

July 15, 2016

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**Subject: Topock IM-3 Combined Second Quarter 2016 Monitoring, Semiannual January – June 2016
Operation and Maintenance Report
PG&E Topock Compressor Station, Needles, California
Interim Measure No. 3 Groundwater Treatment System
(Document ID: PGE20160715A)**

Dear Ms. Innis and Mr. Perdue:

Enclosed is the Second Quarter 2016 Monitoring, Semiannual January – June 2016 Operation and Maintenance Report for the Pacific Gas and Electric Company (PG&E) Topock Compressor Station, Interim Measure No. 3 (IM-3) Groundwater Treatment System.

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

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

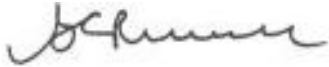
The IM-3 groundwater extraction and treatment system has extracted and treated approximately 724,270,471 gallons of water and removed approximately 6,820 pounds of total chromium from August 1, 2005 through June 30, 2016.

Pamela S. Innis
Robert Perdue
July 15, 2016
Page 2

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,

A handwritten signature in dark ink, appearing to read "Curt Russell", is positioned above the typed name.

Curt Russell
Topock Site Manager

Enclosures:

Topock IM-3 Combined Second Quarter 2016 Monitoring, Semiannual January – June 2016 Operation and Maintenance Report

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

Topock Project Executive Abstract

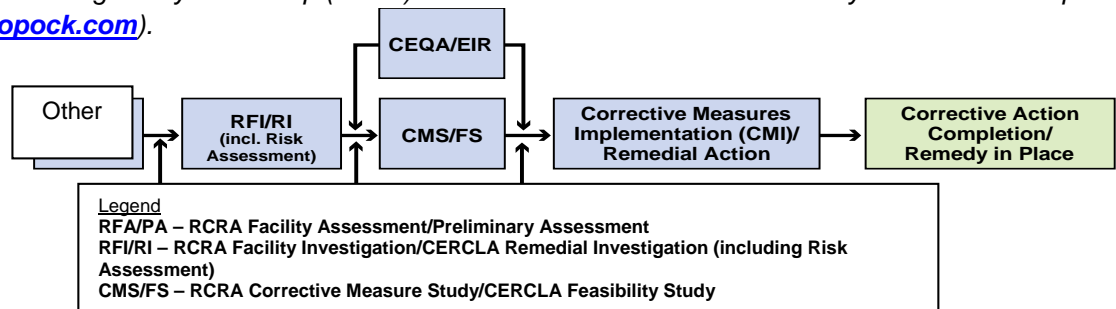
<p>Document Title: Topock IM-3 Second Quarter 2016 Monitoring, Semiannual January - June 2016 Operation and Maintenance Report Submitting Agency/Author: U.S. Department of the Interior and Regional Water Quality Control Board Final Document? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>Date of Document: July 15, 2016 Who Created this Document?: (i.e. PG&E, DTSC, DOI, Other) PG&E Document ID Number: PGE20160715A</p>
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<p>Type of Document: <input type="checkbox"/> Draft <input checked="" type="checkbox"/> Report <input type="checkbox"/> Letter <input type="checkbox"/> Memo <input type="checkbox"/> Other / Explain:</p>	<p>What does this information pertain to? <input type="checkbox"/> Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA)/Preliminary Assessment (PA) <input type="checkbox"/> RCRA Facility Investigation (RFI)/Remedial Investigation (RI) (including Risk Assessment) <input type="checkbox"/> Corrective Measures Study (CMS)/Feasibility Study (FS) <input type="checkbox"/> Corrective Measures Implementation (CMI)/Remedial Action <input type="checkbox"/> California Environmental Quality Act (CEQA)/Environmental Impact Report (EIR) <input checked="" type="checkbox"/> Interim Measures <input type="checkbox"/> Other / Explain:</p>
<p>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 Applicable or Relevant and Appropriate Requirements (ARARs) for waste discharge as documented in Attachment A to the Letter Agreement issued July 26, 2011.</p>	<p>Is this a Regulatory Requirement? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If no, why is the document needed? Other Justification/s: <input type="checkbox"/> Permit <input type="checkbox"/> Other / Explain:</p>
<p>Brief Summary of attached document:</p> <p>This report covers the Interim Measures No. 3 (IM-3) groundwater treatment system monitoring activities during the Second Quarter 2016 period, and the operation and maintenance activities during the January 1, 2016 to June 30, 2016 semiannual period. The groundwater monitoring results for wells OW-1S/M/D, OW-2S/M/D, OW-5S/M/D, CW-1M/D, CW-2M/D, CW-3M/D, and CW-4M/D will be submitted under separate cover as part of the Compliance Monitoring Program. This report also covers the IM-3 operation and maintenance activities during the January – June 2016 semiannual period.</p> <p>Written by: PG&E</p>	
<p>Recommendations: This report is for your information only.</p>	
<p>How is this information related to the Final Remedy or Regulatory Requirements?</p> <p>The Topock IM-3 Second Quarter 2016 Monitoring, Semiannual January - June 2016 Operation and Maintenance 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 ARARs as documented in Attachment A to the Letter Agreement issued July 26, 2011 from the Colorado River Basin Regional Water Quality Control Board (Regional Water Board) to DOI, and the subsequent Letter of Concurrence issued August 18, 2011 from DOI to the Regional Water Board.</p>	

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).



Version 9

Combined Second Quarter 2016 Monitoring, Semiannual January – June 2016 Operation and Maintenance Report Interim Measure No. 3 Groundwater Treatment System

Document ID: PGE20160715A

**PG&E Topock Compressor Station
Needles, California**

Prepared for

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

on behalf of

Pacific Gas and Electric Company

July 15, 2016

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

**Combined Second Quarter 2016 Monitoring, Semiannual January - June 2016
Operation and Maintenance Report
for Interim Measure No. 3 Groundwater Treatment System**

**PG&E Topock Compressor Station
Needles, California**

Prepared for

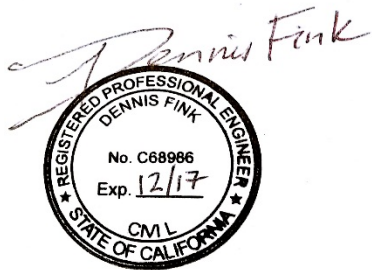
United States Department of the Interior
and
Colorado River Basin Regional Water Quality Control Board

on behalf of

Pacific Gas and Electric Company

July 15, 2016

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



Dennis Fink, P.E.
Project Engineer

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- B Daily Volumes of Groundwater Treated
- C Flowmeter Calibration Records
- D Second Quarter 2016 Laboratory Analytical Reports

Acronyms and Abbreviations

ARARs	Applicable or Relevant and Appropriate Requirements
ASSET	ASSET Laboratories
DOI	United States Department of the Interior
gpm	gallons per minute
IM	Interim Measure
IM-3	Interim Measure No. 3
IW	injection well
MRP	Monitoring and Reporting Program
PG&E	Pacific Gas and Electric Company
PST	Pacific Standard Time
RCRA	Resource Conservations and Recovery Act
Regional Water Board	Colorado River Basin Regional Water Quality Control Board
RO	reverse osmosis
Truesdail	Truesdail Laboratories, Inc.
WDR	Waste Discharge Requirements

SECTION 1

Introduction

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

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

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

This report covers monitoring activities related to operation of the IM-3 groundwater treatment system during the Second Quarter 2016 and the operation and maintenance activities during the January 1, 2016 to June 30, 2016 semiannual 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.

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.

Description of Activities

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

This report describes Second Quarter 2016 monitoring activities and the January 1, 2016 through June 30, 2016 (First and Second Quarters) operation and maintenance activities related to the IM-3 groundwater treatment system. IM-3 monitoring activities from January 1, 2016 through March 31, 2016 (First Quarter) were presented in the First Quarter 2016 Monitoring Report for IM-3 submitted to the DOI and Regional Water Board April 15, 2016.

This report, therefore, serves as the Semiannual January – June 2016 Operation and Maintenance Report for IM-3.

3.1 Groundwater Treatment System

The treatment system was initially operated between July 25 and July 28, 2005 for the WDR-mandated startup phase. Discharge to the injection wells was initiated July 31, 2005 after successfully completing the startup phase in accordance with Order R7-2004-0103. Full-time operation of the treatment system commenced in August 2005.

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

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

Operation of the groundwater treatment system results in the following three effluent streams:

- **Treated Effluent:** Treated water that is discharged to the injection well(s)
- **Reverse Osmosis (RO) Concentrate (brine):** Treatment byproduct that is transported and disposed of offsite at a permitted facility
- **Sludge:** Treatment byproduct that is transported offsite for disposal at a permitted facility, which occurs either when a sludge waste storage bin reaches capacity, or within 90 days of the start date for accumulation in the storage container, whichever occurs first

3.2 Groundwater Treatment System Flow Rates for Second Quarter 2016

Downtime is defined as any periods when all extraction wells are not operating so that no groundwater is being extracted and piped into IM-3 as influent. Periods of planned and unplanned extraction system downtime are summarized in the Semiannual Operations and Maintenance Log provided in Appendix A. The times shown are in Pacific Standard Time to be consistent with other data collected (e.g., water level data) at the site. Periods of planned and unplanned extraction system downtime during the months January 2016 through March 2016 were originally reported in the First Quarter 2016 Monitoring Report for IM-3 submitted to the DOI and Regional Water Board on April 15, 2016, and are also included in Appendix A of this report.

Data regarding daily volumes of groundwater treated and discharged are provided in Appendix B. The IM-3 groundwater treatment system flowmeter calibration records are included in Appendix C.

3.2.1 Treatment System Influent

During the Second Quarter 2016, extraction wells TW-2D, TW-3D, and PE-1 operated with a target pumping rate of 135 gallons per minute (gpm), excluding periods of planned and unplanned downtime. Extraction well TW-2S was not operated during Second Quarter 2016. The operational run time for the IM groundwater extraction system (combined or individual pumping), by month, was approximately:

- 71.1 percent during April 2016
- 99.4 percent during May 2016
- 98.1 percent during June 2016

The Second Quarter 2016 treatment system monthly average flow rates (influent, effluent, and RO concentrate) are presented in Table 2. The system influent flow rate was measured by flowmeters at groundwater extraction wells TW-2S, TW-2D, TW-3D, and PE-1 (Figure TP-PR-10-10-03).

The IM-3 facility treated approximately 16,084,389 gallons of extracted groundwater during Second Quarter 2016.

In addition to extracted groundwater, during Second Quarter 2016 the IM-3 facility treated 1,320 gallons of water generated from the groundwater monitoring program, 8,100 gallons of injection well development water, and 2,793 gallons of purge water from Groundwater Partners.

3.2.2 Effluent Streams

The treatment system effluent flow rate was measured by flowmeters in the piping leading to injection wells IW-2 and IW-3 (Figure TP-PR-10-10-11) and in the piping running from the treated water tank T-700 to the injection wells (Figure TP-PR-10-10-04). The IM-3 facility injected 15,828,597 gallons of treatment system effluent during Second Quarter 2016. The monthly average flow rate to injection wells is shown in Table 2.

The RO concentrate flow rate was measured by a flowmeter at the piping carrying water from RO concentrate tank T-701 to the truck load-out station (Figure PR-10-04). The IM-3 facility generated 184,543 gallons of RO concentrate during Second Quarter 2016. The monthly average RO concentrate flow rate is shown in Table 2.

The sludge flow rate is measured by the size and weight of containers shipped offsite. Five sludge containers were shipped offsite from the IM-3 facility during Second Quarter 2016. The shipment dates and approximate weights are provided in Section 5.3.

3.3 Sampling and Analytical Procedures

With the exception of pH, all samples were collected at the designated sampling locations and placed directly into containers provided by ASSET Laboratories (ASSET) and 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 ASSET or Truesdail via courier under chain-of-custody documentation. The laboratories confirmed the samples were received in chilled condition upon arrival.

ASSET is certified by the California Department of Health Services (Certification No. 2676) under the State of California's Environmental Laboratory Accreditation Program. 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.

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

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

Influent, effluent, RO concentrate, and sludge sampling frequency were in accordance with the MRP. The Second Quarter 2016 sample collection schedule is shown in Table 3.

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

SECTION 4

Analytical Results

The analytical results and laboratory reports for the IM-3 groundwater treatment system monitoring program were previously reported for the First Quarter of 2016 in the First Quarter 2016 Monitoring Report submitted to the DOI and Regional Water Board on April 15, 2016.

Laboratory reports for samples collected in Second Quarter 2016 were prepared by certified analytical laboratories, and are presented in Appendix D. The Second Quarter 2016 analytical results are presented in Tables 4, 5, 6, and 7:

- Influent analytical results are presented in Table 4.
- Effluent analytical results are presented in Table 5. There were no exceedances of effluent limitations during the reporting period.
- RO concentrate analytical results are presented in Table 6.
- Sludge analytical results are presented in Table 7.

The sludge is required to have an aquatic bioassay test annually. The most recent aquatic bioassay test was conducted on an October 2015 sample. The next sludge aquatic bioassay test is scheduled for the Third Quarter 2016 sampling event.

Table 8 identifies the following information for each analysis:

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

Semiannual Operation and Maintenance

This section includes the Semiannual Operation and Maintenance Report for the IM-3 groundwater treatment system for the period January 1, 2016 through June 30, 2016.

All operation and maintenance records are maintained at the facility, including site inspection forms, process monitoring records, hazardous waste generator records (i.e., waste manifests), and self-monitoring reports. These records will be maintained onsite for a period of at least 5 years. Operational programmable logic controller data (flow rates, system alarms, process monitoring data, etc.) are maintained electronically via data historian software. Operation and maintenance records are also archived using maintenance software. The subsections below summarize the operation and maintenance activities during this semiannual reporting period.

5.1 Flowmeter Calibration Records

The IM-3 groundwater treatment system flowmeter calibration records are included in Appendix C. Flowmeter calibrations are performed in a timely manner consistent with the use, flow, material, and manufacturer recommendations. The following flowmeters are used at the facility to measure groundwater flow:

Location	Flowmeter Location ID	Current Flowmeter Serial No.	Date of Calibration	Date of Installation
Extraction well PE-1	FIT-103	6A021F16000	9/16/2015	1/6/2016
Extraction well TW-3D	FIT-102	6C037116000	9/17/2015	1/6/2016
Extraction well TW-2D	FIT-101	6C037016000	9/19/2014	11/1/2015
Extraction well TW-2S	FIT-100	6A022116000	9/20/2014	7/8/2015
Injection well IW-02	FIT-1202	6C037216000	9/20/2013	10/1/2013
Injection well IW-03	FIT-1203	7700F216000	3/22/2014	4/14/2015
Combined IW-02 and IW-03	FIT-700	7700F316000	6/19/2012	8/31/2015
Reverse osmosis concentrate	FIT-701	6A022016000	9/19/2014	7/8/2015

5.2 Volumes of Groundwater Treated

Data regarding daily volumes of groundwater treated between January 1, 2016 through June 30, 2016 are provided in Appendix B.

Approximately 33,248,298 gallons of groundwater were extracted and treated between January 1, 2016 and June 30, 2016. Treatment of this water at the IM-3 facility is being performed in accordance with the conditions of ARARs.

Additionally, approximately 1,320 gallons of well purge water (generated during well development, monitoring well sampling, and/or aquifer testing), 35,100 gallons of injection well re-development water, as well as 2,833 gallons of purge water from Groundwater Partners were treated at the IM-3 facility during the January 1, 2016 through June 30, 2016 semiannual period.

A total of approximately 32,963,186 gallons of treated groundwater were injected back into the Alluvial Aquifer between January 1, 2016 and June 30, 2016.

5.3 Residual Solids Generated (Sludge)

During the January 1, 2016 through June 30, 2016 reporting period, 14 containers of sludge were shipped offsite for disposal. The sludge was shipped to U.S. Ecology in Beatty, Nevada for disposal. A listing of each shipment during the reporting period is provided below.

Date Sludge Bin Removed from Site	Approximate Quantity from Waste Manifests (cubic yards)	Type of Shipment
1/6/16	8	Non-RCRA hazardous waste
1/6/16	8	Non-RCRA hazardous waste
2/10/16	8	Non-RCRA hazardous waste
2/10/16	8	Non-RCRA hazardous waste
2/11/16	8	Non-RCRA hazardous waste
3/8/16	8	Non-RCRA hazardous waste
3/8/16	8	Non-RCRA hazardous waste
3/9/16	8	Non-RCRA hazardous waste
3/31/16	8	Non-RCRA hazardous waste
5/10/16	8	Non-RCRA hazardous waste
5/10/16	8	Non-RCRA hazardous waste
5/11/16	8	Non-RCRA hazardous waste
6/8/16	8	Non-RCRA hazardous waste
6/8/16	8	Non-RCRA hazardous waste

Note:

RCRA = Resource Conservation and Recovery Act

5.4 Reverse Osmosis Concentrate Generated

Data regarding daily volumes of RO concentrate generated are provided in Appendix B, as measured by flowmeter FIT-701 (Figures PR-10-03 and PR-10-04). From January 1, 2016 through June 30, 2016, approximately 395,303 gallons of RO concentrate were transported to Liquid Environmental Solutions in Phoenix, Arizona for disposal.

5.5 Summary of ARARs Compliance

No ARAR violations were identified during the January 1, 2016 through June 30, 2016 semiannual reporting period.

5.6 Operation and Maintenance – Required Shutdowns

Records of routine maintenance are kept onsite.

Appendix A contains a summary of the operation or maintenance issues that required the groundwater extraction system to be shut down during the January 1, 2016 through June 30, 2016 semiannual reporting period.

Activities during the Second Quarter 2016 included one extended shutdown. The extraction well system was offline from 6:02 a.m. on April 4, 2016 to 1:36 p.m. on April 9, 2016; from 2:08 p.m. on April 9, 2016 to 9:52 a.m. on April 10, 2016; from 9:54 a.m. to 10:00 a.m. on April 10, 2016; from 11:04 a.m. to 11:10 a.m. on April 10, 2016; and from 11:36 a.m. on April 10, 2016 to 11:38 a.m. on April 12, 2016 for semiannual

scheduled maintenance and facility evacuation due to a nearby brush fire on April 6-7, 2016. The extraction wells were operated intermittently during the end of the outage to confirm piping re-assembly and pump operation. Total extraction system downtime during the extended shutdown was 8 days, 3 hours, 32 minutes.

5.7 Treatment Facility Modifications

No modifications were made to the IM-3 treatment facility that resulted in a material change in the quality or quantity of wastewater treated or discharged, nor resulted in a material change in the location of discharge, during the January 1, 2016 through June 30, 2016 semiannual period.

SECTION 6

Conclusions

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

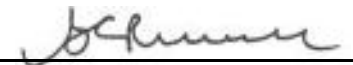
In addition, no incidents of non-compliance were identified during the reporting period. No events that caused an immediate or potential threat to human health or the environment, and no new releases of hazardous waste or hazardous waste constituents, or new solid waste management units, were identified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

SECTION 7

Certification

Certification Statement:

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

Signature: 

Name: Curt Russell

Company: Pacific Gas and Electric Company

Title: Topock Site Manager

Date: July 15, 2016

Tables

TABLE 1

Sampling Station Descriptions*Second Quarter 2016 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).

Notes:

= Sequential sample identification number at each sample station

^a The sample event number is included at the end of the sample ID (e.g., SC-100B-WDR-015).

TABLE 2

Flow Monitoring Results*Second Quarter 2016 Monitoring Report for Interim Measure No. 3 Groundwater Treatment System*

Parameter	System Influent ^{a,b} (gpm)	System Effluent ^b (gpm)	Reverse Osmosis Concentrate ^b (gpm)
April 2016 Average Monthly Flowrate	97.3	96.7	1.2
May 2016 Average Monthly Flowrate	135.5	133.6	1.7
June 2016 Average Monthly Flowrate	135.0	131.7	1.3

Notes:

gpm: gallons per minute

^a Extraction wells TW-2D, TW-3D and PE-1 were operated during the Second Quarter 2016. Extraction well TW-2S did not operate during Second Quarter 2016.

^b The difference between influent flow rate and the sum of the effluent and reverse osmosis concentrate flow rates during the Second Quarter 2016 is approximately 0.44 percent.

TABLE 3

Sample Collection Dates*Second Quarter 2016 Monitoring Report for Interim Measure No. 3 Groundwater Treatment System*

Parameter	Sample Collection Dates	Results
Influent	April 4, 2016 May 3, 2014 June 7, 2014	See Table 4
Effluent	April 4, 2016 April 12, 2016 May 3, 2016 June 7, 2016	See Table 5
Reverse Osmosis Concentrate	April 4, 2016	See Table 6
Sludge ^a	Composite collected from each bin sent off-site during the previous calendar Quarter	See Table 7

Notes:^a Sludge samples analysis is required quarterly by composite.

TABLE 4
Topock IM-3 Waste Discharge Applicable or Relevant and Appropriate Requirements (ARARs)
Influent Monitoring Results ^a
Second Quarter 2016 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

Sampling Frequency		Monthly						Quarterly																			
Sample ID	Date	Analytes Units ^b	MDL	TDS	Turbidity	Specific Conductance	Field ^c pH	Chromium	Hexavalent Chromium	Aluminium	Ammonia (as N)	Antimony	Arsenic	Barium	Boron	Copper	Fluoride	Lead	Manganese	Molybdenum	Nickel	Nitrate/Nitrite (as N)	Sulfate	Iron	Zinc		
				mg/L	NTU	µmhos/cm	pH units	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	µg/L	µg/L
				50.0	0.100	0.100	---	0.0960	1.50	12.0	0.0318	0.130	0.0790	0.360	0.0110	1.30	0.0620	0.270	0.0230	0.150	0.190	0.110	1.60	17.0	0.200		
SC-100B-WDR-538	4/4/2016			4700	0.210	7600	7.3	640	640	ND (50.0)J	ND (0.0500)	ND (2.50)	3.10	29.0	1.50 J	ND (5.00)	2.90	ND (5.00)	8.30	22.0	ND (5.00)	3.00	510	40.0 J	ND (50.0)		
RL				50.0	0.100	0.100	---	5.00	20.0	50.0	0.0500	2.50	0.500	5.00	0.100	5.00	0.500	5.00	0.500	2.50	5.00	0.250	25.0	20.0	50.0		
SC-100B-WDR-540	5/3/2016			4200	ND (0.100)	7100	7.4	530	500	---	---	---	---	---	---	---	---	---	18.0	---	---	---	---	---	---		
RL				50.0	0.100	0.100	---	5.00	20.0	---	---	---	---	---	---	---	---	---	0.500	---	---	---	---	---	---		
SC-100B-WDR-541	6/7/2016			4500	0.190	7400	7.0	620	620	---	---	---	---	---	---	---	---	---	7.60	---	---	---	---	---	---		
RL				50.0	0.100	0.100	---	5.00	20.0	---	---	---	---	---	---	---	---	---	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
ND = parameter not detected at the listed value
NTU = nephelometric turbidity units
RL = project reporting limit
µg/L = micrograms per liter
µmhos/cm = micromhos per centimeter

^a Sampling Location for all influent samples is tap on pipe from extraction wells into tank T-100 (see attached P&ID TP-PR-10-10-04).
^b Units reported in this table are those units required in the ARARs.
^c Starting 11/20/2007, analysis of pH was switched from California certified laboratory analysis to field method pursuant to the Water Board letter dated October 16, 2007 – Clarification of Monitoring and Reporting Program Requirements, stating that pH measurements may be conducted in the field.

TABLE 5
Topock IM-3 Waste Discharge Applicable or Relevant and Appropriate Requirements (ARARs)
Effluent Monitoring Results^a
Second Quarter 2016 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
	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
Sampling Frequency		Monthly																					
<div><div></div><div>Analytes Units^c</div><div>MDL^d</div></div>		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/Nitrite (as N)	Sulfate	Iron	Zinc
		mg/L	NTU	µmhos/cm	pH units	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	mg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	µg/L	µg/L
			50.0	0.100	0.100	---	0.0190	0.0150	12.0	0.0111	0.0310	0.0250	0.0700	0.0110	0.260	0.0620	0.0370	0.0230	0.0380	0.0400	0.110	1.60	1.80
Sample ID	Date																						
SC-700B-WDR-538	4/4/2016	4300	0.200	7100	6.8	ND (1.00)	0.210	ND (50.0)	ND (0.0500)	ND (2.50)	ND (0.500)	15.0	1.40	ND (5.00)	2.50	ND (25.0)	4.60	21.0	ND (5.00)	3.10	470	ND (20.0)	ND (50.0)
	RL	50.0	0.100	0.100	---	1.00	0.200	50.0	0.0500	2.50	0.500	5.00	0.100	5.00	0.500	25.0	0.500	2.50	5.00	0.250	25.0	20.0	50.0
SC-700B-WDR-539	4/12/2016	4200	0.310	7500	7.2	ND (1.00)	0.640	ND (50.0)	0.0694	ND (0.500)	0.170	11.0	1.00	ND (1.00)	2.00	ND (5.00)	25.0	24.0	2.00	1.90	430	26.0	ND (10.0)
	RL	50.0	0.100	0.100	---	1.00	0.200	50.0	0.0500	0.500	0.100	1.00	0.100	1.00	0.500	5.00	0.500	0.500	1.00	0.250	25.0	20.0	10.0
SC-700B-WDR-540	5/3/2016	4300	ND (0.100)	7400	7.3	ND (1.00)	0.250	ND (50.0)	ND (0.0500)	ND (0.500)	ND (0.100)	16.0	1.10	ND (1.00)	2.40	ND (1.00)	4.70	24.0	1.50	2.70	460	33.0	ND (10.0)
	RL	50.0	0.100	0.100	---	1.00	0.200	50.0	0.0500	0.500	0.100	1.00	0.100	1.00	0.500	1.00	0.500	0.500	1.00	0.250	25.0	20.0	10.0
SC-700B-WDR-541	6/7/2016	4100	0.190	7200	6.9	ND (1.00)	ND (0.200)	ND (50.0)	ND (0.0500)	ND (0.500)	ND (0.100)	15.0	1.10	ND (1.00)	2.40	ND (1.00)	4.80	20.0	2.80	2.90	460	ND (20.0)	ND (10.0)
	RL	50.0	0.100	0.100	---	1.00	0.200	50.0	0.0500	0.500	0.100	1.00	0.100	1.00	0.500	1.00	0.500	0.500	1.00	0.250	25.0	20.0	10.0

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
NA = not applicable
ND = parameter not detected at the listed value
NTU = nephelometric turbidity units
RL = project reporting limit
µg/L = micrograms per liter
µmhos/cm = micromhos per centimeter

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

TABLE 6
Topock IM-3 Waste Discharge Applicable or Relevant and Appropriate Requirements (ARARs)
Reverse Osmosis Concentrate Monitoring Results ^a
Second Quarter 2016 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

Sampling Frequency		Quarterly																						
<div>Sample ID</div>	<div>Date</div>	<div>Analytes</div>	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
		<div>Units^b</div>	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
		<div>MDL</div>	500	0.100	---	0.0021	0.00038	0.00066	0.00040	0.0018	0.00066	0.00024	0.00033	0.0066	0.250	0.0013	0.00073	0.000025	0.00095	0.0017	0.00058	0.00084	0.00062	0.00098
SC-701-WDR-538	4/4/2016		40000	53000	7.7	ND (0.0250)	ND (0.0050)	ND (0.0120)	ND (0.0025)	0.140	ND (0.0120)	ND (0.0120)	ND (0.0120)	ND (0.0250)J	20.0	ND (0.0250)	0.200	ND (0.00020)	ND (0.0250)	0.0340	ND (0.0120)	ND (0.0120)	ND (0.0250)	ND (0.250)J
RL			500	0.100	---	0.0250	0.0050	0.0120	0.0025	0.0250	0.0120	0.0120	0.0120	0.0250	2.00	0.0250	0.0120	0.00020	0.0250	0.0120	0.0120	0.0120	0.0250	0.250

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

^a Sampling location for all reverse osmosis samples is tap on pipe T-701 (see attached P&ID PR-10-04).
^b Units reported in this table are those units required in the ARARs.
^c Starting 11/20/2007, analysis of pH was switched from California certified laboratory analysis to field method pursuant to the Water Board letter dated October 16, 2007 – Clarification of Monitoring and Reporting Program Requirements, stating that pH measurements may be conducted in the field.

TABLE 7
Topock IM-3 Waste Discharge Applicable or Relevant and Appropriate Requirements (ARARs)
Sludge Monitoring Results^a
Second Quarter 2016 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

Sampling Frequency		Quarterly																		
<div><div></div><div>Analytes</div><div>Units^b</div><div>MDL</div></div>	Date	Chromium	Hexavalent Chromium	Antimony	Arsenic	Barium	Beryllium	Cadmium	Cobalt	Copper	Fluoride	Lead	Molybdenum	Mercury	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
		0.150	0.120	0.160	0.120	0.0180	0.0370	0.120	0.0580	0.0870	0.550	0.0800	0.0410	0.0071	0.0300	0.160	0.0350	0.110	0.180	0.190
Sample ID																				
Phase Separator-Sludge-538	4/4/2016	2500 J	72.0	ND (4.60)	9.20 J	52.0	ND (2.30)	ND (2.30)	3.20	140	15.0	ND (2.30)J	3.10	ND (0.230)	28.0	ND (2.30)	ND (2.30)J	ND (4.60)J	31.0	21.0
RL		2.30	2.30	4.60	2.30	2.30	2.30	2.30	2.30	4.60	2.30	2.30	2.30	0.230	2.30	2.30	2.30	4.60	2.30	2.30

NOTES:
(---) = not required by the ARARs Monitoring and Reporting Program
J = concentration or reporting limits estimated by laboratory or validation
mg/kg = milligrams per killogram
mg/L = milligrams per liter
MDL = method detection limit
ND = parameter not detected at the listed reporting limit
RL = project reporting limit

^a Sampling location for all sludge samples is the sludge collection bin (see attached P&ID TP-PR-10-10-06).
^b Units reported in this table are those units required in the ARARs.

TABLE 8

Topock IM-3 Waste Discharge Applicable or Relevant and Appropriate Requirements (ARARs)
Monitoring Information
Second Quarter 2016 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-538	Josh Rosenberg	4/4/2016	5:48:00 AM	ASSET	EPA 120.1	SC	4/5/2016	Lilia Ramit
					ASSET	EPA 200.7	AL	4/8/2016	Francis Jordan
					ASSET	EPA 200.7	B	4/9/2016	Francis Jordan
					ASSET	EPA 200.7	FE	4/8/2016	Francis Jordan
					ASSET	EPA 200.8	AS	4/7/2016	Claire Ignacio
					ASSET	EPA 200.8	BA	4/7/2016	Claire Ignacio
					ASSET	EPA 200.8	CR	4/7/2016	Claire Ignacio
					ASSET	EPA 200.8	CU	4/7/2016	Claire Ignacio
					ASSET	EPA 200.8	MN	4/7/2016	Claire Ignacio
					ASSET	EPA 200.8	MO	4/7/2016	Claire Ignacio
					ASSET	EPA 200.8	NI	4/7/2016	Claire Ignacio
					ASSET	EPA 200.8	PB	4/7/2016	Claire Ignacio
					ASSET	EPA 200.8	SB	4/7/2016	Claire Ignacio
					ASSET	EPA 200.8	ZN	4/7/2016	Claire Ignacio
					ASSET	EPA 218.6	CR6	4/6/2016	Jannette Soria
					ASSET	EPA 300.0	FL	4/6/2016	Quennie Manimtim
					ASSET	EPA 300.0	SO4	4/6/2016	Quennie Manimtim
					FIELD	HACH	PH	4/4/2016	Josh R.
					ASSET	SM 2540C	TDS	4/5/2016	Lilia Ramit
					ASSET	SM 4500-NO3F	NO3NO2N	4/7/2016	Ryan Balilu
					ASSET	SM2130B	TRB	4/5/2016	Lilia Ramit
					TLI	SM4500NH3D	NH3N	4/6/2016	Alex Luna
SC-100B	SC-100B-WDR-540	Josh Rosenberg	5/3/2016	2:00:00 PM	ASSET	EPA 120.1	SC	5/4/2016	Ryan Balilu
					ASSET	EPA 200.8	CR	5/5/2016	Claire Ignacio
					ASSET	EPA 200.8	MN	5/5/2016	Claire Ignacio
					ASSET	EPA 218.6	CR6	5/4/2016	Jannette Soria
					FIELD	HACH	PH	5/3/2016	Josh R.
					ASSET	SM 2540C	TDS	5/5/2016	Quennie Manimtim
					ASSET	SM2130B	TRB	5/4/2016	Ryan Balilu
SC-100B	SC-100B-WDR-541	Ryan Phelps	6/7/2016	10:05:00 AM	ASSET	EPA 120.1	SC	6/8/2016	Lilia Ramit
					ASSET	EPA 200.8	CR	6/22/2016	Claire Ignacio
					ASSET	EPA 200.8	MN	6/15/2016	Claire Ignacio
					ASSET	EPA 218.6	CR6	6/8/2016	Jannette Soria
					FIELD	HACH	PH	6/7/2016	Ryan Phelps
					ASSET	SM 2540C	TDS	6/8/2016	Lilia Ramit

TABLE 8

Topock IM-3 Waste Discharge Applicable or Relevant and Appropriate Requirements (ARARs)
Monitoring Information
Second Quarter 2016 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-541	Ryan Phelps	6/7/2016	10:05:00 AM	ASSET	SM2130B	TRB	6/8/2016	Lilia Ramit
SC-700B	SC-700B-WDR-538	Josh Rosenberg	4/4/2016	5:40:00 AM	ASSET	EPA 120.1	SC	4/5/2016	Lilia Ramit
					ASSET	EPA 200.7	AL	4/8/2016	Francis Jordan
					ASSET	EPA 200.7	B	4/9/2016	Francis Jordan
					ASSET	EPA 200.7	FE	4/8/2016	Francis Jordan
					ASSET	EPA 200.8	AS	4/7/2016	Claire Ignacio
					ASSET	EPA 200.8	BA	4/7/2016	Claire Ignacio
					ASSET	EPA 200.8	CR	4/7/2016	Claire Ignacio
					ASSET	EPA 200.8	CU	4/7/2016	Claire Ignacio
					ASSET	EPA 200.8	MN	4/7/2016	Claire Ignacio
					ASSET	EPA 200.8	MO	4/7/2016	Claire Ignacio
					ASSET	EPA 200.8	NI	4/7/2016	Claire Ignacio
					ASSET	EPA 200.8	PB	4/7/2016	Claire Ignacio
					ASSET	EPA 200.8	SB	4/7/2016	Claire Ignacio
					ASSET	EPA 200.8	ZN	4/7/2016	Claire Ignacio
					ASSET	EPA 218.6	CR6	4/6/2016	Jannette Soria
					ASSET	EPA 300.0	FL	4/6/2016	Quennie Manimtim
					ASSET	EPA 300.0	SO4	4/6/2016	Quennie Manimtim
					FIELD	HACH	PH	4/4/2016	Josh R.
					ASSET	SM 2540C	TDS	4/5/2016	Lilia Ramit
					ASSET	SM 4500-NO3F	NO3NO2N	4/7/2016	Ryan Balilu
					ASSET	SM2130B	TRB	4/5/2016	Lilia Ramit
					TLI	SM4500NH3D	NH3N	4/6/2016	Alex Luna
SC-700B	SC-700B-WDR-539	Ryan Phelps	4/12/2016	9:25:00 AM	ASSET	EPA 120.1	SC	4/13/2016	Lilia Ramit
					ASSET	EPA 200.7	AL	4/19/2016	Claire Ignacio
					ASSET	EPA 200.7	B	4/19/2016	Claire Ignacio
					ASSET	EPA 200.7	FE	4/19/2016	Claire Ignacio
					ASSET	EPA 200.8	AS	4/18/2016	Claire Ignacio
					ASSET	EPA 200.8	BA	4/18/2016	Claire Ignacio
					ASSET	EPA 200.8	CR	4/18/2016	Claire Ignacio
					ASSET	EPA 200.8	CU	4/18/2016	Claire Ignacio
					ASSET	EPA 200.8	MN	4/18/2016	Claire Ignacio
					ASSET	EPA 200.8	MO	4/18/2016	Claire Ignacio
					ASSET	EPA 200.8	NI	4/18/2016	Claire Ignacio
					ASSET	EPA 200.8	PB	4/18/2016	Claire Ignacio

TABLE 8

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

Monitoring Information

Second Quarter 2016 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-539	Ryan Phelps	4/12/2016	9:25:00 AM	ASSET	EPA 200.8	SB	4/18/2016	Claire Ignacio
					ASSET	EPA 200.8	ZN	4/18/2016	Claire Ignacio
					ASSET	EPA 218.6	CR6	4/15/2016	Jannette Joy Soria
					ASSET	EPA 300.0	FL	4/13/2016	Quennie Manimtim
					ASSET	EPA 300.0	SO4	4/13/2016	Quennie Manimtim
					FIELD	HACH	PH	4/12/2016	Ryan Phelps
					ASSET	SM 2540C	TDS	4/13/2016	Lilia Ramit
					ASSET	SM 4500-NO3F	NO3NO2N	4/14/2016	Ryan Balilu
					ASSET	SM2130B	TRB	4/13/2016	Lilia Ramit
					TLI	SM4500NH3D	NH3N	4/19/2016	Alex Luna
SC-700B	SC-700B-WDR-540	Josh Rosenberg	5/3/2016	2:00:00 PM	ASSET	EPA 120.1	SC	5/4/2016	Ryan Balilu
					ASSET	EPA 200.7	AL	5/14/2016	Claire Ignacio
					ASSET	EPA 200.7	B	5/14/2016	Claire Ignacio
					ASSET	EPA 200.7	FE	5/14/2016	Claire Ignacio
					ASSET	EPA 200.8	AS	5/5/2016	Claire Ignacio
					ASSET	EPA 200.8	BA	5/5/2016	Claire Ignacio
					ASSET	EPA 200.8	CR	5/5/2016	Claire Ignacio
					ASSET	EPA 200.8	CU	5/5/2016	Claire Ignacio
					ASSET	EPA 200.8	MN	5/5/2016	Claire Ignacio
					ASSET	EPA 200.8	MO	5/5/2016	Claire Ignacio
					ASSET	EPA 200.8	NI	5/5/2016	Claire Ignacio
					ASSET	EPA 200.8	PB	5/5/2016	Claire Ignacio
					ASSET	EPA 200.8	SB	5/5/2016	Claire Ignacio
					ASSET	EPA 200.8	ZN	5/5/2016	Claire Ignacio
					ASSET	EPA 218.6	CR6	5/4/2016	Jannette Soria
					ASSET	EPA 300.0	FL	5/11/2016	Quennie Manimtim
					ASSET	EPA 300.0	SO4	5/11/2016	Quennie Manimtim
					FIELD	HACH	PH	5/3/2016	Josh R.
					ASSET	SM 2540C	TDS	5/5/2016	Quennie Manimtim
					ASSET	SM 4500-NO3F	NO3NO2N	5/7/2016	Ryan Balilu
					ASSET	SM2130B	TRB	5/4/2016	Ryan Balilu
					TLI	SM4500NH3D	NH3N	5/9/2016	Alex Luna
SC-700B	SC-700B-WDR-541	Ryan Phelps	6/7/2016	10:10:00 AM	ASSET	EPA 120.1	SC	6/8/2016	Lilia Ramit
					ASSET	EPA 200.7	AL	6/15/2016	Claire Ignacio
					ASSET	EPA 200.7	B	6/10/2016	Claire Ignacio

TABLE 8

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

Monitoring Information

Second Quarter 2016 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-541	Ryan Phelps	6/7/2016	10:10:00 AM	ASSET	EPA 200.7	FE	6/10/2016	Claire Ignacio
					ASSET	EPA 200.8	AS	6/15/2016	Claire Ignacio
					ASSET	EPA 200.8	BA	6/15/2016	Claire Ignacio
					ASSET	EPA 200.8	CR	6/15/2016	Claire Ignacio
					ASSET	EPA 200.8	CU	6/15/2016	Claire Ignacio
					ASSET	EPA 200.8	MN	6/15/2016	Claire Ignacio
					ASSET	EPA 200.8	MO	6/15/2016	Claire Ignacio
					ASSET	EPA 200.8	NI	6/15/2016	Claire Ignacio
					ASSET	EPA 200.8	PB	6/15/2016	Claire Ignacio
					ASSET	EPA 200.8	SB	6/15/2016	Claire Ignacio
					ASSET	EPA 200.8	ZN	6/15/2016	Claire Ignacio
					ASSET	EPA 218.6	CR6	6/8/2016	Jannette Soria
					ASSET	EPA 300.0	FL	6/8/2016	Quennie Manimtim
					ASSET	EPA 300.0	SO4	6/8/2016	Quennie Manimtim
					FIELD	HACH	PH	6/7/2016	Ryan Phelps
					ASSET	SM 2540C	TDS	6/8/2016	Lilia Ramit
					ASSET	SM 4500-NO3F	NO3NO2N	6/20/2016	Ryan Balilu
					ASSET	SM2130B	TRB	6/8/2016	Lilia Ramit
					TLI	SM4500NH3D	NH3N	6/16/2016	Alex Luna
SC-701	SC-701-WDR-538	Josh Rosenberg	4/4/2016	5:44:00 AM	ASSET	EPA 120.1	SC	4/5/2016	Lilia Ramit
					ASSET	EPA 200.8	AG	4/18/2016	Claire Ignacio
					ASSET	EPA 200.8	AS	4/7/2016	Claire Ignacio
					ASSET	EPA 200.8	BA	4/7/2016	Claire Ignacio
					ASSET	EPA 200.8	BE	4/7/2016	Claire Ignacio
					ASSET	EPA 200.8	CD	4/7/2016	Claire Ignacio
					ASSET	EPA 200.8	CO	4/7/2016	Claire Ignacio
					ASSET	EPA 200.8	CR	4/7/2016	Claire Ignacio
					ASSET	EPA 200.8	CU	4/7/2016	Claire Ignacio
					ASSET	EPA 200.8	MN	4/7/2016	Claire Ignacio
					ASSET	EPA 200.8	MO	4/7/2016	Claire Ignacio
					ASSET	EPA 200.8	NI	4/7/2016	Claire Ignacio
					ASSET	EPA 200.8	PB	4/7/2016	Claire Ignacio
					ASSET	EPA 200.8	SB	4/7/2016	Claire Ignacio
					ASSET	EPA 200.8	SE	4/7/2016	Claire Ignacio
					ASSET	EPA 200.8	TL	4/7/2016	Claire Ignacio
					ASSET	EPA 200.8	V	4/7/2016	Claire Ignacio

TABLE 8

Topock IM-3 Waste Discharge Applicable or Relevant and Appropriate Requirements (ARARs)
Monitoring Information
Second Quarter 2016 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-538	Josh Rosenberg	4/4/2016	5:44:00 AM	ASSET	EPA 200.8	ZN	4/7/2016	Claire Ignacio
					ASSET	EPA 218.6	CR6	4/6/2016	Jannette Soria
					ASSET	EPA 245.1	HG	4/7/2016	Claire Ignacio
					ASSET	EPA 300.0	FL	4/6/2016	Quennie Manimtim
					FIELD	HACH	PH	4/4/2016	Josh R.
					ASSET	SM 2540C	TDS	4/5/2016	Lilia Ramit
Phase Separator	Phase Separator-Sludge-538	Ryan Phelps	4/4/2016	6:30:00 AM	ASSET	EPA 300.0	FL	4/11/2016	Quennie Manimtim
					ASSET	EPA 6010B	AG	4/14/2016	Francis Jordan
					ASSET	EPA 6010B	AS	4/18/2016	Francis Jordan
					ASSET	EPA 6010B	BA	4/14/2016	Francis Jordan
					ASSET	EPA 6010B	BE	4/14/2016	Francis Jordan
					ASSET	EPA 6010B	CD	4/14/2016	Francis Jordan
					ASSET	EPA 6010B	CO	4/14/2016	Francis Jordan
					ASSET	EPA 6010B	CR	4/14/2016	Francis Jordan
					ASSET	EPA 6010B	CU	4/14/2016	Francis Jordan
					ASSET	EPA 6010B	MN	4/14/2016	Francis Jordan
					ASSET	EPA 6010B	MO	4/14/2016	Francis Jordan
					ASSET	EPA 6010B	NI	4/14/2016	Francis Jordan
					ASSET	EPA 6010B	PB	4/14/2016	Francis Jordan
					ASSET	EPA 6010B	SB	4/14/2016	Francis Jordan
					ASSET	EPA 6010B	SE	4/14/2016	Francis Jordan
					ASSET	EPA 6010B	TL	4/14/2016	Francis Jordan
					ASSET	EPA 6010B	V	4/14/2016	Francis Jordan
					ASSET	EPA 6010B	ZN	4/14/2016	Francis Jordan
					ASSET	EPA 7471A	HG	4/9/2016	Claire Ignacio
					ASSET	SW 7199	CR6	4/12/2016	Jannette Soria

TABLE 8

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

Monitoring Information

Second Quarter 2016 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

NOTES:

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

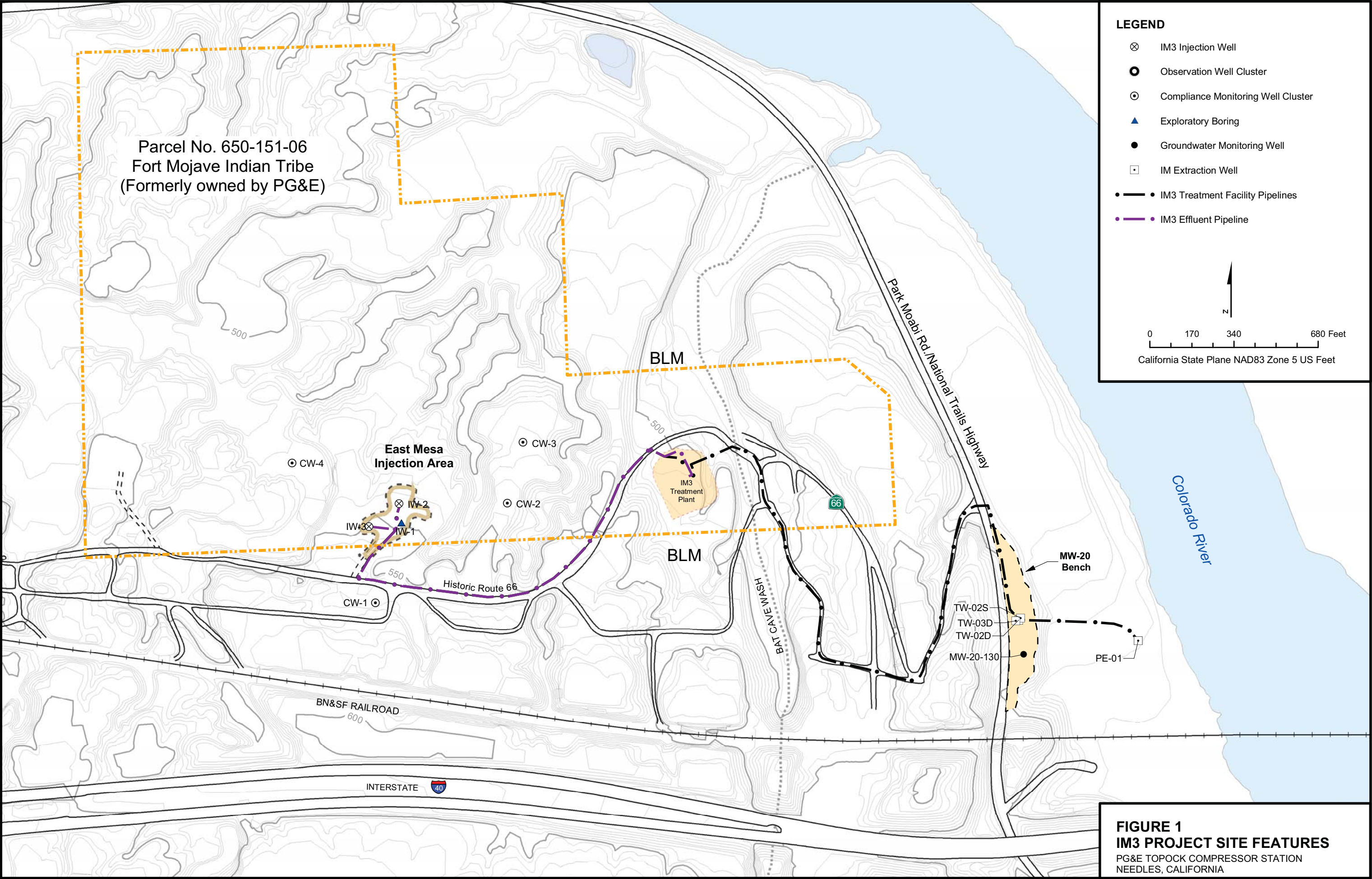
SC-100B = Sampling location for all influent samples is tap on pipe from extraction wells into tank T-100 (see attached P&ID TP-PR-10-10-04).

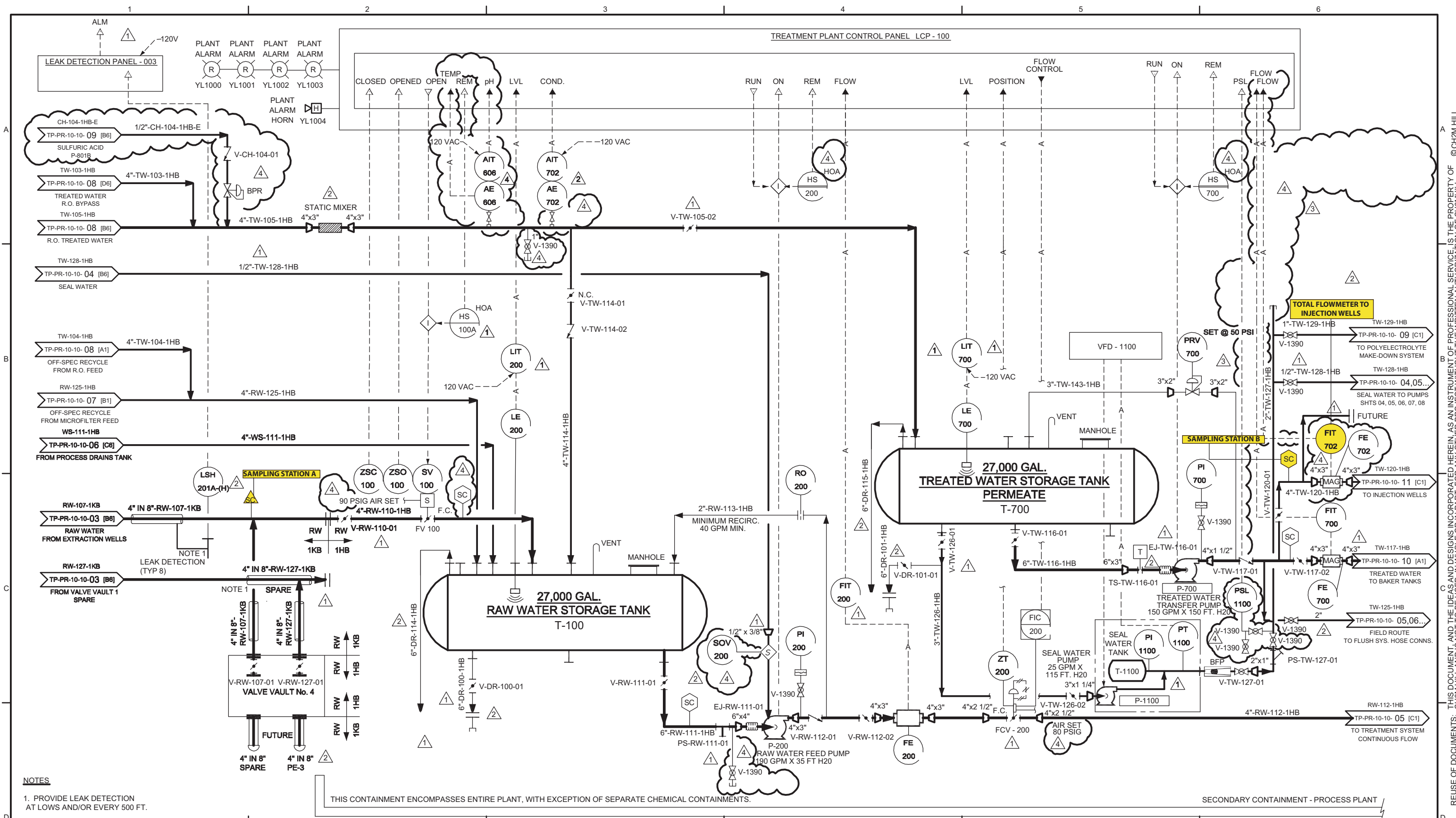
SC-701 = Sampling location for all reverse osmosis samples is tap on pipe T-701 (see attached P&ID PR-10-04).

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

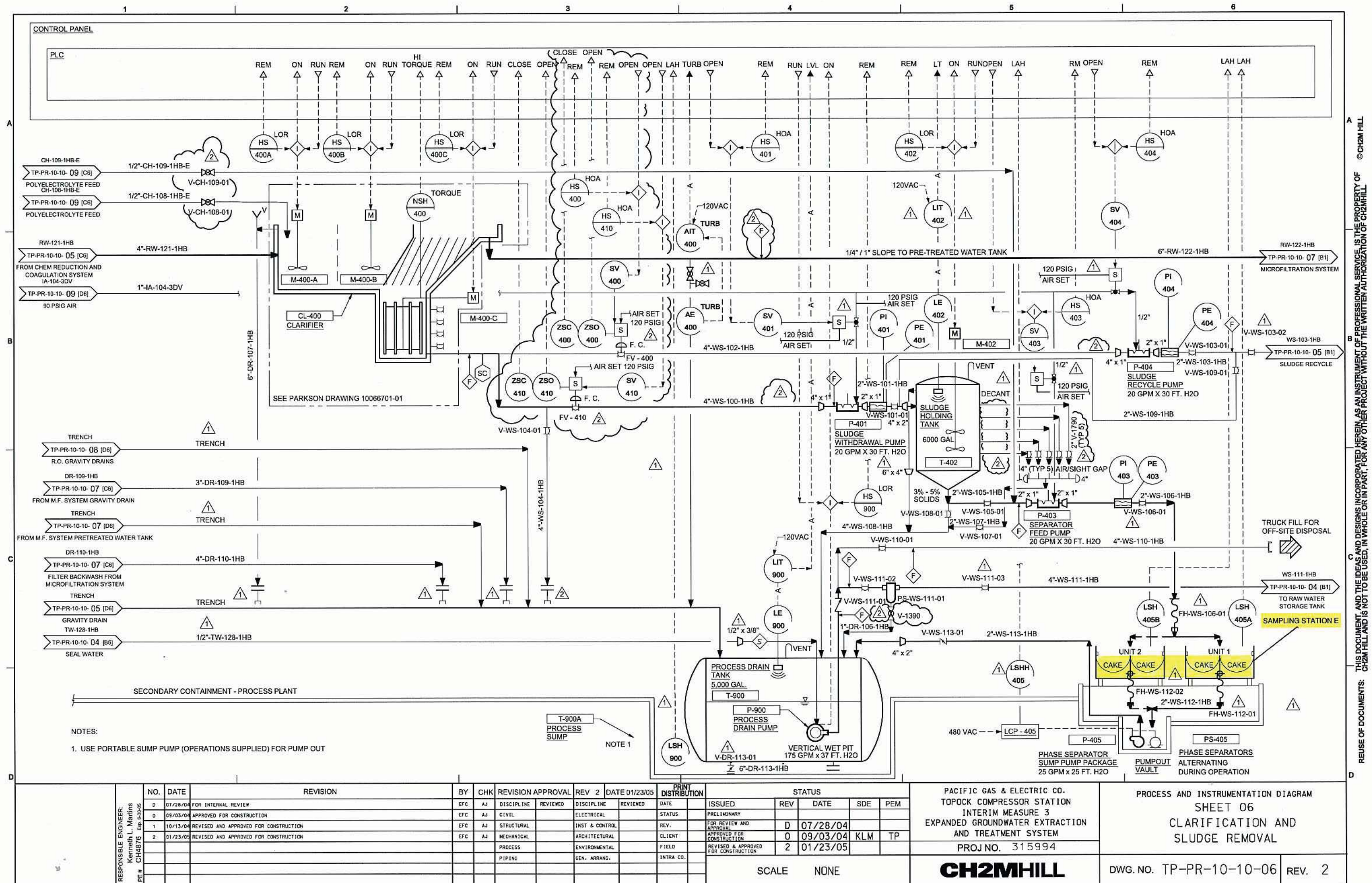
ALKB =	alkalinity, bicarb as CaCO ₃	MO =	molybdenum
ALKC =	alkalinity, carb as CaCO ₃	MOIST =	moisture
AL =	aluminum	NH ₃ N =	ammonia (as N)
Ag =	silver	NI =	nickel
AS =	arsenic	NO ₃ NO ₂ N =	nitrate/nitrite (as N)
B =	boron	PB =	lead
BA =	barium	PH =	pH
BE =	beryllium	SB =	antimony
CD =	cadmium	SC =	specific conductance
CO =	cobalt	SE =	selenium
CR =	chromium	SO ₄ =	sulfate
CR6 =	hexavalent chromium	TDS =	total dissolved solids
CU =	copper	TL =	thallium
FE =	iron	TLI =	Truesdail Laboratories, Inc.
FETD =	iron, dissolved	TRB =	turbidity
FL =	fluoride	V =	vanadium
HG =	mercury	ZN =	zinc
MN =	manganese		
MND =	manganese, dissolved		

Figures

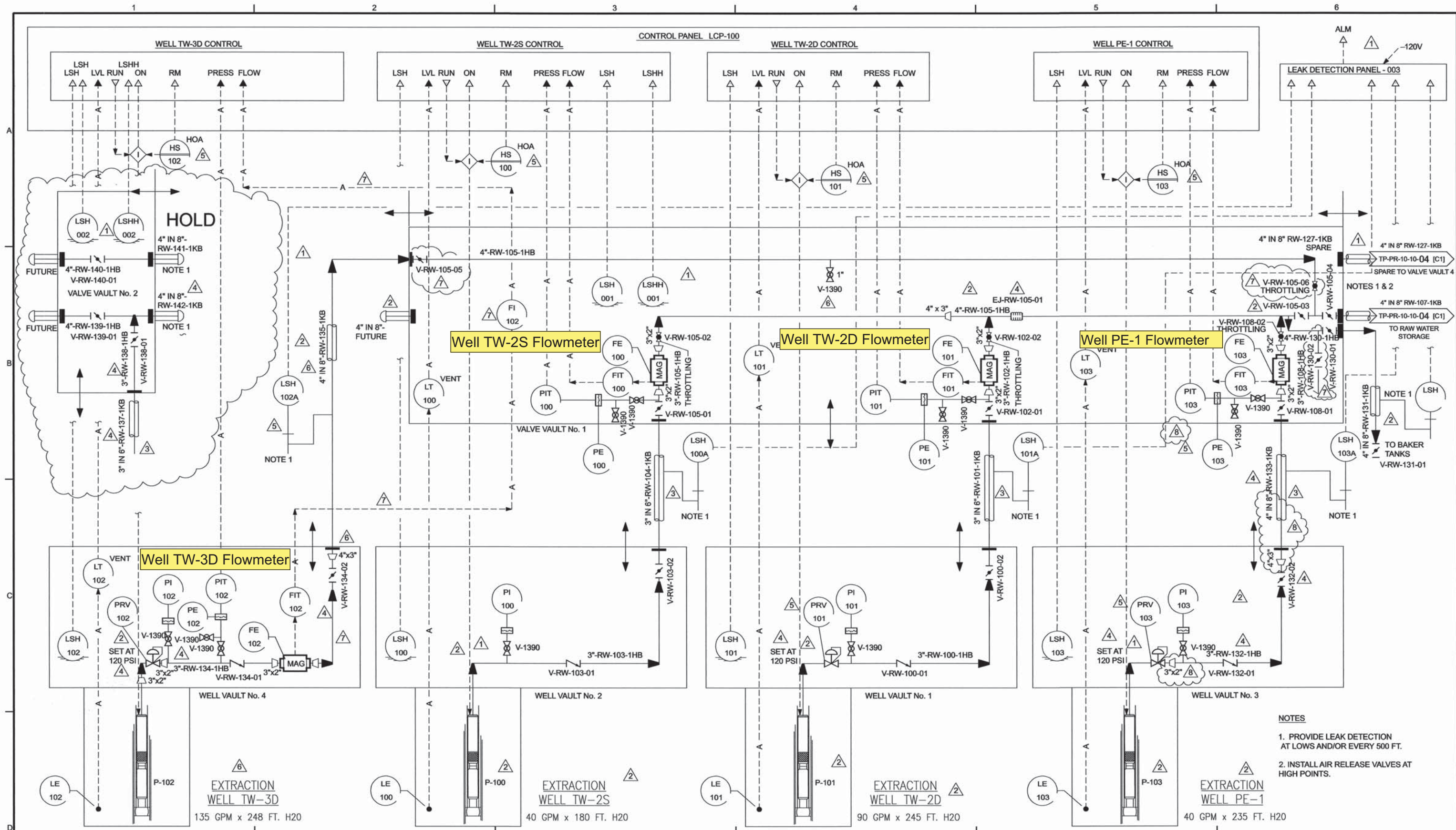




RESPONSIBLE ENGINEER: Kenneth L. Martins CH4876 PE #	NO.	DATE	REVISION	BY	CHK	REVISION APPROVAL	REV 4	DATE 09/21/05	PRINT DISTRIBUTION	STATUS					PACIFIC GAS & ELECTRIC CO. TOPOCK COMPRESSOR STATION INTERIM MEASURE 3 EXPANDED GROUNDWATER EXTRACTION AND TREATMENT SYSTEM PROJ NO. 315994	PROCESS AND INSTRUMENTATION DIAGRAM SHEET 04 STORAGE AREA		
	0	07/28/04	FOR INTERNAL REVIEW	EFC	AJ	DISCIPLINE	REVIEWED	DISCIPLINE	REVIEWED	DATE	ISSUED	REV	DATE	SDE				PEM
	0	09/03/04	APPROVED FOR CONSTRUCTION	EFC	AJ	CIVIL		ELECTRICAL		STATUS	PRELIMINARY							
	1	10/13/04	REVISED AND APPROVED FOR CONSTRUCTION	EFC	AJ	STRUCTURAL		INST & CONTROL		REV.	FOR REVIEW AND APPROVAL	D	07/28/04					
	2	01/23/05	REVISED AND APPROVED FOR CONSTRUCTION	EFC	AJ	MECHANICAL		ARCHITECTURAL		CLIENT	APPROVED FOR CONSTRUCTION	0	09/03/04	KLM				TP
	3	02/14/05	ADDED RECIRC. LINE AND PRV VALVE TO T-700 - APPROVED FOR CONSTRUCTION	EFC	AJ	PROCESS		ENVIRONMENTAL		FIELD	REVISED & APPROVED FOR CONSTRUCTION	4	/ /			CH2MHILL	DWG. NO. TP-PR-10-10-04	REV. 4
	4	09/21/05	REVISED PER AS-BUILT CONDITIONS	EFC	AJ	PIPING		GEN. ARRANG.		INTRA CO.								
										SCALE NONE								



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

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

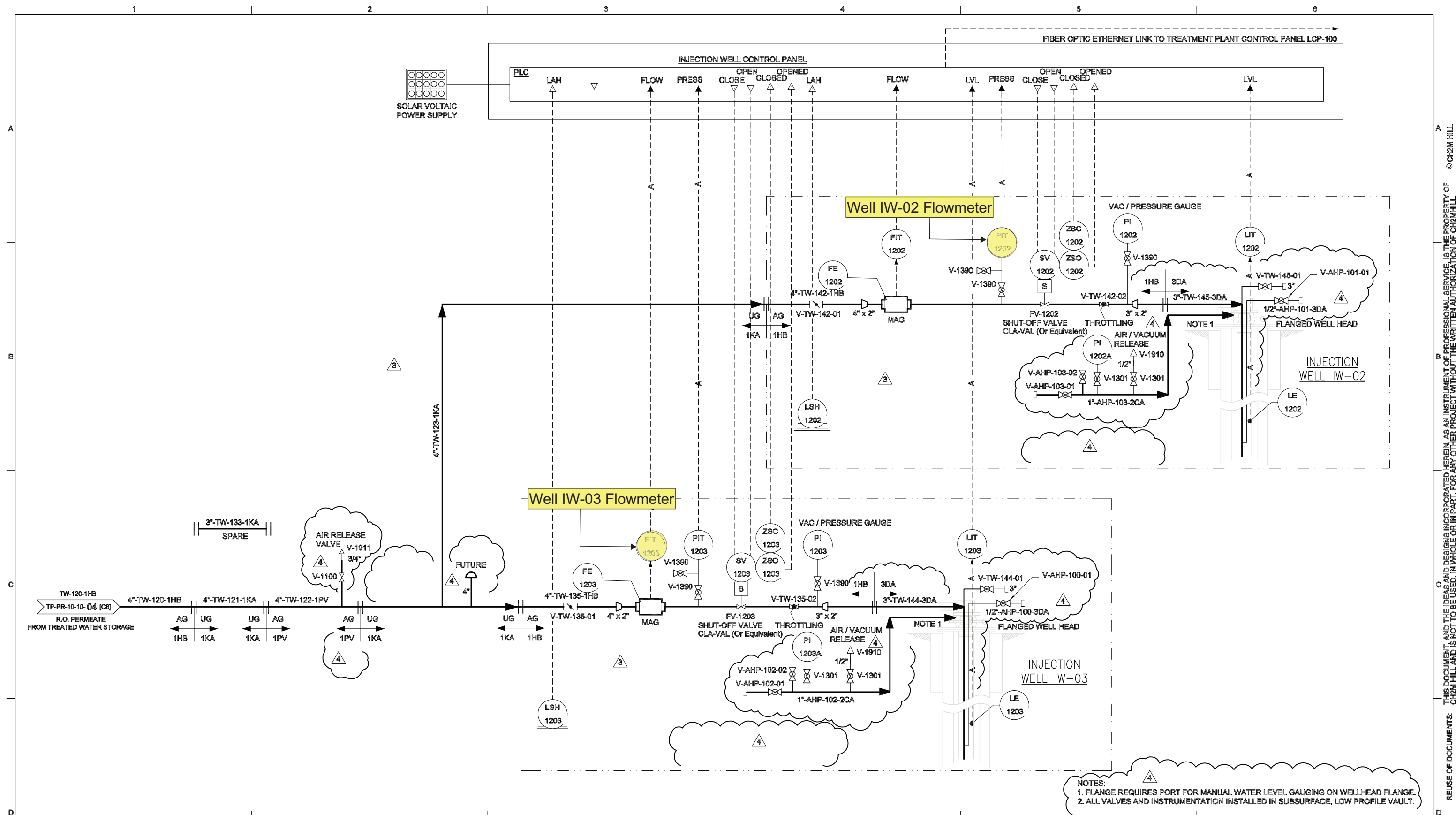
DWG. NO. TP-PR-10-10-03 REV. 8

FILENAME: tpr101003.dwg

PLOT DATE: 19-OCT-2005

PLOT TIME:

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RESPONSIBLE ENGINEER: Kenneth L. Martins CH4876 Exp. 6-30-05 PE #	NO.	DATE	REVISION	BY	CHK	REVISION APPROVAL	REV 4	DATE 03/10/05	PRINT DISTRIBUTION	STATUS					PACIFIC GAS & ELECTRIC CO. TOPOCK COMPRESSOR STATION INTERIM MEASURE 3 EXPANDED GROUNDWATER EXTRACTION AND TREATMENT SYSTEM		PROCESS AND INSTRUMENTATION DIAGRAM SHEET 11 INJECTION WELLS		
	A	07/28/04	FOR INTERNAL REVIEW	EFC	AJ	DISCIPLINE	REVIEWED	DISCIPLINE	REVIEWED	DATE	ISSUED	REV	DATE	SDE					
	0	09/03/04	APPROVED FOR CONSTRUCTION	EFC	AJ	CIVIL		ELECTRICAL	REVIEWED	STATUS	PRELIMINARY								
	1	10/13/04	REVISED AND APPROVED FOR CONSTRUCTION	EFC	AJ	STRUCTURAL		INST & CONTROL		REV.	FOR REVIEW AND APPROVAL	A	07/28/04						
	2	01/23/05	REVISED AND APPROVED FOR CONSTRUCTION	EFC	AJ	MECHANICAL		ARCHITECTURAL		CLIENT	APPROVED FOR CONSTRUCTION	0	09/03/04	KLM	TP				
	3	02/14/05	REVISED AND APPROVED FOR CONSTRUCTION	EFC	AJ	PROCESS		ENVIRONMENTAL		FIELD	REVISED & APPROVED FOR CONSTRUCTION	4	/ /						
	4	03/10/05	REMOVED HOLD AND APPROVED FOR CONSTRUCTION	EFC	AJ	PIPING		GEN. ARRANG.		INTRA CO.									

BAR IS ONE INCH
ON ORIGINAL DRAWING

FILENAME: tppr101011.dwg

PLOT DATE: 10-MAR-2005

PLOT TIME:

A	B	C	D
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Appendix A
Semiannual Operations and Maintenance Log,
January 1, 2016 through June 30, 2016

Semiannual Operations and Maintenance Log, January 1, 2016 through June 30, 2016

Downtime is defined as any period when all extraction wells are not operating, so that no groundwater is being extracted and piped into IM-3 as influent. Periods of planned and unplanned extraction system downtime are summarized here. The times shown are in Pacific Standard Time to be consistent with other data collected at the site.

January 2016

During January 2016, extraction wells PE-1 and TW-3D operated at a target pump rate of 135 gallons per minute (gpm) excluding periods of planned and unplanned downtime. Extraction wells TW-2D and TW-2S were not operated during January 2016. The operational run time for the IM-3 groundwater extraction system (combined or individual pumping) was 99.3 percent during the January 2016 reporting period.

The IM-3 facility treated approximately 5,939,295 gallons of extracted groundwater during January 2016. Two containers of solids from the IM-3 facility were transported offsite during January 2016.

Periods of planned and unplanned extraction system downtime (that together resulted in approximately 0.7 percent downtime during January 2016) are summarized below.

- **January 6, 2016 (planned):** The extraction well system was offline from 7:00 a.m. to 7:02 a.m., from 7:58 a.m. to 11:00 a.m., from 11:02 a.m. to 12:42 p.m., and from 1:06 p.m. to 1:08 p.m. for plant maintenance including testing of critical alarms and the leak detection system, replacing the RO prefilter, changing out the microfilter modules, and replacing the PE-1 flow meter. Extraction system downtime was 4 hours, 46 minutes.
- **January 30, 2016 (unplanned):** The extraction well system was offline from 6:54 a.m. to 7:22 a.m. due to a high level alarm in Iron Oxidation Reactor 3 (T-301C) due to flow control issues from the clarifier feed pump (P-400). Extraction system downtime was 28 minutes.
- **January 31, 2016 (unplanned):** The extraction well system was offline from 5:32 p.m. to 5:44 p.m. due to loss of power from the City of Needles. Extraction system downtime was 12 minutes.

February 2016

During February 2016, extraction wells PE-1, TW-2D, and TW-3D operated at a target pump rate of 135 gpm excluding periods of planned and unplanned downtime. Extraction well TW-2S was not operated during February 2016. The operational run time for the IM-3 groundwater extraction system (combined or individual pumping) was 96.1 percent during the February 2016 reporting period.

The IM-3 facility treated approximately 5,512,871 gallons of extracted groundwater during February 2016. The IM-3 facility treated 27,000 gallons of water from injection well backwashing/re-development. Three containers of solids from the IM-3 facility were transported offsite during February 2016.

Periods of planned and unplanned extraction system downtime (that together resulted in approximately 3.9 percent downtime during February 2016) are summarized below.

- **February 1, 2016 (unplanned):** The extraction well system was offline from 1:46 a.m. to 3:40 a.m. due to a failure of the Post Treated RO Permeate Pump (P-605) following return of plant to power from the City of Needles. Extraction system downtime was 1 hour, 54 minutes.

- **February 2, 2016 (planned):** The extraction well system was offline from 10:52 a.m. to 11:04 a.m. to reconfigure the extraction well regime to pump from TW-2D and TW-3D. Extraction system downtime was 12 minutes.
- **February 2, 2016 (unplanned):** The extraction well system was offline from 1:12 p.m. to 1:48 p.m. to make adjustments to TW-3D in the Valve Vault. Extraction system downtime was 36 minutes.
- **February 2, 2016 (unplanned):** The extraction well system was offline from 2:38 p.m. to 3:28 p.m. to replace a system control (CLA) valve. Extraction system downtime was 50 minutes.
- **February 3, 2016 (planned):** The extraction well system was offline from 8:06 a.m. to 8:44 a.m. and 10:08 a.m. to 10:10 a.m. due to testing of critical alarms and the leak detection system. Extraction system downtime was 40 minutes.
- **February 4, 2016 (unplanned):** The extraction well system was offline from 3:06 p.m. to 3:26 p.m. and 5:22 p.m. to 5:28 p.m. due to a loss of connection between the extraction well flow meter and the human-machine interface (HMI) due to a programmable logic controller (PLC) issue. Extraction system downtime was 26 minutes.
- **February 5, 2016 (unplanned):** The extraction well system was offline from 7:34 a.m. to 8:42 a.m. due to a high level alarm in the Raw Water Storage Tank (T-100). Extraction system downtime was 1 hour, 8 minutes.
- **February 6, 2016 (unplanned):** The extraction well system was offline from 11:10 a.m. to 12:32 p.m. due to a high level alarm in the Raw Water Storage Tank (T-100). Extraction system downtime was 1 hour, 22 minutes.
- **February 10, 2016 (unplanned):** The extraction well system was offline from 10:24 a.m. to 11:00 a.m., from 11:22 a.m. to 11:24 a.m., and from 11:34 a.m. to 11:40 a.m. to reprogram a flow control valve in the extraction well vault. Extraction system downtime was 44 minutes.
- **February 16, 2016 (planned):** The extraction well system was offline from 8:46 a.m. to 7:06 p.m. while Helix Electric worked on site to install an inbound phase monitor and make other repairs and improvements. Extraction system downtime was 10 hours, 20 minutes.
- **February 16, 2016 (unplanned):** The extraction well system was offline from 7:48 p.m. to 8:06 p.m. and from 9:10 p.m. to 9:30 p.m. for tank level management. Extraction system downtime was 38 minutes.
- **February 17, 2016 (planned):** The extraction well system was offline from 10:16 a.m. to 1:18 p.m. while Helix Electric worked on site to install an inbound phase monitor and make other repairs and improvements. Extraction system downtime was 3 hours, 2 minutes.
- **February 18, 2016 (planned):** The extraction well system was offline from 8:22 a.m. to 11:16 a.m. while Helix Electric worked on site to install an inbound phase monitor and make other repairs and improvements. Extraction system downtime was 2 hours, 54 minutes.
- **February 24, 2016 (unplanned):** The extraction well system was offline from 8:56 a.m. to 9:48 a.m. to change the impeller in the clarifier feed pump (P-400). Extraction system downtime was 52 minutes.
- **February 26, 2016 (unplanned):** The extraction well system was offline from 4:32 p.m. to 4:46 p.m. due to low ferrous injection rates. Extraction system downtime was 14 minutes.
- **February 27, 2016 (unplanned):** The extraction well system was offline from 6:26 a.m. to 7:32 a.m. due to a high level alarm in the Raw Water Storage Tank (T-100). Extraction system downtime was 1 hour, 6 minutes.

March 2016

During March 2016, extraction wells TW-2D and TW-3D operated at a target pump rate of 135 gpm excluding periods of planned and unplanned downtime. Extraction well PE-1 was run for a brief time on March 2, 2016 for groundwater sampling. Extraction well TW-2S was not operated during March 2016. The operational run time for the IM-3 groundwater extraction system (combined or individual pumping) was 93.0 percent during the March 2016 reporting period. The total injection rate and volume of IW-03 for March 2016 is estimated due to inaccurate readings from the IW-03 flow meter, caused by corrosion of the IW-03 CLA-valve. This valve was replaced on April 9, 2016, during planned semiannual maintenance.

The IM-3 facility treated approximately 5,711,743 gallons of extracted groundwater during March 2016. The IM-3 facility treated 40 gallons of purge water from site sampling activities operations. Four containers of solids from the IM-3 facility were transported offsite during March 2016.

Periods of planned and unplanned extraction system downtime (that together resulted in approximately 7.0 percent downtime during March 2016) are summarized below.

- **March 1, 2016 (unplanned):** The extraction well system was offline from 12:40 p.m. to 2:16 p.m. to replace the Main Plant Influent Flow Meter (FIT-200) for recalibration. Extraction system downtime was 1 hour, 36 minutes.
- **March 2, 2016 (unplanned):** The extraction well system was offline from 7:02 p.m. to 7:24 p.m. to reset the microfilter control system. Extraction system downtime was 22 minutes.
- **March 4, 2016 (planned):** The extraction well system was offline from 9:50 a.m. to 9:52 a.m., 10:22 a.m. to 10:24 a.m., 10:26 a.m. to 10:28 a.m., 11:56 a.m. to 1:20 p.m., and 2:24 p.m. to 2:44 p.m. for plant maintenance including testing of critical alarms and the leak detection system and changing out the microfilter modules. Extraction system downtime was 1 hour, 50 minutes.
- **March 16-17, 2016 (planned):** The extraction well system was offline from 5:50 p.m. on March 16, 2016 to 5:44 p.m. on March 17, 2016 and from 5:50 p.m. to 5:52 p.m. on March 17, 2016 to collect samples to assess potential biofouling in the extraction wells. Extraction system downtime was 23 hours, 56 minutes.
- **March 18, 2016 (unplanned):** The extraction well system was offline from 9:26 a.m. to 4:18 p.m. due to the shutdown of the Primary RO system because of a variable frequency drive failure. Extraction system downtime was 6 hours, 52 minutes.
- **March 18, 2016 (unplanned):** The extraction well system was offline from 5:30 p.m. to 9:20 p.m. while the plant was in recirculation. Extraction system downtime was 3 hours, 50 minutes.
- **March 21, 2016 (unplanned):** The extraction well system was offline from 10:08 a.m. to 1:48 p.m. to replace the fill valve on the microfilter system. Extraction system downtime was 3 hours, 40 minutes.
- **March 21, 2016 (unplanned):** The extraction well system was offline from 3:18 p.m. to 4:08 p.m. to make adjustments to the ferrous injection system. Extraction system downtime was 50 minutes.
- **March 22, 2016 (unplanned):** The extraction well system was offline from 11:26 p.m. to 11:32 p.m. due to an air compressor malfunction. Extraction system downtime was 6 minutes.
- **March 27, 2016 (unplanned):** The extraction well system was offline from 6:46 p.m. to 8:26 p.m. due to a malfunction in the Microfilter air control valve. Extraction system downtime was 1 hour, 40 minutes.
- **March 27, 2016 (unplanned):** The extraction well system was offline from 8:48 p.m. to 9:30 p.m. for tank level management. Extraction system downtime was 42 minutes.

- **March 27 to 28, 2016 (unplanned):** The extraction well system was offline from 10:54 p.m. on March 27, 2016 to 1:50 a.m. on March 28, 2016 due to a malfunction in the Microfilter air control valve. Extraction system downtime was 2 hours, 56 minutes.
- **March 28, 2016 (unplanned):** The extraction well system was offline from 5:14 a.m. to 6:04 a.m. due to a malfunction of the Microfilter control valve. Extraction system downtime was 50 minutes.
- **March 31, 2016 (unplanned):** The extraction well system was offline from 3:20 a.m. to 6:14 a.m. due to low permeate flow in the Primary RO system. Extraction system downtime was 2 hour, 54 minutes.

April 2016

During April 2016, extraction wells TW-2D, TW-3D and PE-1 operated at a target pump rate of 135 gpm excluding periods of planned and unplanned downtime. Extraction well TW-2S was not operated during April 2016. The operational run time for the IM-3 groundwater extraction system (combined or individual pumping) was 71.1 percent during the April 2016 reporting period.

The IM-3 facility treated approximately 4,204,168 gallons of extracted groundwater during April 2016. The IM-3 facility treated 3,600 gallons of injection well backwashing/re-development water, 1,010 gallons of water generated from the groundwater monitoring program, and 2,093 gallons of purge water from groundwater partners. No containers of solids from the IM-3 facility were transported offsite during April 2016.

Periods of planned and unplanned extraction system downtime (that together resulted in approximately 28.9 percent downtime during April 2016) are summarized below.

- **April 3, 2016 (unplanned):** The extraction well system was offline from 7:12 a.m. to 8:38 a.m. due to an air compressor malfunction and ferrous injection interruption. Extraction system downtime was 1 hour, 26 minutes.
- **April 4 - 12, 2016 (planned/unplanned):** The extraction well system was offline from 6:02 a.m. on April 4, 2016 to 1:36 p.m. on April 9, 2016; from 2:08 p.m. on April 9, 2016 to 9:52 a.m. on April 10, 2016; from 9:54 a.m. to 10:00 a.m. on April 10, 2016; from 11:04 a.m. to 11:10 a.m. on April 10, 2016; and from 11:36 a.m. on April 10, 2016 to 11:38 a.m. on April 12, 2016 for semiannual scheduled maintenance and facility evacuation due to a nearby brush fire on April 6-7, 2016. The extraction wells were operated intermittently during the end of the outage to confirm piping re-assembly and pump operation. Extraction system downtime was 8 days, 3 hours, 32 minutes.
- **April 12, 2016 (unplanned):** The extraction well system was offline from 2:52 p.m. to 3:06 p.m. due to a ferrous injection interruption. Extraction system downtime was 14 minutes.
- **April 12, 2016 (unplanned):** The extraction well system was offline from 6:36 p.m. to 9:34 p.m. due to a high level alarm in the Raw Water Storage Tank (T-100). Extraction system downtime was 2 hours, 58 minutes.
- **April 13, 2016 (unplanned):** The extraction well system was offline from 9:00 a.m. to 9:36 a.m., from 9:42 a.m. to 9:44 a.m., and from 11:06 a.m. to 11:26 a.m. due to air compressor failures. Extraction system downtime was 58 minutes.
- **April 13, 2016 (unplanned):** The extraction well system was offline from 2:52 p.m. to 3:26 p.m. to repair the ferrous injection pump. Extraction system downtime was 34 minutes.
- **April 14, 2016 (unplanned):** The extraction well system was offline from 7:02 a.m. to 12:40 p.m. to replace the microfilter control valve. Extraction system downtime was 5 hours, 38 minutes.

- **April 21, 2016 (unplanned):** The extraction well system was offline from 3:28 p.m. to 3:34 p.m. and 10:08 p.m. to 10:12 p.m. to switch the plant to generator power due to high winds and return the plant to power from the City of Needles. Extraction system downtime was 10 minutes.
- **April 20, 2016 (unplanned):** The extraction well system was offline from 12:26 p.m. to 12:40 p.m. and 1:12 p.m. to 1:26 p.m. due to ferrous injection interruptions. Extraction system downtime was 28 minutes.
- **April 27-28, 2016 (unplanned):** The extraction well system was offline from 9:20 p.m. to 9:28 p.m. and from 9:34 p.m. to 9:36 p.m. on April 27, 2016 and from 5:48 a.m. to 5:54 a.m. on April 28, 2016 to switch the plant to generator power due to loss of power from the City of Needles and to return the plant to power from the City of Needles. Extraction system downtime was 16 minutes.

May 2016

During May 2016, extraction wells TW-2D, TW-3D and PE-1 operated at a target pump rate of 135 gpm excluding periods of planned and unplanned downtime. Extraction well TW-2S was not operated during May 2016. The operational run time for the IM-3 groundwater extraction system (combined or individual pumping) was 99.4 percent during the May 2016 reporting period.

The IM-3 facility treated approximately 6,050,193 gallons of extracted groundwater during May 2016. The IM-3 facility treated 310 gallons of water from groundwater monitoring well sampling, 4,500 gallons of injection well backwashing/re-development water, and 700 gallons of purge water from groundwater partners. Three containers of solids from the IM-3 facility were transported offsite during May 2016.

Periods of planned and unplanned extraction system downtime (that together resulted in approximately 0.6 percent downtime during May 2016) are summarized below.

- **May 5, 2016 (planned):** The extraction well system was offline from 8:56 a.m. to 8:58 am, from 9:12 a.m. to 9:14 am, from 9:26 a.m. to 9:28 a.m., and from 9:30 a.m. to 9:32 a.m. for plant maintenance including testing of critical alarms and the leak detection system. Extraction system downtime was 8 minutes.
- **May 5, 2016 (unplanned):** The extraction well system was offline from 11:40 a.m. to 12:42 p.m. to replace the Clarifier Feed Pump (P-400) and perform maintenance on the Primary RO system. Extraction system downtime was 1 hour, 2 minutes.
- **May 20, 2016 (unplanned):** The extraction well system was offline from 12:16 p.m. to 12:20 p.m. due to loss of power from the City of Needles. Extraction system downtime was 4 minutes.
- **May 22, 2016 (unplanned):** The extraction well system was offline 7:38 a.m. to 9:28 a.m. and from 9:30 a.m. to 10:18 a.m. due to failure of a pump in the ferrous injection system. Extraction system downtime was 2 hours, 38 minutes.
- **May 20, 2016 (unplanned):** The extraction well system was offline from 12:06 p.m. to 12:10 p.m. due to loss of power from the City of Needles. Extraction system downtime was 4 minutes.
- **May 29, 2016 (unplanned):** The extraction well system was offline 10:00 a.m. to 10:08 a.m. and from 8:44 p.m. to 8:48 p.m. to transition the plant to and from generator power due to low voltage being supplied from City of Needles. Extraction system downtime was 12 minutes.

June 2016

During June 2016, extraction wells TW-2D, TW-3D and PE-1 operated at a target pump rate of 135 gpm excluding periods of planned and unplanned downtime. Extraction well TW-2S was not operated during June 2016. The operational run time for the IM-3 groundwater extraction system (combined or individual pumping) was 98.1 percent during the June 2016 reporting period.

The IM-3 facility treated approximately 5,830,027 gallons of extracted groundwater during June 2016. Two containers of solids from the IM-3 facility were transported offsite during June 2016.

Periods of planned and unplanned extraction system downtime (that together resulted in approximately 1.9 percent downtime during June 2016) are summarized below.

- **June 1, 2016 (planned):** The extraction well system was offline from 8:54 a.m. to 8:56 a.m., from 9:10 a.m. to 9:12 a.m., from 9:14 a.m. to 9:18 a.m., from 9:20 a.m. to 9:22 a.m., from 9:26 a.m. to 9:28 a.m., and from 9:30 a.m. to 9:34 a.m. for testing of critical alarms and the leak detection system. Extraction system downtime was 16 minutes.
- **June 1, 2016 (unplanned):** The extraction well system was offline from 12:54 p.m. to 12:58 p.m. due to loss of power from the City of Needles. Extraction system downtime was 4 minutes.
- **June 7, 2016 (planned):** The extraction well system was offline from 2:44 p.m. to 3:00 p.m. and from 3:02 p.m. to 3:12 p.m. for setup and testing of a new Variable Frequency Drive (VFD) for the extraction wells. Extraction system downtime was 26 minutes.
- **June 8, 2016 (planned):** The extraction well system was offline from 9:10 a.m. to 10:08 a.m., from 10:10 a.m. to 10:14 a.m., from 10:16 a.m. to 10:42 a.m., from 10:44 a.m. to 10:58 a.m., from 11:02 a.m. to 11:14 a.m., from 11:22 a.m. to 3:30 p.m., and from 3:38 p.m. to 3:42 p.m. for setup and testing of a new VFD, wiring for the extraction wells, and to replace the microfilter modules. Extraction system downtime was 6 hours, 6 minutes.
- **June 9, 2016 (planned):** The extraction well system was offline from 9:08 a.m. to 9:18 a.m., from 9:50 a.m. to 10:06 a.m., and from 11:10 a.m. to 1:26 p.m. for system programming related to the new VFD. Extraction system downtime was 2 hours, 42 minutes.
- **June 23, 2016 (unplanned):** The extraction well system was offline from 8:08 a.m. to 8:18 a.m. to replace the wiring for the VFD. Extraction system downtime was 10 minutes.
- **June 25, 2016 (unplanned):** The extraction well system was offline from 7:40 p.m. to 7:46 p.m. to turn on extraction well PE-1. Extraction system downtime was 6 minutes.
- **June 28, 2016 (unplanned):** The extraction well system was offline from 9:46 p.m. to 10:20 p.m. due to a high level alarm in the Iron Oxidation Reactor Tank #3 (T-301C). Extraction system downtime was 34 minutes.
- **June 29, 2016 (unplanned):** The extraction well system was offline from 1:06 a.m. to 2:00 a.m. due to a high level alarm in Iron Oxidation Reactor Tank #3 (T-301C). Extraction system downtime was 54 minutes.
- **June 29, 2016 (unplanned):** The extraction well system was offline from 4:12 a.m. to 5:54 a.m. to replace the Clarifier Feed Pump (P-400). Extraction system downtime was 1 hour, 42 minutes.
- **June 29, 2016 (unplanned):** The extraction well system was offline from 7:00 a.m. to 7:38 a.m. to bypass the VFD for the Clarifier Feed Pump (P-400). Extraction system downtime was 38 minutes.

- **June 30, 2016 (unplanned):** The extraction well system was offline from 6:46 p.m. to 6:52 p.m. due to loss of power from the City of Needles. Plant was moved to generator power at this time. Extraction system downtime was 6 minutes.

Appendix B
Daily Volumes of Groundwater Treated

January 2016 Operational Data
IM-3 Groundwater Extraction and Treatment System
PG&E Topock Compressor Station, Needles, California

			Extraction Well System					Injection Well System			RO Brine
Month	Day	Year	TW-2S (gallons)	TW-2D (gallons)	TW-3D (gallons)	PE-1 (gallons)	Total (gallons)	IW-02 (gallons)	IW-03 (gallons)	Total (gallons)	(gallons)
January	1	2016	--	--	153,429	40,658	194,087	196,753	0	196,753	0
January	2	2016	--	--	153,435	40,539	193,974	194,948	0	194,948	0
January	3	2016	--	--	153,486	40,931	194,417	195,329	0	195,329	0
January	4	2016	--	--	153,592	40,608	194,199	195,591	0	195,591	0
January	5	2016	--	--	153,738	40,669	194,407	195,525	0	195,525	0
January	6	2016	--	--	116,979	33,267	150,246	156,827	0	156,827	0
January	7	2016	--	--	154,293	41,328	195,621	189,880	0	189,880	0
January	8	2016	--	--	153,802	40,999	194,801	199,710	0	199,710	0
January	9	2016	--	--	153,527	40,867	194,394	193,824	0	193,824	0
January	10	2016	--	--	153,147	41,018	194,165	197,226	0	197,226	0
January	11	2016	--	--	152,870	40,612	193,482	199,427	0	199,427	0
January	12	2016	--	--	152,428	40,707	193,136	192,378	0	192,378	0
January	13	2016	--	--	152,186	40,393	192,579	198,305	0	198,305	0
January	14	2016	--	--	151,952	40,438	192,390	195,823	0	195,823	0
January	15	2016	--	--	151,863	40,307	192,170	190,715	0	190,715	0
January	16	2016	--	--	151,590	40,685	192,275	197,227	0	197,227	0
January	17	2016	--	--	151,557	40,831	192,388	199,307	0	199,307	0
January	18	2016	--	--	151,532	40,709	192,241	192,208	0	192,208	0
January	19	2016	--	--	151,501	40,437	191,939	193,653	0	193,653	0
January	20	2016	--	--	151,238	40,687	191,926	199,685	0	199,685	0
January	21	2016	--	--	151,108	40,260	191,368	191,539	0	191,539	0
January	22	2016	--	--	150,938	40,739	191,677	196,638	0	196,638	0
January	23	2016	--	--	150,961	40,675	191,635	201,365	0	201,365	0
January	24	2016	--	--	150,786	41,084	191,870	192,231	0	192,231	0
January	25	2016	--	--	151,982	41,145	193,127	191,693	0	191,693	0
January	26	2016	--	--	153,485	40,883	194,369	192,322	0	192,322	0
January	27	2016	--	--	146,277	40,654	186,931	190,798	0	190,798	0
January	28	2016	--	--	154,346	40,421	194,767	198,232	0	198,232	0
January	29	2016	--	--	154,075	40,491	194,566	193,305	0	193,305	0
January	30	2016	--	--	151,363	39,052	190,415	188,966	0	188,966	0
January	31	2016	--	--	153,537	40,198	193,734	202,085	0	202,085	0
Total Monthly Volumes (gallons)			0	0	4,687,002	1,252,292	5,939,295	6,013,515	0	6,013,515	0
Average Pump/Injection Rates (gpm)			0.0	0.0	105.0	28.1	133.0	134.7	0.0	134.7	0.0

NOTES: gpm: gallons per minute RO: Reverse Osmosis

- Extraction wells TW-3D and PE-1 were operated during January 2016 at a target pump rate of 135 gpm excluding periods of planned and unplanned downtime. Extraction wells TW-2D and TW-2S were not operated during January 2016. The pumping rate from PE-1 is estimated from January 6, 2015 through January 31, 2016 due to inaccurate HMI reading stemming from HMI/Data Historian and flow meter communication error.
- Effluent was discharged into injection well IW-02.
- The difference between influent flow rate and the sum of the effluent and reverse osmosis concentrate flow rates during January 2016 is approximately 1.25 percent. This percentage difference includes instrument noise in the system, but is within the accuracy of the flow meters. A well is considered to be offline if the daily reported flow is 140 gallons per day or less.

February 2016 Operational Data
IM-3 Groundwater Extraction and Treatment System
PG&E Topock Compressor Station, Needles, California

Month	Day	Year	Extraction Well System					Injection Well System			RO Brine
			TW-2S (gallons)	TW-2D (gallons)	TW-3D (gallons)	PE-1 (gallons)	Total (gallons)	IW-02 (gallons)	IW-03 (gallons)	Total (gallons)	
February	1	2016	--	--	142,555	38,371	180,926	188,752	0	188,752	0
February	2	2016	--	--	150,821	36,966	187,787	185,637	0	185,637	0
February	3	2016	--	17,663	162,038	20,268	199,969	190,731	0	190,731	0
February	4	2016	--	33,282	159,778	0	193,060	191,777	0	191,777	0
February	5	2016	--	40,529	153,714	0	194,243	197,089	0	197,089	4,059
February	6	2016	--	41,316	151,742	0	193,059	185,688	0	185,688	7,776
February	7	2016	--	47,989	152,724	0	200,713	200,399	0	200,399	0
February	8	2016	--	42,018	151,099	0	193,117	195,788	0	195,788	3,905
February	9	2016	--	37,250	153,786	0	191,035	194,958	0	194,958	8,071
February	10	2016	--	37,758	150,085	0	187,843	176,683	0	176,683	4,281
February	11	2016	--	36,041	160,808	0	196,849	194,102	0	194,102	8,251
February	12	2016	--	35,952	160,250	0	196,203	188,521	0	188,521	8,388
February	13	2016	--	35,908	160,081	0	195,988	195,565	0	195,565	5,889
February	14	2016	--	35,832	160,034	0	195,866	193,412	0	193,412	7,909
February	15	2016	--	35,851	159,916	0	195,766	193,439	0	193,439	4,244
February	16	2016	--	18,552	87,304	76	105,932	99,848	0	99,848	4,716
February	17	2016	--	28,119	142,816	0	170,935	168,166	0	168,166	3,989
February	18	2016	--	27,188	144,119	0	171,307	170,519	0	170,519	4,477
February	19	2016	--	30,597	164,110	0	194,707	200,316	0	200,316	4,014
February	20	2016	--	33,277	162,633	0	195,911	199,929	0	199,929	4,048
February	21	2016	--	35,503	161,592	0	197,094	193,063	0	193,063	4,019
February	22	2016	--	35,378	161,734	0	197,111	194,032	0	194,032	3,838
February	23	2016	--	36,290	162,387	0	198,676	118,194	76,956	195,151	4,004
February	24	2016	--	35,107	158,045	0	193,152	121,195	74,920	196,115	3,831
February	25	2016	--	32,127	165,693	0	197,820	114,741	80,613	195,355	3,782
February	26	2016	--	32,975	163,156	0	196,132	0	192,981	192,981	3,987
February	27	2016	--	30,015	158,101	0	188,116	39,087	167,338	206,426	4,033
February	28	2016	--	32,580	166,703	0	199,283	0	198,430	198,430	4,016
February	29	2016	--	37,479	166,793	0	204,272	80,623	119,301	199,924	3,925
Total Monthly Volumes (gallons)			0	922,573	4,494,616	95,681	5,512,871	4,572,257	910,540	5,482,797	119,452
Average Pump/Injection Rates (gpm)			0.0	22.1	107.6	2.3	132.0	109.5	21.8	131.3	2.9

NOTES: gpm: gallons per minute RO: Reverse Osmosis

- Extraction wells TW-3D and PE-1 were operated during February 2016 at a target pump rate of 135 gpm excluding periods of planned and unplanned downtime. Extraction well TW-2S was not operated during February 2016.
- Effluent was discharged into injection wells IW-02 and IW-03.
- The difference between influent flow rate and the sum of the effluent and reverse osmosis concentrate flow rates during February 2016 is approximately 1.62 percent. This percentage difference includes instrument noise in the system, but is within the accuracy of the flow meters. A well is considered to be offline if the daily reported flow is 140 gallons per day or less.

March 2016 Operational Data

IM-3 Groundwater Extraction and Treatment System

PG&E Topock Compressor Station, Needles, California

			Extraction Well System					Injection Well System			RO Brine
Month	Day	Year	TW-2S (gallons)	TW-2D (gallons)	TW-3D (gallons)	PE-1 (gallons)	Total (gallons)	IW-02 (gallons)	IW-03 (gallons)	Total (gallons)	(gallons)
March	1	2016	--	32,480	154,672	0	187,152	188,830	0	188,830	4,311
March	2	2016	--	33,564	161,431	4,251	199,246	188,808	0	188,808	3,965
March	3	2016	--	35,403	164,045	0	199,448	203,335	0	203,335	3,815
March	4	2016	--	32,261	151,366	0	183,627	106,982	70,054	177,036	8,030
March	5	2016	--	34,282	164,504	0	198,786	0	195,279	195,279	4,162
March	6	2016	--	34,110	164,109	0	198,219	0	198,485	198,485	4,139
March	7	2016	--	33,924	164,155	0	198,078	0	195,737	195,737	3,664
March	8	2016	--	33,851	163,976	0	197,827	0	194,371	194,371	4,074
March	9	2016	--	33,843	163,597	0	197,440	0	188,625	188,625	3,947
March	10	2016	--	33,704	163,486	0	197,190	0	192,604	192,604	0
March	11	2016	--	33,529	163,345	0	196,874	0	190,091	190,091	4,019
March	12	2016	--	33,415	163,267	0	196,681	0	194,945	194,945	0
March	13	2016	--	33,317	163,415	0	196,731	0	195,509	195,509	3,809
March	14	2016	--	33,156	163,330	0	196,486	0	195,034	195,034	3,999
March	15	2016	--	32,888	163,266	0	196,154	0	195,422	195,422	0
March	16	2016	--	24,360	121,279	0	145,639	0	143,628	143,628	4,078
March	17	2016	--	7,926	42,301	0	50,227	0	49,837	49,837	0
March	18	2016	--	17,187	91,848	0	109,035	0	100,185	100,185	3,975
March	19	2016	--	34,279	164,913	0	199,191	0	197,827	197,827	0
March	20	2016	--	33,577	165,235	0	198,812	0	190,457	190,457	0
March	21	2016	--	25,526	134,895	0	160,422	0	189,334	189,334	4,103
March	22	2016	--	34,371	164,648	0	199,019	0	200,778	200,778	3,663
March	23	2016	--	34,975	164,982	0	199,957	0	194,473	194,473	3,946
March	24	2016	--	34,615	164,909	0	199,525	0	193,588	193,588	3,996
March	25	2016	--	34,237	164,706	0	198,943	0	196,153	196,153	0
March	26	2016	--	33,866	164,765	0	198,632	0	195,021	195,021	4,077
March	27	2016	--	28,888	140,733	0	169,621	0	166,963	166,963	3,847
March	28	2016	--	31,578	143,756	0	175,334	0	174,014	174,014	0
March	29	2016	--	35,318	162,831	0	198,149	0	190,120	190,120	3,916
March	30	2016	--	34,776	162,409	0	197,185	0	200,359	200,359	3,775
March	31	2016	--	30,026	142,087	0	172,113	0	161,430	161,430	0
Total Monthly Volumes (gallons)			0	979,231	4,728,262	4,251	5,711,743	687,954	4,950,323	5,638,278	91,308
Average Pump/Injection Rates (gpm)			0.0	21.9	105.9	0.1	128.0	15.4	110.9	126.3	2.0

NOTES: gpm: gallons per minute RO: Reverse Osmosis

- Extraction wells TW-3D and PE-1 were operated during March 2016 at a target pump rate of 135 gpm excluding periods of planned and unplanned downtime. Extraction well TW-2S was not operated during March 2016.
- Effluent was discharged into injection wells IW-02 and IW-03. The total injection rate and volume for March 2016 is estimated due to inaccurate readings from the IW-03 flow meter.
- The difference between influent flow rate and the sum of the effluent and reverse osmosis concentrate flow rates during March 2016 is approximately 0.31 percent. This percentage difference includes instrument noise in the system, but is within the accuracy of the flow meters. A well is considered to be offline if the daily reported flow is 140 gallons per day or less.

April 2016 Operational Data

IM-3 Groundwater Extraction and Treatment System

PG&E Topock Compressor Station, Needles, California

			Extraction Well System					Injection Well System			RO Brine
Month	Day	Year	TW-2S (gallons)	TW-2D (gallons)	TW-3D (gallons)	PE-1 (gallons)	Total (gallons)	IW-02 (gallons)	IW-03 (gallons)	Total (gallons)	(gallons)
April	1	2016	--	33,739	161,787	0	195,526	0	190,728	190,728	2,866
April	2	2016	--	33,411	161,377	0	194,788	0	187,112	187,112	3,988
April	3	2016	--	31,171	154,417	0	185,589	0	178,110	178,110	0
April	4	2016	--	8,287	41,764	0	50,051	0	68,892	68,892	3,583
April	5	2016	--	--	0	0	0	0	0	0	0
April	6	2016	--	--	0	0	0	0	1,783	1,783	0
April	7	2016	--	--	0	0	0	0	1,420	1,420	0
April	8	2016	--	--	0	0	0	0	2,161	2,161	0
April	9	2016	--	770	0	0	770	206	75	281	0
April	10	2016	--	1,472	8,960	0	10,432	0	4,353	4,353	0
April	11	2016	--	--	0	0	0	0	0	0	4,569
April	12	2016	--	--	74,796	0	74,796	2,887	88,546	91,433	4,268
April	13	2016	--	--	183,932	0	183,932	0	180,848	180,848	3,848
April	14	2016	--	--	150,266	0	150,266	0	150,575	150,575	0
April	15	2016	--	--	195,859	0	195,859	0	191,715	191,715	3,752
April	16	2016	--	--	195,443	0	195,443	0	197,808	197,808	3,904
April	17	2016	--	--	195,860	0	195,860	0	196,077	196,077	0
April	18	2016	--	--	197,103	0	197,103	0	184,972	184,972	4,098
April	19	2016	--	--	198,205	0	198,205	0	195,809	195,809	0
April	20	2016	--	--	194,285	0	194,285	46,197	150,874	197,071	3,747
April	21	2016	--	--	198,204	0	198,204	0	196,503	196,503	0
April	22	2016	--	--	197,819	0	197,819	0	197,605	197,605	4,088
April	23	2016	--	--	197,641	0	197,641	0	196,897	196,897	3,764
April	24	2016	--	--	197,493	0	197,493	0	197,296	197,296	0
April	25	2016	--	--	168,516	30,337	198,853	0	191,547	191,547	0
April	26	2016	--	--	158,898	40,487	199,385	0	193,419	193,419	0
April	27	2016	--	--	158,009	40,133	198,142	0	198,925	198,925	4,779
April	28	2016	--	--	158,571	41,228	199,799	0	193,665	193,665	0
April	29	2016	--	--	176,304	21,573	197,877	0	195,028	195,028	0
April	30	2016	--	--	196,054	0	196,054	0	195,563	195,563	0
Total Monthly Volumes (gallons)			0	108,850	3,921,560	173,758	4,204,168	49,289	4,128,306	4,177,595	51,254
Average Pump/Injection Rates (gpm)			0.0	2.5	90.8	4.0	97.3	1.1	95.6	96.7	1.2

NOTES: gpm: gallons per minute RO: Reverse Osmosis

- Extraction wells TW-3D and PE-1 were operated during April 2016 at a target pump rate of 135 gpm excluding periods of planned and unplanned downtime. Extraction well TW-2S was not operated during April 2016.
- Effluent was discharged into injection wells IW-02 and IW-03.
- The difference between influent flow rate and the sum of the effluent and reverse osmosis concentrate flow rates during April 2016 is approximately 0.59 percent. This percentage difference includes instrument noise in the system, but is within the accuracy of the flow meters. A well is considered to be offline if the daily reported flow is 140 gallons per day or less.

May 2016 Operational Data

IM-3 Groundwater Extraction and Treatment System

PG&E Topock Compressor Station, Needles, California

Month	Day	Year	Extraction Well System					Injection Well System			RO Brine
			TW-2S (gallons)	TW-2D (gallons)	TW-3D (gallons)	PE-1 (gallons)	Total (gallons)	IW-02 (gallons)	IW-03 (gallons)	Total (gallons)	
May	1	2016	--	--	195,761	0	195,761	0	192,162	192,162	4,065
May	2	2016	--	--	195,559	0	195,559	0	189,935	189,935	0
May	3	2016	--	--	195,220	61	195,280	0	188,819	188,819	3,942
May	4	2016	--	--	194,996	0	194,996	0	193,774	193,774	4,093
May	5	2016	--	--	185,103	0	185,103	0	183,646	183,646	0
May	6	2016	--	--	194,423	0	194,423	0	197,692	197,692	4,045
May	7	2016	--	--	194,851	0	194,851	0	185,067	185,067	0
May	8	2016	--	--	195,151	0	195,151	0	189,568	189,568	4,169
May	9	2016	--	--	194,901	0	194,901	0	191,803	191,803	0
May	10	2016	--	1,038	194,131	587	195,755	0	198,029	198,029	4,133
May	11	2016	--	--	160,123	37,905	198,028	0	185,095	185,095	4,045
May	12	2016	--	--	157,308	40,492	197,800	0	198,739	198,739	0
May	13	2016	--	--	176,803	20,245	197,048	0	196,759	196,759	0
May	14	2016	--	--	196,528	0	196,528	0	198,244	198,244	4,096
May	15	2016	--	--	196,642	0	196,642	0	193,782	193,782	3,976
May	16	2016	--	--	196,761	0	196,761	0	187,936	187,936	0
May	17	2016	--	--	196,813	0	196,813	0	194,522	194,522	3,922
May	18	2016	--	--	196,686	0	196,686	0	196,686	196,686	3,826
May	19	2016	--	--	196,552	0	196,552	0	194,867	194,867	0
May	20	2016	--	--	196,034	0	196,034	0	195,724	195,724	4,040
May	21	2016	--	--	196,792	0	196,792	0	195,735	195,735	3,876
May	22	2016	--	--	175,408	0	175,408	0	159,068	159,068	0
May	23	2016	--	--	196,465	0	196,465	0	200,036	200,036	3,864
May	24	2016	--	--	196,810	0	196,810	0	198,175	198,175	3,851
May	25	2016	--	--	196,684	0	196,684	26,668	168,909	195,577	0
May	26	2016	--	--	196,506	0	196,506	0	194,783	194,783	4,281
May	27	2016	--	--	196,078	0	196,078	0	196,063	196,063	0
May	28	2016	--	--	195,841	0	195,841	0	193,867	193,867	0
May	29	2016	--	--	195,980	0	195,980	0	191,074	191,074	6,059
May	30	2016	--	--	196,423	0	196,423	0	188,966	188,966	0
May	31	2016	--	--	196,529	0	196,529	0	196,348	196,348	5,065
Total Monthly Volumes (gallons)			0	1,038	5,949,866	99,290	6,050,193	26,668	5,935,872	5,962,540	75,351
Average Pump/Injection Rates (gpm)			0.0	0.0	133.3	2.2	135.5	0.6	133.0	133.6	1.7

NOTES: gpm: gallons per minute RO: Reverse Osmosis

- Extraction wells TW-3D and PE-1 were operated during May 2016 at a target pump rate of 135 gpm excluding periods of planned and unplanned downtime. Extraction well TW-2S was not operated during May 2016.
- Effluent was discharged into injection wells IW-02 and IW-03.
- The difference between influent flow rate and the sum of the effluent and reverse osmosis concentrate flow rates during May 2016 is approximately 0.2 percent. This percentage difference includes instrument noise in the system, but is within the accuracy of the flow meters. A well is considered to be offline if the daily reported flow is 140 gallons per day or less.

June 2016 Operational Data

IM-3 Groundwater Extraction and Treatment System

PG&E Topock Compressor Station, Needles, California

Month	Day	Year	Extraction Well System					Injection Well System			RO Brine
			TW-2S (gallons)	TW-2D (gallons)	TW-3D (gallons)	PE-1 (gallons)	Total (gallons)	IW-02 (gallons)	IW-03 (gallons)	Total (gallons)	
June	1	2016	--	--	194,375	0	194,375	0	192,630	192,630	3,796
June	2	2016	--	--	196,487	0	196,487	0	193,021	193,021	0
June	3	2016	--	--	196,288	0	196,288	0	192,062	192,062	4,064
June	4	2016	--	--	196,150	0	196,150	0	193,422	193,422	0
June	5	2016	--	--	196,252	0	196,252	0	194,026	194,026	3,960
June	6	2016	--	--	196,394	200	196,593	0	193,907	193,907	3,996
June	7	2016	--	235	192,192	652	193,080	0	193,395	193,395	0
June	8	2016	--	354	145,083	212	145,649	0	129,812	129,812	3,995
June	9	2016	--	--	175,126	0	175,126	0	169,337	169,337	0
June	10	2016	--	--	197,228	0	197,228	0	191,277	191,277	4,545
June	11	2016	--	--	196,372	0	196,372	0	194,991	194,991	0
June	12	2016	--	--	196,830	0	196,830	0	186,113	186,113	4,281
June	13	2016	--	--	197,314	0	197,314	0	193,869	193,869	0
June	14	2016	--	--	198,766	0	198,766	0	190,635	190,635	3,775
June	15	2016	--	--	198,755	0	198,755	0	190,042	190,042	0
June	16	2016	--	--	198,656	0	198,656	0	190,459	190,459	3,738
June	17	2016	--	--	198,239	0	198,239	0	190,222	190,222	0
June	18	2016	--	--	198,308	0	198,308	0	187,870	187,870	3,754
June	19	2016	--	--	198,043	0	198,043	0	196,933	196,933	0
June	20	2016	--	--	198,238	0	198,238	0	192,498	192,498	3,949
June	21	2016	--	--	198,030	0	198,030	0	193,887	193,887	0
June	22	2016	--	--	198,234	0	198,234	0	191,703	191,703	4,150
June	23	2016	--	--	199,177	0	199,177	0	186,141	186,141	2,511
June	24	2016	--	--	201,484	0	201,484	0	196,483	196,483	3,753
June	25	2016	--	--	193,102	7,533	200,635	0	193,943	193,943	0
June	26	2016	--	--	159,154	41,993	201,146	0	196,275	196,275	3,671
June	27	2016	--	--	159,130	41,775	200,905	0	203,734	203,734	0
June	28	2016	--	--	155,125	40,447	195,572	0	201,575	201,575	0
June	29	2016	--	--	134,626	36,787	171,413	0	172,607	172,607	0
June	30	2016	--	--	154,021	42,663	196,684	0	195,591	195,591	0
Total Monthly Volumes (gallons)			0	589	5,617,177	212,261	5,830,027	0	5,688,462	5,688,462	57,938
Average Pump/Injection Rates (gpm)			0.0	0.0	130.0	4.9	135.0	0.0	131.7	131.7	1.3

NOTES: gpm: gallons per minute RO: Reverse Osmosis

- Extraction wells TW-3D and PE-1 were operated during June 2016 at a target pump rate of 135 gpm excluding periods of planned and unplanned downtime. Extraction well TW-2S was not operated during June 2016.
- Effluent was discharged into injection well IW-03.
- The difference between influent flow rate and the sum of the effluent and reverse osmosis concentrate flow rates during June 2016 is approximately 1.43 percent. This percentage difference includes instrument noise in the system, but is within the accuracy of the flow meters. A well is considered to be offline if the daily reported flow is 140 gallons per day or less.

Appendix C

Flowmeter Calibration Records

Endress+Hauser 
People for Process Automation

Flow Calibration with Adjustment

92009500-1304707

WWRA017112F

Purchase order number

US-3601532757-200 / Endress+Hauser Inc.

Order N°/Manufacturer

23P50-AL1A1AA022AW

Order code

PROMAG 23 P 2"

Transmitter/Sensor

6C037116000

Serial N°

-

Tag N°

FCP-8.2 US

Calibration rig

156 us.gal/min ($\pm 100\%$)

Calibrated full scale

Current 4 - 20 mA

Calibrated output

0.9164

Calibration factor

5

Zero point

77 °F

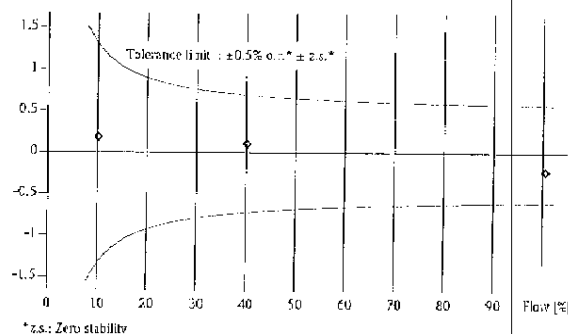
Water temperature

Flow [%]	Flow [us.gal/min]	Duration [sec]	V target [us.gal]	V mens. [us.gal]	Δ p.p.* [%]	Outp.** [mA]
10.0	15.575	60.1	15.590	15.620	0.19	5.60
40.0	62.448	60.1	62.513	62.585	0.11	10.41
40.0	62.468	60.0	62.512	62.583	0.11	10.41
100.4	156.636	60.1	156.798	156.474	-0.21	20.03
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-

*o.p.: of rate

**Calculated value [4 - 20 mA]

Measured error % o.r.



For detailed data concerning output: specifications of the unit under test, see Technical Information (TI), chapter Performance characteristics.
Traceability to the national standard for all test instruments used for the calibration is guaranteed.

Endress+Hauser Flowtec operates ISO/IEC 17025 accredited calibration facilities in Reinach (CH), Cernay (FR), Greenwood (USA), Aurangabad (IN) and Suzhou (CN).

Calvin Williams

09-17-2015

Date of calibration

Endress+Hauser Inc.
16057 Porter Road
La Porte, Texas 77571

Calvin Williams
Operator

Endress+Hauser 

People for Process Automation

Flow Calibration without Adjustment

92000404-1275100

WWRA017112F

Purchase order number

US-3601532757-100 / Endress+Hauser Inc.

Order N°/Manufacturer

23P50-AL1A1RA022AW

Order code

PROMAG 23 P 2"

Transmitter/Sensor

6A021F16000

Serial N°

FIT-100

Tag N°

FCP-8.2 US

Calibration rig

155 us.gal/min

($\pm 100\%$)

Calibrated full scale

Current 4 - 20 mA

Calibrated output

0.9159

Calibration factor

-17

Zero point

76.5 °F

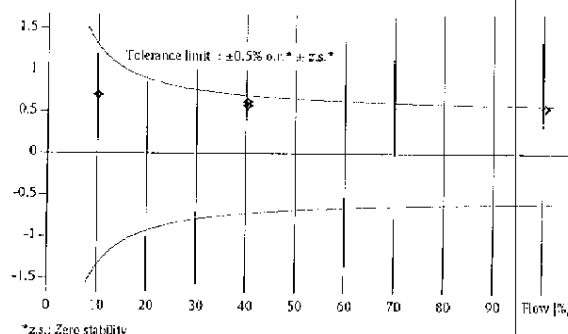
Water temperature

Flow [%]	Flow [us.gal/min]	Duration [sec]	V target [us.gal]	V meas. [us.gal]	Δ o.r.* [%]	Outp.** [mA]
10.0	15.496	60.0	15.507	15.616	0.70	5.61
40.1	62.217	60.1	62.277	62.664	0.62	10.46
40.2	62.237	60.0	62.285	62.643	0.58	10.46
100.4	155.557	60.0	155.665	156.522	0.55	20.15
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-

*o.r.: of rate

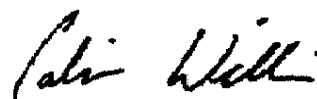
**Calculated value (4-20 mA)

Measured error % o.r.



For detailed data concerning output specifications of the unit under test, see Technical Information (TI), chapter Performance characteristics.
Traceability to the national standard for all test instruments used for the calibration is guaranteed.

Endress+Hauser Flowtec operates ISO/IEC 17025 accredited calibration facilities in Reinach (CH), Cernay (FR), Greenwood (USA), Aurangabad (IN) and Suzhou (CN).



Calvin Williams
Operator

09-16-2015

Date of calibration

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

Endress+Hauser

People for Process Automation

Flow Calibration with Adjustment

92066085-1304706

WWRA015491F

Purchase order number

US-3601529220-200 / Endress+Hauser Inc.

Order N°/Manufacturer

23P50-AL1A1AA022AW

Order code

PROMAG 23 P 2"

Transmitter/Sensor

6C037016000

Serial N°

FIT-1202

Tag N°

FCP-7.1.6 US

Calibration rig

155.6102 us.gal/min ($\pm 100\%$)

Calibrated full scale

Current 4 - 20 mA

Calibrated output

0.9145

Calibration factor

5

Zero point

72.7 °F

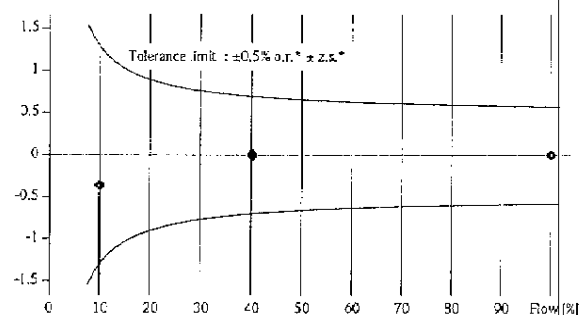
Water temperature

Flow [%]	Flow [us.gal/min]	Duration [sec]	V target [us.gal]	V meas. [us.gal]	Δ o.r.* [%]	Outp.** [mA]
10.0	15.537	60.1	15.551	15.496	-0.36	5.59
40.2	62.542	60.1	62.609	62.620	0.02	10.43
40.2	62.568	60.1	62.632	62.627	-0.01	10.43
100.2	155.849	60.1	156.011	156.017	0.00	20.03
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-

*o.r.: of rate

**Calculated value (4 - 20 mA)

Measured error % o.r.



*z.s.: Zero stability

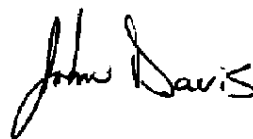
For detailed data concerning output specifications of the unit under test, see Technical Information (TI), chapter Performance characteristics.
Traceability to the national standard for all test instruments used for the calibration is guaranteed.

Endress+Hauser Flowtec operates ISO/IEC 17025 accredited calibration facilities in Reinach (CH), Cernay (FR), Greenwood (USA), Aurangabad (IN) and Suzhou (CN).

09-19-2014

Date of calibration

Endress+Hauser Inc.
2350 Endress Place
Greenwood, IN 46143



John Davis

Operator

Endress+Hauser 
People for Process Automation

Flow Calibration without Adjustment

92004356-1275192

4017515743

Purchase order number

US-3601525789-100 / Endress+Hauser Inc.

Order N°/Manufacturer

23P50-AL1A1RA022AW

Order code

PROMAG 23 P 2"

Transmitter/Sensor

6A022116000

Serial N°

FIT-102

Tag N°

FCP-8.2 US

Calibration rig

156 us.gal/min ($\pm 100\%$)

Calibrated full scale

Current 4 - 20 mA

Calibrated output

0.9082

Calibration factor

0

Zero point

72.3 °F

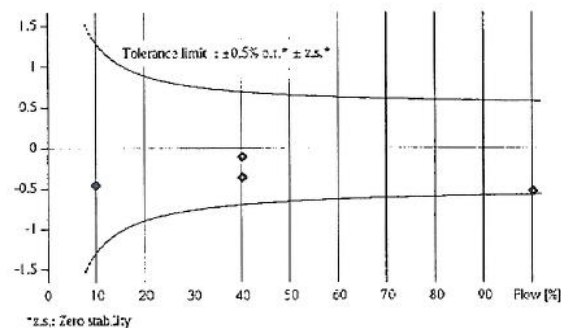
Water temperature

Flow [%]	Flow [us.gal/min]	Duration [sec]	V target [us.gal]	V meas. [us.gal]	Δ o.r.* [%]	Outp.** [mA]
10.0	15.643	60.0	15.654	15.582	-0.46	5.60
40.1	62.618	60.0	62.665	62.440	-0.36	10.40
40.2	62.628	60.0	62.673	62.607	-0.11	10.42
100.3	156.535	60.0	156.646	155.804	-0.54	19.97
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-

*o.r.: of race

**Calculated value (4 - 20 mA)

Measured error % o.r.



For detailed data concerning output specifications of the unit under test, see Technical Information (TI), chapter: Performance characteristics.
Traceability to the national standard for all test instruments used for the calibration is guaranteed.

Endress+Hauser Flowtec operates ISO/IEC 17025 accredited calibration facilities in Reinach (CH), Cernay (FR), Greenwood (USA), Aurangabad (IN) and Suzhou (CN).

09-20-2013

Date of calibration

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



W. Watkins

Operator

Endress+Hauser 

People for Process Automation

Flow Calibration without Adjustment

92004352-1304708

4017515743

Purchase order number

US-3601525789-300 / Endress+Hauser Inc.

Order N°/Manufacturer

23P50-AL1A1AA022AW

Order code

PROMAG 23 P 2"

Transmitter/Sensor

6C037216000

Serial N°

FIT-1204

Tag N°

FCP-8.2 US

Calibration rig

156 us.gal/min ($\pm 100\%$)

Calibrated full scale

Current 4 - 20 mA

Calibrated output

0.9184

Calibration factor

20

Zero point

72.4 °F

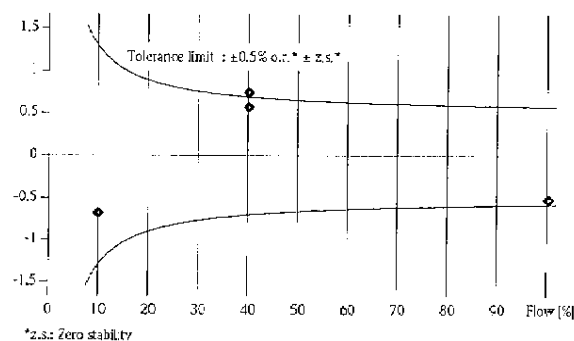
Water temperature

Flow [%]	Flow [us.gal/min]	Duration [sec]	V target [us.gal]	V meas. [us.gal]	Δ o.r.* [%]	Outp.** [mA]
10.0	15.636	60.0	15.646	15.540	-0.68	5.59
40.2	62.632	60.1	62.693	63.163	0.75	10.47
40.2	62.630	60.0	62.671	63.033	0.58	10.46
100.4	156.630	60.0	156.742	155.931	-0.52	19.98
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-

*o.r.: of rate

**Calculated value (4 - 20 mA)

Measured error % o.r.



For detailed data concerning output specifications of the unit under test, see Technical Information (TI), chapter Performance characteristics.
Traceability to the national standard for all test instruments used for the calibration is guaranteed.

Endress+Hauser Flowtec operates ISO/IEC 17025 accredited calibration facilities in Reinach (CH), Cernay (FR), Greenwood (USA), Aurangabad (IN) and Suzhou (CN).

09-20-2013

Date of calibration

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



W. Watkins

Operator

Endress+Hauser 

People for Process Automation

Flow Calibration without Adjustment

92005412-1385272

4017522194

Purchase order number

US-3601527563-100 / Endress+Hauser Inc.

Order N°/Manufacturer

23P50-AL1A1AA022AW

Order code

PROMAG 23 P 2"

Transmitter/Sensor

7700F216000

Serial N°

-

Tag N°

FCP-8.2 US

Calibration rig

156 us.gal/min ($\pm 100\%$)

Calibrated full scale

Current 4 - 20 mA

Calibrated output

0.9215

Calibration factor

0

Zero point

75.4 °F

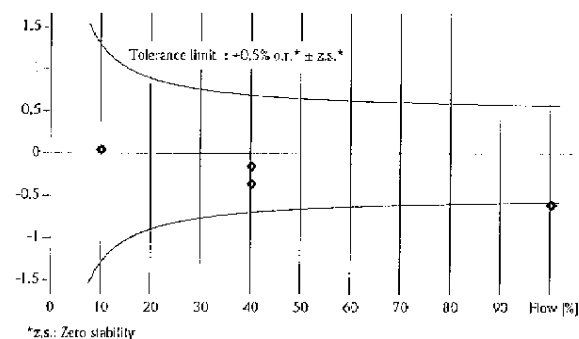
Water temperature

Flow [%]	Flow [us.gal/min]	Duration [sec]	V target [us.gal]	V meas. [us.gal]	Δ o.r.* [%]	Outp.** [mA]
10.1	15.699	60.0	15.710	15.717	0.04	5.61
40.2	62.675	60.0	62.718	62.490	-0.36	10.40
40.2	62.681	60.0	62.724	62.627	-0.15	10.42
100.4	156.590	60.0	156.696	155.730	-0.62	19.96
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-

*out of rate

**Calculated value (4 - 20 mA)

Measured error % o.r.



For detailed data concerning output specifications of the unit under test, see Technical Information (TI), chapter Performance characteristics.
Traceability to the national standard for all test instruments used for the calibration is guaranteed.

Endress+Hauser Flowtec operates ISO/IEC 17025 accredited calibration facilities in Reinach (CH), Cernay (FR), Greenwood (USA), Aurangabad (IN) and Suzhou (CN).

03-22-2014

Date of calibration

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



W. Watkins

Operator

Flow Calibration with Adjustment

12302717 1365273

4600082515

Purchase order number

US-3601521707-300 / Endress+Hauser Inc.

Order N°/Manufacturer

23P80-AL1A1AA022AW

Order code

PROMAG 23 P 3"

Transmitter/Sensor

7700F316000

Serial N°

-

Tag N°

FCP-8.2 US

Calibration rig

400 us.gal/min

($\pm 100\%$)

Calibrated full scale

Current 4 - 20 mA

Calibrated output

1.1672

Calibration factor

-18

Zero point

75.1 °F

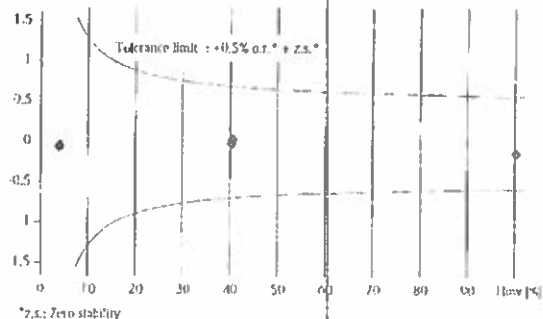
Water temperature

Flow [°]	Flow [us.gal/min]	Duration [sec]	V target [us.gal]	V meas. [us.gal]	Δ o.r.* [%]	Outp.** [mA]
4.0	16.0	60.0	15.964	15.954	-0.06	4.64
40.3	161.3	60.0	161.426	161.393	-0.02	10.45
40.6	162.3	60.0	162.432	162.486	0.03	10.49
100.4	401.5	60.0	401.815	401.258	-0.14	20.04
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-

*rate of rate

**Calibrated value (4 - 20 mA)

Measured error % o.r.



For detailed data concerning output specifications of the unit under test, see Technical Information (TI), chapter Performance characteristics.
Traceability to the national standard for all test instruments used for the calibration is guaranteed.

Endress+Hauser Flowtec operates ISO/IEC 17025 accredited calibration facilities in Reinach (CH), Cernay (FR), Greenwood (USA), Aurangabad (IN) and Suzhou (CN).

06-19-2012

Date of calibration

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

Wesley Watkins

W. Watkins

Operator

Endress+Hauser 

People for Process Automation

Flow Calibration with Adjustment

92006682-1275191

WWRA015491F

Purchase order number

US-3601529220-100 / Endress+Hauser Inc.

Order N°/Manufacturer

23P50-AL1A1RA022AW

Order code

PROMAG 23 P 2"

Transmitter/Sensor

6A022016000

Serial N°

FIT-101

Tag N°

FCP-7.1.6 US

Calibration rig

155.6102 us.gal/min ($\pm 100\%$)

Calibrated full scale

Current 4 - 20 mA

Calibrated output

0.9193

Calibration factor

0

Zero point

72.7 °F

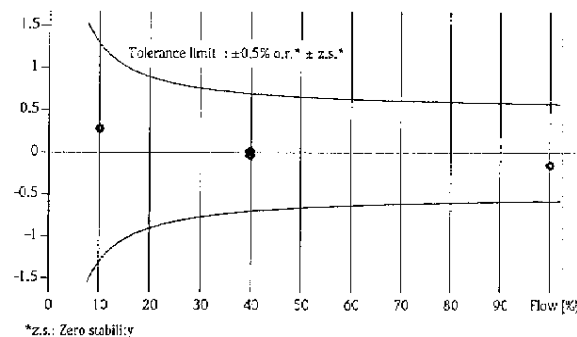
Water temperature

Flow [%]	Flow [us.gal/min]	Duration [sec]	V target [us.gal]	V meas. [us.gal]	Δ o.r.* [%]	Outp.** [mA]
10.0	15.596	60.1	15.612	15.657	0.29	5.61
39.9	62.142	60.1	62.207	62.221	0.02	10.39
40.0	62.171	60.1	62.236	62.217	-0.03	10.39
100.1	155.761	60.1	155.922	155.691	-0.15	19.99
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-

*o.r.: of rate

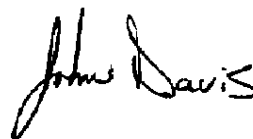
**Calculated value (4 - 20 mA)

Measured error % o.r.



For detailed data concerning output specifications of the unit under test, see Technical Information (TI), chapter Performance characteristics.
Traceability to the national standard for all test instruments used for the calibration is guaranteed.

Endress+Hauser Flowtec operates ISO/IEC 17025 accredited calibration facilities in Reinach (CH), Cernay (FR), Greenwood (USA), Aurangabad (IN) and Suzhou (CN).



John Davis
Operator

09-19-2014

Date of calibration

Endress+Hauser Inc.
2350 Endress Place
Greenwood, IN 46143

Appendix D
Second Quarter 2016
Laboratory Analytical Reports

April 19, 2016

Shawn P. Duffy
CH2M HILL
155 Grand Avenue, Suite 1000
Oakland, CA 94612

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

CA-ELAP No.: 2676
NV Cert. No.: NV-00922

Workorder No.: N019315

RE: PG&E Topock, 658274.01.IM.OP.00

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on April 04, 2016 by ASSET Laboratories . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,



Glen Gesmundo
QA Manager

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and Advanced Technology Laboratories - Las Vegas.



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3151 W. Post Rd., Las Vegas, NV 89118
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"Serving Clients with Passion and Professionalism"

CLIENT: CH2M HILL
Project: PG&E Topock, 658274.01.IM.OP.00
Lab Order: N019315

CASE NARRATIVE**SAMPLE RECEIVING/GENERAL COMMENTS**

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time.

Subcontracted Analyses:

Ammonia was subcontracted to Truesdail-Irvine, CA.

Analytical Comments for EPA 200.7:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Boron on QC samples N019315-001E-MS1 and N019315-001E-MSD1 since the analyte concentration in the sample is disproportionate to the spike level. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Iron on QC samples N019315-001E-MS1 and N019315-001E-MSD1 possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Analytical Comments for EPA 200.8:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for some analytes on QC samples N019315-003C-MS and N019315-003C-MSD possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Dilution was necessary on some analytes for all samples due to associated internal standard not meeting method criteria possibly due to matrix interference. Samples were analyzed with dilution and internal standard met method criteria. Affected analytes for this failed internal standard were reported at dilution that meet internal standard recovery limit.



CLIENT: CH2M HILL

Project: PG&E Topock, 658274.01.IM.OP.00

Lab Order: N019315

CASE NARRATIVE

Analytical Comments for EPA 218.6:

Dilution was necessary for sample N019315-003 due to matrix interference. Sample was analyzed at lower dilution however matrix spike was not recovered and retention time criteria was not met indicating possible matrix interference. Sample was reported at dilution that meet matrix spike recovery limit and the detected peak within retention time window.



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Page 2 of 2
N019315-003
3151 W. Post Rd., Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691

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ASSET Laboratories

Date: 19-Apr-16

CLIENT: CH2M HILL
Project: PG&E Topock, 658274.01.IM.OP.00
Lab Order: N019315
Contract No: IM3PLANT-AR

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N019315-001A	SC-100B-WDR-538	Water	4/4/2016 5:48:00 AM	4/4/2016	4/19/2016
N019315-001B	SC-100B-WDR-538	Water	4/4/2016 5:48:00 AM	4/4/2016	4/19/2016
N019315-001C	SC-100B-WDR-538	Water	4/4/2016 5:48:00 AM	4/4/2016	4/19/2016
N019315-001D	SC-100B-WDR-538	Water	4/4/2016 5:48:00 AM	4/4/2016	4/19/2016
N019315-001E	SC-100B-WDR-538	Water	4/4/2016 5:48:00 AM	4/4/2016	4/19/2016
N019315-002A	SC-700B-WDR-538	Water	4/4/2016 5:40:00 AM	4/4/2016	4/19/2016
N019315-002B	SC-700B-WDR-538	Water	4/4/2016 5:40:00 AM	4/4/2016	4/19/2016
N019315-002C	SC-700B-WDR-538	Water	4/4/2016 5:40:00 AM	4/4/2016	4/19/2016
N019315-002D	SC-700B-WDR-538	Water	4/4/2016 5:40:00 AM	4/4/2016	4/19/2016
N019315-002E	SC-700B-WDR-538	Water	4/4/2016 5:40:00 AM	4/4/2016	4/19/2016
N019315-003A	SC-701-WDR-538	Water	4/4/2016 5:44:00 AM	4/4/2016	4/19/2016
N019315-003B	SC-701-WDR-538	Water	4/4/2016 5:44:00 AM	4/4/2016	4/19/2016
N019315-003C	SC-701-WDR-538	Water	4/4/2016 5:44:00 AM	4/4/2016	4/19/2016



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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 19-Apr-16

CLIENT: CH2M HILL
Lab Order: N019315
Project: PG&E Topock, 658274.01.IM.OP.00
Lab ID: N019315-001

Client Sample ID: SC-100B-WDR-538
Collection Date: 4/4/2016 5:48:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE
EPA 120.1

RunID: WETCHEM_160405D	QC Batch: R106762			PrepDate		Analyst: LR
Specific Conductance	7600	0.10	0.10	umhos/cm	1	4/5/2016 11:26 AM

Qualifiers: B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 S Spike/Surrogate outside of limits due to matrix interference
 DO Surrogate Diluted Out
 E Value above quantitation range
 ND Not Detected at the Reporting Limit
 Results are wet unless otherwise specified



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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 19-Apr-16

CLIENT: CH2M HILL

Client Sample ID: SC-700B-WDR-538

Lab Order: N019315

Collection Date: 4/4/2016 5:40:00 AM

Project: PG&E Topock, 658274.01.IM.OP.00

Matrix: WATER

Lab ID: N019315-002

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: WETCHEM_160405D

QC Batch: R106762

PrepDate

Analyst: LR

Specific Conductance

7100

0.10

0.10

umhos/cm

1

4/5/2016 11:26 AM

Qualifiers:

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference
DO Surrogate Diluted Out

E Value above quantitation range
ND Not Detected at the Reporting Limit
Results are wet unless otherwise specified

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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 19-Apr-16

CLIENT: CH2M HILL
Lab Order: N019315
Project: PG&E Topock, 658274.01.IM.OP.00
Lab ID: N019315-003

Client Sample ID: SC-701-WDR-538
Collection Date: 4/4/2016 5:44:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
----------	--------	-----	-----	------	-------	----	---------------

SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: WETCHEM_160405D	QC Batch: R106762			PrepDate		Analyst: LR
Specific Conductance	53000	0.10	0.10	umhos/cm	1	4/5/2016 11:26 AM

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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CLIENT: CH2M HILL
Work Order: N019315
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT**TestCode: 120.1_WPGE**

Sample ID	N019313-003ADUP	SampType:	DUP	TestCode:	120.1_WPGE	Units:	umhos/cm	Prep Date:		RunNo:	106762
Client ID:	ZZZZZZ	Batch ID:	R106762	TestNo:	EPA 120.1			Analysis Date:	4/5/2016	SeqNo:	2284925
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Specific Conductance		7440.000		0.10						7420	0.269 10

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		



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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 19-Apr-16

CLIENT: CH2M HILL
Lab Order: N019315
Project: PG&E Topock, 658274.01.IM.OP.00
Lab ID: N019315-001

Client Sample ID: SC-100B-WDR-538
Collection Date: 4/4/2016 5:48:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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TOTAL FILTERABLE RESIDUE
SM2540C

RunID: WETCHEM_160405F	QC Batch: 56887			PrepDate	4/5/2016	Analyst: LR
Total Dissolved Solids (Residue, Filterable)	4700	50	50	mg/L	1	4/5/2016 02:11 PM

Qualifiers: B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 S Spike/Surrogate outside of limits due to matrix interference
 DO Surrogate Diluted Out
 E Value above quantitation range
 ND Not Detected at the Reporting Limit
 Results are wet unless otherwise specified



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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 19-Apr-16

CLIENT: CH2M HILL
Lab Order: N019315
Project: PG&E Topock, 658274.01.IM.OP.00
Lab ID: N019315-002

Client Sample ID: SC-700B-WDR-538
Collection Date: 4/4/2016 5:40:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
----------	--------	-----	-----	------	-------	----	---------------

TOTAL FILTERABLE RESIDUE**SM2540C**

RunID: WETCHEM_160405F	QC Batch: 56887			PrepDate	4/5/2016	Analyst: LR
Total Dissolved Solids (Residue, Filterable)	4300	50	50	mg/L	1	4/5/2016 02:11 PM

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 19-Apr-16

CLIENT: CH2M HILL
Lab Order: N019315
Project: PG&E Topock, 658274.01.IM.OP.00
Lab ID: N019315-003

Client Sample ID: SC-701-WDR-538
Collection Date: 4/4/2016 5:44:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
----------	--------	-----	-----	------	-------	----	---------------

TOTAL FILTERABLE RESIDUE
SM2540C

RunID: WETCHEM_160405F	QC Batch: 56887				PrepDate: 4/5/2016		Analyst: LR
Total Dissolved Solids (Residue, Filterable)	40000	500	500		mg/L	1	4/5/2016 02:11 PM

Qualifiers: B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 S Spike/Surrogate outside of limits due to matrix interference
 DO Surrogate Diluted Out
 E Value above quantitation range
 ND Not Detected at the Reporting Limit
 Results are wet unless otherwise specified



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CLIENT: CH2M HILL
Work Order: N019315
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.1_2540C_W

Sample ID	LCS-56887	SampType:	LCS	TestCode:	160.1_2540C	Units:	mg/L	Prep Date:	4/5/2016	RunNo:	106773			
Client ID:	LCSW	Batch ID:	56887	TestNo:	SM2540C			Analysis Date:	4/5/2016	SeqNo:	2285464			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera		974.000		10	1000	0		97.4	80	120				

Sample ID	MBLK-56887	SampType:	MBLK	TestCode:	160.1_2540C	Units:	mg/L	Prep Date:	4/5/2016	RunNo:	106773			
Client ID:	PBW	Batch ID:	56887	TestNo:	SM2540C			Analysis Date:	4/5/2016	SeqNo:	2285465			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera		ND		10										

Sample ID	N019315-003ADUP	SampType:	DUP	TestCode:	160.1_2540C	Units:	mg/L	Prep Date:	4/5/2016	RunNo:	106773			
Client ID:	ZZZZZZ	Batch ID:	56887	TestNo:	SM2540C			Analysis Date:	4/5/2016	SeqNo:	2285471			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera		39550.000		500						39550		0	5	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out	Calculations are based on raw values			



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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 19-Apr-16

CLIENT: CH2M HILL
Lab Order: N019315
Project: PG&E Topock, 658274.01.IM.OP.00
Lab ID: N019315-001

Client Sample ID: SC-100B-WDR-538
Collection Date: 4/4/2016 5:48:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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TOTAL METALS BY ICP
EPA 200.7

RunID: ICP2_160408D	QC Batch: 56902	PrepDate	4/6/2016	Analyst: FJ		
Aluminum	ND	12	50	µg/L	1	4/8/2016 02:05 PM
Boron	1500	11	100	µg/L	1	4/9/2016 10:00 AM
Iron	40	17	20	µg/L	1	4/8/2016 02:05 PM

Qualifiers: B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 S Spike/Surrogate outside of limits due to matrix interference
 DO Surrogate Diluted Out
 E Value above quantitation range
 ND Not Detected at the Reporting Limit
 Results are wet unless otherwise specified



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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 19-Apr-16

CLIENT: CH2M HILL
Lab Order: N019315
Project: PG&E Topock, 658274.01.IM.OP.00
Lab ID: N019315-002

Client Sample ID: SC-700B-WDR-538
Collection Date: 4/4/2016 5:40:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
----------	--------	-----	-----	------	-------	----	---------------

TOTAL METALS BY ICP
EPA 200.7

RunID: ICP2_160408D	QC Batch: 56902	PrepDate	4/6/2016	Analyst: FJ
Aluminum	ND 12	50	µg/L	1 4/8/2016 02:59 PM
Boron	1400 11	100	µg/L	1 4/9/2016 10:06 AM
Iron	ND 17	20	µg/L	1 4/8/2016 02:59 PM

Qualifiers: B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 S Spike/Surrogate outside of limits due to matrix interference
 DO Surrogate Diluted Out
 E Value above quantitation range
 ND Not Detected at the Reporting Limit
 Results are wet unless otherwise specified



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CLIENT: CH2M HILL
Work Order: N019315
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT**TestCode: 200.7_WPGEPB**

Sample ID MB-56902	SampType: MBLK	TestCode: 200.7_WPGE	Units: µg/L	Prep Date: 4/6/2016	RunNo: 106827
Client ID: PBW	Batch ID: 56902	TestNo: EPA 200.7		Analysis Date: 4/9/2016	SeqNo: 2291261
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Boron	42.123	100			
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Sample ID LCS1-56902	SampType: LCS	TestCode: 200.7_WPGE	Units: µg/L	Prep Date: 4/6/2016	RunNo: 106827
Client ID: LCSW	Batch ID: 56902	TestNo: EPA 200.7		Analysis Date: 4/9/2016	SeqNo: 2291262
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Boron	5473.392	100	5000	0	109	85	115
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Sample ID N019315-001E-MS1	SampType: MS	TestCode: 200.7_WPGE	Units: µg/L	Prep Date: 4/6/2016	RunNo: 106827
Client ID: ZZZZZZ	Batch ID: 56902	TestNo: EPA 200.7		Analysis Date: 4/9/2016	SeqNo: 2291269
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Boron	8383.681	100	5000	1473	138	75	125		S
-------	----------	-----	------	------	-----	----	-----	--	---

Sample ID N019315-001E-MSD	SampType: MSD	TestCode: 200.7_WPGE	Units: µg/L	Prep Date: 4/6/2016	RunNo: 106827
Client ID: ZZZZZZ	Batch ID: 56902	TestNo: EPA 200.7		Analysis Date: 4/9/2016	SeqNo: 2291270
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Boron	8423.900	100	5000	1473	139	75	125	8384	0.479	20	S
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Sample ID MB-56902	SampType: MBLK	TestCode: 200.7_WPGE	Units: µg/L	Prep Date: 4/6/2016	RunNo: 106828
Client ID: PBW	Batch ID: 56902	TestNo: EPA 200.7		Analysis Date: 4/8/2016	SeqNo: 2291306
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Aluminum	ND	50
Iron	ND	20

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		



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"Serving Clients with Passion and Professionalism"

CLIENT: CH2M HILL
Work Order: N019315
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WPGEPBB

Sample ID	LCS1-56902	SampType:	LCS	TestCode:	200.7_WPGE	Units:	µg/L	Prep Date:	4/6/2016	RunNo:	106828
Client ID:	LCSW	Batch ID:	56902	TestNo:	EPA 200.7			Analysis Date:	4/8/2016	SeqNo:	2291307
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Aluminum	9852.328	50	10000	0	98.5	85	115				
Iron	108.545	20	100.0	0	109	85	115				

Sample ID	N019315-001E-MS1	SampType:	MS	TestCode:	200.7_WPGE	Units:	µg/L	Prep Date:	4/6/2016	RunNo:	106828
Client ID:	ZZZZZZ	Batch ID:	56902	TestNo:	EPA 200.7			Analysis Date:	4/8/2016	SeqNo:	2291316
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Aluminum	10170.418	50	10000	13.31	102	75	125				
Iron	93.354	20	100.0	40.19	53.2	75	125				S

Sample ID	N019315-001E-MSD	SampType:	MSD	TestCode:	200.7_WPGE	Units:	µg/L	Prep Date:	4/6/2016	RunNo:	106828
Client ID:	ZZZZZZ	Batch ID:	56902	TestNo:	EPA 200.7			Analysis Date:	4/8/2016	SeqNo:	2291321
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Aluminum	10119.609	50	10000	13.31	101	75	125	10170	0.501	20	
Iron	103.017	20	100.0	40.19	62.8	75	125	93.35	9.84	20	S

Qualifiers:

- | | | | | | |
|----|---|--------------------------------------|--------------------------------------|---|--|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | Calculations are based on raw values | | | |



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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 19-Apr-16

CLIENT: CH2M HILL
Lab Order: N019315
Project: PG&E Topock, 658274.01.IM.OP.00
Lab ID: N019315-001

Client Sample ID: SC-100B-WDR-538
Collection Date: 4/4/2016 5:48:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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TOTAL METALS BY ICPMS
EPA 200.8

RunID: ICP7_160407A	QC Batch: 56868	PrepDate	4/5/2016	Analyst: CEI
Antimony	ND 0.13	2.5	µg/L	5 4/7/2016 02:52 PM
Arsenic	3.1 0.079	0.50	µg/L	5 4/7/2016 02:52 PM
Barium	29 0.36	5.0	µg/L	5 4/7/2016 02:52 PM
Copper	ND 1.3	5.0	µg/L	5 4/7/2016 02:52 PM
Lead	ND 0.27	5.0	µg/L	5 4/7/2016 02:52 PM
Manganese	8.3 0.023	0.50	µg/L	1 4/7/2016 02:46 PM
Molybdenum	22 0.15	2.5	µg/L	5 4/7/2016 02:52 PM
Nickel	ND 0.19	5.0	µg/L	5 4/7/2016 02:52 PM
Zinc	ND 0.20	50	µg/L	5 4/7/2016 02:52 PM

Qualifiers: B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 S Spike/Surrogate outside of limits due to matrix interference
 DO Surrogate Diluted Out
 E Value above quantitation range
 ND Not Detected at the Reporting Limit
 Results are wet unless otherwise specified



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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 19-Apr-16

CLIENT: CH2M HILL
Lab Order: N019315
Project: PG&E Topock, 658274.01.IM.OP.00
Lab ID: N019315-002

Client Sample ID: SC-700B-WDR-538
Collection Date: 4/4/2016 5:40:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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TOTAL METALS BY ICPMS
EPA 200.8

RunID: ICP7_160407A	QC Batch: 56868	PrepDate	4/5/2016	Analyst: CEI		
Antimony	ND	0.13	2.5	µg/L	5	4/7/2016 03:03 PM
Arsenic	ND	0.079	0.50	µg/L	5	4/7/2016 03:03 PM
Barium	15	0.36	5.0	µg/L	5	4/7/2016 03:03 PM
Copper	ND	1.3	5.0	µg/L	5	4/7/2016 03:03 PM
Lead	ND	1.3	25	µg/L	25	4/7/2016 03:25 PM
Manganese	4.6	0.023	0.50	µg/L	1	4/7/2016 03:19 PM
Molybdenum	21	0.15	2.5	µg/L	5	4/7/2016 03:03 PM
Nickel	ND	0.19	5.0	µg/L	5	4/7/2016 03:03 PM
Zinc	ND	0.20	50	µg/L	5	4/7/2016 03:03 PM

Qualifiers: B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 S Spike/Surrogate outside of limits due to matrix interference
 DO Surrogate Diluted Out
 E Value above quantitation range
 ND Not Detected at the Reporting Limit
 Results are wet unless otherwise specified



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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 19-Apr-16

CLIENT: CH2M HILL
Lab Order: N019315
Project: PG&E Topock, 658274.01.IM.OP.00
Lab ID: N019315-003

Client Sample ID: SC-701-WDR-538
Collection Date: 4/4/2016 5:44:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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TOTAL METALS BY ICPMS
EPA 200.8

RunID: ICP7_160407A	QC Batch: 56868	PrepDate	4/5/2016	Analyst: CEI		
Antimony	ND	0.66	12	µg/L	25	4/7/2016 03:36 PM
Arsenic	ND	0.40	2.5	µg/L	25	4/7/2016 03:36 PM
Barium	140	1.8	25	µg/L	25	4/7/2016 03:36 PM
Beryllium	ND	0.66	12	µg/L	25	4/7/2016 03:36 PM
Cadmium	ND	0.24	12	µg/L	25	4/7/2016 03:36 PM
Cobalt	ND	0.33	12	µg/L	25	4/7/2016 03:36 PM
Copper	ND	6.6	25	µg/L	25	4/7/2016 03:36 PM
Lead	ND	1.3	25	µg/L	25	4/7/2016 03:36 PM
Manganese	62	0.57	12	µg/L	25	4/7/2016 03:36 PM
Molybdenum	200	0.73	12	µg/L	25	4/7/2016 03:36 PM
Nickel	ND	0.95	25	µg/L	25	4/7/2016 03:36 PM
Selenium	34	1.7	12	µg/L	25	4/7/2016 03:36 PM
Silver	ND	0.58	12	µg/L	25	4/18/2016 11:12 AM
Thallium	ND	0.84	12	µg/L	25	4/7/2016 03:36 PM
Vanadium	ND	0.62	25	µg/L	25	4/7/2016 03:36 PM
Zinc	ND	0.98	250	µg/L	25	4/7/2016 03:36 PM

Qualifiers: B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 S Spike/Surrogate outside of limits due to matrix interference
 DO Surrogate Diluted Out
 E Value above quantitation range
 ND Not Detected at the Reporting Limit
 Results are wet unless otherwise specified



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CLIENT: CH2M HILL
Work Order: N019315
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT**TestCode: 200.8_W**

Sample ID	MB-56868	SampType:	MBLK	TestCode:	200.8_W	Units:	µg/L	Prep Date:	4/5/2016	RunNo:	106817	
Client ID:	PBW	Batch ID:	56868	TestNo:	EPA 200.8			Analysis Date:	4/7/2016	SeqNo:	2289089	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony		ND	0.50									
Arsenic		ND	0.10									
Barium		ND	1.0									
Beryllium		ND	0.50									
Cadmium		ND	0.50									
Cobalt		ND	0.50									
Copper		ND	1.0									
Lead		ND	1.0									
Manganese		ND	0.50									
Molybdenum		0.045	0.50									
Nickel		ND	1.0									
Selenium		ND	0.50									
Thallium		0.090	0.50									
Vanadium		ND	1.0									
Zinc		0.611	10									

Sample ID	LCS-56868	SampType: LCS	TestCode: 200.8_W	Units: µg/L	Prep Date: 4/5/2016	RunNo: 106817					
Client ID:	LCSW	Batch ID: 56868	TestNo: EPA 200.8		Analysis Date: 4/7/2016	SeqNo: 2289090					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	9.462	0.50	10.00	0	94.6	85	115				
Arsenic	9.547	0.10	10.00	0	95.5	85	115				
Barium	100.315	1.0	100.0	0	100	85	115				
Beryllium	9.617	0.50	10.00	0	96.2	85	115				
Cadmium	9.485	0.50	10.00	0	94.9	85	115				
Cobalt	9.385	0.50	10.00	0	93.9	85	115				
Copper	9.595	1.0	10.00	0	96.0	85	115				
Lead	9.629	1.0	10.00	0	96.3	85	115				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out	Calculations are based on raw values			



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CLIENT: CH2M HILL
Work Order: N019315
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID	LCS-56868	SampType:	LCS	TestCode:	200.8_W	Units:	µg/L	Prep Date:	4/5/2016	RunNo:	106817
Client ID:	LCSW	Batch ID:	56868	TestNo:	EPA 200.8			Analysis Date:	4/7/2016	SeqNo:	2289090
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Manganese	94.344	0.50	100.0	0	94.3	85	115				
Molybdenum	9.791	0.50	10.00	0	97.9	85	115				
Nickel	9.826	1.0	10.00	0	98.3	85	115				
Selenium	9.076	0.50	10.00	0	90.8	85	115				
Thallium	10.251	0.50	10.00	0	103	85	115				
Vanadium	9.652	1.0	10.00	0	96.5	85	115				
Zinc	96.038	10	100.0	0	96.0	85	115				

Sample ID	N019315-003C-MS	SampType:	MS	TestCode:	200.8_W	Units:	µg/L	Prep Date:	4/5/2016	RunNo:	106817
Client ID:	ZZZZZZ	Batch ID:	56868	TestNo:	EPA 200.8			Analysis Date:	4/7/2016	SeqNo:	2289114
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Antimony	10.151	12	10.00	0	102	75	125				
Arsenic	10.425	2.5	10.00	0.8179	96.1	75	125				
Barium	237.897	25	100.0	137.8	100	75	125				
Beryllium	10.744	12	10.00	0	107	75	125				
Cadmium	8.678	12	10.00	0	86.8	75	125				
Cobalt	8.288	12	10.00	0	82.9	75	125				
Copper	ND	25	10.00	0	0	75	125				S
Lead	9.034	25	10.00	0	90.3	75	125				
Manganese	155.308	12	100.0	62.28	93.0	75	125				
Molybdenum	207.618	12	10.00	203.0	46.6	75	125				S
Nickel	29.491	25	10.00	19.20	103	75	125				
Selenium	41.395	12	10.00	33.79	76.1	75	125				
Thallium	10.554	12	10.00	0	106	75	125				
Vanadium	11.625	25	10.00	1.300	103	75	125				
Zinc	80.764	250	100.0	2.546	78.2	75	125				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		



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CLIENT: CH2M HILL
Work Order: N019315
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID	N019315-003C-MSD	SampType:	MSD	TestCode:	200.8_W	Units:	µg/L	Prep Date:	4/5/2016	RunNo:	106817
Client ID:	ZZZZZZ	Batch ID:	56868	TestNo:	EPA 200.8			Analysis Date:	4/7/2016	SeqNo:	2289115
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	10.169	12	10.00	0	102	75	125	10.15	0	20	
Arsenic	10.864	2.5	10.00	0.8179	100	75	125	10.43	4.12	20	
Barium	236.945	25	100.0	137.8	99.2	75	125	237.9	0.401	20	
Beryllium	10.617	12	10.00	0	106	75	125	10.74	0	20	
Cadmium	9.128	12	10.00	0	91.3	75	125	8.678	0	20	
Cobalt	8.394	12	10.00	0	83.9	75	125	8.288	0	20	
Copper	ND	25	10.00	0	0	75	125	0	0	20	S
Lead	9.179	25	10.00	0	91.8	75	125	9.034	0	20	
Manganese	153.920	12	100.0	62.28	91.6	75	125	155.3	0.898	20	
Molybdenum	206.141	12	10.00	203.0	31.8	75	125	207.6	0.714	20	S
Nickel	28.075	25	10.00	19.20	88.7	75	125	29.49	4.92	20	
Selenium	45.169	12	10.00	33.79	114	75	125	41.40	8.72	20	
Thallium	10.622	12	10.00	0	106	75	125	10.55	0	20	
Vanadium	11.309	25	10.00	1.300	100	75	125	11.62	0	20	
Zinc	74.853	250	100.0	2.546	72.3	75	125	80.76	0	20	S

Sample ID	MB-56868	SampType:	MBLK	TestCode:	200.8_W	Units:	µg/L	Prep Date:	4/5/2016	RunNo:	107000
Client ID:	PBW	Batch ID:	56868	TestNo:	EPA 200.8			Analysis Date:	4/18/2016	SeqNo:	2300796
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Silver	0.041	0.50									

Sample ID	LCS-56868	SampType:	LCS	TestCode:	200.8_W	Units:	µg/L	Prep Date:	4/5/2016	RunNo:	107000
Client ID:	LCSW	Batch ID:	56868	TestNo:	EPA 200.8			Analysis Date:	4/18/2016	SeqNo:	2300797
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Silver	10.463	0.50	10.00	0	105	85	115				

Qualifiers:

- | | | | | | |
|----|---|--------------------------------------|--------------------------------------|---|--|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | Calculations are based on raw values | | | |



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CLIENT: CH2M HILL
Work Order: N019315
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID	N019315-003C-MS	SampType:	MS	TestCode:	200.8_W	Units:	µg/L	Prep Date:	4/5/2016	RunNo:	107000
Client ID:	ZZZZZZ	Batch ID:	56868	TestNo:	EPA 200.8			Analysis Date:	4/18/2016	SeqNo:	2300801
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Silver	10.091	12	10.00	0	101	75	125				
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Sample ID	N019315-003C-MSD	SampType:	MSD	TestCode:	200.8_W	Units:	µg/L	Prep Date:	4/5/2016	RunNo:	107000
Client ID:	ZZZZZZ	Batch ID:	56868	TestNo:	EPA 200.8			Analysis Date:	4/18/2016	SeqNo:	2300802
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Silver	10.117	12	10.00	0	101	75	125	10.09	0	20	
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Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		



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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 19-Apr-16

CLIENT: CH2M HILL
Lab Order: N019315
Project: PG&E Topock, 658274.01.IM.OP.00
Lab ID: N019315-001

Client Sample ID: SC-100B-WDR-538
Collection Date: 4/4/2016 5:48:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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HEXAVALENT CHROMIUM BY IC
EPA 218.6

RunID: IC7_160406A	QC Batch: R106785				PrepDate		Analyst: JJS
Hexavalent Chromium	640	1.5	20		µg/L	100	4/6/2016 11:43 AM

TOTAL METALS BY ICPMS
EPA 200.8

RunID: ICP7_160407A	QC Batch: 56868				PrepDate	4/5/2016	Analyst: CEI
Chromium	640	0.43	5.0		µg/L	5	4/7/2016 02:52 PM

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 19-Apr-16

CLIENT: CH2M HILL
Lab Order: N019315
Project: PG&E Topock, 658274.01.IM.OP.00
Lab ID: N019315-002

Client Sample ID: SC-700B-WDR-538
Collection Date: 4/4/2016 5:40:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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HEXAVALENT CHROMIUM BY IC
EPA 218.6

RunID: IC7_160406A	QC Batch: R106785				PrepDate		Analyst: JJS
Hexavalent Chromium	0.21	0.015	0.20		µg/L	1	4/6/2016 12:21 PM

TOTAL METALS BY ICPMS
EPA 200.8

RunID: ICP7_160407A	QC Batch: 56868				PrepDate	4/5/2016	Analyst: CEI
Chromium	ND	0.086	1.0		µg/L	1	4/7/2016 03:19 PM

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 19-Apr-16

CLIENT: CH2M HILL
Lab Order: N019315
Project: PG&E Topock, 658274.01.IM.OP.00
Lab ID: N019315-003

Client Sample ID: SC-701-WDR-538
Collection Date: 4/4/2016 5:44:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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HEXAVALENT CHROMIUM BY IC
EPA 218.6

RunID: IC7_160406A	QC Batch: R106785				PrepDate		Analyst: JJS
Hexavalent Chromium	ND	0.38	5.0		µg/L	25	4/6/2016 03:02 PM

TOTAL METALS BY ICPMS
EPA 200.8

RunID: ICP7_160407A	QC Batch: 56868				PrepDate	4/5/2016	Analyst: CEI
Chromium	ND	2.1	25		µg/L	25	4/7/2016 03:36 PM

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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CLIENT: CH2M HILL
Work Order: N019315
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT**TestCode: 200.8_W_CRPGE**

Sample ID MB-56868	SampType: MBLK	TestCode: 200.8_W_CR	Units: µg/L	Prep Date: 4/5/2016	RunNo: 106817
Client ID: PBW	Batch ID: 56868	TestNo: EPA 200.8		Analysis Date: 4/7/2016	SeqNo: 2288882
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Chromium ND 1.0

Sample ID LCS-56868	SampType: LCS	TestCode: 200.8_W_CR	Units: µg/L	Prep Date: 4/5/2016	RunNo: 106817
Client ID: LCSW	Batch ID: 56868	TestNo: EPA 200.8		Analysis Date: 4/7/2016	SeqNo: 2288883
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Chromium 9.740 1.0 10.00 0 97.4 85 115

Sample ID N019315-003C-MS	SampType: MS	TestCode: 200.8_W_CR	Units: µg/L	Prep Date: 4/5/2016	RunNo: 106817
Client ID: ZZZZZZ	Batch ID: 56868	TestNo: EPA 200.8		Analysis Date: 4/7/2016	SeqNo: 2288907
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Chromium 12.258 25 10.00 3.144 91.1 75 125

Sample ID N019315-003C-MSD	SampType: MSD	TestCode: 200.8_W_CR	Units: µg/L	Prep Date: 4/5/2016	RunNo: 106817
Client ID: ZZZZZZ	Batch ID: 56868	TestNo: EPA 200.8		Analysis Date: 4/7/2016	SeqNo: 2288908
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Chromium 12.174 25 10.00 3.144 90.3 75 125 12.26 0 20

Qualifiers:

B Analyte detected in the associated Method Blank	E Value above quantitation range	H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	S Spike/Surrogate outside of limits due to matrix interference
DO Surrogate Diluted Out	Calculations are based on raw values	



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CLIENT: CH2M HILL
Work Order: N019315
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WU_PGE

Sample ID	LCS-R106785	SampType:	LCS	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	106785			
Client ID:	LCSW	Batch ID:	R106785	TestNo:	EPA 218.6			Analysis Date:	4/6/2016	SeqNo:	2285800			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	5.045	0.20	5.000	0	101	90	110							
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Sample ID	MB-R106785	SampType:	MBLK	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	106785			
Client ID:	PBW	Batch ID:	R106785	TestNo:	EPA 218.6			Analysis Date:	4/6/2016	SeqNo:	2285801			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	ND	0.20												
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Sample ID	N019315-001CDUP	SampType:	DUP	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	106785			
Client ID:	ZZZZZZ	Batch ID:	R106785	TestNo:	EPA 218.6			Analysis Date:	4/6/2016	SeqNo:	2285803			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	636.860	20									639.0	0.331	20	
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Sample ID	N019315-001CMS	SampType: MS	TestCode: 218.6_WU_P	Units: µg/L	Prep Date:	RunNo: 106785					
Client ID: ZZZZZZ	Batch ID: R106785	TestNo: EPA 218.6	Analysis Date: 4/6/2016	SeqNo: 2285804							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	1157.720	20	500.0	639.0	104	90	110							
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Sample ID	N019315-001CMSD	SampType:	MSD	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	106785			
Client ID:	ZZZZZZ	Batch ID:	R106785	TestNo:	EPA 218.6			Analysis Date:	4/6/2016	SeqNo:	2285805			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	1141.670	20	500.0	639.0	101	90	110	1158	1.40	20				
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Qualifiers:

- | | | | | | |
|----|---|---|--------------------------------------|---|--|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | | Calculations are based on raw values | | |



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CLIENT: CH2M HILL
Work Order: N019315
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WU_PGE

Sample ID	N019315-002CMS	SampType:	MS	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	106785			
Client ID:	ZZZZZZ	Batch ID:	R106785	TestNo:	EPA 218.6			Analysis Date:	4/6/2016	SeqNo:	2285807			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	1.196	0.20	1.000	0.2068	98.9	90	110				
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Sample ID	N019315-003BMS	SampType:	MS	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	106785			
Client ID:	ZZZZZZ	Batch ID:	R106785	TestNo:	EPA 218.6			Analysis Date:	4/6/2016	SeqNo:	2285820			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	29.115	5.0	25.00	3.130	104	90	110				
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Qualifiers:

- | | | | | | |
|----|---|--------------------------------------|--------------------------------------|---|--|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | Calculations are based on raw values | | | |



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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 19-Apr-16

CLIENT: CH2M HILL
Lab Order: N019315
Project: PG&E Topock, 658274.01.IM.OP.00
Lab ID: N019315-001

Client Sample ID: SC-100B-WDR-538
Collection Date: 4/4/2016 5:48:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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TURBIDITY
SM 2130B

RunID: WETCHEM_160405E	QC Batch: R106763	PrepDate	Analyst: LR
Turbidity	0.21 0.10 0.10	NTU	1 4/5/2016 10:30 AM

Qualifiers: B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 S Spike/Surrogate outside of limits due to matrix interference
 DO Surrogate Diluted Out
 E Value above quantitation range
 ND Not Detected at the Reporting Limit
 Results are wet unless otherwise specified



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ANALYTICAL RESULTS
Print Date: 19-Apr-16

CLIENT: CH2M HILL
Lab Order: N019315
Project: PG&E Topock, 658274.01.IM.OP.00
Lab ID: N019315-002

Client Sample ID: SC-700B-WDR-538
Collection Date: 4/4/2016 5:40:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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TURBIDITY
SM 2130B

RunID: WETCHEM_160405E	QC Batch: R106763			PrepDate		Analyst: LR
Turbidity	0.20	0.10	0.10	NTU	1	4/5/2016 10:30 AM

Qualifiers: B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 S Spike/Surrogate outside of limits due to matrix interference
 DO Surrogate Diluted Out
 E Value above quantitation range
 ND Not Detected at the Reporting Limit
 Results are wet unless otherwise specified



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CLIENT: CH2M HILL
Work Order: N019315
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT**TestCode: 2130_W**

Sample ID	MB-R106763	SampType:	MBLK	TestCode:	2130_W	Units:	NTU	Prep Date:		RunNo:	106763		
Client ID:	PBW	Batch ID:	R106763	TestNo:	SM 2130B			Analysis Date:	4/5/2016	SeqNo:	2284931		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Turbidity		ND		0.10									

Sample ID	N019315-001BDUP	SampType:	DUP	TestCode:	2130_W	Units:	NTU	Prep Date:		RunNo:	106763		
Client ID:	ZZZZZZ	Batch ID:	R106763	TestNo:	SM 2130B			Analysis Date:	4/5/2016	SeqNo:	2284933		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Turbidity		0.220		0.10						0.2100	4.65	30	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out	Calculations are based on raw values			



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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 19-Apr-16

CLIENT: CH2M HILL
Lab Order: N019315
Project: PG&E Topock, 658274.01.IM.OP.00
Lab ID: N019315-003

Client Sample ID: SC-701-WDR-538
Collection Date: 4/4/2016 5:44:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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TOTAL MERCURY BY COLD VAPOR TECHNIQUE
EPA 245.1

RunID: AA1_160407C	QC Batch: 56904			PrepDate	4/6/2016	Analyst: CEI
Mercury	ND	0.025	0.20	µg/L	1	4/7/2016 01:07 PM

Qualifiers: B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 S Spike/Surrogate outside of limits due to matrix interference
 DO Surrogate Diluted Out
 E Value above quantitation range
 ND Not Detected at the Reporting Limit
 Results are wet unless otherwise specified



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CLIENT: CH2M HILL
Work Order: N019315
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT**TestCode: 245.1_W**

Sample ID MB-56904	SampType: MBLK	TestCode: 245.1_W	Units: µg/L	Prep Date: 4/6/2016	RunNo: 106814
Client ID: PBW	Batch ID: 56904	TestNo: EPA 245.1		Analysis Date: 4/7/2016	SeqNo: 2288200
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Mercury	ND	0.20			

Sample ID LCS-56904	SampType: LCS	TestCode: 245.1_W	Units: µg/L	Prep Date: 4/6/2016	RunNo: 106814
Client ID: LCSW	Batch ID: 56904	TestNo: EPA 245.1		Analysis Date: 4/7/2016	SeqNo: 2288202
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Mercury	4.645	0.20	5.000	0	92.9 85 115

Sample ID N019231-082A-MS	SampType: MS	TestCode: 245.1_W	Units: µg/L	Prep Date: 4/6/2016	RunNo: 106814
Client ID: ZZZZZZ	Batch ID: 56904	TestNo: EPA 245.1		Analysis Date: 4/7/2016	SeqNo: 2288203
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Mercury	4.812	0.20	5.000	0.1401	93.4 75 125

Sample ID N019231-082A-MSD	SampType: MSD	TestCode: 245.1_W	Units: µg/L	Prep Date: 4/6/2016	RunNo: 106814
Client ID: ZZZZZZ	Batch ID: 56904	TestNo: EPA 245.1		Analysis Date: 4/7/2016	SeqNo: 2288204
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Mercury	4.751	0.20	5.000	0.1401	92.2 75 125 4.812 1.28 20

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out	Calculations are based on raw values			



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ANALYTICAL RESULTS
Print Date: 19-Apr-16

CLIENT: CH2M HILL
Lab Order: N019315
Project: PG&E Topock, 658274.01.IM.OP.00
Lab ID: N019315-001

Client Sample ID: SC-100B-WDR-538
Collection Date: 4/4/2016 5:48:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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ANIONS BY ION CHROMATOGRAPHY
EPA 300.0

RunID: IC2_160406A	QC Batch: R106794				PrepDate		Analyst: QBM
Fluoride	2.9	0.062	0.50		mg/L	5	4/6/2016 09:20 PM

ANIONS BY ION CHROMATOGRAPHY
EPA 300.0

RunID: IC2_160406A	QC Batch: R106794				PrepDate		Analyst: QBM
Sulfate	510	1.6	25		mg/L	50	4/6/2016 08:48 PM

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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ANALYTICAL RESULTS
Print Date: 19-Apr-16

CLIENT: CH2M HILL
Lab Order: N019315
Project: PG&E Topock, 658274.01.IM.OP.00
Lab ID: N019315-002

Client Sample ID: SC-700B-WDR-538
Collection Date: 4/4/2016 5:40:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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ANIONS BY ION CHROMATOGRAPHY
EPA 300.0

RunID: IC2_160406A	QC Batch: R106794				PrepDate		Analyst: QBM
Fluoride	2.5	0.062	0.50		mg/L	5	4/6/2016 09:51 PM

ANIONS BY ION CHROMATOGRAPHY
EPA 300.0

RunID: IC2_160406A	QC Batch: R106794				PrepDate		Analyst: QBM
Sulfate	470	1.6	25		mg/L	50	4/6/2016 09:04 PM

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 19-Apr-16

CLIENT: CH2M HILL
Lab Order: N019315
Project: PG&E Topock, 658274.01.IM.OP.00
Lab ID: N019315-003

Client Sample ID: SC-701-WDR-538
Collection Date: 4/4/2016 5:44:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
----------	--------	-----	-----	------	-------	----	---------------

ANIONS BY ION CHROMATOGRAPHY
EPA 300.0

RunID: IC2_160406A	QC Batch: R106794	PrepDate	Analyst: QBM
Fluoride	20 0.25	2.0 mg/L	20 4/6/2016 10:38 PM

Qualifiers: B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 S Spike/Surrogate outside of limits due to matrix interference
 DO Surrogate Diluted Out
 E Value above quantitation range
 ND Not Detected at the Reporting Limit
 Results are wet unless otherwise specified



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CLIENT: CH2M HILL
Work Order: N019315
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT**TestCode: 300_W_FPG**

Sample ID MB-R106794_F	SampType: MBLK	TestCode: 300_W_FPG	Units: mg/L	Prep Date:	RunNo: 106794
Client ID: PBW	Batch ID: R106794	TestNo: EPA 300.0		Analysis Date: 4/6/2016	SeqNo: 2286663
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Fluoride ND 0.10

Sample ID LCS-R106794_F	SampType: LCS	TestCode: 300_W_FPG	Units: mg/L	Prep Date:	RunNo: 106794
Client ID: LCSW	Batch ID: R106794	TestNo: EPA 300.0		Analysis Date: 4/6/2016	SeqNo: 2286664
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Fluoride 2.367 0.10 2.500 0 94.7 90 110

Sample ID N019315-001BDUP	SampType: DUP	TestCode: 300_W_FPG	Units: mg/L	Prep Date:	RunNo: 106794
Client ID: ZZZZZZ	Batch ID: R106794	TestNo: EPA 300.0		Analysis Date: 4/6/2016	SeqNo: 2286672
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Fluoride 2.940 0.50 2.900 1.37 20

Sample ID N019315-002BMS	SampType: MS	TestCode: 300_W_FPG	Units: mg/L	Prep Date:	RunNo: 106794
Client ID: ZZZZZZ	Batch ID: R106794	TestNo: EPA 300.0		Analysis Date: 4/6/2016	SeqNo: 2286674
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Fluoride 14.060 0.50 12.50 2.510 92.4 80 120

Sample ID N019315-002BMSD	SampType: MSD	TestCode: 300_W_FPG	Units: mg/L	Prep Date:	RunNo: 106794
Client ID: ZZZZZZ	Batch ID: R106794	TestNo: EPA 300.0		Analysis Date: 4/6/2016	SeqNo: 2286675
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Fluoride 14.360 0.50 12.50 2.510 94.8 80 120 14.06 2.11 20

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out	Calculations are based on raw values			



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NEVADA
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 P: 702.307.2659 F: 702.307.2691

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CLIENT: CH2M HILL
Work Order: N019315
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID	MB-R106794_SO4	SampType:	MBLK	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	106794			
Client ID:	PBW	Batch ID:	R106794	TestNo:	EPA 300.0			Analysis Date:	4/6/2016	SeqNo:	2286640			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sulfate ND 0.50

Sample ID	LCS-R106794_SO4	SampType:	LCS	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	106794			
Client ID:	LCSW	Batch ID:	R106794	TestNo:	EPA 300.0			Analysis Date:	4/6/2016	SeqNo:	2286641			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sulfate 4.890 0.50 5.000 0 97.8 90 110

Sample ID	N019332-001DDUP	SampType:	DUP	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	106794			
Client ID:	ZZZZZZ	Batch ID:	R106794	TestNo:	EPA 300.0			Analysis Date:	4/6/2016	SeqNo:	2286645			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sulfate 86.110 5.0 87.33 1.41 20

Sample ID	N019332-002DMS	SampType: MS	TestCode: 300_W_SO4P	Units: mg/L	Prep Date:	RunNo: 106794					
Client ID: ZZZZZZ	Batch ID: R106794	TestNo: EPA 300.0	Analysis Date: 4/6/2016	SeqNo: 2286649							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sulfate 115.390 5.0 50.00 64.56 102 80 120

Sample ID	N019332-002DMSD	SampType:	MSD	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	106794			
Client ID:	ZZZZZZ	Batch ID:	R106794	TestNo:	EPA 300.0			Analysis Date:	4/6/2016	SeqNo:	2286651			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sulfate 115.630 5.0 50.00 64.56 102 80 120 115.4 0.208 20

Qualifiers:

- | | | | | | |
|----|---|--------------------------------------|--------------------------------------|---|--|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | Calculations are based on raw values | | | |



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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 19-Apr-16

CLIENT: CH2M HILL
Lab Order: N019315
Project: PG&E Topock, 658274.01.IM.OP.00
Lab ID: N019315-001

Client Sample ID: SC-100B-WDR-538
Collection Date: 4/4/2016 5:48:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
----------	--------	-----	-----	------	-------	----	---------------

NITRATE/NITRITE-N BY CADMIUM REDUCTION
SM4500-NO3F

RunID: WETCHEM_160407C	QC Batch: R106821				PrepDate		Analyst: RB
Nitrate/Nitrite as N	3.0	0.11	0.25		mg/L	5	4/7/2016

Qualifiers: B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 S Spike/Surrogate outside of limits due to matrix interference
 DO Surrogate Diluted Out
 E Value above quantitation range
 ND Not Detected at the Reporting Limit
 Results are wet unless otherwise specified



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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 19-Apr-16

CLIENT: CH2M HILL
Lab Order: N019315
Project: PG&E Topock, 658274.01.IM.OP.00
Lab ID: N019315-002

Client Sample ID: SC-700B-WDR-538
Collection Date: 4/4/2016 5:40:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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NITRATE/NITRITE-N BY CADMIUM REDUCTION
SM4500-NO3F

RunID: WETCHEM_160407C	QC Batch: R106821				PrepDate		Analyst: RB
Nitrate/Nitrite as N	3.1	0.11	0.25		mg/L	5	4/7/2016

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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CLIENT: CH2M HILL
Work Order: N019315
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT**TestCode: 4500N03F_W**

Sample ID MB-R106821	SampType: MBLK	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 106821
Client ID: PBW	Batch ID: R106821	TestNo: SM4500-NO3		Analysis Date: 4/7/2016	SeqNo: 2289148
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Nitrate/Nitrite as N ND 0.050

Sample ID LCS-R106821	SampType: LCS	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 106821
Client ID: LCSW	Batch ID: R106821	TestNo: SM4500-NO3		Analysis Date: 4/7/2016	SeqNo: 2289150
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Nitrate/Nitrite as N 0.483 0.050 0.5000 0 96.6 85 115

Sample ID N019315-001DDUP	SampType: DUP	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 106821
Client ID: ZZZZZZ	Batch ID: R106821	TestNo: SM4500-NO3		Analysis Date: 4/7/2016	SeqNo: 2289152
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Nitrate/Nitrite as N 3.167 0.25 2.994 5.60 20

Sample ID N019315-001DMS	SampType: MS	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 106821
Client ID: ZZZZZZ	Batch ID: R106821	TestNo: SM4500-NO3		Analysis Date: 4/7/2016	SeqNo: 2289153
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Nitrate/Nitrite as N 5.527 0.25 2.500 2.994 101 75 125

Sample ID N019315-001DMSD	SampType: MSD	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 106821
Client ID: ZZZZZZ	Batch ID: R106821	TestNo: SM4500-NO3		Analysis Date: 4/7/2016	SeqNo: 2289154
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Nitrate/Nitrite as N 5.986 0.25 2.500 2.994 120 75 125 5.527 7.98 20

Qualifiers:

B Analyte detected in the associated Method Blank	E Value above quantitation range	H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	S Spike/Surrogate outside of limits due to matrix interference
DO Surrogate Diluted Out	Calculations are based on raw values	



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Signatures		Date/Time	Shipping Details		<p>ATTN:</p> <p>Sample Custody</p> <p>and</p> <p>Glen Gesmundo</p> <th>Special Instructions:</th>	Special Instructions:
Approved by			Method of Shipment:	FedEx		<p>Total metals List:</p> <p>Cr,Al,Sb,As,Ba,B,Cu,Pb,Mn,Mo,Ni,Fe,Zn</p>
Sampled by	<i>Tate Rosenberg</i>	4-4-16 5:48	On Ice:	yes / no <i>2</i>		
Relinquished by	<i>[Signature]</i>	4-4-16 13:15	Airbill No:	<i>182</i>		
Received by	<i>[Signature]</i>	4/4/16 1315	Lab Name:	ASSET Laboratories		
Relinquished by	<i>[Signature]</i>	4/4/16 2000	Lab Phone:	(702) 307-2659		
Received by	<i>[Signature]</i>					<p>Report Copy to</p> <p>Shawn Duffy</p> <p>530-229-3303</p>

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On: 4/4/2016 Workorder: N019315
 Rep sample Temp (Deg C): 2.1 IR Gun ID: 2
 Temp Blank: ☒ Yes ☐ No
 Carrier name: ASSET
 Last 4 digits of Tracking No.: NA Packing Material Used: None
 Cooling process: ☒ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
2. Custody seals intact, signed, dated on shipping container/cooler?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
3. Custody seals intact on sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
4. Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
5. Sampler's name present in COC?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
6. Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
7. Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
8. Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
9. Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
10. Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
11. All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>
13. Water - VOA vials have zero headspace?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH < 2 for Metals	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	NA <input type="checkbox"/>
15. Did the bottle labels indicate correct preservatives used?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>
16. Were there Non-Conformance issues at login? Was Client notified?	Yes <input checked="" type="checkbox"/> Yes <input type="checkbox"/>	No <input type="checkbox"/> No <input type="checkbox"/>	NA <input type="checkbox"/> NA <input checked="" type="checkbox"/>

Comments: Samples for Ammonia, NO2/NO3 and Total Metals are lab preserved.

Checklist Completed By: HG  4/6/2016

Reviewed By:  04/06/16



ASSET Laboratories

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www.atl-labs.com

TEL: 7023072659

FAX: 7023072691

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

QC Level: Level IV

Subcontractor:

Truesdail
3337 Michelson Drive, Suite CN750
Irvine, CA 92612

TEL: (714) 730-6239
FAX: (714) 730-6462
Acct #:

Field Sampler: SIGNED


05-Apr-16

Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests		
				SM4500-NH3D		
N019315-001A / SC-100B-WDR-538	Water	4/4/2016 5:48:00 AM	32OZP	1		
N019315-002A / SC-700B-WDR-538	Water	4/4/2016 5:40:00 AM	32OZP	1		

General Comments: Please email sample receipt acknowledgement to the PM.

Please use PO#:N19315A Please email Invoices and Account Receivable Statements to AssetAP@assetlaboratories.com. For questions, call Marlon at (702)-307-2659. Please e-mail results to reports.lv@assetlaboratories.com by: **2 Day TAT**

Please analyze for Ammonia by SM4500NH3D. CH2MHILL Samples.

	Date/Time		Date/Time
Relinquished by:  4/5/2016 17:00		Received by: GSO# 531479528	
Relinquished by: _____		Received by: _____	

List of Analysts

ASSET Laboratories Work Order: **N019315**

NAME	TEST METHOD
Quennie Manimtim	EPA 300.0
Claire Ignacio	EPA 200.8, EPA 245.1
Ryan Balilu	SM 4500-NO3F
Jannette Soria	EPA 218.6
Lilia Ramit	EPA 120.1, SM 2540C, SM 2130B
Francis Jordan	EPA 200.7



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REPORT

3337 MICHELSON DRIVE, SUITE CN 750
IRVINE, CA 92612
(714) 730-6239 • FAX (714) 730-6462
www.truesdail.com

Advanced Technology Laboratories-NV

3151 W Post Rd
Las Vegas, NV 89118

Project Name: **ATL-NV**



REPORT

3337 MICHELSON DRIVE, SUITE CN 750
IRVINE, CA 92612
(714) 730-6239 • FAX (714) 730-6462
www.truesdail.com

Client: Advanced Technology Laboratories-NV

3151 W Post Rd
Las Vegas, NV 89118

Attention: Marlon Cartin

Project Name: ATL-NV

Work Order No.: 16D0115

Printed: 04/25/2016

CASE NARRATIVE

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Ammonia results. A summary table for this laboratory number is included in Section 2. Complete laboratory reports, wet chemistry raw data, quality control data and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data are under Section 5.

The samples were received and delivered with the chain of custody on April 6, 2016, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter will be kept in warm storage for additional 2 months before disposal.

If you have any questions or require additional information, please contact me at (714) 730-6239 ext. 206.

SAMPLE RECEIPT SUMMARY

Sample ID	Laboratory ID	Matrix	Type	Date Sampled	Date Received
N019315-001A / SC-100B-WDR-538	16D0115-01	Water		04/04/2016 05:48	04/06/2016 10:40
N019315-002A / SC-700B-WDR-538	16D0115-02	Water		04/04/2016 05:40	04/06/2016 10:40

DEFINITIONS

Symbol	Definition
DF	Dilution Factor
MDL	Method Detection Limit
ND	Not Detected
RL	Reporting Limit

Respectfully yours,

Lyn Phaerakkakit For Anca Florea
Project Manager



Client: Advanced Technology Laboratories-N

Project Name: ATL-NV

Printed: 04/25/2016

N019315-001A / SC-100B-WDR-538

16D0115-01 (Water)

Analyte	Result	RL	Units	DF	Batch	Analyzed	Analyst	Method	Notes
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Truesdail Laboratories, Inc

Wet Chemistry

Ammonia	ND	0.0500	mg/L	1	1604104	04/06/2016 17:01	AL	SM 4500-NH3 D M	
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N019315-002A / SC-700B-WDR-538

16D0115-02 (Water)

Analyte	Result	RL	Units	DF	Batch	Analyzed	Analyst	Method	Notes
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Truesdail Laboratories, Inc

Wet Chemistry

Ammonia	ND	0.0500	mg/L	1	1604104	04/06/2016 17:05	AL	SM 4500-NH3 D M	
---------	----	--------	------	---	---------	------------------	----	-----------------	--



Client: Advanced Technology Laboratories - NV
3151 W Post Road
Las Vegas, NV 89118

Attention: Marlon Cartin

Sample: Two (2) Water Samples

Project Name: PG&E Topock Project

Project No.: N/A

Laboratory No.: 16D0115

Date: April 25, 2016

Collected: April 4, 2016

Received: April 6, 2016

ANALYST LIST

METHOD	PARAMETER	ANALYST
SM 4500-NH3 D	Ammonia	Alex Luna

ANALYSIS DATA SHEET

Inorganics

Client: Advanced Technology Laboratories-NV
Client Sample ID: N019315-002A / SC-700B-WDR-538
Lab Sample ID: 16D0115-02
Project: ATL-NV

Date Sampled: 04/04/16 05:40 Matrix: Water

CAS NO.	Analyte	Concentration (mg/L)	MDL	RL	DF	Q	Analyst	Analyzed	Method
7664-41-7	Ammonia	ND	0.0318	0.0500	1		AL	04/06/16 17:05	SM 4500-NH3 D M

ANALYSIS DATA SHEET

Inorganics

Client: Advanced Technology Laboratories-NV
Client Sample ID: N019315-001A / SC-100B-WDR-538
Lab Sample ID: 16D0115-01
Project: ATL-NV

Date Sampled: 04/04/16 05:48 Matrix: Water

CAS NO.	Analyte	Concentration (mg/L)	MDL	RL	DF	Q	Analyst	Analyzed	Method
7664-41-7	Ammonia	ND	0.0318	0.0500	1		AL	04/06/16 17:01	SM 4500-NH3 D M

ANALYSIS DATA SHEET

Inorganics

Client: Advanced Technology Laboratories-NV
Client Sample ID: N019315-002A / SC-700B-WDR-538
Lab Sample ID: 16D0115-02
Project: ATL-NV

Date Sampled: 04/04/16 05:40 Matrix: Water

CAS NO.	Analyte	Concentration (mg/L)	MDL	RL	DF	Q	Analyst	Analyzed	Method
7664-41-7	Ammonia	ND	0.0318	0.0500	1		AL	04/06/16 17:05	SM 4500-NH3 D M

METHOD BLANK DATA SHEET

SM 4500-NH3 D M

Client: Advanced Technology Laboratories-NV

Project: ATL-NV

Laboratory ID: 1604104-BLK1

Prepared: 04/06/16 16:01

Preparation: SM 4500-NH3 B

Matrix: Water

Analyzed: 04/06/16 16:46

Instrument: TL01

File ID: 6D06002-009

Batch: 1604104

Sequence: 6D06002

CAS NO.	COMPOUND	CONC. (mg/L)	MDL	RL	Q
7664-41-7	Ammonia	ND	0.0318	0.0500	

LCS / LCS DUPLICATE RECOVERY

SM 4500-NH3 D M

Client: Advanced Technology Laboratories-NV
Project: ATL-NV
Work Order: 16D0115

Matrix:	Water	Prep Method:	SM 4500-NH3 B
Prep Batch:	1604104	Lab Sample ID:	1604104-BS1

ANALYTE	SPIKE ADDED (mg/L)	LCS CONCENTRATION (mg/L)	LCS % REC.	QC LIMITS REC.
Ammonia	0.400	0.438	109	90 - 110

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

N019315-002A / SC-700B-WDR-538

Client: Advanced Technology Laboratories-NV
Project: ATL-NV
Work Order: 16D0115

Matrix: Water
Prep Batch: 1604104
Analysis Method: SM 4500-NH3 D M
Prep Method: SM 4500-NH3 B
Laboratory ID: 1604104-MS1
Source Sample ID: 16D0115-02

ANALYTE	SPIKE ADDED (mg/L)	SAMPLE CONCENTRATION (mg/L)	MS CONCENTRATION (mg/L)	MS % REC.	QC LIMITS REC.
Ammonia	0.400	0.0493	0.443	98	75 - 125

ANALYTE	SPIKE ADDED (mg/L)	MSD CONCENTRATION (mg/L)	MSD % REC. #	% RPD	QC LIMITS RPD	REC.
Ammonia	0.400	0.450	100	2	20	75 - 125

* Values outside of QC limits

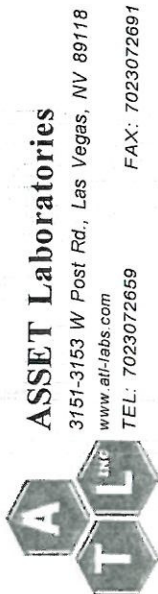
DUPLICATES

N019315-001A / SC-100B-WDR-538

Client: Advanced Technology Laboratories-NV
Project: ATL-NV

Matrix:	Water	Laboratory ID:	1604104-DUP1
Prep Batch:	1604104	Initial/Final:	50 mL / 50 mL
Prep Method:	SM 4500-NH3 B	Analysis:	SM 4500-NH3 D M

ANALYTE	SAMPLE CONCENTRATION (mg/L)	DUPLICATE CONCENTRATION (mg/L)	RPD %	Q	CONTROL LIMIT
Ammonia	0.0322	0.0351			20



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CHAIN-OF-CUSTODY RECORD

Page 1 of 1

QC Level: Level IV

16 Dail 5

Subcontractor:

Truesdail
3337 Michelson Drive, Suite CN750
Irvine, CA 92612

TEL: (714) 730-6239
FAX: (714) 730-6462
Acct #:

Field Sampler: SIGNED

05-Apr-16

Sample ID	Matrix	Date Collected	Bottle Type	SM4500-NH3D	Requested Tests
N019315-001A / SC-100B-WDR-538	Water	4/4/2016 5:48:00 AM	32OZP	1	
N019315-002A / SC-700B-WDR-538	Water	4/4/2016 5:40:00 AM	32OZP	1	

ALERT !!
Level IV QC

RUSH

General Comments:

Please email sample receipt acknowledgement to the PM.

Please use PO#N19315A Please email Invoices and Account Receivable Statements to AssetAP@assetlaboratories.com. For questions, call Marlon at (702)-307-2659. Please e-mail results to reports.lv@assetlaboratories.com by: 2 Day TAT

Please analyze for Ammonia by SM4500NH3D. CH2MHILL Samples.

	Date/Time		Date/Time
Relinquished by: <u>TL</u>	4/5/2016 17:00	Received by: <u>GSO# 531479528</u>	
Relinquished by: _____		Received by: <u>TL</u>	4/6/16 10:40

3.12 AF

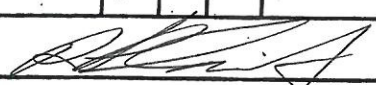
Log-in check list For level III data package

Client: ATL

Lab Number: 16D0115

Received Date: 4/6/2016

Sample receiving review

	Yes	No	N/A	Comment
Was special login form received by login personnel?	✓			
Was COC received and signed by client and login personnel?	✓			
Were all samples temperature measured and recorded on COC?	✓			
Did you measure and record the pH on all metals samples on COC?			✓	
Has sample integrity and analysis discrepancy form been filled out completely?	✓			
Were all intercompany yellow forms generated and stamped with "alert level III QC" note?	✓			4/25/16
Have check-in and check out lists been filled out and attached to appropriate form?	✓			
Were sample containers labeled with TLI numbers, date, and time sampled?	✓			
Did you notify analyst or group leader about short holding time?	✓			
Was a copy of COC attached to all yellow intracompany form?	✓			
For special clients, have all their samples been logged into the Internal COC book?	✓			
Were samples locked in fridge or special storage area?	✓			
Was temperature recorded in the log book?	✓			
Sample receiving Signature: 				

ALERT !!
Level IV QC

WORK ORDER

Printed: 4/7/2016 1:24:39PM

16D0115

Truesdail Laboratories, Inc

Client: Advanced Technology Laboratories-NV
Project: ATL-NV

Project Manager: Anca Florea
Project Number: [none]

Report To:

Advanced Technology Laboratories-NV
Marlon Cartin
3151 W Post Rd
Las Vegas, NV 89118
Phone: (702) 307-2659
Fax: (702) 307-2691

Invoice To:

Advanced Technology Laboratories-NV
Marlon Cartin
3151 W Post Rd
Las Vegas, NV 89118
Phone : (702) 307-2659
Fax: (702) 307-2691

Date Due: 04/08/2016 16:30 (2 day TAT)

Received By: Anca Florea

Logged In By: Anca Florea

Date Received: 04/06/2016 10:40

Date Logged In: 04/06/2016 11:17

Samples Received at: 3.1°C

Chain of Custody re Yes Samples intact? Yes

Letter (if sent) matc No Custody seals (if an No

Requested analyses Yes Analyses within hol Yes

Samples received in Yes

Analysis	Due	TAT	Expires	Comments
16D0115-01 N019315-001A / SC-100B-WDR-538 [Water] Sampled 04/04/2016 05:48 (GMT-08:00) Pacific Time (US &				Label by AF1 04/06/2016 11:17
Ammonia E	04/08/2016 14:00	2	05/02/2016 05:48	
16D0115-02 N019315-002A / SC-700B-WDR-538 [Water] Sampled 04/04/2016 05:40 (GMT-08:00) Pacific Time (US &				Label by AF1 04/06/2016 11:17
Ammonia E	04/08/2016 14:00	2	05/02/2016 05:40	

Reviewed By

Date

4/6/2016

April 19, 2016

Shawn P. Duffy
CH2M HILL
155 Grand Avenue, Suite 1000
Oakland, CA 94612

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

CA-ELAP No.: 2676
NV Cert. No.: NV-00922

Workorder No.: N019314

RE: PG&E Topock, 658274.01.IM.OP.00

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on April 04, 2016 by ASSET Laboratories . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,



Glen Gesmundo
QA Manager

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April 25, 2016

Shawn P. Duffy
CH2M HILL
155 Grand Avenue, Suite 1000
Oakland, CA 94612

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

CA-ELAP No.: 2676
NV Cert. No.: NV-00922

Workorder No.: N019412

RE: PG&E Topock, 658274.01.IM.OP.00

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on April 12, 2016 by ASSET Laboratories . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,



Glen Gesmundo
QA Manager

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CLIENT: CH2M HILL
Project: PG&E Topock, 658274.01.IM.OP.00
Lab Order: N019412

CASE NARRATIVE**SAMPLE RECEIVING/GENERAL COMMENTS**

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time.

Subcontracted Analyses:

Ammonia was subcontracted to Truesdail-Irvine,CA.

Analytical Comments for EPA 200.8:

Dilution was necessary on Lead for sample N019412-001 due to associated internal standard not meeting method criteria possibly due to matrix interference. Sample was analyzed with dilution and internal standard met method criteria. Affected analyte for this failed internal standard was reported at dilution that meet internal standard recovery limit.



ASSET Laboratories

Date: 25-Apr-16

CLIENT: CH2M HILL
Project: PG&E Topock, 658274.01.IM.OP.00
Lab Order: N019412
Contract No: IM3PLANT-AR

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N019412-001A	SC-700B-WDR-539	Water	4/12/2016 9:25:00 AM	4/12/2016	4/25/2016
N019412-001B	SC-700B-WDR-539	Water	4/12/2016 9:25:00 AM	4/12/2016	4/25/2016
N019412-001C	SC-700B-WDR-539	Water	4/12/2016 9:25:00 AM	4/12/2016	4/25/2016
N019412-001D	SC-700B-WDR-539	Water	4/12/2016 9:25:00 AM	4/12/2016	4/25/2016
N019412-001E	SC-700B-WDR-539	Water	4/12/2016 9:25:00 AM	4/12/2016	4/25/2016



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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 25-Apr-16

CLIENT:	CH2M HILL	Client Sample ID:	SC-700B-WDR-539
Lab Order:	N019412	Collection Date:	4/12/2016 9:25:00 AM
Project:	PG&E Topock, 658274.01.IM.OP.00	Matrix:	WATER
Lab ID:	N019412-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
----------	--------	-----	-----	------	-------	----	---------------

SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: WETCHEM_160413B	QC Batch: R106932	PrepDate	Analyst: LR
Specific Conductance	7500 0.10 0.10	umhos/cm	1 4/13/2016 01:45 PM

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

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CLIENT: CH2M HILL
Work Order: N019412
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT**TestCode: 120.1_WPGE**

Sample ID	N019412-001BDUP	SampType:	DUP	TestCode:	120.1_WPGE	Units:	umhos/cm	Prep Date:		RunNo:	106932		
Client ID:	ZZZZZZ	Batch ID:	R106932	TestNo:	EPA 120.1			Analysis Date:	4/13/2016	SeqNo:	2295948		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance		7540.000		0.10						7500	0.532	10	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		



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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 25-Apr-16

CLIENT:	CH2M HILL	Client Sample ID:	SC-700B-WDR-539
Lab Order:	N019412	Collection Date:	4/12/2016 9:25:00 AM
Project:	PG&E Topock, 658274.01.IM.OP.00	Matrix:	WATER
Lab ID:	N019412-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
----------	--------	-----	-----	------	-------	----	---------------

TOTAL FILTERABLE RESIDUE**SM2540C**

RunID: WETCHEM_160413F	QC Batch: 57011			PrepDate	4/13/2016	Analyst: LR
Total Dissolved Solids (Residue, Filterable)	4200	50	50	mg/L	1	4/13/2016 02:10 PM

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

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CLIENT: CH2M HILL
Work Order: N019412
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT**TestCode: 160.1_2540C_W**

Sample ID	LCS-57011	SampType:	LCS	TestCode:	160.1_2540C	Units:	mg/L	Prep Date:	4/13/2016	RunNo:	106950		
Client ID:	LCSW	Batch ID:	57011	TestNo:	SM2540C			Analysis Date:	4/13/2016	SeqNo:	2297988		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera		975.000		10	1000	0	97.5	80	120				

Sample ID	MBLK-57011	SampType:	MBLK	TestCode:	160.1_2540C	Units:	mg/L	Prep Date:	4/13/2016	RunNo:	106950		
Client ID:	PBW	Batch ID:	57011	TestNo:	SM2540C			Analysis Date:	4/13/2016	SeqNo:	2297989		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera		ND		10									

Sample ID	N019412-001BDUP	SampType:	DUP	TestCode:	160.1_2540C	Units:	mg/L	Prep Date:	4/13/2016	RunNo:	106950		
Client ID:	ZZZZZZ	Batch ID:	57011	TestNo:	SM2540C			Analysis Date:	4/13/2016	SeqNo:	2298000		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera		4220.000		50						4150	1.67	5	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		



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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 25-Apr-16

CLIENT: CH2M HILL

Client Sample ID: SC-700B-WDR-539

Lab Order: N019412

Collection Date: 4/12/2016 9:25:00 AM

Project: PG&E Topock, 658274.01.IM.OP.00

Matrix: WATER

Lab ID: N019412-001

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
----------	--------	-----	-----	------	-------	----	---------------

TOTAL METALS BY ICP**EPA 200.7**

RunID: ICP2_160419A

QC Batch: 57042

PrepDate

4/15/2016

Analyst: CEI

Aluminum

ND

12

50

µg/L

1

4/19/2016 09:49 AM

Boron

1000

11

100

µg/L

1

4/19/2016 09:49 AM

Iron

26

17

20

µg/L

1

4/19/2016 09:49 AM

Qualifiers:

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference
DO Surrogate Diluted Out

E Value above quantitation range
ND Not Detected at the Reporting Limit
Results are wet unless otherwise specified

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CLIENT: CH2M HILL
Work Order: N019412
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT**TestCode: 200.7_WPGEPB**

Sample ID MB-57042	SampType: MBLK	TestCode: 200.7_WPGE	Units: µg/L	Prep Date: 4/15/2016	RunNo: 107015
Client ID: PBW	Batch ID: 57042	TestNo: EPA 200.7		Analysis Date: 4/19/2016	SeqNo: 2302154
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Aluminum	15.054	50			
Boron	ND	100			
Iron	ND	20			

Sample ID LCS-57042	SampType: LCS	TestCode: 200.7_WPGE	Units: µg/L	Prep Date: 4/15/2016	RunNo: 107015
Client ID: LCSW	Batch ID: 57042	TestNo: EPA 200.7		Analysis Date: 4/19/2016	SeqNo: 2302155
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Aluminum	10012.353	50	10000	0	100	85	115			
Boron	4892.054	100	5000	0	97.8	85	115			
Iron	114.126	20	100.0	0	114	85	115			

Sample ID N019412-001E-MS	SampType: MS	TestCode: 200.7_WPGE	Units: µg/L	Prep Date: 4/15/2016	RunNo: 107015
Client ID: ZZZZZZ	Batch ID: 57042	TestNo: EPA 200.7		Analysis Date: 4/19/2016	SeqNo: 2302159
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Aluminum	10246.382	50	10000	0	102	75	125			
Boron	6039.342	100	5000	1046	99.9	75	125			
Iron	128.303	20	100.0	26.50	102	75	125			

Sample ID N019412-001E-MSD	SampType: MSD	TestCode: 200.7_WPGE	Units: µg/L	Prep Date: 4/15/2016	RunNo: 107015
Client ID: ZZZZZZ	Batch ID: 57042	TestNo: EPA 200.7		Analysis Date: 4/19/2016	SeqNo: 2302160
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Aluminum	10234.137	50	10000	0	102	75	125	10250	0.120	20
Boron	6070.457	100	5000	1046	100	75	125	6039	0.514	20
Iron	122.674	20	100.0	26.50	96.2	75	125	128.3	4.49	20

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out	Calculations are based on raw values			



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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 25-Apr-16

CLIENT: CH2M HILL
Lab Order: N019412
Project: PG&E Topock, 658274.01.IM.OP.00
Lab ID: N019412-001

Client Sample ID: SC-700B-WDR-539
Collection Date: 4/12/2016 9:25:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
----------	--------	-----	-----	------	-------	----	---------------

TOTAL METALS BY ICPMS
EPA 200.8

RunID: ICP7_160418C	QC Batch: 57033	PrepDate	4/15/2016	Analyst: CEI		
Antimony	ND	0.031	0.50	µg/L	1	4/18/2016 05:53 PM
Arsenic	0.17	0.025	0.10	µg/L	1	4/18/2016 05:53 PM
Barium	11	0.070	1.0	µg/L	1	4/18/2016 05:53 PM
Copper	ND	0.26	1.0	µg/L	1	4/18/2016 05:53 PM
Lead	ND	0.18	5.0	µg/L	5	4/18/2016 05:59 PM
Manganese	25	0.055	0.50	µg/L	1	4/18/2016 05:53 PM
Molybdenum	24	0.038	0.50	µg/L	1	4/18/2016 05:53 PM
Nickel	2.0	0.040	1.0	µg/L	1	4/18/2016 05:53 PM
Zinc	ND	0.27	10	µg/L	1	4/18/2016 05:53 PM

Qualifiers: B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 S Spike/Surrogate outside of limits due to matrix interference
 DO Surrogate Diluted Out
 E Value above quantitation range
 ND Not Detected at the Reporting Limit
 Results are wet unless otherwise specified



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CLIENT: CH2M HILL
Work Order: N019412
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID	MB-57033	SampType:	MBLK	TestCode:	200.8_W	Units:	µg/L	Prep Date:	4/15/2016	RunNo:	107012		
Client ID:	PBW	Batch ID:	57033	TestNo:	EPA 200.8			Analysis Date:	4/18/2016	SeqNo:	2301905		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Antimony	0.047	0.50									
Arsenic	ND	0.10									
Barium	ND	1.0									
Copper	ND	1.0									
Lead	ND	1.0									
Manganese	ND	0.50									
Molybdenum	0.061	0.50									
Nickel	ND	1.0									
Zinc	ND	10									

Sample ID	LCS-57033	SampType:	LCS	TestCode:	200.8_W	Units:	µg/L	Prep Date:	4/15/2016	RunNo:	107012		
Client ID:	LCSW	Batch ID:	57033	TestNo:	EPA 200.8			Analysis Date:	4/18/2016	SeqNo:	2301906		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Antimony	10.220	0.50	10.00	0	102	85	115				
Arsenic	10.367	0.10	10.00	0	104	85	115				
Barium	105.341	1.0	100.0	0	105	85	115				
Copper	10.536	1.0	10.00	0	105	85	115				
Lead	10.377	1.0	10.00	0	104	85	115				
Manganese	100.362	0.50	100.0	0	100	85	115				
Molybdenum	10.060	0.50	10.00	0	101	85	115				
Nickel	10.610	1.0	10.00	0	106	85	115				
Zinc	106.241	10	100.0	0	106	85	115				

Sample ID	N019412-001E-MS	SampType:	MS	TestCode:	200.8_W	Units:	µg/L	Prep Date:	4/15/2016	RunNo:	107012		
Client ID:	ZZZZZZ	Batch ID:	57033	TestNo:	EPA 200.8			Analysis Date:	4/18/2016	SeqNo:	2301912		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		



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CLIENT: CH2M HILL
Work Order: N019412
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID	N019412-001E-MS	SampType: MS	TestCode: 200.8_W	Units: µg/L	Prep Date: 4/15/2016	RunNo: 107012					
Client ID:	ZZZZZZ	Batch ID: 57033	TestNo: EPA 200.8	Analysis Date: 4/18/2016	SeqNo: 2301912						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	9.675	0.50	10.00	0.09280	95.8	75	125				
Arsenic	10.129	0.10	10.00	0.1726	99.6	75	125				
Barium	110.484	1.0	100.0	11.17	99.3	75	125				
Copper	7.680	1.0	10.00	0	76.8	75	125				
Manganese	108.337	0.50	100.0	24.64	83.7	75	125				
Molybdenum	33.742	0.50	10.00	24.09	96.6	75	125				
Nickel	11.651	1.0	10.00	2.010	96.4	75	125				
Zinc	86.782	10	100.0	0	86.8	75	125				

Sample ID	N019412-001E-MS	SampType: MS	TestCode: 200.8_W	Units: µg/L	Prep Date: 4/15/2016	RunNo: 107012					
Client ID: ZZZZZZ	Batch ID: 57033	TestNo: EPA 200.8	Analysis Date: 4/18/2016	SeqNo: 2301913							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	10.486	5.0	10.00	0	105	75	125				

Sample ID	N019412-001E-MSD	SampType: MSD	TestCode: 200.8_W	Units: µg/L	Prep Date: 4/15/2016	RunNo: 107012					
Client ID: ZZZZZZ	Batch ID: 57033	TestNo: EPA 200.8	Analysis Date: 4/18/2016	SeqNo: 2301914							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	9.613	0.50	10.00	0.09280	95.2	75	125	9.675	0.634	20	
Arsenic	10.087	0.10	10.00	0.1726	99.1	75	125	10.13	0.410	20	
Barium	111.186	1.0	100.0	11.17	100	75	125	110.5	0.634	20	
Copper	7.627	1.0	10.00	0	76.3	75	125	7.680	0.693	20	
Manganese	109.193	0.50	100.0	24.64	84.5	75	125	108.3	0.787	20	
Molybdenum	33.432	0.50	10.00	24.09	93.5	75	125	33.74	0.923	20	
Nickel	11.558	1.0	10.00	2.010	95.5	75	125	11.65	0.797	20	
Zinc	86.484	10	100.0	0	86.5	75	125	86.78	0.344	20	

Qualifiers:

- | | | | | | |
|----|---|--------------------------------------|--------------------------------------|---|--|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | Calculations are based on raw values | | | |



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CLIENT: CH2M HILL
Work Order: N019412
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID	N019412-001E-MSD	SampType:	MSD	TestCode:	200.8_W	Units:	µg/L	Prep Date:	4/15/2016	RunNo:	107012		
Client ID:	ZZZZZZ	Batch ID:	57033	TestNo:	EPA 200.8			Analysis Date:	4/18/2016	SeqNo:	2301917		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead		10.422		5.0	10.00	0	104	75	125	10.49	0.613	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out	Calculations are based on raw values			



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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 25-Apr-16

CLIENT: CH2M HILL
Lab Order: N019412
Project: PG&E Topock, 658274.01.IM.OP.00
Lab ID: N019412-001

Client Sample ID: SC-700B-WDR-539
Collection Date: 4/12/2016 9:25:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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HEXAVALENT CHROMIUM BY IC
EPA 218.6

RunID: IC7_160415A	QC Batch: R106972			PrepDate		Analyst: JJS
Hexavalent Chromium	0.64	0.066	0.20	µg/L	1	4/15/2016 01:01 PM

TOTAL METALS BY ICPMS
EPA 200.8

RunID: ICP7_160418C	QC Batch: 57033			PrepDate	4/15/2016	Analyst: CEI
Chromium	ND	0.019	1.0	µg/L	1	4/18/2016 05:53 PM

Qualifiers: B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 S Spike/Surrogate outside of limits due to matrix interference
 DO Surrogate Diluted Out
 E Value above quantitation range
 ND Not Detected at the Reporting Limit
 Results are wet unless otherwise specified



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CLIENT: CH2M HILL
Work Order: N019412
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT**TestCode: 200.8_W_CRPGE**

Sample ID MB-57033	SampType: MBLK	TestCode: 200.8_W_CR	Units: µg/L	Prep Date: 4/15/2016	RunNo: 107012
Client ID: PBW	Batch ID: 57033	TestNo: EPA 200.8		Analysis Date: 4/18/2016	SeqNo: 2301969
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Chromium ND 1.0

Sample ID LCS-57033	SampType: LCS	TestCode: 200.8_W_CR	Units: µg/L	Prep Date: 4/15/2016	RunNo: 107012
Client ID: LCSW	Batch ID: 57033	TestNo: EPA 200.8		Analysis Date: 4/18/2016	SeqNo: 2301970
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Chromium 10.123 1.0 10.00 0 101 85 115

Sample ID N019412-001E-MS	SampType: MS	TestCode: 200.8_W_CR	Units: µg/L	Prep Date: 4/15/2016	RunNo: 107012
Client ID: ZZZZZZ	Batch ID: 57033	TestNo: EPA 200.8		Analysis Date: 4/18/2016	SeqNo: 2301976
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Chromium 9.769 1.0 10.00 0.8131 89.6 75 125

Sample ID N019412-001E-MSD	SampType: MSD	TestCode: 200.8_W_CR	Units: µg/L	Prep Date: 4/15/2016	RunNo: 107012
Client ID: ZZZZZZ	Batch ID: 57033	TestNo: EPA 200.8		Analysis Date: 4/18/2016	SeqNo: 2301978
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Chromium 9.887 1.0 10.00 0.8131 90.7 75 125 9.769 1.19 20

Qualifiers:

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ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	S Spike/Surrogate outside of limits due to matrix interference
DO Surrogate Diluted Out	Calculations are based on raw values	



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CLIENT: CH2M HILL
Work Order: N019412
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WU_PGE

Sample ID	MB-R106972	SampType:	MBLK	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	106972			
Client ID:	PBW	Batch ID:	R106972	TestNo:	EPA 218.6			Analysis Date:	4/15/2016	SeqNo:	2299712			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium ND 0.20

Sample ID	LCS-R106972	SampType:	LCS	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	106972			
Client ID:	LCSW	Batch ID:	R106972	TestNo:	EPA 218.6			Analysis Date:	4/15/2016	SeqNo:	2299713			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium 4.905 0.20 5.000 0 98.1 90 110

Sample ID	N019404-003ADUP	SampType:	DUP	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	106972			
Client ID:	ZZZZZZ	Batch ID:	R106972	TestNo:	EPA 218.6			Analysis Date:	4/15/2016	SeqNo:	2299715			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium 0.247 0.20 0.2362 4.59 20

Sample ID	N019404-003AMS	SampType:	MS	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	106972			
Client ID:	ZZZZZZ	Batch ID:	R106972	TestNo:	EPA 218.6			Analysis Date:	4/15/2016	SeqNo:	2299716			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium 5.139 0.20 5.000 0.2362 98.0 90 110

Sample ID	N019404-003AMSD	SampType:	MSD	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	106972			
Client ID:	ZZZZZZ	Batch ID:	R106972	TestNo:	EPA 218.6			Analysis Date:	4/15/2016	SeqNo:	2299717			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium 5.188 0.20 5.000 0.2362 99.0 90 110 5.138 0.949 20

Qualifiers:

- | | | | | | |
|----|---|--------------------------------------|--------------------------------------|---|--|
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CLIENT: CH2M HILL
Work Order: N019412
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WU_PGE

Sample ID	N019412-001CMS	SampType:	MS	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	106972			
Client ID:	ZZZZZZ	Batch ID:	R106972	TestNo:	EPA 218.6			Analysis Date:	4/15/2016	SeqNo:	2299719			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium		1.565		0.20	1.000	0.6371		92.8	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 25-Apr-16

CLIENT:	CH2M HILL	Client Sample ID:	SC-700B-WDR-539
Lab Order:	N019412	Collection Date:	4/12/2016 9:25:00 AM
Project:	PG&E Topock, 658274.01.IM.OP.00	Matrix:	WATER
Lab ID:	N019412-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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TURBIDITY
SM 2130B

RunID: WETCHEM_160413E	QC Batch: R106930	PrepDate	Analyst: LR
Turbidity	0.31 0.10 0.10	NTU	1 4/13/2016 12:20 PM

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		


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CLIENT: CH2M HILL
Work Order: N019412
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT**TestCode: 2130_W**

Sample ID	MB-R106930	SampType:	MBLK	TestCode:	2130_W	Units:	NTU	Prep Date:		RunNo:	106930		
Client ID:	PBW	Batch ID:	R106930	TestNo:	SM 2130B			Analysis Date:	4/13/2016	SeqNo:	2295929		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Turbidity		ND		0.10									

Sample ID	N019412-001BDUP	SampType:	DUP	TestCode:	2130_W	Units:	NTU	Prep Date:		RunNo:	106930		
Client ID:	ZZZZZZ	Batch ID:	R106930	TestNo:	SM 2130B			Analysis Date:	4/13/2016	SeqNo:	2295931		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Turbidity		0.320		0.10						0.3100	3.17	30	

Qualifiers:

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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 25-Apr-16

CLIENT:	CH2M HILL	Client Sample ID:	SC-700B-WDR-539
Lab Order:	N019412	Collection Date:	4/12/2016 9:25:00 AM
Project:	PG&E Topock, 658274.01.IM.OP.00	Matrix:	WATER
Lab ID:	N019412-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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ANIONS BY ION CHROMATOGRAPHY
EPA 300.0

RunID: IC2_160413A	QC Batch: R106945	PrepDate	Analyst: QBM
Fluoride	2.0 0.062 0.50	mg/L	5 4/13/2016 05:07 PM

ANIONS BY ION CHROMATOGRAPHY
EPA 300.0

RunID: IC2_160413A	QC Batch: R106945	PrepDate	Analyst: QBM
Sulfate	430 1.6 25	mg/L	50 4/13/2016 06:10 PM

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
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	DO	Surrogate Diluted Out		


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CLIENT: CH2M HILL
Work Order: N019412
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT**TestCode: 300_W_FPG**

Sample ID MB-R106945_F	SampType: MBLK	TestCode: 300_W_FPG	Units: mg/L	Prep Date:	RunNo: 106945
Client ID: PBW	Batch ID: R106945	TestNo: EPA 300.0		Analysis Date: 4/13/2016	SeqNo: 2296799
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Fluoride ND 0.10

Sample ID LCS-R106945_F	SampType: LCS	TestCode: 300_W_FPG	Units: mg/L	Prep Date:	RunNo: 106945
Client ID: LCSW	Batch ID: R106945	TestNo: EPA 300.0		Analysis Date: 4/13/2016	SeqNo: 2296800
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Fluoride 2.356 0.10 2.500 0 94.2 90 110

Sample ID N019412-001BDUP	SampType: DUP	TestCode: 300_W_FPG	Units: mg/L	Prep Date:	RunNo: 106945
Client ID: ZZZZZZ	Batch ID: R106945	TestNo: EPA 300.0		Analysis Date: 4/13/2016	SeqNo: 2296806
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Fluoride 1.995 0.50 2.020 1.25 20

Sample ID N019412-001BMS	SampType: MS	TestCode: 300_W_FPG	Units: mg/L	Prep Date:	RunNo: 106945
Client ID: ZZZZZZ	Batch ID: R106945	TestNo: EPA 300.0		Analysis Date: 4/13/2016	SeqNo: 2296807
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Fluoride 13.545 0.50 12.50 2.020 92.2 80 120

Sample ID N019412-001BMSD	SampType: MSD	TestCode: 300_W_FPG	Units: mg/L	Prep Date:	RunNo: 106945
Client ID: ZZZZZZ	Batch ID: R106945	TestNo: EPA 300.0		Analysis Date: 4/13/2016	SeqNo: 2296808
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Fluoride 13.700 0.50 12.50 2.020 93.4 80 120 13.54 1.14 20

Qualifiers:

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"Serving Clients with Passion and Professionalism"

CLIENT: CH2M HILL
Work Order: N019412
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID	MB-R106945_SO4	SampType:	MBLK	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	106945			
Client ID:	PBW	Batch ID:	R106945	TestNo:	EPA 300.0			Analysis Date:	4/13/2016	SeqNo:	2296907			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sulfate ND 0.50

Sample ID	LCS-R106945_SO4	SampType:	LCS	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	106945			
Client ID:	LCSW	Batch ID:	R106945	TestNo:	EPA 300.0			Analysis Date:	4/13/2016	SeqNo:	2296908			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sulfate 4.768 0.50 5.000 0 95.4 90 110

Sample ID	N019412-001BDUP	SampType:	DUP	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	106945			
Client ID:	ZZZZZZ	Batch ID:	R106945	TestNo:	EPA 300.0			Analysis Date:	4/13/2016	SeqNo:	2296919			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sulfate 430.150 25 428.4 0.396 20

Sample ID	N019412-001BMS	SampType:	MS	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	106945			
Client ID:	ZZZZZZ	Batch ID:	R106945	TestNo:	EPA 300.0			Analysis Date:	4/13/2016	SeqNo:	2296920			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sulfate 685.850 25 250.0 428.4 103 80 120

Sample ID	N019412-001BMSD	SampType:	MSD	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	106945			
Client ID:	ZZZZZZ	Batch ID:	R106945	TestNo:	EPA 300.0			Analysis Date:	4/13/2016	SeqNo:	2296921			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sulfate 681.550 25 250.0 428.4 101 80 120 685.8 0.629 20

Qualifiers:

- | | | | | | |
|----|---|--------------------------------------|--------------------------------------|---|--|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 25-Apr-16

CLIENT:	CH2M HILL	Client Sample ID:	SC-700B-WDR-539
Lab Order:	N019412	Collection Date:	4/12/2016 9:25:00 AM
Project:	PG&E Topock, 658274.01.IM.OP.00	Matrix:	WATER
Lab ID:	N019412-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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NITRATE/NITRITE-N BY CADMIUM REDUCTION
SM4500-NO3F

RunID: WETCHEM_160414B	QC Batch: R106971	PrepDate	Analyst: RB
Nitrate/Nitrite as N	1.9 0.11	0.25 mg/L	5 4/14/2016

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		


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CLIENT: CH2M HILL
Work Order: N019412
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT**TestCode: 4500N03F_W**

Sample ID MB-R106971	SampType: MBLK	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 106971
Client ID: PBW	Batch ID: R106971	TestNo: SM4500-NO3		Analysis Date: 4/14/2016	SeqNo: 2299695
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Nitrate/Nitrite as N ND 0.050

Sample ID LCS-R106971	SampType: LCS	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 106971
Client ID: LCSW	Batch ID: R106971	TestNo: SM4500-NO3		Analysis Date: 4/14/2016	SeqNo: 2299696
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Nitrate/Nitrite as N 0.513 0.050 0.5000 0 103 85 115

Sample ID N019412-001DDUP	SampType: DUP	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 106971
Client ID: ZZZZZZ	Batch ID: R106971	TestNo: SM4500-NO3		Analysis Date: 4/14/2016	SeqNo: 2299700
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Nitrate/Nitrite as N 2.010 0.25 1.947 3.16 20

Sample ID N019412-001DMS	SampType: MS	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 106971
Client ID: ZZZZZZ	Batch ID: R106971	TestNo: SM4500-NO3		Analysis Date: 4/14/2016	SeqNo: 2299701
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Nitrate/Nitrite as N 4.571 0.25 2.500 1.947 105 75 125

Sample ID N019412-001DMSD	SampType: MSD	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 106971
Client ID: ZZZZZZ	Batch ID: R106971	TestNo: SM4500-NO3		Analysis Date: 4/14/2016	SeqNo: 2299702
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Nitrate/Nitrite as N 4.490 0.25 2.500 1.947 102 75 125 4.571 1.80 20

Qualifiers:

B Analyte detected in the associated Method Blank	E Value above quantitation range	H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	S Spike/Surrogate outside of limits due to matrix interference
DO Surrogate Diluted Out	Calculations are based on raw values	



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Signatures	Date/Time	Shipping Details	Special Instructions:
Approved by			ATTN: Sample Custody and Glen Gesmundo Report Copy to Shawn Duffy 530-229-3303
Sampled by	4-12-16 9:25	Method of Shipment: FedEx	
Relinquished by	4-12-16 160	On Ice: yes / no 1-8°C	
Received by	4/12/16 @ 160	Airbill No: 10E R#2	
Relinquished by		Lab Name: ASSET Laboratories	
Received by	4/14/16 @ 1830	Lab Phone: (702) 307-2659	

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On: 4/12/2016 Workorder: N019412
 Rep sample Temp (Deg C): 1.8 IR Gun ID: 2
 Temp Blank: ☒ Yes ☐ No
 Carrier name: ASSET
 Last 4 digits of Tracking No.: NA Packing Material Used: None
 Cooling process: ☒ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None

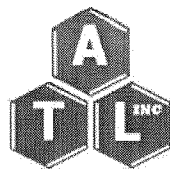
Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
2. Custody seals intact, signed, dated on shipping container/cooler?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
3. Custody seals intact on sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
4. Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
5. Sampler's name present in COC?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
6. Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
7. Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
8. Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
9. Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
10. Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
11. All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>
13. Water - VOA vials have zero headspace?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	NA <input type="checkbox"/>
15. Did the bottle labels indicate correct preservatives used?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>
16. Were there Non-Conformance issues at login? Was Client notified?	Yes <input checked="" type="checkbox"/> Yes <input type="checkbox"/>	No <input type="checkbox"/> No <input type="checkbox"/>	NA <input type="checkbox"/> NA <input checked="" type="checkbox"/>

Comments: Sample for Hex Chrom is lab filtered and preserved.
 Sample for Total Metals, Ammonia and NO2/NO3 are lab preserved.

Checklist Completed By: MBC For: 4/14/2016

Reviewed By: gsg 04/15/16



ASSET Laboratories

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CHAIN-OF-CUSTODY RECORD

Page 1 of 1

QC Level: Level IV

Subcontractor:

Truesdail
3337 Michelson Drive, Suite CN750
Irvine, CA 92612

TEL: (714) 730-6239
FAX: (714) 730-6462
Acct #:

Field Sampler: SIGNED

13-Apr-16

Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests		
				SM4500-NH3D		
N019412-001A / SC-700B-WDR-539	Water	4/12/2016 9:25:00 AM	32OZP	1		

General Comments: Please email sample receipt acknowledgement to the PM.

Please use PO#: N19412A Please email Invoices and Account Receivable Statements to AssetAP@assetlaboratories.com. For questions, call Marlon at (702)-307-2659. Please e-mail results to reports.lv@assetlaboratories.com by: ~~Normal~~ TAT.

Please analyze for Ammonia by SM4500NH3D. CH2M HILL Sample.

5-day ERT

650 #: 531576344

	Date/Time		Date/Time
Relinquished by: <u>Yocendra Rodriguez</u>	<u>4/13/16 17:00</u>	Received by: _____	
Relinquished by: _____		Received by: _____	

List of Analysts

ASSET Laboratories Work Order: **N019412**

NAME	TEST METHOD
Lilia Ramit	EPA 120.1, SM 2540C, SM 2130B
Claire Ignacio	EPA 200.7, EPA 200.8
Jannette Joy Soria	EPA 218.6
Quennie Manimtim	EPA 300
Ryan Balilu	EPA 4500-NO3F



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CLIENT: CH2M HILL
Project: PG&E Topock, 658274.01.IM.OP.00
Lab Order: N019314

CASE NARRATIVE**59MPLE RECEIVING/GENERAL COMMENTS**

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time.

Analytical Comments for EPA 300.0:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria on QC samples N019314-001AMS and N019314-001AMSD possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Analytical Comments for EPA 6010B:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Chromium on QC samples N019314-001A-MS and N019314-001A-MSD since the analyte concentration in the sample is disproportionate to the spike level. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for some analytes on QC samples N019314-001A-MS and N019314-001A-MSD possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Analytical Comments for EPA 7199:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria on QC samples N019314-001B-MS and N019314-001B-MSD possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Analytical Comments for EPA 7471A:

CLIENT: CH2M HILL

Project: PG&E Topock, 658274.01.IM.OP.00

Lab Order: N019314

CASE NARRATIVE

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria on QC samples N019359-001A-MS and N019359-001A-MSD possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.



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N019359-001A-MS
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Date: 19-Apr-16

CLIENT: CH2M HILL
Project: PG&E Topock, 658274.01.IM.OP.00
Lab Order: N019314
Contract No: IM3PLANT-AR

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N019314-001A	Phase Separator-Sludge-538	Soil	4/4/2016 6:30:00 AM	4/4/2016	4/19/2016
N019314-001B	Phase Separator-Sludge-538	Soil	4/4/2016 6:30:00 AM	4/4/2016	4/19/2016



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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 19-Apr-16

CLIENT:	CH2M HILL	Client Sample ID:	Phase Separator-Sludge-538
Lab Order:	N019314	Collection Date:	4/4/2016 6:30:00 AM
Project:	PG&E Topock, 658274.01.IM.OP.00	Matrix:	SOIL
Lab ID:	N019314-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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ANIONS BY ION CHROMATOGRAPHY**EPA 300.0**

RunID: IC2_160411A	QC Batch: R106883	PrepDate	Analyst: QBM
Fluoride	15 0.55 2.3	mg/Kg-dry	1 4/11/2016 12:43 PM

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

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CLIENT: CH2M HILL
Work Order: N019314
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT**TestCode: 300_S**

Sample ID	MB-R106883	SampType:	MBLK	TestCode:	300_S	Units:	mg/Kg	Prep Date:		RunNo:	106883		
Client ID:	PBS	Batch ID:	R106883	TestNo:	EPA 300.0			Analysis Date:	4/11/2016	SeqNo:	2293280		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Fluoride ND 1.0

Sample ID	LCS-R106883	SampType:	LCS	TestCode:	300_S	Units:	mg/Kg	Prep Date:		RunNo:	106883		
Client ID:	LCSS	Batch ID:	R106883	TestNo:	EPA 300.0			Analysis Date:	4/11/2016	SeqNo:	2293281		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Fluoride 23.420 1.0 25.00 0 93.7 90 110

Sample ID	N019314-001ADUP	SampType:	DUP	TestCode:	300_S	Units:	mg/Kg-dry	Prep Date:		RunNo:	106883		
Client ID:	ZZZZZZ	Batch ID:	R106883	TestNo:	EPA 300.0			Analysis Date:	4/11/2016	SeqNo:	2293283		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Fluoride 15.313 2.3 15.11 1.35 20

Sample ID	N019314-001AMS	SampType:	MS	TestCode:	300_S	Units:	mg/Kg-dry	Prep Date:		RunNo:	106883		
Client ID:	ZZZZZZ	Batch ID:	R106883	TestNo:	EPA 300.0			Analysis Date:	4/11/2016	SeqNo:	2293286		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Fluoride 57.532 2.3 57.05 15.11 74.4 80 120 S

Sample ID	N019314-001AMSD	SampType:	MSD	TestCode:	300_S	Units:	mg/Kg-dry	Prep Date:		RunNo:	106883		
Client ID:	ZZZZZZ	Batch ID:	R106883	TestNo:	EPA 300.0			Analysis Date:	4/11/2016	SeqNo:	2293287		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Fluoride 58.490 2.3 57.05 15.11 76.0 80 120 57.53 1.65 20 S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out	Calculations are based on raw values			



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CLIENT: CH2M HILL
Work Order: N019314
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_S

Sample ID	N019314-001APS	SampType:	MS	TestCode:	300_S	Units:	mg/Kg-dry	Prep Date:		RunNo:	106883	
Client ID:	ZZZZZZ	Batch ID:	R106883	TestNo:	EPA 300.0			Analysis Date:	4/11/2016	SeqNo:	2293288	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride		78.664	2.3	57.05	15.11	111	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		



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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 19-Apr-16

CLIENT: CH2M HILL
Lab Order: N019314
Project: PG&E Topock, 658274.01.IM.OP.00
Lab ID: N019314-001

Client Sample ID: Phase Separator-Sludge-538
Collection Date: 4/4/2016 6:30:00 AM
Matrix: SOIL

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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TOTAL METALS BY ICP
EPA 3050B
EPA 6010B

RunID: ICP2_160414A	QC Batch: 56996	PrepDate	4/12/2016	Analyst: FJ	
Antimony	ND 0.16	4.6	mg/Kg-dry	1	4/14/2016 05:29 PM
Arsenic	9.2 0.12	2.3	mg/Kg-dry	1	4/18/2016 09:03 AM
Barium	52 0.018	2.3	mg/Kg-dry	1	4/14/2016 05:29 PM
Beryllium	ND 0.037	2.3	mg/Kg-dry	1	4/14/2016 05:29 PM
Cadmium	ND 0.12	2.3	mg/Kg-dry	1	4/14/2016 05:29 PM
Chromium	2500 0.15	2.3	mg/Kg-dry	1	4/14/2016 05:29 PM
Cobalt	3.2 0.058	2.3	mg/Kg-dry	1	4/14/2016 05:29 PM
Copper	140 0.087	4.6	mg/Kg-dry	1	4/14/2016 05:29 PM
Lead	ND 0.080	2.3	mg/Kg-dry	1	4/14/2016 05:29 PM
Manganese	420 0.13	2.3	mg/Kg-dry	1	4/14/2016 05:29 PM
Molybdenum	3.1 0.041	2.3	mg/Kg-dry	1	4/14/2016 05:29 PM
Nickel	28 0.030	2.3	mg/Kg-dry	1	4/14/2016 05:29 PM
Selenium	ND 0.16	2.3	mg/Kg-dry	1	4/14/2016 05:29 PM
Silver	ND 0.035	2.3	mg/Kg-dry	1	4/14/2016 05:29 PM
Thallium	ND 0.11	4.6	mg/Kg-dry	1	4/14/2016 05:29 PM
Vanadium	31 0.18	2.3	mg/Kg-dry	1	4/14/2016 05:29 PM
Zinc	21 0.19	2.3	mg/Kg-dry	1	4/14/2016 05:29 PM

Qualifiers: B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 S Spike/Surrogate outside of limits due to matrix interference
 DO Surrogate Diluted Out
 E Value above quantitation range
 ND Not Detected at the Reporting Limit
 Results are wet unless otherwise specified



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CLIENT: CH2M HILL
Work Order: N019314
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT**TestCode: 6010_SPGE**

Sample ID	MB-56996	SampType: MBLK	TestCode: 6010_SPGE	Units: mg/Kg	Prep Date: 4/12/2016	RunNo: 106959					
Client ID:	PBS	Batch ID: 56996	TestNo: EPA 6010B	EPA 3050B	Analysis Date: 4/14/2016	SeqNo: 2298735					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	0.154	2.0									
Arsenic	ND	1.0									
Barium	ND	1.0									
Beryllium	ND	1.0									
Cadmium	ND	1.0									
Chromium	0.141	1.0									
Cobalt	ND	1.0									
Copper	ND	2.0									
Lead	ND	1.0									
Manganese	ND	1.0									
Molybdenum	ND	1.0									
Nickel	ND	1.0									
Selenium	0.164	1.0									
Silver	ND	1.0									
Thallium	ND	2.0									
Vanadium	ND	1.0									
Zinc	ND	1.0									

Sample ID	LCS-56996	SampType:	LCS	TestCode:	6010_SPGE	Units:	mg/Kg	Prep Date:	4/12/2016	RunNo:	106959	
Client ID:	LCSS	Batch ID:	56996	TestNo:	EPA 6010B	EPA 3050B		Analysis Date:	4/14/2016	SeqNo:	2298736	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony		24.586	2.0	25.00	0	98.3	85	115				
Arsenic		24.727	1.0	25.00	0	98.9	85	115				
Barium		24.891	1.0	25.00	0	99.6	85	115				
Beryllium		25.191	1.0	25.00	0	101	85	115				
Cadmium		25.679	1.0	25.00	0	103	85	115				
Chromium		25.237	1.0	25.00	0	101	85	115				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out	Calculations are based on raw values			



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"Serving Clients with Passion and Professionalism"

CLIENT: CH2M HILL
Work Order: N019314
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_SPGE

Sample ID	LCS-56996	SampType:	LCS	TestCode:	6010_SPGE	Units:	mg/Kg	Prep Date:	4/12/2016	RunNo:	106959
Client ID:	LCSS	Batch ID:	56996	TestNo:	EPA 6010B EPA 3050B			Analysis Date:	4/14/2016	SeqNo:	2298736
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cobalt	25.192	1.0	25.00	0	101	85	115				
Copper	24.517	2.0	25.00	0	98.1	85	115				
Lead	25.165	1.0	25.00	0	101	85	115				
Manganese	50.700	1.0	50.00	0	101	85	115				
Molybdenum	24.884	1.0	25.00	0	99.5	85	115				
Nickel	25.404	1.0	25.00	0	102	85	115				
Selenium	25.055	1.0	25.00	0	100	85	115				
Silver	24.027	1.0	25.00	0	96.1	85	115				
Thallium	25.505	2.0	25.00	0	102	85	115				
Vanadium	25.085	1.0	25.00	0	100	85	115				
Zinc	26.569	1.0	25.00	0	106	85	115				

Sample ID	N019314-001A-MS	SampType:	MS	TestCode:	6010_SPGE	Units:	mg/Kg-dry	Prep Date:	4/12/2016	RunNo:	106959
Client ID:	ZZZZZZ	Batch ID:	56996	TestNo:	EPA 6010B EPA 3050B			Analysis Date:	4/14/2016	SeqNo:	2298740
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	52.874	4.6	57.25	0	92.4	75	125				
Barium	97.308	2.3	57.25	51.66	79.7	75	125				
Beryllium	49.136	2.3	57.25	0	85.8	75	125				
Cadmium	50.076	2.3	57.25	1.585	84.7	75	125				
Chromium	2421.545	2.3	57.25	2480	-102	75	125				S
Cobalt	52.334	2.3	57.25	3.153	85.9	75	125				
Copper	190.459	4.6	57.25	135.7	95.6	75	125				
Lead	38.966	2.3	57.25	0	68.1	75	125				S
Manganese	514.825	2.3	114.5	417.2	85.3	75	125				
Molybdenum	50.361	2.3	57.25	3.142	82.5	75	125				
Nickel	78.627	2.3	57.25	28.29	87.9	75	125				
Selenium	55.182	2.3	57.25	1.003	94.6	75	125				
Silver	49.082	2.3	57.25	0	85.7	75	125				
Thallium	46.724	4.6	57.25	4.465	73.8	75	125				S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		



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"Serving Clients with Passion and Professionalism"

CLIENT: CH2M HILL
Work Order: N019314
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_SPGE

Sample ID	N019314-001A-MS	SampType: MS	TestCode: 6010_SPGE	Units: mg/Kg-dry	Prep Date: 4/12/2016	RunNo: 106959					
Client ID: ZZZZZZ	Batch ID: 56996	TestNo: EPA 6010B	EPA 3050B	Analysis Date: 4/14/2016	SeqNo: 2298740						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Vanadium	80.292	2.3	57.25	30.83	86.4	75	125				
Zinc	65.272	2.3	57.25	20.71	77.8	75	125				

Sample ID	N019314-001A-MSD	SampType: MSD	TestCode: 6010_SPGE	Units: mg/Kg-dry	Prep Date: 4/12/2016	RunNo: 106959					
Client ID: ZZZZZZ	Batch ID: 56996	TestNo: EPA 6010B	EPA 3050B	Analysis Date: 4/14/2016	SeqNo: 2298741						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	51.886	4.6	56.94	0	91.1	75	125	52.87	1.89	20	
Barium	97.728	2.3	56.94	51.66	80.9	75	125	97.31	0.430	20	
Beryllium	49.144	2.3	56.94	0	86.3	75	125	49.14	0.0158	20	
Cadmium	49.920	2.3	56.94	1.585	84.9	75	125	50.08	0.312	20	
Chromium	2441.484	2.3	56.94	2480	-67.1	75	125	2422	0.820	20	S
Cobalt	52.181	2.3	56.94	3.153	86.1	75	125	52.33	0.294	20	
Copper	192.233	4.6	56.94	135.7	99.2	75	125	190.5	0.927	20	
Lead	38.776	2.3	56.94	0	68.1	75	125	38.97	0.488	20	S
Manganese	515.719	2.3	113.9	417.2	86.5	75	125	514.8	0.173	20	
Molybdenum	50.563	2.3	56.94	3.142	83.3	75	125	50.36	0.399	20	
Nickel	78.517	2.3	56.94	28.29	88.2	75	125	78.63	0.140	20	
Selenium	55.903	2.3	56.94	1.003	96.4	75	125	55.18	1.30	20	
Silver	49.411	2.3	56.94	0	86.8	75	125	49.08	0.667	20	
Thallium	46.730	4.6	56.94	4.465	74.2	75	125	46.72	0.0139	20	S
Vanadium	80.751	2.3	56.94	30.83	87.7	75	125	80.29	0.570	20	
Zinc	65.393	2.3	56.94	20.71	78.5	75	125	65.27	0.186	20	

Sample ID	N019314-001A-MS	SampType: MS	TestCode: 6010_SPGE	Units: mg/Kg-dry	Prep Date: 4/12/2016	RunNo: 106959					
Client ID: ZZZZZZ	Batch ID: 56996	TestNo: EPA 6010B	EPA 3050B	Analysis Date: 4/14/2016	SeqNo: 2302297						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	62.871	2.3	57.25	9.201	93.7	75	125				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out	Calculations are based on raw values			



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"Serving Clients with Passion and Professionalism"

CLIENT: CH2M HILL
Work Order: N019314
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_SPGE

Sample ID	N019314-001A-MSD	SampType:	MSD	TestCode:	6010_SPGE	Units:	mg/Kg-dry	Prep Date:	4/12/2016	RunNo:	106959
Client ID:	ZZZZZZ	Batch ID:	56996	TestNo:	EPA 6010B EPA 3050B	Analysis Date:	4/14/2016	SeqNo:	2302298		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Arsenic		63.638		2.3	56.94	9.201	95.6	75	125	62.87	1.21 20

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		



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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 19-Apr-16

CLIENT:	CH2M HILL	Client Sample ID:	Phase Separator-Sludge-538
Lab Order:	N019314	Collection Date:	4/4/2016 6:30:00 AM
Project:	PG&E Topock, 658274.01.IM.OP.00	Matrix:	SOIL
Lab ID:	N019314-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
	EPA 3060A			EPA 7199			
RunID: IC1_160412A	QC Batch: 56948			PrepDate		4/8/2016	Analyst: JJS
Hexavalent Chromium	72	0.12	2.3		mg/Kg-dry	5	4/12/2016 01:43 PM

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		


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CLIENT: CH2M HILL
Work Order: N019314
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT**TestCode: 7199_S_PGE**

Sample ID	N019314-001B-MS	SampType:	MS	TestCode:	7199_S_PGE	Units:	mg/Kg-dry	Prep Date:	4/8/2016	RunNo:	106916		
Client ID:	ZZZZZZ	Batch ID:	56948	TestNo:	EPA 7199	EPA 3060A		Analysis Date:	4/12/2016	SeqNo:	2296340		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium		78.278		2.3	9.121	71.94	69.5	75	125				S

Sample ID	MB-56948	SampType:	MBLK	TestCode:	7199_S_PGE	Units:	mg/Kg	Prep Date:	4/8/2016	RunNo:	106916		
Client ID:	PBS	Batch ID:	56948	TestNo:	EPA 7199	EPA 3060A		Analysis Date:	4/12/2016	SeqNo:	2296341		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium		ND		0.20									

Sample ID	LCS-56948	SampType:	LCS	TestCode:	7199_S_PGE	Units:	mg/Kg	Prep Date:	4/8/2016	RunNo:	106916		
Client ID:	LCSS	Batch ID:	56948	TestNo:	EPA 7199	EPA 3060A		Analysis Date:	4/12/2016	SeqNo:	2296342		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium		3.720		0.20	4.000	0	93.0	80	120				

Sample ID	N019314-001BREP	SampType:	DUP	TestCode:	7199_S_PGE	Units:	mg/Kg-dry	Prep Date:	4/8/2016	RunNo:	106916		
Client ID:	ZZZZZZ	Batch ID:	56948	TestNo:	EPA 7199	EPA 3060A		Analysis Date:	4/12/2016	SeqNo:	2296344		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium		71.920		2.3						71.94	0.0248	20	

Sample ID	N019314-001B-DUP	SampType:	DUP	TestCode:	7199_S_PGE	Units:	mg/Kg-dry	Prep Date:	4/8/2016	RunNo:	106916		
Client ID:	ZZZZZZ	Batch ID:	56948	TestNo:	EPA 7199	EPA 3060A		Analysis Date:	4/12/2016	SeqNo:	2296345		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium		85.007		2.3						71.94	16.7	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		



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CLIENT: CH2M HILL
Work Order: N019314
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 7199_S_PGE

Sample ID	N019314-001B-MSD	SampType: MSD	TestCode: 7199_S_PGE	Units: mg/Kg-dry	Prep Date: 4/8/2016	RunNo: 106916					
Client ID: ZZZZZZ	Batch ID: 56948	TestNo: EPA 7199	EPA 3060A	Analysis Date: 4/12/2016	SeqNo: 2296347						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	75.049	2.3	9.110	71.94	34.2	75	125	78.28	4.21	20	S

Sample ID	N019314-001B-MS_I	SampType:	MS	TestCode:	7199_S_PGE	Units:	mg/Kg-dry	Prep Date:	4/8/2016	RunNo:	106916		
Client ID:	ZZZZZZ	Batch ID:	56948	TestNo:	EPA 7199	EPA 3060A		Analysis Date:	4/12/2016	SeqNo:	2296349		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium		1718.255		46	1517	71.94	109	75	125				

Qualifiers:

- | | | | | | |
|----|---|--------------------------------------|--------------------------------------|---|--|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 19-Apr-16

CLIENT:	CH2M HILL	Client Sample ID:	Phase Separator-Sludge-538
Lab Order:	N019314	Collection Date:	4/4/2016 6:30:00 AM
Project:	PG&E Topock, 658274.01.IM.OP.00	Matrix:	SOIL
Lab ID:	N019314-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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TOTAL MERCURY BY COLD VAPOR TECHNIQUE**EPA 7471A**

RunID: AA1_160409A	QC Batch: 56943	PrepDate	4/8/2016	Analyst: CEI		
Mercury	ND	0.0071	0.23	mg/Kg-dry	1	4/9/2016 10:28 AM

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

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CLIENT: CH2M HILL
Work Order: N019314
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT**TestCode: 7471_S_PGE**

Sample ID MB-56943	SampType: MBLK	TestCode: 7471_S_PGE	Units: mg/Kg	Prep Date: 4/8/2016	RunNo: 106842
Client ID: PBS	Batch ID: 56943	TestNo: EPA 7471A		Analysis Date: 4/9/2016	SeqNo: 2290489
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Mercury ND 0.10

Sample ID LCS-56943	SampType: LCS	TestCode: 7471_S_PGE	Units: mg/Kg	Prep Date: 4/8/2016	RunNo: 106842
Client ID: LCSS	Batch ID: 56943	TestNo: EPA 7471A		Analysis Date: 4/9/2016	SeqNo: 2290490
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Mercury 0.427 0.10 0.4167 0 103 75 125

Sample ID N019359-001A-MS	SampType: MS	TestCode: 7471_S_PGE	Units: mg/Kg	Prep Date: 4/8/2016	RunNo: 106842
Client ID: ZZZZZZ	Batch ID: 56943	TestNo: EPA 7471A		Analysis Date: 4/9/2016	SeqNo: 2290493
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Mercury 0.299 0.10 0.4167 0.008613 69.7 75 125 S

Sample ID N019359-001A-MSD	SampType: MSD	TestCode: 7471_S_PGE	Units: mg/Kg	Prep Date: 4/8/2016	RunNo: 106842
Client ID: ZZZZZZ	Batch ID: 56943	TestNo: EPA 7471A		Analysis Date: 4/9/2016	SeqNo: 2290494
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Mercury 0.315 0.10 0.4230 0.008613 72.5 75 125 0.2989 5.31 20 S

Qualifiers:

B Analyte detected in the associated Method Blank	E Value above quantitation range	H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	S Spike/Surrogate outside of limits due to matrix interference
DO Surrogate Diluted Out	Calculations are based on raw values	



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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 19-Apr-16

CLIENT:	CH2M HILL	Client Sample ID:	Phase Separator-Sludge-538
Lab Order:	N019314	Collection Date:	4/4/2016 6:30:00 AM
Project:	PG&E Topock, 658274.01.IM.OP.00	Matrix:	SOIL
Lab ID:	N019314-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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PERCENT MOISTURE**D2216**

RunID: WETCHEM_160405B	QC Batch: R106759	PrepDate	Analyst: LR			
Percent Moisture	56.18	0.1000	0.1000	wt%	1	4/5/2016 10:00 AM

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

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CLIENT: CH2M HILL
Work Order: N019314
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT**TestCode: PMOIST**

Sample ID	MB-R106759	SampType:	MBLK	TestCode:	PMOIST	Units:	wt%	Prep Date:		RunNo:	106759		
Client ID:	PBS	Batch ID:	R106759	TestNo:	D2216			Analysis Date:	4/5/2016	SeqNo:	2284846		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Percent Moisture ND 0.1000

Sample ID	N019314-001ADUP	SampType:	DUP	TestCode:	PMOIST	Units:	wt%	Prep Date:		RunNo:	106759		
Client ID:	ZZZZZZ	Batch ID:	R106759	TestNo:	D2216			Analysis Date:	4/5/2016	SeqNo:	2284848		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Percent Moisture 56.403 0.1000 56.18 0.395 30

Qualifiers:

B Analyte detected in the associated Method Blank	E Value above quantitation range	H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	S Spike/Surrogate outside of limits due to matrix interference
DO Surrogate Diluted Out	Calculations are based on raw values	



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Project Name PG&E Topock Location PG&E Topock Project Number 658274.01.IM.OP.00 Project Manager Scott O'Donnell Sample Manager Shawn Duffy				Container: Glass Jar(8 oz) 4 oz jar Preservatives: none none 4°C Filtered: NA NA NA Holding Time: NA NA 180			Number of Containers COMMENTS	
Task Order Project IM3PLANT-ARAR-WDR-538-SLUDGE Turnaround Time 10 Days Shipping Date: COC Number: 538s				Metals (6010B, Soil) Title 22, Mercury, Mn Anions (E300, Soil) FI Metals (7199)				
DATE TIME Matrix								
Phase Separator-Sludge-538 4-4-16 6:30 Soil				X X X N019314 - 01				
TOTAL NUMBER OF CONTAINERS							5	

Signatures	Date/Time	Shipping Details	ATTN:	Special Instructions:
Approved by				
Sampled by <i>Ryan Phillips</i>	4-4-16 6:30	Method of Shipment: FedEx		
Relinquished by <i>[Signature]</i>	4-4-16 13:15	On Ice: yes / no <i>2-12</i>	Sample Custody	
Received by <i>[Signature]</i>	4/4/16 18:15	Airbill No:		
Relinquished by <i>[Signature]</i>	4/4/16 20:00	Lab Name:		Report Copy to
Received by <i>[Signature]</i>		Lab Phone:		Shawn Duffy 530-229-3303

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On: 4/4/2016 Workorder: N019314
 Rep sample Temp (Deg C): 2.1 IR Gun ID: 2
 Temp Blank: ☒ Yes ☐ No
 Carrier name: ASSET
 Last 4 digits of Tracking No.: NA Packing Material Used: None
 Cooling process: ☒ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
2. Custody seals intact, signed, dated on shipping container/cooler?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
3. Custody seals intact on sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
4. Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
5. Sampler's name present in COC?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
6. Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
7. Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
8. Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
9. Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
10. Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
11. All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>
13. Water - VOA vials have zero headspace?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>
15. Did the bottle labels indicate correct preservatives used?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>
16. Were there Non-Conformance issues at login?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>
Was Client notified?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>

Comments:

Checklist Completed By: HG  4/6/2016

Reviewed By:

 04/06/16

List of Analysts

ASSET Laboratories Work Order: **N019314**

NAME	TEST METHOD
Quennie Manimtim	EPA 300.0
Claire Ignacio	EPA 7471
Jannette Soria	EPA 7199
Lilia Ramit	ASTM D2216
Francis Jordan	EPA 6010B



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REPORT

3337 MICHELSON DRIVE, SUITE CN 750
IRVINE, CA 92612
(714) 730-6239 • FAX (714) 730-6462
www.truesdail.com

Advanced Technology Laboratories-NV

3151 W Post Rd
Las Vegas, NV 89118

Project Name: **ATL-NV**



REPORT

3337 MICHELSON DRIVE, SUITE CN 750
IRVINE, CA 92612
(714) 730-6239 • FAX (714) 730-6462
www.truesdail.com

Client: Advanced Technology Laboratories-NV

3151 W Post Rd
Las Vegas, NV 89118

Attention: Marlon Cartin

Project Name: ATL-NV

Work Order No.: 16D0245

Printed: 04/26/2016

CASE NARRATIVE

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Ammonia result. A summary table for this laboratory number is included in Section 2. Complete laboratory reports, wet chemistry raw data, quality control data and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data are under Section 5.

The sample was received and delivered with the chain of custody on April 14, 2016, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter will be kept in warm storage for additional 2 months before disposal.

If you have any questions or require additional information, please contact me at (714) 730-6239 ext. 206.

SAMPLE RECEIPT SUMMARY

Sample ID	Laboratory ID	Matrix	Type	Date Sampled	Date Received
N019412-001A / SC-700B-WDR-539	16D0245-01	Water	Grab	04/12/2016 09:25	04/14/2016 09:05

DEFINITIONS

Symbol	Definition
DF	Dilution Factor
MDL	Method Detection Limit
ND	Not Detected
RL	Reporting Limit

Respectfully yours,

Anca Florea
Project Manager



Client: Advanced Technology Laboratories-N

Project Name: ATL-NV

Printed: 04/26/2016

N019412-001A / SC-700B-WDR-539

16D0245-01 (Water)

Analyte	Result	RL	Units	DF	Batch	Analyzed	Analyst	Method	Notes
---------	--------	----	-------	----	-------	----------	---------	--------	-------

Truesdail Laboratories, Inc

Wet Chemistry

Ammonia	0.0694	0.0500	mg/L	1	1604361	04/19/2016 15:35	AL	SM 4500-NH3 D M	
---------	--------	--------	------	---	---------	------------------	----	-----------------	--



Client: Advanced Technology Laboratories - NV

3151 W Post Road

Las Vegas, NV 89118

Attention: Marlon Cartin

Sample: One (1) Water Sample

Project Name: PG&E Topock Project

Project No.: N/A

Laboratory No.: 16D0245

Date: April 26, 2016

Collected: April 12, 2016

Received: April 14, 2016

ANALYST LIST

METHOD	PARAMETER	ANALYST
SM 4500-NH3 D	Ammonia	Alex Luna

ANALYSIS DATA SHEET

Inorganics

Client: Advanced Technology Laboratories-NV
Client Sample ID: N019412-001A / SC-700B-WDR-539
Lab Sample ID: 16D0245-01
Project: ATL-NV

Date Sampled: 04/12/16 09:25 Matrix: Water

CAS NO.	Analyte	Concentration (mg/L)	MDL	RL	DF	Q	Analyst	Analyzed	Method
7664-41-7	Ammonia	0.0694	0.0318	0.0500	1		AL	04/19/16 15:35	SM 4500-NH3 D M

METHOD BLANK DATA SHEET

SM 4500-NH3 D M

Client: Advanced Technology Laboratories-NV

Project: ATL-NV

Laboratory ID: 1604361-BLK1

Prepared: 04/19/16 14:42

Preparation: SM 4500-NH3 B

Matrix: Water

Analyzed: 04/19/16 15:22

Instrument: TL01

File ID: 6D19001-009

Batch: 1604361

Sequence: 6D19001

CAS NO.	COMPOUND	CONC. (mg/L)	MDL	RL	Q
7664-41-7	Ammonia	ND	0.0318	0.0500	

LCS / LCS DUPLICATE RECOVERY

SM 4500-NH3 D M

Client: Advanced Technology Laboratories-NV
Project: ATL-NV
Work Order: 16D0245

Matrix: Water
Prep Batch: 1604361
Prep Method: SM 4500-NH3 B
Lab Sample ID: 1604361-BS1

ANALYTE	SPIKE ADDED (mg/L)	LCS CONCENTRATION (mg/L)	LCS % REC.	QC LIMITS REC.
Ammonia	0.400	0.383	96	90 - 110

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

Matrix Spike

Client: Advanced Technology Laboratories-NV
Project: ATL-NV
Work Order: 16D0245

Matrix:	Water	Analysis Method:	SM 4500-NH3 D M
Prep Batch:	1604361	Prep Method:	SM 4500-NH3 B
		Laboratory ID:	1604361-MS1
		Source Sample ID:	16D0243-01

ANALYTE	SPIKE ADDED (mg/L)	SAMPLE CONCENTRATION (mg/L)	MS CONCENTRATION (mg/L)	MS % REC.	QC LIMITS REC.
Ammonia	0.400	0.0568	0.472	104	75 - 125

ANALYTE	SPIKE ADDED (mg/L)	MSD CONCENTRATION (mg/L)	MSD % REC. #	% RPD	QC LIMITS RPD	REC.
Ammonia	0.400	0.454	99	4	20	75 - 125

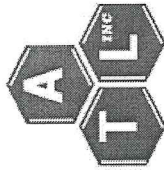
DUPLICATES

N019412-001A / SC-700B-WDR-539

Client: Advanced Technology Laboratories-NV
Project: ATL-NV

Matrix:	Water	Laboratory ID:	1604361-DUP1
Prep Batch:	1604361	Initial/Final:	50 mL / 50 mL
Prep Method:	SM 4500-NH3 B	Analysis:	SM 4500-NH3 D M

ANALYTE	SAMPLE CONCENTRATION (mg/L)	DUPLICATE CONCENTRATION (mg/L)	RPD %	Q	CONTROL LIMIT
Ammonia	0.0694	0.0639	8		20



ASSET Laboratories

3151-3153 W Post Rd., Las Vegas, NV 89118

www.atl-labs.com

TEL: 7023072659

FAX: 7023072691

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

QC Level: Level IV

Subcontractor:

Truesdail

3337 Michelson Drive, Suite CN750

Irvine, CA 92612

TEL: (714) 730-6239

FAX: (714) 730-6462

Acct #:

Field Sampler: SIGNED

13-Apr-16

Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests
N019412-001A / SC-700B-WDR-539	Water	4/12/2016 9:25:00 AM	32OZP	SM4500-NH3D 1

ALERT!!
Level IV QC

RUSH

General Comments: Please email sample receipt acknowledgement to the PM.

Please use PO#: N19412A Please email Invoices and Account Receivable Statements to AssetAP@assetlaboratories.com. For questions, call Marlon at (702)-307-2659. Please e-mail results to reports.lv@assetlaboratories.com by: Normal-TAT.

5-day

Please analyze for Ammonia by SM4500NH3D. CH2M HILL Sample.

Relinquished by:	Date/Time	Received by:	Date/Time
Yoonara Rodriguez	4/13/16 17:00	[Signature]	4/14/16 @ 9:05
Relinquished by:		Received by:	1.7c

Log-in check list For level III data package

Client: ATLLab Number: 16D0245Received Date: 9/14/2016**Sample receiving review**

	Yes	No	N/A	Comment
Was special login form received by login personnel?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was COC received and signed by client and login personnel?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all sample temperature measured and recorded on COC?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Did you measure and record the pH on all metals samples on COC?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Has sample integrity and analysis discrepancy form been filled out completely?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all intercompany yellow forms generated and stamped with "alert level III QC" note?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Have check-in and check out lists been filled out and attached to appropriate form?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were sample containers labeled with TLI numbers, date, and time sampled?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Did you notify analyst or group leader about short holding time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was a copy of COC attached to all yellow intracompany form?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For special clients, have all their samples been logged into the internal COC book?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were samples locked in fridge or special storage area?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was temperature recorded in the log book?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Sample receiving Signature: 

ALERT !!
Level IV QC

WORK ORDER

Printed: 4/14/2016 9:15:28AM

16D0245

Truesdail Laboratories, Inc

Page 20 of 25

Client: Advanced Technology Laboratories-NV
Project: ATL-NV

Project Manager: Anca Florea
Project Number: [none]

Report To:

Advanced Technology Laboratories-NV
Marlon Cartin
3151 W Post Rd
Las Vegas, NV 89118
Phone: (702) 307-2659
Fax: (702) 307-2691

Invoice To:

Advanced Technology Laboratories-NV
Marlon Cartin
3151 W Post Rd
Las Vegas, NV 89118
Phone : (702) 307-2659
Fax: (702) 307-2691

Date Due: 04/21/2016 16:30 (5 day TAT)

Received By: Anca Florea

Date Received: 04/14/2016 09:05

Logged In By: Anca Florea

Date Logged In: 04/14/2016 09:10

Samples Received at: 1.7°C
Chain of Custody rece Yes Samples intact? Yes
Letter (if sent) matche No Custody seals (if any) No
Requested analyses ac Yes Analyses within hold t Yes
Samples received in a Yes

Analysis	Due	TAT	Expires	Comments
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16D0245-01 N019412-001A / SC-700B-WDR-539 [Water] Sampled 04/12/2016
09:25 (GMT-08:00) Pacific Time (US &

Ammonia E	04/21/2016 13:00	5	05/10/2016 09:25	
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Reviewed By

Date

Page 1 of 1
Page 1 of 1

May 23, 2016

Shawn P. Duffy
CH2M HILL
155 Grand Avenue, Suite 1000
Oakland, CA 94612

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

CA-ELAP No.: 2676
NV Cert. No.: NV-00922

Workorder No.: N019614

RE: PG&E Topock, 658274.01.IM.OP.00

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on May 03, 2016 by ASSET Laboratories . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,



Glen Gesmundo
QA Manager

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and Advanced Technology Laboratories - Las Vegas.



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CLIENT: CH2M HILL
Project: PG&E Topock, 658274.01.IM.OP.00
Lab Order: N019614

CASE NARRATIVE**SAMPLE RECEIVING/GENERAL COMMENTS**

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time.

Subcontracted Analyses:

Ammonia was subcontracted to Truesdail-Irvine, CA.

Analytical Comments for EPA 200.7:

Matrix Spike (MS) is outside recovery criteria for Iron on QC sample N019593-001B-MS1 possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Analytical Comments for EPA 200.8:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Chromium on QC samples N019614-001C-MS and N019614-001C-MSD since the analyte concentration in the sample is disproportionate to the spike level. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Copper on QC samples N019614-001C-MS and N019614-001C-MSD possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.



ASSET Laboratories**Date:** 23-May-16

CLIENT: CH2M HILL
Project: PG&E Topock, 658274.01.IM.OP.00
Lab Order: N019614
Contract No: IM3PLANT-AR

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N019614-001A	SC-100B-WDR-540	Water	5/3/2016 2:00:00 PM	5/3/2016	5/23/2016
N019614-001B	SC-100B-WDR-540	Water	5/3/2016 2:00:00 PM	5/3/2016	5/23/2016
N019614-001C	SC-100B-WDR-540	Water	5/3/2016 2:00:00 PM	5/3/2016	5/23/2016
N019614-002A	SC-700B-WDR-540	Water	5/3/2016 2:00:00 PM	5/3/2016	5/23/2016
N019614-002B	SC-700B-WDR-540	Water	5/3/2016 2:00:00 PM	5/3/2016	5/23/2016
N019614-002C	SC-700B-WDR-540	Water	5/3/2016 2:00:00 PM	5/3/2016	5/23/2016
N019614-002D	SC-700B-WDR-540	Water	5/3/2016 2:00:00 PM	5/3/2016	5/23/2016
N019614-002E	SC-700B-WDR-540	Water	5/3/2016 2:00:00 PM	5/3/2016	5/23/2016



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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 23-May-16

CLIENT: CH2M HILL
Lab Order: N019614
Project: PG&E Topock, 658274.01.IM.OP.00
Lab ID: N019614-001

Client Sample ID: SC-100B-WDR-540
Collection Date: 5/3/2016 2:00:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
----------	--------	-----	-----	------	-------	----	---------------

SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: WETCHEM_160504A	QC Batch: R108240			PrepDate			Analyst: RB
Specific Conductance	7100	0.10	0.10	umhos/cm	1		5/4/2016

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 23-May-16

CLIENT: CH2M HILL
Lab Order: N019614
Project: PG&E Topock, 658274.01.IM.OP.00
Lab ID: N019614-002

Client Sample ID: SC-700B-WDR-540
Collection Date: 5/3/2016 2:00:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
----------	--------	-----	-----	------	-------	----	---------------

SPECIFIC CONDUCTANCE
EPA 120.1

RunID: WETCHEM_160504A	QC Batch: R108240			PrepDate		Analyst: RB
Specific Conductance	7400	0.10	0.10	umhos/cm	1	5/4/2016

Qualifiers: B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 S Spike/Surrogate outside of limits due to matrix interference
 DO Surrogate Diluted Out
 E Value above quantitation range
 ND Not Detected at the Reporting Limit
 Results are wet unless otherwise specified



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CLIENT: CH2M HILL
Work Order: N019614
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT**TestCode: 120.1_WPGE**

Sample ID	N019614-002ADUP	SampType:	DUP	TestCode:	120.1_WPGE	Units:	umhos/cm	Prep Date:		RunNo:	108240
Client ID:	ZZZZZZ	Batch ID:	R108240	TestNo:	EPA 120.1			Analysis Date:	5/4/2016	SeqNo:	2314998
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Specific Conductance		7430.000		0.10						7450	0.269 10

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		



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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 23-May-16

CLIENT: CH2M HILL
Lab Order: N019614
Project: PG&E Topock, 658274.01.IM.OP.00
Lab ID: N019614-001

Client Sample ID: SC-100B-WDR-540
Collection Date: 5/3/2016 2:00:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
----------	--------	-----	-----	------	-------	----	---------------

TOTAL FILTERABLE RESIDUE**SM2540C**

RunID: WETCHEM_160505B	QC Batch: 58308			PrepDate	5/5/2016	Analyst: QBM
Total Dissolved Solids (Residue, Filterable)	4200	50	50	mg/L	1	5/5/2016 08:17 AM

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 23-May-16

CLIENT: CH2M HILL
Lab Order: N019614
Project: PG&E Topock, 658274.01.IM.OP.00
Lab ID: N019614-002

Client Sample ID: SC-700B-WDR-540
Collection Date: 5/3/2016 2:00:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
----------	--------	-----	-----	------	-------	----	---------------

TOTAL FILTERABLE RESIDUE**SM2540C**

RunID: WETCHEM_160505B	QC Batch: 58308			PrepDate	5/5/2016	Analyst: QBM
Total Dissolved Solids (Residue, Filterable)	4300	50	50	mg/L	1	5/5/2016 08:17 AM

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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CLIENT: CH2M HILL
Work Order: N019614
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT**TestCode: 160.1_2540C_W**

Sample ID	LCS-58308	SampType:	LCS	TestCode:	160.1_2540C	Units:	mg/L	Prep Date:	5/5/2016	RunNo:	108283			
Client ID:	LCSW	Batch ID:	58308	TestNo:	SM2540C			Analysis Date:	5/5/2016	SeqNo:	2317069			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera		956.000		10	1000	0		95.6	80	120				

Sample ID	MB-58308	SampType:	MBLK	TestCode:	160.1_2540C	Units:	mg/L	Prep Date:	5/5/2016	RunNo:	108283			
Client ID:	PBW	Batch ID:	58308	TestNo:	SM2540C			Analysis Date:	5/5/2016	SeqNo:	2317070			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera		ND		10										

Sample ID	N019614-002A-DUP	SampType:	DUP	TestCode:	160.1_2540C	Units:	mg/L	Prep Date:	5/5/2016	RunNo:	108283			
Client ID:	ZZZZZZ	Batch ID:	58308	TestNo:	SM2540C			Analysis Date:	5/5/2016	SeqNo:	2317079			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera		4300.000		50							4325	0.580	5	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out	Calculations are based on raw values			



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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 23-May-16

CLIENT: CH2M HILL
Lab Order: N019614
Project: PG&E Topock, 658274.01.IM.OP.00
Lab ID: N019614-002

Client Sample ID: SC-700B-WDR-540
Collection Date: 5/3/2016 2:00:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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TOTAL METALS BY ICP
EPA 200.7

RunID: ICP2_160514A	QC Batch: 57298	PrepDate	5/4/2016	Analyst: CEI
Aluminum	ND 2.7	50	µg/L	1 5/14/2016 04:29 PM
Boron	1100 38	100	µg/L	1 5/14/2016 04:29 PM
Iron	33 1.8	20	µg/L	1 5/14/2016 04:29 PM

Qualifiers: B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 S Spike/Surrogate outside of limits due to matrix interference
 DO Surrogate Diluted Out
 E Value above quantitation range
 ND Not Detected at the Reporting Limit
 Results are wet unless otherwise specified



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CLIENT: CH2M HILL
Work Order: N019614
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WPGEPB

Sample ID	MB-57298	SampType:	MBLK	TestCode:	200.7_WPGE	Units:	µg/L	Prep Date:	5/4/2016	RunNo:	108474			
Client ID:	PBW	Batch ID:	57298	TestNo:	EPA 200.7			Analysis Date:	5/14/2016	SeqNo:	2327281			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Aluminum
Boron
Iron

ND
68.446
ND

50
100
20

Sample ID	LCS1-57298	SampType:	LCS	TestCode:	200.7_WPGE	Units:	µg/L	Prep Date:	5/4/2016	RunNo:	108474			
Client ID:	LCSW	Batch ID:	57298	TestNo:	EPA 200.7			Analysis Date:	5/14/2016	SeqNo:	2327282			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Aluminum
Boron
Iron

9977.776
4872.598
96.271

50
100
20

10000
5000
100.0

0
0
0

99.8
97.5
96.3

85
85
85

115
115
115

Sample ID	N019593-001B-MS1	SampType: MS	TestCode: 200.7_WPGE	Units: µg/L	Prep Date: 5/4/2016	RunNo: 108474					
Client ID: ZZZZZZ	Batch ID: 57298	TestNo: EPA 200.7	Analysis Date: 5/14/2016	SeqNo: 2327287							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Aluminum
Boron
Iron

10124.980
5419.787
121.324

50
100
20

10000
5000
100.0

0
402.3
56.87

101
100
64.5

75
75
75

125
125
125

S

Sample ID	N019593-001B-MSD	SampType:	MSD	TestCode:	200.7_WPGE	Units:	µg/L	Prep Date:	5/4/2016	RunNo:	108474			
Client ID:	ZZZZZZ	Batch ID:	57298	TestNo:	EPA 200.7			Analysis Date:	5/14/2016	SeqNo:	2327288			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Aluminum
Boron
Iron

9930.217
5310.236
139.606

50
100
20

10000
5000
100.0

0
402.3
56.87

99.3
98.2
82.7

75
75
75

125
125
125

10120
5420
121.3

1.94
2.04
14.0

20
20
20

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out	Calculations are based on raw values			



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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 23-May-16

CLIENT: CH2M HILL
Lab Order: N019614
Project: PG&E Topock, 658274.01.IM.OP.00
Lab ID: N019614-001

Client Sample ID: SC-100B-WDR-540
Collection Date: 5/3/2016 2:00:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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TOTAL METALS BY ICPMS**EPA 200.8**

RunID: ICP7_160505A	QC Batch: 57302			PrepDate	5/4/2016	Analyst: CEI
Manganese	18	0.056	0.50	µg/L	1	5/5/2016 01:34 PM

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 23-May-16

CLIENT: CH2M HILL
Lab Order: N019614
Project: PG&E Topock, 658274.01.IM.OP.00
Lab ID: N019614-002

Client Sample ID: SC-700B-WDR-540
Collection Date: 5/3/2016 2:00:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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TOTAL METALS BY ICPMS
EPA 200.8

RunID: ICP7_160505A	QC Batch: 57302	PrepDate	5/4/2016	Analyst: CEI		
Antimony	ND	0.031	0.50	µg/L	1	5/5/2016 01:40 PM
Arsenic	ND	0.025	0.10	µg/L	1	5/5/2016 01:40 PM
Barium	16	0.070	1.0	µg/L	1	5/5/2016 01:40 PM
Copper	ND	0.26	1.0	µg/L	1	5/5/2016 01:40 PM
Lead	ND	0.037	1.0	µg/L	1	5/5/2016 01:40 PM
Manganese	4.7	0.056	0.50	µg/L	1	5/5/2016 01:40 PM
Molybdenum	24	0.039	0.50	µg/L	1	5/5/2016 01:40 PM
Nickel	1.5	0.040	1.0	µg/L	1	5/5/2016 01:40 PM
Zinc	ND	0.27	10	µg/L	1	5/5/2016 01:40 PM

Qualifiers: B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
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 DO Surrogate Diluted Out
 E Value above quantitation range
 ND Not Detected at the Reporting Limit
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CLIENT: CH2M HILL
 Work Order: N019614
 Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID	MB-57302	SampType:	MBLK	TestCode:	200.8_W	Units:	µg/L	Prep Date:	5/4/2016	RunNo:	108287
Client ID:	PBW	Batch ID:	57302	TestNo:	EPA 200.8			Analysis Date:	5/5/2016	SeqNo:	2317175
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Antimony	ND	0.50									
Arsenic	ND	0.10									
Barium	ND	1.0									
Copper	ND	1.0									
Lead	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Nickel	0.092	1.0									
Zinc	ND	10									

Sample ID	LCS-57302	SampType:	LCS	TestCode:	200.8_W	Units:	µg/L	Prep Date:	5/4/2016	RunNo:	108287
Client ID:	LCSW	Batch ID:	57302	TestNo:	EPA 200.8			Analysis Date:	5/5/2016	SeqNo:	2317176
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Antimony	10.583	0.50	10.00	0	106	85	115				
Arsenic	10.135	0.10	10.00	0	101	85	115				
Barium	108.881	1.0	100.0	0	109	85	115				
Copper	9.644	1.0	10.00	0	96.4	85	115				
Lead	10.666	1.0	10.00	0	107	85	115				
Manganese	101.649	0.50	100.0	0	102	85	115				
Molybdenum	10.094	0.50	10.00	0	101	85	115				
Nickel	10.102	1.0	10.00	0	101	85	115				
Zinc	100.806	10	100.0	0	101	85	115				

Sample ID	N019614-001C-MS	SampType:	MS	TestCode:	200.8_W	Units:	µg/L	Prep Date:	5/4/2016	RunNo:	108287
Client ID:	ZZZZZZ	Batch ID:	57302	TestNo:	EPA 200.8			Analysis Date:	5/5/2016	SeqNo:	2317192
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
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DO	Surrogate Diluted Out	Calculations are based on raw values			



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CLIENT: CH2M HILL
Work Order: N019614
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID	N019614-001C-MS	SampType:	MS	TestCode:	200.8_W	Units:	µg/L	Prep Date:	5/4/2016	RunNo:	108287
Client ID:	ZZZZZZ	Batch ID:	57302	TestNo:	EPA 200.8			Analysis Date:	5/5/2016	SeqNo:	2317192
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	10.747	0.50	10.00	0.03357	107	75	125				
Arsenic	13.929	0.10	10.00	3.471	105	75	125				
Barium	136.055	1.0	100.0	29.39	107	75	125				
Copper	4.611	1.0	10.00	0	46.1	75	125				S
Manganese	112.478	0.50	100.0	18.45	94.0	75	125				
Molybdenum	35.182	0.50	10.00	23.90	113	75	125				
Nickel	8.558	1.0	10.00	0	85.6	75	125				
Zinc	82.503	10	100.0	0	82.5	75	125				

Sample ID	N019614-001C-MSD	SampType:	MSD	TestCode:	200.8_W	Units:	µg/L	Prep Date:	5/4/2016	RunNo:	108287
Client ID:	ZZZZZZ	Batch ID:	57302	TestNo:	EPA 200.8			Analysis Date:	5/5/2016	SeqNo:	2317193
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	10.680	0.50	10.00	0.03357	106	75	125	10.75	0.621	20	
Arsenic	13.724	0.10	10.00	3.471	103	75	125	13.93	1.48	20	
Barium	136.006	1.0	100.0	29.39	107	75	125	136.1	0.0361	20	
Copper	4.909	1.0	10.00	0	49.1	75	125	4.611	6.25	20	S
Manganese	111.174	0.50	100.0	18.45	92.7	75	125	112.5	1.17	20	
Molybdenum	35.119	0.50	10.00	23.90	112	75	125	35.18	0.178	20	
Nickel	8.568	1.0	10.00	0	85.7	75	125	8.558	0.116	20	
Zinc	81.122	10	100.0	0	81.1	75	125	82.50	1.69	20	

Sample ID	N019614-001C-MS	SampType:	MS	TestCode:	200.8_W	Units:	µg/L	Prep Date:	5/4/2016	RunNo:	108287
Client ID:	ZZZZZZ	Batch ID:	57302	TestNo:	EPA 200.8			Analysis Date:	5/5/2016	SeqNo:	2317207
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	10.254	5.0	10.00	0	103	75	125				

Qualifiers:

- | | | | | | |
|----|---|--------------------------------------|--------------------------------------|---|--|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | Calculations are based on raw values | | | |



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CLIENT: CH2M HILL
Work Order: N019614
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID	N019614-001C-MSD	SampType:	MSD	TestCode:	200.8_W	Units:	µg/L	Prep Date:	5/4/2016	RunNo:	108287		
Client ID:	ZZZZZZ	Batch ID:	57302	TestNo:	EPA 200.8			Analysis Date:	5/5/2016	SeqNo:	2317208		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead		10.291		5.0	10.00	0	103	75	125	10.25	0.358	20	

Qualifiers:

- | | | | | | |
|----|---|--------------------------------------|--------------------------------------|---|--|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | Calculations are based on raw values | | | |



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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 23-May-16

CLIENT: CH2M HILL
Lab Order: N019614
Project: PG&E Topock, 658274.01.IM.OP.00
Lab ID: N019614-001

Client Sample ID: SC-100B-WDR-540
Collection Date: 5/3/2016 2:00:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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HEXAVALENT CHROMIUM BY IC
EPA 218.6

RunID: IC6_160504A	QC Batch: R108255				PrepDate		Analyst: JJS
Hexavalent Chromium	500	6.6	20		µg/L	100	5/4/2016 01:42 PM

TOTAL METALS BY ICPMS
EPA 200.8

RunID: ICP7_160505A	QC Batch: 57302				PrepDate	5/4/2016	Analyst: CEI
Chromium	530	0.096	5.0		µg/L	5	5/5/2016 01:45 PM

Qualifiers: B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 S Spike/Surrogate outside of limits due to matrix interference
 DO Surrogate Diluted Out
 E Value above quantitation range
 ND Not Detected at the Reporting Limit
 Results are wet unless otherwise specified



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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 23-May-16

CLIENT: CH2M HILL
Lab Order: N019614
Project: PG&E Topock, 658274.01.IM.OP.00
Lab ID: N019614-002

Client Sample ID: SC-700B-WDR-540
Collection Date: 5/3/2016 2:00:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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HEXAVALENT CHROMIUM BY IC
EPA 218.6

RunID: IC6_160504A	QC Batch: R108255				PrepDate		Analyst: JJS
Hexavalent Chromium	0.25	0.066	0.20		µg/L	1	5/4/2016 02:02 PM

TOTAL METALS BY ICPMS
EPA 200.8

RunID: ICP7_160505A	QC Batch: 57302				PrepDate	5/4/2016	Analyst: CEI
Chromium	ND	0.019	1.0		µg/L	1	5/5/2016 01:40 PM

Qualifiers: B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 S Spike/Surrogate outside of limits due to matrix interference
 DO Surrogate Diluted Out
 E Value above quantitation range
 ND Not Detected at the Reporting Limit
 Results are wet unless otherwise specified



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CLIENT: CH2M HILL
Work Order: N019614
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT**TestCode: 200.8_W_CRPGE**

Sample ID MB-57302	SampType: MBLK	TestCode: 200.8_W_CR	Units: µg/L	Prep Date: 5/4/2016	RunNo: 108287
Client ID: PBW	Batch ID: 57302	TestNo: EPA 200.8		Analysis Date: 5/5/2016	SeqNo: 2317123
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Chromium	ND	1.0			

Sample ID LCS-57302	SampType: LCS	TestCode: 200.8_W_CR	Units: µg/L	Prep Date: 5/4/2016	RunNo: 108287
Client ID: LCSW	Batch ID: 57302	TestNo: EPA 200.8		Analysis Date: 5/5/2016	SeqNo: 2317124
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Chromium	10.212	1.0	10.00	0	102 85 115

Sample ID N019614-001C-MS	SampType: MS	TestCode: 200.8_W_CR	Units: µg/L	Prep Date: 5/4/2016	RunNo: 108287
Client ID: ZZZZZZ	Batch ID: 57302	TestNo: EPA 200.8		Analysis Date: 5/5/2016	SeqNo: 2317155
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Chromium	555.729	5.0	10.00	534.8	209 75 125 S

Sample ID N019614-001C-MSD	SampType: MSD	TestCode: 200.8_W_CR	Units: µg/L	Prep Date: 5/4/2016	RunNo: 108287
Client ID: ZZZZZZ	Batch ID: 57302	TestNo: EPA 200.8		Analysis Date: 5/5/2016	SeqNo: 2317156
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Chromium	554.329	5.0	10.00	534.8	195 75 125 555.7 0.252 20 S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out	Calculations are based on raw values			



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CLIENT: CH2M HILL
Work Order: N019614
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WU_PGE

Sample ID	MB-R108255	SampType:	MBLK	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	108255			
Client ID:	PBW	Batch ID:	R108255	TestNo:	EPA 218.6			Analysis Date:	5/4/2016	SeqNo:	2315613			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium ND 0.20

Sample ID	LCS-R108255	SampType:	LCS	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	108255			
Client ID:	LCSW	Batch ID:	R108255	TestNo:	EPA 218.6			Analysis Date:	5/4/2016	SeqNo:	2315614			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium 4.990 0.20 5.000 0 99.8 90 110

Sample ID	N019597-001ADUP	SampType:	DUP	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	108255			
Client ID:	ZZZZZZ	Batch ID:	R108255	TestNo:	EPA 218.6			Analysis Date:	5/4/2016	SeqNo:	2315618			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium 1.195 0.20 1.108 7.62 20

Sample ID	N019597-001AMS	SampType:	MS	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	108255			
Client ID:	ZZZZZZ	Batch ID:	R108255	TestNo:	EPA 218.6			Analysis Date:	5/4/2016	SeqNo:	2315619			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium 6.388 0.20 5.000 1.108 106 90 110

Sample ID	N019597-001AMSD	SampType:	MSD	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	108255			
Client ID:	ZZZZZZ	Batch ID:	R108255	TestNo:	EPA 218.6			Analysis Date:	5/4/2016	SeqNo:	2315620			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium 6.171 0.20 5.000 1.108 101 90 110 6.388 3.46 20

Qualifiers:

- | | | | | | |
|----|---|--------------------------------------|--------------------------------------|---|--|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | Calculations are based on raw values | | | |



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NEVADA
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 P: 702.307.2659 F: 702.307.2691

"Serving Clients with Passion and Professionalism"

CLIENT: CH2M HILL
Work Order: N019614
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WU_PGE

Sample ID	N019614-001BMS	SampType:	MS	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	108255			
Client ID:	ZZZZZZ	Batch ID:	R108255	TestNo:	EPA 218.6			Analysis Date:	5/4/2016	SeqNo:	2315643			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	1009.570	20	500.0	503.6	101	90	110				
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Sample ID	N019614-002BMS	SampType:	MS	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	108255			
Client ID:	ZZZZZZ	Batch ID:	R108255	TestNo:	EPA 218.6			Analysis Date:	5/4/2016	SeqNo:	2315645			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	1.268	0.20	1.000	0.2530	102	90	110				
---------------------	-------	------	-------	--------	-----	----	-----	--	--	--	--

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out	Calculations are based on raw values			



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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 23-May-16

CLIENT: CH2M HILL
Lab Order: N019614
Project: PG&E Topock, 658274.01.IM.OP.00
Lab ID: N019614-001

Client Sample ID: SC-100B-WDR-540
Collection Date: 5/3/2016 2:00:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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TURBIDITY
SM 2130B

RunID: WETCHEM_160504B	QC Batch: R108241			PrepDate		Analyst: RB
Turbidity	ND	0.10	0.10	NTU	1	5/4/2016

Qualifiers: B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 S Spike/Surrogate outside of limits due to matrix interference
 DO Surrogate Diluted Out
 E Value above quantitation range
 ND Not Detected at the Reporting Limit
 Results are wet unless otherwise specified



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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 23-May-16

CLIENT: CH2M HILL
Lab Order: N019614
Project: PG&E Topock, 658274.01.IM.OP.00
Lab ID: N019614-002

Client Sample ID: SC-700B-WDR-540
Collection Date: 5/3/2016 2:00:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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TURBIDITY**SM 2130B**

RunID: WETCHEM_160504B	QC Batch: R108241	PrepDate	Analyst: RB
Turbidity	ND 0.10 0.10	NTU	1 5/4/2016

Qualifiers: B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference
DO Surrogate Diluted Out
E Value above quantitation range
ND Not Detected at the Reporting Limit
Results are wet unless otherwise specified



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CLIENT: CH2M HILL
Work Order: N019614
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT**TestCode: 2130_W**

Sample ID	MB-R108241	SampType:	MBLK	TestCode:	2130_W	Units:	NTU	Prep Date:		RunNo:	108241			
Client ID:	PBW	Batch ID:	R108241	TestNo:	SM 2130B			Analysis Date:	5/4/2016	SeqNo:	2315001			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Turbidity		ND		0.10										

Sample ID	N019614-002ADUP	SampType:	DUP	TestCode:	2130_W	Units:	NTU	Prep Date:		RunNo:	108241			
Client ID:	ZZZZZZ	Batch ID:	R108241	TestNo:	SM 2130B			Analysis Date:	5/4/2016	SeqNo:	2315006			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Turbidity		ND		0.10							0	0	30	

Sample ID	N019608-001EDUP	SampType:	DUP	TestCode:	2130_W	Units:	NTU	Prep Date:		RunNo:	108241			
Client ID:	ZZZZZZ	Batch ID:	R108241	TestNo:	SM 2130B			Analysis Date:	5/4/2016	SeqNo:	2315034			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Turbidity		0.160		0.10							0.1800	11.8	30	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out	Calculations are based on raw values			



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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 23-May-16

CLIENT: CH2M HILL
Lab Order: N019614
Project: PG&E Topock, 658274.01.IM.OP.00
Lab ID: N019614-002

Client Sample ID: SC-700B-WDR-540
Collection Date: 5/3/2016 2:00:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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ANIONS BY ION CHROMATOGRAPHY
EPA 300.0

RunID: IC2_160511A	QC Batch: R108513				PrepDate		Analyst: QBM
Fluoride	2.4	0.087	0.50		mg/L	5	5/11/2016 09:57 AM

ANIONS BY ION CHROMATOGRAPHY
EPA 300.0

RunID: IC2_160511A	QC Batch: R108513				PrepDate		Analyst: QBM
Sulfate	460	3.3	25		mg/L	50	5/11/2016 04:00 PM

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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CLIENT: CH2M HILL
Work Order: N019614
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT**TestCode: 300_W_FPG**

Sample ID MB-R108513_F	SampType: MBLK	TestCode: 300_W_FPG	Units: mg/L	Prep Date:	RunNo: 108513
Client ID: PBW	Batch ID: R108513	TestNo: EPA 300.0		Analysis Date: 5/11/2016	SeqNo: 2330109
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Fluoride ND 0.10

Sample ID LCS-R108513_F	SampType: LCS	TestCode: 300_W_FPG	Units: mg/L	Prep Date:	RunNo: 108513
Client ID: LCSW	Batch ID: R108513	TestNo: EPA 300.0		Analysis Date: 5/11/2016	SeqNo: 2330110
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Fluoride 2.422 0.10 2.500 0 96.9 90 110

Sample ID N019614-002ADUP	SampType: DUP	TestCode: 300_W_FPG	Units: mg/L	Prep Date:	RunNo: 108513
Client ID: ZZZZZZ	Batch ID: R108513	TestNo: EPA 300.0		Analysis Date: 5/11/2016	SeqNo: 2330112
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Fluoride 2.235 0.50 2.430 8.36 20

Sample ID N019614-002AMS	SampType: MS	TestCode: 300_W_FPG	Units: mg/L	Prep Date:	RunNo: 108513
Client ID: ZZZZZZ	Batch ID: R108513	TestNo: EPA 300.0		Analysis Date: 5/11/2016	SeqNo: 2330113
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Fluoride 14.240 0.50 12.50 2.430 94.5 80 120

Sample ID N019614-002AMSD	SampType: MSD	TestCode: 300_W_FPG	Units: mg/L	Prep Date:	RunNo: 108513
Client ID: ZZZZZZ	Batch ID: R108513	TestNo: EPA 300.0		Analysis Date: 5/11/2016	SeqNo: 2330114
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Fluoride 14.265 0.50 12.50 2.430 94.7 80 120 14.24 0.175 20

Qualifiers:

B Analyte detected in the associated Method Blank	E Value above quantitation range	H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	S Spike/Surrogate outside of limits due to matrix interference
DO Surrogate Diluted Out	Calculations are based on raw values	



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CLIENT: CH2M HILL
Work Order: N019614
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID	MB-R108513_SO4	SampType:	MBLK	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	108513			
Client ID:	PBW	Batch ID:	R108513	TestNo:	EPA 300.0			Analysis Date:	5/11/2016	SeqNo:	2330074			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sulfate ND 0.50

Sample ID	LCS-R108513_SO4	SampType: LCS	TestCode: 300_W_SO4P	Units: mg/L	Prep Date:	RunNo: 108513					
Client ID: LCSW	Batch ID: R108513	TestNo: EPA 300.0	Analysis Date: 5/11/2016	SeqNo: 2330075							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sulfate 5.049 0.50 5.000 0 101 90 110

Sample ID	N019637-001ADUP	SampType:	DUP	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	108513			
Client ID:	ZZZZZZ	Batch ID:	R108513	TestNo:	EPA 300.0			Analysis Date:	5/11/2016	SeqNo:	2330082			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sulfate 44.440 5.0 46.24 3.97 20

Sample ID	N019637-002AMS	SampType:	MS	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	108513			
Client ID:	ZZZZZZ	Batch ID:	R108513	TestNo:	EPA 300.0			Analysis Date:	5/11/2016	SeqNo:	2330083			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sulfate 112.800 5.0 50.00 61.02 104 80 120

Sample ID	N019637-002AMSD	SampType: MSD	TestCode: 300_W_SO4P	Units: mg/L	Prep Date:	RunNo: 108513					
Client ID: ZZZZZZ	Batch ID: R108513	TestNo: EPA 300.0	Analysis Date: 5/11/2016	SeqNo: 2330084							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sulfate 110.050 5.0 50.00 61.02 98.1 80 120 112.8 2.47 20

Qualifiers:

- | | | | | | |
|----|---|--------------------------------------|--------------------------------------|---|--|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | Calculations are based on raw values | | | |



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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 23-May-16

CLIENT: CH2M HILL
Lab Order: N019614
Project: PG&E Topock, 658274.01.IM.OP.00
Lab ID: N019614-002

Client Sample ID: SC-700B-WDR-540
Collection Date: 5/3/2016 2:00:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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NITRATE/NITRITE-N BY CADMIUM REDUCTION**SM4500-NO3F**

RunID: WETCHEM_160507C	QC Batch: R108307			PrepDate			Analyst: RB
Nitrate/Nitrite as N	2.7	0.11	0.25	mg/L	5		5/7/2016

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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"Serving Clients with Passion and Professionalism"

CLIENT: CH2M HILL
Work Order: N019614
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT**TestCode: 4500N03F_W**

Sample ID MB-R108307	SampType: MBLK	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 108307
Client ID: PBW	Batch ID: R108307	TestNo: SM4500-NO3		Analysis Date: 5/7/2016	SeqNo: 2317895
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Nitrate/Nitrite as N ND 0.050

Sample ID LCS-R108307	SampType: LCS	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 108307
Client ID: LCSW	Batch ID: R108307	TestNo: SM4500-NO3		Analysis Date: 5/7/2016	SeqNo: 2317896
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Nitrate/Nitrite as N 0.478 0.050 0.5000 0 95.7 85 115

Sample ID N019613-001CDUP	SampType: DUP	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 108307
Client ID: ZZZZZZ	Batch ID: R108307	TestNo: SM4500-NO3		Analysis Date: 5/7/2016	SeqNo: 2317901
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Nitrate/Nitrite as N ND 0.050 0 0 20

Sample ID N019613-001CMS	SampType: MS	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 108307
Client ID: ZZZZZZ	Batch ID: R108307	TestNo: SM4500-NO3		Analysis Date: 5/7/2016	SeqNo: 2317902
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Nitrate/Nitrite as N 0.495 0.050 0.5000 0 98.9 75 125

Sample ID N019613-001CMSD	SampType: MSD	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 108307
Client ID: ZZZZZZ	Batch ID: R108307	TestNo: SM4500-NO3		Analysis Date: 5/7/2016	SeqNo: 2317903
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Nitrate/Nitrite as N 0.497 0.050 0.5000 0 99.3 75 125 0.4945 0.444 20

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out	Calculations are based on raw values			



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Signatures		Date/Time	Shipping Details		<p>ATTN:</p> <p>Sample Custody</p> <p>and</p> <p>Glen Gesmundo</p>	Special Instructions:
Approved by		5-3-14	Method of Shipment:	FedEx		Total metals List:
Sampled by		5-3-14	On Ice:	<input checked="" type="radio"/> yes <input type="radio"/> no 2, 4°C IR #2		Cr, Al, Sb, As, Ba, B, Cu, Pb, Mn, Mo, Ni, Fe, Zn
Relinquished by		5-3-14 1500	Airbill No:			Report Copy to
Received by		5/3/14 @ 1455	Lab Name:	ASSET Laboratories		Shawn Duffy
Relinquished by		5/3/14 @ 1900	Lab Phone:	(702) 307-2659	(530) 229-3303	

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On: 5/3/2016 Workorder: N019614
 Rep sample Temp (Deg C): 2.4 IR Gun ID: 2
 Temp Blank: ☒ Yes ☐ No
 Carrier name: ASSET
 Last 4 digits of Tracking No.: NA Packing Material Used: None
 Cooling process: ☒ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None

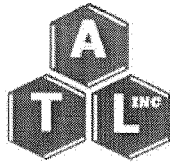
Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
2. Custody seals intact, signed, dated on shipping container/cooler?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
3. Custody seals intact on sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
4. Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
5. Sampler's name present in COC?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
6. Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
7. Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
8. Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
9. Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
10. Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
11. All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>
13. Water - VOA vials have zero headspace?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	NA <input type="checkbox"/>
15. Did the bottle labels indicate correct preservatives used?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>
16. Were there Non-Conformance issues at login?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>
Was Client notified?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>

Comments: Sample for Ammonia, NO2/NO3 and Total Metals are lab preserved.
 Sample for Cr6+ are lab filtered and preserved.

Checklist Completed By: MBC  5/8/2016

Reviewed By:  05/10/16



ASSET Laboratories

3151-3153 W Post Rd., Las Vegas, NV 89118

www.atl-labs.com

TEL: 7023072659

FAX: 7023072691

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

QC Level: Level IV

Subcontractor:

Truesdail
3337 Michelson Drive, Suite CN750
Irvine, CA 92612

TEL: (714) 730-6239
FAX: (714) 730-6462
Acct #:

Field Sampler: SIGNED

04-May-16

				Requested Tests		
Sample ID	Matrix	Date Collected	Bottle Type	SM4500-NH3D		
N019614-002E / SC-700B-WDR-540	Water	5/3/2016 2:00:00 PM	32OZP	1		

1603p
4AS
5/4/16

General Comments: Please email sample receipt acknowledgement to the PM.

Please use PO#: N19614A Please email Invoices and Account Receivable Statements to AssetAP@assetlaboratories.com. For questions, call Marlon at (702)-307-2659. Please e-mail results to reports.lv@assetlaboratories.com by: Normal TAT.

Please analyze for Ammonia.

	Date/Time	650 # : 531818880	Date/Time
Relinquished by: <u>Yosandra Rodriguez</u>	<u>5/4/16 17:00</u>	Received by: _____	_____
Relinquished by: _____	_____	Received by: _____	_____

List of Analysts

ASSET Laboratories Work Order: **N019614**

NAME	TEST METHOD
Claire Ignacio	EPA 200.7, EPA 200.8
Quennie Manimtim	SM 2540C, EPA 300
Ryan Balilu	EPA 120.1, EPA 4500-NO3F, SM 2130B
Janette Soria	EPA 218.6



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REPORT

3337 MICHELSON DRIVE, SUITE CN 750
IRVINE, CA 92612
(714) 730-6239 • FAX (714) 730-6462
www.truesdail.com

Advanced Technology Laboratories-NV

3151 W Post Rd
Las Vegas, NV 89118

Project Name: **ATL-NV**



REPORT

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

Client: Advanced Technology Laboratories-NV

3151 W Post Rd

Las Vegas, NV 89118

Attention: Marlon Cartin

Project Name: ATL-NV

Work Order No.: 16E0105

Printed: 05/13/2016

CASE NARRATIVE

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Ammonia result. A summary table for this laboratory number is included in Section 2. Complete laboratory reports, wet chemistry raw data, quality control data and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data are under Section 5.

The sample was received and delivered with the chain of custody on May 5, 2016, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter will be kept in warm storage for additional 2 months before disposal.

If you have any questions or require additional information, please contact me at (714) 730-6239 ext. 206.

SAMPLE RECEIPT SUMMARY

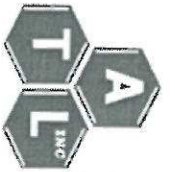
Sample ID	Laboratory ID	Matrix	Type	Date Sampled	Date Received
N019614-002E / SC-700B-WDR-540	16E0105-01	Water	Grab	05/03/2016 14:00	05/05/2016 10:27

DEFINITIONS

Symbol	Definition
DF	Dilution Factor
MDL	Method Detection Limit
ND	Not Detected
RL	Reporting Limit

Respectfully yours,

Anca Florea
Project Manager



ASSET Laboratories
3151-3153 W Post Rd., Las Vegas, NV 89118
www.assetlabs.com
TEL: 7023072659 FAX: 7023072691

16E0105

CHAIN-OF-CUSTODY RECORD

QC Level: Level IV

Subcontractor:

Truesdall
3337 Michelson Drive, Suite CN750
Irvine, CA 92612

TEL: (714) 730-6239
FAX: (714) 730-6462
Acct #:

Field Sampler: SIGNED

04-May-16

Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests
N019614-002E / SC-700B-WDR-540	Water	5/3/2016 2:00:00 PM	360ZP	SM4500-NH3D 1

1603P
XBT
5/4/16

ALERT !!
Level IV QC

General Comments:

Please email sample receipt acknowledgement to the PM.
Please use PO# N19614A Please email Invoices and Account Receivable Statements to AssetAP@assetlaboratories.com. For questions, call Marlon at (702)-307-2659. Please e-mail results to reports.lv@assetlaboratories.com by: Normal TAT.
Please analyze for Ammonia.

Relinquished by:	<i>Yendra Rodriguez</i>	Date/Time	<i>650 # 5318 18880</i>
Relinquished by:		Received by:	<i>Mac MCAF</i>
		Received by:	<i>3.62 (AF)</i>
		Date/Time	<i>5/5/16 @ 10:27</i>



REPORT

3337 MICHELSON DRIVE, SUITE CN 750
IRVINE, CA 92612
(714) 730-6239 • FAX (714) 730-6462
www.truesdail.com

Client: Advanced Technology Laboratories-NV

3151 W Post Rd
Las Vegas, NV 89118

Attention: Marlon Cartin

Project Name: ATL-NV

Work Order No.: 16E0105

Printed: 05/13/2016

CASE NARRATIVE

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Ammonia result. A summary table for this laboratory number is included in Section 2. Complete laboratory reports, wet chemistry raw data, quality control data and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data are under Section 5.

The sample was received and delivered with the chain of custody on May 5, 2016, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter will be kept in warm storage for additional 2 months before disposal.

If you have any questions or require additional information, please contact me at (714) 730-6239 ext. 206.

SAMPLE RECEIPT SUMMARY

Sample ID	Laboratory ID	Matrix	Type	Date Sampled	Date Received
N019614-002E / SC-700B-WDR-540	16E0105-01	Water	Grab	05/03/2016 14:00	05/05/2016 10:27

DEFINITIONS

Symbol	Definition
DF	Dilution Factor
MDL	Method Detection Limit
ND	Not Detected
RL	Reporting Limit

Respectfully yours,

Anca Florea
Project Manager



Client: Advanced Technology Laboratories-N

Project Name: ATL-NV

Printed: 05/13/2016

N019614-002E / SC-700B-WDR-540

16E0105-01 (Water)

Analyte	Result	RL	Units	DF	Batch	Analyzed	Analyst	Method	Notes
---------	--------	----	-------	----	-------	----------	---------	--------	-------

Truesdail Laboratories, Inc

Wet Chemistry

Ammonia	ND	0.0500	mg/L	1	1605178	05/09/2016 15:46	AL	SM 4500-NH3 D M	
---------	----	--------	------	---	---------	------------------	----	-----------------	--



Client: Advanced Technology Laboratories - NV

3151 W Post Road

Las Vegas, NV 89118

Attention: Marlon Cartin

Sample: One (1) Water Sample

Project Name: PG&E Topock Project

Project No.: N/A

Laboratory No.: 16E0105

Date: May 17, 2016

Collected: May 3, 2016

Received: May 5, 2016

ANALYST LIST

METHOD	PARAMETER	ANALYST
SM 4500-NH3 D	Ammonia	Alex Luna

ANALYSIS DATA SHEET

Inorganics

Client: Advanced Technology Laboratories-NV
Client Sample ID: N019614-002E / SC-700B-WDR-540
Lab Sample ID: 16E0105-01
Project: ATL-NV

Date Sampled: 05/03/16 14:00 Matrix: Water

CAS NO.	Analyte	Concentration (mg/L)	MDL	RL	DF	Q	Analyst	Analyzed	Method
7664-41-7	Ammonia	ND	0.0111	0.0500	1		AL	05/09/16 15:46	SM 4500-NH3 D M

METHOD BLANK DATA SHEET

SM 4500-NH3 D M

Client: Advanced Technology Laboratories-NV

Project: ATL-NV

Laboratory ID: 1605178-BLK1

Prepared: 05/09/16 11:44

Preparation: SM 4500-NH3 B

Matrix: Water

Analyzed: 05/09/16 15:28

Instrument: TL01

File ID: 6E09001-008

Batch: 1605178

Sequence: 6E09001

CAS NO.	COMPOUND	CONC. (mg/L)	MDL	RL	Q
7664-41-7	Ammonia	ND	0.0111	0.0500	

LCS / LCS DUPLICATE RECOVERY

SM 4500-NH3 D M

Client: Advanced Technology Laboratories-NV
Project: ATL-NV
Work Order: 16E0105

Matrix: Water
Prep Batch: 1605178
Prep Method: SM 4500-NH3 B
Lab Sample ID: 1605178-BS1

ANALYTE	SPIKE ADDED (mg/L)	LCS CONCENTRATION (mg/L)	LCS % REC.	QC LIMITS REC.
Ammonia	0.400	0.362	91	90 - 110

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

N019614-002E / SC-700B-WDR-540

Client: Advanced Technology Laboratories-NV
Project: ATL-NV
Work Order: 16E0105

Matrix: Water
Prep Batch: 1605178
Analysis Method: SM 4500-NH3 D M
Prep Method: SM 4500-NH3 B
Laboratory ID: 1605178-MS1
Source Sample ID: 16E0105-01

ANALYTE	SPIKE ADDED (mg/L)	SAMPLE CONCENTRATION (mg/L)	MS CONCENTRATION (mg/L)	MS % REC.	QC LIMITS REC.
Ammonia	0.400	0.0454	0.494	112	75 - 125

ANALYTE	SPIKE ADDED (mg/L)	MSD CONCENTRATION (mg/L)	MSD % REC. #	% RPD	QC LIMITS RPD	REC.
Ammonia	0.400	0.495	113	0.4	20	75 - 125

* Values outside of QC limits

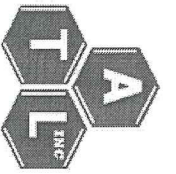
DUPLICATES

N019614-002E / SC-700B-WDR-540

Client: Advanced Technology Laboratories-NV
Project: ATL-NV

Matrix:	Water	Laboratory ID:	1605178-DUP1
Prep Batch:	1605178	Initial/Final:	50 mL / 50 mL
Prep Method:	SM 4500-NH3 B	Analysis:	SM 4500-NH3 D M

ANALYTE	SAMPLE CONCENTRATION (mg/L)	DUPLICATE CONCENTRATION (mg/L)	RPD %	Q	CONTROL LIMIT
Ammonia	0.0454	0.0474			20



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 www.afl-labs.com
 TEL: 7023072659 FAX: 7023072691

16E0105

CHAIN-OF-CUSTODY RECORD

QC Level: Level IV

Subcontractor:

Truesdail
 3337 Michelson Drive, Suite CN750
 Irvine, CA 92612

TEL: (714) 730-6239
 FAX: (714) 730-6462
 Acct #:

Field Sampler: SIGNED

04-May-16

Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests	
				SM4500-NH3D	
NO19614-002E / SC-700B-WDR-540	Water	5/3/2016 2:00:00 PM	320ZP	1	

1603p
 4/25
 5/4/16

ALERT!!
Level IV QC

General Comments: Please email sample receipt acknowledgement to the PM.

Please use PO#: N19614A Please email Invoices and Account Receivable Statements to AssetLAP@assetlaboratories.com. For questions, call Marlon at (702)-307-2659. Please e-mail results to reports.lv@assetlaboratories.com by: Normal TAT.

Please analyze for Ammonia.

Relinquished by: <u>Yvonne Rodriguez</u>	Date/Time: <u>5/16 13:00</u>
Relinquished by: <u>Yvonne Rodriguez</u>	Date/Time: <u>5/16 13:00</u>
Received by: <u>Mar Maraf</u>	Date/Time: <u>5/16 18:80</u>
Received by: <u>Mar Maraf</u>	Date/Time: <u>5/16 18:80</u>
Received by: <u>3.62</u>	Date/Time: <u>5/16 @ 10:27</u>

WORK ORDER

Printed: 5/5/16 10:41:49AM

16E0105

Truesdail Laboratories, Inc

Client: Advanced Technology Laboratories-NV
Project: ATL-NV

Project Manager: Anca Florea
Project Number: [none]

Report To:

Advanced Technology Laboratories-NV
Marlon Cartin
3151 W Post Rd
Las Vegas, NV 89118
Phone: (702) 307-2659
Fax: (702) 307-2691

Invoice To:

Advanced Technology Laboratories-NV
Marlon Cartin
3151 W Post Rd
Las Vegas, NV 89118
Phone : (702) 307-2659
Fax: (702) 307-2691

Date Due: 05/16/2016 16:30 (7 day TAT)

Received By: Anca Florea

Date Received: 05/05/2016 10:27

Logged In By: Anca Florea

Date Logged In: 05/05/2016 10:36

Samples Received at: 3.6°C

Chain of Custody rece	Yes	Samples intact?	Yes
Letter (if sent) matche	No	Custody seals (if any)	No
Requested analyses ac	Yes	Analyses within hold t	Yes
Samples received in a	Yes		

Analysis	Due	TAT	Expires	Comments
----------	-----	-----	---------	----------

16E0105-01 N019614-002E / SC-700B-WDR-540 [Water] Sampled 05/03/2016

14:00 (GMT-08:00) Pacific Time (US &

Ammonia E	05/16/2016 08:00	7	05/31/2016 14:00	
-----------	------------------	---	------------------	--

Reviewed By

Date

Page 1 of 1
Page 1 of 1

Log-in check list For level III data package

Client: ATL

Lab Number:

Received Date: 5/5/2016**Sample receiving review**

	Yes	No	N/A	Comment
Was special login form received by login personnel?	✓			
Was COC received and signed by client and login personnel?	✓			
Were all sample temperature measured and recorded on COC?	✓			
Did you measure and record the pH on all metals samples on COC?			✓	
Has sample integrity and analysis discrepancy form been filled out completely?	✓			
Were all intercompany yellow forms generated and stamped with " alert level III QC" note?				
Have check-in and check out lists been filled out and attached to appropriate form?	✓			
Were sample containers labeled with TLI numbers, date, and time sampled?	✓			
Did you notify analyst or group leader about short holding time?	✓			
Was a copy of COC attached to all yellow intracompany form?	✓			
For special clients, have all their samples been logged into the internal COC book?	✓			
Were samples locked in fridge or special storage area?	✓			
Was temperature recorded in the log book?	✓			
Sample receiving Signature: <u>[Signature]</u>				

ALERT !!
Level IV QC

July 05, 2016

Shawn P. Duffy
CH2M HILL
155 Grand Avenue, Suite 1000
Oakland, CA 94612

TEL: (530) 229-3303

FAX: (530) 339-3303

CA-ELAP No.: 2676

NV Cert. No.: NV-00922

Workorder No.: N020007

RE: PG&E Topock, 658274.01.IM.OP.00

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on June 07, 2016 by ASSET Laboratories . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

This is an amended report. Please disregard all previous documentation that corresponds to the page(s) enclosed.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,



Puri Romualdo
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and Advanced Technology Laboratories - Las Vegas.



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NEVADA
3151 W. Post Rd., Las Vegas, NV 89118
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CLIENT: CH2M HILL
Project: PG&E Topock, 658274.01.IM.OP.00
Lab Order: N020007

CASE NARRATIVE**SAMPLE RECEIVING/GENERAL COMMENTS**

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time.

Subcontracted Analyses:

Ammonia was subcontracted to Truesdail-Irvine, CA.

Analytical Comments for EPA 300.0:

Dilution was necessary for Fluoride due to precipitation of sample upon the addition of eluent.

Analytical Comments for EPA 200.8:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Copper & Zinc in QC samples N020073-001H-MS and N020073-001H-MSD possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.



ASSET Laboratories

Date: 23-Jun-16

CLIENT: CH2M HILL
Project: PG&E Topock, 658274.01.IM.OP.00
Lab Order: N020007
Contract No: IM3PLANT-AR

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N020007-001A	SC-100B-WDR-541	Water	6/7/2016 10:10:00 AM	6/7/2016	6/23/2016
N020007-001B	SC-100B-WDR-541	Water	6/7/2016 10:10:00 AM	6/7/2016	6/23/2016
N020007-001C	SC-100B-WDR-541	Water	6/7/2016 10:10:00 AM	6/7/2016	6/23/2016
N020007-002A	SC-700B-WDR-541	Water	6/7/2016 10:05:00 AM	6/7/2016	6/23/2016
N020007-002B	SC-700B-WDR-541	Water	6/7/2016 10:05:00 AM	6/7/2016	6/23/2016
N020007-002C	SC-700B-WDR-541	Water	6/7/2016 10:05:00 AM	6/7/2016	6/23/2016
N020007-002D	SC-700B-WDR-541	Water	6/7/2016 10:05:00 AM	6/7/2016	6/23/2016
N020007-002E	SC-700B-WDR-541	Water	6/7/2016 10:05:00 AM	6/7/2016	6/23/2016



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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 22-Jun-16

CLIENT:	CH2M HILL	Client Sample ID:	SC-100B-WDR-541
Lab Order:	N020007	Collection Date:	6/7/2016 10:10:00 AM
Project:	PG&E Topock, 658274.01.IM.OP.00	Matrix:	WATER
Lab ID:	N020007-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
----------	--------	-----	-----	------	-------	----	---------------

SPECIFIC CONDUCTANCE
EPA 120.1

RunID: WETCHEM_160608E	QC Batch: R108876	PrepDate	Analyst: LR
Specific Conductance	7400	0.10	0.10
		umhos/cm	1
			6/8/2016 01:55 PM

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		


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 P: 702.307.2659 F: 702.307.2691

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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 22-Jun-16

CLIENT:	CH2M HILL	Client Sample ID:	SC-700B-WDR-541
Lab Order:	N020007	Collection Date:	6/7/2016 10:05:00 AM
Project:	PG&E Topock, 658274.01.IM.OP.00	Matrix:	WATER
Lab ID:	N020007-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
----------	--------	-----	-----	------	-------	----	---------------

SPECIFIC CONDUCTANCE
EPA 120.1

RunID: WETCHEM_160608E	QC Batch: R108876	PrepDate	Analyst: LR
Specific Conductance	7200	0.10	0.10
		umhos/cm	1
			6/8/2016 01:55 PM

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		


ASSET LABORATORIES
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NEVADA
 3151 W. Post Rd., Las Vegas, NV 89118
 P: 702.307.2659 F: 702.307.2691

"Serving Clients with Passion and Professionalism"

CLIENT: CH2M HILL
Work Order: N020007
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT**TestCode: 120.1_WPGE**

Sample ID	N020008-002CDUP	SampType:	DUP	TestCode:	120.1_WPGE	Units:	umhos/cm	Prep Date:		RunNo:	108876		
Client ID:	ZZZZZZ	Batch ID:	R108876	TestNo:	EPA 120.1			Analysis Date:	6/8/2016	SeqNo:	2348013		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance		7320.000		0.10						7350	0.409	10	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		



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NEVADA
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P: 702.307.2659 F: 702.307.2691

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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 22-Jun-16

CLIENT:	CH2M HILL	Client Sample ID:	SC-100B-WDR-541
Lab Order:	N020007	Collection Date:	6/7/2016 10:10:00 AM
Project:	PG&E Topock, 658274.01.IM.OP.00	Matrix:	WATER
Lab ID:	N020007-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
----------	--------	-----	-----	------	-------	----	---------------

TOTAL FILTERABLE RESIDUE
SM2540C

RunID: WETCHEM_160608F	QC Batch: 58671	PrepDate	6/8/2016	Analyst: LR
Total Dissolved Solids (Residue, Filterable)	4500	50	50	mg/L
			1	6/8/2016 01:44 PM

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		


ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 22-Jun-16

CLIENT:	CH2M HILL	Client Sample ID:	SC-700B-WDR-541
Lab Order:	N020007	Collection Date:	6/7/2016 10:05:00 AM
Project:	PG&E Topock, 658274.01.IM.OP.00	Matrix:	WATER
Lab ID:	N020007-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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TOTAL FILTERABLE RESIDUE
SM2540C

RunID: WETCHEM_160608F	QC Batch: 58671	PrepDate	6/8/2016	Analyst: LR
Total Dissolved Solids (Residue, Filterable)	4100	50	50	mg/L
			1	6/8/2016 01:44 PM

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		


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CLIENT: CH2M HILL
Work Order: N020007
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT**TestCode: 160.1_2540C_W**

Sample ID	LCS-58671	SampType:	LCS	TestCode:	160.1_2540C	Units:	mg/L	Prep Date:	6/8/2016	RunNo:	108888		
Client ID:	LCSW	Batch ID:	58671	TestNo:	SM2540C			Analysis Date:	6/8/2016	SeqNo:	2348318		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera		968.000		10	1000	0	96.8	80	120				

Sample ID	MBLK-58671	SampType:	MBLK	TestCode:	160.1_2540C	Units:	mg/L	Prep Date:	6/8/2016	RunNo:	108888		
Client ID:	PBW	Batch ID:	58671	TestNo:	SM2540C			Analysis Date:	6/8/2016	SeqNo:	2348319		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera		ND		10									

Sample ID	N020006-002ADUP	SampType:	DUP	TestCode:	160.1_2540C	Units:	mg/L	Prep Date:	6/8/2016	RunNo:	108888		
Client ID:	ZZZZZZ	Batch ID:	58671	TestNo:	SM2540C			Analysis Date:	6/8/2016	SeqNo:	2348323		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera		4455.000		50						4555	2.22	5	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out	Calculations are based on raw values			



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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 22-Jun-16

CLIENT:	CH2M HILL	Client Sample ID:	SC-700B-WDR-541
Lab Order:	N020007	Collection Date:	6/7/2016 10:05:00 AM
Project:	PG&E Topock, 658274.01.IM.OP.00	Matrix:	WATER
Lab ID:	N020007-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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TOTAL METALS BY ICP
EPA 200.7

RunID: ICP2_160615D	QC Batch: 58678	PrepDate	6/9/2016	Analyst: CEI
Aluminum	ND	2.7	50	µg/L
Boron	1100	38	100	µg/L
Iron	ND	1.8	20	µg/L

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		


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CLIENT: CH2M HILL
Work Order: N020007
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT**TestCode: 200.7_WPGEPBP**

Sample ID MB-58678	SampType: MBLK	TestCode: 200.7_WPGE	Units: µg/L	Prep Date: 6/9/2016	RunNo: 108921
Client ID: PBW	Batch ID: 58678	TestNo: EPA 200.7		Analysis Date: 6/10/2016	SeqNo: 2350130
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Boron	ND	100			
Iron	5.529	20			

Sample ID LCS1-58678	SampType: LCS	TestCode: 200.7_WPGE	Units: µg/L	Prep Date: 6/9/2016	RunNo: 108921
Client ID: LCSW	Batch ID: 58678	TestNo: EPA 200.7		Analysis Date: 6/10/2016	SeqNo: 2350131
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Boron	4844.999	100	5000	0	96.9 85 115
Iron	109.317	20	100.0	0	109 85 115

Sample ID N020006-001B-MS1	SampType: MS	TestCode: 200.7_WPGE	Units: µg/L	Prep Date: 6/9/2016	RunNo: 108921
Client ID: ZZZZZZ	Batch ID: 58678	TestNo: EPA 200.7		Analysis Date: 6/10/2016	SeqNo: 2350142
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Boron	5400.260	100	5000	370.0	101 75 125
Iron	161.912	20	100.0	72.91	89.0 75 125

Sample ID N020006-001B-MSD	SampType: MSD	TestCode: 200.7_WPGE	Units: µg/L	Prep Date: 6/9/2016	RunNo: 108921
Client ID: ZZZZZZ	Batch ID: 58678	TestNo: EPA 200.7		Analysis Date: 6/10/2016	SeqNo: 2350143
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Boron	5536.846	100	5000	370.0	103 75 125 5400 2.50 20
Iron	162.265	20	100.0	72.91	89.4 75 125 161.9 0.218 20

Sample ID MB-58678	SampType: MBLK	TestCode: 200.7_WPGE	Units: µg/L	Prep Date: 6/9/2016	RunNo: 108982
Client ID: PBW	Batch ID: 58678	TestNo: EPA 200.7		Analysis Date: 6/15/2016	SeqNo: 2353114
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Qualifiers:

- | | | | | | |
|----|---|--------------------------------------|--------------------------------------|---|--|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | Calculations are based on raw values | | | |



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CLIENT: CH2M HILL
Work Order: N020007
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WPGEPBB

Sample ID	MB-58678	SampType:	MBLK	TestCode:	200.7_WPGE	Units:	µg/L	Prep Date:	6/9/2016	RunNo:	108982			
Client ID:	PBW	Batch ID:	58678	TestNo:	EPA 200.7			Analysis Date:	6/15/2016	SeqNo:	2353114			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Aluminum ND 50

Sample ID	LCS1-58678	SampType:	LCS	TestCode:	200.7_WPGE	Units:	µg/L	Prep Date:	6/9/2016	RunNo:	108982			
Client ID:	LCSW	Batch ID:	58678	TestNo:	EPA 200.7			Analysis Date:	6/15/2016	SeqNo:	2353115			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Aluminum 10581.136 50 10000 0 106 85 115

Sample ID	N020006-001B-MS1	SampType: MS	TestCode: 200.7_WPGE	Units: µg/L	Prep Date: 6/9/2016	RunNo: 108982					
Client ID: ZZZZZZ	Batch ID: 58678	TestNo: EPA 200.7	Analysis Date: 6/16/2016	SeqNo: 2353126							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Aluminum 10778.096 50 10000 0 108 75 125

Sample ID	N020006-001B-MSD	SampType: MSD	TestCode: 200.7_WPGE	Units: µg/L	Prep Date: 6/9/2016	RunNo: 108982					
Client ID: ZZZZZZ	Batch ID: 58678	TestNo: EPA 200.7	Analysis Date: 6/16/2016	SeqNo: 2353127							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Aluminum 10825.936 50 10000 0 108 75 125 10780 0.443 20

Qualifiers:

- | | | | | | |
|----|---|--------------------------------------|--------------------------------------|---|--|
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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 22-Jun-16

CLIENT:	CH2M HILL	Client Sample ID:	SC-100B-WDR-541
Lab Order:	N020007	Collection Date:	6/7/2016 10:10:00 AM
Project:	PG&E Topock, 658274.01.IM.OP.00	Matrix:	WATER
Lab ID:	N020007-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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TOTAL METALS BY ICPMS
EPA 200.8

RunID: ICP7_160615A	QC Batch: 58735	PrepDate	6/15/2016	Analyst: CEI
Manganese	7.6	0.056	0.50	µg/L
			1	6/15/2016 10:58 PM

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		


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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 22-Jun-16

CLIENT:	CH2M HILL	Client Sample ID:	SC-700B-WDR-541
Lab Order:	N020007	Collection Date:	6/7/2016 10:05:00 AM
Project:	PG&E Topock, 658274.01.IM.OP.00	Matrix:	WATER
Lab ID:	N020007-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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TOTAL METALS BY ICPMS
EPA 200.8

RunID: ICP7_160615A	QC Batch: 58735	PrepDate	6/15/2016	Analyst: CEI
Antimony	ND	0.031	0.50	µg/L
Arsenic	ND	0.025	0.10	µg/L
Barium	15	0.070	1.0	µg/L
Copper	ND	0.26	1.0	µg/L
Lead	ND	0.037	1.0	µg/L
Manganese	4.8	0.056	0.50	µg/L
Molybdenum	20	0.039	0.50	µg/L
Nickel	2.8	0.040	1.0	µg/L
Zinc	ND	0.27	10	µg/L

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
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CLIENT: CH2M HILL
Work Order: N020007
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID	MB-58735	SampType:	MBLK	TestCode:	200.8_W	Units:	µg/L	Prep Date:	6/15/2016	RunNo:	108983		
Client ID:	PBW	Batch ID:	58735	TestNo:	EPA 200.8			Analysis Date:	6/15/2016	SeqNo:	2353279		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Antimony	ND	0.50									
Arsenic	ND	0.10									
Barium	ND	1.0									
Copper	ND	1.0									
Lead	ND	1.0									
Manganese	ND	0.50									
Molybdenum	0.088	0.50									
Nickel	ND	1.0									
Zinc	0.358	10									

Sample ID	LCS-58735	SampType:	LCS	TestCode:	200.8_W	Units:	µg/L	Prep Date:	6/15/2016	RunNo:	108983		
Client ID:	LCSW	Batch ID:	58735	TestNo:	EPA 200.8			Analysis Date:	6/15/2016	SeqNo:	2353280		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Antimony	10.167	0.50	10.00	0	102	85	115				
Arsenic	10.328	0.10	10.00	0	103	85	115				
Barium	105.984	1.0	100.0	0	106	85	115				
Copper	9.899	1.0	10.00	0	99.0	85	115				
Lead	10.095	1.0	10.00	0	101	85	115				
Manganese	100.680	0.50	100.0	0	101	85	115				
Molybdenum	10.046	0.50	10.00	0	100	85	115				
Nickel	10.579	1.0	10.00	0	106	85	115				
Zinc	104.179	10	100.0	0	104	85	115				

Sample ID	N020073-001H-MS	SampType:	MS	TestCode:	200.8_W	Units:	µg/L	Prep Date:	6/15/2016	RunNo:	108983		
Client ID:	ZZZZZZ	Batch ID:	58735	TestNo:	EPA 200.8			Analysis Date:	6/15/2016	SeqNo:	2353284		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
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CLIENT: CH2M HILL
Work Order: N020007
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID	N020073-001H-MS	SampType:	MS	TestCode:	200.8_W	Units:	µg/L	Prep Date:	6/15/2016	RunNo:	108983
Client ID:	ZZZZZZ	Batch ID:	58735	TestNo:	EPA 200.8			Analysis Date:	6/15/2016	SeqNo:	2353284
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	9.807	0.50	10.00	0.3687	94.4	75	125				
Arsenic	27.914	0.10	10.00	18.32	96.0	75	125				
Copper	6.819	1.0	10.00	0	68.2	75	125				S
Lead	10.208	1.0	10.00	0	102	75	125				
Manganese	146.771	0.50	100.0	56.38	90.4	75	125				
Molybdenum	20.168	0.50	10.00	8.975	112	75	125				
Nickel	16.681	1.0	10.00	7.128	95.5	75	125				
Zinc	77.571	10	100.0	0	77.6	75	125				

Sample ID	N020073-001H-MSD	SampType:	MSD	TestCode:	200.8_W	Units:	µg/L	Prep Date:	6/15/2016	RunNo:	108983
Client ID:	ZZZZZZ	Batch ID:	58735	TestNo:	EPA 200.8			Analysis Date:	6/15/2016	SeqNo:	2353285
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	9.933	0.50	10.00	0.3687	95.6	75	125	9.807	1.28	20	
Arsenic	27.442	0.10	10.00	18.32	91.2	75	125	27.91	1.71	20	
Copper	6.698	1.0	10.00	0	67.0	75	125	6.819	1.79	20	S
Lead	10.208	1.0	10.00	0	102	75	125	10.21	0.00684	20	
Manganese	146.734	0.50	100.0	56.38	90.4	75	125	146.8	0.0255	20	
Molybdenum	20.672	0.50	10.00	8.975	117	75	125	20.17	2.47	20	
Nickel	16.331	1.0	10.00	7.128	92.0	75	125	16.68	2.12	20	
Zinc	74.968	10	100.0	0	75.0	75	125	77.57	3.41	20	S

Sample ID	N020073-001H-MS	SampType:	MS	TestCode:	200.8_W	Units:	µg/L	Prep Date:	6/15/2016	RunNo:	108983
Client ID:	ZZZZZZ	Batch ID:	58735	TestNo:	EPA 200.8			Analysis Date:	6/15/2016	SeqNo:	2353304
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	300.403	5.0	100.0	181.7	119	75	125				

Qualifiers:

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CLIENT: CH2M HILL
Work Order: N020007
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID	N020073-001H-MSD	SampType:	MSD	TestCode:	200.8_W	Units:	µg/L	Prep Date:	6/15/2016	RunNo:	108983		
Client ID:	ZZZZZZ	Batch ID:	58735	TestNo:	EPA 200.8			Analysis Date:	6/15/2016	SeqNo:	2353305		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium		300.585		5.0	100.0	181.7	119	75	125	300.4	0.0606	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 23-Jun-16

CLIENT:	CH2M HILL	Client Sample ID:	SC-100B-WDR-541
Lab Order:	N020007	Collection Date:	6/7/2016 10:10:00 AM
Project:	PG&E Topock, 658274.01.IM.OP.00	Matrix:	WATER
Lab ID:	N020007-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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HEXAVALENT CHROMIUM BY IC
EPA 218.6

RunID: IC7_160608A	QC Batch: R108868	PrepDate	Analyst: JJS
Hexavalent Chromium	620 6.6	20 µg/L	100 6/8/2016 01:04 PM

TOTAL METALS BY ICPMS
EPA 200.8

RunID: ICP7_160622A	QC Batch: 58735	PrepDate	6/15/2016	Analyst: CEI
Chromium	620 0.096	5.0 µg/L	5	6/22/2016 03:29 PM

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 22-Jun-16

CLIENT:	CH2M HILL	Client Sample ID:	SC-700B-WDR-541
Lab Order:	N020007	Collection Date:	6/7/2016 10:05:00 AM
Project:	PG&E Topock, 658274.01.IM.OP.00	Matrix:	WATER
Lab ID:	N020007-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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HEXAVALENT CHROMIUM BY IC
EPA 218.6

RunID: IC7_160608A	QC Batch: R108868	PrepDate	Analyst: JJS
Hexavalent Chromium	ND	0.066	0.20
		µg/L	1
			6/8/2016 01:42 PM

TOTAL METALS BY ICPMS
EPA 200.8

RunID: ICP7_160615A	QC Batch: 58735	PrepDate	6/15/2016	Analyst: CEI
Chromium	ND	0.019	1.0	
		µg/L	1	
				6/15/2016 11:08 PM

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		


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"Serving Clients with Passion and Professionalism"

CLIENT: CH2M HILL
Work Order: N020007
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT**TestCode: 200.8_W_CRPGE**

Sample ID MB-58735	SampType: MBLK	TestCode: 200.8_W_CR	Units: µg/L	Prep Date: 6/15/2016	RunNo: 108983
Client ID: PBW	Batch ID: 58735	TestNo: EPA 200.8		Analysis Date: 6/15/2016	SeqNo: 2353235
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Chromium ND 1.0

Sample ID LCS-58735	SampType: LCS	TestCode: 200.8_W_CR	Units: µg/L	Prep Date: 6/15/2016	RunNo: 108983
Client ID: LCSW	Batch ID: 58735	TestNo: EPA 200.8		Analysis Date: 6/15/2016	SeqNo: 2353236
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Chromium 10.303 1.0 10.00 0 103 85 115

Sample ID N020073-001H-MS	SampType: MS	TestCode: 200.8_W_CR	Units: µg/L	Prep Date: 6/15/2016	RunNo: 108983
Client ID: ZZZZZZ	Batch ID: 58735	TestNo: EPA 200.8		Analysis Date: 6/15/2016	SeqNo: 2353240
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Chromium 8.987 1.0 10.00 0 89.9 75 125

Sample ID N020073-001H-MSD	SampType: MSD	TestCode: 200.8_W_CR	Units: µg/L	Prep Date: 6/15/2016	RunNo: 108983
Client ID: ZZZZZZ	Batch ID: 58735	TestNo: EPA 200.8		Analysis Date: 6/15/2016	SeqNo: 2353241
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Chromium 9.115 1.0 10.00 0 91.2 75 125 8.987 1.41 20

Qualifiers:

B Analyte detected in the associated Method Blank
 ND Not Detected at the Reporting Limit
 DO Surrogate Diluted Out
 E Value above quantitation range
 R RPD outside accepted recovery limits
 Calculations are based on raw values
 H Holding times for preparation or analysis exceeded
 S Spike/Surrogate outside of limits due to matrix interference



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"Serving Clients with Passion and Professionalism"

CLIENT: CH2M HILL
Work Order: N020007
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WU_PGE

Sample ID	MB-R108868	SampType:	MBLK	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	108868			
Client ID:	PBW	Batch ID:	R108868	TestNo:	EPA 218.6			Analysis Date:	6/8/2016	SeqNo:	2347993			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium ND 0.20

Sample ID	LCS-R108868	SampType:	LCS	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	108868			
Client ID:	LCSW	Batch ID:	R108868	TestNo:	EPA 218.6			Analysis Date:	6/8/2016	SeqNo:	2347994			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium 5.159 0.20 5.000 0 103 90 110

Sample ID	N020007-001BDUP	SampType:	DUP	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	108868			
Client ID:	ZZZZZZ	Batch ID:	R108868	TestNo:	EPA 218.6			Analysis Date:	6/8/2016	SeqNo:	2347996			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium 617.960 20 615.3 0.436 20

Sample ID	N020007-001BMS	SampType: MS	TestCode: 218.6_WU_P	Units: µg/L	Prep Date:	RunNo: 108868					
Client ID: ZZZZZZ	Batch ID: R108868	TestNo: EPA 218.6	Analysis Date: 6/8/2016	SeqNo: 2347997							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium 1140.210 20 500.0 615.3 105 90 110

Sample ID	N020007-001BMSD	SampType:	MSD	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	108868			
Client ID:	ZZZZZZ	Batch ID:	R108868	TestNo:	EPA 218.6			Analysis Date:	6/8/2016	SeqNo:	2347998			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium 1134.360 20 500.0 615.3 104 90 110 1140 0.514 20

Qualifiers:

- | | | | | | |
|----|---|--------------------------------------|--------------------------------------|---|--|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | Calculations are based on raw values | | | |



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"Serving Clients with Passion and Professionalism"

CLIENT: CH2M HILL
Work Order: N020007
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WU_PGE

Sample ID	N020007-002BMS	SampType:	MS	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	108868
Client ID:	ZZZZZZ	Batch ID:	R108868	TestNo:	EPA 218.6	Analysis Date:	6/8/2016	SeqNo:	2348000		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Hexavalent Chromium		1.188		0.20	1.000	0.1379	105	90	110		

Qualifiers:

- | | | | | | |
|----|---|--------------------------------------|--------------------------------------|---|--|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 22-Jun-16

CLIENT:	CH2M HILL	Client Sample ID:	SC-100B-WDR-541
Lab Order:	N020007	Collection Date:	6/7/2016 10:10:00 AM
Project:	PG&E Topock, 658274.01.IM.OP.00	Matrix:	WATER
Lab ID:	N020007-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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TURBIDITY**SM 2130B**

RunID: WETCHEM_160608C	QC Batch: R108871	PrepDate	Analyst: LR
Turbidity	0.19 0.10 0.10	NTU	1 6/8/2016 11:50 AM

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 22-Jun-16

CLIENT:	CH2M HILL	Client Sample ID:	SC-700B-WDR-541
Lab Order:	N020007	Collection Date:	6/7/2016 10:05:00 AM
Project:	PG&E Topock, 658274.01.IM.OP.00	Matrix:	WATER
Lab ID:	N020007-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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TURBIDITY**SM 2130B**

RunID: WETCHEM_160608C	QC Batch: R108871	PrepDate	Analyst: LR
Turbidity	0.19 0.10 0.10	NTU	1 6/8/2016 11:50 AM

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

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CLIENT: CH2M HILL
Work Order: N020007
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT**TestCode: 2130_W**

Sample ID	MB-R108871	SampType:	MBLK	TestCode:	2130_W	Units:	NTU	Prep Date:		RunNo:	108871			
Client ID:	PBW	Batch ID:	R108871	TestNo:	SM 2130B			Analysis Date:	6/8/2016	SeqNo:	2347925			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Turbidity		ND		0.10										

Sample ID	N020007-001ADUP	SampType:	DUP	TestCode:	2130_W	Units:	NTU	Prep Date:		RunNo:	108871			
Client ID:	ZZZZZZ	Batch ID:	R108871	TestNo:	SM 2130B			Analysis Date:	6/8/2016	SeqNo:	2347927			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Turbidity		0.200		0.10							0.1900	5.13	30	

Sample ID	N020007-002ADUP	SampType:	DUP	TestCode:	2130_W	Units:	NTU	Prep Date:		RunNo:	108871			
Client ID:	ZZZZZZ	Batch ID:	R108871	TestNo:	SM 2130B			Analysis Date:	6/8/2016	SeqNo:	2347945			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Turbidity		0.180		0.10							0.1900	5.41	30	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out	Calculations are based on raw values			



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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 22-Jun-16

CLIENT:	CH2M HILL	Client Sample ID:	SC-700B-WDR-541
Lab Order:	N020007	Collection Date:	6/7/2016 10:05:00 AM
Project:	PG&E Topock, 658274.01.IM.OP.00	Matrix:	WATER
Lab ID:	N020007-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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ANIONS BY ION CHROMATOGRAPHY
EPA 300.0

RunID: IC2_160608A	QC Batch: R108880	PrepDate	Analyst: QBM
Fluoride	2.4 0.087	0.50	mg/L 5 6/8/2016 02:01 PM

ANIONS BY ION CHROMATOGRAPHY
EPA 300.0

RunID: IC2_160608A	QC Batch: R108880	PrepDate	Analyst: QBM
Sulfate	460 3.3	25	mg/L 50 6/8/2016 03:03 PM

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		


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CLIENT: CH2M HILL
Work Order: N020007
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT**TestCode: 300_W_FPG**

Sample ID	MB-R108880_F	SampType:	MBLK	TestCode:	300_W_FPG	Units:	mg/L	Prep Date:		RunNo:	108880			
Client ID:	PBW	Batch ID:	R108880	TestNo:	EPA 300.0			Analysis Date:	6/8/2016	SeqNo:	2348474			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Fluoride ND 0.10

Sample ID	LCS-R108880_F	SampType:	LCS	TestCode:	300_W_FPG	Units:	mg/L	Prep Date:		RunNo:	108880		
Client ID:	LCSW	Batch ID:	R108880	TestNo:	EPA 300.0			Analysis Date:	6/8/2016	SeqNo:	2348475		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Fluoride 2.476 0.10 2.500 0 99.0 90 110

Sample ID	N020007-002ADUP	SampType:	DUP	TestCode:	300_W_FPG	Units:	mg/L	Prep Date:		RunNo:	108880		
Client ID:	ZZZZZZ	Batch ID:	R108880	TestNo:	EPA 300.0			Analysis Date:	6/8/2016	SeqNo:	2348479		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Fluoride 2.460 0.50 2.405 2.26 20

Sample ID	N020007-002AMS	SampType:	MS	TestCode:	300_W_FPG	Units:	mg/L	Prep Date:		RunNo:	108880		
Client ID:	ZZZZZZ	Batch ID:	R108880	TestNo:	EPA 300.0			Analysis Date:	6/8/2016	SeqNo:	2348480		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Fluoride 14.340 0.50 12.50 2.405 95.5 80 120

Sample ID	N020007-002AMSD	SampType:	MSD	TestCode:	300_W_FPG	Units:	mg/L	Prep Date:		RunNo:	108880		
Client ID:	ZZZZZZ	Batch ID:	R108880	TestNo:	EPA 300.0			Analysis Date:	6/8/2016	SeqNo:	2348481		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Fluoride 14.155 0.50 12.50 2.405 94.0 80 120 14.34 1.30 20

Qualifiers:

- | | | | | | |
|----|---|--------------------------------------|--------------------------------------|---|--|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | Calculations are based on raw values | | | |



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CLIENT: CH2M HILL
Work Order: N020007
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID	MB-R108880_SO4	SampType:	MBLK	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	108880			
Client ID:	PBW	Batch ID:	R108880	TestNo:	EPA 300.0			Analysis Date:	6/8/2016	SeqNo:	2348120			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sulfate ND 0.50

Sample ID	LCS-R108880_SO4	SampType:	LCS	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	108880			
Client ID:	LCSW	Batch ID:	R108880	TestNo:	EPA 300.0			Analysis Date:	6/8/2016	SeqNo:	2348121			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sulfate 4.951 0.50 5.000 0 99.0 90 110

Sample ID	N020006-001ADUP	SampType:	DUP	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	108880			
Client ID:	ZZZZZZ	Batch ID:	R108880	TestNo:	EPA 300.0			Analysis Date:	6/8/2016	SeqNo:	2348123			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sulfate 339.700 25 331.6 2.41 20

Sample ID	N020006-002AMS	SampType: MS	TestCode: 300_W_SO4P	Units: mg/L	Prep Date:	RunNo: 108880					
Client ID: ZZZZZZ	Batch ID: R108880	TestNo: EPA 300.0	Analysis Date: 6/8/2016	SeqNo: 2348125							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sulfate 982.100 50 500.0 495.1 97.4 80 120

Sample ID	N020006-002AMSD	SampType:	MSD	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	108880			
Client ID:	ZZZZZZ	Batch ID:	R108880	TestNo:	EPA 300.0			Analysis Date:	6/8/2016	SeqNo:	2348126			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sulfate 949.900 50 500.0 495.1 91.0 80 120 982.1 3.33 20

Qualifiers:

- | | | | | | |
|----|---|--------------------------------------|--------------------------------------|---|--|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
| DO | Surrogate Diluted Out | Calculations are based on raw values | | | |



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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 22-Jun-16

CLIENT:	CH2M HILL	Client Sample ID:	SC-700B-WDR-541
Lab Order:	N020007	Collection Date:	6/7/2016 10:05:00 AM
Project:	PG&E Topock, 658274.01.IM.OP.00	Matrix:	WATER
Lab ID:	N020007-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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NITRATE/NITRITE-N BY CADMIUM REDUCTION
SM4500-NO3F

RunID: WETCHEM_160620A	QC Batch: R109043	PrepDate	Analyst: RB
Nitrate/Nitrite as N	2.9 0.11	0.25 mg/L	5 6/20/2016

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		


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"Serving Clients with Passion and Professionalism"

CLIENT: CH2M HILL
Work Order: N020007
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT**TestCode: 4500N03F_W**

Sample ID MB-R109043	SampType: MBLK	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 109043
Client ID: PBW	Batch ID: R109043	TestNo: SM4500-NO3		Analysis Date: 6/20/2016	SeqNo: 2355604
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Nitrate/Nitrite as N ND 0.050

Sample ID LCS-R109043	SampType: LCS	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 109043
Client ID: LCSW	Batch ID: R109043	TestNo: SM4500-NO3		Analysis Date: 6/20/2016	SeqNo: 2355605
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Nitrate/Nitrite as N 0.488 0.050 0.5000 0 97.7 85 115

Sample ID N020006-001CDUP	SampType: DUP	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 109043
Client ID: ZZZZZZ	Batch ID: R109043	TestNo: SM4500-NO3		Analysis Date: 6/20/2016	SeqNo: 2355607
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Nitrate/Nitrite as N 0.024 0.050 0.02590 0 20

Sample ID N020006-001CMS	SampType: MS	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 109043
Client ID: ZZZZZZ	Batch ID: R109043	TestNo: SM4500-NO3		Analysis Date: 6/20/2016	SeqNo: 2355608
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Nitrate/Nitrite as N 0.573 0.050 0.5000 0.02590 110 75 125

Sample ID N020006-001CMSD	SampType: MSD	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 109043
Client ID: ZZZZZZ	Batch ID: R109043	TestNo: SM4500-NO3		Analysis Date: 6/20/2016	SeqNo: 2355609
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Nitrate/Nitrite as N 0.567 0.050 0.5000 0.02590 108 75 125 0.5734 1.12 20

Qualifiers:






B Analyte detected in the associated Method Blank	E Value above quantitation range	H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	S Spike/Surrogate outside of limits due to matrix interference
DO Surrogate Diluted Out	Calculations are based on raw values	



CALIFORNIA
 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
 P: 562.219.7435 F: 562.219.7436

NEVADA
 3151 W. Post Rd., Las Vegas, NV 89118
 P: 702.307.2659 F: 702.307.2691

"Serving Clients with Passion and Professionalism"

Signatures		Date/Time	Shipping Details		Special Instructions:
Approved by		6-7-16 0800	Method of Shipment:	FedEx	
Sampled by		6-7-16 10:15	On Ice:	yes / no 7-90	
Relinquished by		6-7-16 14:55	Airbill No:	1242	
Received by		6/7/16 1455	Lab Name:	ASSET Laboratories	
Relinquished by		6/7/16 1730	Lab Phone:	(702) 307-2659	

ATTN:

Sample Custody

and

Glen Gesmundo

Special Instructions:

Total metals List:

Cr,Al,Sb,As,Ba,B,Cu,Pb,Mn,Mo,Ni,Fe,Zn

Report Copy to

Shawn Duffy

(530) 229-3303

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On: 6/7/2016 Workorder: N020007
 Rep sample Temp (Deg C): 2.9 IR Gun ID: 2
 Temp Blank: ☒ Yes ☐ No
 Carrier name: ASSET
 Last 4 digits of Tracking No.: NA Packing Material Used: None
 Cooling process: ☒ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None

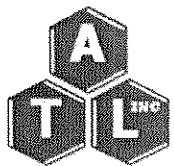
Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
2. Custody seals intact, signed, dated on shipping container/cooler?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
3. Custody seals intact on sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
4. Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
5. Sampler's name present in COC?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
6. Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
7. Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
8. Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
9. Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
10. Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
11. All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>
13. Water - VOA vials have zero headspace?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	NA <input type="checkbox"/>
15. Did the bottle labels indicate correct preservatives used?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>
16. Were there Non-Conformance issues at login? Was Client notified?	Yes <input checked="" type="checkbox"/> Yes <input type="checkbox"/>	No <input type="checkbox"/> No <input type="checkbox"/>	NA <input type="checkbox"/> NA <input checked="" type="checkbox"/>

Comments: Sample for Ammonia, NO2/NO3 and Total Metals were lab preserved.
 Sample for Cr6+ were lab filtered and preserved.

Checklist Completed By: HG 6/12/2016

Reviewed By: gsg 06/13/16

**ASSET Laboratories**

3151-3153 W Post Rd., Las Vegas, NV 89118

www.atl-labs.com

TEL: 7023072659

FAX: 7023072691

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

QC Level: Level IV

Subcontractor:

Truesdail
3337 Michelson Drive, Suite CN750
Irvine, CA 92612

TEL: (714) 730-6239
FAX: (714) 730-6462
Acct #:

Field Sampler: SIGNED

08-Jun-16

Sample ID		Matrix	Date Collected	Bottle Type	SM4500-NH3D	Requested Tests	
N020007-002E / SC-700B-WDR-541		Water	6/7/2016 10:05:00 AM	82OZP	1		

16 ozp
yfs.

General Comments: Please email sample receipt acknowledgement to the PM.

Please use PO#: N20007A Please email Invoices and Account Receivable Statements to AssetAP@assetlaboratories.com. For questions, call Marlon at (702)-307-2659. Please e-mail results to reports.lv@assetlaboratories.com by: Normal TAT.

Please analyze for Ammonia by SM4500NH3D. *CH₂M Hill Sample.*

	Date/Time	650 # : 532195193	Date/Time
Relinquished by: <i>Yeandra Rodriguez</i>	6/8/16 17:00	Received by: _____	
Relinquished by: _____		Received by: _____	

List of Analysts

ASSET Laboratories Work Order: **N020007**

NAME	TEST METHOD
Jannette Soria	EPA 218.6
Claire Ignacio	EPA 200.7, EPA 200.8
Ryan Balilu	SM 4500-NO3F
Lilia Ramit	EPA 120.1, SM 2540C, SM 2130B
Quennie Manimtim	EPA 300

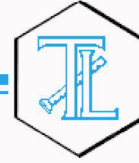


ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

CALIFORNIA
11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F: 562.219.7436

NEVADA
3151 W. Post Rd., Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691

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REPORT

3337 MICHELSON DRIVE, SUITE CN 750
IRVINE, CA 92612
(714) 730-6239 • FAX (714) 730-6462
www.truesdail.com

Advanced Technology Laboratories-NV

3151 W Post Rd
Las Vegas, NV 89118

Project Name: **ATL-NV**

Table of Contents
Truesdail Laboratories, Inc. Data Package
For Laboratory Number 16F0171

<u>ITEM</u>	<u>Section</u>
Case Narrative	1.0
Summary of Final Results and Analyst Page	2.0
Final Reports	3.0
Chain of Custody and Sample Receipt Records	4.0
Sample Preparation and Analytical Raw Data	5.0

Section 1.0

Case Narrative



REPORT

3337 MICHELSON DRIVE, SUITE CN 750
IRVINE, CA 92612
(714) 730-6239 • FAX (714) 730-6462
www.truesdail.com

Client: Advanced Technology Laboratories-NV

3151 W Post Rd

Las Vegas, NV 89118

Attention: Marlon Cartin

Project Name: ATL-NV

Work Order No.: 16F0171

Printed: 07/06/2016

CASE NARRATIVE

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Ammonia analyses. A summary table for this laboratory number is included in Section 2. Complete laboratory reports, wet chemistry raw data, quality control data and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data are under Section 5.

The samples were received and delivered with the chain of custody on June 9th, 2016, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter will be kept in warm storage for additional 2 months before disposal.

If you have any questions or require additional information, please contact me at (714) 730-6239 ext. 203

SAMPLE RECEIPT SUMMARY

Sample ID	Laboratory ID	Matrix	Type	Date Sampled	Date Received
N020007-002E/SC-700B-WDR-541	16F0171-01	Water		06/07/2016 10:05	06/09/2016 12:50

DEFINITIONS

Symbol	Definition
D1	The target analyte for source sample and its duplicate were less than the method reporting limit, thus giving an insignificant RPD value.
DF	Dilution Factor
MDL	Method Detection Limit
ND	Not Detected
RL	Reporting Limit

Respectfully yours,

Shelly Brady

Customer Service Manager

Section 2.0

Summary of Final Results



Client: Advanced Technology Laboratories-N

Project Name: ATL-NV

Printed: 07/06/2016

N020007-002E/SC-700B-WDR-541

16F0171-01 (Water)

Analyte	Result	RL	Units	DF	Batch	Analyzed	Analyst	Method	Notes
---------	--------	----	-------	----	-------	----------	---------	--------	-------

Truesdail Laboratories, Inc

Wet Chemistry

Ammonia	ND	0.0500	mg/L	1	1606326	06/16/2016 16:37	Alexander Luna	SM 4500-NH3 D M	
---------	----	--------	------	---	---------	------------------	----------------	-----------------	--

**Client: Advanced Technology Laboratories-N****Project Name: ATL-NV****Printed: 07/06/2016****QUALITY CONTROL****Wet Chemistry****Truesdail Laboratories, Inc**

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	% Rec Limits	RPD	RPD Limit	Note
---------	--------	----	-------	-------------	---------------	------	--------------	-----	-----------	------

Batch: 1606326 - SM 4500-NH3 B**Blank (1606326-BLK1)**

Prepared & Analyzed: 6/16/2016

Ammonia ND 0.0500 mg/L

LCS (1606326-BS1)

Prepared & Analyzed: 6/16/2016

Ammonia 0.390 0.0500 mg/L 0.400 97 90-110

Duplicate (1606326-DUP1)**Source: 16F0171-01**

Prepared & Analyzed: 6/16/2016

Ammonia 0.0245 0.0500 mg/L 0.0190 25 20 D1

Matrix Spike (1606326-MS1)**Source: 16F0077-01**

Prepared & Analyzed: 6/16/2016

Ammonia 2.12 0.0500 mg/L 0.400 1.77 86 75-125

Matrix Spike Dup (1606326-MSD1)**Source: 16F0077-01**

Prepared & Analyzed: 6/16/2016

Ammonia 2.14 0.0500 mg/L 0.400 1.77 92 75-125 1 20

Section 3.0

Final Reports

ANALYSIS DATA SHEET

Inorganics

Client: Advanced Technology Laboratories-NV
Client Sample ID: N020007-002E/SC-700B-WDR-541
Lab Sample ID: 16F0171-01
Project: ATL-NV

Date Sampled: 06/07/16 10:05 Matrix: Water

CAS NO.	Analyte	Concentration (mg/L)	MDL	RL	DF	Q	Analyst	Analyzed	Method
7664-41-7	Ammonia	ND	0.0111	0.0500	1		AL	06/16/16 16:37	SM 4500-NH3 D M

METHOD BLANK DATA SHEET

SM 4500-NH3 D M

Client: Advanced Technology Laboratories-NV

Project: ATL-NV

Laboratory ID: 1606326-BLK1

Prepared: 06/16/16 12:10

Preparation: SM 4500-NH3 B

Matrix: Water

Analyzed: 06/16/16 15:58

Instrument: TL01

File ID: 6F16001-021

Batch: 1606326

Sequence: 6F16001

CAS NO.	COMPOUND	CONC. (mg/L)	MDL	RL	Q
7664-41-7	Ammonia	ND	0.0111	0.0500	

LCS / LCS DUPLICATE RECOVERY

SM 4500-NH3 D M

Client: Advanced Technology Laboratories-NV
Project: ATL-NV
Work Order: 16F0171

Matrix: Water
Prep Batch: 1606326
Prep Method: SM 4500-NH3 B
Lab Sample ID: 1606326-BS1

ANALYTE	SPIKE ADDED (mg/L)	LCS CONCENTRATION (mg/L)	LCS % REC.	QC LIMITS REC.
Ammonia	0.400	0.390	97	90 - 110

DUPLICATES

N020007-002E/SC-700B-WDR-541

Client: Advanced Technology Laboratories-NV
Project: ATL-NV

Matrix:	Water	Laboratory ID:	1606326-DUP1
Prep Batch:	1606326	Initial/Final:	50 mL / 50 mL
Prep Method:	SM 4500-NH3 B	Analysis:	SM 4500-NH3 D M

ANALYTE	SAMPLE CONCENTRATION (mg/L)	DUPLICATE CONCENTRATION (mg/L)	RPD %	Q	CONTROL LIMIT
Ammonia	0.0190	0.0245		*	20

* Values outside of QC limits

CONTINUING CALIBRATION VERIFICATION

SM 4500-NH3 D M

Client: Advanced Technology Laborato

Project: ATL-NV

Instrument ID: TL01

Lab File ID: 6F16001-011

Sequence: 6F16001

Injection Date: 06/16/16

Lab Sample ID: 6F16001-CCV1

Injection Time: 16:24

COMPOUND	CONC. (mg/L)		RESPONSE FACTOR		% Rec	CCV Lower Limit	Upper Limit
	STD	CCV	CCV				
Ammonia	0.500	0.498	100.1073		100	90	110

CONTINUING CALIBRATION VERIFICATION

SM 4500-NH3 D M

Client: Advanced Technology Laborato

Project: ATL-NV

Instrument ID: TL01

Lab File ID: 6F16001-002

Sequence: 6F16001

Injection Date: 06/16/16

Lab Sample ID: 6F16001-CCV2

Injection Time: 16:46

COMPOUND	CONC. (mg/L)		RESPONSE FACTOR		% Rec	CCV Lower Limit	Upper Limit
	STD	CCV		CCV			
Ammonia	0.500	0.525		105.8779	105	90	110

Section 4.0

Chain of Custody and Sample Receipt Records



Internal Chain of Custody Logbook

Lab Number:

16F0171

Client Name:

ATL

Storage Temperature:

3.5 °C

Bottle I.D.	Analysis	Date Out	Time Out	Date In	Time In	Amount Taken (g or mL)	Printed Name	Signature
-01				6/9/16	13:5		Marshall Brad	Kari R
	NH3	6/16/16	12:00				Alex L	CL
				6/16/16	16:45	20 mL	Alex L	CL

Storage Date	Shelf No. For Storage	Printed Name	Initials

Discharge Date	Printed Name	Initials

Bottle I.D.	Analysis	Date Out	Time Out	Date In	Time In	Amount Taken (g or mL)	Printed Name	Signature

Storage Date	Shelf No. For Storage	Printed Name	Initials

Discharge Date	Printed Name	Initials

Bottle I.D.	Analysis	Date Out	Time Out	Date In	Time In	Amount Taken (g or mL)	Printed Name	Signature

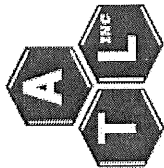
Storage Date	Shelf No. For Storage	Printed Name	Initials

Discharge Date	Printed Name	Initials

Bottle I.D.	Analysis	Date Out	Time Out	Date In	Time In	Amount Taken (g or mL)	Printed Name	Signature

Storage Date	Shelf No. For Storage	Printed Name	Initials

Discharge Date	Printed Name	Initials



ASSET Laboratories

3151-3153 W Post Rd., Las Vegas, NV 89118

www.atl-labs.com

TEL: 7023072659

FAX: 7023072691

16 FOI 71

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

QC Level: Level IV

Subcontractor:

Truesdail

3337 Michelson Drive, Suite CN750
Irvine, CA 92612

TEL: (714) 730-6239

FAX: (714) 730-6462

Acct #:

Field Sampler: SIGNED

08-Jun-16

Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests	
				SM4500-NH3D	
N020007-002E / SC-700B-WDR-541	Water	6/7/2016 10:05:00 AM	20ZP 16 ozp 4pt.	1	



General Comments: Please email sample receipt acknowledgement to the PM.

Please use PO#: N20007A Please email Invoices and Account Receivable Statements to AssetAP@assetlaboratories.com. For questions, call Marion at (702)-307-2659. Please e-mail results to reports.lv@assetlaboratories.com by: Normal TAT.

Please analyze for Ammonia by SM4500NH3D.

CH2 M 16:11 Sample.

4.70C

Relinquished by: Yvonne Rodriguez	Date/Time: 6/9/16 13:00	Relinquished by: Michelle Mark	Date/Time: 6/9/16 12:50
Relinquished by:		Received by:	
		Received by:	

Log-in check list For level III data package

Client:

ATL

Lab Number:

16 F0171

Received Date:

Sample receiving review

	Yes	No	N/A	Comment
Was special login form received by login personnel?	X			
Was COC received and signed by client and login personnel?	X			
Were all sample temperature measured and recorded on COC?	X			
Did you measure and record the pH on all metals samples on COC?			X	
Has sample integrity and analysis discrepancy form been filled out completely?	X			
Were all intercompany yellow forms generated and stamped with " alert level III QC" note?	X			
Have check-in and check out lists been filled out and attached to appropriate form?	X			
Were sample containers labeled with TLI numbers, date, and time sampled?	X			
Did you notify analyst or group leader about short holding time?			X	
Was a copy of COC attached to all yellow intracompany form?	X			
For special clients, have all their samples been logged into the Internal COC book?	X			
Were samples locked in fridge or special storage area?	X			
Was temperature recorded in the log book?	X			

Sample receiving Signature:

Michael Reed

6/9/16 12:50

ALERT!
 Level IV QC

16F0171

Truesdail Laboratories, Inc

Client: Advanced Technology Laboratories-NV
Project: ATL-NV

Project Manager: Shelly Brady
Project Number: [none]

Report To:

Advanced Technology Laboratories-NV
Marlon Cartin
3151 W Post Rd
Las Vegas, NV 89118
Phone: (702) 307-2659
Fax: (702) 307-2691

Invoice To:

Advanced Technology Laboratories-NV
Marlon Cartin
3151 W Post Rd
Las Vegas, NV 89118
Phone : (702) 307-2659
Fax: (702) 307-2691

Date Due: 06/20/2016 16:30 (7 day TAT)

Received By: Michelle Reed

Logged In By: Michelle Reed

Date Received: 06/09/2016 12:50

Date Logged In: 06/09/2016 13:19

Samples Received at: 4.7°C

Chain of Custody re Yes Samples intact? Yes

Letter (if sent) matc No Custody seals (if an No

Requested analyses Yes Analyses within hol Yes

Samples received in Yes

Analysis	Due	TAT	Expires	Comments
----------	-----	-----	---------	----------

16F0171-01 N020007-002E/SC-700B-WDR-541 [Water] Sampled 06/07/2016

10:05 (GMT-08:00) Pacific Time (US &

Ammonia E	06/20/2016 08:00	7	07/05/2016 10:05	
-----------	------------------	---	------------------	--

Reviewed By

Date

Page 1 of 1

Page 20 of 26

Section 5.0

Sample Preparation, and Analytical Raw Data

PREPARATION BATCH SUMMARY

SM 4500-NH3 D M

Laboratory: Truesdail Laboratories, Inc

Client: Advanced Technology Laboratories-NV

Project: ATL-NV

Batch: 1606326 Batch Matrix: Water

Preparation: SM 4500-NH3 B

SAMPLE NAME	LAB SAMPLE ID	DATE PREPARED	INITIAL VOL./WEIGHT	FINAL VOL.
Blank	1606326-BLK1	06/16/16 12:10	50.00	50.00
LCS	1606326-BS1	06/16/16 12:10	50.00	50.00
N020007-002E/SC-700B-WDR-541606326-DUP1		06/16/16 12:10	50.00	50.00
Matrix Spike	1606326-MS1	06/16/16 12:10	50.00	50.00
Matrix Spike Dup	1606326-MSD1	06/16/16 12:10	50.00	50.00
N020007-002E/SC-700B-WDR-5416F0171-01		06/16/16 12:10	50.00	50.00

Timberline TL-2100 Summary Report

6/16/2016 4:50 PM

Injection Time

Wash Time

Integration Start Time

Integration End Time

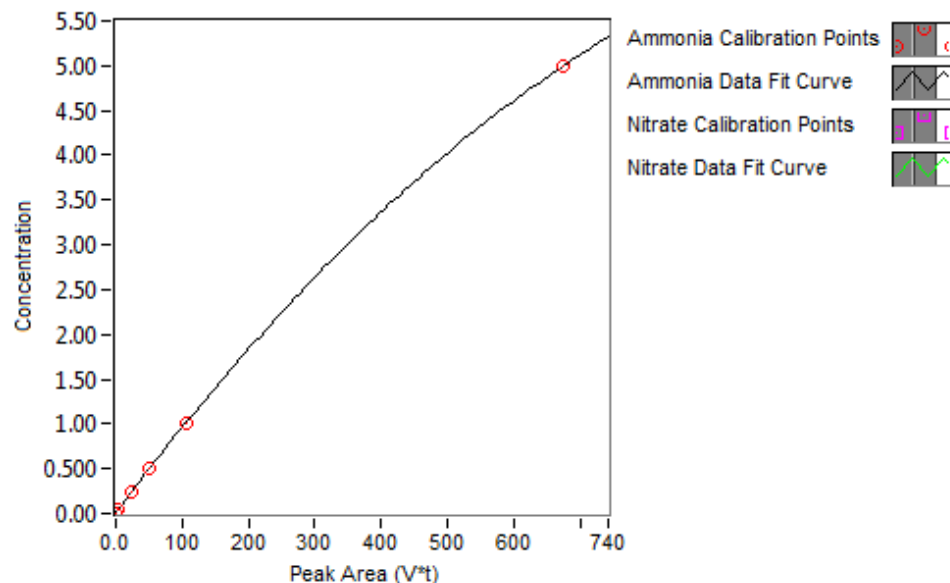
00:20

01:30

00:40

01:45

Ammonia Calibration Data Fit



Ammonia Calibration Equation

$$y = +1.484E-2 + 9.828E-3X - 3.618E-6X^2$$

R^2 Value

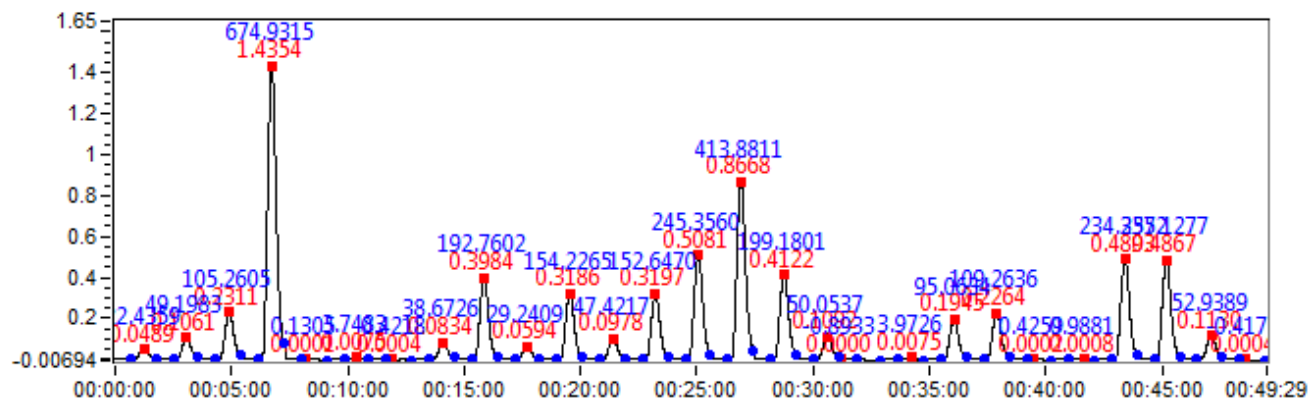
0.999961

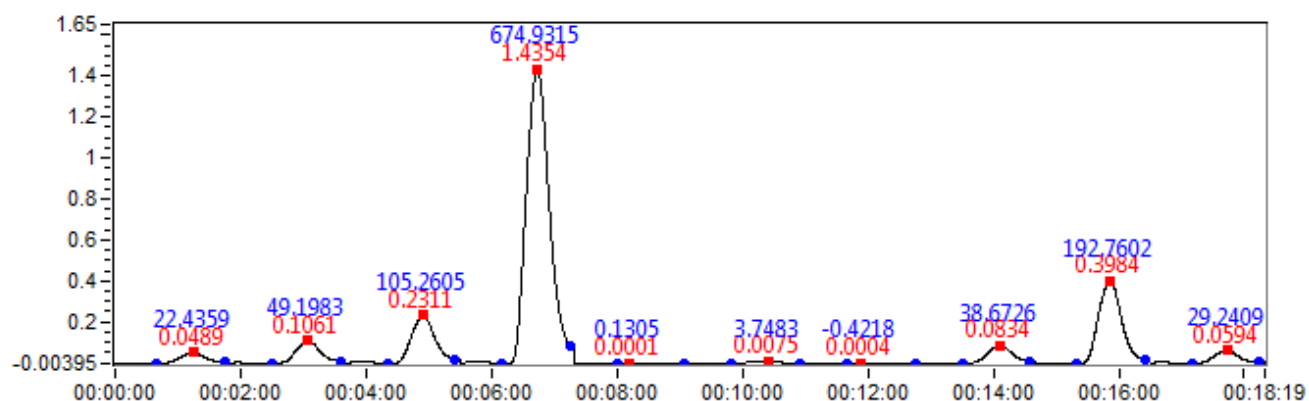
Nitrate Calibration Equation

$$y =$$

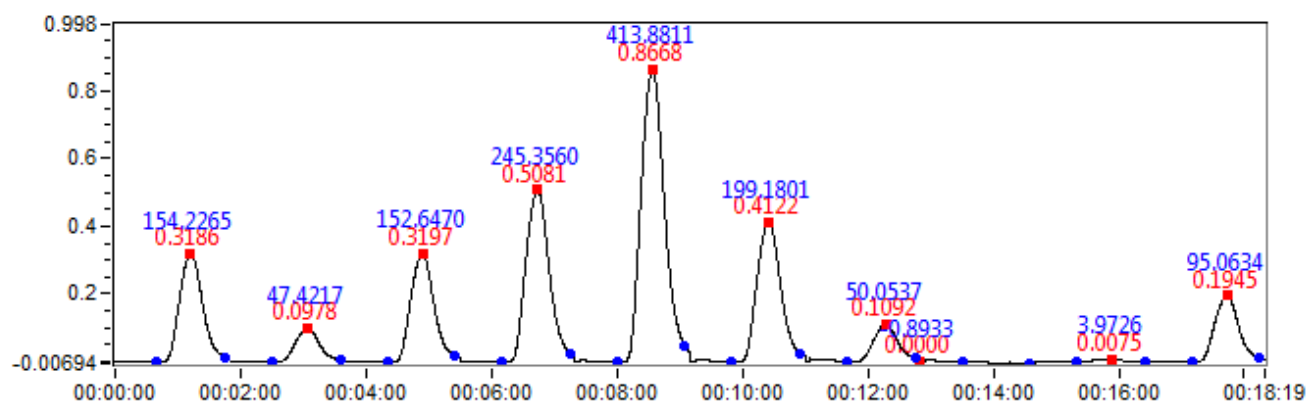
Nitrate R^2 Value

NaN

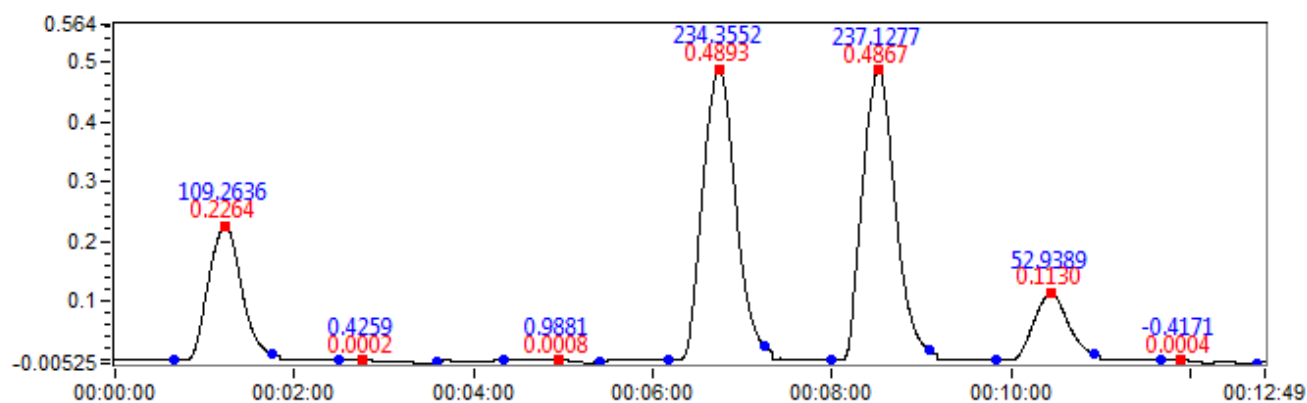




Tube #	Time Stamp	Tube Type	Tube Name	Comments	NH3 Area	NH3 Conc.	NO3 + NH3 Area	NO3 + NH3 Conc.	NO3 Conc.
2	06-16-16 16:05:58	NH3 Sample	16F0078-01	INJECT TIME: 20 SENSITIVITY: 10 GAIN: 100 POST ATTENUATION: div 2 PUMP SPEED: 30 PUMP REVS: 672334 BUFFER CONC.: CAUSTIC CONC.: BUFFER RECYCLE: No CAUSTIC RECYCLE: No USER COMMENT: CELL S/N: MEMBRANE S/N: DILUTION:	29.240856	0.299131			
1	06-16-16 16:04:00	NH3 Sample	16F0077-01	INJECT TIME: 20 SENSITIVITY: 10 GAIN: 100 POST ATTENUATION: div 2 PUMP SPEED: 30 PUMP REVS: 672334 BUFFER CONC.: CAUSTIC CONC.: BUFFER RECYCLE: No CAUSTIC RECYCLE: No USER COMMENT: CELL S/N: MEMBRANE S/N: DILUTION:	192.760238	1.774866			
8	06-16-16 16:00:19	NH3 Sample	1606326-BS1	INJECT TIME: 20 SENSITIVITY: 10 GAIN: 100 POST ATTENUATION: div 2 PUMP SPEED: 30 PUMP REVS: 672165 BUFFER CONC.: CAUSTIC CONC.: BUFFER RECYCLE: No CAUSTIC RECYCLE: No USER COMMENT: CELL S/N: MEMBRANE S/N: DILUTION:	38.672604	0.389509			
7	06-16-16 15:58:21	NH3 Sample	1606326-BLK1	INJECT TIME: 20 SENSITIVITY: 10 GAIN: 100 POST ATTENUATION: div 2 PUMP SPEED: 30 PUMP REVS: 672165 BUFFER CONC.: CAUSTIC CONC.: BUFFER RECYCLE: No CAUSTIC RECYCLE: No USER COMMENT: CELL S/N: MEMBRANE S/N: DILUTION:	-0.421779	0.010696			
2	06-16-16 15:55:13	NH3 Sample	6F16001-CAL1	INJECT TIME: 20 SENSITIVITY: 10 GAIN: 100 POST ATTENUATION: div 2 PUMP SPEED: 30 PUMP REVS: 672070 BUFFER CONC.: CAUSTIC CONC.: BUFFER RECYCLE: No CAUSTIC RECYCLE: No USER COMMENT: CELL S/N: MEMBRANE S/N: DILUTION:	3.748322	.05			
1	06-16-16 15:27:58	NH3 Sample	6F16001-ICB1	INJECT TIME: 20 SENSITIVITY: 10 GAIN: 100 POST ATTENUATION: div 2 PUMP SPEED: 30 PUMP REVS: 671253 BUFFER CONC.: CAUSTIC CONC.: BUFFER RECYCLE: No CAUSTIC RECYCLE: No USER COMMENT: CELL S/N: MEMBRANE S/N: DILUTION:	0.130479	0			
6	06-16-16 15:12:32	NH3 Sample	6F16001-CAL5	INJECT TIME: 20 SENSITIVITY: 10 GAIN: 100 POST ATTENUATION: div 2 PUMP SPEED: 30 PUMP REVS: 670790 BUFFER CONC.: CAUSTIC CONC.: BUFFER RECYCLE: No CAUSTIC RECYCLE: No USER COMMENT: CELL S/N: MEMBRANE S/N: DILUTION:	674.931528	5			
5	06-16-16 15:10:13	NH3 Sample	6F16001-CAL4	INJECT TIME: 20 SENSITIVITY: 10 GAIN: 100 POST ATTENUATION: div 2 PUMP SPEED: 30 PUMP REVS: 670721 BUFFER CONC.: CAUSTIC CONC.: BUFFER RECYCLE: No CAUSTIC RECYCLE: No USER COMMENT: CELL S/N: MEMBRANE S/N: DILUTION:	105.260511	1			
4	06-16-16 15:05:53	NH3 Sample	6F16001-CAL3	INJECT TIME: 20 SENSITIVITY: 10 GAIN: 100 POST ATTENUATION: div 2 PUMP SPEED: 30 PUMP REVS: 670473 BUFFER CONC.: CAUSTIC CONC.: BUFFER RECYCLE: No CAUSTIC RECYCLE: No USER COMMENT: CELL S/N: MEMBRANE S/N: DILUTION:	49.198333	.5			
3	06-16-16 15:03:56	NH3 Sample	6F16001-CAL2	INJECT TIME: 20 SENSITIVITY: 10 GAIN: 100 POST ATTENUATION: div 2 PUMP SPEED: 30 PUMP REVS: 670473 BUFFER CONC.: CAUSTIC CONC.: BUFFER RECYCLE: No CAUSTIC RECYCLE: No USER COMMENT: CELL S/N: MEMBRANE S/N: DILUTION:	22.435928	.25			



Tube #	Time Stamp	Tube Type	Tube Name	Comments	NH3 Area	NH3 Conc.	NO3 + NH3 Area	NO3 + NH3 Conc.	NO3 Conc.
2	06-16-16 16:33:17	NH3 Sample	16F0086-01	INJECT TIME: 20 SENSITIVITY: 10 GAIN: 100 POST ATTENUATION: div 2 PUMP SPEED: 30 PUMP REVS: 673154 BUFFER CONC.: CAUSTIC CONC.: BUFFER RECYCLE: No CAUSTIC RECYCLE: No USER COMMENT: CELL S/N: MEMBRANE S/N: DILUTION:	95.063428	0.916437			
1	06-16-16 16:31:19	NH3 Sample	16F0084-01	INJECT TIME: 20 SENSITIVITY: 10 GAIN: 100 POST ATTENUATION: div 2 PUMP SPEED: 30 PUMP REVS: 673154 BUFFER CONC.: CAUSTIC CONC.: BUFFER RECYCLE: No CAUSTIC RECYCLE: No USER COMMENT: CELL S/N: MEMBRANE S/N: DILUTION:	3.972603	0.053828			
10	06-16-16 16:26:21	NH3 Sample	6F16001-CCB1	INJECT TIME: 20 SENSITIVITY: 10 GAIN: 100 POST ATTENUATION: div 2 PUMP SPEED: 30 PUMP REVS: 672945 BUFFER CONC.: CAUSTIC CONC.: BUFFER RECYCLE: No CAUSTIC RECYCLE: No USER COMMENT: CELL S/N: MEMBRANE S/N: DILUTION:	-0.893267	0.006060			
9	06-16-16 16:24:23	NH3 Sample	6F16001-CCV1	INJECT TIME: 20 SENSITIVITY: 10 GAIN: 100 POST ATTENUATION: div 2 PUMP SPEED: 30 PUMP REVS: 672945 BUFFER CONC.: CAUSTIC CONC.: BUFFER RECYCLE: No CAUSTIC RECYCLE: No USER COMMENT: CELL S/N: MEMBRANE S/N: DILUTION:	50.053655	0.497710			
8	06-16-16 16:17:46	NH3 Sample	16F0084-01	INJECT TIME: 20 SENSITIVITY: 10 GAIN: 100 POST ATTENUATION: div 2 PUMP SPEED: 30 PUMP REVS: 672334 BUFFER CONC.: CAUSTIC CONC.: BUFFER RECYCLE: No CAUSTIC RECYCLE: No USER COMMENT: CELL S/N: MEMBRANE S/N: DILUTION:	199.180097	1.828857			
7	06-16-16 16:15:48	NH3 Sample	16F0083-01	INJECT TIME: 20 SENSITIVITY: 10 GAIN: 100 POST ATTENUATION: div 2 PUMP SPEED: 30 PUMP REVS: 672334 BUFFER CONC.: CAUSTIC CONC.: BUFFER RECYCLE: No CAUSTIC RECYCLE: No USER COMMENT: CELL S/N: MEMBRANE S/N: DILUTION:	413.881126	3.462692			
6	06-16-16 16:13:50	NH3 Sample	16F0082-01	INJECT TIME: 20 SENSITIVITY: 10 GAIN: 100 POST ATTENUATION: div 2 PUMP SPEED: 30 PUMP REVS: 672334 BUFFER CONC.: CAUSTIC CONC.: BUFFER RECYCLE: No CAUSTIC RECYCLE: No USER COMMENT: CELL S/N: MEMBRANE S/N: DILUTION:	245.356028	2.208405			
5	06-16-16 16:11:53	NH3 Sample	16F0081-01	INJECT TIME: 20 SENSITIVITY: 10 GAIN: 100 POST ATTENUATION: div 2 PUMP SPEED: 30 PUMP REVS: 672334 BUFFER CONC.: CAUSTIC CONC.: BUFFER RECYCLE: No CAUSTIC RECYCLE: No USER COMMENT: CELL S/N: MEMBRANE S/N: DILUTION:	152.646976	1.430763			
4	06-16-16 16:09:54	NH3 Sample	16F0080-01	INJECT TIME: 20 SENSITIVITY: 10 GAIN: 100 POST ATTENUATION: div 2 PUMP SPEED: 30 PUMP REVS: 672334 BUFFER CONC.: CAUSTIC CONC.: BUFFER RECYCLE: No CAUSTIC RECYCLE: No USER COMMENT: CELL S/N: MEMBRANE S/N: DILUTION:	47.421749	0.472771			
3	06-16-16 16:07:56	NH3 Sample	16F0079-01	INJECT TIME: 20 SENSITIVITY: 10 GAIN: 100 POST ATTENUATION: div 2 PUMP SPEED: 30 PUMP REVS: 672334 BUFFER CONC.: CAUSTIC CONC.: BUFFER RECYCLE: No CAUSTIC RECYCLE: No USER COMMENT: CELL S/N: MEMBRANE S/N: DILUTION:	154.226524	1.444533			



Tube #	Time Stamp	Tube Type	Tube Name	Comments	NH3 Area	NH3 Conc.	NO3 + NH3 Area	NO3 + NH3 Conc.	NO3 Conc.
9	06-16-16 16:48:15	NH3 Sample	6F16001-CCB2	INJECT TIME: 20 SENSITIVITY: 10 GAIN: 100 POST ATTENUATION: div 2 PUMP SPEED: 30 PUMP REVS: 673602 BUFFER CONC.: CAUSTIC CONC.: BUFFER RECYCLE: No CAUSTIC RECYCLE: No USER COMMENT: CELL S/N: MEMBRANE S/N: DILUTION:	-0.417078	0.010742			
8	06-16-16 16:46:16	NH3 Sample	6F16001-CCV2	INJECT TIME: 20 SENSITIVITY: 10 GAIN: 100 POST ATTENUATION: div 2 PUMP SPEED: 30 PUMP REVS: 673602 BUFFER CONC.: CAUSTIC CONC.: BUFFER RECYCLE: No CAUSTIC RECYCLE: No USER COMMENT: CELL S/N: MEMBRANE S/N: DILUTION:	52.938949	0.524992			
7	06-16-16 16:43:45	NH3 Sample	1606326-MSD1	INJECT TIME: 20 SENSITIVITY: 10 GAIN: 100 POST ATTENUATION: div 2 PUMP SPEED: 30 PUMP REVS: 673466 BUFFER CONC.: CAUSTIC CONC.: BUFFER RECYCLE: No CAUSTIC RECYCLE: No USER COMMENT: CELL S/N: MEMBRANE S/N: DILUTION:	237.127661	2.141901			
6	06-16-16 16:41:44	NH3 Sample	1606326-MS1	INJECT TIME: 20 SENSITIVITY: 10 GAIN: 100 POST ATTENUATION: div 2 PUMP SPEED: 30 PUMP REVS: 673466 BUFFER CONC.: CAUSTIC CONC.: BUFFER RECYCLE: No CAUSTIC RECYCLE: No USER COMMENT: CELL S/N: MEMBRANE S/N: DILUTION:	234.355178	2.119382			
5	06-16-16 16:39:11	NH3 Sample	1606326-DUP1	INJECT TIME: 20 SENSITIVITY: 10 GAIN: 100 POST ATTENUATION: div 2 PUMP SPEED: 30 PUMP REVS: 673154 BUFFER CONC.: CAUSTIC CONC.: BUFFER RECYCLE: No CAUSTIC RECYCLE: No USER COMMENT: CELL S/N: MEMBRANE S/N: DILUTION:	0.988092	0.024549			
4	06-16-16 16:37:13	NH3 Sample	16F0171-01	INJECT TIME: 20 SENSITIVITY: 10 GAIN: 100 POST ATTENUATION: div 2 PUMP SPEED: 30 PUMP REVS: 673154 BUFFER CONC.: CAUSTIC CONC.: BUFFER RECYCLE: No CAUSTIC RECYCLE: No USER COMMENT: CELL S/N: MEMBRANE S/N: DILUTION:	0.425931	0.019027			
3	06-16-16 16:35:15	NH3 Sample	16F0087-01	INJECT TIME: 20 SENSITIVITY: 10 GAIN: 100 POST ATTENUATION: div 2 PUMP SPEED: 30 PUMP REVS: 673154 BUFFER CONC.: CAUSTIC CONC.: BUFFER RECYCLE: No CAUSTIC RECYCLE: No USER COMMENT: CELL S/N: MEMBRANE S/N: DILUTION:	109.263582	1.045500			

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-538	4-4-16	0540	4-4-16	0542	HQ440D	4-4-16	0420	-57.77	Josh R	7.25

Notes:

SC-701-538	4-4-16	0544	4-4-16	0546	HQ440D	4-4-16	0420	-57.77	Josh R	7.25
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Notes:

SC-100B-538	4-4-16	0548	4-4-16	0550	HQ440D	4-4-16	0420	-57.77	Josh R	7.25
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Notes:

SC-TW2D-538	4-4-16	0545	4-4-16	0600	HQ440D	4-4-16	0420	-57.77	Josh R	7.25
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Notes:

SC-TW3D-538	4-4-16	0550	4-4-16	0600	HQ440D	4-4-16	0420	-57.77	Josh R	7.25
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Notes:

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

Analytical Bench Log Book

WDR pH Results

If the on site laboratory pH result for T-700 tank is less than pH 6.5 or greater than pH 8.3 the Injection well should be shut down until the problem is fixed.

Sample Name	Date of sampling	Time of sampling	Date of analysis	Time of analysis	pH Meter #1, #2, or #3 etc. See cover Sheet for Serial Number	Date pH meter Calibrated	Time pH meter Calibrated	Slope of the Curve	Analyst Name (for the pH result)	pH Result
1 SC-100B	5-3-14	1400	5-3-14	1404	HQ440d	5-3-14	0020	-57.72	GLORIA	7.37

Notes:

2 SC-700B	5-3-14	1400	5-3-14	1405	HQ440d	5-3-14	0020	-57.72	GLORIA	7.27
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Notes:

3 PE-1	5-3-14	1400	5-3-14	1406	HQ440d	5-3-14	0020	-57.72	GLORIA	7.54
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Notes:

4 TOL-3D	5-3-14	1407	5-3-14	1407	HQ440d	5-3-14	0020	-57.72	GLORIA	7.38
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Notes:

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

Analytical Bench Log Book

WDR pH Results

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

Sample Name	Date of sampling	Time of sampling	Date of analysis	Time of analysis	pH Meter #1, #2, or #3 etc. See cover Sheet for Serial Number	Date pH meter Calibrated	Time pH meter Calibrated	Slope of the Curve	Analyst Name (for the pH result)	pH Result
1. PE-1	6-7-16	0840	6-7-16	0847	Meter #2	6-7-16	0020	-56.4	Ryan Phelps	6.9

Notes:

2. TW-3D	6-7-16	0840	6-7-16	0849	Meter #2	6-7-16	0020	-56.4	Ryan Phelps	6.8
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Notes:

3. SC-100B	6-7-16	10:10	6-7-16	10:17	Meter #2	6-7-16	0020	-56.4	Ryan Phelps	7.0
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Notes:

4. SC-700B	6-7-16	10:05	6-7-16	10:18	Meter #2	6-7-16	0020	-56.4	Ryan Phelps	6.9
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Notes:

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