected).

DF: Dilution Factor.

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

fo Mona Nassimi, Manager
Analytical Services

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REPORT

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

Laboratory No.: 815008
Date: August 11, 2014
Collected: July 1, 2014
Received: July 1, 2014
Prep/ Analyzed: July 10, 2014
Analytical Batch: 07SOLID14A

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

Analytical Results % Moisture

TLI I.D.	Field I.D.	Sample Time	Units	Results
815008	SC-Sludge-WDR-474	09:00	%	51.9

QA/QC Summary

QC STD I.D.	Laboratory Number	Concentration	Duplicate Concentration	Relative Percent Difference	Acceptance limits	QC Within Control
Duplicate	815008	51.9	52.2	0.47%	≤ 20%	Yes

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

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

Mona Nassimi, Manager
Analytical Services

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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.: 815008
Date: August 11, 2014
Collected: July 1, 2014
Received: July 1, 2014
Prep/ Analyzed: July 2, 2014
Analytical Batch: 1407191

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
815008	SC-Sludge-WDR-474	09:00	19:36	mg/kg	1.00	4.16	18.8

QA/QC Summary

QC STD I.D.	Laboratory Number	Concentration	Duplicate Concentration	Relative Percent Difference	Acceptance limits	QC Within Control
Duplicate	14G0026-2	2.40	2.37	1.47%	≤ 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	14G0026-2	2.40	5.00	4.00	20.0	22.8	22.4	102%	85-115%	Yes

QC Std I.D.	Measured Concentration	Theoretical Concentration	Percent Recovery	Acceptance Limits	QC Within Control
Blank	ND	<0.500	---	<0.500	Yes
MRCCS	4.18	4.00	105%	90% - 110%	Yes
MRCVS#1	3.10	3.00	103%	90% - 110%	Yes
MRCVS#2	3.12	3.00	104%	90% - 110%	Yes
MRCVS#3	3.13	3.00	104%	90% - 110%	Yes
MRCVS#4	3.12	3.00	104%	90% - 110%	Yes
LCS	4.15	4.00	104%	90% - 110%	Yes

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

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

Mona Nassimi, Manager
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REPORT

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

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

Laboratory No.: 815008
Reported: August 11, 2014
Collected: July 1, 2014
Received: July 1, 2014
Analyzed: See Below

Analytical Results

SAMPLE ID: SC-Sludge-WDR-474 **Time Collected:** 09:00 **LAB ID:** 815008

Parameter	Method	Reported Value	DF	Units	RL	Batch	Date Analyzed	Time Analyzed
Antimony	SW 6010B	31.1	2.00	mg/kg	12.2	071114B-Th2	07/11/14	18:04
Arsenic	SW 6010B	ND	2.00	mg/kg	5.00	071114B-Th2	07/11/14	18:04
Barium	SW 6010B	52.2	2.00	mg/kg	10.0	071114B-Th2	07/11/14	18:04
Beryllium	SW 6020A	ND	10.0	mg/kg	1.00	071814B	07/18/14	16:26
Cadmium	SW 6010B	4.82	2.00	mg/kg	1.74	071114B-Th2	07/11/14	18:04
Chromium	SW 6010B	2350	10.0	mg/kg	8.72	071114B-Th2	07/11/14	17:20
Cobalt	SW 6010B	ND	2.00	mg/kg	10.0	071114B-Th2	07/11/14	18:04
Copper	SW 6010B	29.5	2.00	mg/kg	6.97	071114B-Th2	07/11/14	18:04
Lead	SW 6010B	ND	2.00	mg/kg	5.00	071114B-Th2	07/11/14	18:04
Manganese	SW 6010B	216	2.00	mg/kg	6.97	071114B-Th2	07/11/14	18:04
Mercury	SW 6020A	ND	10.0	mg/kg	0.174	071814B	07/18/14	16:26
Molybdenum	SW 6010B	ND	2.00	mg/kg	10.0	071114B-Th2	07/11/14	18:04
Nickel	SW 6010B	17.1	2.00	mg/kg	5.00	071114B-Th2	07/11/14	18:04
Selenium	SW 6010B	ND	2.00	mg/kg	5.00	071114B-Th2	07/11/14	18:04
Silver	SW 6010B	ND	2.00	mg/kg	5.00	071114B-Th2	07/11/14	18:04
Thallium	SW 6010B	ND	2.00	mg/kg	8.72	071114B-Th2	07/11/14	18:04
Vanadium	SW 6010B	30.2	2.00	mg/kg	5.00	071114B-Th2	07/11/14	18:04
Zinc	SW 6010B	17.3	2.00	mg/kg	10.0	071114B-Th2	07/11/14	18:04

NOTES:

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

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

Mona Nassimi, Manager
Analytical Services

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.: 815008
Reported: August 11, 2014
Collected: July 1, 2014
Received: July 1, 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 6010B	071114B-Th2	mg/kg	ND	5.00	4.91	5.00	98.2%	90-110%	4.84	5.00	96.8%	90-110%
Arsenic	SW 6010B	071114B-Th2	mg/kg	ND	5.00	4.96	5.00	99.3%	90-110%	4.84	5.00	96.8%	90-110%
Barium	SW 6010B	071114B-Th2	mg/kg	ND	10.0	4.87	5.00	97.3%	90-110%	4.80	5.00	96.0%	90-110%
Beryllium	SW 6020A	071814B	mg/kg	ND	1.00	0.0201	0.0200	101%	90-110%	0.0198	0.0200	99.2%	90-110%
Cadmium	SW 6010B	071114B-Th2	mg/kg	ND	1.00	4.99	5.00	99.8%	90-110%	4.88	5.00	97.6%	90-110%
Chromium	SW 6010B	071114B-Th2	mg/kg	ND	5.00	4.90	5.00	98.0%	90-110%	4.80	5.00	96.1%	90-110%
Cobalt	SW 6010B	071114B-Th2	mg/kg	ND	10.0	4.86	5.00	97.2%	90-110%	4.74	5.00	94.8%	90-110%
Copper	SW 6010B	071114B-Th2	mg/kg	ND	5.00	4.87	5.00	97.4%	90-110%	4.80	5.00	95.9%	90-110%
Lead	SW 6010B	071114B-Th2	mg/kg	ND	5.00	4.83	5.00	96.6%	90-110%	4.64	5.00	92.8%	90-110%
Manganese	SW 6010B	071114B-Th2	mg/kg	ND	4.00	4.83	5.00	96.6%	90-110%	4.76	5.00	95.1%	90-110%
Mercury	SW 6020A	071814B	mg/kg	ND	0.100	0.00200	0.00200	99.8%	90-110%	0.00194	0.00200	96.9%	90-110%
Molybdenum	SW 6010B	071114B-Th2	mg/kg	ND	10.0	4.82	5.00	96.4%	90-110%	4.91	5.00	98.2%	90-110%
Nickel	SW 6010B	071114B-Th2	mg/kg	ND	5.00	4.89	5.00	97.7%	90-110%	4.85	5.00	97.0%	90-110%
Selenium	SW 6010B	071114B-Th2	mg/kg	ND	5.00	5.03	5.00	101%	90-110%	5.02	5.00	100%	90-110%
Silver	SW 6010B	071114B-Th2	mg/kg	ND	5.00	4.98	5.00	99.6%	90-110%	4.89	5.00	97.9%	90-110%
Thallium	SW 6010B	071114B-Th2	mg/kg	ND	5.00	5.00	5.00	100%	90-110%	5.02	5.00	100%	90-110%
Vanadium	SW 6010B	071114B-Th2	mg/kg	ND	5.00	4.83	5.00	96.6%	90-110%	4.61	5.00	92.2%	90-110%
Zinc	SW 6010B	071114B-Th2	mg/kg	ND	10.0	5.07	5.00	101%	90-110%	4.91	5.00	98.2%	90-110%

			INTERFERENCE CHECK STANDARD (ICS A+B #1)				INTERFERENCE CHECK STANDARD (ICS A+B #2)			
Parameter	**Method**	**Units**	**ICS Obs.**	**ICS Theo.**	**% Rec.**	**Control Limits**	**ICS Obs.**	**ICS Theo.**	**% Rec.**	**Control Limits**
Arsenic	SW 6010B	mg/kg	2.11	2.00	106%	80-120%	2.03	2.00	102%	80-120%
Cadmium	SW 6010B	mg/kg	2.19	2.00	110%	80-120%	2.12	2.00	106%	80-120%
Chromium	SW 6010B	mg/kg	2.19	2.00	110%	80-120%	2.11	2.00	106%	80-120%
Cobalt	SW 6010B	mg/kg	2.19	2.00	109%	80-120%	2.12	2.00	106%	80-120%
Copper	SW 6010B	mg/kg	2.22	2.00	111%	80-120%	2.18	2.00	109%	80-120%
Manganese	SW 6010B	mg/kg	2.18	2.00	109%	80-120%	2.13	2.00	106%	80-120%
Mercury	SW 6020A	mg/kg	0.00184	0.00200	92.2%	80-120%	0.00198	0.00200	98.9%	80-120%
Nickel	SW 6010B	mg/kg	2.21	2.00	111%	80-120%	2.17	2.00	109%	80-120%
Silver	SW 6010B	mg/kg	1.96	2.00	98.0%	80-120%	1.85	2.00	92.6%	80-120%
Zinc	SW 6010B	mg/kg	2.22	2.00	111%	80-120%	2.13	2.00	107%	80-120%

			LABORATORY CONTROL SAMPLES				SAMPLE DUPLICATES				
Parameter	**Method**	**Units**	**LCS Obs.**	**LCS Theo.**	**% Rec.**	**Control Limits**	**SAMPLE ID**	**SAMPLE RESULT**	**DUP RESULT**	**% RPD**	**Precision Control Limits %**
Antimony	SW 6010B	mg/kg	1.96	2.00	97.8%	85-115%	14G0037-01	31.1	32.1	3.29%	≤20
Arsenic	SW 6010B	mg/kg	1.94	2.00	97.0%	85-115%	14G0037-01	ND	ND	0.00%	≤20
Barium	SW 6010B	mg/kg	1.97	2.00	98.3%	85-115%	14G0037-01	52.2	54.8	4.97%	≤20
Beryllium	SW 6020A	mg/kg	0.0490	0.0500	98.0%	85-115%	14G0037-01	ND	ND	0.00%	≤20
Cadmium	SW 6010B	mg/kg	2.03	2.00	101%	85-115%	14G0037-01	4.82	4.94	2.34%	≤20
Chromium	SW 6010B	mg/kg	2.05	2.00	102%	85-115%	14G0037-01	2350	2390	1.69%	≤20
Cobalt	SW 6010B	mg/kg	2.02	2.00	101%	85-115%	14G0037-01	ND	ND	0.00%	≤20
Copper	SW 6010B	mg/kg	2.00	2.00	100%	85-115%	14G0037-01	29.5	32.0	8.12%	≤20
Lead	SW 6010B	mg/kg	2.06	2.00	103%	85-115%	14G0037-01	ND	ND	0.00%	≤20
Manganese	SW 6010B	mg/kg	2.02	2.00	101%	85-115%	14G0037-01	216	224	3.41%	≤20
Mercury	SW 6020A	mg/kg	0.00465	0.00500	93.1%	85-115%	14G0037-01	ND	ND	0.00%	≤20
Molybdenum	SW 6010B	mg/kg	1.98	2.00	99.2%	85-115%	14G0037-01	ND	ND	0.00%	≤20
Nickel	SW 6010B	mg/kg	2.04	2.00	102%	85-115%	14G0037-01	17.1	17.5	2.27%	≤20
Selenium	SW 6010B	mg/kg	2.00	2.00	100%	85-115%	14G0037-01	ND	ND	0.00%	≤20
Silver	SW 6010B	mg/kg	1.98	2.00	99.1%	85-115%	14G0037-01	ND	ND	0.00%	≤20
Thallium	SW 6010B	mg/kg	2.07	2.00	103%	85-115%	14G0037-01	ND	ND	0.00%	≤20
Vanadium	SW 6010B	mg/kg	1.98	2.00	99.2%	85-115%	14G0037-01	30.2	30.9	2.11%	≤20
Zinc	SW 6010B	mg/kg	2.04	2.00	102%	85-115%	14G0037-01	17.3	17.6	1.93%	≤20

MATRIX SPIKE

Sample ID	Parameter	Method	Units	Sample Result	DF	Spike Level	Total Amt. of Spike	Theo. Value	MS Obs.	% Rec.	Accuracy Control Limits %
14G0037-01	Antimony	SW 6010B	mg/kg	31.1	2.00	96.6	193	224	217	96.2%	75-125%
14G0037-01	Arsenic	SW 6010B	mg/kg	0.00	2.00	96.6	193	193	196	102%	75-125%
14G0037-01	Barium	SW 6010B	mg/kg	52.2	2.00	96.6	193	245	256	105%	75-125%
14G0037-01	Beryllium	SW 6020A	mg/kg	0.00	10.0	0.443	4.43	4.43	4.25	95.8%	75-125%
14G0037-01	Cadmium	SW 6010B	mg/kg	4.82	2.00	96.6	193	198	181	91.2%	75-125%
14G0037-01	Chromium	SW 6010B	mg/kg	2350	10.0	193	1932	4282	3900	80.2%	75-125%
14G0037-01	Cobalt	SW 6010B	mg/kg	0.00	2.00	96.6	193	193	174	90.2%	75-125%
14G0037-01	Copper	SW 6010B	mg/kg	29.5	2.00	96.6	193	223	231	104%	75-125%
14G0037-01	Lead	SW 6010B	mg/kg	0.00	2.00	96.6	193	193	149	77.2%	75-125%
14G0037-01	Manganese	SW 6010B	mg/kg	216	2.00	96.6	193	409	399	94.7%	75-125%
14G0037-01	Mercury	SW 6020A	mg/kg	0.00	10.0	0.044	0.443	0.443	0.514	116%	75-125%
14G0037-01	Molybdenum	SW 6010B	mg/kg	0.00	2.00	96.6	193	193	200	104%	75-125%
14G0037-01	Nickel	SW 6010B	mg/kg	17.1	2.00	96.6	193	210	195	92.1%	75-125%
14G0037-01	Selenium	SW 6010B	mg/kg	0.00	2.00	96.6	182	182	164	90.3%	75-125%
14G0037-01	Silver	SW 6010B	mg/kg	0.00	2.00	96.59	193	193	174	89.8%	75-125%
14G0037-01	Thallium	SW 6010B	mg/kg	0.00	2.00	96.59	193	193	166	85.7%	75-125%
14G0037-01	Vanadium	SW 6010B	mg/kg	30.2	2.00	96.6	193	223	204	90.0%	75-125%
14G0037-01	Zinc	SW 6010B	mg/kg	17.3	2.00	96.6	193	210	208	98.5%	75-125%

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

MATRIX SPIKE DUPLICATE

Sample ID	Parameter	Method	Units	Sample Result	DF	Spike Level	Total Amt. of Spike	Theo. Value	MS Obs.	% Rec.	Accuracy Control Limits %
14G0037-01	Antimony	SW 6010B	mg/kg	31.1	2.00	109	218	249	234	93.2%	75-125%
14G0037-01	Arsenic	SW 6010B	mg/kg	0.00	2.00	109	218	218	216	99.2%	75-125%
14G0037-01	Barium	SW 6010B	mg/kg	52.2	2.00	109	218	270	270	100%	75-125%
14G0037-01	Beryllium	SW 6020A	mg/kg	0.00	10.0	0.455	4.55	4.55	4.48	98.5%	75-125%
14G0037-01	Cadmium	SW 6010B	mg/kg	4.82	2.00	109	218	223	200	89.3%	75-125%
14G0037-01	Cobalt	SW 6010B	mg/kg	0.00	2.00	109	218	218	193	88.4%	75-125%
14G0037-01	Copper	SW 6010B	mg/kg	29.5	2.00	109	218	248	260	106%	75-125%
14G0037-01	Lead	SW 6010B	mg/kg	0.00	2.00	109	218	218	166	76.1%	75-125%
14G0037-01	Manganese	SW 6010B	mg/kg	216	2.00	109	218	434	246	13.7%	75-125%
14G0037-01	Mercury	SW 6020A	mg/kg	0.00	10.0	0.0455	0.455	0.455	0.543	119%	75-125%
14G0037-01	Molybdenum	SW 6010B	mg/kg	0.00	2.00	109	218	218	220	101%	75-125%
14G0037-01	Nickel	SW 6010B	mg/kg	17.1	2.00	109	218	235	215	90.6%	75-125%
14G0037-01	Selenium	SW 6010B	mg/kg	0.00	2.00	109	218	218	185	84.9%	75-125%
14G0037-01	Silver	SW 6010B	mg/kg	0.00	2.00	109	218	218	194	88.9%	75-125%
14G0037-01	Thallium	SW 6010B	mg/kg	0.00	2.00	109	218	218	183	84.0%	75-125%
14G0037-01	Vanadium	SW 6010B	mg/kg	30.2	2.00	109	218	248	221	87.5%	75-125%
14G0037-01	Zinc	SW 6010B	mg/kg	17.3	2.00	109	218	235	224	94.9%	75-125%

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

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

fo
Mona Nassimi, Manager
Analytical Services

Dry Weight Calculations

Date Calculated: 8/11/2014
Sample I.D. 815008

	Sample Result Wet Weight mg/kg	Dilution Factor	% Moisture %	Sample Result Dry* Weight mg/kg	Reported Value mg/kg	Reporting Limit Wet Weight mg/kg	Reporting Limit Dry Weight mg/kg
Fluoride	9.018	---	51.9	18.7547	18.8	2.00	4.16
Hexavalent Chromium	22.1037	---	51.9	45.9690	46.0	2.00	4.16
Hexavalent Chromium - Dup	21.9282	---	51.9	45.6039	45.6	2.00	4.16
Hexavalent Chromium - MS	29.5769	---	51.9	61.5109	61.5	4.00	8.32
Hexavalent Chromium - IMS	1038.277	---	51.9	2159.298	2160	40.0	83.2
Hexavalent Chromium - PDMS	100.3983	---	51.9	208.798	209	4.00	8.32
Antimony	14.94	2.00	51.9	31.0706	31.1	5.8671	12.2
Arsenic	1.255	2.00	51.9	2.6100	ND	1.6763	5.00
Barium	25.09	2.00	51.9	52.1795	52.2	1.6763	10.0
Beryllium	ND	10.0	51.9	ND	ND	0.4191	1.00
Cadmium	2.319	2.00	51.9	4.8228	4.82	0.8382	1.74
Chromium	1131	10.0	51.9	2352.1338	2350	4.1908	8.72
Cobalt	0.9092	2.00	51.9	1.8909	ND	0.8382	10.0
Copper	14.17	2.00	51.9	29.4693	29.5	3.3526	6.97
Lead	0.8138	2.00	51.9	1.6925	ND	0.8382	5.00
Manganese	103.9	2.00	51.9	216.0802	216	3.3526	6.97
Mercury	0.050864	10.0	51.9	0.10578	ND	0.08382	0.174
Molybdenum	3.957	2.00	51.9	8.2293	ND	3.3526	10.0
Nickel	8.240	2.00	51.9	17.1367	17.1	0.8382	5.00
Selenium	ND	2.00	51.9	ND	ND	0.8382	5.00
Silver	ND	2.00	51.9	ND	ND	0.8382	5.00
Thallium	0.2119	2.00	51.9	0.4407	ND	4.1908	8.72
Vanadium	14.54	2.00	51.9	30.2387	30.2	0.8382	5.00
Zinc	8.30	2.00	51.9	17.2656	17.3	1.6763	10.0

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

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

Dry Weight Calculations

Date Calculated: 8/11/2014

	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: 14G0037-01							
Antimony	15.44	2.00	51.9	32.1105	32.1	5.9483	12.4
Arsenic	0.6833	2.00	51.9	1.4211	ND	1.6995	5.00
Barium	26.37	2.00	51.9	54.8415	54.8	1.6995	10.0
Beryllium	ND	10.0	51.9	ND	ND	0.4249	1.00
Cadmium	2.374	2.00	51.9	4.9372	4.94	0.8498	1.77
Chromium	1149	10.0	51.9	2389.5683	2390	4.2488	8.84
Cobalt	0.8523	2.00	51.9	1.7725	ND	0.8498	10.0
Copper	15.37	2.00	51.9	31.9649	32.0	3.3990	7.07
Lead	0.4014	2.00	51.9	0.8348	ND	0.8498	5.00
Manganese	107.5	2.00	51.9	223.5671	224	3.3990	7.07
Mercury	0.037061	10.0	51.9	0.07708	ND	0.08498	0.177
Molybdenum	4.013	2.00	51.9	8.3458	ND	3.3990	10.0
Nickel	8.429	2.00	51.9	17.5297	17.5	0.8498	5.00
Selenium	ND	2.00	51.9	ND	ND	0.8498	5.00
Silver	ND	2.00	51.9	ND	ND	0.8498	5.00
Thallium	0.1226	2.00	51.9	0.2550	ND	4.2488	8.84
Vanadium	14.85	2.00	51.9	30.8835	30.9	0.8498	5.00
Zinc	8.464	2.00	51.9	17.6025	17.6	1.6995	10.0
Matrix Spike: 14G0037-01							
Antimony	104.3	2.00	51.9	216.9121	217	6.5020	13.5
Arsenic	94.35	2.00	51.9	196.2191	196	1.8577	5.00
Barium	122.9	2.00	51.9	255.5944	256	1.8577	10.0
Beryllium	2.043047	10.0	51.9	4.2489	4.25	0.4264	1.00
Cadmium	87.01	2.00	51.9	180.9542	181	0.9289	1.93
Chromium	1877	10.0	51.9	3903.585	3900	4.6443	9.66
Cobalt	83.82	2.00	51.9	174.3199	174	0.9289	10.0
Copper	110.9	2.00	51.9	230.6381	231	3.7154	7.73
Lead	71.68	2.00	51.9	149.0725	149	0.9289	5.00
Manganese	191.9	2.00	51.9	399.0933	399	3.7154	7.73
Mercury	0.246923	10.00	51.9	0.513524	0.514	0.0853	0.177
Molybdenum	96.34	2.00	51.9	200.3577	200	3.7154	10.0
Nickel	93.78	2.00	51.9	195.0337	195	0.9289	5.00
Selenium	79.00	2.00	51.9	164.2958	164	0.9289	5.00
Silver	83.43	2.00	51.9	173.5089	174	0.9289	5.00
Thallium	79.64	2.00	51.9	165.6268	166	4.6443	9.66
Vanadium	98.37	2.00	51.9	204.5795	204	0.9289	5.00
Zinc	99.78	2.00	51.9	207.5119	208	1.8577	10.0

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

where:

Sample_{ww} = Sample result in wet weight

Dry Weight Calculations

Date Calculated: 8/11/2014

	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: 14G0037-01							
Antimony	112.7	2.00	51.9	234.3815	234	7.3406	15.3
Arsenic	104.0	2.00	51.9	216.2882	216	2.0973	5.00
Barium	130.1	2.00	51.9	270.5682	270	2.0973	10.0
Beryllium	2.153104	10.00	51.9	4.4778	4.48	0.4373	1.00
Cadmium	95.99	2.00	51.9	199.6298	200	1.0487	2.18
Cobalt	92.69	2.00	51.9	192.7668	193	1.0487	10.0
Copper	125.3	2.00	51.9	260.5856	260	4.1946	8.72
Lead	80.08	2.00	51.9	166.5419	166	1.0487	5.00
Manganese	205.1	2.00	51.9	426.5452	246	4.1946	8.72
Mercury	0.261189	10.00	51.9	0.543193	0.543	0.0875	0.182
Molybdenum	105.7	2.00	51.9	219.8236	220	4.1946	10.0
Nickel	103.3	2.00	51.9	214.8324	215	1.0487	5.00
Selenium	89.01	2.00	51.9	185.1136	185	1.0487	5.00
Silver	93.20	2.00	51.9	193.8275	194	1.0487	5.00
Thallium	88.09	2.00	51.9	183.2002	183	5.2433	10.9
Vanadium	106.3	2.00	51.9	221.0715	221	1.0487	5.00
Zinc	107.8	2.00	51.9	224.1910	224	2.0973	10.0

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

where:

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

TRUESDAIL LABORATORIES, INC.

TOTAL SOLIDS BY SM 2540 B

Date of Analysis: 07/10/14

Analytical Batch: 07SOLID14A
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
14G0037-01	1	1.3242	2.0175	3.3417	2.2943	0.9701	48.084	51.916
14G0037-01D	2	1.3201	2.0237	3.3438	2.2882	0.9681	47.838	52.162

Relative Percent Difference

Sample ID	Sample	Sample Dup	RPD
14G0037-01	51.916	52.162	0.5

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

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

Naheed	Naheed	Maksim	
Analyst Name	Analyst Signature	Reviewer Name	Reviewer Signature

915008 / 14G0037

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-474]

TURNAROUND TIME 10 Days
DATE 07/01/14 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

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-474	07/01/14	9:00	Sludge	X	X	X	X	X	4	
									4	TOTAL NUMBER OF CONTAINERS

ALERT !!
Level III QC

CHAIN OF CUSTODY SIGNATURE RECORD

Signature	Printed Name	Company/ Agency	Date/ Time
Signature (Relinquished)	CHRIS LENZ	CH2M HILL	7-1-14 1435
Signature (Received)	THANH NGO	TRUESDAIL	7-1-14 1435
Signature (Relinquished)	THANH NGO	TRUESDAIL	7-1-14 1850
Signature (Received)	Maksim Gorbunov	Truesdail	7/1/14 1850
Signature (Relinquished)			
Signature (Received)			

SAMPLE CONDITIONS
RECEIVED COOL ☑ WARM ☐ 4.2°C
CUSTODY SEALED YES ☐ NO ☐
SPECIAL REQUIREMENTS:

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

August 11, 2014

E2 Consulting Engineers, Inc.

Mr. Shawn Duffy
155 Grand Ave., Suite 1000
Oakland, California 94612

Project: ***PG&E Topock Project***
Date Sampled: 7/1/14
Truesdail ID: 815008

Subject: Cross-reference Table for Subcontracted Analyses

Dear Mr. Duffy:

Bioassay 96hr Acute Toxicity requested for the referenced project were subcontracted to Aquatic Testing Laboratories. Please refer to the cross-reference table below for sample identifications.

Client ID	***Truesdail ID***	***Aquatic Testing Labs***
SC-Sludge-WDR-474	815008-1 / 14G0037-01	A-14070301-001

The original subcontracted report is attached.

Please feel free to contact me at 714-730-6239 extension 200 should you have any questions.

Sincerely,

TRUESDAIL LABORATORIES, INC.

Mona Nassimi
Manager Analytical Services

LABORATORY REPORT

Aquatic
Testing
Laboratories

Adedicated to providing quality aquatic toxicity testing@

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

Date: July 8, 2014

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

Laboratory No.: A-14070301-001
Sample ID.: 14G0037-01

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

Date Sampled: 07/01/14
Date Received: 07/03/14
Date Tested: 07/04/14 to 07/08/14

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

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

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

Result Summary:

Sample ID.	Results
14G0037-01	PASS (LC50 > 750 mg/l)

Quality Control: Reviewed and approved by:

Joseph A. LeMay
Laboratory Director

FATHEAD MINNOW HAZARDOUS WASTE
SCREEN BIOASSAY

Aquatic Testing Laboratories

Lab No.: A14070301-001

Client/ID: Truesdail 1460037-01

TEST SUMMARY

Species: *Pimephales promelas*.
Fish weight (gm): av: 0.48 ; min: 0.44 ; max: 0.54 .
Reference Toxicant: SDS conducted per batch.
Test chamber volume: 10 liters.
Temperature: 20 +/- 2°C.
Aeration: none, unless D.O. drops below 5.0 mg/l.
Number of replicates: 2.
Dilution water: Soft reconstituted water (40-48 mg/l $CaCO_3$).

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

TEST DATA

	INITIAL			24 Hr				48 Hr				72 Hr				96 Hr			
Date/Time:	7-4-14 1030			7-5-14 1000				7-6-14 1000				7-7-14 1000				7-8-14 1030			
Analyst:																			
	°C	DO	pH	°C	DO	pH	# D	°C	DO	pH	# D	°C	DO	pH	# D	°C	DO	pH	# D
Control A	204	8.4	7.8	20.4	8.0	78	0	20.5	8.4	78	0	20.5	84	78	0	20.7	8.1	8.0	0
Control B	204	8.3	7.8	20.4	8.1	78	0	20.4	8.2	78	0	204	8.2	78	0	20.6	7.8	8.0	0
400 mg/l A	20.3	8.4	8.2	204	8.0	7.8	0	20.4	7.9	78	0	20.3	8.2	7.9	0	20.7	8.1	8.0	0
400 mg/l B	20.2	8.4	8.2	204	8.6	7.8	0	20.4	8.6	78	0	20.2	8.6	7.9	1	20.7	8.1	7.9	0
750 mg/l A	203	8.5	8.3	20.3	7.9	7.8	0	20.4	8.4	78	0	20.1	8.0	7.9	0	20.6	8.0	7.8	0
750 mg/l B	202	8.5	8.4	20.3	8.2	7.8	0	20.3	8.2	78	0	20.1	8.2	7.9	0	20.7	8.0	7.8	0

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

	CONTROL		HIGH CONCENTRATION	
	Alkalinity	Hardness	Alkalinity	Hardness
Initial	34 mg/l $CaCO_3$	47 mg/l $CaCO_3$	34 mg/l $CaCO_3$	54 mg/l $CaCO_3$
Final	34 mg/l $CaCO_3$	48 mg/l $CaCO_3$	35 mg/l $CaCO_3$	95 mg/l $CaCO_3$

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

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

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

SUBCONTRACT ORDER

Truesdail Laboratories, Inc

14G0037

SENDING LABORATORY:

Truesdail Laboratories, Inc
14201 Franklin Ave
Tustin, CA 92780
Phone: (714) 730-6239
Fax: (714) 730-6462
Project Manager: Sean Condon

RECEIVING LABORATORY:

Aquatic Testing Labs
4350 Transport St. #107
Ventura, CA 93003
Phone :(805) 650-0546
Fax: (805) 650-0756

Analysis	Due	Expires	Laboratory ID	Comments
Sample ID: 14G0037-01	**Soil**	**Sampled:07/01/2014 09:00**	[redacted]	
Sub Bioassay	07/14/2014 12:00	07/29/2014 09:00		
Containers Supplied:				

ALERT !!
Level III QC

Released By 7-2-14 Date
Received By ATL 7-3-14 0900 Date

Released By Date
Received By Date

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING
Established 1931

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

July 30, 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-475 PROJECT, GROUNDWATER MONITORING, TLI NO.: 815010

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-475 project groundwater monitoring for Hexavalent and Total Chromium, Total Manganese, Turbidity, Specific Conductivity, and Total Dissolved Solids. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, quality control data and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data have been included under Section 5.

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

Sample SC-700B-WDR-475 was analyzed as sample I.D. 14G0136 in the raw data but is reported as 815010 in all final report pages.

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

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

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

for
Mona Nassimi
Manager, Analytical Services

Michael Ngo
Michael Ngo
Quality Assurance/Quality Control Officer

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.: **815010**
Date: July 30, 2014
Collected: July 8, 2014
Received: July 8, 2014

ANALYST LIST

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

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

Laboratory No.: **815010**
Date Received: **July 8, 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
815010-001	SC-700B-WDR-475	E120.1	NONE	7/8/2014	10:25	EC	7390	umhos/cm	2.00
815010-001	SC-700B-WDR-475	E200.8	NONE	7/8/2014	10:25	Chromium	ND	ug/L	1.0
815010-001	SC-700B-WDR-475	E200.8	NONE	7/8/2014	10:25	Manganese	6.7	ug/L	0.50
815010-001	SC-700B-WDR-475	E218.6	LABFLT	7/8/2014	10:25	Chromium, Hexavalent	ND	ug/L	0.20
815010-001	SC-700B-WDR-475	SM2130B	NONE	7/8/2014	10:25	Turbidity	0.126	NTU	0.100
815010-001	SC-700B-WDR-475	SM2540C	NONE	7/8/2014	10:25	Total Dissolved Solids	4200	mg/L	250

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

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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. 815010
Page 1 of 13
Printed 7/30/2014

Samples Received on 7/8/2014 6:40:00 PM

Field ID	Lab ID	Collected	Matrix
SC-700B-WDR-475	815010-001	07/08/2014 10:25	Water

Specific Conductivity - EPA 120.1 Batch 1407155

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815010-001 Specific Conductivity	umhos/cm	07/09/2014	1.00	0.606	2.00	7390

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate Lab ID = 815013-004

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	959	958	0.104	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	745	706	106	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	745	706	106	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	1070	1000	107	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	1070	1000	107	90 - 110

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 1407138

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815010-001 Chromium, Hexavalent	ug/L	07/09/2014 16:38	1.00	0.00630	0.20	ND

Method Blank

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

Duplicate

Lab ID = 815010-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	0.182	0.188	3.24	0 - 20

Low Level Calibration Verification

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

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.12	5.00	102	90 - 110

Matrix Spike

Lab ID = 815006-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	1170	1190(625)	97.8	90 - 110

Matrix Spike

Lab ID = 815010-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.90	5.19(5.00)	94.2	90 - 110

Matrix Spike

Lab ID = 815010-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.07	1.11(1.00)	96.5	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.13	5.00	102	90 - 110

MRCVS - Primary

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

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 071414D

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815010-001 Chromium	ug/L	07/15/2014 11:30	1.00	0.0710	0.50	ND
Manganese	ug/L	07/15/2014 11:30	1.00	0.0600	0.50	6.7

Method Blank

Parameter	Unit	DF	Result
Arsenic	ug/L	1.00	ND
Barium	ug/L	1.00	ND
Cadmium	ug/L	1.00	ND
Chromium	ug/L	1.00	ND
Nickel	ug/L	1.00	ND
Antimony	ug/L	1.00	ND
Copper	ug/L	1.00	ND
Lead	ug/L	1.00	ND
Silver	ug/L	1.00	ND
Thallium	ug/L	1.00	ND
Vanadium	ug/L	1.00	ND
Manganese	ug/L	1.00	ND
Molybdenum	ug/L	1.00	ND

Duplicate

Lab ID = 815006-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Arsenic	ug/L	1.00	ND	0	0	0 - 20
Barium	ug/L	1.00	13.9	14.0	0.516	0 - 20
Cadmium	ug/L	1.00	ND	0	0	0 - 20
Chromium	ug/L	1.00	ND	0	0	0 - 20
Nickel	ug/L	1.00	1.97	2.15	8.69	0 - 20
Antimony	ug/L	1.00	ND	0	0	0 - 20
Copper	ug/L	1.00	0.943	1.01	6.86	0 - 20
Lead	ug/L	1.00	ND	0	0	0 - 20
Silver	ug/L	1.00	ND	0	0	0 - 20
Thallium	ug/L	1.00	ND	0	0	0 - 20
Vanadium	ug/L	1.00	ND	0	0	0 - 20
Manganese	ug/L	1.00	0.850	0.864	1.63	0 - 20
Molybdenum	ug/L	1.00	20.1	21.2	5.13	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	0.214	0.200	107	70 - 130
Barium	ug/L	1.00	0.969	1.00	96.9	70 - 130
Cadmium	ug/L	1.00	0.207	0.200	104	70 - 130
Chromium	ug/L	1.00	0.436	0.500	87.2	70 - 130
Nickel	ug/L	1.00	0.895	1.00	89.5	70 - 130
Antimony	ug/L	1.00	0.210	0.200	105	70 - 130
Copper	ug/L	1.00	0.510	0.500	102	70 - 130
Lead	ug/L	1.00	0.493	0.500	98.6	70 - 130
Silver	ug/L	1.00	0.204	0.200	102	70 - 130
Thallium	ug/L	1.00	0.193	0.200	96.5	70 - 130
Vanadium	ug/L	1.00	0.162	0.200	81.0	70 - 130
Manganese	ug/L	1.00	0.468	0.500	93.6	70 - 130
Molybdenum	ug/L	1.00	0.193	0.200	96.5	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	2.00	50.0	50.0	99.9	85 - 115
Barium	ug/L	2.00	50.7	50.0	101	85 - 115
Cadmium	ug/L	2.00	51.0	50.0	102	85 - 115
Chromium	ug/L	2.00	52.2	50.0	104	85 - 115
Nickel	ug/L	2.00	52.6	50.0	105	85 - 115
Antimony	ug/L	2.00	51.2	50.0	102	85 - 115
Copper	ug/L	2.00	53.2	50.0	106	85 - 115
Lead	ug/L	2.00	50.6	50.0	101	85 - 115
Silver	ug/L	2.00	53.8	50.0	108	85 - 115
Thallium	ug/L	2.00	50.7	50.0	101	85 - 115
Vanadium	ug/L	2.00	51.9	50.0	104	85 - 115
Manganese	ug/L	2.00	51.3	50.0	102	85 - 115
Molybdenum	ug/L	2.00	49.8	50.0	99.7	85 - 115

Client: E2 Consulting Engineers, Inc. Project Name: PG&E Topock Project Page 5 of 13
Project Number: 428648.IM.CS.EX.AC Printed 7/30/2014

Matrix Spike Lab ID = 815006-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	1.00	52.0	50.0(50.0)	104	75 - 125
Barium	ug/L	1.00	62.9	64.0(50.0)	97.9	75 - 125
Cadmium	ug/L	1.00	43.5	50.0(50.0)	87.1	75 - 125
Chromium	ug/L	1.00	43.8	50.0(50.0)	87.5	75 - 125
Nickel	ug/L	1.00	42.2	52.2(50.0)	80.0	75 - 125
Antimony	ug/L	1.00	51.9	50.0(50.0)	104	75 - 125
Copper	ug/L	1.00	41.9	51.0(50.0)	81.8	75 - 125
Lead	ug/L	1.00	41.1	50.0(50.0)	82.3	75 - 125
Silver	ug/L	1.00	44.2	50.0(50.0)	88.3	75 - 125
Thallium	ug/L	1.00	39.0	50.0(50.0)	78.0	75 - 125
Vanadium	ug/L	1.00	45.8	50.0(50.0)	91.5	75 - 125
Manganese	ug/L	1.00	44.8	50.9(50.0)	87.9	75 - 125
Molybdenum	ug/L	1.00	68.2	71.2(50.0)	94.1	75 - 125

Matrix Spike Duplicate Lab ID = 815006-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	1.00	52.2	50.0(50.0)	104	75 - 125
Barium	ug/L	1.00	60.5	64.0(50.0)	93.0	75 - 125
Cadmium	ug/L	1.00	43.4	50.0(50.0)	86.8	75 - 125
Chromium	ug/L	1.00	47.8	50.0(50.0)	95.5	75 - 125
Nickel	ug/L	1.00	47.1	52.2(50.0)	89.9	75 - 125
Antimony	ug/L	1.00	49.4	50.0(50.0)	98.8	75 - 125
Copper	ug/L	1.00	47.6	51.0(50.0)	93.2	75 - 125
Lead	ug/L	1.00	42.0	50.0(50.0)	84.0	75 - 125
Silver	ug/L	1.00	44.3	50.0(50.0)	88.5	75 - 125
Thallium	ug/L	1.00	40.5	50.0(50.0)	81.0	75 - 125
Vanadium	ug/L	1.00	49.4	50.0(50.0)	98.8	75 - 125
Manganese	ug/L	1.00	47.3	50.9(50.0)	92.8	75 - 125
Molybdenum	ug/L	1.00	68.2	71.2(50.0)	94.1	75 - 125

Serial Dilution — Lab ID = 815006-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Barium	ug/L	5.00	27.5	28.0	1.65	0 - 10
Chromium	ug/L	50.0	558	546	2.11	0 - 10

Total Dissolved Solids by SM 2540 C

Batch 1407154

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815010-001 Total Dissolved Solids	mg/L	07/09/2014	1.00	1.76	250	4200

Method Blank

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

Duplicate — Lab ID = 815010-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	4360	4200	3.74	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Dissolved Solids	mg/L	1.00	497	500	99.4	90 - 110

Turbidity by SM 2130 B

Batch 1407152

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815010-001 Turbidity	NTU	07/09/2014	1.00	0.0140	0.100	0.126

Method Blank

Parameter	Unit	DF	Result
Turbidity	NTU	1.00	ND

Duplicate — Lab ID = 815016-009

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Turbidity	NTU	1.00	0.123	0.125	1.61	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	8.30	8.00	104	90 - 110

Lab Control Sample Duplicate

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

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

Truesdail Laboratories, Inc.

Total Dissolved Solids by SM 2540 C

Calculations

1407154

Batch: ~~8/26/5752~~

Date Analyzed: 7/9/2014

515010

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	60.0624	60.0628	60.0626	0.0002	No	0.0002	2.0	25.0	ND	1
14G0144-01B	500	167.3458	167.3483	167.3483	0.0000	No	0.0025	5.0	5.0	ND	1
14G0064-01C	100	71.9505	72.0016	72.0016	0.0000	No	0.0511	511.0	25.0	511.0	1
14G0064-02	100	67.0324	67.0839	67.0835	0.0004	No	0.0511	511.0	25.0	511.0	1
14G0064-03	100	76.4954	76.5458	76.5455	0.0003	No	0.0501	501.0	25.0	501.0	1
14G0064-04	100	79.4426	79.4944	79.4943	0.0001	No	0.0517	517.0	25.0	517.0	1
14G0065-01H	100	79.7964	79.8310	79.8310	0.0000	No	0.0346	346.0	25.0	346.0	1
14G0065-02I	100	67.8030	67.8554	67.8554	0.0000	No	0.0524	524.0	25.0	524.0	1
14G0065-03	100	74.6926	74.7452	74.7451	0.0001	No	0.0525	525.0	25.0	525.0	1
14G0065-04	100	76.5283	76.5868	76.5868	0.0000	No	0.0585	585.0	25.0	585.0	1
14G0089-01D	100	74.2148	74.2595	74.2595	0.0000	No	0.0447	447.0	25.0	447.0	1
14G0089-01 Du	100	77.7702	77.8153	77.8153	0.0000	No	0.0451	451.0	25.0	451.0	1
LCS	100	62.6152	62.6651	62.6649	0.0002	No	0.0497	497.0	25.0	497.0	1
14G0089-02	100	74.8848	74.9352	74.9352	0.0000	No	0.0504	504.0	25.0	504.0	1
14G0136-01C	10	29.3775	29.4195	29.4195	0.0000	No	0.0420	4200.0	250.0	4200.0	1
14G0150-01D	100	76.2674	76.3154	76.3154	0.0000	No	0.0480	480.0	25.0	480.0	1
14G0150-02	100	69.7588	69.8088	69.8085	0.0003	No	0.0497	497.0	25.0	497.0	1
14G0156-01C	100	74.5088	74.5576	74.5572	0.0004	No	0.0484	484.0	25.0	484.0	1
14G0156-02	100	74.0294	74.0769	74.0768	0.0001	No	0.0474	474.0	25.0	474.0	1
14G0156-03	100	76.1674	76.2152	76.2150	0.0002	No	0.0476	476.0	25.0	476.0	1
14G0156-04	100	71.2945	71.3426	71.3426	0.0000	No	0.0481	481.0	25.0	481.0	1
14G0136-01 Du	10	30.5008	30.5445	30.5444	0.0001	No	0.0436	4360.0	250.0	4360.0	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	497.0	500	**99.4%**	90-110%	Yes
LCSD					

LCS Recovery

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

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

Duplicate Determinations Difference Summary

Lab Number	Sample Weight, g	Sample Dup Weight, g	% RPD	Acceptance Limit	QC Within Control?
14G0089-01	0.0447	0.0451	**0.4%**	≤5%	Yes
14G0136-01	0.0420	0.0436	**1.9%**	≤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: ~~8/28/5752~~ 1407154
Date Analyzed: 7/9/2014

Laboratory Number	EC	TDS/EC Ratio: 0.55-0.90	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
14G0144-01B	13	ND	8.45	ND
14G0064-01C	895	0.57	581.75	0.88
14G0064-02	933	0.55	606.45	0.84
14G0064-03	882	0.57	573.3	0.87
14G0064-04	869	0.59	564.85	0.92
14G0065-01H	580	0.60	377	0.92
14G0065-02I	813	0.64	528.45	0.99
14G0065-03	850	0.62	552.5	0.95
14G0065-04	958	0.61	622.7	0.94
14G0089-01D	901	0.50	585.65	0.76
14G0089-01 Dup	901	0.50	585.65	0.77
LCS				
14G0089-02	856	0.59	556.4	0.91
14G0136-01C	7390	0.57	4803.5	0.87
14G0150-01D	874	0.55	568.1	0.84
14G0150-02	846	0.59	549.9	0.90
14G0156-01C	881	0.55	572.65	0.85
14G0156-02	882	0.54	573.3	0.83
14G0156-03	885	0.54	575.25	0.83
14G0156-04	861	0.56	559.65	0.86
14G0136-01 Dup	7390	0.59	4803.5	0.91

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CHAIN OF CUSTODY RECORD 815010/

[IM3Plant-WDR-475] 14G0136

COC Number
TURNAROUND TIME **10** Days
DATE **07/08/14** 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 Rim

SAMPLE I.D.	DATE	TIME	DESCRIPTION	Cr6 (218.6) Lab Filtered	Total Metals (200.8) Cr, Mn	Specific Conductance (120.1)	TDS (SM2540C)		Turbidity (SM2130)									NUMBER OF CONTAINERS	COMMENTS
SC-700B-WDR-475	07/08/14	10:25	Water	x	x	x	x		x									3	pH=6 (200.8)
																		3	TOTAL NUMBER OF CONTAINERS

Please Provide a preliminary Result for the TDS ASAP

ALERT !!
Level III QC

CHAIN OF CUSTODY SIGNATURE RECORD

Signature (Relinquished) Chris Rim	Printed Name CHRIS LEWE	Company/ Agency CH2M HILL	Date/ Time 7-8-14 15:00
Signature (Received) Thanh Ngo	Printed Name THANH NGO	Company/ Agency TRUESDAIL	Date/ Time 7-8-14 1500
Signature (Relinquished) Thanh Ngo	Printed Name THANH NGO	Company/ Agency	Date/ Time 7-8-14 1840
Signature (Received) [redacted]	Printed Name Alexander Wood	Company/ Agency TLI	Date/ Time 7.8.14 1840
Signature (Relinquished)	Printed Name	Company/ Agency	Date/ Time
Signature (Received)	Printed Name	Company/ Agency	Date/ Time

SAMPLE CONDITIONS

RECEIVED COOL ☑ WARM ☐ 4.6 °C

CUSTODY SEALED YES ☐ NO ☐

SPECIAL REQUIREMENTS:

050

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
06/25/14	14F0377-01	9.5	N/A	N/A	N/A	NE
	-02					
	-03					
	-04					
	-05					
	-06					
↓	↓ -07	↓	↓	↓	↓	↓
6/26/14	14F0394-1	9.5	N/A	N/A	N/A	NE
	-2					
6/27/14	14F0395-01					
	-02					
	-03					
↓	↓ -04	↓	↓	↓	↓	↓
6/27/14	14F0404-1	9.5	N/A	N/A	N/A	NE
	-2					
	-3					
	-4					
	-5					
↓	↓ -6	↓	↓	↓	↓	↓
7/2/14	14G0026-1	7.00	2ml/100ml	9.5	8:00	NE
	-2					
	↓ -3					
	14G0038-1					
↓	↓ -2	↓	↓	↓	↓	↓
7/9/14	14G0136-01	7.00	2ml/100 ml	9.5	7:40	NE
7/16/14	14G0238-01	↓				
7/16/14	14G0248-02					
	↓ -04					
	14G0250-01					
	-02				↓	
↓	↓ -03	↓	↓	↓		↓

NE
7/15/14

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest (Y/N)	Time of Adjustment to pH 2	Date/Time of 2nd pH check	Comments
14G0169-2	>1	<2	7/11/14	KD	Y			
14G0170-6	↓	↓	↓	↓	↓			
14G0172-2								
14G0173-2								
14G0174-2								
14G0175-1								
14G0177-2								
14G0026(1-3)	<1	>2	7/14/14	ES	yes	9:08		pH <2
14G0136	↓	↓	↓	↓	↓	↓		↓
14G0038(1-2)				E 7/17/14				Filtered, then acidify
14G0215(1-3)	<1	<2	7/17/14	~~ES~~ ES	yes			
14G0218	↓	↓	↓	↓	↓			
219								
221-2								
222-2	>1							
223-2	↓							
224-1								
225-2								
226-2								
232	<1							
234	>1							
236-2	<1							
237-2	>1							
247(1-2)	↓							
252	<1							
14G0230(1-2)	<1	>2	7/18/14	ES	yes	10:00	7/21/14 @10:00	pH <2
(5-7,8)								
14G0243(1-3)	↓	↓	↓	↓	↓	↓	↓	
14G0251(10-12)								
14G0263								
14G0298-5	<1	>2	7/22/14	ES	No	10:00		
14G0312	<1	<2	7/27/14	ES	yes			
14G0316-1	>1	↓	↓	↓	↓			
14G0322-(1-3)	<1	>2			No	10:00		
14G0288	↓	↓			yes			
14G0306-2					↓			
14G0307-2								
14G0308-1								
14G0309-2								
14G0310-2	>1							
14G0320-2	↓							
14G0285	>1							
14G0287-1	<1							
14G0293(1-2)	>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.

7/25/14

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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www.truesdail.com

August 5, 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-476 PROJECT, GROUNDWATER MONITORING, TLI NO.: 815011

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-476 project groundwater monitoring for Hexavalent and Total Chromium, Total Manganese, Turbidity, Specific Conductivity, and Total Dissolved Solids. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, quality control data and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data have been included under Section 5.

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

Sample SC-700B-WDR-476 was analyzed as sample I.D. 14G0238 in the raw data but is reported as 815011 in all final report pages.

The straight run for the sample and associated matrix spike on SC-700B-WDR-476 for Hexavalent Chromium analysis by EPA 218.6 was just outside the retention time window. Because the matrix spike recovery and all other QA/QC were within acceptable limits, the data from the straight run was reported.

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

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

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

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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.: 815011
Date: August 5, 2014
Collected: July 15, 2014
Received: July 15, 2014

ANALYST LIST

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

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

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

Laboratory No.: 815011
Date Received: July 15, 2014

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
815011-001	SC-700B-WDR-476	E120.1	NONE	7/15/2014	9:20	EC	7500	umhos/cm	2.00
815011-001	SC-700B-WDR-476	E200.8	NONE	7/15/2014	9:20	Chromium	ND	ug/L	1.0
815011-001	SC-700B-WDR-476	E200.8	NONE	7/15/2014	9:20	Manganese	2.4	ug/L	0.50
815011-001	SC-700B-WDR-476	E218.6	LABFLT	7/15/2014	9:20	Chromium, Hexavalent	0.20	ug/L	0.20
815011-001	SC-700B-WDR-476	SM2130B	NONE	7/15/2014	9:20	Turbidity	0.131	NTU	0.100
815011-001	SC-700B-WDR-476	SM2540C	NONE	7/15/2014	9:20	Total Dissolved Solids	4380	mg/L	250

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

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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. 815011
Page 1 of 7
Printed 8/5/2014

Samples Received on 7/15/2014 7:00:00 PM

Field ID	Lab ID	Collected	Matrix
SC-700B-WDR-476	815011-001	07/15/2014 09:20	Water

Specific Conductivity - EPA 120.1

Batch 1407190

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815011-001 Specific Conductivity	umhos/cm	07/16/2014	1.00	0.606	2.00	7500

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate

Lab ID = 815017-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	1030	1030	0	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	749	706	106	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	749	706	106	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	1090	1000	109	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	1090	1000	109	90 - 110

Chrome VI by EPA 218.6

Batch 1407463

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815011-001 Chromium, Hexavalent	ug/L	07/30/2014 13:21	1.00	0.00600	0.20	0.20

Method Blank

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

Duplicate

Lab ID = 815020-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	0.0970	0.0980	1.02	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.185	0.200	92.4	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.13	5.00	103	90 - 110

Matrix Spike

Lab ID = 815011-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.95	5.20(5.00)	95.1	90 - 110

Matrix Spike

Lab ID = 815011-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.23	1.20(1.00)	103	90 - 110

Matrix Spike

Lab ID = 815020-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.91	5.10(5.00)	96.2	90 - 110

Matrix Spike

Lab ID = 815020-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.10	1.08(1.00)	102	90 - 110

MRCCS - Secondary

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

MRCVS - Primary

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

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 072914A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815011-001 Chromium	ug/L	07/29/2014 14:48	1.00	0.0710	1.0	ND
Manganese	ug/L	07/29/2014 14:48	1.00	0.0600	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 = 815011-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	1.00	ND	0	0	0 - 20
Manganese	ug/L	1.00	2.52	2.42	4.21	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.222	0.200	111	70 - 130
Manganese	ug/L	1.00	0.494	0.500	98.8	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	47.0	50.0	94.0	85 - 115
Manganese	ug/L	1.00	47.2	50.0	94.4	85 - 115

Matrix Spike

Lab ID = 815011-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	1.00	45.4	50.0(50.0)	90.8	75 - 125
Manganese	ug/L	1.00	49.7	52.4(50.0)	94.6	75 - 125

Matrix Spike Duplicate

Lab ID = 815011-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	1.00	44.7	50.0(50.0)	89.4	75 - 125
Manganese	ug/L	1.00	48.3	52.4(50.0)	91.8	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.8	20.0	94.2	90 - 110
Manganese	ug/L	1.00	18.8	20.0	94.3	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.2	20.0	90.9	90 - 110

Total Dissolved Solids by SM 2540 C

Batch 1407246

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815011-001 Total Dissolved Solids	mg/L	07/17/2014	1.00	1.76	250	4380

Method Blank

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

Duplicate Lab ID = 815011-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	4450	4380	1.58	0 - 10

Lab Control Sample

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

Turbidity by SM 2130 B

Batch 1407281

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815011-001 Turbidity	NTU	07/17/2014	1.00	0.0140	0.100	0.131

Method Blank

Parameter	Unit	DF	Result
Turbidity	NTU	1.00	ND

Duplicate Lab ID = 815018-023

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

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	7.92	8.00	99.0	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	7.90	8.00	98.8	90 - 110

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

Total Dissolved Solids by SM 2540 C

Calculations

1407246

Batch: ~~11/26/5752~~
Date Analyzed: 7/17/2014

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	50.7011	50.7018	50.7018	0.0000	No	0.0007	7.0	25.0	ND	1
14G0205-01D	100	77.9774	78.0288	78.0287	0.0001	No	0.0513	513.0	25.0	513.0	1
14G0205-02	100	77.4773	77.5287	77.5284	0.0003	No	0.0511	511.0	25.0	511.0	1
14G0215-01C	100	74.7244	74.7837	74.7833	0.0004	No	0.0589	589.0	25.0	589.0	1
14G0215-02	100	70.3727	70.4271	70.4271	0.0000	No	0.0544	544.0	25.0	544.0	1
14G0215-03	100	76.0235	76.0809	76.0807	0.0002	No	0.0572	572.0	25.0	572.0	1
14G0238-01C	10	28.4727	28.5165	28.5165	0.0000	No	0.0438	4380.0	250.0	4380.0	1
14G0244-01C	100	75.7420	75.7899	75.7898	0.0001	No	0.0478	478.0	25.0	478.0	1
14G0244-02	100	79.4948	79.5426	79.5426	0.0000	No	0.0478	478.0	25.0	478.0	1
14G0244-03	100	66.7854	66.8332	66.8329	0.0003	No	0.0475	475.0	25.0	475.0	1
14G0244-04	100	73.1656	73.2125	73.2125	0.0000	No	0.0469	469.0	25.0	469.0	1
14G0238-01 Du	10	28.8891	28.9337	28.9336	0.0001	No	0.0445	4450.0	250.0	4450.0	1
LCS	100	50.8151	50.8646	50.8645	0.0001	No	0.0494	494.0	25.0	494.0	1
14G0247-01D	100	75.7375	75.7941	75.7941	0.0000	No	0.0566	566.0	25.0	566.0	1
14G0247-02	100	66.6933	66.7491	66.7488	0.0003	No	0.0555	555.0	25.0	555.0	1
14G0247-01 Du	100	72.7549	72.8115	72.8115	0.0000	No	0.0566	566.0	25.0	566.0	1

815011

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?
14G0238-01	0.0438	0.0445	**0.8%**	≤5%	**Yes**
14G0247-01	0.0566	0.0566	**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

1407246

Batch: ~~11/26/5752~~

Date Analyzed: 7/17/2014

Laboratory Number	EC	TDS/EC Ratio: 0.55-0.90	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
14G0205-01D	1027	0.50	667.55	0.77
14G0205-02	874	0.58	568.1	0.90
14G0215-01C	941	0.63	611.65	0.96
14G0215-02	864	0.63	561.6	0.97
14G0215-03	939	0.61	610.35	0.94
14G0238-01C	7500	0.58	4875	0.90
14G0244-01C	863	0.55	560.95	0.85
14G0244-02	856	0.56	556.4	0.86
14G0244-03	866	0.55	562.9	0.84
14G0244-04	849	0.55	551.85	0.85
14G0238-01 Dup	7500	0.59	4875	0.91
LCS				
14G0247-01D	1040	0.54	676	0.84
14G0247-02	903	0.61	586.95	0.95
14G0247-01 Dup	1040	0.54	676	0.84

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CHAIN OF CUSTODY RECORD

[IM3Plant-WDR-476]

815011/
1460238

COC Number
TURNAROUND TIME 10 Days
DATE 07/15/14 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 (200.8) Cr, Mn	Specific Conductance (120.1)	TDS (SM2540C)		Turbidity (SM2130)	NUMBER OF CONTAINERS	COMMENTS
SC-700B-WDR-476	07/15/14	9:20	Water	x	x	x	x		x	3	pH= 7 (200.8)
										3	TOTAL NUMBER OF CONTAINERS

Please Provide a preliminary Result for the TDS ASAP

ALERT !!
Level III QC

CHAIN OF CUSTODY SIGNATURE RECORD

Signature (Relinquished)	Printed Name CHRIS LENTZ	Company/ Agency CH2MHILL	Date/ Time 7-15-14
Signature (Received)	Printed Name THANH NGO	Company/ Agency TRUESDAIL	Date/ Time 7-15-14 1500
Signature (Relinquished)	Printed Name THANH NGO	Company/ Agency TRUESDAIL	Date/ Time 7-15-14 1900
Signature (Received)	Printed Name Alexander Wood	Company/ Agency TLI	Date/ Time 7.15.14 1900
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
06/25/14	14F0377-01	9.5	N/A	N/A	N/A	NE
	-02					
	-03					
	-04					
	-05					
	-06					
↓	↓ -07	↓	↓	↓	↓	↓
6/26/14	14F0394-1	9-5	N/A	N/A	N/A	NE
	-2					
6/27/14	NE 395 14F0395-01					
	-02					
	-03					
↓	↓ -04	↓	↓	↓	↓	↓
6/27/14	NE 404 14F0409-1	9.5	N/A	N/A	N/A	NE
	-2					
	-3					
	-4					
	-5					
↓	↓ -6	↓	↓	↓	↓	↓
7/2/14	14G0026-1	7.00	2ml/100ml	9.5	8:00	NE
	-2					
	↓ -3					
	14G0038-1					
↓	↓ -2	↓	↓	↓	↓	↓
7/9/14	14G0136-01	7.00	2ml/100 ml	9-5	7:40	NE
7/16/14	14G0238-01	↓				
7/16/14	14G0248-02					
	↓ -04					
	14G0250-01					
	-02					
↓	↓ -03	↓	↓	↓	↓	↓

NE
7/30/14

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

reviewed [illegible]/14

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest (Y/N)	Time of Adjustment to pH 2	Date/Time of 2nd pH check	Comments
14G0335(10-12)	<1	>2	7/25/14	ES	NO	4:00	7/28/14 @ 10:00	pH <2
14G0342(1-3)	↓	↓	↓	↓	↓	↓	↓	↓
14G0238-01	<1	>2	7/28/14	ES	Yes	10:00		pH<2
14G0325-01	↓	↓	↓	↓	↓	↓		↓
14G0361	<1	>2	7/29/14	ES	~~Yes~~ No ES 7/29/14	11:00	7/30/14 12:00	pH<2
14G0376(1-2)	>1	<2			Yes			
14G0243-2	>1							
14G0246-2	↓							
14G0398(1-4)	<1							
14G0387-								
14G0388	↓							
14G0391(1-2)	>1	↓	↓	↓	↓			
[illegible]0400	<1	>2	7/29/14	ES	No	11:00	7/30/14 12:00	pH<2
~~14G0297(1-2)~~								
14G0420	>1	~~<2~~ >2 ES 7/31/14	7/31/14	ES	Yes	10:00		pH<2
14G0435(1-2)	↓	<2	↓	↓	↓			

ES 7/29/14

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.

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www.truesdail.com

August 7, 2014

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

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK IM3PLANT-WDR-477 PROJECT, GROUNDWATER MONITORING, TLI NO.: 815019

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-477 project groundwater monitoring for Hexavalent and Total Chromium, Total Manganese, Turbidity, Specific Conductivity, and Total Dissolved Solids. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, quality control data and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data have been included under Section 5.

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

Sample SC-700B-WDR-477 was analyzed as sample I.D. 14G0325 in the raw data but is reported as 815019 in all final report pages.

The straight run for the sample and associated matrix spike on SC-700B-WDR-477 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

Michael Ngo
Quality Assurance/Quality Control Officer

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.: 815019
Date: August 7, 2014
Collected: July 22, 2014
Received: July 22, 2014

ANALYST LIST

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

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

Laboratory No.: **815019**
Date Received: **July 22, 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
815019-001	SC-700B-WDR-477	E120.1	NONE	7/22/2014	10:30	EC	7440	umhos/cm	2.00
815019-001	SC-700B-WDR-477	E200.8	NONE	7/22/2014	10:30	Chromium	ND	ug/L	1.0
815019-001	SC-700B-WDR-477	E200.8	NONE	7/22/2014	10:30	Manganese	1.7	ug/L	0.50
815019-001	SC-700B-WDR-477	E218.6	LABFLT	7/22/2014	10:30	Chromium, Hexavalent	ND	ug/L	0.20
815019-001	SC-700B-WDR-477	SM2130B	NONE	7/22/2014	10:30	Turbidity	0.224	NTU	0.100
815019-001	SC-700B-WDR-477	SM2540C	NONE	7/22/2014	10:30	Total Dissolved Solids	4390	mg/L	250

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

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REPORT

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

Laboratory No. 815019
Page 1 of 6
Printed 8/7/2014

Samples Received on 7/22/2014 6:50:00 PM

Field ID	Lab ID	Collected	Matrix
SC-700B-WDR-477	815019-001	07/22/2014 10:30	Water

Specific Conductivity - EPA 120.1 Batch 1407373

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815019-001 Specific Conductivity	umhos/cm	07/24/2014	1.00	0.606	2.00	7440

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate Lab ID = 815021-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	850	850	0	0 - 10

Lab Control Sample

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

MRCCS - Secondary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	992	1000	99.2	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	992	1000	99.2	90 - 110

Chrome VI by EPA 218.6

Batch 1407370

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815019-001 Chromium, Hexavalent	ug/L	07/25/2014 10:51	1.00	0.00600	0.20	ND

Method Blank

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

Duplicate Lab ID = 815019-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	0.134	0.138	3.31	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	5.08	5.00	102	90 - 110

Matrix Spike Lab ID = 815019-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.07	5.14(5.00)	98.6	90 - 110

Matrix Spike Lab ID = 815019-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.20	1.14(1.00)	106	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.11	5.00	102	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.99	10.0	99.9	95 - 105

Metals by EPA 200.8, Total

Batch 072914A

Parameter		Unit	Analyzed	DF	MDL	RL	Result
815019-001	Chromium	ug/L	07/29/2014 15:53	1.00	0.0710	1.0	ND
	Manganese	ug/L	07/29/2014 15:53	1.00	0.0600	0.50	1.7

Method Blank

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

Duplicate

Lab ID = 815011-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	1.00	ND	0	0	0 - 20
Manganese	ug/L	1.00	2.52	2.42	4.21	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.222	0.200	111	70 - 130
Manganese	ug/L	1.00	0.494	0.500	98.8	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	47.0	50.0	94.0	85 - 115
Manganese	ug/L	1.00	47.2	50.0	94.4	85 - 115

Matrix Spike

Lab ID = 815011-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	1.00	45.4	50.0(50.0)	90.8	75 - 125
Manganese	ug/L	1.00	49.7	52.4(50.0)	94.6	75 - 125

Matrix Spike Duplicate

Lab ID = 815011-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	1.00	44.7	50.0(50.0)	89.4	75 - 125
Manganese	ug/L	1.00	48.3	52.4(50.0)	91.8	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.8	20.0	94.2	90 - 110
Manganese	ug/L	1.00	18.8	20.0	94.3	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	18.2	20.0	90.9	90 - 110

Total Dissolved Solids by SM 2540 C

Batch 1407374

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815019-001 Total Dissolved Solids	mg/L	07/23/2014	1.00	1.76	250	4390

Method Blank

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

Duplicate Lab ID = 815019-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	4360	4390	0.686	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Dissolved Solids	mg/L	1.00	493	500	98.6	90 - 110

Turbidity by SM 2130 B

Batch 1407389

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815019-001 Turbidity	NTU	07/24/2014	1.00	0.0140	0.100	0.224

Method Blank

Parameter	Unit	DF	Result
Turbidity	NTU	1.00	ND

Duplicate Lab ID = 815022-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Turbidity	NTU	1.00	0.130	0.114	13.1	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	7.62	8.00	95.2	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	8.20	8.00	102	90 - 110

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

Truesdail Laboratories, Inc.

Total Dissolved Solids by SM 2540 C

Calculations

Batch: 1407374
Date Analyzed: 7/23/2014

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	76.1676	76.1681	76.1681	0.0000	No	0.0005	5.0	25.0	ND	1
14G0279-01B	480	164.9298	164.9317	164.9317	0.0000	No	0.0019	4.0	5.2	ND	1
14G0291-01C	495	167.3469	167.3494	167.3494	0.0000	No	0.0025	5.1	5.1	ND	1
14G0293-01C	100	78.2872	78.3665	78.3665	0.0000	No	0.0793	793.0	25.0	793.0	1
14G0293-02D	100	79.1511	79.2017	79.2015	0.0002	No	0.0504	504.0	25.0	504.0	1
14G0323-01B	50	50.8413	50.8966	50.8966	0.0000	No	0.0553	1106.0	50.0	1106.0	1
14G0323-02A	100	80.8502	80.9134	80.9130	0.0004	No	0.0628	628.0	25.0	628.0	1
14G0325-01B	10	30.1426	30.1865	30.1865	0.0000	No	0.0439	4390.0	250.0	4390.0	1
14G0336-01D	100	78.2368	78.2890	78.2887	0.0003	No	0.0519	519.0	25.0	519.0	1
14G0336-02D	100	76.7853	76.8349	76.8345	0.0004	No	0.0492	492.0	25.0	492.0	1
14G0339-01C	100	74.7028	74.7503	74.7502	0.0001	No	0.0474	474.0	25.0	474.0	1
14G0325-01B Du	10	29.2849	29.3285	29.3285	0.0000	No	0.0436	4360.0	250.0	4360.0	1
LCS	100	75.1477	75.1974	75.1970	0.0004	No	0.0493	493.0	25.0	493.0	1
14G0339-02C	100	77.0622	77.1105	77.1102	0.0003	No	0.0480	480.0	25.0	480.0	1
14G0339-03C	100	66.8694	66.9188	66.9185	0.0003	No	0.0491	491.0	25.0	491.0	1
14G0339-04C	100	74.5886	74.6347	74.6343	0.0004	No	0.0457	457.0	25.0	457.0	1
14G0336-01 Du	100	78.9022	78.9532	78.9530	0.0002	No	0.0508	508.0	25.0	508.0	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	493.0	500	98.6%	90-110%	Yes
LCSD					

LCS Recovery

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

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

Duplicate Determinations Difference Summary

Lab Number	Sample Weight, g	Sample Dup Weight, g	% RPD	Acceptance Limit	QC Within Control?
14G0325-01B	0.0439	0.0436	0.3%	≤5%	Yes
14G0336-01	0.0519	0.0508	1.1%	≤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: 1407374
Date Analyzed: 7/23/2014

Laboratory Number	EC	TDS/EC Ratio: 0.55-0.90	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
14G0279-01B	7.8	ND	5.07	ND
14G0291-01C	14.6	ND	9.49	ND
14G0293-01C	953	0.83	619.45	1.28
14G0293-02D	849	0.59	551.85	0.91
14G0323-01B	1755	0.63	1140.75	0.97
14G0323-02A	954	0.66	620.1	1.01
14G0325-01B	7440	0.59	4836	0.91
14G0336-01D	978	0.53	635.7	0.82
14G0336-02D	856	0.57	556.4	0.88
14G0339-01C	850	0.56	552.5	0.86
14G0325-01B Dup	7440	0.59	4836	0.90
LCS				
14G0339-02C	858	0.56	557.7	0.86
14G0339-03C	877	0.56	570.05	0.86
14G0339-04C	818	0.56	531.7	0.86
14G0336-01 Dup	978	0.52	635.7	0.80

815019/

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

CHAIN OF CUSTODY RECORD

[IM3Plant-WDR-477]

COC Number 14G0325
TURNAROUND TIME 10 Days
DATE 07/22/14 PAGE 1 OF 1

COMI PANY E2
PROJ IECT NAME PG&E Topock
PHOI IE (530) 229-3303 FAX (530) 339-3303
ADDF RESS 155 Grand Ave Ste 1000
Oakland, CA 94612
P.O. I NUMBER 428648.IM.CS.EX.AC TEAM 1
SAMI PLERS (SIGNATURE

SAM IPLE I.D.	DATE	TIME	DESCRIPTION	Cr6 (218.6) Lab Filtered	Total Metals (200.8) Cr, Mn	Specific Conductance (120.1)	TDS (SM2540C)		Turbidity (SM2130)									NUMBER OF CONTAINERS	COMMENTS
SC-700B-WDR-477	07/22/14	10:30	Water	x	x	x	x		x									3	pH=6(2008)

3 TOTAL NUMBER OF CONTAINERS

Please Provide a preliminary Result for the TDS ASAP

ALERT !!
Level III QC

CHAIN OF CUSTODY SIGNATURE RECORD

Signature (Relinquished)	Printed Name Ron Phelps	Company/ Agency OMI	Date/ Time 7-22-14 1450
Signature (Received) Thanh Ngo	Printed Name THANH NGO	Company/ Agency TRUESDAIL	Date/ Time 7-22-14 1450
Signature (Relinquished) Thanh Ngo	Printed Name THANH NGO	Company/ Agency	Date/ Time 7-22-14 1850
Signature (Received)	Printed Name Maksim Gorbunov	Company/ Agency Truesdail	Date/ Time 7/22/14 18:50
Signature (Relinquished)	Printed Name	Company/ Agency	Date/ Time
Signature (Received)	Printed Name	Company/ Agency	Date/ Time

SAMPLE CONDITIONS
RECEIVED COOL ☑ WARM ☐ 4.7°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
7/16/14	1460250-5	7.00	2ml/100ml	9.5	7:40	NE
7/18/14	1460260-20	↓	↓	↓	8:00	NE
↓	↓ -24				↓	↓
7/23/14	1460325-01	7.00	2ml/100ml	9.5	7:40	NE

NE
7/28/14

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

reviewed
7/24/14

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
14G0335(10-12)	<1	>2	7/25/14	ES	NO	4:00	7/28/14 @ 10:00	pH <2
14G0342(1-3)	↓	↓	↓	↓	↓	↓	↓	↓
14G0238-01	<1	>2	7/28/14	ES	Yes	10:00		pH<2
14G0325-01	↓	↓	↓	↓	↓ ES 7/29/14	↓		↓
14G0361	<1	>2	7/29/14	ES	~~Yes~~ NO	11:00	7/30/14 12:00	pH<2
14G0376(1-2)	>1	<2	↓	↓	Yes			
14G0343-2	>1	↓			↓			
14G0346-2	↓							
14G0378(1-4)	<1							
14G0387-	↓							
14G0388	↓							
14G0391(1-2)	>1	↓	↓	↓	↓			
14G0400	<1	>2	7/29/14	ES	NO	11:00	7/30/14 12:00	pH<2
~~14G0297(1-2)~~								ES 7/29/1.
14G0420	>1	ES 7/31/14 ~~<2~~ >2	7/31/14	ES	Yes	10:00		pH<2
14G0425(1-2)	↓	<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.
EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

August 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-478 PROJECT, GROUNDWATER MONITORING, TLI NO.: 815020

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-478 project groundwater monitoring for Hexavalent and Total Chromium, Total Manganese, Turbidity, Specific Conductivity, and Total Dissolved Solids. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, quality control data and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data have been included under Section 5.

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

Sample SC-700B-WDR-478 was analyzed as sample I.D. 14G0423 in the raw data but is reported as 815020 in all final report pages.

The straight run for the sample and associated matrix spike on SC-700B-WDR-478 for Hexavalent Chromium analysis by EPA 218.6 was just outside the retention time window. Because the matrix spike recovery and all other QA/QC were within acceptable limits, the data from the straight run was reported.

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

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

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.
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(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.: **815020**
Date: August 11, 2014
Collected: July 29, 2014
Received: July 29, 2014

ANALYST LIST

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

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

Laboratory No.: 815020
Date Received: July 29, 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
815020-001	SC-700B-WDR-478	E120.1	NONE	7/29/2014	11:50	EC	7440	umhos/cm	2.00
815020-001	SC-700B-WDR-478	E200.8	NONE	7/29/2014	11:50	Chromium	ND	ug/L	1.0
815020-001	SC-700B-WDR-478	E200.8	NONE	7/29/2014	11:50	Manganese	11.1	ug/L	0.50
815020-001	SC-700B-WDR-478	E218.6	LABFLT	7/29/2014	11:50	Chromium, Hexavalent	ND	ug/L	0.20
815020-001	SC-700B-WDR-478	SM2130B	NONE	7/29/2014	11:50	Turbidity	ND	NTU	0.100
815020-001	SC-700B-WDR-478	SM2540C	NONE	7/29/2014	11:50	Total Dissolved Solids	4400	mg/L	250

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

TRUESDAIL LABORATORIES, INC.
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REPORT

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

Laboratory No. 815020
Page 1 of 7
Printed 8/11/2014

Samples Received on 7/29/2014 6:30:00 PM

Field ID	Lab ID	Collected	Matrix
SC-700B-WDR-478	815020-001	07/29/2014 11:50	Water

Specific Conductivity - EPA 120.1 Batch 1407477

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815020-001 Specific Conductivity	umhos/cm	07/30/2014	1.00	0.606	2.00	7440

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate Lab ID = 815020-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	7440	7440	0	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	713	706	101	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	713	706	101	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	1000	1000	100	90 - 110

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 1407463

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815020-001 Chromium, Hexavalent	ug/L	07/30/2014 11:20	1.00	0.00600	0.20	ND

Method Blank

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

Duplicate Lab ID = 815020-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	0.0970	0.0980	1.02	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.185	0.200	92.4	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.13	5.00	103	90 - 110

Matrix Spike Lab ID = 815011-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.95	5.20(5.00)	95.1	90 - 110

Matrix Spike Lab ID = 815011-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.23	1.20(1.00)	103	90 - 110

Matrix Spike Lab ID = 815020-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.91	5.10(5.00)	96.2	90 - 110

Matrix Spike Lab ID = 815020-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.10	1.08(1.00)	102	90 - 110

MRCCS - Secondary

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

MRCVS - Primary

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

Metals by EPA 200.8, Total Batch 080714A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815020-001 Chromium	ug/L	08/07/2014 16:49	1.00	0.0710	1.0	ND
Manganese	ug/L	08/07/2014 16:49	1.00	0.0600	0.50	11.1

Method Blank

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

Duplicate Lab ID = 815020-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	1.00	ND	0	0	0 - 20
Manganese	ug/L	1.00	10.4	11.1	6.83	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.179	0.200	89.5	70 - 130
Manganese	ug/L	1.00	0.459	0.500	91.8	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	48.6	50.0	97.2	85 - 115
Manganese	ug/L	1.00	48.7	50.0	97.5	85 - 115

Matrix Spike Lab ID = 815020-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	1.00	44.6	50.0(50.0)	89.1	75 - 125
Manganese	ug/L	1.00	55.1	61.1(50.0)	88.1	75 - 125

Matrix Spike Duplicate Lab ID = 815020-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	1.00	45.3	50.0(50.0)	90.5	75 - 125
Manganese	ug/L	1.00	54.8	61.1(50.0)	87.3	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.6	20.0	98.1	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	18.0	20.0	90.2	90 - 110
Manganese	ug/L	1.00	18.4	20.0	91.9	90 - 110

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

Total Dissolved Solids by SM 2540 C

Batch 1407478

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815020-001 Total Dissolved Solids	mg/L	07/30/2014	1.00	1.76	250	4400

Method Blank

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

Duplicate

Lab ID = 815020-001

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

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Dissolved Solids	mg/L	1.00	513	500	103	90 - 110

Turbidity by SM 2130 B

Batch 1407496

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815020-001 Turbidity	NTU	07/30/2014	1.00	0.0140	0.100	ND

Method Blank

Parameter	Unit	DF	Result
Turbidity	NTU	1.00	ND

Duplicate

Lab ID = 815023-004

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

Lab Control Sample

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

Lab Control Sample Duplicate

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

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

Truesdail Laboratories, Inc.

Total Dissolved Solids by SM 2540 C

Calculations

Batch: 1407478
Date Analyzed: 7/30/2014

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	74.5101	74.5105	74.5104	0.0001	No	0.0003	3.0	25.0	ND	1
14G0389-01B	1000	174.3827	174.3874	174.3874	0.0000	No	0.0047	4.7	2.5	4.7	1
14G0391-01D	100	74.2079	74.2619	74.2619	0.0000	No	0.0540	540.0	25.0	540.0	1
14G0391-02D	100	76.5265	76.5773	76.5773	0.0000	No	0.0508	508.0	25.0	508.0	1
14G0423-01C	10	29.5850	29.6290	29.6290	0.0000	No	0.0440	4400.0	250.0	4400.0	1
14G0435-01	100	79.4923	79.5454	79.5450	0.0004	No	0.0527	527.0	25.0	527.0	1
14G0435-02	100	77.9774	78.0300	78.0300	0.0000	No	0.0526	526.0	25.0	526.0	1
14G0436-01	100	78.3632	78.4141	78.4141	0.0000	No	0.0509	509.0	25.0	509.0	1
14G0436-02	100	75.7398	75.7914	75.7913	0.0001	No	0.0515	515.0	25.0	515.0	1
14G0436-03	100	62.6141	62.6648	62.6648	0.0000	No	0.0507	507.0	25.0	507.0	1
14G0436-04	100	66.7840	66.8347	66.8347	0.0000	No	0.0507	507.0	25.0	507.0	1
14G0423-01 Dup	10	30.3854	30.4294	30.4294	0.0000	No	0.0440	4400.0	250.0	4400.0	1
LCS	100	71.2896	71.3409	71.3409	0.0000	No	0.0513	513.0	25.0	513.0	1

Calculation as follows:

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

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	513.0	500	102.6%	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?
14G0423-01	0.0440	0.0440	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:	1407478
Date Analyzed:	7/30/2014

Laboratory Number	EC	TDS/EC Ratio: 0.55-0.90	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
14G0389-01B	11.2	0.42	7.28	0.65
14G0391-01D	1034	0.52	672.1	0.80
14G0391-02D	877	0.58	570.05	0.89
14G0423-01C	7440	0.59	4836	0.91
14G0435-01	1002	0.53	651.3	0.81
14G0435-02	894	0.59	581.1	0.91
14G0436-01	919	0.55	597.35	0.85
14G0436-02	923	0.56	599.95	0.86
14G0436-03	922	0.55	599.3	0.85
14G0436-04	920	0.55	598	0.85
14G0423-01 Dup	7440	0.59	4836	0.91
LCS				

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CHAIN OF CUSTODY RECORD

[IM3Plant-WDR-478]

0
815~~9~~20
sc 8/5/14

COC Number 14G0423
TURNAROUND TIME **10** Days
DATE **07/29/14** 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 Lem

SAMPLE I.D.	DATE	TIME	DESCRIPTION	Cr6 (218.6) Lab Filtered	Total Metals (200.8) Cr, Mn	Specific Conductance (120.1)	TDS (SM2540C)		Turbidity (SM2130)	NUMBER OF CONTAINERS	COMMENTS
SC-700B-WDR-478	07/29/14	11:50	Water	x	x	x	x		x	3	pH = 6 (200.8)
										3	TOTAL NUMBER OF CONTAINERS

Please Provide a preliminary Result for the TDS ASAP

ALERT !!
Level III QC

CHAIN OF CUSTODY SIGNATURE RECORD

Signature (Relinquished)		Printed Name	CHRIS LEM	Company/ Agency	CH2MHILL	Date/ Time	7/29/14 1415
Signature (Received)	Thanh ngo	Printed Name	THANH NGO	Company/ Agency	TRUESDAIL	Date/ Time	7-29-14 1415
Signature (Relinquished)	Thanh ngo	Printed Name	THANH NGO	Company/ Agency	TRUESDAIL	Date/ Time	7-29-14 1830
Signature (Received)		Printed Name	Maksim Gorbunov	Company/ Agency	Truesdail	Date/ Time	7/29/14 18:30
Signature (Relinquished)		Printed Name		Company/ Agency		Date/ Time	
Signature (Received)		Printed Name		Company/ Agency		Date/ Time	

SAMPLE CONDITIONS

RECEIVED COOL ☑ WARM ☐ 4.1 °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
7/16/14	1460250-5	7.00	2ml/100ml	9.5	7:40	NE
7/18/14	1460260-20				8:00	NE
↓	↓ -24	↓	↓	↓	↓	↓
7/23/14	1460325-01	7.00	2ml/100ml	9.5	7:40	NE
7/30/14	1460423-01	7.00	2ml/100ml	9.5	7:30	NE

NE
7/30/14

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

reviewed
7/24/14

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
14G0335(10-12)	<1	>2	7/25/14	ES	NO	4:00	7/28/14 @ 10:00	pH <2
14G0342(1-3)	↓	↓	↓	↓	↓	↓	↓	↓
14G0238-01	<1	>2	7/28/14	ES	Yes	10:00		pH<2
14G0325-01	↓	↓	↓	↓	↓	↓		↓
14G0361	<1	>2	7/29/14	ES	~~Yes~~ ES 7/29/14 NO	11:00	7/30/14 12:00	pH<2
14G0336(1-2)	>1	<2	↓	↓	Yes			
14G0343-2	>1	↓	↓	↓	↓			
14G0346-2	↓	↓	↓	↓	↓			
14G0398(1-4)	<1	↓	↓	↓	↓			
14G0387-	↓	↓	↓	↓	↓			
14G0388	↓	↓	↓	↓	↓			
14G0391(1-2)	>1	↓	↓	↓	↓			
[illegible]G0400	<1	>2	7/29/14	ES	NO	11:00	7/30/14 12:00	pH<2
~~14G0297(1-2)~~								ES 7/29/14
14G0420	>1	ES 7/31/14 ~~<2~~ >2	7/31/14	ES	Yes	10:00		pH<2
14G0435(1-2)	↓	<2	↓	↓	↓			
14G0421(1-2)	<1	>2	8/4/14	ES	NO	11:00	8/5/14 @ 12:00	pH<2
14G0432(1-3)	↓	↓	↓	↓	↓	↓	↓	↓
14G0434(10-12)	↓	↓	↓	↓	↓	↓	↓	↓
14H0038(1-3)	<1	<2	8/6/14	ES	Yes			
14H0050-2	↓	↓	↓	↓	↓			
14H0052-2	↓	↓	↓	↓	↓			
14H0051-01	>1	>2	↓	↓	↓			
14G0473-01	<1	>2	8/6/14	[illegible]	Yes	1115	1300 8/7/14	CH[illegible]
14H0044(01-02)	<1	>2	↓	↓	NO	↓	↓	
14H0013(1-2)	>1	<2	↓	↓	Yes			
14H0015-01	↓	↓	↓	↓	↓			
14H0016-01	↓	↓	↓	↓	↓			
14H0024-02	↓	↓	↓	↓	↓			
14H0029-02	↓	↓	↓	↓	↓			
14H0030-02	↓	↓	↓	↓	↓			
14H0031-02	↓	↓	↓	↓	↓			
14H0032-02	↓	↓	↓	↓	↓			
14H0033-01	↓	↓	↓	↓	↓			
14H0034-02	↓	↓	↓	↓	↓			
14H0036-02	↓	↓	↓	↓	↓			
14H0039-02	↓	↓	↓	↓	↓			
14H0080-(1-10)	<1	>2	8/6/14	ES	NO	5:00 pm		
14H0075(4-6)	<1	>2	8/7/14	ES	NO	11:00		
14H0064(10-12)	↓	↓	↓	↓	NO	↓		~10 TU>1
14H0002(1-4)	↓	↓	↓	↓	↓	↓		
14H0076(1-2)	>1	<2	8/7/14	ES	Yes			
14H0087-02	<1	↓	↓	↓	↓			
14H0080-1	>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.

Analytical Bench Log Book

WDR pH Results

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

Sample Name	Date of sampling	Time of sampling	Date of analysis	Time of analysis	pH Meter #1, #2, or #3 etc. See cover Sheet for Serial Number	Date pH meter Calibrated	Time pH meter Calibrated	Slope of the Curve	Analyst Name (for the pH result)	pH Result
SC-100B	7-1-14	10:00	7-1-14	10:05	METER # 2	7-1-14	04:28	-53.4	CHRIS LENTZ	7.2
Notes:										
SC-700B	7-1-14	10:00	7-1-14	10:05	METER #2	7-1-14	04:28	-53.4	CHRIS LENTZ	6.9
Notes:										
SC-701	7-1-14	10:00	7-1-14	10:05	METER #2	7-1-14	04:28	-53.4	CHRIS LENTZ	8.0
Notes:										
SC-700B	7-8-14	10:20	7-8-14	10:25	METER #2	7-8-14	04:15	-53.1	CHRIS LENTZ	6.9
Notes:										
SC-700B	7-15-14	9:15	7-15-14	9:20	METER #2	7-15-14	03:37	-55.3	CHRIS LENTZ	7.0
Notes:										
SC-700B	7-22-14	10:30	7-22-14	10:35	METER #2	7-22-14	5:15	-55.1	RON PHELPS	7.0
Notes:										
SC-700B	7-29-14	11:45	7-29-14	11:50	METER #2	7-29-14	04:28	-55.2	CHRIS LENTZ	7.2
Notes:										

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

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September 8, 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-479 PROJECT, GROUNDWATER MONITORING,

TLI NO.: 815025

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-479 project groundwater monitoring. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, quality control data and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data have been included under Section 5.

The samples were received and delivered with the chain of custody on August 5, 2014, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

Samples were analyzed and recorded in the raw data as SDG 14H0054 but are reported as SDG 815025 in all final report pages.

The straight runs for the sample and associated matrix spike on sample SC-700B-WDR-479 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: Two (2) Groundwaters
Project Name: PG&E Topock Project
Project No.: 428648.IM.CS.EX.AC

Laboratory No.: **815025**
Date: September 8, 2014
Collected: August 5, 2014
Received: August 5, 2014

ANALYST LIST

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

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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.: **815025**
Date Received: **August 5, 2014**

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
815025-001	SC-700B-WDR-479	E120.1	NONE	8/5/2014	14:45	EC	7340	umhos/cm	2.00
815025-001	SC-700B-WDR-479	E200.7	NONE	8/5/2014	14:45	Aluminum	ND	ug/L	50.0
815025-001	SC-700B-WDR-479	E200.7	NONE	8/5/2014	14:45	BORON	918	ug/L	50.0
815025-001	SC-700B-WDR-479	E200.7	NONE	8/5/2014	14:45	Iron	ND	ug/L	20.0
815025-001	SC-700B-WDR-479	E200.7	NONE	8/5/2014	14:45	Zinc	ND	ug/L	20.0
815025-001	SC-700B-WDR-479	E200.8	NONE	8/5/2014	14:45	Antimony	ND	ug/L	2.0
815025-001	SC-700B-WDR-479	E200.8	NONE	8/5/2014	14:45	Arsenic	0.56	ug/L	0.50
815025-001	SC-700B-WDR-479	E200.8	NONE	8/5/2014	14:45	Barium	12.9	ug/L	5.0
815025-001	SC-700B-WDR-479	E200.8	NONE	8/5/2014	14:45	Chromium	ND	ug/L	1.0
815025-001	SC-700B-WDR-479	E200.8	NONE	8/5/2014	14:45	Copper	ND	ug/L	1.0
815025-001	SC-700B-WDR-479	E200.8	NONE	8/5/2014	14:45	Lead	ND	ug/L	1.0
815025-001	SC-700B-WDR-479	E200.8	NONE	8/5/2014	14:45	Manganese	3.9	ug/L	0.50
815025-001	SC-700B-WDR-479	E200.8	NONE	8/5/2014	14:45	Molybdenum	22.7	ug/L	2.0
815025-001	SC-700B-WDR-479	E200.8	NONE	8/5/2014	14:45	Nickel	2.00	ug/L	2.0
815025-001	SC-700B-WDR-479	E218.6	LABFLT	8/5/2014	14:45	Chromium, Hexavalent	ND	ug/L	0.20
815025-001	SC-700B-WDR-479	E300	NONE	8/5/2014	14:45	Fluoride	2.10	mg/L	0.500
815025-001	SC-700B-WDR-479	E300	NONE	8/5/2014	14:45	Nitrate as N	2.66	mg/L	0.500
815025-001	SC-700B-WDR-479	E300	NONE	8/5/2014	14:45	Sulfate	496	mg/L	12.5
815025-001	SC-700B-WDR-479	SM2130B	NONE	8/5/2014	14:45	Turbidity	ND	NTU	0.100
815025-001	SC-700B-WDR-479	SM2540C	NONE	8/5/2014	14:45	Total Dissolved Solids	4380	mg/L	250
815025-001	SC-700B-WDR-479	SM4500NH3D	NONE	8/5/2014	14:45	Ammonia-N	ND	mg/L	0.500
815025-001	SC-700B-WDR-479	SM4500NO2B	NONE	8/5/2014	14:45	Nitrite as N	ND	mg/L	0.0050

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
815025-002	SC-100B-WDR-479	E120.1	NONE	8/5/2014	14:45	EC	7250	umhos/cm	2.00
815025-002	SC-100B-WDR-479	E200.7	NONE	8/5/2014	14:45	Aluminum	ND	ug/L	50.0
815025-002	SC-100B-WDR-479	E200.7	NONE	8/5/2014	14:45	BORON	960	ug/L	50.0
815025-002	SC-100B-WDR-479	E200.7	LABFLT	8/5/2014	14:45	Iron	ND	ug/L	20.0
815025-002	SC-100B-WDR-479	E200.7	NONE	8/5/2014	14:45	Iron	ND	ug/L	20.0
815025-002	SC-100B-WDR-479	E200.7	NONE	8/5/2014	14:45	Zinc	ND	ug/L	20.0
815025-002	SC-100B-WDR-479	E200.8	NONE	8/5/2014	14:45	Antimony	ND	ug/L	2.0
815025-002	SC-100B-WDR-479	E200.8	NONE	8/5/2014	14:45	Arsenic	3.8	ug/L	0.50
815025-002	SC-100B-WDR-479	E200.8	NONE	8/5/2014	14:45	Barium	27.5	ug/L	5.0
815025-002	SC-100B-WDR-479	E200.8	NONE	8/5/2014	14:45	Chromium	609	ug/L	5.0
815025-002	SC-100B-WDR-479	E200.8	NONE	8/5/2014	14:45	Copper	ND	ug/L	1.0
815025-002	SC-100B-WDR-479	E200.8	NONE	8/5/2014	14:45	Lead	ND	ug/L	1.0
815025-002	SC-100B-WDR-479	E200.8	NONE	8/5/2014	14:45	Manganese	4.1	ug/L	0.50
815025-002	SC-100B-WDR-479	E200.8	LABFLT	8/5/2014	14:45	Manganese	2.7	ug/L	1.0
815025-002	SC-100B-WDR-479	E200.8	NONE	8/5/2014	14:45	Molybdenum	22.9	ug/L	2.0
815025-002	SC-100B-WDR-479	E200.8	NONE	8/5/2014	14:45	Nickel	ND	ug/L	2.0
815025-002	SC-100B-WDR-479	E218.6	LABFLT	8/5/2014	14:45	Chromium, Hexavalent	547	ug/L	5.0
815025-002	SC-100B-WDR-479	E300	NONE	8/5/2014	14:45	Fluoride	2.38	mg/L	0.500
815025-002	SC-100B-WDR-479	E300	NONE	8/5/2014	14:45	Nitrate as N	2.66	mg/L	0.500
815025-002	SC-100B-WDR-479	E300	NONE	8/5/2014	14:45	Sulfate	490	mg/L	12.5
815025-002	SC-100B-WDR-479	SM2130B	NONE	8/5/2014	14:45	Turbidity	0.11	NTU	0.100
815025-002	SC-100B-WDR-479	SM2320B	NONE	8/5/2014	14:45	Alkalinity	155	mg/L	5.00
815025-002	SC-100B-WDR-479	SM2320B	NONE	8/5/2014	14:45	Alkalinity, Bicarbonate (As CaCO3)	155	mg/L	5.00
815025-002	SC-100B-WDR-479	SM2320B	NONE	8/5/2014	14:45	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
815025-002	SC-100B-WDR-479	SM2540C	NONE	8/5/2014	14:45	Total Dissolved Solids	4300	mg/L	250
815025-002	SC-100B-WDR-479	SM4500NH3D	NONE	8/5/2014	14:45	Ammonia-N	ND	mg/L	0.500
815025-002	SC-100B-WDR-479	SM4500NO2B	NONE	8/5/2014	14:45	Nitrite as N	ND	mg/L	0.0050
815025-002	SC-100B-WDR-479	SM4500-PB_E	NONE	8/5/2014	14:45	Total Phosphorous-P	ND	mg/L	0.0200
815025-002	SC-100B-WDR-479	SM4500SI	LABFLT	8/5/2014	14:45	Soluble Silica	20.8	mg/L	1.00
815025-002	SC-100B-WDR-479	SM5310C	NONE	8/5/2014	14:45	Total Organic Carbon	0.526	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. 815025
Page 1 of 33
Printed 9/5/2014

Samples Received on 8/5/2014 7:15:00 PM

Field ID	Lab ID	Collected	Matrix
SC-700B-WDR-479	815025-001	08/05/2014 14:45	Water
SC-100B-WDR-479	815025-002	08/05/2014 14:45	Water

Anions By I.C. - EPA 300.0 Batch 1408168

Parameter		Unit	Analyzed	DF	MDL	RL	Result
815025-001	Fluoride	mg/L	08/06/2014 11:32	5.00	0.104	0.500	2.10
	Nitrate as Nitrogen	mg/L	08/06/2014 11:32	5.00	0.0954	0.500	2.66
	Sulfate	mg/L	08/06/2014 14:36	25.0	0.768	12.5	496
815025-002	Fluoride	mg/L	08/06/2014 11:44	5.00	0.104	0.500	2.38
	Nitrate as Nitrogen	mg/L	08/06/2014 11:44	5.00	0.0954	0.500	2.66
	Sulfate	mg/L	08/06/2014 14:48	25.0	0.768	12.5	490

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 = 815024-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chloride	mg/L	1000	1030	1030	0.338	0 - 20

Duplicate Lab ID = 815024-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Sulfate	mg/L	100	524	536	2.21	0 - 20

Client: E2 Consulting Engineers, Inc.

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

Duplicate

Lab ID = 815025-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Fluoride	mg/L	5.00	2.33	2.38	1.95	0 - 20
Nitrate as Nitrogen	mg/L	5.00	2.63	2.66	0.982	0 - 20

Lab Control Sample

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	4.10	4.00	102	90 - 110
Sulfate	mg/L	1.00	20.0	20.0	99.9	90 - 110
Nitrate as Nitrogen	mg/L	1.00	3.98	4.00	99.5	90 - 110

Matrix Spike

Lab ID = 815024-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chloride	mg/L	1000	3050	3030(2000)	101	85 - 115

Matrix Spike

Lab ID = 815024-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Sulfate	mg/L	100	1560	1540(1000)	102	85 - 115

Matrix Spike

Lab ID = 815025-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Fluoride	mg/L	5.00	22.6	22.4(20.0)	101	85 - 115
Nitrate as Nitrogen	mg/L	5.00	22.6	22.7(20.0)	99.9	85 - 115

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chloride	mg/L	1.00	3.95	4.00	98.8	90 - 110
Fluoride	mg/L	1.00	4.07	4.00	102	90 - 110
Sulfate	mg/L	1.00	20.0	20.0	99.8	90 - 110
Nitrate as Nitrogen	mg/L	1.00	3.96	4.00	99.0	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	3.02	3.00	101	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chloride	mg/L	1.00	2.92	3.00	97.2	90 - 110

MRCVS - Primary

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

Nitrite SM 4500-NO2 B Batch 1408061

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815025-001 Nitrite as Nitrogen	mg/L	08/06/2014 12:33	1.00	0.000630	0.0050	ND
815025-002 Nitrite as Nitrogen	mg/L	08/06/2014 12:34	1.00	0.000630	0.0050	ND

Method Blank

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

Duplicate Lab ID = 815030-032

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	0.0205	0.0226	90.7	90 - 110

Matrix Spike Lab ID = 815030-032

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Nitrite as Nitrogen	mg/L	1.00	0.0205	0.0226(0.0226)	90.7	85 - 115

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrite as Nitrogen	mg/L	1.00	0.0205	0.0226	90.7	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrite as Nitrogen	mg/L	1.00	0.0192	0.0200	96.0	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrite as Nitrogen	mg/L	1.00	0.0192	0.0200	96.0	90 - 110

Alkalinity by SM 2320B

Batch 1408166

Parameter		Unit	Analyzed	DF	MDL	RL	Result
815025-002	Alkalinity as CaCO3	mg/L	08/11/2014	1.00	1.68	5.00	155
	Bicarbonate (Calculated)	mg/L	08/11/2014	1.00	1.68	5.00	155
	Carbonate (Calculated)	mg/L	08/11/2014	1.00	1.68	5.00	ND

Method Blank

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

Duplicate Lab ID = 815031-021

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Alkalinity as CaCO3	mg/L	1.00	98.0	96.0	2.06	0 - 20

Lab Control Sample

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

Lab Control Sample Duplicate

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

Matrix Spike Lab ID = 815025-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Alkalinity as CaCO3	mg/L	1.00	250	255(100)	95.0	75 - 125

Matrix Spike Duplicate Lab ID = 815025-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Alkalinity as CaCO3	mg/L	1.00	249	255(100)	94.0	75 - 125

Specific Conductivity - EPA 120.1

Batch 1408050

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815025-001 Specific Conductivity	umhos/cm	08/07/2014	1.00	0.606	2.00	7340
815025-002 Specific Conductivity	umhos/cm	08/07/2014	1.00	0.606	2.00	7250

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate

Lab ID = 815029-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	934	936	0.214	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	723	706	102	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	723	706	102	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

Chrome VI by EPA 218.6

Batch 1408052

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815025-001 Chromium, Hexavalent	ug/L	08/06/2014 12:12	1.00	0.00600	0.20	ND
815025-002 Chromium, Hexavalent	ug/L	08/06/2014 12:22	25.0	0.150	5.0	547

Method Blank

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

Duplicate Lab ID = 815024-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	3.72	3.71	0.137	0 - 20

Low Level Calibration Verification

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

Lab Control Sample

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

Matrix Spike Lab ID = 815024-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	8.41	8.71(5.00)	93.9	90 - 110

Matrix Spike Lab ID = 815024-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	1430	1080(375)	194	90 - 110

Matrix Spike Lab ID = 815025-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.02	5.16(5.00)	97.2	90 - 110

Matrix Spike Lab ID = 815025-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.17	1.15(1.00)	102	90 - 110

Matrix Spike Lab ID = 815025-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	1160	1170(625)	98.1	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.17	5.00	103	90 - 110

Metals by EPA 200.7, Total

Batch 082114A-Th2

Parameter		Unit	Analyzed	DF	MDL	RL	Result
815025-001	Aluminum	ug/L	08/21/2014 16:30	1.00	7.20	50.0	ND
	Boron	ug/L	08/21/2014 16:30	1.00	4.10	50.0	918
	Iron	ug/L	08/21/2014 16:30	1.00	3.00	20.0	ND
	Zinc	ug/L	08/21/2014 16:30	1.00	5.10	20.0	ND
815025-002	Aluminum	ug/L	08/21/2014 16:10	1.00	7.20	50.0	ND
	Boron	ug/L	08/21/2014 16:10	1.00	4.10	50.0	960
	Iron	ug/L	08/21/2014 16:10	1.00	3.00	20.0	ND
	Zinc	ug/L	08/21/2014 16:10	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 = 815025-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Aluminum	ug/L	1.00	ND	0	0	0 - 20
Iron	ug/L	1.00	ND	0	0	0 - 20
Zinc	ug/L	1.00	ND	0	0	0 - 20
Boron	ug/L	1.00	936	960	2.57	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Aluminum	ug/L	1.00	2030	2000	102	85 - 115
Iron	ug/L	1.00	2110	2000	106	85 - 115
Zinc	ug/L	1.00	2090	2000	104	85 - 115
Boron	ug/L	1.00	2010	2000	100	85 - 115

Matrix Spike

Lab ID = 815025-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Aluminum	ug/L	1.00	1740	2000(2000)	87.0	75 - 125
Iron	ug/L	1.00	1840	2000(2000)	92.1	75 - 125
Zinc	ug/L	1.00	2300	2000(2000)	115	75 - 125
Boron	ug/L	1.00	2850	2960(2000)	94.4	75 - 125

Matrix Spike Duplicate Lab ID = 815025-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Aluminum	ug/L	1.00	1770	2000(2000)	88.7	75 - 125
Iron	ug/L	1.00	1870	2000(2000)	93.4	75 - 125
Zinc	ug/L	1.00	2320	2000(2000)	116	75 - 125
Boron	ug/L	1.00	2860	2960(2000)	95.2	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Aluminum	ug/L	1.00	5120	5000	102	95 - 105
Iron	ug/L	1.00	5170	5000	103	95 - 105
Zinc	ug/L	1.00	5240	5000	105	95 - 105
Boron	ug/L	1.00	5080	5000	102	95 - 105

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Aluminum	ug/L	1.00	5010	5000	100	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Aluminum	ug/L	1.00	5070	5000	101	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Aluminum	ug/L	1.00	5050	5000	101	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5120	5000	102	90 - 110

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5090	5000	102	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	5100	5000	102	90 - 110

Metals by EPA 200.8, Total

Batch 082014B

Parameter		Unit	Analyzed	DF	MDL	RL	Result
815025-001	Antimony	ug/L	08/20/2014 17:35	1.00	0.0350	2.0	ND
	Arsenic	ug/L	08/20/2014 17:35	1.00	0.0500	0.50	0.56
	Barium	ug/L	08/20/2014 17:35	1.00	0.297	2.0	12.9
	Chromium	ug/L	08/20/2014 17:35	1.00	0.0710	1.0	ND
	Lead	ug/L	08/20/2014 17:35	1.00	0.143	1.0	ND
	Manganese	ug/L	08/20/2014 17:35	1.00	0.0600	0.50	3.9
	Molybdenum	ug/L	08/20/2014 17:35	1.00	0.0500	2.0	22.7
	Nickel	ug/L	08/20/2014 17:35	1.00	0.240	2.0	2.0
815025-002	Antimony	ug/L	08/20/2014 18:20	1.00	0.0350	2.0	ND
	Arsenic	ug/L	08/20/2014 18:20	1.00	0.0500	0.50	3.8
	Barium	ug/L	08/20/2014 18:20	1.00	0.297	2.0	27.5
	Lead	ug/L	08/20/2014 18:20	1.00	0.143	1.0	ND
	Manganese	ug/L	08/20/2014 18:20	1.00	0.0600	0.50	4.1
	Molybdenum	ug/L	08/20/2014 18:20	1.00	0.0500	2.0	22.9
	Nickel	ug/L	08/20/2014 18:20	1.00	0.240	2.0	ND

Method Blank

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

Duplicate Lab ID = 815025-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Arsenic	ug/L	1.00	0.568	0.560	1.42	0 - 20
Barium	ug/L	1.00	13.0	12.9	1.00	0 - 20
Chromium	ug/L	1.00	ND	0	0	0 - 20
Nickel	ug/L	1.00	2.11	1.96	7.42	0 - 20
Antimony	ug/L	1.00	ND	0	0	0 - 20
Lead	ug/L	1.00	ND	0	0	0 - 20
Manganese	ug/L	1.00	4.22	3.94	6.82	0 - 20
Molybdenum	ug/L	1.00	23.1	22.7	1.78	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	0.233	0.200	116	70 - 130
Barium	ug/L	1.00	1.03	1.00	103	70 - 130
Chromium	ug/L	1.00	0.570	0.500	114	70 - 130
Nickel	ug/L	1.00	0.559	0.500	112	70 - 130
Antimony	ug/L	1.00	0.219	0.200	110	70 - 130
Lead	ug/L	1.00	0.460	0.500	92.0	70 - 130
Manganese	ug/L	1.00	0.425	0.500	85.0	70 - 130
Molybdenum	ug/L	1.00	0.536	0.500	107	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	47.3	50.0	94.6	85 - 115
Barium	ug/L	1.00	48.6	50.0	97.1	85 - 115
Chromium	ug/L	1.00	47.1	50.0	94.2	85 - 115
Nickel	ug/L	1.00	46.6	50.0	93.2	85 - 115
Antimony	ug/L	1.00	47.8	50.0	95.6	85 - 115
Lead	ug/L	1.00	49.8	50.0	99.5	85 - 115
Manganese	ug/L	1.00	46.2	50.0	92.4	85 - 115
Molybdenum	ug/L	1.00	53.0	50.0	106	85 - 115

Matrix Spike Lab ID = 815025-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	1.00	50.0	50.6(50.0)	99.0	75 - 125
Barium	ug/L	1.00	60.9	62.9(50.0)	96.0	75 - 125
Chromium	ug/L	1.00	46.2	50.0(50.0)	92.5	75 - 125
Nickel	ug/L	1.00	47.0	52.0(50.0)	90.0	75 - 125
Antimony	ug/L	1.00	49.0	50.0(50.0)	98.0	75 - 125
Lead	ug/L	1.00	45.5	50.0(50.0)	91.0	75 - 125
Manganese	ug/L	1.00	49.9	53.9(50.0)	91.9	75 - 125
Molybdenum	ug/L	1.00	74.3	72.7(50.0)	103	75 - 125

Matrix Spike Duplicate Lab ID = 815025-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	1.00	50.3	50.6(50.0)	99.4	75 - 125
Barium	ug/L	1.00	61.3	62.9(50.0)	96.8	75 - 125
Chromium	ug/L	1.00	46.4	50.0(50.0)	92.7	75 - 125
Nickel	ug/L	1.00	46.6	52.0(50.0)	89.2	75 - 125
Antimony	ug/L	1.00	48.7	50.0(50.0)	97.4	75 - 125
Lead	ug/L	1.00	44.4	50.0(50.0)	88.8	75 - 125
Manganese	ug/L	1.00	50.1	53.9(50.0)	92.4	75 - 125
Molybdenum	ug/L	1.00	76.7	72.7(50.0)	108	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	19.2	20.0	96.0	90 - 110
Barium	ug/L	1.00	19.3	20.0	96.5	90 - 110
Chromium	ug/L	1.00	19.1	20.0	95.6	90 - 110
Nickel	ug/L	1.00	18.6	20.0	93.0	90 - 110
Antimony	ug/L	1.00	19.0	20.0	95.2	90 - 110
Lead	ug/L	1.00	18.5	20.0	92.7	90 - 110
Manganese	ug/L	1.00	19.1	20.0	95.5	90 - 110
Molybdenum	ug/L	1.00	19.0	20.0	95.2	90 - 110

MRCVS - Primary

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

MRCVS - Primary

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

Interference Check Standard AB

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

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	19.8	20.0	98.8	80 - 120
Molybdenum	ug/L	1.00	ND	0		

Interference Check Standard AB

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

Serial Dilution Lab ID = 815025-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Barium	ug/L	5.00	26.6	27.5	3.12	0 - 10

Metals by EPA 200.8, Total

Batch 082114A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815025-002 Chromium	ug/L	08/21/2014 15:45	10.0	0.710	5.0	609

Method Blank

Parameter	Unit	DF	Result
Chromium	ug/L	1.00	ND

Duplicate

Lab ID = 815025-001

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

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.582	0.500	116	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	48.3	50.0	96.7	85 - 115

Matrix Spike

Lab ID = 815025-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	1.00	49.2	50.0(50.0)	98.4	75 - 125

Matrix Spike Duplicate

Lab ID = 815025-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	1.00	49.0	50.0(50.0)	98.0	75 - 125

MRCCS - Secondary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.9	20.0	99.3	90 - 110

MRCVS - Primary

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

Interference Check Standard A

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

Interference Check Standard A

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

Interference Check Standard AB

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

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.1	20.0	101	80 - 120

Serial Dilution Lab ID = 815025-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	50.0	611	609	0.392	0 - 10

Metals by EPA 200.8, Total

Batch 090314A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815025-001 Copper	ug/L	09/03/2014 14:15	1.00	0.190	1.0	ND
815025-002 Copper	ug/L	09/03/2014 14:58	1.00	0.190	1.0	ND

Method Blank

Parameter	Unit	DF	Result
Copper	ug/L	1.00	ND

Duplicate Lab ID = 815025-001

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

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Copper	ug/L	1.00	0.891	1.00	89.1	70 - 130

Lab Control Sample

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

Matrix Spike Lab ID = 815025-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Copper	ug/L	1.00	46.0	50.0(50.0)	92.0	75 - 125

Matrix Spike Duplicate Lab ID = 815025-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Copper	ug/L	1.00	46.0	50.0(50.0)	91.9	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Copper	ug/L	1.00	20.5	20.0	102	90 - 110

MRCVS - Primary

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

MRCVS - Primary

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

Interference Check Standard A

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

Interference Check Standard A

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

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Copper	ug/L	1.00	19.7	20.0	98.3	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Copper	ug/L	1.00	19.7	20.0	98.6	80 - 120

Reactive Silica by SM4500-Si D

Batch 1408158

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815025-002 Silica	mg/L	08/12/2014	25.0	0.252	1.00	20.8

Method Blank

Parameter	Unit	DF	Result
Silica	mg/L	1.00	ND

Duplicate Lab ID = 815025-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Silica	mg/L	25.0	20.2	20.8	2.88	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Silica	mg/L	1.00	0.187	0.206	90.9	90 - 110

Matrix Spike Lab ID = 815025-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Silica	mg/L	25.0	25.7	26.0(5.15)	95.4	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Silica	mg/L	1.00	0.187	0.206	90.9	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Silica	mg/L	1.00	0.407	0.400	102	90 - 110

Total Dissolved Solids by SM 2540 C Batch 1408065

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815025-001 Total Dissolved Solids	mg/L	08/06/2014	1.00	1.76	250	4380
815025-002 Total Dissolved Solids	mg/L	08/06/2014	1.00	1.76	250	4300

Method Blank

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

Duplicate Lab ID = 815025-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	4370	4300	1.61	0 - 110

Duplicate Lab ID = 815029-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	491	492	0.203	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

Total Organic Carbon (T/DOC) SM 5310 C Batch 1408056

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815025-002 Total Organic Carbon	mg/L	08/06/2014 15:08	1.00	0.0877	0.300	0.526

Method Blank

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

Duplicate Lab ID = 815025-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Organic Carbon	mg/L	1.00	0.519	0.526	1.34	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Organic Carbon	mg/L	1.00	8.09	8.56	94.5	90 - 110

Matrix Spike Lab ID = 815025-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Total Organic Carbon	mg/L	1.00	14.5	17.6(17.1)	81.8	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Organic Carbon	mg/L	1.00	9.08	8.56	106	85 - 115

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Organic Carbon	mg/L	1.00	9.86	10.0	98.6	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Organic Carbon	mg/L	1.00	10.0	10.0	100	90 - 110

Total Phosphate, SM 4500-PB,E Batch 1408159

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815025-002 Phosphate, Total As P	mg/L	08/13/2014	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 = 815025-002

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	0.0685	0.0650	105	90 - 110

Matrix Spike Lab ID = 815025-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Phosphate, Total As P	mg/L	1.00	0.0730	0.0650(0.0650)	112	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Phosphate, Total As P	mg/L	1.00	0.0685	0.0650	105	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Phosphate, Total As P	mg/L	1.00	0.0652	0.0660	98.8	90 - 110

Ammonia Nitrogen by SM4500-NH3D Batch 1408383

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815025-001 Ammonia as N	mg/L	08/19/2014	1.00	0.0318	0.500	ND
815025-002 Ammonia as N	mg/L	08/19/2014	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	7.38	8.00	92.2	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	7.93	8.00	99.1	90 - 110

Matrix Spike Lab ID = 815025-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	10.9	10.0(10.0)	109	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	5.97	6.00	99.6	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	6.25	6.00	104	90 - 110

Metals by EPA 200.8, Dissolved Batch 082114A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815025-002 Manganese	ug/L	08/21/2014 18:33	1.00	0.0600	1.0	2.7

Method Blank

Parameter	Unit	DF	Result
Manganese	ug/L	1.00	ND

Duplicate Lab ID = 815024-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Manganese	ug/L	2.00	62.1	62.0	0.198	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	0.454	0.500	90.8	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	46.6	50.0	93.2	85 - 115

Matrix Spike Lab ID = 815024-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Manganese	ug/L	2.00	108	112(50.0)	92.5	75 - 125

Matrix Spike Duplicate Lab ID = 815024-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Manganese	ug/L	2.00	108	112(50.0)	92.8	75 - 125

MRCCS - Secondary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	19.2	20.0	96.2	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	19.5	20.0	97.7	90 - 110

MRCVS - Primary

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

Metals by 200.7, Dissolved

Batch 082114A-Th2

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815025-002 Iron	ug/L	08/21/2014 15:42	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
Magnesium	ug/L	1.00	ND

Duplicate

Lab ID = 815024-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Calcium	ug/L	100	210000	213000	1.37	0 - 20
Iron	ug/L	1.00	ND	0	0	0 - 20
Magnesium	ug/L	5.00	31600	30600	3.31	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	2080	2000	104	85 - 115
Iron	ug/L	1.00	2130	2000	106	85 - 115
Magnesium	ug/L	1.00	2240	2000	112	85 - 115

Matrix Spike

Lab ID = 815024-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Calcium	ug/L	100	422000	413000(200000)	104	75 - 125
Iron	ug/L	1.00	1750	2000(2000)	87.6	75 - 125
Magnesium	ug/L	5.00	38600	40600(10000)	79.8	75 - 125

Matrix Spike Duplicate

Lab ID = 815024-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	1800	2000(2000)	89.8	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	4910	5000	98.1	95 - 105
Iron	ug/L	1.00	5170	5000	103	95 - 105
Magnesium	ug/L	1.00	5020	5000	100	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	4910	5000	98.3	90 - 110

Turbidity by SM 2130 B

Batch 1408084

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815025-001 Turbidity	NTU	08/06/2014	1.00	0.0140	0.100	ND
815025-002 Turbidity	NTU	08/06/2014	1.00	0.0140	0.100	0.110

Method Blank

Parameter	Unit	DF	Result
Turbidity	NTU	1.00	ND

Duplicate

Lab ID = 815032-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Turbidity	NTU	1.00	0.356	0.340	4.60	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	7.96	8.00	99.5	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	7.32	8.00	91.5	90 - 110

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

TRUESDAIL LABORATORIES, INC.

Alkalinity by SM 2320B
Calculations

Analytical Batch:	1408166
Matrix:	WATER
Date of Analysis:	8/11/2014

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	4.75	50	0.02	0.00	0.0	0.00		0.0	5	ND	ND	ND	ND	
14H0053-01	7.61	50	0.02	0.00	0.0	11.05		221.0	5	221.0	221.0	ND	ND	
14H0053-02	7.57	50	0.02	0.00	0.0	7.70		154.0	5	154.0	154.0	ND	ND	
14H0054-02	7.41	50	0.02	0.00	0.0	7.75		155.0	5	155.0	155.0	ND	ND	
14H0075-01	7.60	50	0.02	0.00	0.0	4.90		98.0	5	98.0	98.0	ND	ND	
14H0101-17	7.24	50	0.02	0.00	0.0	4.75		95.0	5	95.0	95.0	ND	ND	
14H0101-21	7.69	50	0.02	0.00	0.0	4.80		96.0	5	96.0	96.0	ND	ND	
DUP	7.70	50	0.02	0.00	0.0	4.90		98.0	5	98.0	98.0	ND	ND	
LCS	9.76	50	0.02	1.95	39.0	4.95		99.0	5	99.0	21.0	78	ND	
LCSD	9.95	50	0.02	1.95	39.0	4.95		99.0	5	99.0	21.0	78	ND	
1408166-MS1	8.95	50	0.02	2.10	42.0	12.50		250.0	5	250.0	166.0	84	ND	
1408166-MSD1	8.94	50	0.02	2.00	40.0	12.45		249.0	5	249.0	169.0	80	ND	

Calculations as follows:

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

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 = $\frac{(2 \ x \ B - C) \ x \ N \ x \ 50000}{mL \ sample}$

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	99	100	99.0%	90-110	Yes

Duplicate Determination Difference Summary

Lab Number I.D.	Measured Value, ppm	Dup Value, ppm	RPD	Accetance Limit	QC Within Control?
14H0101-	96	98	2.1%	≤20%	Yes

Sample Matrix Spike (MS/MSD) Summary

Lab Number	Conc of Unspk spl	Dil Factor	Added Spk Conc	MS/MSD Amt	Measrd Conc of Spk Spl	Theor Conc of Spk Spl	MS/MSD % Rec	MS Accept Limit	QC Within Control?	RPD	RPD Accept Limit	QC Within Control?
14H0054-02	155	1	100	100	250	255.00	95%	75-125	Yes	0.2%	≤20%	Yes
	155	1	100	100	249	255.00	94%		Yes			

ALEX
Analyst Printed Name

Analyst Signature

Maksim Gorbunov
Reviewer Printed Name

Reviewer Signature

Truesdail Laboratories, Inc.

Total Dissolved Solids by SM 2540 C

Calculations

Batch: 1408065
Date Analyzed: 8/6/2014

Laboratory Number	Sample volume, mL	Initial weight, g	1st Final weight, g	2nd Final weight, g	Weight Difference, g	Exceeds 0.5mg? Yes/No	Residue weight, g	Filterable residue, ppm	RL, ppm	Reported Value, ppm	DF
Blank	100	72.4114	72.4119	72.4119	0.0000	No	0.0005	5.0	25.0	ND	1
14H0013-01D	100	74.5062	74.5551	74.5551	0.0000	No	0.0489	489.0	25.0	489.0	1
14H0013-02D	100	77.7649	77.8141	77.8141	0.0000	No	0.0492	492.0	25.0	492.0	1
14H0053-01A	20	29.2564	29.3075	29.3075	0.0000	No	0.0511	2555.0	125.0	2555.0	1
14H0053-02A	10	31.2436	31.2923	31.2919	0.0004	No	0.0483	4830.0	250.0	4830.0	1
14H0054-01A	10	28.8161	28.8599	28.8599	0.0000	No	0.0438	4380.0	250.0	4380.0	1
14H0054-02A	10	28.9676	29.0106	29.0106	0.0000	No	0.0430	4300.0	250.0	4300.0	1
14H0065-01B	100	74.7231	74.7510	74.7509	0.0001	No	0.0278	278.0	25.0	278.0	1
14H0069-01C	100	75.2617	75.3123	75.3122	0.0001	No	0.0505	505.0	25.0	505.0	1
14H0069-02C	100	67.0255	67.0751	67.0751	0.0000	No	0.0496	496.0	25.0	496.0	1
14H0069-03C	100	76.2612	76.3133	76.3129	0.0004	No	0.0517	517.0	25.0	517.0	1
14H0013-02 Dup	100	74.3734	74.4225	74.4225	0.0000	No	0.0491	491.0	25.0	491.0	1
LCS	100	75.2695	75.3194	75.3190	0.0004	No	0.0495	495.0	25.0	495.0	1
14H0069-04C	100	70.3714	70.4239	70.4237	0.0002	No	0.0523	523.0	25.0	523.0	1
14H0075-07	100	76.1625	76.1992	76.1992	0.0000	No	0.0367	367.0	25.0	367.0	1
14H0076-01D	100	74.0234	74.0736	74.0736	0.0000	No	0.0502	502.0	25.0	502.0	1
14H0076-02D	100	76.0208	76.0692	76.0692	0.0000	No	0.0484	484.0	25.0	484.0	1
14H0077-01E	100	75.2735	75.3308	75.3308	0.0000	No	0.0573	573.0	25.0	573.0	1
14H0054-02 Dup	10	29.5560	29.5997	29.5997	0.0000	No	0.0437	4370.0	250.0	4370.0	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?
14H0013-02	0.0492	0.0491	**0.1%**	≤5%	Yes
14H0054-02	0.0430	0.0437	**0.8%**	≤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: 1408065
Date Analyzed: 8/6/2014

Laboratory Number	EC	TDS/EC Ratio: 0.55-0.90	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
14H0013-01D	934	0.52	607.1	0.81
14H0013-02D	892	0.55	579.8	0.85
14H0053-01A	4320	0.59	2808	0.91
14H0053-02A	8020	0.60	5213	0.93
14H0054-01A	7340	0.60	4771	0.92
14H0054-02A	7250	0.59	4712.5	0.91
14H0065-01B	471	0.59	306.15	0.91
14H0069-01C	939	0.54	610.35	0.83
14H0069-02C	939	0.53	610.35	0.81
14H0069-03C	942	0.55	612.3	0.84
14H0013-02 Dup	892	0.55	579.8	0.85
LCS				
14H0069-04C	941	0.56	611.65	0.86
14H0075-07	655	0.56	425.75	0.86
14H0076-01D	953	0.53	619.45	0.81
14H0076-02D	868	0.56	564.2	0.86
14H0077-01E	920	0.62	598	0.96
14H0054-02 Dup	7250	0.60	4712.5	0.93

815025/
14H0054

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-479]

COC Number
TURNAROUND TIME 10 Days
DATE 08/05/14 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.AQ —
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
SC-700B-WDR-479	08/05/14	1445		X		X	X	X	X	X		X				X		4	} pH=7 (200.7)
SC-100B-WDR-479	08/05/14	1445		X	X	X	X	X	X	X	X	X	X	X	X	X		9	

ALERT !!
Level III QC

TOTAL NUMBER OF CONTAINERS 13

CHAIN OF CUSTODY SIGNATURE RECORD

Signature (Relinquished) Chris Lenz	Printed Name CHRIS LENZ	Company/ Agency CH2M HILL	Date/ Time 8-5-14 15:15
Signature (Received) Thanh Ngo	Printed Name THANH NGO	Company/ Agency TRUESDAIL	Date/ Time 8-5-14 15:15
Signature (Relinquished) Thanh Ngo	Printed Name THANH NGO	Company/ Agency	Date/ Time 8-5-14 19:15
Signature (Received)	Printed Name Maksim Gorbunov	Company/ Agency Truesdail	Date/ Time 8/5/14 19:15
Signature (Relinquished)	Printed Name	Company/ Agency	Date/ Time
Signature (Received)	Printed Name	Company/ Agency	Date/ Time

SAMPLE CONDITIONS

RECEIVED COOL ☒ WARM ☐ 3.9 °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
7/16/14	14G0250-5	7.00	2ml/100ml	9.5	7:40	NE
7/18/14	14G0260-20				8:00	NE
↓	↓ -24	↓	↓	↓	↓	↓
7/23/14	14G0325-01	7.00	2ml/100ml	9.5	7:40	NE
7/30/14	14G0423-01	7.00	2ml/100ml	9.5	7:30	NE
8/6/14	14H0053-01	7:00	2ml/100ml	9.5	8:00	NE
	↓ -02					
	14H0054-1					
↓	↓ -2	↓	↓	↓	↓	↓

NE
8/7/14

reviewed
7/24/14

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
14H0093(1-3)	<1	>2	8/7/14	ES	NO	2:00	ES 8/8/14 8/8/14 [illegible] 10:00	pH <2
14H0102-01	>1	<2	8/11/14	KD	Yes			
14H0110-01	>1	<2						
14H0111-02								
14H0119-01	↓							
14H0120-01	<1							
14H0121-01	<1							
14H0122-01	<1							
14H0128-01 KD 8/11/14	>1							
14H0130-01								
14H0131-01								
14H0132-01					↓			
14H0133-01	<1 8/11/14	>2			NO	3:30 pm		
14H0136-(1-2)	↓	↓	↓	↓	Yes			
14H0101-(17,24)	<1	>2	8/11/14	KD	NO	3:30 pm		
14H0148-01	>1	<2	8/13/14	KD	KD 8/13/14 Yes			
14H0158-01								
14H0161-02								
14H0162-02								
14H0168-02								
14H0169-02								
14H0170-02								
14H0171-02	↓	↓	↓	↓	↓			
14H0188-(01-02)	>1	<2	8/15/14	KD	Yes			
14H0213-01								
14H0214-01								
14H0215-01								
14H0216-01								
14H0217-01								
14H0218-02								
14H0227-01								
14H0093(1-3)	<1	>2	8/18/14	ES	NO	9:00	8/19/14 @ 10:00	pH <2
14H0143-6								
14H0166(1-3)								
14H0167(1-2)								
14H0187(10-12)	↓	↓	↓	↓	↓	↓	↓	↓
14H0054(1-2)	<1	>2	8/20/14	ES	Yes	10:00		pH <2
14H0174-01						↓		↓
14H0243-01								
14H0054-2						11:00		Filtered then acidi
14H0053(1-2)	↓	↓	↓	↓	↓	↓		↓
14H0269-0	>1	>2	8/20/14	ES	Yes	11:00		
14H0233-01	<1	<2	↓	↓	↓	↓		
14H0234-01	↓	↓	↓	↓	↓	↓		

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.
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Established 1931

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www.truesdail.com

September 2, 2014

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

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK IM3PLANT-WDR-480 PROJECT, GROUNDWATER MONITORING, TLI NO.: 815026

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-480 project groundwater monitoring for Hexavalent and Total Chromium, Total Manganese, Turbidity, Specific Conductivity, and Total Dissolved Solids. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, quality control data and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data have been included under Section 5.

The samples were received and delivered with the chain of custody on August 12, 2014, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

Sample SC-700B-WDR-480 was analyzed as sample I.D. 14H0174 in the raw data but is reported as 815026 in all final report pages.

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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TUSTIN, CALIFORNIA 92780-7008
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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.: 815026
Date: September 2, 2014
Collected: August 12, 2014
Received: August 12, 2014

ANALYST LIST

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

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

Laboratory No.: 815026
Date Received: August 12, 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
815026-001	SC-700B-WDR-480	E120.1	NONE	8/12/2014	11:45	EC	7350	umhos/cm	2.0
815026-001	SC-700B-WDR-480	E200.8	NONE	8/12/2014	11:45	Chromium	ND	ug/L	1.0
815026-001	SC-700B-WDR-480	E200.8	NONE	8/12/2014	11:45	Manganese	1.6	ug/L	0.50
815026-001	SC-700B-WDR-480	E218.6	LABFLT	8/12/2014	11:45	Chromium, Hexavalent	0.25	ug/L	0.20
815026-001	SC-700B-WDR-480	SM2130B	NONE	8/12/2014	11:45	Turbidity	0.147	NTU	0.100
815026-001	SC-700B-WDR-480	SM2540C	NONE	8/12/2014	11:45	Total Dissolved Solids	4400	mg/L	250

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

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REPORT

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

Laboratory No. 815026
Page 1 of 10
Printed 9/2/2014

Samples Received on 8/12/2014 7:10:00 PM

Field ID	Lab ID	Collected	Matrix
SC-700B-WDR-480	815026-001	08/12/2014 11:45	Water

Specific Conductivity - EPA 120.1

Batch 1408198

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815026-001 Specific Conductivity	umhos/cm	08/14/2014	1.00	0.606	2.00	7350

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate

Lab ID = 815026-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	7350	7350	0	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	713	706	101	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	713	706	101	90 - 110

MRCVS - Primary

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

MRCVS - Primary

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

Chrome VI by EPA 218.6

Batch 1408185

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815026-001 Chromium, Hexavalent	ug/L	08/13/2014 10:24	1.00	0.00600	0.20	0.25

Method Blank

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

Duplicate

Lab ID = 815026-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.224	0.248	10.2	0 - 20

Low Level Calibration Verification

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

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.12	5.00	102	90 - 110

Matrix Spike

Lab ID = 815026-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.24	1.25(1.00)	99.0	90 - 110

MRCCS - Secondary

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

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 082014B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815026-001 Chromium	ug/L	08/20/2014 18:39	1.00	0.0710	1.0	ND
Manganese	ug/L	08/20/2014 18:39	1.00	0.0600	0.50	1.6

Method Blank

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

Duplicate

Lab ID = 815025-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Arsenic	ug/L	1.00	0.568	0.560	1.42	0 - 20
Barium	ug/L	1.00	13.0	12.9	1.00	0 - 20
Chromium	ug/L	1.00	ND	0	0	0 - 20
Nickel	ug/L	1.00	2.11	1.96	7.42	0 - 20
Antimony	ug/L	1.00	ND	0	0	0 - 20
Lead	ug/L	1.00	ND	0	0	0 - 20
Manganese	ug/L	1.00	4.22	3.94	6.82	0 - 20
Molybdenum	ug/L	1.00	23.1	22.7	1.78	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	0.233	0.200	116	70 - 130
Barium	ug/L	1.00	1.03	1.00	103	70 - 130
Chromium	ug/L	1.00	0.570	0.500	114	70 - 130
Nickel	ug/L	1.00	0.559	0.500	112	70 - 130
Antimony	ug/L	1.00	0.219	0.200	110	70 - 130
Lead	ug/L	1.00	0.460	0.500	92.0	70 - 130
Manganese	ug/L	1.00	0.425	0.500	85.0	70 - 130
Molybdenum	ug/L	1.00	0.536	0.500	107	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	47.3	50.0	94.6	85 - 115
Barium	ug/L	1.00	48.6	50.0	97.1	85 - 115
Chromium	ug/L	1.00	47.1	50.0	94.2	85 - 115
Nickel	ug/L	1.00	46.6	50.0	93.2	85 - 115
Antimony	ug/L	1.00	47.8	50.0	95.6	85 - 115
Lead	ug/L	1.00	49.8	50.0	99.5	85 - 115
Manganese	ug/L	1.00	46.2	50.0	92.4	85 - 115
Molybdenum	ug/L	1.00	53.0	50.0	106	85 - 115

Matrix Spike Lab ID = 815025-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	1.00	50.0	50.6(50.0)	99.0	75 - 125
Barium	ug/L	1.00	60.9	62.9(50.0)	96.0	75 - 125
Chromium	ug/L	1.00	46.2	50.0(50.0)	92.5	75 - 125
Nickel	ug/L	1.00	47.0	52.0(50.0)	90.0	75 - 125
Antimony	ug/L	1.00	49.0	50.0(50.0)	98.0	75 - 125
Lead	ug/L	1.00	45.5	50.0(50.0)	91.0	75 - 125
Manganese	ug/L	1.00	49.9	53.9(50.0)	91.9	75 - 125
Molybdenum	ug/L	1.00	74.3	72.7(50.0)	103	75 - 125

Matrix Spike Duplicate Lab ID = 815025-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	1.00	50.3	50.6(50.0)	99.4	75 - 125
Barium	ug/L	1.00	61.3	62.9(50.0)	96.8	75 - 125
Chromium	ug/L	1.00	46.4	50.0(50.0)	92.7	75 - 125
Nickel	ug/L	1.00	46.6	52.0(50.0)	89.2	75 - 125
Antimony	ug/L	1.00	48.7	50.0(50.0)	97.4	75 - 125
Lead	ug/L	1.00	44.4	50.0(50.0)	88.8	75 - 125
Manganese	ug/L	1.00	50.1	53.9(50.0)	92.4	75 - 125
Molybdenum	ug/L	1.00	76.7	72.7(50.0)	108	75 - 125

Total Dissolved Solids by SM 2540 C

Batch 1408110

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815026-001 Total Dissolved Solids	mg/L	08/13/2014	1.00	1.76	250	4400

Method Blank

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

Duplicate Lab ID = 815026-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	4380	4400	0.456	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Dissolved Solids	mg/L	1.00	493	500	98.6	90 - 110

Turbidity by SM 2130 B

Batch 1408189

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815026-001 Turbidity	NTU	08/13/2014	1.00	0.0140	0.100	0.147

Method Blank

Parameter	Unit	DF	Result
Turbidity	NTU	1.00	ND

Duplicate Lab ID = 815034-004

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Turbidity	NTU	1.00	0.101	0.100	0.995	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	7.35	8.00	91.9	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

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

Mona Nassimi
Manager, Analytical Services

Truesdail Laboratories, Inc.

Total Dissolved Solids by SM 2540 C

Calculations

Batch: 1408110
Date Analyzed: 8/13/2014

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	66.8011	66.8012	66.8012	0.0000	No	0.0001	1.0	25.0	ND	1
14H0002-01	100	78.3842	78.4318	78.4318	0.0000	No	0.0476	476.0	25.0	476.0	1
14H0002-02	100	68.5387	68.5963	68.5961	0.0002	No	0.0574	574.0	25.0	574.0	1
14H0002-03	100	72.0711	72.1237	72.1235	0.0002	No	0.0524	524.0	25.0	524.0	1
14H0002-04	100	76.6617	76.7153	76.7151	0.0002	No	0.0534	534.0	25.0	534.0	1
14H0101-17F	50	51.8810	51.9209	51.9205	0.0004	No	0.0395	790.0	50.0	790.0	1
14H0136-01D	100	74.1400	74.1889	74.1889	0.0000	No	0.0489	489.0	25.0	489.0	1
14H0136-02	100	78.5964	78.6465	78.6461	0.0004	No	0.0497	497.0	25.0	497.0	1
14H0153-01A	50	49.1754	49.2352	49.2352	0.0000	No	0.0598	1196.0	50.0	1196.0	1
14H0153-02	50	55.2270	55.2575	55.2575	0.0000	No	0.0305	610.0	50.0	610.0	1
14H0153-03	50	51.0744	51.1289	51.1289	0.0000	No	0.0545	1090.0	50.0	1090.0	1
14H0136-01 Du	100	68.1055	68.1545	68.1545	0.0000	No	0.0490	490.0	25.0	490.0	1
LCS	100	68.7727	68.8224	68.8220	0.0004	No	0.0493	493.0	25.0	493.0	1
14H0153-04	50	51.4128	51.4445	51.4442	0.0003	No	0.0314	628.0	50.0	628.0	1
14H0153-05	50	51.2462	51.2819	51.2815	0.0004	No	0.0353	706.0	50.0	706.0	1
14H0153-06	50	50.6870	50.7336	50.7336	0.0000	No	0.0466	932.0	50.0	932.0	1
14H0153-07	50	47.4299	47.4811	47.4808	0.0003	No	0.0509	1018.0	50.0	1018.0	1
14H0153-08	50	51.2262	51.2874	51.2870	0.0004	No	0.0608	1216.0	50.0	1216.0	1
14H0153-09	50	49.5134	49.5438	49.5434	0.0004	No	0.0300	600.0	50.0	600.0	1
14H0153-10	50	56.2630	56.3131	56.3130	0.0001	No	0.0500	1000.0	50.0	1000.0	1
14H0153-11	50	51.3430	51.4018	51.4014	0.0004	No	0.0584	1168.0	50.0	1168.0	1
14H0174-01A	10	28.6681	28.7124	28.7121	0.0003	No	0.0440	4400.0	250.0	4400.0	1
14H0174-01 Du	10	30.4519	30.4957	30.4957	0.0000	No	0.0438	4380.0	250.0	4380.0	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	493.0	500	**98.6%**	90-110%	Yes
LCSD					

LCS Recovery

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

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

Duplicate Determinations Difference Summary

Lab Number	Sample Weight, g	Sample Dup Weight, g	% RPD	Acceptance Limit	QC Within Control?
14H0136-01	0.0489	0.0490	**0.1%**	≤5%	Yes
14H0174-01	0.0440	0.0438	**0.2%**	≤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: 1408110
Date Analyzed: 8/13/2014

Laboratory Number	EC	TDS/EC Ratio: 0.55-0.90	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
14H0002-01	944	0.50	613.6	0.78
14H0002-02	884	0.65	574.6	1.00
14H0002-03	872	0.60	566.8	0.92
14H0002-04	855	0.62	555.75	0.96
14H0101-17F	1329	0.59	863.85	0.91
14H0136-01D	946	0.52	614.9	0.80
14H0136-02	832	0.60	540.8	0.92
14H0153-01A	1667	0.72	1083.55	1.10
14H0153-02	1007	0.61	654.55	0.93
14H0153-03	1515	0.72	984.75	1.11
14H0136-01 Dup	946	0.52	614.9	0.80
LCS				
14H0153-04	1037	0.61	674.05	0.93
14H0153-05	1102	0.64	716.3	0.99
14H0153-06	1396	0.67	907.4	1.03
14H0153-07	1437	0.71	934.05	1.09
14H0153-08	1643	0.74	1067.95	1.14
14H0153-09	1025	0.59	666.25	0.90
14H0153-10	1438	0.70	934.7	1.07
14H0153-11	1614	0.72	1049.1	1.11
14H0174-01A	7350	0.60	4777.5	0.92
14H0174-01 Dup	7350	0.60	4777.5	0.92

815026/
14H0174

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CHAIN OF CUSTODY RECORD

[IM3Plant-WDR-480]

COC Number
TURNAROUND TIME 10 Days
DATE 08/12/14 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 Cameron Blant

SAMPLE I.D.	DATE	TIME	DESCRIPTION	Cr6 (218.6) Lab Filtered	Total Metals (200.8) Cr, Mn	Specific Conductance (120.1)	TDS (SM2540C)		Turbidity (SM2130)									NUMBER OF CONTAINERS	COMMENTS
SC-700B-WDR-480	08/12/14	11:45	Water	x	x	x	x		x									3	pH = 6 (200.8)
																		3	TOTAL NUMBER OF CONTAINERS

Please Provide a preliminary Result for the TDS ASAP

ALERT !!
Level III QC

CHAIN OF CUSTODY SIGNATURE RECORD

Signature (Relinquished)	Printed Name Ryan Phelps	Company/ Agency CH2MHILL	Date/ Time 8-12-14 15:00
Signature (Received)	Printed Name THANH NGO	Company/ Agency TRUESDAIL	Date/ Time 8-12-14 1500
Signature (Relinquished)	Printed Name THANH NGO	Company/ Agency TRUESDAIL	Date/ Time 8-12-14 1910
Signature (Received)	Printed Name Michael Ngo	Company/ Agency TLI	Date/ Time 8-12-14 1910
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
7/16/14	14G0250-5	7.00	2ml/100ml	9.5	7:40	NE
7/18/14	14G0260-20				8:00	NE
↓	↓ -24	↓	↓	↓	↓	↓
7/23/14	14G0325-01	7.00	2ml/100ml	9.5	7:40	NE
7/30/14	14G0423-01	7.00	2ml/100ml	9.5	7:30	NE
8/6/14	14H0053-01	7.00	2ml/100ml	9.5	8:00	NE
	↓ -02					
	14H0054-1					
↓	↓ -2	↓	↓	↓	↓	↓
8/7/14	14H0105-1	7.00	2ml/100ml	9.5	16:00	NE
8/11/14	14H0138-01	↓	↓	↓	15:00	NE
8/12/14	14H0156-01	7.00	2ml/100ml	9.5	16:00	NE
↓	↓ -02	↓	↓	↓	↓	↓
8/13/14	14H0174-01	7.00	2ml/100ml	9.5	7:40	NE

NE
8/13/14

reviewed
7/24/14

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest (Y/N)	Time of Adjustment to pH 2	Date/Time of 2nd pH check ES 8/8/14	Comments
14H0093(1-3)	<1	>2	8/7/14	ES	NO	2:00	8/8/14 ~~[illegible]~~ 10:00	pH <2
14H0102-01	>1	<2	8/11/14	KD	Yes			
14H0110-01	>1	<2						
14H0111-02								
14H0119-01	↓							
14H0120-01	<1							
14H0121-01	<1							
14H0122-01	<1							
14H0126-01 ES 8/11/14	>1							
14H0130-01								
14H0131-01								
14H0132-01					↓			
14H0133-01	~~<1~~ 8/11/14	~~>2~~			NO	3:30pm		
14H0136-(1-2)	↓	↓	↓	↓	Yes			
14H0101-(17,24)	<1	>2	8/11/14	KD	NO	3:30pm		
14H0146-01	>1	<2	8/13/14	KD	KD 8/13/14 ~~NO~~ Yes			
14H0158-01								
14H0161-02								
14H0162-02								
14H0168-02								
14H0169-02								
14H0170-02								
14H0171-02	↓	↓	↓	↓	↓			
14H0188-(01-02)	>1	<2	8/15/14	KD	Yes			
14H0213-01								
14H0214-01								
14H0215-01								
14H0216-01								
14H0217-01								
14H0218-02								
14H0227-01								
14H0093(1-3)	<1	>2	8/18/14	ES	NO	9:00	8/19/14 @ 10:00	pH <2
14H0143-6								
14H0166(1-3)								
14H0167(1-2)							↓	↓
14H0187(10-12)	↓	↓	↓	↓	↓	↓		
14H0054(1-2)	<1	>2	8/20/14	ES	Yes	10:00		pH <2
14H0174-01						↓		↓
14H0243-01								Filtered then aci
14H0054-2						11:00		↓
14H0053(1-2)	↓	↓	↓	↓	↓	↓		
14H0269-0	>1	>2	8/20/14	ES	Yes	11:00		
14H0233-01	<1	<2	↓	↓	↓	↓		
14H0234-01	↓	↓						

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.

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September 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-481 PROJECT, GROUNDWATER MONITORING, TLI NO.: 815027

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-481 project groundwater monitoring for Hexavalent and Total Chromium, Total Manganese, Turbidity, Specific Conductivity, and Total Dissolved Solids. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, quality control data and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data have been included under Section 5.

The samples were received and delivered with the chain of custody on August 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.

Sample SC-700B-WDR-481 was analyzed as sample I.D. 14H0243 in the raw data but is reported as 815027 in all final report pages.

The sample collection time was not recorded on the chain of custody. The sample collection time of 06:50 from the sample containers was used in the report per Mr. Shawn Duffy's request.

The straight runs for the sample and associated matrix spike on sample SC-700B-WDR-481 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.

fo - Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

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.: **815027**
Date: September 3, 2014
Collected: August 18, 2014
Received: August 18, 2014

ANALYST LIST

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

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

Laboratory No.: 815027
Date Received: August 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
815027-001	SC-700B-WDR-481	E120.1	NONE	8/18/2014	6:50	EC	7360	umhos/cm	2.00
815027-001	SC-700B-WDR-481	E200.8	NONE	8/18/2014	6:50	Chromium	ND	ug/L	1.0
815027-001	SC-700B-WDR-481	E200.8	NONE	8/18/2014	6:50	Manganese	4.4	ug/L	0.50
815027-001	SC-700B-WDR-481	E218.6	LABFLT	8/18/2014	6:50	Chromium, Hexavalent	ND	ug/L	0.20
815027-001	SC-700B-WDR-481	SM2130B	NONE	8/18/2014	6:50	Turbidity	0.138	NTU	0.100
815027-001	SC-700B-WDR-481	SM2540C	NONE	8/18/2014	6:50	Total Dissolved Solids	4300	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.

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. 815027
Page 1 of 10
Printed 9/3/2014

Samples Received on 8/18/2014 6:45:00 PM

Field ID	Lab ID	Collected	Matrix
SC-700B-WDR-481	815027-001	08/18/2014 06:50	Water

Specific Conductivity - EPA 120.1

Batch 1408328

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815027-001 Specific Conductivity	umhos/cm	08/25/2014	1.00	0.606	2.00	7360

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate

Lab ID = 815035-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	876	875	0.114	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	732	706	104	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	732	706	104	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	995	1000	99.5	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	995	1000	99.5	90 - 110

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 1408337

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815027-001 Chromium, Hexavalent	ug/L	08/22/2014 12:46	1.00	0.00600	0.20	ND

Method Blank

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

Duplicate — Lab ID = 815027-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	0.172	0.170	1.05	0 - 20

Low Level Calibration Verification

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

Lab Control Sample

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

Matrix Spike — Lab ID = 815027-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.03	5.17(5.00)	97.2	90 - 110

Matrix Spike — Lab ID = 815027-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.22	1.18(1.00)	104	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.11	5.00	102	90 - 110

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.84	10.0	98.4	95 - 105

Metals by EPA 200.8, Total

Batch 082014B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815027-001 Chromium	ug/L	08/20/2014 18:46	1.00	0.0710	1.0	ND
Manganese	ug/L	08/20/2014 18:46	1.00	0.0600	0.50	4.4

Method Blank

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

Duplicate

Lab ID = 815025-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Arsenic	ug/L	1.00	0.568	0.560	1.42	0 - 20
Barium	ug/L	1.00	13.0	12.9	1.00	0 - 20
Chromium	ug/L	1.00	ND	0	0	0 - 20
Nickel	ug/L	1.00	2.11	1.96	7.42	0 - 20
Antimony	ug/L	1.00	ND	0	0	0 - 20
Lead	ug/L	1.00	ND	0	0	0 - 20
Manganese	ug/L	1.00	4.22	3.94	6.82	0 - 20
Molybdenum	ug/L	1.00	23.1	22.7	1.78	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	0.233	0.200	116	70 - 130
Barium	ug/L	1.00	1.03	1.00	103	70 - 130
Chromium	ug/L	1.00	0.570	0.500	114	70 - 130
Nickel	ug/L	1.00	0.559	0.500	112	70 - 130
Antimony	ug/L	1.00	0.219	0.200	110	70 - 130
Lead	ug/L	1.00	0.460	0.500	92.0	70 - 130
Manganese	ug/L	1.00	0.425	0.500	85.0	70 - 130
Molybdenum	ug/L	1.00	0.536	0.500	107	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	47.3	50.0	94.6	85 - 115
Barium	ug/L	1.00	48.6	50.0	97.1	85 - 115
Chromium	ug/L	1.00	47.1	50.0	94.2	85 - 115
Nickel	ug/L	1.00	46.6	50.0	93.2	85 - 115
Antimony	ug/L	1.00	47.8	50.0	95.6	85 - 115
Lead	ug/L	1.00	49.8	50.0	99.5	85 - 115
Manganese	ug/L	1.00	46.2	50.0	92.4	85 - 115
Molybdenum	ug/L	1.00	53.0	50.0	106	85 - 115

Matrix Spike Lab ID = 815025-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	1.00	50.0	50.6(50.0)	99.0	75 - 125
Barium	ug/L	1.00	60.9	62.9(50.0)	96.0	75 - 125
Chromium	ug/L	1.00	46.2	50.0(50.0)	92.5	75 - 125
Nickel	ug/L	1.00	47.0	52.0(50.0)	90.0	75 - 125
Antimony	ug/L	1.00	49.0	50.0(50.0)	98.0	75 - 125
Lead	ug/L	1.00	45.5	50.0(50.0)	91.0	75 - 125
Manganese	ug/L	1.00	49.9	53.9(50.0)	91.9	75 - 125
Molybdenum	ug/L	1.00	74.3	72.7(50.0)	103	75 - 125

Matrix Spike Duplicate Lab ID = 815025-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	1.00	50.3	50.6(50.0)	99.4	75 - 125
Barium	ug/L	1.00	61.3	62.9(50.0)	96.8	75 - 125
Chromium	ug/L	1.00	46.4	50.0(50.0)	92.7	75 - 125
Nickel	ug/L	1.00	46.6	52.0(50.0)	89.2	75 - 125
Antimony	ug/L	1.00	48.7	50.0(50.0)	97.4	75 - 125
Lead	ug/L	1.00	44.4	50.0(50.0)	88.8	75 - 125
Manganese	ug/L	1.00	50.1	53.9(50.0)	92.4	75 - 125
Molybdenum	ug/L	1.00	76.7	72.7(50.0)	108	75 - 125

Total Dissolved Solids by SM 2540 C

Batch 1408199

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815027-001 Total Dissolved Solids	mg/L	08/19/2014	1.00	1.76	250	4300

Method Blank

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

Duplicate

Lab ID = 815037-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	2740	2500	9.30	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Dissolved Solids	mg/L	1.00	466	500	93.2	90 - 110

Turbidity by SM 2130 B

Batch 1408292

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815027-001 Turbidity	NTU	08/19/2014	1.00	0.0140	0.100	0.138

Method Blank

Parameter	Unit	DF	Result
Turbidity	NTU	1.00	ND

Duplicate

Lab ID = 815027-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Turbidity	NTU	1.00	0.113	0.138	19.9	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	7.90	8.00	98.8	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	7.80	8.00	97.5	90 - 110

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

Truesdail Laboratories, Inc.

Total Dissolved Solids by SM 2540 C

Calculations

Batch: 1408199
Date Analyzed: 8/19/2014

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	51.4354	51.4354	51.4354	0.0000	No	0.0000	0.0	25.0	ND	1
14H0188-01D	100	68.7173	68.7752	68.7750	0.0002	No	0.0577	577.0	25.0	577.0	1
14H0188-02	100	74.6328	74.6835	74.6835	0.0000	No	0.0507	507.0	25.0	507.0	1
14H0189-01C	100	75.4037	75.4527	75.4523	0.0004	No	0.0486	486.0	25.0	486.0	1
14H0189-02	100	78.7868	78.8265	78.8263	0.0002	No	0.0395	395.0	25.0	395.0	1
14H0189-03	100	69.7900	69.8401	69.8401	0.0000	No	0.0501	501.0	25.0	501.0	1
14H0189-04	100	71.3137	71.3621	71.3617	0.0004	No	0.0480	480.0	25.0	480.0	1
14H0237-01D	100	77.5024	77.5514	77.5514	0.0000	No	0.0490	490.0	25.0	490.0	1
14H0237-02	100	74.5846	74.6339	74.6339	0.0000	No	0.0493	493.0	25.0	493.0	1
14H0243-01A	10	30.0505	30.0936	30.0935	0.0001	No	0.0430	4300.0	250.0	4300.0	1
14H0255-02A	25	79.8393	79.9017	79.9017	0.0000	No	0.0624	2496.0	100.0	2496.0	1
14H0255-02 Dup	25	77.9214	77.9901	77.9900	0.0001	No	0.0686	2744.0	100.0	2744.0	1
LCS	100	74.4525	74.4991	74.4991	0.0000	No	0.0466	466.0	25.0	466.0	1

Calculation as follows:

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

Where:

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

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

Laboratory Control Sample (LCS) Summary

QC Std I.D.	Measurd Value, ppm	Theoretical Value, ppm	Percent Rec	Acceptance Limit	QC Within Control?
LCS	466.0	500	**93.2%**	90-110%	**Yes**
LCSD					

LCS Recovery

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

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

Duplicate Determinations Difference Summary

Lab Number	Sample Weight, g	Sample Dup Weight, g	% RPD	Acceptance Limit	QC Within Control?
14H0255-02	0.0624	0.0686	**4.7%**	≤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

Total Dissolved Solids by SM 2540 C

TDS/EC CHECK

Batch: 1408199
Date Analyzed: 8/19/2014

Laboratory Number	EC	TDS/EC Ratio: 0.55-0.90	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
14H0188-01D	971	0.59	631.15	0.91
14H0188-02	840	0.60	546	0.93
14H0189-01C	681	0.71	442.65	1.10
14H0189-02	679	0.58	441.35	0.89
14H0189-03	882	0.57	573.3	0.87
14H0189-04	870	0.55	565.5	0.85
14H0237-01D	975	0.50	633.75	0.77
14H0237-02	861	0.57	559.65	0.88
14H0243-01A	7360	0.58	4784	0.90
14H0255-02A				
14H0255-02 Dup				
LCS				

815027 / 14H0243

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

CHAIN OF COUNTRY RECORD

[IM3Plant-WDR-~~[illegible]~~] 481

COC Number
TURNAROUND TIME 10 Days
DATE ~~[illegible]~~ 08/18/14 PAGE 1 OF 1

SPD SPD

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

SPD

SAMPLE I.D.	DATE	TIME	DESCRIPTION	Cr6 (218.6) Lab Filtered	Total Metals (200.8) Cr, Mn	Specific Conductance (120.1)	TDS (SM2540C)	Turbidity (SM2130)	NUMBER OF CONTAINERS	COMMENTS
~~SC-700B-WDR-[illegible]~~	~~[illegible]~~		Water	x	x	x	x	x	3	pH=6
SC-700B-WDR-481	08/18/14									TOTAL NUMBER OF CONTAINERS

Please Provide a preliminary Result for the TDS ASAP

Please make the sample ID and date corrections above.

8/27/2014

ALERT !!
Level III QC

CHAIN OF CUSTODY SIGNATURE RECORD

Signature (Relinquished)	Printed Name Ryan Phelps	Company/ Agency CH2MHILL	Date/ Time 8-18-14 14:25
Signature (Received) Thanh Ngo	Printed Name THANH NGO	Company/ Agency TRUESDAIL	Date/ Time 8-18-14 1425
Signature (Relinquished) Thanh Ngo	Printed Name THANH NGO	Company/ Agency	Date/ Time 8-18-14 1840
Signature (Received) Michael Ngo	Printed Name Michael Ngo	Company/ Agency TLI	Date/ Time 8/18/14 6:45PM
Signature (Relinquished)	Printed Name	Company/ Agency	Date/ Time
Signature (Received)	Printed Name	Company/ Agency	Date/ Time

SAMPLE CONDITIONS
RECEIVED COOL ☑ WARM ☐ 4.1 °C°F
CUSTODY SEALED YES ☐ NO ☐
SPECIAL REQUIREMENTS:

815027 / 14H0243

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-480]

COC Number
TURNAROUND TIME 10 Days
DATE 08/12/14 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 (200.8) Cr, Mn	Specific Conductance (120.1)	TDS (SM2540C)		Turbidity (SM2130)									NUMBER OF CONTAINERS	COMMENTS
SC-700B-WDR-480	08/12/14		Water	x	x	x	x		x									3	pH=6
																			TOTAL NUMBER OF CONTAINERS

Please Provide a preliminary Result for the TDS ASAP

ALERT !!
Level III QC

CHAIN OF CUSTODY SIGNATURE RECORD

Signature (Relinquished)	Printed Name Ryan Phelps	Company/ Agency CH2MHill	Date/ Time 8-18-14 14:25
Signature (Received) Thanh Ngo	Printed Name THANH NGO	Company/ Agency TRUESDAIL	Date/ Time 8-18-14 1425
Signature (Relinquished) Thanh Ngo	Printed Name THANH NGO	Company/ Agency	Date/ Time 8-18-14 1840
Signature (Received) Michael Ngo	Printed Name Michael Ngo	Company/ Agency TLI	Date/ Time 8/18/14 6:45PM
Signature (Relinquished)	Printed Name	Company/ Agency	Date/ Time
Signature (Received)	Printed Name	Company/ Agency	Date/ Time

SAMPLE CONDITIONS
RECEIVED COOL ☑ WARM ☐ 4.1 °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
7/16/14	14G0250-5	7.00	2ml/100ml	9.5	7:40	NE
7/18/14	14G0260-20				8:00	NE
↓	↓ -24	↓	↓	↓	↓	↓
7/23/14	14G0325-01	7.00	2ml/100ml	9.5	7:40	NE
7/30/14	14G0423-01	7.00	2ml/100ml	9.5	7:30	NE
8/6/14	14H0053-01	7.00	2ml/100ml	9.5	8:00	NE
	↓ -02					
	14H0054-1					
↓	↓ -2	↓	↓	↓	↓	↓
8/7/14	14H0105-1	7.00	2ml/100ml	9.5	16:00	NE
8/11/14	14H0138-01	↓	↓	↓	15:00	NE
8/12/14	14H0156-01	7.00	2ml/100ml	9.5	16:00	NE
↓	↓ -02	↓	↓	↓	↓	↓
8/13/14	14H0174-01	7.00	2ml/100ml	9.5	7:40	NE
8/18/14	14H0238-1	7.00	25ml/.5ml	9.5	7:10	NE
8/18/14	↓ -2	↓	↓	↓	↓	↓
8/19/14	14H0243-1	7.00	100ml/2ml	9.5	7:10	NE
8/21/14	14H0305-01					
↓	↓ -02	↓	↓	↓	↓	↓
8/21/14	14H0319-01	7.00	.5ml/25ml	9.5	15:00	NE
↓	↓ -02	↓	↓	↓	↓	↓

8/22/14 NE

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

reviewed 7/24/14

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
14H0093(1-3)	<1	>2	8/7/14	ES	NO	2:00	ES 8/8/14 8/8/14 ~~2:00~~ 10:00	pH <2
14H0102-01	>1	<2	8/11/14	KD	Yes			
14H0110-01	>1	<2	↓	↓	↓			
14H0111-02	↓	↓	↓	↓	↓			
14H0119-01	↓	↓	↓	↓	↓			
14H0120-01	<1	↓	↓	↓	↓			
14H0121-01	<1	↓	↓	↓	↓			
14H0122-01	<1	↓	↓	↓	↓			
KD 8/11/14 14H0126-01	>1	↓	↓	↓	↓			
14H0130-01	↓	↓	↓	↓	↓			
14H0131-01	↓	↓	↓	↓	↓			
14H0132-01	↓	↓	↓	↓	↓			
14H0133-01	<1 8/11/14	>2	↓	↓	NO	3:30pm		
14H0136-(1-2)	↓	↓	↓	↓	Yes			
14H0101-(17,24)	<1	>2	8/11/14	KD	NO	3:30pm		
14H0156-01	>1	<2	8/13/14	KD	KD 8/13/14 ~~NO~~ Yes			
14H0158-01	↓	↓	↓	↓	↓			
14H0161-02	↓	↓	↓	↓	↓			
14H0162-02	↓	↓	↓	↓	↓			
14H0168-02	↓	↓	↓	↓	↓			
14H0169-02	↓	↓	↓	↓	↓			
14H0170-02	↓	↓	↓	↓	↓			
14H0171-02	↓	↓	↓	↓	↓			
14H0188-(01-02)	>1	<2	8/15/14	KD	Yes			
14H0213-01								
14H0214-01								
14H0215-01								
14H0216-01								
14H0217-01								
14H0218-02								
14H0227-01								
14H0093(1-3)	<1	>2	8/18/14	ES	NO	9:00	8/19/14 @ 10:00	pH <2
14H0143-6	↓	↓	↓	↓	↓	↓	↓	↓
14H0166(1-3)	↓	↓	↓	↓	↓	↓	↓	↓
14H0167(1-2)	↓	↓	↓	↓	↓	↓	↓	↓
14H0187(10-12)	↓	↓	↓	↓	↓	↓	↓	↓
14H0054(1-2)	<1	>2	8/20/14	ES	Yes	10:00		pH <2
14H0174-01	↓	↓	↓	↓	↓	↓		↓
14H0243-01	↓	↓	↓	↓	↓	↓		↓
14H0054-2	↓	↓	↓	↓	↓	11:00		Filtered then acidi
14H0053(1-2)	↓	↓	↓	↓	↓	↓		↓
14H0269-0	>1	>2	8/20/14	ES	Yes	11:00		
14H0233-01	<1	<2	↓	↓	↓	↓		
14H0234-01	↓	↓	↓	↓	↓	↓		

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

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING
Established 1931

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

September 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-482 PROJECT, GROUNDWATER MONITORING, TLI NO.: 815028

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-482 project groundwater monitoring for Hexavalent and Total Chromium, Total Manganese, Turbidity, Specific Conductivity, and Total Dissolved Solids. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, quality control data and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data have been included under Section 5.

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

Sample SC-700B-WDR-482 was analyzed as sample I.D. 14H0335 in the raw data but is reported as 815028 in all final report pages.

The straight runs for the sample and associated matrix spike on sample SC-700B-WDR-482 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: One (1) Groundwater Sample
Project Name: PG&E Topock Project
Project No.: 428648.IM.CS.EX.AC

Laboratory No.: **815028**
Date: September 11, 2014
Collected: August 22, 2014
Received: August 22, 2014

ANALYST LIST

METHOD	PARAMETER	ANALYST
EPA 120.1	Specific Conductivity	Jenny Tankunakorn
SM 2540C	Total Dissolved Solids	Jenny Tankunakorn
SM 2130B	Turbidity	Maksim Gorbunov
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.: 815028
Date Received: August 22, 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
815028-001	SC-700B-WDR-482	E120.1	NONE	8/22/2014	15:00	EC	7470	umhos/cm	2.00
815028-001	SC-700B-WDR-482	E200.8	NONE	8/22/2014	15:00	Chromium	1.1	ug/L	1.0
815028-001	SC-700B-WDR-482	E200.8	NONE	8/22/2014	15:00	Manganese	11.2	ug/L	1.0
815028-001	SC-700B-WDR-482	E218.6	LABFLT	8/22/2014	15:00	Chromium, Hexavalent	0.82	ug/L	0.20
815028-001	SC-700B-WDR-482	SM2130B	NONE	8/22/2014	15:00	Turbidity	ND	NTU	0.100
815028-001	SC-700B-WDR-482	SM2540C	NONE	8/22/2014	15:00	Total Dissolved Solids	4580	mg/L	250

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

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REPORT

Client: **E2 Consulting Engineers, Inc.**
155 Grand Avenue, Suite 800
Oakland, CA 94612
Attention: Shawn Duffy
Project Name: PG&E Topock Project
Project Number: 428648.IM.CS.EX.AC
P.O. Number: PGEIM1111100'
Release Number:

Laboratory No. 815028
Page 1 of 8
Printed 9/11/2014

Samples Received on 8/22/2014 8:25:00 PM

Field ID	Lab ID	Collected	Matrix
SC-700B-WDR-482	815028-001	08/22/2014 15:00	Water

Specific Conductivity - EPA 120.1

Batch 1408328

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815028-001 Specific Conductivity	umhos/cm	08/25/2014	1.00	0.606	2.00	7470

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate

Lab ID = 815035-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	876	875	0.114	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	732	706	104	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	732	706	104	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	995	1000	99.5	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	995	1000	99.5	90 - 110

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 1408458

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815028-001 Chromium, Hexavalent	ug/L	08/29/2014 10:58	1.00	0.00600	0.20	0.82

Method Blank

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

Duplicate

Lab ID = 815033-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	0.222	0.206	7.25	0 - 20

Low Level Calibration Verification

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

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.16	5.00	103	90 - 110

Matrix Spike

Lab ID = 815028-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.76	5.82(5.00)	98.8	90 - 110

Matrix Spike

Lab ID = 815028-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.81	1.82(1.00)	99.1	90 - 110

Matrix Spike

Lab ID = 815033-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.22	1.20(1.00)	102	90 - 110

Matrix Spike

Lab ID = 815033-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.04	5.21(5.00)	96.8	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.16	5.00	103	90 - 110

MRCVS - Primary

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

Client: E2 Consulting Engineers, Inc.

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

Printed 9/11/2014

Metals by EPA 200.8, Total

Batch 090414C

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815028-001 Manganese	ug/L	09/04/2014 19:01	2.00	0.120	1.0	11.2

Method Blank

Parameter	Unit	DF	Result
Manganese	ug/L	1.00	ND

Duplicate

Lab ID = 815039-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Manganese	ug/L	2.00	17.5	17.0	2.87	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	0.357	0.500	71.4	70 - 130

Lab Control Sample

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

Matrix Spike

Lab ID = 815039-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Manganese	ug/L	2.00	65.2	67.0(50.0)	96.3	75 - 125

Matrix Spike Duplicate

Lab ID = 815039-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Manganese	ug/L	2.00	67.2	67.0(50.0)	100	75 - 125

MRCCS - Secondary

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

MRCVS - Primary

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

MRCVS - Primary

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

Interference Check Standard A

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

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 090514B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815028-001 Chromium	ug/L	09/05/2014 18:04	2.00	0.142	1.0	1.1

Method Blank

Parameter	Unit	DF	Result
Chromium	ug/L	1.00	ND

Duplicate

Lab ID = 815039-001

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

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.223	0.200	111	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

Matrix Spike

Lab ID = 815039-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	47.8	50.0(50.0)	95.7	75 - 125

Matrix Spike Duplicate

Lab ID = 815039-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	48.0	50.0(50.0)	96.0	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.7	20.0	98.3	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	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	19.5	20.0	97.4	90 - 110

Interference Check Standard A

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

Interference Check Standard A

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

Interference Check Standard AB

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

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.9	20.0	99.6	80 - 120

Serial Dilution Lab ID = 815039-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	50.0	600	640	6.42	0 - 10

Total Dissolved Solids by SM 2540 C

Batch 1408330

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815028-001 Total Dissolved Solids	mg/L	08/27/2014	1.00	1.76	250	4580

Method Blank

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

Duplicate Lab ID = 815028-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	4540	4580	0.877	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Dissolved Solids	mg/L	1.00	502	500	100	90 - 110

Client: E2 Consulting Engineers, Inc.

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

Turbidity by SM 2130 B

Batch 1408350

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815028-001 Turbidity	NTU	08/23/2014	1.00	0.0140	0.100	ND

Method Blank

Parameter	Unit	DF	Result
Turbidity	NTU	1.00	ND

Duplicate

Lab ID = 815028-001

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

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	7.87	8.00	98.4	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	8.02	8.00	100	90 - 110

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

fo - Mona Nassimi
Manager, Analytical Services

Total Dissolved Solids by SM 2540 C

Calculations

Batch: 1408330
Date Analyzed: 8/27/2014

Laboratory Number	Sample volume, mL	Initial weight, g	1st Final weight, g	2nd Final weight, g	Weight Difference, g	Exceeds 0.5mg? Yes/No	Residue weight, g	Filterable residue, ppm	RL, ppm	Reported Value, ppm	DF
Blank	100	67.4976	67.4978	67.4978	0.0000	No	0.0002	2.0	25.0	ND	1
14H0295-01C	100	80.8481	80.8966	80.8963	0.0003	No	0.0482	482.0	25.0	482.0	1
14H0295-02	100	78.2345	78.2824	78.2822	0.0002	No	0.0477	477.0	25.0	477.0	1
14H0295-03	100	66.7496	66.7983	66.7983	0.0000	No	0.0487	487.0	25.0	487.0	1
14H0295-04	100	77.0584	77.1062	77.1062	0.0000	No	0.0478	478.0	25.0	478.0	1
14H0296-01D	100	78.8971	78.9497	78.9497	0.0000	No	0.0526	526.0	25.0	526.0	1
14H0296-02	100	65.5202	65.5714	65.5713	0.0001	No	0.0511	511.0	25.0	511.0	1
14H0332-01B	475	168.6193	168.6245	168.6245	0.0000	No	0.0052	10.9	5.3	10.9	1
14H0334-01	480	174.7829	174.7887	174.7887	0.0000	No	0.0058	12.1	5.2	12.1	1
14H0334-02	500	173.1619	173.1641	173.1641	0.0000	No	0.0022	4.4	5.0	ND	1
14H0335-01A	10	30.5215	30.5678	30.5673	0.0005	No	0.0458	4580.0	250.0	4580.0	1
14H0335-01 Dup	10	30.4202	30.4660	30.4656	0.0004	No	0.0454	4540.0	250.0	4540.0	1
LCS	100	71.2893	71.3399	71.3395	0.0004	No	0.0502	502.0	25.0	502.0	1
14H0342-01D	100	67.7985	67.8484	67.8481	0.0003	No	0.0496	496.0	25.0	496.0	1
14H0342-02	100	62.6135	62.6637	62.6636	0.0001	No	0.0501	501.0	25.0	501.0	1
14H0376-01A	10	28.8333	28.8763	28.8762	0.0001	No	0.0429	4290.0	250.0	4290.0	1
14H0376-01 Dup	10	29.4836	29.5269	29.5265	0.0004	No	0.0429	4290.0	250.0	4290.0	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	502.0	500	**100.4%**	90-110%	Yes
LCSD					

LCS Recovery

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

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

Duplicate Determinations Difference Summary

Lab Number	Sample Weight, g	Sample Dup Weight, g	% RPD	Acceptance Limit	QC Within Control?
14H0335-01	0.0458	0.0454	**0.4%**	≤5%	Yes
14H0376-01	0.0429	0.0429	**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: 1408330
Date Analyzed: 8/27/2014

Laboratory Number	EC	TDS/EC Ratio: 0.55-0.90	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
14H0295-01C	863	0.56	560.95	0.86
14H0295-02	862	0.55	560.3	0.85
14H0295-03	862	0.56	560.3	0.87
14H0295-04	845	0.57	549.25	0.87
14H0296-01D	892	0.59	579.8	0.91
14H0296-02	875	0.58	568.75	0.90
14H0332-01B	21.3	0.51	13.845	0.79
14H0334-01	15.21	0.79	9.8865	1.22
14H0334-02	1.44	ND	0.936	ND
14H0335-01A	7470	0.61	4855.5	0.94
14H0335-01 Dup	7470	0.61	4855.5	0.94
LCS				
14H0342-01D	891	0.56	579.15	0.86
14H0342-02	836	0.60	543.4	0.92
14H0376-01A	7290	0.59	4738.5	0.91
14H0376-01 Dup	7290	0.59	4738.5	0.91

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

[IM3Plant-WDR-482]

815028/ 14H0335
COC Number
TURNAROUND TIME 10 Days
DATE 08/22/14 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 (200.8) Cr, Mn	Specific Conductance (120.1)	TDS (SM2540C)		Turbidity (SM2130)	NUMBER OF CONTAINERS	COMMENTS
SC-700B-WDR-482	08/22/14	1500	Water	x	x	x	x		x	3	pH = 6 (200.8)
										3	TOTAL NUMBER OF CONTAINERS

Please Provide a preliminary Result for the TDS ASAP

ALERT !!
Level III QC

CHAIN OF CUSTODY SIGNATURE RECORD

Signature (Relinquished) Josh Rosenberg	Printed Name Josh Rosenberg	Company/ Agency E2	Date/ Time 8-22-14/1620
Signature (Received) Thanh Ngo	Printed Name THANH NGO	Company/ Agency TRUESDAIL	Date/ Time 8-22-14 1620
Signature (Relinquished) Thanh Ngo	Printed Name THANH NGO	Company/ Agency	Date/ Time 8-22-14 2025
Signature (Received) Michael Ngo	Printed Name Michael Ngo	Company/ Agency TLI	Date/ Time 8/22/14 20:25
Signature (Relinquished)	Printed Name	Company/ Agency	Date/ Time
Signature (Received)	Printed Name	Company/ Agency	Date/ Time

SAMPLE CONDITIONS
RECEIVED COOL ☑ WARM ☐ 4.0 °C
CUSTODY SEALED YES ☐ NO ☐

SPECIAL REQUIREMENTS:

Hexavalent Chromium

Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
7/16/14	14G0250-5	7.00	2ml/100ml	9.5	7:40	NE
7/18/14	14G0260-20	↓	↓	↓	8:00	NE
↓	↓ -24	↓	↓	↓	↓	↓
7/23/14	14G0325-01	7.00	2ml/100ml	9.5	7:40	NE
7/30/14	14G0423-01	7.00	2ml/100ml	9.5	7:30	NE
8/6/14	14H0053-01	7.00	2ml/100ml	9.5	8:00	NE
↓	↓ -02	↓	↓	↓	↓	↓
↓	14H0054-1	↓	↓	↓	↓	↓
↓	↓ -2	↓	↓	↓	↓	↓
8/7/14	14H0105-1	7.00	2ml/100ml	9.5	16:00	NE
8/11/14	14H0138-01	↓	↓	↓	15:00	NE
8/12/14	14H0156-01	7.00	2ml/100ml	9.5	16:00	NR
↓	↓ -02	↓	↓	↓	↓	↓
8/13/14	14H0174-01	7.00	2ml/100ml	9.5	7:40	NE
8/18/14	14H0238-1	7.00	25ml/.5ml	9.5	7:10	NE
8/18/14	↓ -2	↓	↓	↓	↓	↓
8/19/14	14H0243-1	7.00	100ml/2ml	9.5	7:10	NE
8/21/14	14H0305-01	↓	↓	↓	↓	↓
↓	↓ -02	↓	↓	↓	↓	↓
8/21/14	14H0319-01	7.00	.5ml/25ml	9.5	15:00	NE
↓	↓ -02	↓	↓	↓	↓	↓
8/23/14	14H0335-01	7.00	2ml/100ml	9.5	11:10	MAKSim
8/26/14	14H0347-1	7.00	.5ml/25ml	9.5	8:30	NE
↓	↓ -2	↓	↓	↓	↓	↓
↓	↓ -3	↓	↓	↓	↓	↓
↓	↓ -4	↓	↓	↓	↓	↓
8/27/14	14H0376d	7.00	2ml/100ml	9.5	7:30	NE
8/28/14	14H0391-01	↓	.5ml/25ml	9.5	7:10	NE
↓	14H0398-01	↓	↓	↓	↓	↓
↓	↓ -02	↓	↓	↓	↓	↓
8/28/14	14H0415-01	7.00	.5ml/25ml	9.5	16:00	NE

9/2/14 NE

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

reviewed 7/24/14

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
14H0375-01	<1	>2	9/3/14	ES	Yes	1:00		
14H0376-01								
TOTAL 14I0024 (01-02)								
14I0023 (01-02)								Filtered then acidify
Dissolve 14I0024-02	↓	↓	↓	↓	↓	↓		↓
14I0085-(10-12)	<1	>2	9/5/14	TM	No	11:30	9/9/14 @ 10:00	pH <2,
14I0088-(01-04)	<1	>2					↓	
14I0089-(17-24)	<1	>2	↓	↓	↓	↓		↓
14I0040-(04-06)	<1	>2	9/5/14	TM	No	2:10pm		
14I0039-02	>1	<2			Yes	N/A		
14I0041-01		<2						
14I0043-02								
14I0044-02								
14I0045-02								
14I0046-02								
14I0050-(01-02)								
14I0052-02								
14I0059-01								
14I0075-02	↓	↓	↓	↓	↓			
14I0083-04								
14I0090-01								
14I0091-01	↓	↓	↓	↓	↓	↓		
14I0072-01	>1	<2	9/9/14	TM	Yes	N/A		
14I0093-01	>1	<2						
14I0114-01								
14I0117-(01,-02)	↓	↓			↓			
~~14I0123-06~~	~~<1~~	~~>2~~			~~No~~		TM 9/10/14	
~~14I0126-01~~	~~>1~~						TM 9/10/14	
14I0127-02		<2			Yes			
14I0128-02								
14I0129-02								
14I0130-01	↓	↓	↓	↓	↓			
14I0123-06	<1	>2	9/10/14	TM	No	11:25		
14I0126-01	>1	>2	↓		Yes	11:30		
14I0095-01	>1	<2			Yes			
14I0134-01	>1	<2						
14I0137-01	>1	TM 9/10/14 ~~<2~~ >2				11:40 Dig		
14I0145-02	>1	<2						
14I0147-02	>1	<2						
14I0148-02	>1	<2						
14I0149-02	>1	<2	↓	↓	↓			
14I0140(1-2)	<1	>2	9/10/14	ES	NO	1:00		
14I0144 (1-4)								
14I0152 (1-3)	↓	↓	↓	↓	↓	↓		

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

043

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING
Established 1931
14201 FRANKLIN AVENUE
TUSTIN, CALIFORNIA 92780-7008
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www.truesdail.com

September 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-483 Project, Groundwater Monitoring, TLI No.: 815033

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-483 project groundwater monitoring for Hexavalent and Total Chromium, Total Manganese, Turbidity, Specific Conductivity, and Total Dissolved Solids. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, quality control data and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data have been included under Section 5.

The samples were received and delivered with the chain of custody on August 26, 2014, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

Sample SC-700B-WDR-483 was analyzed as sample I.D. 14H0376 in the raw data but is reported as 815033 in all final report pages.

The straight runs for the sample and associated matrix spike on sample SC-700B-WDR-483 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
Michael Ngo
Quality Assurance/Quality Control Officer

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.: 815033
Date: September 11, 2014
Collected: August 26, 2014
Received: August 26, 2014

ANALYST LIST

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

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

Laboratory No.: 815033
Date Received: August 26, 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
815033-001	SC-700B-WDR-483	E120.1	NONE	8/26/2014	14:00	EC	7290	umhos/cm	2.00
815033-001	SC-700B-WDR-483	E200.8	NONE	8/26/2014	14:00	Chromium	ND	ug/L	1.0
815033-001	SC-700B-WDR-483	E200.8	NONE	8/26/2014	14:00	Manganese	1.1	ug/L	1.0
815033-001	SC-700B-WDR-483	E218.6	NONE	8/26/2014	14:00	Chromium, Hexavalent	0.20	ug/L	0.20
815033-001	SC-700B-WDR-483	SM2130B	NONE	8/26/2014	14:00	Turbidity	0.116	NTU	0.100
815033-001	SC-700B-WDR-483	SM2540C	NONE	8/26/2014	14:00	Total Dissolved Solids	4290	mg/L	250

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

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REPORT

Client: **E2 Consulting Engineers, Inc.**
155 Grand Avenue, Suite 800
Oakland, CA 94612
Attention: Shawn Duffy
Project Name: PG&E Topock Project
Project Number: 428648.IM.CS.EX.AC
P.O. Number: PGEIM1111100
Release Number:

Laboratory No. 815033
Page 1 of 8
Printed 9/11/2014

Samples Received on 8/26/2014 7:10:00 PM

Field ID	Lab ID	Collected	Matrix
SC-700B-WDR-483	815033-001	08/26/2014 14:00	Water

Specific Conductivity - EPA 120.1

Batch 1408426

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815033-001 Specific Conductivity	umhos/cm	08/29/2014	1.00	0.606	2.00	7290

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate

Lab ID = 815040-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	933	952	2.02	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	711	706	101	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	711	706	101	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	936	1000	93.6	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	936	1000	93.6	90 - 110

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 1408458

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815033-001 Chromium, Hexavalent	ug/L	08/29/2014 12:34	1.00	0.00600	0.20	0.20

Method Blank

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

Duplicate — Lab ID = 815033-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	0.222	0.206	7.25	0 - 20

Low Level Calibration Verification

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

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.16	5.00	103	90 - 110

Matrix Spike — Lab ID = 815028-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.76	5.82(5.00)	98.8	90 - 110

Matrix Spike — Lab ID = 815028-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.81	1.82(1.00)	99.1	90 - 110

Matrix Spike — Lab ID = 815033-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.22	1.20(1.00)	102	90 - 110

Matrix Spike — Lab ID = 815033-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.04	5.21(5.00)	96.8	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.16	5.00	103	90 - 110

MRCVS - Primary

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

Metals by EPA 200.8, Total

Batch 090414C

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815033-001 Manganese	ug/L	09/04/2014 19:08	2.00	0.120	1.0	1.1

Method Blank

Parameter	Unit	DF	Result
Manganese	ug/L	1.00	ND

Duplicate

Lab ID = 815039-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Manganese	ug/L	2.00	17.5	17.0	2.87	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	0.357	0.500	71.4	70 - 130

Lab Control Sample

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

Matrix Spike

Lab ID = 815039-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Manganese	ug/L	2.00	65.2	67.0(50.0)	96.3	75 - 125

Matrix Spike Duplicate

Lab ID = 815039-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Manganese	ug/L	2.00	67.2	67.0(50.0)	100	75 - 125

MRCCS - Secondary

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

MRCVS - Primary

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

MRCVS - Primary

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

Interference Check Standard A

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

Metals by EPA 200.8, Total

Batch 090514B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815033-001 Chromium	ug/L	09/05/2014 18:11	2.00	0.142	1.0	ND

Method Blank

Parameter	Unit	DF	Result
Chromium	ug/L	1.00	ND

Duplicate Lab ID = 815039-001

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

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.223	0.200	111	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

Matrix Spike Lab ID = 815039-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	47.8	50.0(50.0)	95.7	75 - 125

Matrix Spike Duplicate Lab ID = 815039-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	48.0	50.0(50.0)	96.0	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.7	20.0	98.3	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	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	19.5	20.0	97.4	90 - 110

Interference Check Standard A

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

Interference Check Standard A

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

Interference Check Standard AB

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

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.9	20.0	99.6	80 - 120

Serial Dilution Lab ID = 815039-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	50.0	600	640	6.42	0 - 10

Total Dissolved Solids by SM 2540 C

Batch 1408330

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815033-001 Total Dissolved Solids	mg/L	08/27/2014	1.00	1.76	250	4290

Method Blank

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

Duplicate Lab ID = 815028-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	4540	4580	0.877	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Dissolved Solids	mg/L	1.00	502	500	100	90 - 110

Turbidity by SM 2130 B Batch 1408405

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815033-001 Turbidity	NTU	08/27/2014	1.00	0.0140	0.100	0.116

Method Blank

Parameter	Unit	DF	Result
Turbidity	NTU	1.00	ND

Duplicate Lab ID = 815041-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Turbidity	NTU	1.00	0.175	0.168	4.08	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	7.55	8.00	94.4	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	7.67	8.00	95.9	90 - 110

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

fo Mona Nassimi
Manager, Analytical Services

Truesdail Laboratories, Inc.

Total Dissolved Solids by SM 2540 C

Calculations

Batch: 1408330
Date Analyzed: 8/27/2014

Laboratory Number	Sample volume, mL	Initial weight, g	1st Final weight, g	2nd Final weight, g	Weight Difference, g	Exceeds 0.5mg? Yes/No	Residue weight, g	Filterable residue, ppm	RL, ppm	Reported Value, ppm	DF
Blank	100	67.4976	67.4978	67.4978	0.0000	No	0.0002	2.0	25.0	ND	1
14H0295-01C	100	80.8481	80.8966	80.8963	0.0003	No	0.0482	482.0	25.0	482.0	1
14H0295-02	100	78.2345	78.2824	78.2822	0.0002	No	0.0477	477.0	25.0	477.0	1
14H0295-03	100	66.7496	66.7983	66.7983	0.0000	No	0.0487	487.0	25.0	487.0	1
14H0295-04	100	77.0584	77.1062	77.1062	0.0000	No	0.0478	478.0	25.0	478.0	1
14H0296-01D	100	78.8971	78.9497	78.9497	0.0000	No	0.0526	526.0	25.0	526.0	1
14H0296-02	100	65.5202	65.5714	65.5713	0.0001	No	0.0511	511.0	25.0	511.0	1
14H0332-01B	475	168.6193	168.6245	168.6245	0.0000	No	0.0052	10.9	5.3	10.9	1
14H0334-01	480	174.7829	174.7887	174.7887	0.0000	No	0.0058	12.1	5.2	12.1	1
14H0334-02	500	173.1619	173.1641	173.1641	0.0000	No	0.0022	4.4	5.0	ND	1
14H0335-01A	10	30.5215	30.5678	30.5673	0.0005	No	0.0458	4580.0	250.0	4580.0	1
14H0335-01 Du	10	30.4202	30.4660	30.4656	0.0004	No	0.0454	4540.0	250.0	4540.0	1
LCS	100	71.2893	71.3399	71.3395	0.0004	No	0.0502	502.0	25.0	502.0	1
14H0342-01D	100	67.7985	67.8484	67.8481	0.0003	No	0.0496	496.0	25.0	496.0	1
14H0342-02	100	62.6135	62.6637	62.6636	0.0001	No	0.0501	501.0	25.0	501.0	1
14H0376-01A	10	28.8333	28.8763	28.8762	0.0001	No	0.0429	4290.0	250.0	4290.0	1
14H0376-01 Du	10	29.4836	29.5269	29.5265	0.0004	No	0.0429	4290.0	250.0	4290.0	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	502.0	500	**100.4%**	90-110%	Yes
LCSD					

LCS Recovery

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

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

Duplicate Determinations Difference Summary

Lab Number	Sample Weight, g	Sample Dup Weight, g	% RPD	Acceptance Limit	QC Within Control?
14H0335-01	0.0458	0.0454	**0.4%**	≤5%	Yes
14H0376-01	0.0429	0.0429	**0.0%**	≤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: 1408330
Date Analyzed: 8/27/2014

Laboratory Number	EC	TDS/EC Ratio: 0.55-0.90	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
14H0295-01C	863	0.56	560.95	0.86
14H0295-02	862	0.55	560.3	0.85
14H0295-03	862	0.56	560.3	0.87
14H0295-04	845	0.57	549.25	0.87
14H0296-01D	892	0.59	579.8	0.91
14H0296-02	875	0.58	568.75	0.90
14H0332-01B	21.3	0.51	13.845	0.79
14H0334-01	15.21	0.79	9.8865	1.22
14H0334-02	1.44	ND	0.936	ND
14H0335-01A	7470	0.61	4855.5	0.94
14H0335-01 Dup	7470	0.61	4855.5	0.94
LCS				
14H0342-01D	891	0.56	579.15	0.86
14H0342-02	836	0.60	543.4	0.92
14H0376-01A	7290	0.59	4738.5	0.91
14H0376-01 Dup	7290	0.59	4738.5	0.91

815033/
14H0376

TRUESDAIL LABORATORIES, INC.
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(714)730-6239 FAX: (714) 730-6462
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CHAIN OF CUSTODY RECORD

[IM3Plant-WDR-483]

COC Number 14H0376
TURNAROUND TIME 10 Days
DATE 08/26/14 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 Lu

SAMPLE I.D.	DATE	TIME	DESCRIPTION	Cr6 (218.6) Lab Filtered	Total Metals (200.8) Cr, Mn	Specific Conductance (120.1)	TDS (SM2540C)		Turbidity (SM2130)									NUMBER OF CONTAINERS	COMMENTS
SC-700B-WDR-483	08/26/14	1400	Water	x	x	x	x		x									3	DU = 6(200.8)
																			TOTAL NUMBER OF CONTAINERS

Please Provide a preliminary Result for the TDS ASAP

ALERT !!
Level III QC

CHAIN OF CUSTODY SIGNATURE RECORD

Signature (Relinquished)	Chris Lu	Printed Name	CHRIS LEM	Company/ Agency	CH2MHILL	Date/ Time	8-26-14 1510
Signature (Received)	Thanh Ngo	Printed Name	THANH NGO	Company/ Agency	TRUESDAIL	Date/ Time	8-26-14 1510
Signature (Relinquished)	Thanh Ngo	Printed Name	THANH NGO	Company/ Agency		Date/ Time	8-26-14 1910
Signature (Received)	Michael Ngo	Printed Name	Michael Ngo	Company/ Agency	TLI	Date/ Time	8/26/14 19:10
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:

047

Hexavalent Chromium
Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
7/16/14	14G0250-5	7.00	2ml/100ml	9.5	7:40	NE
7/18/14	14G0260-20	↓	↓	↓	8:00	NE
↓	↓ -24	↓	↓	↓	↓	↓
7/23/14	14G0325-01	7.00	2ml/100ml	9.5	7:40	NE
7/30/14	14G0423-01	7.00	2ml/100ml	9.5	7:30	NE
8/6/14	14H0053-01	7.00	2ml/100ml	9.5	8:00	NE
↓	↓ -02	↓	↓	↓	↓	↓
↓	14H0054-1	↓	↓	↓	↓	↓
↓	↓ -2	↓	↓	↓	↓	↓
8/7/14	14H0105-1	7.00	2ml/100ml	9.5	16:00	NE
8/11/14	14H0138-01	↓	↓	↓	15:00	NE
8/12/14	14H0156-01	7.00	2ml, 100ml	9.5	16:00	NE
↓	↓ -02	↓	↓	↓	↓	↓
8/13/14	14H0174-01	7.00	2ml, 100ml	9.5	7:40	NE
8/18/14	14H0238-1	7.00	25ml/.5ml	9.5	7:10	NE
8/18/14	↓ -2	↓	↓	↓	↓	↓
8/19/14	14H0243-1	7.00	100ml/2ml	9.5	7:10	NE
8/21/14	14H0305-01	↓	↓	↓	↓	↓
↓	↓ -02	↓	↓	↓	↓	↓
8/21/14	14H0319-01	7.00	.5ml/25ml	9.5	15:00	NE
↓	↓ -02	↓	↓	↓	↓	↓
8/23/14	14H0335 01	7.00	2ml/100ml	9.5	11:10	MAKSim
8/26/14	14H0347-1	7.00	.5ml/25ml	9.5	8:30	NE
↓	↓ -2	↓	↓	↓	↓	↓
↓	↓ -3	↓	↓	↓	↓	↓
↓	↓ -4	↓	↓	↓	↓	↓
8/27/14	14H0376d	7.00	2ml, 100ml	9.5	7:30	NE
8/28/14	14H0391-01	↓	.5ml/25ml	9.5	7:10	NE
↓	14H0398-01	↓	↓	↓	↓	↓
↓	↓ -02	↓	↓	↓	↓	↓
8/28/14	14H0415-01	7.00	.5ml/25ml	9.5	16:00	NE

9/2/14 NE

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

reviewed 7/24/14

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest (Y/N)	Time of Adjustment to pH 2	Date/Time of 2nd pH check	Comments
14H0375-01	<1	>2	9/3/14	ES	Yes	1:00		
14H0376-01	↓	↓	↓	↓	↓	↓		
TOTAL 14I0024 (01-02)	↓	↓	↓	↓	↓	↓		
14I0023 (01-02)	↓	↓	↓	↓	↓	↓		Filtered then acidify
Dissolve 14I0024-02	↓	↓	↓	↓	↓	↓		↓
14I0085-(10-12)	<1	>2	9/5/14	TM	No	11:30	9/9/14 @ 10:11	pH <2,
14I0088-(01-04)	<1	>2	↓	↓	↓	↓	↓	↓
14I0089-(17-24)	<1	>2	↓	↓	↓	↓	↓	↓
14I0040-(04-06)	<1	>2	9/5/14	TM	No	2:10pm		
14I0039-02	>1	<2	↓	↓	Yes	N/A		
14I0041-01	↓	<2	↓	↓	↓	↓		
14I0043-02	↓	↓	↓	↓	↓	↓		
14I0044-02	↓	↓	↓	↓	↓	↓		
14I0045-02	↓	↓	↓	↓	↓	↓		
14I0046-02	↓	↓	↓	↓	↓	↓		
14I0050-(01-02)	↓	↓	↓	↓	↓	↓		
14I0052-02	↓	↓	↓	↓	↓	↓		
14I0059-01	↓	↓	↓	↓	↓	↓		
14I0075-02	↓	↓	↓	↓	↓	↓		
14I0083-04	↓	↓	↓	↓	↓	↓		
14I0090-01	↓	↓	↓	↓	↓	↓		
14I0091-01	↓	↓	↓	↓	↓	↓		
14I0072-01	>1	<2	9/9/14	TM	Yes	N/A		
14I0093-01	>1	<2	↓	↓	↓			
14I0114-01	↓	↓	↓	↓	↓			
14I0117-(01,-02)	↓	↓	↓	↓	↓			
~~14I0123-06~~	~~<1~~	~~>2~~	↓	↓	~~No~~		TM 9/10/14	
~~14I0126-01~~	~~>1~~		↓	↓			TM 9/10/14	
14I0127-02	↓	<2	↓	↓	Yes			
14I0128-02	↓	↓	↓	↓	↓			
14I0129-02	↓	↓	↓	↓	↓			
14I0130-01	↓	↓	↓	↓	↓			
14I0123-06	<1	>2	9/10/14	TM	No	11:25		
14I0126-01	>1	>2	↓	↓	Yes	11:30		
14I0095-01	>1	<2	↓	↓	Yes			
14I0134-01	>1	<2	↓	↓	↓			
14I0137-01	>1	TM 9/10/14 ~~<2~~ >2	↓	↓	↓	11:40 Dig		
14I0145-02	>1	<2	↓	↓	↓			
14I0147-02	>1	<2	↓	↓	↓			
14I0148-02	>1	<2	↓	↓	↓			
14I0149-02	>1	<2	↓	↓	↓			
14I0140(1-2)	<1	>2	9/10/14	ES	NO	1:00		
14I0144 (1-4)	↓	↓	↓	↓	↓	↓		
14I0152 (1-3)	↓	↓	↓	↓	↓	↓		

Notes:

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

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	8-5-14	14 40	8-5-14	14 45	METER #2	8-5-14	0422	-54.7	CHRIS LENTZ	7.2
Notes:										
SC 100B	8-5-14	14 40	8-5-14	1445	METER #2	8-5-14	04 22	-54.7	CHRIS LENTZ	7.4
Notes:										
SC-700B	8-12-14	11:45	8-12-14	11:50	Meter #2	8-12-14	04:17	-54.9	Cameron Stone	6.9
Notes:										
SC-700B	8-18-14	6:50	8-18-14	6:54	METER #2	8-18-14	6:00	-54.6	JOSH R	7.0
Notes:										
SC-700B	8-22-14	15:00	8-[illegible]-14	1508	METER #2	8-22-14	14:00	-54.7	Ron Phelps	7.4
Notes:										
SC-700B	8/26/14	1350	8/26/14	1400	METER #2	8/26/14	04 00	-54.7		6.9
Notes:										
Notes:										

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

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October 1, 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-484 PROJECT, GROUNDWATER MONITORING,
TLI NO.: 815039

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-484 project groundwater monitoring. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, quality control data and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data have been included under Section 5.

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

Samples were analyzed and recorded in the raw data as SDG 14I0024 but are reported as SDG 815039 in all final report pages.

The straight runs for the sample and associated matrix spike on sample SC-700B-WDR-484 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.

Mona Nassimi
Manager, Analytical Services

Michael Ngo
Quality Assurance/Quality Control Officer

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.: 815039
Date: September 19, 2014
Collected: September 2, 2014
Received: September 2, 2014

ANALYST LIST

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

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

Laboratory No.: **815039**
Date Received: **September 2, 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
815039-001	SC-700B-WDR-484	E120.1	NONE	9/2/2014	14:00	EC	7250	umhos/cm	2.0
815039-001	SC-700B-WDR-484	E200.7	NONE	9/2/2014	14:00	Aluminum	ND	ug/L	20.0
815039-001	SC-700B-WDR-484	E200.7	NONE	9/2/2014	14:00	BORON	835	ug/L	50.0
815039-001	SC-700B-WDR-484	E200.7	NONE	9/2/2014	14:00	Iron	ND	ug/L	20.0
815039-001	SC-700B-WDR-484	E200.7	NONE	9/2/2014	14:00	Zinc	ND	ug/L	20.0
815039-001	SC-700B-WDR-484	E200.8	NONE	9/2/2014	14:00	Antimony	ND	ug/L	2.0
815039-001	SC-700B-WDR-484	E200.8	NONE	9/2/2014	14:00	Arsenic	ND	ug/L	0.50
815039-001	SC-700B-WDR-484	E200.8	NONE	9/2/2014	14:00	Barium	11.4	ug/L	5.0
815039-001	SC-700B-WDR-484	E200.8	NONE	9/2/2014	14:00	Chromium	ND	ug/L	1.0
815039-001	SC-700B-WDR-484	E200.8	NONE	9/2/2014	14:00	Copper	ND	ug/L	1.0
815039-001	SC-700B-WDR-484	E200.8	NONE	9/2/2014	14:00	Lead	ND	ug/L	1.0
815039-001	SC-700B-WDR-484	E200.8	NONE	9/2/2014	14:00	Manganese	17.0	ug/L	1.0
815039-001	SC-700B-WDR-484	E200.8	NONE	9/2/2014	14:00	Molybdenum	19.9	ug/L	2.0
815039-001	SC-700B-WDR-484	E200.8	NONE	9/2/2014	14:00	Nickel	2.1	ug/L	2.0
815039-001	SC-700B-WDR-484	E218.6	LABFLT	9/2/2014	14:00	Chromium, Hexavalent	ND	ug/L	0.20
815039-001	SC-700B-WDR-484	E300	NONE	9/2/2014	14:00	Fluoride	1.99	mg/L	0.500
815039-001	SC-700B-WDR-484	E300	NONE	9/2/2014	14:00	Nitrate as N	2.68	mg/L	0.500
815039-001	SC-700B-WDR-484	E300	NONE	9/2/2014	14:00	Sulfate	488	mg/L	12.5
815039-001	SC-700B-WDR-484	SM2130B	NONE	9/2/2014	14:00	Turbidity	0.127	NTU	0.100
815039-001	SC-700B-WDR-484	SM2540C	NONE	9/2/2014	14:00	Total Dissolved Solids	4480	mg/L	250
815039-001	SC-700B-WDR-484	SM4500NH3D	NONE	9/2/2014	14:00	Ammonia-N	ND	mg/L	0.500
815039-001	SC-700B-WDR-484	SM4500NO2B	NONE	9/2/2014	14:00	Nitrite as N	ND	mg/L	0.0050

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
815039-002	SC-100B-WDR-484	E120.1	NONE	9/2/2014	14:00	EC	7260	umhos/cm	2.00
815039-002	SC-100B-WDR-484	E200.7	NONE	9/2/2014	14:00	Aluminum	ND	ug/L	20.0
815039-002	SC-100B-WDR-484	E200.7	NONE	9/2/2014	14:00	BORON	845	ug/L	50.0
815039-002	SC-100B-WDR-484	E200.7	LABFLT	9/2/2014	14:00	Iron	ND	ug/L	20.0
815039-002	SC-100B-WDR-484	E200.7	NONE	9/2/2014	14:00	Iron	ND	ug/L	20.0
815039-002	SC-100B-WDR-484	E200.7	NONE	9/2/2014	14:00	Zinc	ND	ug/L	20.0
815039-002	SC-100B-WDR-484	E200.8	NONE	9/2/2014	14:00	Antimony	ND	ug/L	2.0
815039-002	SC-100B-WDR-484	E200.8	NONE	9/2/2014	14:00	Arsenic	3.4	ug/L	0.50
815039-002	SC-100B-WDR-484	E200.8	NONE	9/2/2014	14:00	Barium	26.3	ug/L	5.0
815039-002	SC-100B-WDR-484	E200.8	NONE	9/2/2014	14:00	Chromium	640	ug/L	2.0
815039-002	SC-100B-WDR-484	E200.8	NONE	9/2/2014	14:00	Copper	ND	ug/L	2.5
815039-002	SC-100B-WDR-484	E200.8	NONE	9/2/2014	14:00	Lead	ND	ug/L	1.0
815039-002	SC-100B-WDR-484	E200.8	NONE	9/2/2014	14:00	Manganese	6.9	ug/L	1.0
815039-002	SC-100B-WDR-484	E200.8	LABFLT	9/2/2014	14:00	Manganese	7.2	ug/L	1.0
815039-002	SC-100B-WDR-484	E200.8	NONE	9/2/2014	14:00	Molybdenum	20.6	ug/L	2.0
815039-002	SC-100B-WDR-484	E200.8	NONE	9/2/2014	14:00	Nickel	ND	ug/L	2.0
815039-002	SC-100B-WDR-484	E218.6	LABFLT	9/2/2014	14:00	Chromium, Hexavalent	568	ug/L	5.0
815039-002	SC-100B-WDR-484	E300	NONE	9/2/2014	14:00	Fluoride	2.23	mg/L	0.500
815039-002	SC-100B-WDR-484	E300	NONE	9/2/2014	14:00	Nitrate as N	2.74	mg/L	0.500
815039-002	SC-100B-WDR-484	E300	NONE	9/2/2014	14:00	Sulfate	496	mg/L	12.5
815039-002	SC-100B-WDR-484	SM2130B	NONE	9/2/2014	14:00	Turbidity	0.107	NTU	0.100
815039-002	SC-100B-WDR-484	SM2320B	NONE	9/2/2014	14:00	Alkalinity	152	mg/L	5.00
815039-002	SC-100B-WDR-484	SM2320B	NONE	9/2/2014	14:00	Alkalinity, Bicarbonate (As CaCO3)	152	mg/L	5.00
815039-002	SC-100B-WDR-484	SM2320B	NONE	9/2/2014	14:00	Alkalinity, Carbonate (As CaCO3)	ND	mg/L	5.00
815039-002	SC-100B-WDR-484	SM2540C	NONE	9/2/2014	14:00	Total Dissolved Solids	4520	mg/L	250
815039-002	SC-100B-WDR-484	SM4500NH3D	NONE	9/2/2014	14:00	Ammonia-N	ND	mg/L	0.500
815039-002	SC-100B-WDR-484	SM4500NO2B	NONE	9/2/2014	14:00	Nitrite as N	ND	mg/L	0.0050
815039-002	SC-100B-WDR-484	SM4500-PB_E	NONE	9/2/2014	14:00	Total Phosphorous-P	ND	mg/L	0.0200
815039-002	SC-100B-WDR-484	SM4500SI	LABFLT	9/2/2014	14:00	Soluble Silica	21.0	mg/L	1.00
815039-002	SC-100B-WDR-484	SM5310C	NONE	9/2/2014	14:00	Total Organic Carbon	0.320	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: PGEIM1111100'
Release Number:

Laboratory No. 815039
Page 1 of 33
Printed 10/1/2014

Samples Received on 9/2/2014 7:25:00 PM

Field ID	Lab ID	Collected	Matrix
SC-700B-WDR-484	815039-001	09/02/2014 14:00	Water
SC-100B-WDR-484	815039-002	09/02/2014 14:00	Water

Anions By I.C. - EPA 300.0 Batch 1409089

Parameter		Unit	Analyzed	DF	MDL	RL	Result
815039-001	Fluoride	mg/L	09/03/2014 11:29	5.00	0.104	0.500	1.99
	Nitrate as Nitrogen	mg/L	09/03/2014 11:29	5.00	0.0415	0.500	2.68
	Sulfate	mg/L	09/03/2014 13:23	25.0	0.768	12.5	488
815039-002	Fluoride	mg/L	09/03/2014 11:40	5.00	0.104	0.500	2.23
	Nitrate as Nitrogen	mg/L	09/03/2014 11:40	5.00	0.0415	0.500	2.74
	Sulfate	mg/L	09/03/2014 13:35	25.0	0.768	12.5	496

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 = 815038-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chloride	mg/L	500	1020	1140	11.0	0 - 20
Sulfate	mg/L	50.0	384	387	0.722	0 - 20

Duplicate Lab ID = 815039-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Fluoride	mg/L	5.00	2.16	2.23	3.28	0 - 20
Nitrate as Nitrogen	mg/L	5.00	2.69	2.74	1.88	0 - 20

Client: E2 Consulting Engineers, Inc.

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

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chloride	mg/L	1.00	3.94	4.00	98.4	90 - 110
Fluoride	mg/L	1.00	4.09	4.00	102	90 - 110
Sulfate	mg/L	1.00	20.2	20.0	101	90 - 110
Nitrate as Nitrogen	mg/L	1.00	4.00	4.00	100	90 - 110

Matrix Spike

Lab ID = 815038-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chloride	mg/L	500	3110	3140(2000)	98.6	85 - 115
Sulfate	mg/L	50.0	880	887(500)	98.7	85 - 115

Matrix Spike

Lab ID = 815039-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Fluoride	mg/L	5.00	22.6	22.2(20.0)	102	85 - 115
Nitrate as Nitrogen	mg/L	5.00	23.2	22.7(20.0)	102	85 - 115

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chloride	mg/L	1.00	3.97	4.00	99.2	90 - 110
Fluoride	mg/L	1.00	4.10	4.00	103	90 - 110
Sulfate	mg/L	1.00	20.0	20.0	100	90 - 110
Nitrate as Nitrogen	mg/L	1.00	4.00	4.00	100	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chloride	mg/L	1.00	3.01	3.00	100	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	3.00	3.00	100	90 - 110

MRCVS - Primary

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

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Fluoride	mg/L	1.00	3.13	3.00	104	90 - 110

Nitrite SM 4500-NO2 B Batch 1409042

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815039-001 Nitrite as Nitrogen	mg/L	09/03/2014 16:12	1.00	0.000630	0.0050	ND
815039-002 Nitrite as Nitrogen	mg/L	09/03/2014 16:17	1.00	0.000630	0.0050	ND

Method Blank

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

Duplicate Lab ID = 815051-024

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Nitrite as Nitrogen	mg/L	1.00	0.00780	0.00770	1.29	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrite as Nitrogen	mg/L	1.00	0.0206	0.0226	91.2	90 - 110

Matrix Spike Lab ID = 815051-025

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Nitrite as Nitrogen	mg/L	1.00	0.0189	0.0226(0.0226)	83.6	80 - 120

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrite as Nitrogen	mg/L	1.00	0.0206	0.0226	91.2	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrite as Nitrogen	mg/L	1.00	0.0197	0.0200	98.5	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Nitrite as Nitrogen	mg/L	1.00	0.0197	0.0200	98.5	90 - 110

Alkalinity by SM 2320B

Batch 1409068

Parameter		Unit	Analyzed	DF	MDL	RL	Result
815039-002	Alkalinity as CaCO3	mg/L	09/04/2014	1.00	1.68	5.00	152
	Bicarbonate (Calculated)	mg/L	09/04/2014	1.00	1.68	5.00	152
	Carbonate (Calculated)	mg/L	09/04/2014	1.00	1.68	5.00	ND

Method Blank

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

Duplicate

Lab ID = 815050-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Alkalinity as CaCO3	mg/L	1.00	121	120	0.830	0 - 20

Lab Control Sample

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

Specific Conductivity - EPA 120.1

Batch 1409041

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815039-001 Specific Conductivity	umhos/cm	09/04/2014	1.00	0.606	2.00	7250
815039-002 Specific Conductivity	umhos/cm	09/04/2014	1.00	0.606	2.00	7260

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate

Lab ID = 815046-004

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	859	854	0.584	0 - 10

Lab Control Sample

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

MRCCS - Secondary

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

MRCVS - Primary

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

MRCVS - Primary

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

Chrome VI by EPA 218.6

Batch 1409026

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815039-001 Chromium, Hexavalent	ug/L	09/03/2014 12:59	1.00	0.00600	0.20	ND
815039-002 Chromium, Hexavalent	ug/L	09/03/2014 13:44	25.0	0.150	5.0	568

Method Blank

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

Duplicate

Lab ID = 815038-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	702	703	0.123	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.205	0.200	102	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.09	5.00	102	90 - 110

Matrix Spike

Lab ID = 815038-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	8.45	8.80(5.00)	93.1	90 - 110

Matrix Spike

Lab ID = 815038-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	50.0	1430	1450(750)	96.7	90 - 110

Matrix Spike

Lab ID = 815039-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.99	5.13(5.00)	97.3	90 - 110

Matrix Spike

Lab ID = 815039-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.13	1.13(1.00)	99.6	90 - 110

Matrix Spike

Lab ID = 815039-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	25.0	1180	1190(625)	98.0	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.12	5.00	102	90 - 110

Metals by EPA 200.7, Total

Batch 090914B-Th2

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815039-001 Aluminum	ug/L	09/09/2014 17:56	1.00	7.20	20.0	ND
Boron	ug/L	09/09/2014 17:56	1.00	4.10	50.0	835
Iron	ug/L	09/09/2014 17:56	1.00	3.00	20.0	ND
Zinc	ug/L	09/09/2014 17:56	1.00	5.10	20.0	ND
815039-002 Aluminum	ug/L	09/09/2014 17:35	1.00	7.20	20.0	ND
Boron	ug/L	09/09/2014 17:35	1.00	4.10	50.0	845
Iron	ug/L	09/09/2014 17:35	1.00	3.00	20.0	ND
Zinc	ug/L	09/09/2014 17:35	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 = 815039-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Aluminum	ug/L	1.00	ND	0	0	
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	840	845	0.593	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Aluminum	ug/L	1.00	2090	2000	105	85 - 115
Iron	ug/L	1.00	1930	2000	96.4	85 - 115
Zinc	ug/L	1.00	1950	2000	97.6	85 - 115
Boron	ug/L	1.00	1850	2000	92.3	85 - 115

Matrix Spike

Lab ID = 815039-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Aluminum	ug/L	1.00	1760	2000(2000)	88.2	75 - 125
Iron	ug/L	1.00	1670	2000(2000)	83.4	75 - 125
Zinc	ug/L	1.00	2140	2000(2000)	107	75 - 125
Boron	ug/L	1.00	2570	2840(2000)	86.4	75 - 125

Matrix Spike Duplicate Lab ID = 815039-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Aluminum	ug/L	1.00	1790	2000(2000)	89.4	75 - 125
Iron	ug/L	1.00	1710	2000(2000)	85.4	75 - 125
Zinc	ug/L	1.00	2160	2000(2000)	108	75 - 125
Boron	ug/L	1.00	2550	2840(2000)	85.1	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Aluminum	ug/L	1.00	5020	5000	100	95 - 105
Iron	ug/L	1.00	5070	5000	101	95 - 105
Zinc	ug/L	1.00	4810	5000	96.1	95 - 105
Boron	ug/L	1.00	4890	5000	97.9	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Aluminum	ug/L	1.00	5120	5000	102	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Aluminum	ug/L	1.00	4970	5000	99.4	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Aluminum	ug/L	1.00	5090	5000	102	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Aluminum	ug/L	1.00	4980	5000	99.7	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	4650	5000	93.1	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	4600	5000	91.9	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	4650	5000	93.1	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Iron	ug/L	1.00	4880	5000	97.5	90 - 110

Metals by EPA 200.8, Total

Batch 090414C

Parameter		Unit	Analyzed	DF	MDL	RL	Result
815039-001	Antimony	ug/L	09/04/2014 17:56	2.00	0.0700	2.0	ND
	Arsenic	ug/L	09/04/2014 17:56	2.00	0.100	0.50	ND
	Barium	ug/L	09/04/2014 17:56	2.00	0.594	5.0	11.4
	Lead	ug/L	09/04/2014 17:56	2.00	0.286	1.0	ND
	Manganese	ug/L	09/04/2014 17:56	2.00	0.120	1.0	17.0
	Molybdenum	ug/L	09/04/2014 17:56	2.00	0.100	2.0	19.9
	Nickel	ug/L	09/04/2014 17:56	2.00	0.480	2.0	2.1
815039-002	Antimony	ug/L	09/04/2014 18:42	2.00	0.0700	2.0	ND
	Arsenic	ug/L	09/04/2014 18:42	2.00	0.100	0.50	3.4
	Barium	ug/L	09/04/2014 18:42	2.00	0.594	5.0	26.3
	Lead	ug/L	09/04/2014 18:42	2.00	0.286	1.0	ND
	Manganese	ug/L	09/04/2014 18:42	2.00	0.120	1.0	6.9
	Molybdenum	ug/L	09/04/2014 18:42	2.00	0.100	2.0	20.6
	Nickel	ug/L	09/04/2014 18:42	2.00	0.480	2.0	ND

Method Blank

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

Duplicate

Lab ID = 815039-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Arsenic	ug/L	2.00	ND	0	0	0 - 20
Barium	ug/L	2.00	10.7	11.4	6.19	0 - 20
Nickel	ug/L	2.00	2.16	2.07	4.12	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	17.5	17.0	2.87	0 - 20
Molybdenum	ug/L	2.00	19.0	19.9	4.40	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	0.172	0.200	86.0	70 - 130
Barium	ug/L	1.00	0.718	1.00	71.8	70 - 130
Nickel	ug/L	1.00	0.534	0.500	107	70 - 130
Antimony	ug/L	1.00	0.222	0.200	111	70 - 130
Lead	ug/L	1.00	0.417	0.500	83.4	70 - 130
Manganese	ug/L	1.00	0.357	0.500	71.4	70 - 130
Molybdenum	ug/L	1.00	0.266	0.200	133	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Arsenic	ug/L	1.00	47.6	50.0	95.3	85 - 115
Barium	ug/L	1.00	48.1	50.0	96.1	85 - 115
Nickel	ug/L	1.00	49.0	50.0	98.0	85 - 115
Antimony	ug/L	1.00	48.6	50.0	97.1	85 - 115
Lead	ug/L	1.00	49.2	50.0	98.3	85 - 115
Manganese	ug/L	1.00	49.6	50.0	99.2	85 - 115
Molybdenum	ug/L	1.00	49.9	50.0	99.8	85 - 115

Matrix Spike Lab ID = 815039-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	2.00	50.6	50.0(50.0)	101	75 - 125
Barium	ug/L	2.00	59.3	61.4(50.0)	95.9	75 - 125
Nickel	ug/L	2.00	47.6	52.1(50.0)	91.2	75 - 125
Antimony	ug/L	2.00	49.1	50.0(50.0)	98.1	75 - 125
Lead	ug/L	2.00	44.3	50.0(50.0)	88.6	75 - 125
Manganese	ug/L	2.00	65.2	67.0(50.0)	96.3	75 - 125
Molybdenum	ug/L	2.00	68.1	69.9(50.0)	96.5	75 - 125

Matrix Spike Duplicate Lab ID = 815039-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Arsenic	ug/L	2.00	51.0	50.0(50.0)	102	75 - 125
Barium	ug/L	2.00	60.6	61.4(50.0)	98.3	75 - 125
Nickel	ug/L	2.00	47.0	52.1(50.0)	89.9	75 - 125
Antimony	ug/L	2.00	50.2	50.0(50.0)	100	75 - 125
Lead	ug/L	2.00	44.8	50.0(50.0)	89.5	75 - 125
Manganese	ug/L	2.00	67.2	67.0(50.0)	100	75 - 125
Molybdenum	ug/L	2.00	69.8	69.9(50.0)	99.7	75 - 125

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Manganese	ug/L	1.00	19.7	20.0	98.5	80 - 120
Molybdenum	ug/L	1.00	ND	0		

Interference Check Standard AB

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

Serial Dilution

Lab ID = 815039-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Barium	ug/L	10.0	25.1	26.3	4.62	0 - 10

Metals by EPA 200.8, Total

Batch 090514B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815039-001 Chromium	ug/L	09/05/2014 17:06	2.00	0.142	1.0	ND
815039-002 Chromium	ug/L	09/05/2014 17:51	10.0	0.710	2.0	640

Method Blank

Parameter	Unit	DF	Result
Chromium	ug/L	1.00	ND

Duplicate

Lab ID = 815039-001

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

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.223	0.200	111	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

Matrix Spike

Lab ID = 815039-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	47.8	50.0(50.0)	95.7	75 - 125

Matrix Spike Duplicate

Lab ID = 815039-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	48.0	50.0(50.0)	96.0	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.7	20.0	98.3	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	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	19.5	20.0	97.4	90 - 110

Interference Check Standard A

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

Interference Check Standard A

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

Interference Check Standard AB

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

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.9	20.0	99.6	80 - 120

Serial Dilution

Lab ID = 815039-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	50.0	600	640	6.42	0 - 10

Metals by EPA 200.8, Total

Batch 090314C-ICPMS-1

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815039-001 Copper	ug/L	09/04/2014 01:16	1.00	0.190	1.0	ND
815039-002 Copper	ug/L	09/04/2014 14:21	5.00	0.950	2.5	ND

Method Blank

Parameter	Unit	DF	Result
Copper	ug/L	1.00	ND

Duplicate Lab ID = 815039-001

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

Low Level Calibration Verification

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

Lab Control Sample

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

Matrix Spike Lab ID = 815039-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Copper	ug/L	1.00	46.6	50.0(50.0)	93.1	75 - 125

MRCCS - Secondary

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

MRCVS - Primary

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

MRCVS - Primary

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

Interference Check Standard A

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

Interference Check Standard A

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

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Copper	ug/L	1.00	21.2	20.0	106	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Copper	ug/L	1.00	20.1	20.0	100	80 - 120

Reactive Silica by SM4500-Si D Batch 1409087

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815039-002 Silica	mg/L	09/05/2014	25.0	0.252	1.00	21.0

Method Blank

Parameter	Unit	DF	Result
Silica	mg/L	1.00	ND

Duplicate Lab ID = 815039-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Silica	mg/L	25.0	21.0	21.0	0.0233	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Silica	mg/L	1.00	0.211	0.206	102	90 - 110

Matrix Spike Lab ID = 815039-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Silica	mg/L	25.0	26.5	26.2(5.15)	107	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Silica	mg/L	1.00	0.211	0.206	102	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Silica	mg/L	1.00	0.392	0.400	97.9	90 - 110

Total Dissolved Solids by SM 2540 C

Batch 1408374

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815039-001 Total Dissolved Solids	mg/L	09/03/2014	1.00	1.76	250	4480
815039-002 Total Dissolved Solids	mg/L	09/03/2014	1.00	1.76	250	4520

Method Blank

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

Duplicate

Lab ID = 815039-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	4540	4520	0.442	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Dissolved Solids	mg/L	1.00	511	500	102	90 - 110

Total Organic Carbon (T/DOC) SM 5310 C

Batch 1409030

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815039-002 Total Organic Carbon	mg/L	09/03/2014 13:10	1.00	0.0877	0.300	0.320

Method Blank

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

Duplicate Lab ID = 815039-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Organic Carbon	mg/L	1.00	0.390	0.320	19.7	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Organic Carbon	mg/L	1.00	7.65	7.94	96.4	90 - 110

Matrix Spike Lab ID = 815039-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Total Organic Carbon	mg/L	1.00	13.8	16.2(15.9)	85.1	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Organic Carbon	mg/L	1.00	8.17	7.94	103	85 - 115

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Organic Carbon	mg/L	1.00	9.82	10.0	98.2	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Organic Carbon	mg/L	1.00	9.39	10.0	93.9	90 - 110

Total Phosphate, SM 4500-PB,E Batch 1409117

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815039-002 Phosphate, Total As P	mg/L	09/08/2014	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 = 815039-002

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	0.0687	0.0650	106	90 - 110

Matrix Spike Lab ID = 815039-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Phosphate, Total As P	mg/L	1.00	0.0647	0.0650(0.0650)	99.5	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Phosphate, Total As P	mg/L	1.00	0.0687	0.0650	106	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Phosphate, Total As P	mg/L	1.00	0.0695	0.0660	105	90 - 110

Ammonia Nitrogen by SM4500-NH3D Batch 1409409

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815039-001 Ammonia as N	mg/L	09/16/2014	1.00	0.0318	0.500	ND
815039-002 Ammonia as N	mg/L	09/16/2014	1.00	0.0318	0.500	ND

Method Blank

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

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	7.49	8.00	93.6	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	7.55	8.00	94.4	90 - 110

Matrix Spike

Lab ID = 815039-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	8.16	8.00(8.00)	102	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	5.97	6.00	99.5	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	5.55	6.00	92.6	90 - 110

Metals by EPA 200.8, Dissolved

Batch 090814B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815039-002 Manganese	ug/L	09/08/2014 18:25	1.00	0.0600	1.0	7.2

Method Blank

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

Duplicate Lab ID = 815038-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	2.00	3.76	4.02	6.60	0 - 20
Manganese	ug/L	2.00	60.4	61.6	1.97	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.527	0.500	105	70 - 130
Manganese	ug/L	1.00	0.509	0.500	102	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	48.5	50.0	97.0	85 - 115
Manganese	ug/L	1.00	47.1	50.0	94.2	85 - 115

Matrix Spike Lab ID = 815038-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	51.9	54.0(50.0)	95.8	75 - 125
Manganese	ug/L	2.00	110	112(50.0)	97.3	75 - 125

Matrix Spike Duplicate Lab ID = 815038-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	2.00	48.7	54.0(50.0)	89.4	75 - 125
Manganese	ug/L	2.00	105	112(50.0)	87.2	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.7	20.0	103	90 - 110
Manganese	ug/L	1.00	20.0	20.0	100	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.6	20.0	98.2	90 - 110

Metals by 200.7, Dissolved

Batch 090914B-Th2

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815039-002 Iron	ug/L	09/09/2014 17:07	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
Magnesium	ug/L	1.00	ND

Duplicate Lab ID = 815038-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Calcium	ug/L	100	213000	211000	0.755	0 - 20
Iron	ug/L	1.00	ND	0	0	0 - 20
Magnesium	ug/L	10.0	29000	28300	2.41	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	2040	2000	102	85 - 115
Iron	ug/L	1.00	2110	2000	105	85 - 115
Magnesium	ug/L	1.00	2040	2000	102	85 - 115

Matrix Spike Lab ID = 815038-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Calcium	ug/L	100	409000	411000(200000)	98.8	75 - 125
Iron	ug/L	1.00	1660	2000(2000)	83.0	75 - 125
Magnesium	ug/L	10.0	46000	48300(20000)	88.6	75 - 125

Matrix Spike Duplicate Lab ID = 815038-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Iron	ug/L	1.00	1650	2000(2000)	82.5	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	4810	5000	96.1	95 - 105
Iron	ug/L	1.00	5070	5000	101	95 - 105
Magnesium	ug/L	1.00	4960	5000	99.2	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Calcium	ug/L	1.00	5190	5000	104	90 - 110

Client: E2 Consulting Engineers, Inc.

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

Turbidity by SM 2130 B

Batch 1409028

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815039-001 Turbidity	NTU	09/03/2014	1.00	0.0140	0.100	0.127
815039-002 Turbidity	NTU	09/03/2014	1.00	0.0140	0.100	0.107

Method Blank

Parameter	Unit	DF	Result
Turbidity	NTU	1.00	ND

Duplicate

Lab ID = 815047-003

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

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	7.93	8.00	99.1	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	7.29	8.00	91.1	90 - 110

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

Alkalinity by SM 2320B

Calculations

Analytical Batch: 1409068
Matrix: WATER
Date of Analysis: 9/4/2014

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	4.96	50	0.02	0.00	0.0	0.00		0.0	5	ND	ND	ND	ND	
14I0023-01B (CH2)	7.97	50	0.02	0.00	0.0	10.75		215.0	5	215.0	215.0	ND	ND	
14I0023-02B (CH2)	7.72	50	0.02	0.00	0.0	6.70		134.0	5	134.0	134.0	ND	ND	
14I0024-02C (CH2)	7.59	50	0.02	0.00	0.0	7.60		152.0	5	152.0	152.0	ND	ND	
14I0040-01A (CH2)	8.17	50	0.02	0.00	0.0	6.00		120.0	5	120.0	120.0	ND	ND	
DUP 14I0040-01A	8.09	50	0.02	0.00	0.0	6.05		121.0	5	121.0	121.0	ND	ND	
LCS	10.38	50	0.02	1.90	38.0	5.50		110.0	5	110.0	34.0	76	ND	
LCSD	10.17	50	0.02	1.95	39.0	5.00		100.0	5	100.0	22.0	78	ND	

Calculations as follows:

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

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 = $\dfrac{(2 \times B - C) \times N \times 50000}{\text{mL sample}}$

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

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

Blank Summary

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

Laboratory Control Sample (LCS/LCSD) Summary

QC Std I.D.	Measured Value, ppm	Theoretical Value, ppm	% Recovery	Accetance Limit	QC Within Control?
LCS	110	100	110.0%	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?
14I0040-01A	120	121	0.8%	≤20%	Yes

Sample Matrix Spike (MS/MSD) Summary

Lab Number	Conc of Unspk spl	Dil Factor	Added Spk Conc	MS/MSD Amt	Measrd Conc of Spk Spl	Theor Conc of Spk Spl	MS/MSD % Rec	MS Accept Limit	QC Within Control?	RPD	RPD Accept Limit	QC Within Control?
				0								
				0								

ALEX
Analyst Printed Name

Analyst Signature

Maksim Gorbunov
Reviewer Printed Name

Reviewer Signature

Truesdail Laboratories, Inc.

Total Dissolved Solids by SM 2540 C

Calculations

Batch: 1408374
Date Analyzed: 9/3/2014

Laboratory Number	Sample volume, mL	Initial weight, g	1st Final weight, g	2nd Final weight, g	Weight Difference, g	Exceeds 0.5mg? Yes/No	Residue weight, g	Filterable residue, ppm	RL, ppm	Reported Value, ppm	DF
Blank	100	51.4354	51.4354	51.4354	0.0000	No	0.0000	0.0	25.0	ND	1
14H0392-01D	100	76.7800	76.8315	76.8315	0.0000	No	0.0515	515.0	25.0	515.0	1
14H0392-02	100	78.2840	78.3351	78.3349	0.0002	No	0.0509	509.0	25.0	509.0	1
14H0395-01B	100	77.4755	77.5250	77.5247	0.0003	No	0.0492	492.0	25.0	492.0	1
14H0395-02	100	75.7363	75.7865	75.7864	0.0001	No	0.0501	501.0	25.0	501.0	1
14H0395-03	100	76.5244	76.5730	76.5728	0.0002	No	0.0484	484.0	25.0	484.0	1
14H0395-04	100	79.1455	79.1951	79.1950	0.0001	No	0.0495	495.0	25.0	495.0	1
14H0399-01G	100	72.7521	72.7948	72.7945	0.0003	No	0.0424	424.0	25.0	424.0	1
14I0016-14D	100	74.6970	74.7565	74.7564	0.0001	No	0.0594	594.0	25.0	594.0	1
14I0023-01B	20	28.7553	28.8076	28.8075	0.0001	No	0.0522	2610.0	125.0	2610.0	1
14I0023-02	10	28.5927	28.6443	28.6442	0.0001	No	0.0515	5150.0	250.0	5150.0	1
14H0399-01G Du	100	66.7811	66.8245	66.8243	0.0002	No	0.0432	432.0	25.0	432.0	1
LCS	100	66.6903	66.7415	66.7414	0.0001	No	0.0511	511.0	25.0	511.0	1
14I0024-01C	10	29.3556	29.4007	29.4004	0.0003	No	0.0448	4480.0	250.0	4480.0	1
14I0024-02E	10	29.3294	29.3746	29.3746	0.0000	No	0.0452	4520.0	250.0	4520.0	1
14I0040-07A	100	68.5296	68.5912	68.5912	0.0000	No	0.0616	616.0	25.0	616.0	1
14I0050-01D	100	67.0188	67.0666	67.0664	0.0002	No	0.0476	476.0	25.0	476.0	1
14I0050-02	100	75.2667	75.3153	75.3153	0.0000	No	0.0486	486.0	25.0	486.0	1
14I0055-01C	100	68.1039	68.1535	68.1535	0.0000	No	0.0496	496.0	25.0	496.0	1
14I0055-02	100	74.0194	74.0696	74.0696	0.0000	No	0.0502	502.0	25.0	502.0	1
14I0055-03	100	75.7399	75.7878	75.7875	0.0003	No	0.0476	476.0	25.0	476.0	1
14I0055-04	100	79.4926	79.5410	79.5409	0.0001	No	0.0483	483.0	25.0	483.0	1
14I0024-02 Dup	10	29.4776	29.5233	29.5230	0.0003	No	0.0454	4540.0	250.0	4540.0	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	511.0	500	**102.2%**	90-110%	**Yes**
LCSD					

LCS Recovery

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

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

Duplicate Determinations Difference Summary

Lab Number	Sample Weight, g	Sample Dup Weight, g	% RPD	Acceptance Limit	QC Within Control?
14H0399-01G	0.0424	0.0432	**0.9%**	≤5%	**Yes**
14I0024-02	0.0452	0.0454	**0.2%**	≤5%	**Yes**

Duplicate Determination Difference

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

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

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

Jenny T.
Analyst Printed Name

Analyst Signature

Maksim G.
Reviewer Printed Name

Reviewer Signature

Total Dissolved Solids by SM 2540 C

TDS/EC CHECK

Batch:	1408374
Date Analyzed:	9/3/2014

Laboratory Number	EC	TDS/EC Ratio: 0.55-0.90	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
14H0392-01D	952	0.54	618.8	0.83
14H0392-02	843	0.60	547.95	0.93
14H0395-01B	873	0.56	567.45	0.87
14H0395-02	867	0.58	563.55	0.89
14H0395-03	867	0.56	563.55	0.86
14H0395-04	846	0.59	549.9	0.90
14H0399-01G	674	0.63	438.1	0.97
14I0016-14D	920	0.65	598	0.99
14I0023-01B	4260	0.61	2769	0.94
14I0023-02	8070	0.64	5245.5	0.98
14H0399-01G Dup	674	0.64	438.1	0.99
LCS				
14I0024-01C	7250	0.62	4712.5	0.95
14I0024-02E	7260	0.62	4719	0.96
14I0040-07A	828	0.74	538.2	1.14
14I0050-01D	880	0.54	572	0.83
14I0050-02	824	0.59	535.6	0.91
14I0055-01C	897	0.55	583.05	0.85
14I0055-02	890	0.56	578.5	0.87
14I0055-03	851	0.56	553.15	0.86
14I0055-04	854	0.57	555.1	0.87
14I0024-02 Dup	7260	0.63	4719	0.96

815 039/14I 0024

TRUESDAIL LABORATORIES, INC.
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CHAIN OF CUSTODY RECORD
[IM3Plant-WDR-484]

COC Number
TURNAROUND TIME 10 Days
DATE 09/02/14 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 Cameron Stern

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
SC-700B-WDR-484	09/02/14	14:00		X		X	X	X	X	X		X				X		~~3~~ 4	pH=7 } 200.7
SC-100B-WDR-484	09/02/14	14:00		X	X	X	X	X	X	X	X	X	X	X	X	X		~~10~~ 9	pH=7

ALERT !!
Level III QC

TOTAL NUMBER OF CONTAINERS 13

CHAIN OF CUSTODY SIGNATURE RECORD

Signature (Relinquished) Cameron Stern	Printed Name Cameron Stern	Company/ Agency OMI	Date/ Time 9-2-14 1520
Signature (Received) Thanh Ngo	Printed Name THANH NGO	Company/ Agency TRUESDAIL	Date/ Time 9-2-14 1520
Signature (Relinquished) Thanh Ngo	Printed Name THANH NGO	Company/ Agency TLI	Date/ Time 9-2-14 1925
Signature (Received) Marchael Bravo	Printed Name Marchael Bravo	Company/ Agency TLI	Date/ Time 9/2/14 1925
Signature (Relinquished)	Printed Name	Company/ Agency	Date/ Time
Signature (Received)	Printed Name	Company/ Agency	Date/ Time

SAMPLE CONDITIONS
RECEIVED COOL ☑ WARM ☐ 4.2 °E2
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
9/3/14	14I0023-01	7.00	2ml/100ml	9.5	8:00	NE
↓	↓ -02	↓	↓	↓	↓	↓
	14I0024-01					
	↓ -02					

NE
9/3/14

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest (Y/N)	Time of Adjustment to pH 2	Date/Time of 2nd pH check	Comments
14H0375-01	<1	>2	9/3/14	ES	Yes	1:00		
14H0376-01								
TOTAL 14I0024 (01-02)								Filtered then acidify
14I0023 (01-02)								
Dissolve 14I0024-02	↓	↓	↓	↓	↓	↓		↓
14I0085-(10-12)	<1	>2	9/5/14	TM	No	11:30	9/9/14 @ 10:11	pH <2
14I0088-(01-~~04~~)	<1	>2					↓	
14I0089(-17-24)	<1	>2	↓	↓	↓	↓		↓
14I0040(-04-06)	<1	>2	9/5/14	TM	No	2:10pm		
14I0039-02	>1	<2			Yes	N/A		
14I0041-01		<2						
14I0043-02								
14I0044-02								
14I0045-02								
14I0046-02								
14I0050-(01-02)								
14I0052-02								
14I0059-01								
14I0075-02								
14I0083-04								
14I0090-01								
14I0091-01	↓	↓	↓	↓	↓	↓		
14I0072-01	>1	<2	9/9/14	TM	Yes	N/A		
14I0093-01	>1	<2						
14I0114-01								
14I0117-(01,-02)	↓	↓			↓			
~~14I0123-06~~	~~<1~~	~~>2~~			~~No~~		TM 9/10/14	
~~14I0126-01~~	~~>1~~						TM 9/10/14	
14I0127-02		<2			Yes			
14I0128-02								
14I0129-02								
14I0130-01	↓	↓	↓	↓	↓			
14I0123-06	<1	>2	9/10/14	TM	No	11:25		
14I0126-01	>1	>2	↓		Yes	11:30		
14I0095-01	>1	<2			Yes			
14I0134-01	>1	<2						
14I0137-01	>1	TM 9/10/14 ~~<2~~ >2				11:40 Dig		
14I0145-02	>1	<2						
14I0147-02	>1	<2						
14I0148-02	>1	<2						
14I0149-02	>1	<2	↓	↓	↓			
14I0140 (1-2)	<1	>2	9/10/14	ES	NO	1:00		
14I0144 (1-4)								
14I0152 (1-3)	↓	↓	↓	↓	↓	↓		

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

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

September 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-485 PROJECT, GROUNDWATER MONITORING, TLI NO.: 815042

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-485 project groundwater monitoring for Hexavalent and Total Chromium, Total Manganese, Turbidity, Specific Conductivity, and Total Dissolved Solids. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, quality control data and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data have been included under Section 5.

The samples were received and delivered with the chain of custody on September 9, 2014, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

Sample SC-700B-WDR-485 was analyzed as sample I.D. 14I0143 in the raw data but is reported as 815042 in all final report pages.

The straight runs for the sample and associated matrix spike on sample SC-700B-WDR-485 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

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: One (1) Groundwater Sample
Project Name: PG&E Topock Project
Project No.: 428648.IM.CS.EX.AC

Laboratory No.: **815042**
Date: September 25, 2014
Collected: September 9, 2014
Received: September 9, 2014

ANALYST LIST

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

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

Laboratory No.: 815042
Date Received: September 9, 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
815042-001	SC-700B-WDR-485	E120.1	NONE	9/9/2014	10:00	EC	7200	umhos/cm	2.00
815042-001	SC-700B-WDR-485	E200.8	NONE	9/9/2014	10:00	Chromium	ND	ug/L	1.0
815042-001	SC-700B-WDR-485	E200.8	NONE	9/9/2014	10:00	Manganese	3.5	ug/L	0.50
815042-001	SC-700B-WDR-485	E218.6	LABFLT	9/9/2014	10:00	Chromium, Hexavalent	ND	ug/L	0.20
815042-001	SC-700B-WDR-485	SM2130B	NONE	9/9/2014	10:00	Turbidity	0.124	NTU	0.100
815042-001	SC-700B-WDR-485	SM2540C	NONE	9/9/2014	10:00	Total Dissolved Solids	4410	mg/L	250

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

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REPORT

Client: **E2 Consulting Engineers, Inc.**
155 Grand Avenue, Suite 800
Oakland, CA 94612
Attention: Shawn Duffy
Project Name: PG&E Topock Project
Project Number: 428648.IM.CS.EX.AC
P.O. Number: PGEIM1111100'
Release Number:

Laboratory No. 815042
Page 1 of 6
Printed 9/25/2014

Samples Received on 9/9/2014 6:40:00 PM

Field ID	Lab ID	Collected	Matrix
SC-700B-WDR-485	815042-001	09/09/2014 10:00	Water

Specific Conductivity - EPA 120.1

Batch 1409132

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815042-001 Specific Conductivity	umhos/cm	09/10/2014	1.00	0.606	2.00	7200

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate

Lab ID = 815042-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	7180	7200	0.278	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	738	706	104	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	738	706	104	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	1000	1000	100	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	1000	1000	100	90 - 110

Client: E2 Consulting Engineers, Inc.

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

Printed 9/25/2014

Chrome VI by EPA 218.6

Batch 1409155

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815042-001 Chromium, Hexavalent	ug/L	09/10/2014 11:37	1.00	0.00600	0.20	ND

Method Blank

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

Duplicate

Lab ID = 815042-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	0.157	0.155	1.28	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.191	0.200	95.6	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.11	5.00	102	90 - 110

Matrix Spike

Lab ID = 815042-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	4.96	5.16(5.00)	96.1	90 - 110

Matrix Spike

Lab ID = 815042-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.15	1.15(1.00)	100	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.13	5.00	102	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

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 092214A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815042-001 Chromium	ug/L	09/22/2014 15:22	1.00	0.0710	1.0	ND
Manganese	ug/L	09/22/2014 15:22	1.00	0.0600	0.50	3.5

Method Blank

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

Duplicate

Lab ID = 815044-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	1.00	2.07	2.15	3.84	0 - 20
Manganese	ug/L	1.00	0.954	1.09	13.3	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.223	0.200	112	70 - 130
Manganese	ug/L	1.00	0.428	0.500	85.6	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	48.6	50.0	97.3	85 - 115
Manganese	ug/L	1.00	49.2	50.0	98.4	85 - 115

Matrix Spike

Lab ID = 815044-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	1.00	50.4	52.2(50.0)	96.6	75 - 125
Manganese	ug/L	1.00	49.7	51.1(50.0)	97.2	75 - 125

Matrix Spike Duplicate

Lab ID = 815044-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	1.00	50.0	52.2(50.0)	95.8	75 - 125
Manganese	ug/L	1.00	48.9	51.1(50.0)	95.6	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.0	20.0	100	90 - 110
Manganese	ug/L	1.00	20.6	20.0	103	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.2	20.0	96.1	90 - 110

Client: E2 Consulting Engineers, Inc.

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

Total Dissolved Solids by SM 2540 C

Batch 1409133

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815042-001 Total Dissolved Solids	mg/L	09/11/2014	1.00	1.76	250	4410

Method Blank

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

Duplicate

Lab ID = 815042-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	4380	4410	0.682	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Dissolved Solids	mg/L	1.00	517	500	103	90 - 110

Turbidity by SM 2130 B

Batch 1409163

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815042-001 Turbidity	NTU	09/10/2014	1.00	0.0140	0.100	0.124

Method Blank

Parameter	Unit	DF	Result
Turbidity	NTU	1.00	ND

Duplicate

Lab ID = 815048-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Turbidity	NTU	1.00	0.102	0.107	4.78	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	7.62	8.00	95.2	90 - 110

Lab Control Sample Duplicate

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

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

Total Dissolved Solids by SM 2540 C

Calculations

Batch: 1409133
Date Analyzed: 9/11/2014

Laboratory Number	Sample volume, mL	Initial weight, g	1st Final weight, g	2nd Final weight, g	Weight Difference, g	Exceeds 0.5mg? Yes/No	Residue weight, g	Filterable residue, ppm	RL, ppm	Reported Value, ppm	DF
Blank	100	67.4976	67.4978	67.4978	0.0000	No	0.0002	2.0	25.0	ND	1
1410086-01	100	74.7201	74.7446	74.7446	0.0000	No	0.0245	245.0	25.0	245.0	1
1410089-17F	50	58.6502	58.6931	58.6927	0.0004	No	0.0425	850.0	50.0	850.0	1
1410113-01B	100	78.5950	78.6462	78.6458	0.0004	No	0.0508	508.0	25.0	508.0	1
1410115-01B	1000	174.3760	174.3839	174.3836	0.0003	No	0.0076	7.6	2.5	7.6	1
1410117-01D	100	76.6650	76.7160	76.7156	0.0004	No	0.0506	506.0	25.0	506.0	1
1410117-02	100	68.7697	68.8222	68.8218	0.0004	No	0.0521	521.0	25.0	521.0	1
1410143-01A	10	28.7488	28.7933	28.7929	0.0004	No	0.0441	4410.0	250.0	4410.0	1
1410159-01C	100	74.3678	74.4189	74.4188	0.0001	No	0.0510	510.0	25.0	510.0	1
1410159-02	100	72.0680	72.1191	72.1189	0.0002	No	0.0509	509.0	25.0	509.0	1
1410159-03	100	74.2056	74.2577	74.2576	0.0001	No	0.0520	520.0	25.0	520.0	1
1410143-01 Dup	10	30.2469	30.2911	30.2907	0.0004	No	0.0438	4380.0	250.0	4380.0	1
LCS	100	74.5019	74.5536	74.5536	0.0000	No	0.0517	517.0	25.0	517.0	1
1410159-04	100	75.1435	75.1947	75.1944	0.0003	No	0.0509	509.0	25.0	509.0	1
1410161-01D	100	76.2577	76.3151	76.3150	0.0001	No	0.0573	573.0	25.0	573.0	1
1410161-02	100	77.7597	77.8109	77.8108	0.0001	No	0.0511	511.0	25.0	511.0	1
1410164-01B	100	76.0192	76.0749	76.0745	0.0004	No	0.0553	553.0	25.0	553.0	1
1410164-02	100	75.2578	75.3153	75.3152	0.0001	No	0.0574	574.0	25.0	574.0	1
1410164-03	100	70.3666	70.4211	70.4209	0.0002	No	0.0543	543.0	25.0	543.0	1
1410164-04	100	74.1379	74.1934	74.1931	0.0003	No	0.0552	552.0	25.0	552.0	1
1410164-04 Dup	100	76.1564	76.2113	76.2111	0.0002	No	0.0547	547.0	25.0	547.0	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	517.0	500	**103.4%**	90-110%	Yes
LCSD					

LCS Recovery

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

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

Duplicate Determinations Difference Summary

Lab Number	Sample Weight, g	Sample Dup Weight, g	% RPD	Acceptance Limit	QC Within Control?
1410143-01	0.0441	0.0438	**0.3%**	≤5%	Yes
1410164-04	0.0552	0.0547	**0.5%**	≤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: 1409133
Date Analyzed: 9/11/2014

Laboratory Number	EC	TDS/EC Ratio: 0.55-0.90	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
14I0086-01	367	0.67	238.55	1.03
14I0089-17F	1343	0.63	872.95	0.97
14I0113-01B	711	0.71	462.15	1.10
14I0115-01B	13.8	0.55	8.97	0.85
14I0117-01D	911	0.56	592.15	0.85
14I0117-02	861	0.61	559.65	0.93
14I0143-01A	7200	0.61	4680	0.94
14I0159-01C	869	0.59	564.85	0.90
14I0159-02	868	0.59	564.2	0.90
14I0159-03	868	0.60	564.2	0.92
14I0143-01 Dup	7200	0.61	4680	0.94
LCS				
14I0159-04	862	0.59	560.3	0.91
14I0161-01D	1018	0.56	661.7	0.87
14I0161-02	881	0.58	572.65	0.89
14I0164-01B	880	0.63	572	0.97
14I0164-02	954	0.60	620.1	0.93
14I0164-03	861	0.63	559.65	0.97
14I0164-04	850	0.65	552.5	1.00
14I0164-04 Dup	850	0.64	552.5	0.99

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

[IM3Plant-WDR-485]

915042/
COC Number 14I0143
TURNAROUND TIME 10 Days
DATE 09/09/14 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 (200.8) Cr, Mn	Specific Conductance (120.1)	TDS (SM2540C)		Turbidity (SM2130)	NUMBER OF CONTAINERS	COMMENTS
SC-700B-WDR-485	09/09/14	10:00	Water	x	x	x	x		x	3	M = 6 (200.8)
										3	TOTAL NUMBER OF CONTAINERS

Please Provide a preliminary Result for the TDS ASAP

ALERT !!
Level III QC

CHAIN OF CUSTODY SIGNATURE RECORD

Signature (Relinquished)	Printed Name Ben PHELPS	Company/ Agency OMI	Date/ Time 9-9-14 1430
Signature (Received) Thanh Ngo	Printed Name THANH NGO	Company/ Agency TRUESDAIL	Date/ Time 9-9-14 1430
Signature (Relinquished) Thanh Ngo	Printed Name THANH NGO	Company/ Agency	Date/ Time 9-9-14 1840
Signature (Received) Michael Ngo	Printed Name Michael Ngo	Company/ Agency TLI	Date/ Time 9/9/14; 18:40
Signature (Relinquished)	Printed Name	Company/ Agency	Date/ Time
Signature (Received)	Printed Name	Company/ Agency	Date/ Time

SAMPLE CONDITIONS
RECEIVED COOL ☑ WARM ☐ 3.9°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
9/3/14	14I0023-01	7.00	2ml/100ml	9.5	8:00	NE
↓	↓ -02	↓	↓	↓	↓	↓
↓	14I0024-01	↓	↓	↓	↓	↓
↓	↓ -02	↓	↓	↓	↓	↓
9/10/14	14I0193-01	7.00	2ml/100ml	9.5	7:30	NE

NE
9/10/14

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

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
14I0168(10-12)	<1	>2	9/12/14	ES	NO	3:00		
14I0169(01-02)	↓	↓	↓	↓	↓	↓		
14I0170(01-07)	↓	↓	↓	↓	↓	↓		
14I0173(01-03)	↓	↓	↓	↓	↓	↓		
14I0164(01-04)	↓	↓	↓	↓	↓	↓		
14I0143-01	<1	>2	9/15/14	ES	Yes	3:00		pH<2
14I0161(01-02)	>1	<2			Yes			
14I0176-01	↓	↓	↓	↓	↓			
14I0190-02	↓	↓	↓	↓	↓			
14I0191-02	<1	↓	↓	↓	↓			
14I0194-01	↓	↓	↓	↓	↓			
14I0195-01	↓	↓	↓	↓	↓			
14I0227-01	>1	>2	9/17/14	ES	Yes			
14I0209-01	<1	<2						
14I0211(01-02)	>1	↓	↓	↓	↓			
14I0217-01	↓	↓	↓	↓	↓			
14I0223(03,04)	<1	↓	↓	↓	↓			
14I0230-02	↓	↓	↓	↓	↓			
14I0231-02	↓	↓	↓	↓	↓			
14I0232-02	↓	↓	↓	↓	↓			
14I0233-02	↓	↓	↓	↓	↓			
14I0228(01-02,04)	<1	>2	9/17/14	ES	~~Yes~~ No ES 9/17/14	12:00	9/18/14@1:00	pH<2
14I0236(01-05,7,8)	↓	↓	↓	↓	↓	↓	↓	↓
14I0228(01-02,04)	↓	↓	↓	↓	↓	↓	↓	↓
14I0258-01)	↓	↓	↓	↓	↓	↓	↓	↓
14I0253(01-03)	↓	↓	↓	↓	↓	↓	↓	↓
14I0255(10-12)	↓	↓	↓	↓	↓	↓	↓	↓
14I0264-01	<1	<2	9/18/14	ES	Yes			
14I0257-01	>1	↓	↓	↓	↓			
14I0266-01-12	↓	↓	↓	↓	↓			
14I0267-02	<1	↓	↓	↓	↓			
14I0143-01	<1	>2	9/18/14	ES	~~Yes~~ Yes ES 9/18/14	10:00		pH<2
14I0238-01	↓	↓				↓		↓
14I0280-01	↓	<2	↓	↓	↓			
14I0281-01	↓	↓	↓	↓	↓			
14I0303-01	<1	>2	9/22/14	ES				
14I0308-01	↓	>2			NO			
14I0311-01	>1	<2	↓	↓	Yes			
14I0312-01	<1	↓	↓	↓	↓			
14I0313-01	↓	↓	↓	↓	↓			
14I0315(01-02)	<1	<2	9/22/14	ES	Yes			-1 TU>1
14I0337-(01-02)	<1	>2	9/23/14	TM	NO	16:15		
14I0342-01A,-02B,-02C	<1	>2	9/24/14	TM	NO	10:00		
14I0342-04C,-04G	<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.

038

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

September 30, 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-486 PROJECT, GROUNDWATER MONITORING, TLI NO.: 815043

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-486 project groundwater monitoring for Hexavalent and Total Chromium, Total Manganese, Turbidity, Specific Conductivity, and Total Dissolved Solids. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, quality control data and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data have been included under Section 5.

The samples were received and delivered with the chain of custody on September 16, 2014, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

Sample SC-700B-WDR-486 was analyzed as sample I.D. 14I0238 in the raw data but is reported as 815043 in all final report pages.

The straight runs for the sample and associated matrix spike on sample SC-700B-WDR-486 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

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: One (1) Groundwater Sample
Project Name: PG&E Topock Project
Project No.: 428648.IM.CS.EX.AC

Laboratory No.: **815043**
Date: September 30, 2014
Collected: September 16, 2014
Received: September 16, 2014

ANALYST LIST

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

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

Laboratory No.: **815043**
Date Received: **September 16, 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
815043-001	SC-700B-WDR-486	E120.1	NONE	9/16/2014	13:30	EC	7250	umhos/cm	2.00
815043-001	SC-700B-WDR-486	E200.8	NONE	9/16/2014	13:30	Chromium	ND	ug/L	1.0
815043-001	SC-700B-WDR-486	E200.8	NONE	9/16/2014	13:30	Manganese	1.7	ug/L	0.50
815043-001	SC-700B-WDR-486	E218.6	LABFLT	9/16/2014	13:30	Chromium, Hexavalent	0.32	ug/L	0.20
815043-001	SC-700B-WDR-486	SM2130B	NONE	9/16/2014	13:30	Turbidity	ND	NTU	0.100
815043-001	SC-700B-WDR-486	SM2540C	NONE	9/16/2014	13:30	Total Dissolved Solids	4440	mg/L	250

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

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REPORT

Client: **E2 Consulting Engineers, Inc.**
155 Grand Avenue, Suite 800
Oakland, CA 94612
Attention: Shawn Duffy
Project Name: PG&E Topock Project
Project Number: 428648.IM.CS.EX.AC
P.O. Number: PGEIM1111100
Release Number:

Laboratory No. 815043
Page 1 of 6
Printed 9/30/2014

Samples Received on 9/16/2014 7:00:00 PM

Field ID	Lab ID	Collected	Matrix
SC-700B-WDR-486	815043-001	09/16/2014 13:30	Water

Specific Conductivity - EPA 120.1

Batch 1409180

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815043-001 Specific Conductivity	umhos/cm	09/17/2014	1.00	0.606	2.00	7250

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate

Lab ID = 815053-003

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	1840	1830	0.273	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	714	706	101	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	714	706	101	90 - 110

MRCVS - Primary

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

Client: E2 Consulting Engineers, Inc.

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

Printed 9/30/2014

Chrome VI by EPA 218.6

Batch 1409271

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815043-001 Chromium, Hexavalent	ug/L	09/19/2014 15:23	1.00	0.00600	0.20	0.32

Method Blank

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

Duplicate — Lab ID = 815043-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	0.320	0.322	0.623	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.207	0.200	104	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.17	5.00	103	90 - 110

Matrix Spike — Lab ID = 815043-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.24	5.32(5.00)	98.3	90 - 110

Matrix Spike — Lab ID = 815043-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.36	1.32(1.00)	103	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.15	5.00	103	90 - 110

MRCVS - Primary

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

Metals by EPA 200.8, Total

Batch 092214A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815043-001 Chromium	ug/L	09/22/2014 15:29	1.00	0.0710	1.0	ND
Manganese	ug/L	09/22/2014 15:29	1.00	0.0600	0.50	1.7

Method Blank

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

Duplicate

Lab ID = 815044-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	1.00	2.07	2.15	3.84	0 - 20
Manganese	ug/L	1.00	0.954	1.09	13.3	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.223	0.200	112	70 - 130
Manganese	ug/L	1.00	0.428	0.500	85.6	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	48.6	50.0	97.3	85 - 115
Manganese	ug/L	1.00	49.2	50.0	98.4	85 - 115

Matrix Spike

Lab ID = 815044-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	1.00	50.4	52.2(50.0)	96.6	75 - 125
Manganese	ug/L	1.00	49.7	51.1(50.0)	97.2	75 - 125

Matrix Spike Duplicate

Lab ID = 815044-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	1.00	50.0	52.2(50.0)	95.8	75 - 125
Manganese	ug/L	1.00	48.9	51.1(50.0)	95.6	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.0	20.0	100	90 - 110
Manganese	ug/L	1.00	20.6	20.0	103	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.2	20.0	96.1	90 - 110

Client: E2 Consulting Engineers, Inc.

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

Total Dissolved Solids by SM 2540 C

Batch 1409255

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815043-001 Total Dissolved Solids	mg/L	09/17/2014	1.00	1.76	250	4440

Method Blank

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

Duplicate — Lab ID = 815053-004

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	1540	1530	0.522	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Dissolved Solids	mg/L	1.00	518	500	104	90 - 110

Turbidity by SM 2130 B

Batch 1409269

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815043-001 Turbidity	NTU	09/17/2014	1.00	0.0140	0.100	ND

Method Blank

Parameter	Unit	DF	Result
Turbidity	NTU	1.00	ND

Duplicate — Lab ID = 815053-004

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Turbidity	NTU	1.00	1.36	1.31	3.74	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	8.25	8.00	103	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	7.82	8.00	97.8	90 - 110

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

Mona Nassimi
Manager, Analytical Services

Truesdail Laboratories, Inc.

Total Dissolved Solids by SM 2540 C

Calculations

Batch: 1409255
Date Analyzed: 9/17/2014

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	66.8011	66.8012	66.8012	0.0000	No	0.0001	1.0	25.0	ND	1
14I0160-03A	100	68.5349	68.5820	68.5816	0.0004	No	0.0467	467.0	25.0	467.0	1
14I0193-01A	500	167.3425	167.3467	167.3466	0.0001	No	0.0041	8.2	5.0	8.2	1
14I0211-01D	100	74.6962	74.7457	74.7457	0.0000	No	0.0495	495.0	25.0	495.0	1
14I0211-02	100	68.0268	68.0920	68.0920	0.0000	No	0.0652	652.0	25.0	652.0	1
14I0223-03D	50	60.4468	60.5230	60.5226	0.0004	No	0.0758	1516.0	50.0	1516.0	1
14I0223-04	50	60.4101	60.4869	60.4868	0.0001	No	0.0767	1534.0	50.0	1534.0	1
14I0224-01D	100	72.7505	72.8032	72.8030	0.0002	No	0.0525	525.0	25.0	525.0	1
14I0225-01B	100	74.0171	74.0713	74.0712	0.0001	No	0.0541	541.0	25.0	541.0	1
14I0226-01A	50	47.9423	47.9997	47.9994	0.0003	No	0.0571	1142.0	50.0	1142.0	1
14I0228-02B	100	76.7780	76.8005	76.8003	0.0002	No	0.0223	223.0	25.0	223.0	1
14I0223-04 Dup	50	59.5081	59.5853	59.5850	0.0003	No	0.0769	1538.0	50.0	1538.0	1
LCS	100	66.6886	66.7404	66.7404	0.0000	No	0.0518	518.0	25.0	518.0	1
14I0228-04B	100	75.2745	75.3020	75.3016	0.0004	No	0.0271	271.0	25.0	271.0	1
14I238-01A	10	29.3772	29.4218	29.4216	0.0002	No	0.0444	4440.0	250.0	4440.0	1
14I0228-04 Dup	100	78.3762	78.4044	78.4043	0.0001	No	0.0281	281.0	25.0	281.0	1

Calculation as follows:

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

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	518.0	500	**103.6%**	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?
14I0223-04	0.0767	0.0769	**0.1%**	≤5%	Yes
14I0228-04	0.2710	0.0281	**81.2%**	≤5%	No

Duplicate Determination Difference

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

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

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

Jenny T.
Analyst Printed Name

Analyst Signature

Maksim G.
Reviewer Printed Name

Reviewer Signature

Total Dissolved Solids by SM 2540 C

TDS/EC CHECK

Batch: 1409255
Date Analyzed: 9/17/2014

Laboratory Number	EC	TDS/EC Ratio: 0.55-0.90	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
14I0160-03A	795	0.59	516.75	0.90
14I0193-01A	11.9	0.69	7.735	1.06
14I0211-01D	904	0.55	587.6	0.84
14I0211-02	860	0.76	559	1.17
14I0223-03D	1833	0.83	1191.45	1.27
14I0223-04	1836	0.84	1193.4	1.29
14I0224-01D	845	0.62	549.25	0.96
14I0225-01B	888	0.61	577.2	0.94
14I0226-01A	1622	0.70	1054.3	1.08
14I0228-02B	377	0.59	245.05	0.91
14I0223-04 Dup	1836	0.84	1193.4	1.29
LCS				
14I0228-04B	453	0.60	294.45	0.92
14I238-01A	7250	0.61	4712.5	0.94
14I0228-04 Dup	453	0.62	294.45	0.95

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

CHAIN OF CUSTODY RECORD

[IM3Plant-WDR-486]

815043/ 14I0238
COC Number
TURNAROUND TIME 10 Days
DATE 09/16/14 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

SAMPLE I.D.	DATE	TIME	DESCRIPTION	Cr6 (218.6) Lab Filtered	Total Metals (200.8) Cr, Mn	Specific Conductance (120.1)	TDS (SM2540C)		Turbidity (SM2130)									NUMBER OF CONTAINERS	COMMENTS
SC-700B-WDR-486	09/16/14	13:30	Water	x	x	x	x		x									3	pH = 6 (200.8)
																		3	TOTAL NUMBER OF CONTAINERS

Please Provide a preliminary Result for the TDS ASAP

ALERT !!
Level III QC

CHAIN OF CUSTODY SIGNATURE RECORD

Signature (Relinquished)	Chris	Printed Name	CHRIS LGUZ	Company/ Agency	CH2MHILL	Date/ Time	9-16-14 14:45
Signature (Received)		Printed Name	THANH NGO	Company/ Agency	TRUESDAIL	Date/ Time	9-16-14 1445
Signature (Relinquished)		Printed Name	THANH NG	Company/ Agency		Date/ Time	9-16-14 1900
Signature (Received)		Printed Name	Alexander Lua	Company/ Agency	TLI	Date/ Time	9/16/14 19:00
Signature (Relinquished)		Printed Name		Company/ Agency		Date/ Time	
Signature (Received)		Printed Name		Company/ Agency		Date/ Time	

SAMPLE CONDITIONS
RECEIVED COOL ☑ WARM ☐ 3.3°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
9/3/14	14I0023-01	7.00	2ml/100ml	9.5	8:00	NE
↓	↓ -02	↓	↓	↓	↓	↓
↓	14I0024-01	↓	↓	↓	↓	↓
↓	↓ -02	↓	↓	↓	↓	↓
9/10/14	14I0193-01	7.00	2ml/100ml	9.5	7:30	NE
9/17/14	14I0238-01	7.00	2ml/100ml	9.5	7:40	NE

NE 9/17/14

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
14I0168(10-12)	<1	>2	9/12/14	ES	NO	@3:00		
14I0169(01-02)	↓	↓	↓	↓	↓	↓		
14I0170(01-07)	↓	↓	↓	↓	↓	↓		
14I0173(01-03)	↓	↓	↓	↓	↓	↓		
14I0164(01-04)	↓	↓	↓	↓	↓	↓		
14I0143-01	<1	>2	9/15/14	ES	Yes	3:00		pH<2
14I0161(01-02)	>1	<2	↓	↓	Yes			
14I0176-01	↓	↓	↓	↓	↓			
14I0190-02	↓	↓	↓	↓	↓			
14I0191-02	<1	↓	↓	↓	↓			
14I0194-01	↓	↓	↓	↓	↓			
14I0195-01	↓	↓	↓	↓	↓			
14I0227-01	>1	>2	9/17/14	ES	Yes			
14I0209-01	<1	<2	↓	↓	↓			
14I0211(01-02)	>1	↓	↓	↓	↓			
14I0217-01	↓	↓	↓	↓	↓			
14I0223(03,04)	<1	↓	↓	↓	↓			
14I0230-02	↓	↓	↓	↓	↓			
14I0231-02	↓	↓	↓	↓	↓			
14I0232-02	↓	↓	↓	↓	↓			
14I0233-02	↓	↓	↓	↓	↓			
14I0228(01-02,04)	<1	>2	9/17/14	ES	ES 9/17/14 ~~Yes~~ No	12:00	9/18/14 @ 1:00	pH<2
14I0236(01-05,7,8)	↓	↓	↓	↓	↓	↓	↓	↓
14I0228(01-02,04)	↓	↓	↓	↓	↓	↓	↓	↓
14I0258-01	↓	↓	↓	↓	↓	↓	↓	↓
14I0253(01-03)	↓	↓	↓	↓	↓	↓	↓	↓
14I0255(10-12)	↓	↓	↓	↓	↓	↓	↓	↓
14I0264-01	<1	<2	9/18/14	ES	Yes			
14I0257-01	>1	↓	↓	↓	↓			
14I0266-01-02	↓	↓	↓	↓	↓			
14I0267-02	<1	↓	↓	↓	↓			
14I0143-01	<1	>2	9/18/14	ES	ES 9/18/14 ~~ES~~ Yes	10:00		pH<2
14I0238-01	↓	↓	↓	↓	↓	↓		↓
14I0280-01	↓	<2	↓	↓	↓			
14I0281-01	↓	↓	↓	↓	↓			
14I0303-01	<1	>2	9/22/14	ES				
14I0308-01	↓	>2	↓	↓	No			
14I0311-01	>1	<2	↓	↓	Yes			
14I0312-01	<1	↓	↓	↓	↓			
14I0313-01	↓	↓	↓	↓	↓			
14I0315(01-02)	<1	<2	9/22/14	ES	Yes			-1 Tu>1
14I0337-(01-02)	<1	>2	9/23/14	TM	NO	16:15		
14I0342-01A, -02B, -02C	<1	>2	9/24/14	TM	NO	10:00		
14I0342-04C, -04G	<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.
EXCELLENCE IN INDEPENDENT TESTING

Established 1931

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

October 2, 2014

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

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK IM3PLANT-WDR-487 PROJECT, GROUNDWATER MONITORING, TLI NO.: 815052

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-487 project groundwater monitoring for Hexavalent and Total Chromium, Total Manganese, Turbidity, Specific Conductivity, and Total Dissolved Solids. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, quality control data and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data have been included under Section 5.

The samples were received and delivered with the chain of custody on September 23, 2014, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

Sample SC-700B-WDR-487 was analyzed as sample I.D. 14I0345 in the raw data but is reported as 815052 in all final report pages.

The straight runs for the sample and associated matrix spike on sample SC-700B-WDR-487 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

Michael Ngo
Quality Assurance/Quality Control Officer

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www.truesdail.com

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

Laboratory No.: **815052**
Date: October 2, 2014
Collected: September 23, 2014
Received: September 23, 2014

ANALYST LIST

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

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

Laboratory No.: **815052**
Date Received: **September 23, 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
815052-001	SC-700B-WDR-487	E120.1	NONE	9/23/2014	8:10	EC	6860	umhos/cm	2.00
815052-001	SC-700B-WDR-487	E200.8	NONE	9/23/2014	8:10	Chromium	1.8	ug/L	1.0
815052-001	SC-700B-WDR-487	E200.8	NONE	9/23/2014	8:10	Manganese	10.5	ug/L	0.50
815052-001	SC-700B-WDR-487	E218.6	LABFLT	9/23/2014	8:10	Chromium, Hexavalent	ND	ug/L	0.20
815052-001	SC-700B-WDR-487	SM2130B	NONE	9/23/2014	8:10	Turbidity	0.100	NTU	0.100
815052-001	SC-700B-WDR-487	SM2540C	NONE	9/23/2014	8:10	Total Dissolved Solids	4080	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: PGEIM1111100'
Release Number:

Laboratory No. 815052
Page 1 of 6
Printed 10/3/2014

Samples Received on 9/23/2014 7:30:00 PM

Field ID	Lab ID	Collected	Matrix
SC-700B-WDR-487	815052-001	09/23/2014 08:10	Water

Specific Conductivity - EPA 120.1 Batch 1409444

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815052-001 Specific Conductivity	umhos/cm	09/29/2014	1.00	0.606	2.00	6860

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate Lab ID = 815054-002

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

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	744	706	105	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	744	706	105	90 - 110

MRCVS - Primary

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

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 1409395

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815052-001 Chromium, Hexavalent	ug/L	09/24/2014 11:54	1.00	0.00600	0.20	ND

Method Blank

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

Duplicate

Lab ID = 815052-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	0.148	0.146	1.02	0 - 20

Low Level Calibration Verification

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

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.08	5.00	102	90 - 110

Matrix Spike

Lab ID = 815052-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.01	5.15(5.00)	97.4	90 - 110

Matrix Spike

Lab ID = 815052-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.18	1.14(1.00)	104	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.15	5.00	103	90 - 110

MRCVS - Primary

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

Report Continued

Client: E2 Consulting Engineers, Inc.

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

Page 3 of 6
Printed 10/3/2014

Metals by EPA 200.8, Total

Batch 092914A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815052-001 Chromium	ug/L	09/29/2014 14:24	1.00	0.0710	1.0	1.8
Manganese	ug/L	09/29/2014 14:24	1.00	0.0600	0.50	10.5

Method Blank

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

Duplicate

Lab ID = 815052-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	1.00	1.64	1.78	7.94	0 - 20
Manganese	ug/L	1.00	10.7	10.5	2.08	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.596	0.500	119	70 - 130
Manganese	ug/L	1.00	0.244	0.200	122	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	51.2	50.0	102	85 - 115
Manganese	ug/L	1.00	50.8	50.0	102	85 - 115

Matrix Spike

Lab ID = 815052-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	1.00	50.5	51.8(50.0)	97.5	75 - 125
Manganese	ug/L	1.00	60.6	60.5(50.0)	100	75 - 125

Matrix Spike Duplicate

Lab ID = 815052-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	1.00	50.3	51.8(50.0)	97.1	75 - 125
Manganese	ug/L	1.00	60.6	60.5(50.0)	100	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	19.6	20.0	97.9	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	20.7	20.0	103	90 - 110
Manganese	ug/L	1.00	20.2	20.0	101	90 - 110

Total Dissolved Solids by SM 2540 C

Batch 1409307

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815052-001 Total Dissolved Solids	mg/L	09/23/2014	1.00	1.76	125	4080

Method Blank

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

Duplicate

Lab ID = 815052-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	3910	4080	4.26	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Dissolved Solids	mg/L	1.00	519	500	104	90 - 110

Turbidity by SM 2130 B

Batch 1409392

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815052-001 Turbidity	NTU	09/24/2014	1.00	0.0140	0.100	0.100

Method Blank

Parameter	Unit	DF	Result
Turbidity	NTU	1.00	ND

Duplicate

Lab ID = 815055-023

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Turbidity	NTU	1.00	0.0910	0.110	18.9	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	7.66	8.00	95.8	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	7.46	8.00	93.2	90 - 110

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

Mona Nassimi
Manager, Analytical Services

Truesdail Laboratories, Inc.

Total Dissolved Solids by SM 2540 C

Calculations

Batch: 1409307
Date Analyzed: 9/23/2014

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	71.9650	71.9650	71.9650	0.0000	No	0.0000	0.0	25.0	ND	1
1410266-01D	100	74.8788	74.9329	74.9329	0.0000	No	0.0541	541.0	25.0	541.0	1
1410266-02	100	71.9415	71.9922	71.9920	0.0002	No	0.0505	505.0	25.0	505.0	1
1410268-01B	100	79.1447	79.1869	79.1869	0.0000	No	0.0422	422.0	25.0	422.0	1
1410268-02	100	78.2828	78.3285	78.3281	0.0004	No	0.0453	453.0	25.0	453.0	1
1410268-03	100	66.7802	66.8243	66.8241	0.0002	No	0.0439	439.0	25.0	439.0	1
1410268-04	100	75.7362	75.7802	75.7800	0.0002	No	0.0438	438.0	25.0	438.0	1
1410307-01B	1000	174.6791	174.6888	174.6888	0.0000	No	0.0097	9.7	2.5	9.7	1
1410307-02	1000	164.9268	164.9304	164.9304	0.0000	No	0.0036	3.6	2.5	3.6	1
1410308-01G	100	79.4908	79.5173	79.5172	0.0001	No	0.0264	264.0	25.0	264.0	1
1410315-01D	100	68.7552	68.8053	68.8053	0.0000	No	0.0501	501.0	25.0	501.0	1
1410315-01 Dup	100	75.2625	75.3115	75.3115	0.0000	No	0.0490	490.0	25.0	490.0	1
LCS	100	73.1617	73.2138	73.2136	0.0002	No	0.0519	519.0	25.0	519.0	1
1410315-02	100	74.6904	74.7420	74.7418	0.0002	No	0.0514	514.0	25.0	514.0	1
1410342-02F	100	78.8954	78.9160	78.9159	0.0001	No	0.0205	205.0	25.0	205.0	1
1410342-04	100	79.4364	79.4586	79.4583	0.0003	No	0.0219	219.0	25.0	219.0	1
141345-01A	20	29.5546	29.6365	29.6362	0.0003	No	0.0816	4080.0	125.0	4080.0	1
141345-01A Dup	20	28.8177	28.8962	28.8959	0.0003	No	0.0782	3910.0	125.0	3910.0	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	519.0	500	**103.8%**	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?
1410315-01	0.0501	0.0490	**1.1%**	≤5%	Yes
141345-01A	0.0816	0.0782	**2.1%**	≤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: 1409307
Date Analyzed: 9/23/2014

Laboratory Number	EC	TDS/EC Ratio: 0.55-0.90	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
14I0266-01D	987	0.55	641.55	0.84
14I0266-02	878	0.58	570.7	0.88
14I0268-01B	792	0.53	514.8	0.82
14I0268-02	796	0.57	517.4	0.88
14I0268-03	781	0.56	507.65	0.86
14I0268-04	775	0.57	503.75	0.87
14I0307-01B	18.7	0.52	12.155	0.80
14I0307-02	8.35	0.43	5.4275	0.66
14I0308-01G	432	0.61	280.8	0.94
14I0315-01D	911	0.55	592.15	0.85
14I0315-01 Dup	911	0.54	592.15	0.83
LCS				
14I0315-02	868	0.59	564.2	0.91
14I0342-02F	326	0.63	211.9	0.97
14I0342-04	358	0.61	232.7	0.94
14I345-01A	6860	0.59	4459	0.92
14I345-01A Dup	6860	0.57	4459	0.88

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

815052/

[IM3Plant-WDR-487]

14I0345

COC Number
TURNAROUND TIME 5 Days
DATE 09/23/14 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 (200.8) Cr, Mn	Specific Conductance (120.1)	TDS (SM2540C)		Turbidity (SM2130)									NUMBER OF CONTAINERS	COMMENTS
SC-700B-WDR-487	09/23/14	8:10	Water	x	x	x	x		x									3	pH = 6 (200.8)
																		3	TOTAL NUMBER OF CONTAINERS

Please Provide a preliminary Result for the TDS ASAP

RUSH

ALERT !!
Level III QC

CHAIN OF CUSTODY SIGNATURE RECORD

Signature (Relinquished)	Printed Name CHRIS LENTZ	Company/ Agency CH2M HILL	Date/ Time 9-23-14 15:10
Signature (Received)	Printed Name THANH NGO	Company/ Agency TRUESDAIL	Date/ Time 9-23-14 15:10
Signature (Relinquished)	Printed Name THANH NGO	Company/ Agency	Date/ Time 9-23-14 19:30
Signature (Received)	Printed Name LEO BRADY	Company/ Agency TLI	Date/ Time 9-23-14 1930
Signature (Relinquished)	Printed Name	Company/ Agency	Date/ Time
Signature (Received)	Printed Name	Company/ Agency	Date/ Time

SAMPLE CONDITIONS
RECEIVED COOL ☑ WARM ☐ 3.5 °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
9/3/14	14I0023-01	7.00	2ml/100ml	9.5	8:00	NE
↓	↓ -02	↓	↓	↓	↓	↓
↓	14I0024-01	↓	↓	↓	↓	↓
↓	↓ -02	↓	↓	↓	↓	↓
9/10/14	14I0193-01	7.00	2ml/100ml	9.5	7:30	NE
9/17/14	14I0238-01	7.00	2ml/100ml	9.5	7:40	NE
9/24/14	14I0345-01	7.00	2ml/100ml	9.5	7:15	NE

NE
9/24/14

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

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
14I0341(-01,-02,-03)	<1	>2	9/24/14	TM	NO	10:00		
(-04,-05,-06,07-08)	<1	>2	↓			↓		
14I0352-01,-02	>1	<2	9/24/14	TM	Yes			
14I0355-01	>1	<2	↓	↓	↓			
14I0356-10-11-12	<1	>2	9/24/14	TM	NO	16:15		
14I0358(-01,-02,-03)								
14I0359-(01,-02,-03)								
14I0360-01,-02,-03								
-04,-05,-06,-07								
-08,-09,-10,-11,-12								
-13,-14,-15,-16,-17								
↓ -18,-19,-20	↓	↓	↓	↓	↓	↓		
14I0345-07	<1	>2	9/26/14	ES	Yes	11:00		pH<2
14I0371-01	>1	<2	9/29/14	ES	Yes			
14I0378-01	<1	ES ~~<~~ >2 9/29/14	↓	↓	↓			
14I0391-01	<1	<2	9/30/14	ES	Yes			
14I0392-01	↓	↓	↓	↓	↓			
14I0395 (01-02)	>1	↓	↓	↓	↓			
14I0409-01	<1	>2	9/30/14	ES	Yes			
14I0407-01	>1	<2	↓	↓	↓			
14I0416(01-02,04)	<1	>2	9/30/14	ES	NO	05:00		
14I0417(01-03)	↓	↓	↓	↓	↓	↓		
14J0007-(04,-05,-06)	<1	>2	10/01/14	TM	NO	13:15		

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.

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Established 1931

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

October 7, 2014

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

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK IM3PLANT-WDR-488 PROJECT, GROUNDWATER MONITORING, TLI NO.: 815056

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-488 project groundwater monitoring for Hexavalent and Total Chromium, Total Manganese, Turbidity, Specific Conductivity, and Total Dissolved Solids. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, quality control data and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data have been included under Section 5.

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

Sample SC-700B-WDR-488 was analyzed as sample I.D. 14J0004 in the raw data but is reported as 815056 in all final report pages.

The straight runs for the sample and associated matrix spike on sample SC-700B-WDR-488 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

Michael Ngo
Quality Assurance/Quality Control Officer

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.: **815056**
Date: October 7, 2014
Collected: September 30, 2014
Received: September 30, 2014

ANALYST LIST

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

TRUESDAIL LABORATORIES, INC.
EXCELLENCE IN INDEPENDENT TESTING

Established 1931

14201 FRANKLIN AVENUE · TUSTIN, CALIFORNIA 92780-7008
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Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy

Laboratory No.: **815056**
Date Received: **September 30, 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
815056-001	SC-700B-WDR-488	E120.1	NONE	9/30/2014	7:40	EC	7150	umhos/cm	2.00
815056-001	SC-700B-WDR-488	E200.8	NONE	9/30/2014	7:40	Chromium	3.5	ug/L	1.0
815056-001	SC-700B-WDR-488	E200.8	NONE	9/30/2014	7:40	Manganese	10.6	ug/L	0.50
815056-001	SC-700B-WDR-488	E218.6	LABFLT	9/30/2014	7:40	Chromium, Hexavalent	ND	ug/L	0.20
815056-001	SC-700B-WDR-488	SM2130B	NONE	9/30/2014	7:40	Turbidity	ND	NTU	0.100
815056-001	SC-700B-WDR-488	SM2540C	NONE	9/30/2014	7:40	Total Dissolved Solids	4370	mg/L	250

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

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: PGEIM1111100´
Release Number:

Laboratory No. 815056
Page 1 of 6
Printed 10/7/2014

Samples Received on 9/30/2014 7:30:00 PM

Field ID	Lab ID	Collected	Matrix
SC-700B-WDR-488	815056-001	09/30/2014 07:40	Water

Specific Conductivity - EPA 120.1 Batch 1409486

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815056-001 Specific Conductivity	umhos/cm	10/03/2014	1.00	0.606	2.00	7150

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate Lab ID = 815056-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	7160	7150	0.140	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	718	706	102	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	718	706	102	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	1000	1000	100	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	1000	1000	100	90 - 110

Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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

Printed 10/7/2014

Chrome VI by EPA 218.6

Batch 1410001

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815056-001 Chromium, Hexavalent	ug/L	10/01/2014 10:55	1.00	0.00600	0.20	ND

Method Blank

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

Duplicate — Lab ID = 815056-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	0.105	0.106	0.948	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.205	0.200	102	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.12	5.00	102	90 - 110

Matrix Spike — Lab ID = 815056-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.04	5.11(5.00)	98.6	90 - 110

Matrix Spike — Lab ID = 815056-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.17	1.10(1.00)	106	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.12	5.00	102	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

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 100614A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815056-001 Chromium	ug/L	10/06/2014 15:57	1.00	0.0710	1.0	3.5
Manganese	ug/L	10/06/2014 15:57	1.00	0.0600	0.50	10.6

Method Blank

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

Duplicate

Lab ID = 815056-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	1.00	3.33	3.51	5.29	0 - 20
Manganese	ug/L	1.00	10.8	10.6	1.98	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.618	0.500	124	70 - 130
Manganese	ug/L	1.00	0.226	0.200	113	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	50.6	50.0	101	85 - 115

Matrix Spike

Lab ID = 815056-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	1.00	52.0	53.5(50.0)	97.0	75 - 125
Manganese	ug/L	1.00	58.2	60.6(50.0)	95.2	75 - 125

Matrix Spike Duplicate

Lab ID = 815056-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	1.00	51.0	53.5(50.0)	94.9	75 - 125
Manganese	ug/L	1.00	59.3	60.6(50.0)	97.5	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.9	20.0	99.5	90 - 110
Manganese	ug/L	1.00	19.7	20.0	98.5	90 - 110

MRCVS - Primary

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

Total Dissolved Solids by SM 2540 C

Batch 1410027

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815056-001 Total Dissolved Solids	mg/L	09/30/2014	1.00	1.76	250	4370

Method Blank

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

Duplicate Lab ID = 815056-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	4370	4370	0	0 - 10

Lab Control Sample

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

Turbidity by SM 2130 B

Batch 1410002

Parameter	Unit	Analyzed	DF	MDL	RL	Result
815056-001 Turbidity	NTU	10/01/2014	1.00	0.0140	0.100	ND

Method Blank

Parameter	Unit	DF	Result
Turbidity	NTU	1.00	ND

Duplicate Lab ID = 815059-003

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

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	7.93	8.00	99.1	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	7.73	8.00	96.6	90 - 110

Client: E2 Consulting Engineers, Inc.

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

Printed 10/7/2014

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Mona Nassimi
Manager, Analytical Services

Truesdail Laboratories, Inc.

Total Dissolved Solids by SM 2540 C

Calculations

Batch: 1410027
Date Analyzed: 9/30/2014

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	77.7772	77.7776	77.7776	0.0000	No	0.0004	4.0	25.0	ND	1
14I0352-01D	100	76.5208	76.5717	76.5717	0.0000	No	0.0509	509.0	25.0	509.0	1
14I0352-02	100	77.4721	77.5244	77.5240	0.0004	No	0.0519	519.0	25.0	519.0	1
14I0353-01C	100	75.7362	75.7827	75.7827	0.0000	No	0.0465	465.0	25.0	465.0	1
14I0353-02	100	67.0136	67.0604	67.0603	0.0001	No	0.0467	467.0	25.0	467.0	1
14I0353-04B	100	78.1749	78.2214	78.2214	0.0000	No	0.0465	465.0	25.0	465.0	1
14I0353-05	100	78.2340	78.2798	78.2798	0.0000	No	0.0458	458.0	25.0	458.0	1
14I0395-01C	100	65.5201	65.5676	65.5676	0.0000	No	0.0475	475.0	25.0	475.0	1
14I0395-02F	100	74.1411	74.1912	74.1912	0.0000	No	0.0501	501.0	25.0	501.0	1
14I0407-01B	50	59.7478	59.7980	59.7978	0.0002	No	0.0500	1000.0	50.0	1000.0	1
14I0407-02A	100	74.4475	74.5085	74.5082	0.0003	No	0.0607	607.0	25.0	607.0	1
14I0407-01 Dup	50	50.1182	50.1671	50.1671	0.0000	No	0.0489	978.0	50.0	978.0	1
LCS	100	66.7027	66.7521	66.7521	0.0000	No	0.0494	494.0	25.0	494.0	1
14I0408-01B	800	173.1604	173.1678	173.1678	0.0000	No	0.0074	9.2	3.1	9.2	1
14I0416-02F	100	70.3675	70.3914	70.3913	0.0001	No	0.0238	238.0	25.0	238.0	1
14I0416-03F	100	68.0249	68.0580	68.0579	0.0001	No	0.0330	330.0	25.0	330.0	1
14J0004-01A	10	28.9671	29.0109	29.0108	0.0001	No	0.0437	4370.0	250.0	4370.0	1
14J0004-01A Du	10	30.4216	30.4655	30.4653	0.0002	No	0.0437	4370.0	250.0	4370.0	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?
14I0407-01	0.0500	0.0489	1.1%	≤5%	Yes
14J0004-01A	0.0437	0.0437	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: 1410027
Date Analyzed: 9/30/2014

Laboratory Number	EC	TDS/EC Ratio: 0.55-0.90	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
14I0352-01D	963	0.53	625.95	0.81
14I0352-02	890	0.58	578.5	0.90
14I0353-01C	854	0.54	555.1	0.84
14I0353-02	835	0.56	542.75	0.86
14I0353-04B	831	0.56	540.15	0.86
14I0353-05	816	0.56	530.4	0.86
14I0395-01C	910	0.52	591.5	0.80
14I0395-02F	858	0.58	557.7	0.90
14I0407-01B	1546	0.65	1004.9	1.00
14I0407-02A	944	0.64	613.6	0.99
14I0407-01 Dup	1546	0.63	1004.9	0.97
LCS				
14I0408-01B	15	0.62	9.75	0.95
14I0416-02F	416	0.57	270.4	0.88
14I0416-03F	580	0.57	377	0.88
14J0004-01A	7150	0.61	4647.5	0.94
14J0004-01A Dup	7150	0.61	4647.5	0.94

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-488]

8150561

COC Number 1430004
TURNAROUND TIME 5 Days
DATE 09/30/14 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

SAMPLE I.D.	DATE	TIME	DESCRIPTION	Cr6 (218.6) Lab Filtered	Total Metals (200.8) Cr, Mn	Specific Conductance (120.1)	TDS (SM2540C)		Turbidity (SM2130)									NUMBER OF CONTAINERS	COMMENTS
SC-700B-WDR-488	09/30/14	7:40	Water	x	x	x	x		x									3	pH=6 (200.8)
																		3	TOTAL NUMBER OF CONTAINERS

Please Provide a preliminary Result for the TDS ASAP

ALERT !!
Level III QC

RUSH

CHAIN OF CUSTODY SIGNATURE RECORD

Signature (Relinquished)	Chris	Printed Name	CHRIS LENZ	Company/ Agency	CH2MHILL	Date/ Time	9-30-14 15:20
Signature (Received)	Thanh Ngo	Printed Name	THANH NGO	Company/ Agency	TRUESDAIL	Date/ Time	9-30-14 1520
Signature (Relinquished)	Thanh Ngo	Printed Name	THANH NGO	Company/ Agency		Date/ Time	9-30-14 1930
Signature (Received)	Michael Ngo	Printed Name	Michael Ngo	Company/ Agency	TLI	Date/ Time	9/30/14/19:30
Signature (Relinquished)		Printed Name		Company/ Agency		Date/ Time	
Signature (Received)		Printed Name		Company/ Agency		Date/ Time	

SAMPLE CONDITIONS
RECEIVED COOL ☑ WARM ☐ 4.1 °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
9/3/14	14I0023-01	7.00	2ml/100ml	9.5	8:00	NE
↓	↓ -02	↓	↓	↓	↓	↓
↓	14I0024-01	↓	↓	↓	↓	↓
↓	↓ -02	↓	↓	↓	↓	↓
9/10/14	14I0193-01	7.00	2ml/100ml	9.5	7:30	NE
9/17/14	14I0238-01	7.00	2ml/100ml	9.5	7:40	NE
9/24/14	14I0345-01	7.00	2ml/100ml	9.5	7:15	NE
10/01/14	14J0004-01	7.00	2ml/100ml	9.5	7:10	NE

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

NE
10/01/14

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
14I0341(-01,-02,-03)	<1	>2	9/24/14	TM	NO	10:00		
(-04,-05,-06,07-08)	<1	>2	↓			↓		
14I0352-01,-02	>1	<2	9/24/14	TM	Yes			
14I0355-01	>1	<2	↓	↓	↓			
14I0356-10-11-12	<1	>2	9/24/14	TM	NO	16:15		
14I0358(-01,-02,-03)								
14I0359-(01,-02,-03)								
14I0360-01,-02,-03								
-04,-05,-06,-07								
-08,-09,-10,-11,-12								
-13,-14,-15,-16,-17								
-18,-19,-20	↓	↓	↓	↓	↓	↓		
14I0345-07	<1	>2	9/26/14	ES	Yes	11:00		pH<2
14I0371-01	>1	<2	9/29/14	ES	yes			
14I0378-01	<1	ES ~~2~~ >2 9/29/14	↓	↓	↓			
14I0391-01	<1	<2	9/30/14	ES	Yes			
14I0392-01	↓							
14I0395(01-02)	>1	↓	↓	↓	↓			
14I0409-01	<1	>2	9/30/14	ES	Yes			
14I0407-01	>1	<2	↓	↓	↓			
14I0416(01-02,04)	<1	>2	9/30/14	ES	NO	05:00		
14I0417(01-03)	↓	↓	↓	↓	↓	↓		
14J0007-(04,-05,-06)	<1	>2	10/01/14	TM	NO	13:15		
14J0009(-01,-02,-03)	<1	>2	10/02/14	TM	NO	11:20		
14J0012(-10,-11,-12)	<1	>2	↓		↓	↓		
14J0022(-01,-02)	>1	<2			Yes			
14J0025(-01,-02,-03)	<1	>2			NO	11:25		
(-04,-05,-06)	<1	>2	↓	↓	↓	↓		
14J0002(-01,-02,-03,-04)	<1	>2	10/2/14	TM	NO	12:15		
14J0035-02	>1	<2			Yes			
14J0037-02	>1	<2	↓	↓	↓			
14J0048-24	<1	>2	10/6/14	TM	NO	10:25		
14J0048-17	<1	>2			↓	↓		
14J0045-06	>1	<2			Yes			
14J0049-01								
14J0050-01								
14J0051-01	↓	↓	↓	↓	↓			
14J0044-01	<1	>2	10/6/14	ES	Yes	11:00		pH<2
14J0068-(01-02)	>1	<2	10/7/14	ES	Yes			
14J0074-01	↓							
14J0075-01	<1							
14J0077-06	>1				↓			
14J0078-06	↓	↓	↓	↓				

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.

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	9-2-14	1400	9-2-14	1405	METER #2	9-2-14	4:14	-54.2	Ron Phelps	6.8
Notes:											
2	SC-100B	9-2-14	1400	9-2-14	1408	METER#2	9-2-14	4:14	-54.2	Ron Phelps	7.1
Notes:											
3	SC-700B	9-9-14	10:00	9-9-14	10:06	METER #2	9-9-14	04:40	-54.4	Ron Phelps	7.0
Notes:											
4	SC-700B	9-16-14	13:25	9-16-14	13:30	METER#2	9-16-14	03:50	-55.0	CHRIS LENTZ	7.0
Notes:											
5	SC-700B	9-23-14	8:00	9-23-14	8:10	METER#2	9-23-14	0426	-54.9	CHRIS LENTZ	6.9
Notes:											
6	SC-700B	9-30-14	735	9-30-14	7:40	METER#2	9-30-14	0419	-56.6	CHRIS LENTZ	6.8
Notes:											
7											
Notes:											

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