Pacific Gas and Electric Company

Curt Russell
Topock Site Manager
Environmental Remediation

Topock Compressor Station
145453 National Trails Hwy
Needles, CA 92363

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

760.791.5884
Fax: 760.326.5542
Email: gcr4@pge.com

April 15, 2019

Pamela S. Innis
Topock Remedial Project Manager
CHF Remedial Project Manager
Bureau of Land Management - Arizona State Office
One North Central Avenue, Suite 800
Phoenix, AZ 85004-4427
Office Phone: 602.417.9578
Cell: 303.501.5685

Scot Stormo
California Regional Water Quality Control Board
Colorado River Basin Region
73-720 Fred Waring Drive, Suite 100
Palm Desert, CA 92260

Subject: **Topock IM-3 First Quarter 2019 Monitoring Report**
PG&E Topock Compressor Station, Needles, California
Interim Measure No. 3 Groundwater Treatment System
(Document ID: PGE20190415A)

Dear Ms. Innis and Mr. Stormo:

Enclosed is the First Quarter 2019 Monitoring Report for the Pacific Gas and Electric Company (PG&E) Topock Compressor Station, Interim Measure No. 3 (IM-3) Groundwater Treatment System.

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

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

The IM-3 groundwater extraction and treatment system has extracted and treated approximately 910,310,173 gallons of water and removed approximately 7,640 pounds of total chromium from August 1, 2005 through March 31, 2019.

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

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

Sincerely,

Curt Russell
Topock Site Manager

Enclosures:

Topock IM-3 First Quarter 2019 Monitoring Report

cc: Aaron Yue, California Department of Toxic Substances Control

Topock Project Executive Abstract

Document Title:

Topock IM-3 First Quarter 2019 Monitoring Report

Submitting Agency/Authored by: U.S. Department of the Interior and Regional Water Quality Control Board

Final Document? ☒ Yes ☐ No

Date of Document: April 15, 2019

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

PG&E

Document ID Number:

PGE20190415A

Priority Status: ☐ HIGH ☐ MED ☒ LOW

Is this time critical? ☐ Yes ☒ No

Type of Document:

☐ Draft ☒ Report ☐ Letter ☐ Memo

☐ Other / Explain:

Action Required:

☒ Information Only ☐ Review & Comment

Return to: _____

By Date:_____

☐ Other / Explain:

What does this information pertain to?

☐ Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA)/Preliminary Assessment (PA)
☐ RCRA Facility Investigation (RFI)/Remedial Investigation (RI) (including Risk Assessment)
☐ Corrective Measures Study (CMS)/Feasibility Study (FS)
☐ Corrective Measures Implementation (CMI)/Remedial Action
☐ California Environmental Quality Act (CEQA)/Environmental Impact Report (EIR)
☒ Interim Measures
☐ Other / Explain:

Is this a Regulatory Requirement?

☒ Yes
☐ No

If no, why is the document needed?

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

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

Other Justification/s:

☐ Permit ☐ Other / Explain:

Brief Summary of attached document:

This report covers the Interim Measures No. 3 (IM-3) groundwater treatment system monitoring activities during the First Quarter 2019 period. The groundwater monitoring results for wells OW-1S/M/D, OW-2S/M/D, OW-5S/M/D, CW-1M/D, CW-2M/D, CW-3M/D, and CW-4M/D will be submitted under separate cover, as part of the Compliance Monitoring Program.

Written by: PG&E

Recommendations:

This report is for your information only.

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

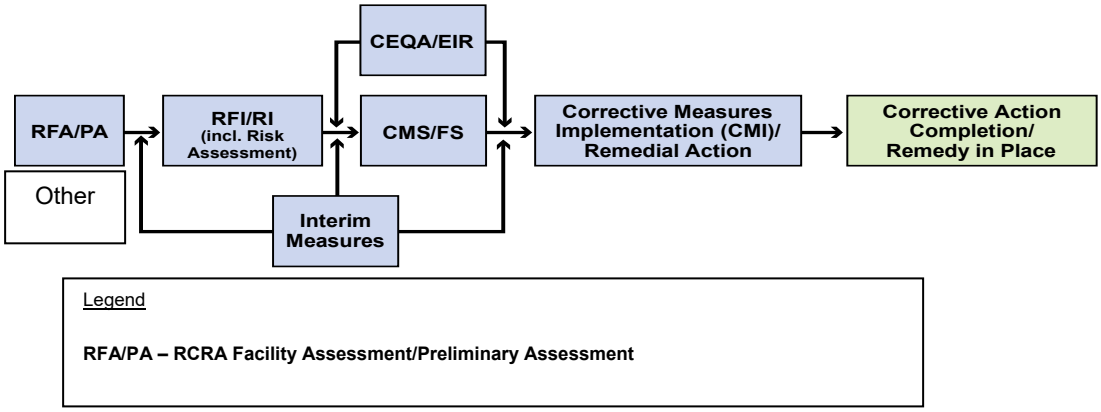
The Topock IM-3 First Quarter 2019 Monitoring Report is related to the Interim Measure. PG&E is currently operating the IM-3 groundwater treatment system as authorized by the U.S. Department of the Interior (DOI) Waste Discharge Applicable or Relevant and Appropriate Requirements (ARARs) as documented in Attachment A to the Letter Agreement issued July 26, 2011 from the Colorado River Basin Regional Water Quality Control Board (Regional Water Board) to DOI, and the subsequent Letter of Concurrence issued August 18, 2011 from DOI to the Regional Water Board.

Other requirements of this information?

None.

Related Reports and Documents:

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



Version 9

JACOBS

First Quarter 2019 Monitoring Report Interim Measure No. 3 Groundwater Treatment System

PG&E Topock Compressor Station
Needles, California

Document ID: PGE20190415A

April 15, 2019

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

JACOBS

First Quarter 2019 Monitoring Report
Interim Measure No. 3 Groundwater Treatment System

PG&E Topock Compressor Station
Needles, California

Prepared for

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

on behalf of

Pacific Gas and Electric Company

April 15, 2019

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

Dennis Fink, P.E.
Project Engineer

Contents

Contents i
Acronyms and Abbreviations iii
1. Introduction 1-1
2. Sampling Station Locations 2-1
3. Description of Activities 3-1
4. Groundwater Treatment System Flow Rates 4-1
4.1 January 2019 4-1
4.2 February 2019 4-1
4.3 March 2019 4-2
5. Sampling and Analytical Procedures 5-1
6. Analytical Results 6-1
7. Conclusions 7-1
8. Certification 8-1
Tables 3
Figures 3
Appendix A First Quarter 2019 Laboratory Analytical Reports 8-1

Tables

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

Figures

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

Appendix

A First Quarter 2019 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
HMI	human-machine interface
IM	Interim Measure
IW	injection well
MRP	Monitoring and Reporting Program
PG&E	Pacific Gas and Electric Company
PLC	programmable logic controller
PST	Pacific Standard Time
Regional Water Board	Colorado River Basin Regional Water Quality Control Board
RO	reverse osmosis
Truesdail	Truesdail Laboratories, Inc.
WDR	Waste Discharge Requirements

1. Introduction

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

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

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

This report covers monitoring activities related to operation of the IM-3 groundwater treatment system during the First Quarter 2019. 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.

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.

3. Description of Activities

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

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

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

During the First Quarter 2019, extraction well TW-3D operated at a target pumping rate of 135 gallons per minute (gpm), excluding periods of planned and unplanned downtime. Extraction well PE-01 was only operated to collect a sample, and extraction wells TW-2D and TW-2S were not operated during First Quarter 2019. The recorded operational run time for the IM-3 groundwater extraction system (combined or individual pumping), by month, was approximately:

- 99.6 percent during January 2019
- 97.5 percent during February 2019
- 99.0 percent during March 2019

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

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

Activities during the First Quarter 2019 are detailed in Section 4.

4. Groundwater Treatment System Flow Rates

The First Quarter 2019 treatment system monthly average flow rates (influent, effluent, and RO concentrate) are presented in Table 2.

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

The IM-3 facility treated approximately 17,273,716 gallons of extracted groundwater during the First Quarter 2019. Eight containers of solids (sludge) were transported offsite from the IM-3 facility during First Quarter 2019.

Periods of planned and unplanned extraction system downtime (that together resulted in approximately 1.3 percent downtime during First Quarter 2019) are summarized below. The times shown are in Pacific Standard Time (PST) to be consistent with other data collected (e.g., water level data) at the site.

4.1 January 2019

During January 2019, extraction well TW-3D operated at a target pump rate of 135 gpm excluding periods of planned and unplanned downtime. Extraction wells TW-2D and TW-2S were not operated during January 2019. Extraction well PE-01 was only operated to collect a sample. The operational run time for the IM-3 groundwater extraction system (combined or individual pumping) was 99.6 percent during the January 2019 reporting period.

The IM-3 facility treated approximately 5,989,262 gallons of extracted groundwater during January 2019. The IM-3 facility did not treat purge water during January 2019. Four containers of solids from the IM-3 facility were transported offsite during January 2019.

Periods of planned and unplanned extraction system down time (that together resulted an approximately 0.4 percent downtime during January 2019) are summarized below.

- **January 9, 2019 (unplanned):** The extraction well system was offline from 10:54 a.m. to 12:40 a.m. to change out the Clarifier Feed Pump (P-400) and the microfilter modules. Extraction system downtime was 1 hour 46 minutes.
- **January 13, 2019 (unplanned):** The extraction well system was offline from 7:16 a.m. to 8:24 a.m. to change out the microfilter modules. Extraction system downtime was 1 hour 8 minutes.
- **January 22, 2019 (unplanned):** The extraction well system was offline from 10:48 a.m. to 10:58 a.m. due to a programmable logic controller (PLC) and human machine interface (HMI) connectivity issue. Extraction system downtime was 10 minutes.
- **January 22, 2019 (unplanned):** The extraction well system was offline from 7:00 p.m. to 7:14 p.m. due to a PLC and HMI connectivity issue. Extraction system downtime was 14 minutes.

4.2 February 2019

During February 2019, extraction well TW-3D operated at a target pump rate of 135 gpm excluding periods of planned and unplanned downtime. Extraction wells TW-2D and TW-2S were not operated during February 2019. Extraction well PE-01 was only operated to collect a sample. The operational run time for the IM-3 groundwater extraction system (combined or individual pumping) was 97.5 percent during the February 2019 reporting period.

The IM-3 facility treated approximately 5,299,182 gallons of extracted groundwater during February 2019. The IM-3 facility treated approximately 400 gallons of purge water and no groundwater from injection well backwashing/re-development during February 2019. Two containers of solids from the IM-3 facility were transported offsite during February 2019.

Periods of planned and unplanned extraction system down time (that together resulted an approximately 2.5 percent downtime during February 2019) are summarized below.

- **February 3, 2019 (unplanned):** The extraction well system was offline from 4:54 a.m. to 6:46 a.m. to change out the microfilter modules. Extraction system downtime was 1 hour 52 minutes.
- **February 6, 2019 (unplanned):** The extraction well system was offline from 10:14 a.m. to 10:16 a.m., from 10:18 a.m. to 10:20 a.m., and again from 10:26 a.m. to 10:36 a.m. due to a PLC and HMI connectivity issue. Combined extraction system downtime was 14 minutes.
- **February 7, 2019 (unplanned):** The extraction well system was offline from 10:50 a.m. to 11:52 a.m. to replace the flow meter Treated Water Transfer Pump (P-700) and clean sensor (FSL-201). Extraction system downtime was 1 hour 2 minutes.
- **February 8 - 9, 2019 (unplanned):** The extraction well system was offline from 7:38 a.m. to 7:58 a.m. on February 8, 2019 and from 8:16 p.m. to 9:28 p.m. February 9, 2019 to maintain appropriate water levels in Raw Water Storage Tank (T-100). There was a blockage downstream from the pump (P-200) that restricted flow and had no effect on reducing the high-water level at T-100. The extraction well was shut down so that T-100 could recover to proper water levels. Combined extraction system downtime was 1 hour 32 minutes.
- **February 12, 2019 (unplanned):** The extraction well system was offline from 3:08 a.m. to 3:26 a.m. due to a City of Needles power outage. Extraction system downtime was 18 minutes.
- **February 17, 2019 (unplanned):** The extraction well system was offline from 12:58 a.m. to 1:58 a.m. to maintain appropriate water levels in T-100. There was a blockage further downstream from P-200 that restricted flow and had no effect on reducing the high-water level at T-100. The extraction well was shut down so that T-100 could recover to proper water levels. Extraction system downtime was 1 hour.
- **February 18, 2019 (unplanned):** The extraction well system was offline from 3:02 a.m. to 3:38 a.m. due to a City of Needles power outage. Extraction system downtime was 36 minutes.
- **February 18-22, 2019 (unplanned):** The extraction well system was offline from 9:22 p.m. to 10:22 p.m. on February 18, 2019; from 12:18 p.m. to 1:54 p.m. on February 19, 2019; from 2:12 a.m. to 2:52 a.m. and from 5:18 p.m. to 6:26 p.m. on February 20, 2019; from 3:58 a.m. to 4:48 a.m. and from 10:40 a.m. to 11:28 a.m. on February 21, 2019; and from 3:14 a.m. to 4:00 a.m. on February 22, 2019 to maintain appropriate water levels in T-100. There was a blockage downstream from P-200 that restricted flow and had no effect on reducing the high-water level at T-100. The extraction well was shut down so that T-100 could recover to proper water levels. Combined extraction system downtime was 3 hours 48 minutes.
- **February 22, 2019 (unplanned):** The extraction well system was offline from 8:48 a.m. to 11:28 a.m. to remove a blockage in the piping between the oxidation tanks T-301B and T-301C that was causing the previous high-water levels in T-100. Extraction system downtime was 2 hours 40 minutes.
- **February 27, 2019 (unplanned):** The extraction well system was offline from 9:10 a.m. to 10:10 a.m. to change out the microfilter modules. Extraction system downtime was 1 hour.

4.3 March 2019

During March 2019, extraction well TW-3D operated at a target pump rate of 135 gpm excluding periods of planned and unplanned downtime. Extraction wells TW-2D and TW-2S were not operated during March 2019. Extraction well PE-01 was only operated to collect a sample. The operational run time for

the IM-3 groundwater extraction system (combined or individual pumping) was 99.0 percent during the March 2019 reporting period.

The IM-3 facility treated approximately 5,985,272 gallons of extracted groundwater during March 2019. The IM-3 facility treated no purge water and no groundwater from injection well backwashing/re-development during March 2019. Two containers of solids from the IM-3 facility were transported offsite during March 2019.

Periods of planned and unplanned extraction system down time (that together resulted an approximately 1.0 percent downtime during March 2019) are summarized below.

- **March 13, 2019 (unplanned):** The extraction well system was offline from 9:12 a.m. to 9:18 a.m., from 9:38 a.m. to 9:40 a.m., from 9:42 a.m. to 9:46 a.m., from 9:48 a.m. to 9:50 a.m., and from 9:52 a.m. to 9:54 a.m. due to a PLC and HMI connectivity issue. Extraction system downtime was 16 minutes.
- **March 14, 2019 (unplanned):** The extraction well system was offline from 8:58 a.m. to 11:08 a.m. to change out the microfilter modules. Extraction system downtime was 2 hours 10 minutes.
- **March 17, 2019 (unplanned):** The extraction well system was offline from 1:30 p.m. to 2:32 p.m. due to a high-water level in Raw Water Storage Tank (T-100). The plant was shut down so the tank could drain. Extraction system downtime was 1 hour 2 minutes.
- **March 26, 2019 (unplanned):** The extraction well system was offline from 12:28 a.m. to 2:42 a.m. due to a micro-filter malfunction. The plant was shut down to replace the air controller on a pneumatic valve. Extraction system downtime was 2 hours 14 minutes.
- **March 26, 2019 (unplanned):** The extraction well system was offline from 9:00 a.m. to 9:16 a.m. because of a high-water level in the Iron Oxidation Reactor 3 Tank (T-301C). Plant was shut down so the tank could drain. Extraction system downtime was 16 minutes.
- **March 28, 2019 (unplanned):** The extraction well system was offline from 1:00 p.m. to 2:44 p.m. due to a high-water level in T-100. Plant was shut down so the tank could drain. Extraction system downtime was 1 hour 44 minutes.

5. Sampling and Analytical Procedures

With the exception of pH, all samples were collected at the designated sampling locations and placed directly into containers provided by 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.

During the First Quarter 2019, analysis of pH was conducted by field method pursuant to the Regional Water Board letter dated October 16, 2007 (subject: Clarification of Monitoring and Reporting Program Requirements), authorizing pH measurements to be conducted in the field. The field method pH samples were collected at the designated sampling locations and field tested within 15 minutes of sampling.

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

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

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

6. Analytical Results

Laboratory reports for samples collected in the First Quarter 2019 were prepared by certified analytical laboratories, and are presented in Appendix A.

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

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

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

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

7. Conclusions

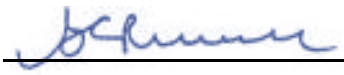
There were no exceedances of effluent limitations during the reporting period.

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

8. Certification

Certification Statement:

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

Signature: 

Name: Curt Russell

Company: Pacific Gas and Electric Company

Title: Topock Site Manager

Date: April 15, 2019

Tables

Table 1. Sampling Station Descriptions

First Quarter 2019 Monitoring Report for Interim Measure No. 3 Groundwater Treatment System

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

Note:

= Sequential sample identification number at each sample station.

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

Table 2. Flow Monitoring Results

First Quarter 2019 Monitoring Report for Interim Measure No. 3 Groundwater Treatment System

Parameter	System Influent[a,b] (gpm)	System Effluent[b] (gpm)	Reverse Osmosis Concentrate[b] (gpm)
January 2019 Average Monthly Flowrate	134.2	135.6	0
February 2019 Average Monthly Flowrate	131.4	133.3	0.1
March 2019 Average Monthly Flowrate	134.1	135.4	0

Notes:

gpm: gallons per minute

[a] Extraction well TW-3D was operated during the First Quarter 2019. PE-01 was only operated to collect a sample. Extraction wells TW-2D and TW2S were not operated during First Quarter 2019.

[b] The difference between influent flow rate and the sum of the effluent and reverse osmosis concentrate flow rates during the First Quarter 2019 is approximately 1.2 percent.

Table 3. Sample Collection Dates

First Quarter 2019 Monitoring Report for Interim Measure No. 3 Groundwater Treatment System

Parameter	Sample Collection Dates	Results
Influent	January 9, 2019 February 5, 2019 March 5, 2019	See Table 4
Effluent	January 9, 2019 February 5, 2019 March 5, 2019	See Table 5
Reverse Osmosis Concentrate	January 9, 2019	See Table 6
Sludge[a]	January 9, 2019	See Table 7

Notes:

[a] Sludge samples analysis is required quarterly by composite; sludge samples were collected from each container prior to shipment off-site, and combined for the composite sample of the preceding quarter.

Table 4. Influent Monitoring Results [a]

First Quarter 2019 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

Sampling Frequency		Monthly						Quarterly																
Analytes		TDS	Turbidity	Specific Conductance	Field pH [c]	Chromium	Hexavalent Chromium	Aluminium	Ammonia (as N)	Antimony	Arsenic	Barium	Boron	Copper	Fluoride	Lead	Manganese	Molybdenum	Nickel	Nitrate/Nitrite (as N)	Sulfate	Iron	Zinc
Units [b]		mg/L	NTU	µmhos/cm	pH units	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	mg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	µg/L	µg/L
MDL		50.0	0.100	0.100	---	0.650	3.30	40.0	0.0500	0.160	0.0810	0.150	0.0740	0.550	0.0320	0.130	0.260	0.210	0.260	0.160	1.10	18.0	2.30
Sample ID	Date																							
SC-100B-WDR-582	**1/9/2019**	**4500**	**0.320**	**7900**	**7.3**	**470**	**510**	**ND (50.0)**	**ND (0.0750)**	**ND (0.500)**	**2.50**	**31.0**	**1.00 J**	**ND (1.00)**	**2.50**	**ND (1.00)**	**7.30**	**20.0**	**ND (1.00)**	**2.90**	**510**	**ND (20.0)**	**ND (10.0)**
RL		50.0	0.100	0.100	---	5.00	20.0	50.0	0.200	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-100B-WDR-583	**2/5/2019**	**4400**	**0.100**	**7500**	**7.0**	**500**	**440**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**8.10**	**---**	**---**	**---**	**---**	**ND (20.0)**	**---**
RL		50.0	0.100	0.100	---	5.00	20.0	---	---	---	---	---	---	---	---	---	0.500	---	---	---	---	20.0	---
SC-100B-WDR-584	**3/5/2019**	**4400**	**0.230**	**7500**	**7.0**	**530**	**500**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**8.90**	**---**	**---**	**---**	**---**	**ND (20.0)**	**---**
RL		50.0	0.100	0.100	---	5.00	20.0	---	---	---	---	---	---	---	---	---	0.500	---	---	---	---	20.0	---

Notes:

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

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

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

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

Table 5. Effluent Monitoring Results [a]

First Quarter 2019 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

Effluent Limits[b]		TDS	Turbidity	Specific Conductance	Field pH [e]	Chromium	Hexavalent Chromium	Aluminiur	Ammonia (as N)	Antimony	Arsenic	Barium	Boron	Copper	Fluoride	Lead	Manganese	Molybdenum	Nickel	Nitrate/Nitrite (as N)	Sulfate	Iron	Zinc
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**																					
Analytes		TDS	Turbidity	Specific Conductance	Field pH [e]	Chromium	Hexavalent Chromium	Aluminiur	Ammonia (as N)	Antimony	Arsenic	Barium	Boron	Copper	Fluoride	Lead	Manganese	Molybdenum	Nickel	Nitrate/Nitrite (as N)	Sulfate	Iron	Zinc
Units [c]		mg/L	NTU	µmhos/cm	pH units	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	mg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	µg/L	µg/L
MDL [d]		50.0	0.100	0.100	---	0.130	0.0330	40.0	0.0500	0.160	0.0810	0.150	0.0740	0.550	0.0320	0.130	0.260	0.210	0.260	0.160	1.10	18.0	2.30
Sample ID	**Date**																						
SC-700B-WDR-582	**1/9/2019**	**4600**	**0.190**	**8000**	**7.1**	**ND (1.00)**	**ND (0.200)**	**ND (50.0)**	**ND (0.0620)**	**ND (0.500)**	**ND (0.100)**	**18.0**	**1.10**	**ND (1.00)**	**2.20**	**ND (1.00)**	**2.60**	**20.0**	**1.20**	**2.90**	**510**	**ND (20.0)**	**ND (10.0)**
RL		50.0	0.100	0.100	---	1.00	0.200	50.0	0.200	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-583	**2/5/2019**	**4200**	**0.130**	**7600**	**7.0**	**ND (1.00)**	**ND (1.00)**	**ND (50.0)**	**ND (0.200)**	**ND (0.500)**	**0.190**	**14.0**	**0.990**	**ND (1.00)J**	**2.40**	**ND (1.00)**	**6.90**	**21.0**	**ND (1.00)**	**2.90**	**500**	**ND (20.0)**	**ND (10.0)**
RL		50.0	0.100	0.100	---	1.00	1.00	50.0	0.200	0.500	0.100	1.00	0.100	1.00	0.500	1.00	0.500	0.500	1.00	0.250	50.0	20.0	10.0
SC-700B-WDR-584	**3/5/2019**	**4400**	**0.260**	**7500**	**7.1**	**ND (1.00)**	**ND (0.200)**	**ND (50.0)**	**ND (0.200)**	**ND (0.500)**	**0.220**	**15.0**	**1.00**	**ND (1.00)**	**2.30**	**ND (1.00)**	**13.0**	**24.0**	**ND (1.00)**	**3.00**	**510**	**ND (20.0)**	**ND (10.0)**
RL		50.0	0.100	0.100	---	1.00	0.200	50.0	0.200	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. Reverse Osmosis Concentrate Monitoring Results[a]

First Quarter 2019 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

Sampling Frequency		Quarterly																				
Analytes		TDS	Specific Conductance	Field pH [c]	Chromium	Hexavalent Chromium	Antimony	Arsenic	Barium	Beryllium	Cadmium	Cobalt	Copper	Fluoride	Lead	Molybdenum	Mercury	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
Units [b]		mg/L	µmhos/cm	pH units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
MDL		500	0.100	---	0.00013	0.00083	0.00078	0.000081	0.00075	0.0011	0.00026	0.000042	0.0027	0.130	0.00064	0.0011	0.00013	0.00026	0.0018	0.0012	0.00096	0.00028	0.0023
Sample ID	Date																						
SC-701-WDR-582	**1/9/2019**	**31000**	**45000**	**7.6**	**0.00790**	**ND (0.0050)**	**ND (0.0025)**	**0.00190**	**0.110**	**ND (0.0120)**	**ND (0.0025)**	**0.000500**	**ND (0.0050)**	**17.0**	**ND (0.0050)**	**0.180**	**0.00110 J**	**0.0210**	**0.0330**	**ND (0.0025)**	**ND (0.0025)**	**0.00390**	**ND (0.0100)**
RL		500	0.100	---	0.0010	0.0050	0.0025	0.00010	0.0050	0.0120	0.0025	0.00050	0.0050	2.00	0.0050	0.0025	0.00020	0.0010	0.0025	0.0025	0.0025	0.0010	0.0100

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. Sludge Monitoring Results[a]

First Quarter 2019 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

Sampling Frequency		Quarterly																	
Analytes		Chromium	Hexavalent Chromium	Antimony	Arsenic	Barium	Beryllium	Cadmium	Cobalt	Copper	Fluoride	Lead	Molybdenum	Mercury	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
Units[b]		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
MDL		0.720	0.640	0.730	1.20	0.690	0.480	0.590	0.630	2.00	0.150	0.650	0.660	0.0590	0.750	1.30	1.40	0.780	0.490	0.660
Sample ID	Date																			
Phase Separator-582-Sludge	**1/9/2019**	**3700**	**56.0**	**ND (4.40)**	**23.0**	**72.0**	**ND (2.20)**	**ND (2.20)**	**4.60**	**210**	**17.0**	**ND (2.20)**	**8.10**	**ND (0.220)**	**35.0**	**ND (2.20)**	**ND (2.20)**	**13.0**	**54.0**	**52.0**
RL		2.20	2.20	4.40	2.20	2.20	2.20	2.20	2.20	4.40	2.20	2.20	2.20	0.220	2.20	2.20	2.20	4.40	2.20	2.20

Notes:

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

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

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

[c] Sludge samples analysis is required quarterly by composite; sludge samples were collected from each container prior to shipment off-site, and combined for the composite sample of the preceding quarter.

Table 8. Monitoring Information

First Quarter 2019 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-582	Scott O'Donnell	1/9/2019	8:45:00 AM	ASSET	EPA 120.1	SC	1/9/2019	Lila Ramit
					ASSET	EPA 200.7	AL	1/23/2019	Claire Ignacio
					ASSET	EPA 200.7	B	1/23/2019	Claire Ignacio
					ASSET	EPA 200.7	FE	1/23/2019	Claire Ignacio
					ASSET	EPA 200.8	AS	1/15/2019	Claire Ignacio
					ASSET	EPA 200.8	BA	1/23/2019	Claire Ignacio
					ASSET	EPA 200.8	CR	1/15/2019	Claire Ignacio
					ASSET	EPA 200.8	CU	1/23/2019	Claire Ignacio
					ASSET	EPA 200.8	MN	1/15/2019	Claire Ignacio
					ASSET	EPA 200.8	MO	1/15/2019	Claire Ignacio
					ASSET	EPA 200.8	NI	1/15/2019	Claire Ignacio
					ASSET	EPA 200.8	PB	1/15/2019	Claire Ignacio
					ASSET	EPA 200.8	SB	1/15/2019	Claire Ignacio
					ASSET	EPA 200.8	ZN	1/15/2019	Claire Ignacio
					ASSET	EPA 218.6	CR6	1/9/2019	Ria Abes
					ASSET	EPA 300.0	FL	1/14/2019	Hanah Glodoviza
					ASSET	EPA 300.0	SO4	1/14/2019	Hanah Glodoviza
					Field	HACH	PH	1/9/2019	Scott O'Donnell
					ASSET	SM 2540C	TDS	1/10/2019	Lila Ramit
					ASSET	SM 4500-NO3F	NO3NO2N	1/10/2019	Quennie Manimtim
					ASSET	SM2130B	TRB	1/9/2019	Lila Ramit
					BCLabs	SM4500NH3G	NH3N	1/17/2019	Quennie Manimtim
SC-100B	SC-100B-WDR-583	Scott O'Donnell	2/5/2019	12:35:00 PM	ASSET	EPA 120.1	SC	2/6/2019	Lila Ramit
					ASSET	EPA 200.7	FE	2/19/2019	Claire Ignacio
					ASSET	EPA 200.8	CR	2/6/2019	Claire Ignacio
					ASSET	EPA 200.8	MN	2/6/2019	Claire Ignacio
					ASSET	EPA 218.6	CR6	2/6/2019	Hanah Glodoviza
		Ron Phelps			Field	HACH	PH	2/5/2019	Ron Phelps
		Scott O'Donnell			ASSET	SM 2540C	TDS	2/6/2019	Lila Ramit
					ASSET	SM2130B	TRB	2/6/2019	Lila Ramit
SC-100B	SC-100B-WDR-584	Ron Phelps	3/5/2019	9:35:00 AM	ASSET	EPA 120.1	SC	3/6/2019	Lila Ramit
					ASSET	EPA 200.7	FE	3/20/2019	Claire Ignacio
					ASSET	EPA 200.8	CR	3/8/2019	Claire Ignacio
					ASSET	EPA 200.8	MN	3/8/2019	Claire Ignacio
					ASSET	EPA 218.6	CR6	3/8/2019	Ria Abes
					Field	HACH	PH	3/5/2019	Ron Phelps
					ASSET	SM 2540C	TDS	3/6/2019	Lila Ramit
					ASSET	SM2130B	TRB	3/6/2019	Lila Ramit

Table 8. Monitoring Information

First Quarter 2019 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-582	Scott O'Donnell	1/9/2019	8:50:00 AM	ASSET	EPA 120.1	SC	1/9/2019	Lila Ramit
					ASSET	EPA 200.7	AL	1/23/2019	Claire Ignacio
					ASSET	EPA 200.7	B	1/23/2019	Claire Ignacio
					ASSET	EPA 200.7	FE	1/23/2019	Claire Ignacio
					ASSET	EPA 200.8	AS	1/15/2019	Claire Ignacio
					ASSET	EPA 200.8	BA	1/23/2019	Claire Ignacio
					ASSET	EPA 200.8	CR	1/15/2019	Claire Ignacio
					ASSET	EPA 200.8	CU	1/23/2019	Claire Ignacio
					ASSET	EPA 200.8	MN	1/15/2019	Claire Ignacio
					ASSET	EPA 200.8	MO	1/15/2019	Claire Ignacio
					ASSET	EPA 200.8	NI	1/15/2019	Claire Ignacio
					ASSET	EPA 200.8	PB	1/15/2019	Claire Ignacio
					ASSET	EPA 200.8	SB	1/15/2019	Claire Ignacio
					ASSET	EPA 200.8	ZN	1/15/2019	Claire Ignacio
					ASSET	EPA 218.6	CR6	1/9/2019	Ria Abes
					ASSET	EPA 300.0	FL	1/14/2019	Hanah Glodoviza
					ASSET	EPA 300.0	SO4	1/14/2019	Hanah Glodoviza
					Field	HACH	PH	1/9/2019	Scott O'Donnell
					ASSET	SM 2540C	TDS	1/10/2019	Lila Ramit
					ASSET	SM 4500-NO3F	NO3NO2N	1/10/2019	Quennie Manimtim
					ASSET	SM2130B	TRB	1/9/2019	Lila Ramit
					BCLabs	SM4500NH3G	NH3N	1/17/2019	Quennie Manimtim
SC-700B	SC-700B-WDR-583	Scott O'Donnell	2/5/2019	12:37:00 PM	ASSET	EPA 120.1	SC	2/6/2019	Lila Ramit
					ASSET	EPA 200.7	AL	2/19/2019	Claire Ignacio
					ASSET	EPA 200.7	B	2/19/2019	Claire Ignacio
					ASSET	EPA 200.7	FE	2/19/2019	Claire Ignacio
					ASSET	EPA 200.8	AS	2/19/2019	Claire Ignacio
					ASSET	EPA 200.8	BA	2/6/2019	Claire Ignacio
					ASSET	EPA 200.8	CR	2/6/2019	Claire Ignacio
					ASSET	EPA 200.8	CU	2/22/2019	Claire Ignacio
					ASSET	EPA 200.8	MN	2/6/2019	Claire Ignacio
					ASSET	EPA 200.8	MO	2/18/2019	Claire Ignacio
					ASSET	EPA 200.8	NI	2/6/2019	Claire Ignacio
					ASSET	EPA 200.8	PB	2/6/2019	Claire Ignacio
					ASSET	EPA 200.8	SB	2/6/2019	Claire Ignacio
					ASSET	EPA 200.8	ZN	2/6/2019	Claire Ignacio
					ASSET	EPA 218.6	CR6	2/6/2019	Hanah Glodoviza
					ASSET	EPA 300.0	FL	2/11/2019	Hanah Glodoviza

Table 8. Monitoring Information

First Quarter 2019 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-583	Scott O'Donnell	2/5/2019	12:37:00 PM	ASSET	EPA 300.0	SO4	2/11/2019	Hanah Glodoviza
		Ron Phelps			Field	HACH	PH	2/5/2019	Ron Phelps
		Scott O'Donnell			ASSET	SM 2540C	TDS	2/6/2019	Lila Ramit
					ASSET	SM 4500-NO3F	NO3NO2N	2/7/2019	Quennie Manimtim
					ASSET	SM2130B	TRB	2/6/2019	Lila Ramit
					BCLabs	SM4500NH3G	NH3N	2/12/2019	Quennie Manimtim
SC-700B	SC-700B-WDR-584	Ron Phelps	3/5/2019	9:38:00 AM	ASSET	EPA 120.1	SC	3/6/2019	Lila Ramit
					ASSET	EPA 200.7	AL	3/20/2019	Claire Ignacio
					ASSET	EPA 200.7	B	3/20/2019	Claire Ignacio
					ASSET	EPA 200.7	FE	3/20/2019	Claire Ignacio
					ASSET	EPA 200.8	AS	3/12/2019	Claire Ignacio
					ASSET	EPA 200.8	BA	3/8/2019	Claire Ignacio
					ASSET	EPA 200.8	CR	3/8/2019	Claire Ignacio
					ASSET	EPA 200.8	CU	3/12/2019	Claire Ignacio
					ASSET	EPA 200.8	MN	3/8/2019	Claire Ignacio
					ASSET	EPA 200.8	MO	3/8/2019	Claire Ignacio
					ASSET	EPA 200.8	NI	3/8/2019	Claire Ignacio
					ASSET	EPA 200.8	PB	3/8/2019	Claire Ignacio
					ASSET	EPA 200.8	SB	3/8/2019	Claire Ignacio
					ASSET	EPA 200.8	ZN	3/8/2019	Claire Ignacio
					ASSET	EPA 218.6	CR6	3/8/2019	Ria Abes
					ASSET	EPA 300.0	FL	3/8/2019	Ria Abes
					ASSET	EPA 300.0	SO4	3/8/2019	Ria Abes
					Field	HACH	PH	3/5/2019	Ron Phelps
					ASSET	SM 2540C	TDS	3/6/2019	Lila Ramit
					ASSET	SM 4500-NO3F	NO3NO2N	3/7/2019	Quennie Manimtim
					ASSET	SM2130B	TRB	3/6/2019	Lila Ramit
					BCLabs	SM4500NH3G	NH3N	3/12/2019	Quennie Manimtim
SC-701	SC-701-WDR-582	Scott O'Donnell	1/9/2019	8:30:00 AM	ASSET	EPA 120.1	SC	1/9/2019	Lila Ramit
					ASSET	EPA 200.8	AG	1/15/2019	Claire Ignacio
					ASSET	EPA 200.8	AS	1/15/2019	Claire Ignacio
					ASSET	EPA 200.8	BA	1/23/2019	Claire Ignacio
					ASSET	EPA 200.8	BE	1/23/2019	Claire Ignacio
					ASSET	EPA 200.8	CD	1/15/2019	Claire Ignacio
					ASSET	EPA 200.8	CO	1/15/2019	Claire Ignacio
					ASSET	EPA 200.8	CR	1/15/2019	Claire Ignacio
					ASSET	EPA 200.8	CU	1/23/2019	Claire Ignacio
					ASSET	EPA 200.8	MN	1/15/2019	Claire Ignacio

Table 8. Monitoring Information

First Quarter 2019 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-582	Scott O'Donnell	1/9/2019	8:30:00 AM	ASSET	EPA 200.8	MO	1/15/2019	Claire Ignacio
					ASSET	EPA 200.8	NI	1/15/2019	Claire Ignacio
					ASSET	EPA 200.8	PB	1/15/2019	Claire Ignacio
					ASSET	EPA 200.8	SB	1/15/2019	Claire Ignacio
					ASSET	EPA 200.8	SE	1/23/2019	Claire Ignacio
					ASSET	EPA 200.8	TL	1/23/2019	Claire Ignacio
					ASSET	EPA 200.8	V	1/15/2019	Claire Ignacio
					ASSET	EPA 200.8	ZN	1/15/2019	Claire Ignacio
					ASSET	EPA 218.6	CR6	1/9/2019	Ria Abes
					ASSET	EPA 245.1	HG	1/15/2019	Mark Gesmundo
					ASSET	EPA 300.0	FL	1/14/2019	Hanah Glodoviza
					Field	HACH	PH	1/9/2019	Scott O'Donnell
					ASSET	SM 2540C	TDS	1/10/2019	Lila Ramit
Phase Separator	Phase Separator-582-Sludge	Scott O'Donnell	1/9/2019	8:20:00 AM	ASSET	EPA 300.0	FL	1/15/2019	Hanah Glodoviza
					ASSET	EPA 6010B	AG	1/15/2019	Claire Ignacio
					ASSET	EPA 6010B	AS	1/15/2019	Claire Ignacio
					ASSET	EPA 6010B	BA	1/15/2019	Claire Ignacio
					ASSET	EPA 6010B	BE	1/15/2019	Claire Ignacio
					ASSET	EPA 6010B	CD	1/15/2019	Claire Ignacio
					ASSET	EPA 6010B	CO	1/15/2019	Claire Ignacio
					ASSET	EPA 6010B	CR	1/15/2019	Claire Ignacio
					ASSET	EPA 6010B	CU	1/15/2019	Claire Ignacio
					ASSET	EPA 6010B	MN	1/15/2019	Claire Ignacio
					ASSET	EPA 6010B	MO	1/15/2019	Claire Ignacio
					ASSET	EPA 6010B	NI	1/15/2019	Claire Ignacio
					ASSET	EPA 6010B	PB	1/15/2019	Claire Ignacio
					ASSET	EPA 6010B	SB	1/15/2019	Claire Ignacio
					ASSET	EPA 6010B	SE	1/15/2019	Claire Ignacio
					ASSET	EPA 6010B	TL	1/15/2019	Claire Ignacio
					ASSET	EPA 6010B	V	1/15/2019	Claire Ignacio
					ASSET	EPA 6010B	ZN	1/15/2019	Claire Ignacio
					ASSET	EPA 7471A	HG	1/10/2019	Mark Gesmundo
					ASSET	SW 7199	CR6	1/11/2019	Ria Abes

Table 8. Monitoring Information

First Quarter 2019 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

Notes:

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

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

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

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

ALKB =	alkalinity, bicarb as CaCO3	MO =	molybdenum
ALKC =	alkalinity, carb as CaCO3	MOIST =	moisture
AL =	aluminum	NH3N =	ammonia (as N)
Ag =	silver	NI =	nickel
AS =	arsenic	NO3NO2N =	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	SO4 =	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

Parcel No. 650-151-06
Fort Mojave Indian Tribe
(Formerly owned by PG&E)

BLM

BLM

East Mesa
Injection Area

CW-4
CW-3
CW-2
CW-1

IW-1
IW-2
IW-3

IM3
Treatment
Plant

66

Park Moabi Rd./National Trails Highway

Colorado River

MW-20
Bench

TW-02S
TW-03D
TW-02D
MW-20-130
PE-01

Historic Route 66

BAT CAVE WASH

BN&SF RAILROAD

INTERSTATE 40

500
550
600

LEGEND

- IM3 Injection Well
- Observation Well Cluster
- Compliance Monitoring Well Cluster
- Exploratory Boring
- Groundwater Monitoring Well
- IM Extraction Well
- IM3 Treatment Facility Pipelines
- IM3 Effluent Pipeline

N

0 170 340 680 Feet

California State Plane NAD83 Zone 5 US Feet

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

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

ALM

LEAK DETECTION PANEL - 003

–120V

PLANT ALARM R YL1000 | PLANT ALARM R YL1001 | PLANT ALARM R YL1002 | PLANT ALARM R YL1003

PLANT ALARM HORN H YL1004

TREATMENT PLANT CONTROL PANEL LCP - 100

CLOSED | OPENED | OPEN | TEMP REM | pH | LVL | COND.

RUN | ON | REM | FLOW

LVL | POSITION | FLOW CONTROL

RUN | ON | REM | PSL | FLOW FLOW

CH-104-1HB-E
TP-PR-10-10- 09 [B6]
SULFURIC ACID P-801B
1/2"-CH-104-1HB-E
V-CH-104-01
BPR

TW-103-1HB
TP-PR-10-10- 08 [D6]
TREATED WATER R.O. BYPASS
4"-TW-103-1HB

TW-105-1HB
TP-PR-10-10- 08 [B6]
R.O. TREATED WATER
4"-TW-105-1HB

STATIC MIXER 4"x3" 4"x3"

120 VAC
AIT 606
AE 606
AIT 702
AE 702
120 VAC

1" V-1390

V-TW-105-02

HS 200 HOA
HS 700 HOA

TW-128-1HB
TP-PR-10-10- 04 [B6]
SEAL WATER
1/2"-TW-128-1HB

N.C. V-TW-114-01
V-TW-114-02

HOA HS 100A

TW-104-1HB
TP-PR-10-10- 08 [A1]
OFF-SPEC RECYCLE FROM R.O. FEED
4"-TW-104-1HB

LIT 200
120 VAC
LE 200

RW-125-1HB
TP-PR-10-10- 07 [B1]
OFF-SPEC RECYCLE FROM MICROFILTER FEED
4"-RW-125-1HB

WS-111-1HB
TP-PR-10-10-06 [C6]
FROM PROCESS DRAINS TANK
4"-WS-111-1HB

4"-TW-114-1HB

LIT 700
120 VAC
LE 700

VFD - 1100

3"-TW-143-1HB

VENT
MANHOLE

27,000 GAL.
TREATED WATER STORAGE TANK
PERMEATE
T-700

6"-DR-115-1HB

PRV 700
SET @ 50 PSI
3"x2" 3"x2"

TOTAL FLOWMETER TO INJECTION WELLS

1"-TW-129-1HB
V-1390
TW-129-1HB
TP-PR-10-10- 09 [C1]
TO POLYELECTROLYTE MAKE-DOWN SYSTEM

1/2"-TW-128-1HB
V-1390
TW-128-1HB
TP-PR-10-10- 04,05..
SEAL WATER TO PUMPS SHTS 04, 05, 06, 07, 08

FUTURE

2"-TW-127-1HB

SAMPLING STATION B

FIT 702
FE 702
SC
4"x3" 4"x3"
TW-120-1HB
MAG
TP-PR-10-10- 11 [C1]
4"-TW-120-1HB
TO INJECTION WELLS
V-TW-120-01

PI 700
V-1390
FIT 700
SC
4"x3" 4"x3"
TW-117-1HB
MAG
TP-PR-10-10- 10 [A1]
TREATED WATER TO BAKER TANKS
V-TW-117-01
V-TW-117-02

RW-107-1KB
TP-PR-10-10-03 [B6]
RAW WATER FROM EXTRACTION WELLS
4" IN 8"-RW-107-1KB

LSH 201A-(H)
SAMPLING STATION A
ZSC 100 ZSO 100 SV 100
90 PSIG AIR SET
4"-RW-110-1HB
F.C.
RW 1KB RW 1HB
V-RW-110-01
FV 100

RO 200
2"-RW-113-1HB
MINIMUM RECIRC. 40 GPM MIN.

6"-DR-101-1HB
V-DR-101-01
V-TW-116-01
V-TW-126-01
6"-TW-116-1HB
6"x3"
T
EJ-TW-116-01
4"x1 1/2"
TS-TW-116-01
P-700
TREATED WATER TRANSFER PUMP 150 GPM X 150 FT. H20

RW-127-1KB
TP-PR-10-10-03 [B6]
FROM VALVE VAULT 1 SPARE
4" IN 8"-RW-127-1KB

NOTE 1
LEAK DETECTION (TYP 8)
NOTE 1
SPARE

4" IN 8"-RW-107-1KB
4" IN 8"-RW-127-1KB
V-RW-107-01 V-RW-127-01
VALVE VAULT No. 4
RW 1HB
RW 1HB
RW 1KB
RW 1KB
FUTURE
4" IN 8" SPARE
4" IN 8" PE-3

27,000 GAL.
RAW WATER STORAGE TANK
T-100

6"-DR-114-1HB
6"-DR-100-1HB
V-DR-100-01

VENT
MANHOLE

V-RW-111-01

SOV 200
1/2" x 3/8"
PI 200
V-1390
SC
EJ-RW-111-01
6"x4"
6"-TW-RW-111-1HB
PS-RW-111-01
4"x3"
V-RW-112-01
P-200
RAW WATER FEED PUMP
190 GPM X 35 FT H20
V-1390

4"x3"
V-RW-112-02
FE 200
FIT 200

3"-TW-126-1HB

FIC 200
ZT 200
SEAL WATER PUMP
25 GPM X 115 FT. H20
3"x1 1/4"
V-TW-126-02
4"x2 1/2"
AIR SET 80 PSIG
FCV - 200
F.C.
4"x2 1/2"

SEAL WATER TANK
PI 1100
PT 1100
T-1100
P-1100
BFP
2"x1"
V-TW-127-01
PS-TW-127-01
PSL 1100

V-1390
V-1390
V-1390
V-1390

TW-125-1HB
2"
TP-PR-10-10- 05,06..
FIELD ROUTE TO FLUSH SYS. HOSE CONNS.

4"-RW-112-1HB
RW-112-1HB
TP-PR-10-10- 05 [C1]
TO TREATMENT SYSTEM CONTINUOUS FLOW

NOTES

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

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

SECONDARY CONTAINMENT - PROCESS PLANT

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

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

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

SCALE NONE

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

PROJ NO. 315994

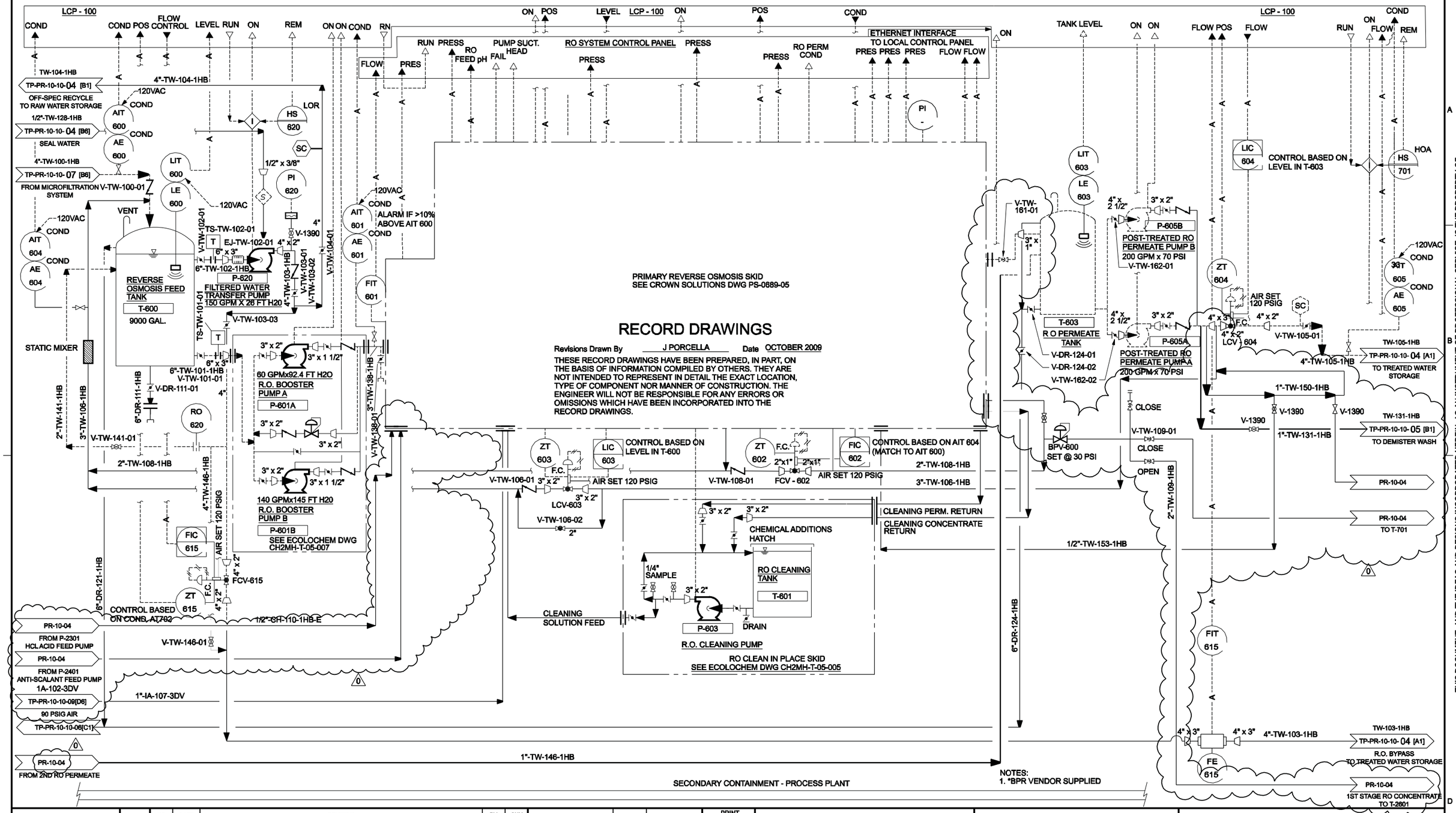
CH2MHILL

PROCESS AND INSTRUMENTATION DIAGRAM
SHEET 04
STORAGE AREA

DWG. NO. TP–PR–10–10–04 REV. 4

BAR IS ONE INCH ON ORIGINAL DRAWING

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



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

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

PRINT DISTRIBUTION

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

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

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

SCALE NONE

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

PROJ NO. 362032

CH2MHILL

PROCESS AND INSTRUMENTATION DIAGRAM
REVERSE OSMOSIS SYSTEM
SHEET ONE OF TWO

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

BAR IS ONE INCH ON ORIGINAL DRAWING. 0 1"

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

COND LVL RUN ON FLOW

PR-10-03 — TO SEAL WATER TRUNK LINE

HOA HS 701

1 1/2" TW-154-1HB

PR-10-03
TO PRIMARY RO FROM P-2301
HCI ACID PUMP

LOCATED IN CHEMICAL STORAGE AREA

1/2" CH-112-1HB

HCI ACID TOTE

HYDRO-CHLORIC ACID (HCI) PUMP SKID SEE CROWN DWG PS-0689-03

FROM P-2302
3/8" CH-113-1HB

LOCATED NEAR EXISTING RO

1/2" CH-114-1HB

SECONDARY RO ANTI-SCALANT CHEMICAL DRUM

ANTISCALANT FEED PUMP SKID SEE CROWN DWG PS-0689-04

PRIMARY RO ANTI-SCALANT CHEMICAL DRUM

1/4" CH-115-1HB
FROM P-2402

V-1390 NO

PR-10-03
TO PRIMARY RO FROM P-2401
ANTI-SCALANT FEED PUMP

1A-102-3DV
TP-PR-10-10-09[06]
90 PSIG AIR

1"-1A-108-3DV

120VAC

AIT 701 COND

AE 701 COND

1 1/2" TW-152-1HB
RECYCLE

1ST STAGE RO CONCENTATE
PR-10-03

1 1/2"-TW-148-1HB

2"x1 1/2"

V-1390 NO

2" TW-109-1HB

V-1390 NC

LIT 701

LE 701

120VAC

VENT

T-2601
SECONDARY RO FEED TANK
SEE CROWN DWG PS-0689-06

1 1/2" TW-149-1HB

V-1390 NC

P-2701
SECONDARY RO FEED PUMP SEE CROWN DWG PS-0689-07

1 1/2" TW-151-1HB

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

1" TW-146-1HB

PERMEATE
PR-10-03
TO T-603 TANK

V-1390

SAMPLING STATION D

SC

PR-10-03
FROM PRIMARY RO

CLOSE

2"x1"

OPEN V-1390

V-DR-112-01

SEAL WATER

SOV 701

S

SEAL WATER
TP-PR-10-10-08 [B6]

1/2"x3/8"

RO CONCENTRATE STORAGE TANK
7,200 GAL.
T-701
8000 GAL.

PI 701

V-1390

TS-TW-111-01

T 6"x1 1/2"

V-TW-111-01

EJ-TW-111-01

6"-TW-111-1HB

P-107

3"x1"

V-TW-112-01

FIT 701

FE 701

RD CONCENTRATE FLOWMETER

3"x1"

MAG

3"x2"

V-TW-112-03

6"-DR-112-1HB

RO CONCENTRATE
TRANSFER PUMP
80 GPM X 85 FT H20

TO TRENCH DRAIN

1" TW-147-1HB

TW-112-1RB
TP-PR-10-10 [C1]
RO CONCENTRATE

RECORD DRAWINGS

Revisions Drawn By J PORCELLA Date OCTOBER 2009

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

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

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

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

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

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

SCALE NONE

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

PROJ NO. 362032

CH2MHILL

PROCESS AND INSTRUMENTATION DIAGRAM
REVERSE OSMOSIS SYSTEM
SHEET TWO OF TWO

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

BAR IS ONE INCH ON ORIGINAL DRAWING. 0 1"

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

CONTROL PANEL

PLC

REM ON RUN REM ON RUN HI TORQUE REM ON RUN CLOSE OPEN REM REM OPEN OPEN LAH TURB OPEN REM RUN LVL ON REM REM LT ON RUNOPEN LAH RM OPEN REM LAH LAH

HS 400A LOR · HS 400B LOR · HS 400C LOR · HS 401 HOA · HS 402 LOR · HS 404 HOA

CH-109-1HB-E
TP-PR-10-10- 09 [C6]
POLYELECTROLYTE FEED CH-108-1HB-E
1/2"-CH-109-1HB-E
V-CH-109-01

TP-PR-10-10- 09 [C6]
POLYELECTROLYTE FEED
1/2"-CH-108-1HB-E
V-CH-108-01

RW-121-1HB
TP-PR-10-10- 05 [C6]
FROM CHEM REDUCTION AND COAGULATION SYSTEM IA-104-3DV
4"-RW-121-1HB

TP-PR-10-10- 09 [D6]
90 PSIG AIR
1"-IA-104-3DV

HS 400 HOA · HS 410 HOA · NSH 400 TORQUE · AIT 400 120VAC TURB · LIT 402 120VAC · SV 404

M-400-A · M-400-B · M-400-C · CL-400 CLARIFIER

SEE PARKSON DRAWING 10066701-01

6"-DR-107-1HB

SV 400 · ZSC 400 · ZSO 400 · AIR SET 120 PSIG · F. C. · FV - 400 · AE 400 TURB · SV 401 120 PSIG AIR SET · PI 401 · PE 401 · LE 402 · M-402

4"-WS-102-1HB

1/4" / 1" SLOPE TO PRE-TREATED WATER TANK

6"-RW-122-1HB
RW-122-1HB
TP-PR-10-10- 07 [B1]
MICROFILTRATION SYSTEM

120 PSIG AIR SET · HS 403 HOA · SV 403 · PI 404 · PE 404 · 1/2" · 2" x 1" · V-WS-103-01 · V-WS-103-02 · WS-103-1HB
TP-PR-10-10- 05 [B1]
SLUDGE RECYCLE

4" x 1" · P-404 SLUDGE RECYCLE PUMP 20 GPM X 30 FT. H2O · 2"-WS-103-1HB · V-WS-109-01 · 2"-WS-109-1HB

SC · ZSC 410 · ZSO 410 · AIR SET 120 PSIG · SV 410 · F. C. · FV - 410 · V-WS-104-01

4"-WS-100-1HB

4" x 1" · 2"-WS-101-1HB · 2" x 1" · V-WS-101-01 · 4" x 2"

P-401 SLUDGE WITHDRAWAL PUMP 20 GPM X 30 FT. H2O

SLUDGE HOLDING TANK 6000 GAL · T-402 · VENT · DECANT

2" x 1" · 2" V-1790 (TYP 5) · 4" (TYP 5) AIR/SIGHT GAP · 4"

PI 403 · PE 403

3% - 5% SOLIDS · 2"-WS-105-1HB · V-WS-108-01 · V-WS-105-01 · 2"-WS-107-1HB · V-WS-107-01 · P-403 SEPARATOR FEED PUMP 20 GPM X 30 FT. H2O · 2" x 1" · 2"-WS-106-1HB · V-WS-106-01 · 4"-WS-110-1HB

HS 900 LOR · 4"-WS-108-1HB · V-WS-110-01

TRUCK FILL FOR OFF-SITE DISPOSAL

120VAC · LIT 900 · LE 900 · 1/2" x 3/8" · VENT

V-WS-111-02 · V-WS-111-03 · 4"-WS-111-1HB · V-WS-111-01 · PS-WS-111-01 · V-1390 · 1"-DR-106-1HB · V-WS-113-01 · 2"-WS-113-1HB · 4" x 2"

WS-111-1HB
TP-PR-10-10- 04 [B1]
TO RAW WATER STORAGE TANK

LSH 405B · FH-WS-106-01 · LSH 405A · SAMPLING STATION E

LSHH 405

UNIT 2 CAKE CAKE · UNIT 1 CAKE CAKE

FH-WS-112-02 · 2"-WS-112-1HB · FH-WS-112-01

480 VAC · LCP - 405

P-405 PHASE SEPARATOR SUMP PUMP PACKAGE 25 GPM x 25 FT. H2O

PUMPOUT VAULT

PS-405 PHASE SEPARATORS ALTERNATING DURING OPERATION

TRENCH
TP-PR-10-10- 08 [D6]
R.O. GRAVITY DRAINS
TRENCH

DR-109-1HB
TP-PR-10-10- 07 [C6]
FROM M.F. SYSTEM GRAVITY DRAIN
3"-DR-109-1HB

TRENCH
TP-PR-10-10- 07 [D6]
FROM M.F. SYSTEM PRETREATED WATER TANK
TRENCH

4"-WS-104-1HB

DR-110-1HB
TP-PR-10-10- 07 [C6]
FILTER BACKWASH FROM MICROFILTRATION SYSTEM
4"-DR-110-1HB

TRENCH
TP-PR-10-10- 05 [D6]
GRAVITY DRAIN
TRENCH

TW-128-1HB
TP-PR-10-10- 04 [B6]
SEAL WATER
1/2"-TW-128-1HB

SECONDARY CONTAINMENT - PROCESS PLANT

T-900A PROCESS SUMP · NOTE 1

LSH 900

PROCESS DRAIN TANK 5,000 GAL. T-900 · P-900 PROCESS DRAIN PUMP · V-DR-113-01 · VERTICAL WET PIT 175 GPM x 37 FT. H2O · 6"-DR-113-1HB

NOTES:

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

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

REVISION APPROVAL

DISCIPLINE	REVIEWED	DISCIPLINE	REVIEWED	DATE
CIVIL		ELECTRICAL		STATUS
STRUCTURAL		INST & CONTROL		REV.
MECHANICAL		ARCHITECTURAL		CLIENT
PROCESS		ENVIRONMENTAL		FIELD
PIPING		GEN. ARRANG.		INTRA CO.

REV 2 DATE 01/23/05

PRINT DISTRIBUTION

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

STATUS

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

SCALE NONE

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

CH2MHILL

PROCESS AND INSTRUMENTATION DIAGRAM
SHEET 06
CLARIFICATION AND SLUDGE REMOVAL

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

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

BAR IS ONE INCH ON ORIGINAL DRAWING. 0 1"

CONTROL PANEL LCP-100

WELL TW-3D CONTROL

WELL TW-2S CONTROL

WELL TW-2D CONTROL

WELL PE-1 CONTROL

LEAK DETECTION PANEL - 003

ALM

120V

LSH LVL RUN ON RM PRESS FLOW LSH LSHH

HOA HS 102

HOA HS 100

HOA HS 101

HOA HS 103

HOLD

LSH 002 LSHH 002

4" IN 8"-RW-141-1KB

FUTURE 4"-RW-140-1HB V-RW-140-01 NOTE 1

VALVE VAULT No. 2

4" IN 8"-RW-142-1KB

FUTURE 4"-RW-139-1HB V-RW-139-01 NOTE 1

3"-RW-138-1HB V-RW-138-01

3" IN 6"-RW-137-1KB

4"-RW-105-1HB

V-RW-105-05

4" IN 8"-FUTURE

4" IN 8"-RW-135-1KB

LSH 102A NOTE 1

FI 102

LSH 001 LSHH 001

VENT LT 100

FE 100 FIT 100 PIT 100 PE 100

3"x2" V-RW-105-02

3"-RW-105-1HB THROTTLING

MAG

V-1390

V-RW-105-01

VALVE VAULT No. 1

Well TW-2S Flowmeter

3" IN 6"-RW-104-1KB

LSH 100A NOTE 1

1" V-1390

LT 101

4" x 3" 4"-RW-105-1HB EJ-RW-105-01

FE 101 FIT 101 PIT 101 PE 101

3"x2" V-RW-102-02

3"-RW-102-1HB THROTTLING

V-RW-102-01

Well TW-2D Flowmeter

3" IN 6"-RW-101-1KB

LSH 101A NOTE 1

4" IN 8"-RW-127-1KB SPARE

4" IN 8"-RW-127-1KB TP-PR-10-10-04 [C1] SPARE TO VALVE VAULT 4

NOTES 1 & 2

V-RW-105-06 THROTTLING V-RW-105-04

V-RW-105-03

4" IN 8"-RW-107-1KB TP-PR-10-10-04 [C1] TO RAW WATER STORAGE

V-RW-108-02 THROTTLING

4"-RW-130-1HB

LT 103 VENT

FE 103 FIT 103 PIT 103 PE 103

3"x2" V-RW-108-01

3"-RW-108-1HB V-RW-130-02 V-RW-130-01

V-1390

NOTE 1 LSH

4" IN 8"-RW-131-1KB TO BAKER TANKS V-RW-131-01

4" IN 8"-RW-133-1KB

LSH 103A NOTE 1

4"x3" V-RW-132-02

Well PE-1 Flowmeter

VENT LT 102

PI 102 PIT 102 PRV 102 PE 102 FIT 102 FE 102

V-1390 V-1390 V-1390

SET AT 120 PSI

3"x2" 3"-RW-134-1HB V-RW-134-01 3"x2"

MAG

4"x3" V-RW-134-02

Well TW-3D Flowmeter

LSH 102

WELL VAULT No. 4

LSH 100

PI 100 V-1390 3"-RW-103-1HB V-RW-103-01 V-RW-103-02

WELL VAULT No. 2

LSH 101

PRV 101 PI 101 V-1390 SET AT 120 PSI 3"-RW-100-1HB V-RW-100-01 V-RW-100-02

WELL VAULT No. 1

LSH 103

PRV 103 PI 103 V-1390 SET AT 120 PSI 3"x2" 3"-RW-132-1HB V-RW-132-01 V-RW-132-02

WELL VAULT No. 3

LE 102 P-102

EXTRACTION WELL TW-3D

135 GPM x 248 FT. H20

LE 100 P-100

EXTRACTION WELL TW-2S

40 GPM x 180 FT. H20

LE 101 P-101

EXTRACTION WELL TW-2D

90 GPM x 245 FT. H20

LE 103 P-103

EXTRACTION WELL PE-1

40 GPM x 235 FT. H20

NOTES

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

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

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

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

STATUS	REV	DATE	SDE	PEM
PRELIMINARY				
FOR REVIEW AND APPROVAL	D	07/28/04		
APPROVED FOR CONSTRUCTION	0	09/03/04	KLM	TP
REVISED & APPROVED FOR CONSTRUCTION	7	12/9/05	AJ for KLM	AJ

SCALE NONE

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

REGISTERED PROFESSIONAL ENGINEER KENNETH L. MARTINS No. CH4876 CIVIL STATE OF CALIFORNIA

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

PROJ NO. 315994

CH2MHILL

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

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

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

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

FIBER OPTIC ETHERNET LINK TO TREATMENT PLANT CONTROL PANEL LCP-100

INJECTION WELL CONTROL PANEL

PLC | LAH | FLOW | PRESS | CLOSE | OPEN | CLOSED | OPENED | LAH | FLOW | LVL | PRESS | CLOSE | OPEN | CLOSED | OPENED | LVL

SOLAR VOLTAIC POWER SUPPLY

Well IW-02 Flowmeter

FIT 1202 | PIT 1202 | FE 1202 | ZSC 1202 | ZSO 1202 | SV 1202 | S | PI 1202 | LIT 1202

V-1390 | V-1390 | V-1390

4"-TW-142-1HB | V-TW-142-01 | 4" x 2" | MAG | UG | AG | 1KA | 1HB

FV-1202
SHUT-OFF VALVE
CLA-VAL (Or Equivalent)

V-TW-142-02 | 3" x 2"
THROTTLING

VAC / PRESSURE GAUGE

1HB | 3DA | 3"-TW-145-3DA

V-TW-145-01 | 3" | V-AHP-101-01 | 1/2"-AHP-101-3DA | FLANGED WELL HEAD

NOTE 1

AIR / VACUUM RELEASE
PI 1202A | V-1910 | 1/2" | V-AHP-103-02 | V-AHP-103-01 | V-1301 | V-1301 | 1"-AHP-103-2CA

INJECTION WELL IW-02

LSH 1202 | LE 1202

4"-TW-123-1KA

Well IW-03 Flowmeter

3"-TW-133-1KA
SPARE

AIR RELEASE VALVE
V-1911 | 3/4" | V-1100

FUTURE | 4"

TW-120-1HB
TP-PR-10-10-04 [C6]
R.O. PERMEATE
FROM TREATED WATER STORAGE

4"-TW-120-1HB | 4"-TW-121-1KA | 4"-TW-122-1PV

AG | UG | 1HB | 1KA | UG | AG | 1KA | 1PV | AG | UG | 1PV | 1KA

FIT 1203 | PIT 1203 | FE 1203 | ZSC 1203 | ZSO 1203 | SV 1203 | S | PI 1203 | LIT 1203

V-1390 | V-1390 | V-1390

4"-TW-135-1HB | V-TW-135-01 | 4" x 2" | MAG | UG | AG | 1KA | 1HB

FV-1203
SHUT-OFF VALVE
CLA-VAL (Or Equivalent)

V-TW-135-02 | 3" x 2"
THROTTLING

VAC / PRESSURE GAUGE

1HB | 3DA | 3"-TW-144-3DA

V-TW-144-01 | 3" | V-AHP-100-01 | 1/2"-AHP-100-3DA | FLANGED WELL HEAD

NOTE 1

AIR / VACUUM RELEASE
PI 1203A | V-1910 | 1/2" | V-AHP-102-02 | V-AHP-102-01 | V-1301 | V-1301 | 1"-AHP-102-2CA

INJECTION WELL IW-03

LSH 1203 | LE 1203

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

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

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

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

SCALE NONE

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

PROCESS AND INSTRUMENTATION DIAGRAM
SHEET 11
INJECTION WELLS

CH2MHILL

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

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

BAR IS ONE INCH ON ORIGINAL DRAWING. 0 1"

Appendix A
First Quarter
2019 Laboratory Analytical Reports

January 23, 2019

Doug Scott
CH2M HILL
155 Grand Avenue, Suite 1000
Oakland, CA 94612

TEL: (970) 731-0636
FAX: (510) 622-9129

Workorder No.: N033678

RE: PG&E Topock, 680375.03.IM.OP.00

Attention: Doug Scott

Enclosed are the results for sample(s) received on January 09, 2019 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,

Nancy Litucas for

Quennie Manimtim
Laboratory Director

CLIENT: CH2M HILL
Project: PG&E Topock, 680375.03.IM.OP.00
Lab Order: N033678

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.

Analytical Comments for EPA 300.0:

Matrix Spike Duplicate (MSD) is outside recovery criteria for Fluoride in QC sample N033678-001AMSD 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 Copper in QC samples N033677-001A-MS and N033677-001A-MSD possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Chromium in QC samples N033677-001A-MS and N033677-001A-MSD since the analyte concentration in the sample is disproportionate to the spike level. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Analytical Comments for EPA 7199:

Matrix Spike (MS) is outside recovery criteria in QC sample N033678-001A-MS possibly due to matrix interference. Matrix Spike Duplicate (MSD), Matrix Spike Insoluble and Post Spike met acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was also acceptable.

ASSET Laboratories

Date: *23-Jan-19*

CLIENT: CH2M HILL
Project: PG&E Topock, 680375.03.IM.OP.00
Lab Order: N033678
Contract No: IM3PLANT-AR

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N033678-001A	Phase Separator-582-Sludge	Soil	1/9/2019 8:20:00 AM	1/9/2019	1/23/2019
N033678-001B	Phase Separator-582-Sludge	Soil	1/9/2019 8:20:00 AM	1/9/2019	1/23/2019

CLIENT: CH2M HILL
Lab Order: N033678
Project: PG&E Topock, 680375.03.IM.OP.00
Lab ID: N033678-001

Client Sample ID: Phase Separator-582-Sludge
Collection Date: 1/9/2019 8:20:00 AM
Matrix: SOIL

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_190115A**	QC Batch: **R131170**			PrepDate			Analyst: **HG**
Fluoride	17	0.15	2.2		mg/Kg-dry	1	1/15/2019 09:23 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

CLIENT: CH2M HILL
Work Order: N033678
Project: PG&E Topock, 680375.03.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_S

Sample ID	MB-R131170	SampType:	MBLK	TestCode:	300_S	Units:	mg/Kg	Prep Date:		RunNo:	131170
Client ID:	PBS	Batch ID:	R131170	TestNo:	EPA 300.0			Analysis Date:	1/15/2019	SeqNo:	3257536

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	ND	1.0									

Sample ID	LCS-R131170	SampType:	LCS	TestCode:	300_S	Units:	mg/Kg	Prep Date:		RunNo:	131170
Client ID:	LCSS	Batch ID:	R131170	TestNo:	EPA 300.0			Analysis Date:	1/15/2019	SeqNo:	3257537

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	12.272	1.0	12.50	0	98.2	90	110				

Sample ID	N033678-001ADUP	SampType:	DUP	TestCode:	300_S	Units:	mg/Kg-dry	Prep Date:		RunNo:	131170
Client ID:	ZZZZZZ	Batch ID:	R131170	TestNo:	EPA 300.0			Analysis Date:	1/15/2019	SeqNo:	3257539

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	17.372	2.2						17.33	0.242	20	

Sample ID	N033678-001AMS	SampType:	MS	TestCode:	300_S	Units:	mg/Kg-dry	Prep Date:		RunNo:	131170
Client ID:	ZZZZZZ	Batch ID:	R131170	TestNo:	EPA 300.0			Analysis Date:	1/15/2019	SeqNo:	3257540

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	39.762	2.2	27.60	17.33	81.3	80	120				

Sample ID	N033678-001AMSD	SampType:	MSD	TestCode:	300_S	Units:	mg/Kg-dry	Prep Date:		RunNo:	131170
Client ID:	ZZZZZZ	Batch ID:	R131170	TestNo:	EPA 300.0			Analysis Date:	1/15/2019	SeqNo:	3257541

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	39.197	2.2	27.60	17.33	79.2	80	120	39.76	1.43	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		

CLIENT: CH2M HILL
Lab Order: N033678
Project: PG&E Topock, 680375.03.IM.OP.00
Lab ID: N033678-001

Client Sample ID: Phase Separator-582-Sludge
Collection Date: 1/9/2019 8:20:00 AM
Matrix: SOIL

TOTAL METALS BY ICP

EPA 3050B **EPA 6010B**

RunID: **NV00922-ICP2_190115D** QC Batch: **72041** PrepDate **1/10/2019** Analyst: **CEI**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
Antimony	ND	0.73	4.4		mg/Kg-dry	1	1/15/2019 03:04 PM
Arsenic	23	1.2	2.2		mg/Kg-dry	1	1/15/2019 07:37 PM
Barium	72	0.69	2.2		mg/Kg-dry	1	1/15/2019 03:04 PM
Beryllium	ND	0.48	2.2		mg/Kg-dry	1	1/15/2019 03:04 PM
Cadmium	ND	0.59	2.2		mg/Kg-dry	1	1/15/2019 03:04 PM
Chromium	3700	0.72	2.2		mg/Kg-dry	1	1/15/2019 03:04 PM
Cobalt	4.6	0.63	2.2		mg/Kg-dry	1	1/15/2019 03:04 PM
Copper	210	2.0	4.4		mg/Kg-dry	1	1/15/2019 03:04 PM
Lead	ND	0.65	2.2		mg/Kg-dry	1	1/15/2019 03:04 PM
Manganese	380	1.1	2.2		mg/Kg-dry	1	1/15/2019 03:04 PM
Molybdenum	8.1	0.66	2.2		mg/Kg-dry	1	1/15/2019 03:04 PM
Nickel	35	0.75	2.2		mg/Kg-dry	1	1/15/2019 03:04 PM
Selenium	ND	1.3	2.2		mg/Kg-dry	1	1/15/2019 03:04 PM
Silver	ND	1.4	2.2		mg/Kg-dry	1	1/15/2019 03:04 PM
Thallium	13	0.78	4.4		mg/Kg-dry	1	1/15/2019 07:37 PM
Vanadium	54	0.49	2.2		mg/Kg-dry	1	1/15/2019 03:04 PM
Zinc	52	0.66	2.2		mg/Kg-dry	1	1/15/2019 03:04 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

CLIENT: CH2M HILL
Work Order: N033678
Project: PG&E Topock, 680375.03.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_SPGE

Sample ID **MB-72041**	SampType: **MBLK**	TestCode: **6010_SPGE**	Units: **mg/Kg**	Prep Date: **1/10/2019**	RunNo: **131172**
Client ID: **PBS**	Batch ID: **72041**	TestNo: **EPA 6010B**	**EPA 3050B**	Analysis Date: **1/15/2019**	SeqNo: **3257949**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	ND	2.0									
Barium	ND	1.0									
Beryllium	ND	1.0									
Cadmium	ND	1.0									
Chromium	ND	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	ND	1.0									
Silver	ND	1.0									
Vanadium	ND	1.0									
Zinc	ND	1.0									

Sample ID **LCS-72041**	SampType: **LCS**	TestCode: **6010_SPGE**	Units: **mg/Kg**	Prep Date: **1/10/2019**	RunNo: **131172**
Client ID: **LCSS**	Batch ID: **72041**	TestNo: **EPA 6010B**	**EPA 3050B**	Analysis Date: **1/15/2019**	SeqNo: **3257950**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	24.690	2.0	25.00	0	98.8	85	115				
Barium	24.917	1.0	25.00	0	99.7	85	115				
Beryllium	24.955	1.0	25.00	0	99.8	85	115				
Cadmium	24.894	1.0	25.00	0	99.6	85	115				
Chromium	24.851	1.0	25.00	0	99.4	85	115				
Cobalt	26.053	1.0	25.00	0	104	85	115				
Copper	24.730	2.0	25.00	0	98.9	85	115				
Lead	24.910	1.0	25.00	0	99.6	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		

CLIENT: CH2M HILL
Work Order: N033678
Project: PG&E Topock, 680375.03.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_SPGE

Sample ID	LCS-72041	SampType:	LCS	TestCode:	6010_SPGE	Units:	mg/Kg	Prep Date:	1/10/2019	RunNo:	131172
Client ID:	LCSS	Batch ID:	72041	TestNo:	EPA 6010B	EPA 3050B		Analysis Date:	1/15/2019	SeqNo:	3257950

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	50.045	1.0	50.00	0	100	85	115				
Molybdenum	24.591	1.0	25.00	0	98.4	85	115				
Nickel	24.877	1.0	25.00	0	99.5	85	115				
Selenium	25.101	1.0	25.00	0	100	85	115				
Silver	28.279	1.0	25.00	0	113	85	115				
Vanadium	24.590	1.0	25.00	0	98.4	85	115				
Zinc	25.694	1.0	25.00	0	103	85	115				

Sample ID	N033677-001A-MS	SampType:	MS	TestCode:	6010_SPGE	Units:	mg/Kg	Prep Date:	1/10/2019	RunNo:	131172
Client ID:	ZZZZZZ	Batch ID:	72041	TestNo:	EPA 6010B	EPA 3050B		Analysis Date:	1/15/2019	SeqNo:	3257954

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	28.136	2.0	24.95	0	113	75	125				
Barium	58.847	1.0	24.95	32.46	106	75	125				
Beryllium	27.780	1.0	24.95	0	111	75	125				
Cadmium	27.086	1.0	24.95	0.5139	107	75	125				
Chromium	1251.493	1.0	24.95	1217	137	75	125				S
Cobalt	28.647	1.0	24.95	2.057	107	75	125				
Copper	98.180	2.0	24.95	66.85	126	75	125				S
Lead	22.289	1.0	24.95	0	89.3	75	125				
Manganese	313.817	1.0	49.90	256.6	115	75	125				
Molybdenum	27.503	1.0	24.95	1.497	104	75	125				
Nickel	41.339	1.0	24.95	14.18	109	75	125				
Selenium	29.931	1.0	24.95	0.7349	117	75	125				
Silver	25.123	1.0	24.95	0	101	75	125				
Vanadium	46.718	1.0	24.95	18.87	112	75	125				
Zinc	39.974	1.0	24.95	15.60	97.7	75	125				

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

CLIENT: CH2M HILL
Work Order: N033678
Project: PG&E Topock, 680375.03.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_SPGE

Sample ID	N033677-001A-MSD	SampType:	MSD	TestCode:	6010_SPGE	Units:	mg/Kg	Prep Date:	1/10/2019	RunNo:	131172
Client ID:	ZZZZZZ	Batch ID:	72041	TestNo:	EPA 6010B	EPA 3050B		Analysis Date:	1/15/2019	SeqNo:	3257955

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	28.131	2.0	24.95	0	113	75	125	28.14	0.0161	20	
Barium	58.925	1.0	24.95	32.46	106	75	125	58.85	0.132	20	
Beryllium	27.695	1.0	24.95	0	111	75	125	27.78	0.308	20	
Cadmium	26.925	1.0	24.95	0.5139	106	75	125	27.09	0.598	20	
Chromium	1252.647	1.0	24.95	1217	142	75	125	1251	0.0922	20	S
Cobalt	28.490	1.0	24.95	2.057	106	75	125	28.65	0.548	20	
Copper	98.078	2.0	24.95	66.85	125	75	125	98.18	0.104	20	S
Lead	22.130	1.0	24.95	0	88.7	75	125	22.29	0.716	20	
Manganese	314.051	1.0	49.90	256.6	115	75	125	313.8	0.0746	20	
Molybdenum	27.305	1.0	24.95	1.497	103	75	125	27.50	0.722	20	
Nickel	41.160	1.0	24.95	14.18	108	75	125	41.34	0.435	20	
Selenium	29.802	1.0	24.95	0.7349	117	75	125	29.93	0.431	20	
Silver	25.220	1.0	24.95	0	101	75	125	25.12	0.387	20	
Vanadium	46.566	1.0	24.95	18.87	111	75	125	46.72	0.326	20	
Zinc	39.905	1.0	24.95	15.60	97.4	75	125	39.97	0.172	20	

Sample ID	MB-72041	SampType:	MBLK	TestCode:	6010_SPGE	Units:	mg/Kg	Prep Date:	1/10/2019	RunNo:	131176
Client ID:	PBS	Batch ID:	72041	TestNo:	EPA 6010B	EPA 3050B		Analysis Date:	1/15/2019	SeqNo:	3258233

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	1.0									
Thallium	ND	2.0									

Sample ID	LCS-72041	SampType:	LCS	TestCode:	6010_SPGE	Units:	mg/Kg	Prep Date:	1/10/2019	RunNo:	131176
Client ID:	LCSS	Batch ID:	72041	TestNo:	EPA 6010B	EPA 3050B		Analysis Date:	1/15/2019	SeqNo:	3258234

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	24.666	1.0	25.00	0	98.7	85	115				
Thallium	24.602	2.0	25.00	0	98.4	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		

CLIENT: CH2M HILL
Work Order: N033678
Project: PG&E Topock, 680375.03.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_SPGE

Sample ID	N033677-001A-MS	SampType:	MS	TestCode:	6010_SPGE	Units:	mg/Kg	Prep Date:	1/10/2019	RunNo:	131176
Client ID:	ZZZZZZ	Batch ID:	72041	TestNo:	EPA 6010B	EPA 3050B		Analysis Date:	1/15/2019	SeqNo:	3258238

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	36.441	1.0	24.95	8.177	113	75	125				
Thallium	28.591	2.0	24.95	5.337	93.2	75	125				

Sample ID	N033677-001A-MSD	SampType:	MSD	TestCode:	6010_SPGE	Units:	mg/Kg	Prep Date:	1/10/2019	RunNo:	131176
Client ID:	ZZZZZZ	Batch ID:	72041	TestNo:	EPA 6010B	EPA 3050B		Analysis Date:	1/15/2019	SeqNo:	3258239

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	38.104	1.0	24.95	8.177	120	75	125	36.44	4.46	20	
Thallium	29.648	2.0	24.95	5.337	97.4	75	125	28.59	3.63	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

CLIENT: CH2M HILL
Lab Order: N033678
Project: PG&E Topock, 680375.03.IM.OP.00
Lab ID: N033678-001

Client Sample ID: Phase Separator-582-Sludge
Collection Date: 1/9/2019 8:20:00 AM
Matrix: SOIL

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
EPA 3060A			**EPA 7199**				
RunID: **NV00922-IC6_190111A** QC Batch: **72054**				PrepDate **1/10/2019**			Analyst: **RAB**
Hexavalent Chromium	56	0.64	2.2		mg/Kg-dry	5	1/11/2019 12:33 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

CLIENT: CH2M HILL
Work Order: N033678
Project: PG&E Topock, 680375.03.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 7199_S_PGE

Sample ID **MB1-72054**	SampType: **MBLK**	TestCode: **7199_S_PGE**	Units: **mg/Kg**	Prep Date: **1/10/2019**	RunNo: **131134**
Client ID: **PBS**	Batch ID: **72054**	TestNo: **EPA 7199**	**EPA 3060A**	Analysis Date: **1/11/2019**	SeqNo: **3255929**

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-72054**	SampType: **LCS**	TestCode: **7199_S_PGE**	Units: **mg/Kg**	Prep Date: **1/10/2019**	RunNo: **131134**
Client ID: **LCSS**	Batch ID: **72054**	TestNo: **EPA 7199**	**EPA 3060A**	Analysis Date: **1/11/2019**	SeqNo: **3255931**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	3.566	0.20	4.000	0	89.2	80	120				

Sample ID **N033678-001A-DUP**	SampType: **DUP**	TestCode: **7199_S_PGE**	Units: **mg/Kg-dry**	Prep Date: **1/10/2019**	RunNo: **131134**
Client ID: **ZZZZZZ**	Batch ID: **72054**	TestNo: **EPA 7199**	**EPA 3060A**	Analysis Date: **1/11/2019**	SeqNo: **3255935**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	62.626	2.2						56.14	10.9	20	

Sample ID **N033678-001A-REP**	SampType: **DUP**	TestCode: **7199_S_PGE**	Units: **mg/Kg-dry**	Prep Date: **1/10/2019**	RunNo: **131134**
Client ID: **ZZZZZZ**	Batch ID: **72054**	TestNo: **EPA 7199**	**EPA 3060A**	Analysis Date: **1/11/2019**	SeqNo: **3255936**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	56.258	2.2						56.14	0.216	20	

Sample ID **N033677-001B-REP**	SampType: **DUP**	TestCode: **7199_S_PGE**	Units: **mg/Kg**	Prep Date: **1/10/2019**	RunNo: **131134**
Client ID: **ZZZZZZ**	Batch ID: **72054**	TestNo: **EPA 7199**	**EPA 3060A**	Analysis Date: **1/11/2019**	SeqNo: **3255937**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	19.841	1.0						19.78	0.290	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

CLIENT: CH2M HILL
Work Order: N033678
Project: PG&E Topock, 680375.03.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 7199_S_PGE

Sample ID **N033680-001B-REP**	SampType: **DUP**	TestCode: **7199_S_PGE**	Units: **mg/Kg**	Prep Date: **1/10/2019**	RunNo: **131134**
Client ID: **ZZZZZZ**	Batch ID: **72054**	TestNo: **EPA 7199**	**EPA 3060A**	Analysis Date: **1/11/2019**	SeqNo: **3255938**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	16.638	1.0						16.86	1.34	20	

Sample ID **N033678-001A-MS**	SampType: **MS**	TestCode: **7199_S_PGE**	Units: **mg/Kg-dry**	Prep Date: **1/10/2019**	RunNo: **131134**
Client ID: **ZZZZZZ**	Batch ID: **72054**	TestNo: **EPA 7199**	**EPA 3060A**	Analysis Date: **1/11/2019**	SeqNo: **3255941**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	72.788	2.2	8.800	56.14	189	75	125				S

Sample ID **N033678-001A-MSD**	SampType: **MSD**	TestCode: **7199_S_PGE**	Units: **mg/Kg-dry**	Prep Date: **1/10/2019**	RunNo: **131134**
Client ID: **ZZZZZZ**	Batch ID: **72054**	TestNo: **EPA 7199**	**EPA 3060A**	Analysis Date: **1/11/2019**	SeqNo: **3255942**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	62.986	2.2	8.807	56.14	77.8	75	125	72.79	14.4	20	

Sample ID **N033678-001A-MS I**	SampType: **MS**	TestCode: **7199_S_PGE**	Units: **mg/Kg-dry**	Prep Date: **1/10/2019**	RunNo: **131134**
Client ID: **ZZZZZZ**	Batch ID: **72054**	TestNo: **EPA 7199**	**EPA 3060A**	Analysis Date: **1/11/2019**	SeqNo: **3255943**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1268.720	22	1490	56.14	81.4	75	125				

Sample ID **N033678-001A-PS**	SampType: **MS**	TestCode: **7199_S_PGE**	Units: **mg/Kg-dry**	Prep Date:	RunNo: **131134**
Client ID: **ZZZZZZ**	Batch ID: **72054**	TestNo: **EPA 7199**	**EPA 3060A**	Analysis Date: **1/11/2019**	SeqNo: **3255952**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	99.656	2.2	44.00	56.14	98.9	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

CLIENT: CH2M HILL
Work Order: N033678
Project: PG&E Topock, 680375.03.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 7199_S_PGE

Sample ID	N033682-001B-REP	SampType:	DUP	TestCode:	7199_S_PGE	Units:	mg/Kg-dry	Prep Date:	1/10/2019	RunNo:	131134
Client ID:	ZZZZZZ	Batch ID:	72054	TestNo:	EPA 7199	EPA 3060A		Analysis Date:	1/11/2019	SeqNo:	3255955

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.168	0.22						0.1683	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		

ASSET Laboratories

ANALYTICAL RESULTS

Print Date: *23-Jan-19*

CLIENT:	CH2M HILL	**Client Sample ID:**	Phase Separator-582-Sludge
Lab Order:	N033678	**Collection Date:**	1/9/2019 8:20:00 AM
Project:	PG&E Topock, 680375.03.IM.OP.00	**Matrix:**	SOIL
Lab ID:	N033678-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL MERCURY BY COLD VAPOR TECHNIQUE							
EPA 7471A							
RunID: **NV00922-AA1_190110A** QC Batch: **72042** PrepDate **1/10/2019** Analyst: **MG**							
Mercury	ND	0.059	0.22		mg/Kg-dry	1	1/10/2019 10:58 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

CLIENT: CH2M HILL
Work Order: N033678
Project: PG&E Topock, 680375.03.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 7471_S_PGE

Sample ID **MB-72042**	SampType: **MBLK**	TestCode: **7471_S_PGE**	Units: **mg/Kg**	Prep Date: **1/10/2019**	RunNo: **131067**
Client ID: **PBS**	Batch ID: **72042**	TestNo: **EPA 7471A**		Analysis Date: **1/10/2019**	SeqNo: **3253268**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.10									

Sample ID **LCS-72042**	SampType: **LCS**	TestCode: **7471_S_PGE**	Units: **mg/Kg**	Prep Date: **1/10/2019**	RunNo: **131067**
Client ID: **LCSS**	Batch ID: **72042**	TestNo: **EPA 7471A**		Analysis Date: **1/10/2019**	SeqNo: **3253269**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.412	0.10	0.4167	0	98.9	75	125				

Sample ID **N033678-001B-MS**	SampType: **MS**	TestCode: **7471_S_PGE**	Units: **mg/Kg-dry**	Prep Date: **1/10/2019**	RunNo: **131067**
Client ID: **ZZZZZZ**	Batch ID: **72042**	TestNo: **EPA 7471A**		Analysis Date: **1/10/2019**	SeqNo: **3253270**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	1.152	0.22	0.9185	0.2020	103	75	125				

Sample ID **N033678-001B-MSD**	SampType: **MSD**	TestCode: **7471_S_PGE**	Units: **mg/Kg-dry**	Prep Date: **1/10/2019**	RunNo: **131067**
Client ID: **ZZZZZZ**	Batch ID: **72042**	TestNo: **EPA 7471A**		Analysis Date: **1/10/2019**	SeqNo: **3253271**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	1.066	0.22	0.9185	0.2020	94.1	75	125	1.152	7.69	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		

CLIENT: CH2M HILL
Lab Order: N033678
Project: PG&E Topock, 680375.03.IM.OP.00
Lab ID: N033678-001

Client Sample ID: Phase Separator-582-Sludge
Collection Date: 1/9/2019 8:20:00 AM
Matrix: SOIL

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PERCENT MOISTURE							
			D2216				
RunID: **NV00922-WC_190110C**	QC Batch: **R131099**			PrepDate			Analyst: **LR**
Percent Moisture	54.71	0.1000	0.1000		wt%	1	1/10/2019 10:00 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

CLIENT: CH2M HILL
Work Order: N033678
Project: PG&E Topock, 680375.03.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: PMOIST

Sample ID **MB-R131099**	SampType: **MBLK**	TestCode: **PMOIST**	Units: **wt%**	Prep Date:	RunNo: **131099**
Client ID: **PBS**	Batch ID: **R131099**	TestNo: **D2216**		Analysis Date: **1/10/2019**	SeqNo: **3254245**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	ND	0.1000									

Sample ID **N033678-001BDUP**	SampType: **DUP**	TestCode: **PMOIST**	Units: **wt%**	Prep Date:	RunNo: **131099**
Client ID: **ZZZZZZ**	Batch ID: **R131099**	TestNo: **D2216**		Analysis Date: **1/10/2019**	SeqNo: **3254247**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	54.891	0.1000						54.71	0.333	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		

CH2MHILL **CHAIN OF CUSTODY RECORD** Page 1 OF 1

Project Name PG&E Topock
Location PG&E Topock
Project Number 680375.03.IM.OP.00
Project Manager Scott O'Donnell
Sample Manager Shawn Duffy

Task Order
Project IM3PLANT-ARAR-WDR-582-SLUDGE
Turnaround Time 10 Days
Shipping Date:
COC Number: 582-s

	Container:	Glass Jar(8 oz)	Glass Jar(8 oz)	4 oz jar				
	Preservatives:	none	none	4°C				
	Filtered:	NA	NA	NA				
	Holding Time:	NA	NA	180				
DATE	TIME	Matrix	Anions (E300_Soil) Fl	Metals (6010B_Soil) Title 22, Mercury, Mn	Metals (7199)		Number of Containers	COMMENTS
Phase Separator-582-Sludge	1-9-19	0820 Soil	X	X	X	N033678-01	3	
						TOTAL NUMBER OF CONTAINERS	3	

	Signatures	Date/Time
Approved by	Scott O'Donnell	1-9-19 0830
Sampled by	Scott O'Donnell	1-9-19 0820
Relinquished by	Scott O'Donnell	1-9-19 0912
Received by		1/9/19 0912
Relinquished by		1/9/19 1129
Received by		1/9/19 11:29

Shipping Details
Method of Shipment: FedEx
On Ice: (yes) / no #2 4.5°C
Airbill No:
Lab Name: ASSET Laboratories
Lab Phone: (702) 307-2659

ATTN:
Sample Custody
and
Marion Cartin

Special Instructions:

Report Copy to
Doug Scott
(970) 731-0636

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:	1/9/2019	Workorder:	N033678
Rep sample Temp (Deg C):	4.5	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 ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☐	No ☐	NA ☑
15. Did the bottle labels indicate correct preservatives used?	Yes ☐	No ☐	NA ☑
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments:

Checklist Completed By: YR 1/9/2019 Reviewed By:

LG 011019

List of Analysts

ASSET Laboratories Work Order: N033678

NAME	TEST METHOD
Claire Ignacio	EPA 6010B
Ria Abes	EPA 7199
Lilia Ramit	ASTM D2216
Mark Gesmundo	EPA 7471A
Hanah Glodoviza	EPA 300.0

Date of Report: 03/01/2019

Marlon Cartin

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

Client Project:	N033679
BCL Project:	Level IV + labSpec7
BCL Work Order:	1901100
Invoice ID:	B328317, B330681

Enclosed are the results of analyses for samples received by the laboratory on 1/10/2019. If you have any questions concerning this report, please feel free to contact me.

Revised Report: This report supercedes Report ID 1000851408

Sincerely,

Contact Person: Vanessa Sandoval
Client Service Rep

Stuart Buttram
Technical Director

Chain of Custody and Cooler Receipt Form for 1901100 Page 1 of 2

19-01100

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

ASSET Laboratories
3151-3153 W Post Rd., Las Vegas, NV 89118
www.atl-labs.com
TEL: 7023072659 FAX: 7023072691

QC Level: Level IV

Field Sampler: SIGNED

09-Jan-19

Subcontractor:
BC Labs
4100 Atlas Court
Bakersfield, CA 93308

TEL: (661) 327-4911
FAX: (661) 327-1918
Acct #:

Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests: SM4500-NH3D		
N033679-001A / SC-100B-WDR-582	Water	1/9/2019 8:45:00 AM	32OZP	1		
N033679-002A / SC-700B-WDR-582	Water	1/9/2019 8:50:00 AM	32OZP	1		

CHK BY
DISTRIBUTION
SUB-OUT

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

Please use PO#:N33679A Please email Invoices and Account Receivable Statements to elvira@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. EDD Requirement Labspec7 edata.

GSO #: 543382212

	Date/Time		Date/Time
Relinquished by:	1/9/2019 17:00	Received by:	1.10.19 08:58
Relinquished by:		Received by:	

Chain of Custody and Cooler Receipt Form for 1901100 Page 2 of 2

BC LABORATORIES INC. COOLER RECEIPT FORM Page 2 Of 2

Submission #: 19-00896-002 1901100

SHIPPING INFORMATION	SHIPPING CONTAINER	FREE LIQUID
Fed Ex ☐ UPS ☐ Ontrac ☐ Hand Delivery ☐ BC Lab Field Service ☐ Other ☐ (Specify) GSO	Ice Chest ☑ None ☐ Box ☐ Other ☐ (Specify)_____	YES ☐ NO ☐ W / S

Refrigerant: Ice ☑ Blue Ice ☐ None ☐ Other ☐ Comments:

Custody Seals Ice Chest ☐ Intact? Yes ☐ No ☐ Containers ☐ Intact? Yes ☐ No ☐ None ☑ Comments:

All samples received? Yes ☑ No ☐ All samples containers intact? Yes ☑ No ☐ Description(s) match COC? Yes ☑ No ☐

COC Received ☑ YES ☐ NO

Emissivity: .97 Container: Tape Thermometer ID: 274 Date/Time 1.10.19

Temperature: (A) 0.0 °C / (C) 0.4 °C Analyst Init DS 08:58

SAMPLE CONTAINERS	SAMPLE NUMBERS									
	1	2	3	4	5	6	7	8	9	10
QT PE UNPRES										
~~4oz / 8oz / 16oz~~ PE UNPRES	D	D	D	D	D	D				
2oz Cr**										
QT INORGANIC CHEMICAL METALS										
INORGANIC CHEMICAL METALS 4oz / 8oz / 16oz										
PT CYANIDE										
PT NITROGEN FORMS										
PT TOTAL SULFIDE										
2oz. NITRATE / NITRITE										
PT TOTAL ORGANIC CARBON										
PT CHEMICAL OXYGEN DEMAND										
PtA PHENOLICS										
40ml VOA VIAL TRAVEL BLANK										
40ml VOA VIAL										
QT EPA 1664										
PT ODOR										
RADIOLOGICAL										
BACTERIOLOGICAL										
40 ml VOA VIAL- 504										
QT EPA 508/608/8080										
QT EPA 515.1/8150										
QT EPA 525										
QT EPA 525 TRAVEL BLANK										
40ml EPA 547										
40ml EPA 531.1										
8oz EPA 548										
QT EPA 549										
QT EPA 8015M										
QT EPA 8270										
8oz / 16oz / 32oz AMBER										
8oz / 16oz / 32oz JAR										
SOIL SLEEVE										
PCB VIAL										
PLASTIC BAG										
TEDLAR BAG										
FERROUS IRON										
ENCORE										
SMART KIT										
SUMMA CANISTER										

Comments:

Sample Numbering Completed By: Date/Time: 1/10/19 1510

A = Actual / C = Corrected

Rev 21 05/23/2016

(S:\WPDocs\WordPerfect\LAB_COC\FORMS\SAMREC rev 20)

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

Reported: 03/01/2019 8:58
Project: Level IV + labSpec7
Project Number: N033679
Project Manager: Marlon Cartin

Laboratory / Client Sample Cross Reference

Laboratory	Client Sample Information			
1901100-01	**COC Number:**	---	**Receive Date:**	01/10/2019 08:58
	Project Number:	---	**Sampling Date:**	01/09/2019 08:45
	Sampling Location:	---	**Sample Depth:**	---
	Sampling Point:	N033679-001A / SC-100B-WDR-582	**Lab Matrix:**	Water
	Sampled By:	---	**Sample Type:**	Water
1901100-02	**COC Number:**	---	**Receive Date:**	01/10/2019 08:58
	Project Number:	---	**Sampling Date:**	01/09/2019 08:50
	Sampling Location:	---	**Sample Depth:**	---
	Sampling Point:	N033679-002A / SC-700B-WDR-582	**Lab Matrix:**	Water
	Sampled By:	---	**Sample Type:**	Water

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

Reported: 03/01/2019 8:58
Project: Level IV + labSpec7
Project Number: N033679
Project Manager: Marlon Cartin

Water Analysis (General Chemistry)

BCL Sample ID: 1901100-01 | **Client Sample Name:** N033679-001A / SC-100B-WDR-582, 1/9/2019 8:45:00AM

Constituent	Result	Units	RL	Method	MB Bias	Lab Quals	Run #
Ammonia as N (Distilled)	ND	mg/L	0.20	SM-4500-NH3G	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	SM-4500-NH3G	01/17/19 10:18	01/17/19 14:09	JMH2	SC-1	1	B035263

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

Reported: 03/01/2019 8:58
Project: Level IV + labSpec7
Project Number: N033679
Project Manager: Marlon Cartin

Water Analysis (General Chemistry)

BCL Sample ID: 1901100-02 | **Client Sample Name:** N033679-002A / SC-700B-WDR-582, 1/9/2019 8:50:00AM

Constituent	Result	Units	RL	Method	MB Bias	Lab Quals	Run #
Ammonia as N (Distilled)	ND	mg/L	0.20	SM-4500-NH3G	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	SM-4500-NH3G	01/17/19 10:18	01/17/19 14:00	JMH	SC-1	1	B035263

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

Reported: 03/01/2019 8:58
Project: Level IV + labSpec7
Project Number: N033679
Project Manager: Marlon Cartin

Water Analysis (General Chemistry)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	RL	Lab Quals
QC Batch ID: B035263					
Ammonia as N (Distilled)	B035263-BLK1	ND	mg/L	0.20	

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

Reported: 03/01/2019 8:58
Project: Level IV + labSpec7
Project Number: N033679
Project Manager: Marlon Cartin

Water Analysis (General Chemistry)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: B035263										
Ammonia as N (Distilled)	B035263-BS1	LCS	0.97910	1.0000	mg/L	97.9		85 - 115		

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

Reported: 03/01/2019 8:58
Project: Level IV + labSpec7
Project Number: N033679
Project Manager: Marlon Cartin

Water Analysis (General Chemistry)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: B035263	Used client sample: Y - Description: N033679-002A / SC-700B-WDR-582, 01/09/2019 08:50										
Ammonia as N (Distilled)	DUP	1901100-02	0.062500	ND		mg/L			20		
	MS	1901100-02	0.062500	1.1889	1.1111	mg/L		101		80 - 120	
	MSD	1901100-02	0.062500	1.1928	1.1111	mg/L	0.3	102	20	80 - 120	

January 24, 2019

Doug Scott
CH2M HILL
155 Grand Avenue, Suite 1000
Oakland, CA 94612

TEL: (970) 731-0636
FAX: (510) 622-9129

Workorder No.: N033679

RE: PG&E Topock, 680375.03.IM.OP.00

Attention: Doug Scott

Enclosed are the results for sample(s) received on January 09, 2019 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,

Nancy Liburdi for

Quennie Manimtim
Laboratory Director

CLIENT: CH2M HILL
Project: PG&E Topock, 680375.03.IM.OP.00
Lab Order: N033679

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 BC Labs- Bakersfield,CA.

Analytical Comments for EPA 200.7:

Matrix Spike Duplicate (MSD) is outside recovery criteria for Boron in QC sample N033679-001E-MSD possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Analytical Comments for EPA 200.8:

Dilution was necessary on some analytes for sample N033679-003 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 analytes for this failed internal standard were reported at dilution that meet internal standard recovery limit.

Analytical Comments for EPA 245.1:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria in QC samples N033679-003C-MS and N033679-003C-MSD possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Analytical Comments for EPA 218.6:

CASE NARRATIVE

Dilution was necessary for sample N033679-003 due to matrix interference. Sample was analyzed at lower dilution however matrix spike recovery and retention time criteria were 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.

ASSET Laboratories

Date: *24-Jan-19*

CLIENT: CH2M HILL
Project: PG&E Topock, 680375.03.IM.OP.00
Lab Order: N033679
Contract No: IM3PLANT-AR

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N033679-001A	SC-100B-WDR-582	Water	1/9/2019 8:45:00 AM	1/9/2019	1/24/2019
N033679-001B	SC-100B-WDR-582	Water	1/9/2019 8:45:00 AM	1/9/2019	1/24/2019
N033679-001C	SC-100B-WDR-582	Water	1/9/2019 8:45:00 AM	1/9/2019	1/24/2019
N033679-001D	SC-100B-WDR-582	Water	1/9/2019 8:45:00 AM	1/9/2019	1/24/2019
N033679-001E	SC-100B-WDR-582	Water	1/9/2019 8:45:00 AM	1/9/2019	1/24/2019
N033679-002A	SC-700B-WDR-582	Water	1/9/2019 8:50:00 AM	1/9/2019	1/24/2019
N033679-002B	SC-700B-WDR-582	Water	1/9/2019 8:50:00 AM	1/9/2019	1/24/2019
N033679-002C	SC-700B-WDR-582	Water	1/9/2019 8:50:00 AM	1/9/2019	1/24/2019
N033679-002D	SC-700B-WDR-582	Water	1/9/2019 8:50:00 AM	1/9/2019	1/24/2019
N033679-002E	SC-700B-WDR-582	Water	1/9/2019 8:50:00 AM	1/9/2019	1/24/2019
N033679-003A	SC-701-WDR-582	Water	1/9/2019 8:30:00 AM	1/9/2019	1/24/2019
N033679-003B	SC-701-WDR-582	Water	1/9/2019 8:30:00 AM	1/9/2019	1/24/2019
N033679-003C	SC-701-WDR-582	Water	1/9/2019 8:30:00 AM	1/9/2019	1/24/2019

CLIENT: CH2M HILL
Lab Order: N033679
Project: PG&E Topock, 680375.03.IM.OP.00
Lab ID: N033679-001

Client Sample ID: SC-100B-WDR-582
Collection Date: 1/9/2019 8:45:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190109B**	QC Batch: **R131056**			PrepDate			Analyst: **LR**
Specific Conductance	7900	0.10	0.10		umhos/cm	1	1/9/2019 02:20 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

CLIENT: CH2M HILL
Lab Order: N033679
Project: PG&E Topock, 680375.03.IM.OP.00
Lab ID: N033679-002

Client Sample ID: SC-700B-WDR-582
Collection Date: 1/9/2019 8:50:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190109B**	QC Batch: **R131056**			PrepDate			Analyst: **LR**
Specific Conductance	8000	0.10	0.10		umhos/cm	1	1/9/2019 02:20 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

CLIENT: CH2M HILL
Lab Order: N033679
Project: PG&E Topock, 680375.03.IM.OP.00
Lab ID: N033679-003

Client Sample ID: SC-701-WDR-582
Collection Date: 1/9/2019 8:30:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190109B**	QC Batch: **R131056**			PrepDate			Analyst: **LR**
Specific Conductance	45000	0.10	0.10		umhos/cm	1	1/9/2019 02:20 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

CLIENT: CH2M HILL
Work Order: N033679
Project: PG&E Topock, 680375.03.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID	**N033679-003ADUP**	SampType:	**DUP**	TestCode:	**120.1_WPGE**	Units:	**umhos/cm**	Prep Date:		RunNo:	**131056**
Client ID:	**ZZZZZZ**	Batch ID:	**R131056**	TestNo:	**EPA 120.1**			Analysis Date:	**1/9/2019**	SeqNo:	**3252371**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	45000.000	0.10						44800	0.445	2	

Qualifiers:

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

CLIENT: CH2M HILL
Lab Order: N033679
Project: PG&E Topock, 680375.03.IM.OP.00
Lab ID: N033679-001

Client Sample ID: SC-100B-WDR-582
Collection Date: 1/9/2019 8:45:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **NV00922-WC_190110F**	QC Batch: **72066**				PrepDate	**1/10/2019**	Analyst: **LR**
Total Dissolved Solids (Residue, Filterable)	4500	50	50		mg/L	1	1/10/2019 01:09 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		

CLIENT: CH2M HILL
Lab Order: N033679
Project: PG&E Topock, 680375.03.IM.OP.00
Lab ID: N033679-002

Client Sample ID: SC-700B-WDR-582
Collection Date: 1/9/2019 8:50:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **NV00922-WC_190110F**	QC Batch: **72066**			PrepDate	**1/10/2019**		Analyst: **LR**
Total Dissolved Solids (Residue, Filterable)	4600	50	50		mg/L	1	1/10/2019 01:09 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

CLIENT: CH2M HILL
Lab Order: N033679
Project: PG&E Topock, 680375.03.IM.OP.00
Lab ID: N033679-003

Client Sample ID: SC-701-WDR-582
Collection Date: 1/9/2019 8:30:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **NV00922-WC_190110F**	QC Batch: **72066**				PrepDate	**1/10/2019**	Analyst: **LR**
Total Dissolved Solids (Residue, Filterable)	31000	500	500		mg/L	1	1/10/2019 01:09 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

CLIENT: CH2M HILL
Work Order: N033679
Project: PG&E Topock, 680375.03.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.1_2540C_W

Sample ID	**LCS-72066**	SampType:	**LCS**	TestCode:	**160.1_2540C**	Units:	**mg/L**	Prep Date:	**1/10/2019**	RunNo:	**131102**
Client ID:	**LCSW**	Batch ID:	**72066**	TestNo:	**SM2540C**			Analysis Date:	**1/10/2019**	SeqNo:	**3254258**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	986.000	10	1000	0	98.6	80	120				

Sample ID	**MB-72066**	SampType:	**MBLK**	TestCode:	**160.1_2540C**	Units:	**mg/L**	Prep Date:	**1/10/2019**	RunNo:	**131102**
Client ID:	**PBW**	Batch ID:	**72066**	TestNo:	**SM2540C**			Analysis Date:	**1/10/2019**	SeqNo:	**3254259**

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	**N033679-003ADUP**	SampType:	**DUP**	TestCode:	**160.1_2540C**	Units:	**mg/L**	Prep Date:	**1/10/2019**	RunNo:	**131102**
Client ID:	**ZZZZZZ**	Batch ID:	**72066**	TestNo:	**SM2540C**			Analysis Date:	**1/10/2019**	SeqNo:	**3254263**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	31850.000	500						30650	3.84	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		

CLIENT: CH2M HILL
Lab Order: N033679
Project: PG&E Topock, 680375.03.IM.OP.00
Lab ID: N033679-001

Client Sample ID: SC-100B-WDR-582
Collection Date: 1/9/2019 8:45:00 AM
Matrix: WATER

TOTAL METALS BY ICP

EPA 200.7

RunID: **NV00922-ICP2_190123B** QC Batch: **72195** PrepDate **1/22/2019** Analyst: **CEI**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
Aluminum	ND	40	50		µg/L	1	1/23/2019 02:02 PM
Boron	1000	74	100		µg/L	1	1/23/2019 02:02 PM
Iron	ND	18	20		µg/L	1	1/23/2019 02:02 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

CLIENT: CH2M HILL
Lab Order: N033679
Project: PG&E Topock, 680375.03.IM.OP.00
Lab ID: N033679-002

Client Sample ID: SC-700B-WDR-582
Collection Date: 1/9/2019 8:50:00 AM
Matrix: WATER

TOTAL METALS BY ICP

EPA 200.7

RunID: **NV00922-ICP2_190123B** QC Batch: **72195** PrepDate **1/22/2019** Analyst: **CEI**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
Aluminum	ND	40	50		µg/L	1	1/23/2019 02:35 PM
Boron	1100	74	100		µg/L	1	1/23/2019 02:35 PM
Iron	ND	18	20		µg/L	1	1/23/2019 02:35 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

CLIENT: CH2M HILL
Work Order: N033679
Project: PG&E Topock, 680375.03.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WPGEPPB

Sample ID	**MB-72195**	SampType:	**MBLK**	TestCode:	**200.7_WPGE**	Units:	**µg/L**	Prep Date:	**1/22/2019**	RunNo:	**131362**
Client ID:	**PBW**	Batch ID:	**72195**	TestNo:	**EPA 200.7**			Analysis Date:	**1/23/2019**	SeqNo:	**3268015**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	ND	50									
Boron	ND	100									
Iron	ND	20									

Sample ID	**LCS-72195**	SampType:	**LCS**	TestCode:	**200.7_WPGE**	Units:	**µg/L**	Prep Date:	**1/22/2019**	RunNo:	**131362**
Client ID:	**LCSW**	Batch ID:	**72195**	TestNo:	**EPA 200.7**			Analysis Date:	**1/23/2019**	SeqNo:	**3268016**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	5225.140	50	5000	0	105	85	115				
Boron	977.949	100	1000	0	97.8	85	115				
Iron	108.442	20	100.0	0	108	85	115				

Sample ID	**N033679-001E-MS**	SampType:	**MS**	TestCode:	**200.7_WPGE**	Units:	**µg/L**	Prep Date:	**1/22/2019**	RunNo:	**131362**
Client ID:	**ZZZZZZ**	Batch ID:	**72195**	TestNo:	**EPA 200.7**			Analysis Date:	**1/23/2019**	SeqNo:	**3268020**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	5183.651	50	5000	0	104	75	125				
Boron	2256.313	100	1000	1015	124	75	125				
Iron	98.942	20	100.0	0	98.9	75	125				

Sample ID	**N033679-001E-MSD**	SampType:	**MSD**	TestCode:	**200.7_WPGE**	Units:	**µg/L**	Prep Date:	**1/22/2019**	RunNo:	**131362**
Client ID:	**ZZZZZZ**	Batch ID:	**72195**	TestNo:	**EPA 200.7**			Analysis Date:	**1/23/2019**	SeqNo:	**3268021**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	5313.369	50	5000	0	106	75	125	5184	2.47	20	
Boron	2323.005	100	1000	1015	131	75	125	2256	2.91	20	S
Iron	101.216	20	100.0	0	101	75	125	98.94	2.27	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		

CLIENT: CH2M HILL
Lab Order: N033679
Project: PG&E Topock, 680375.03.IM.OP.00
Lab ID: N033679-001

Client Sample ID: SC-100B-WDR-582
Collection Date: 1/9/2019 8:45:00 AM
Matrix: WATER

TOTAL METALS BY ICPMS

EPA 200.8

RunID: **NV00922-ICP7_190115A** QC Batch: **72114** PrepDate **1/15/2019** Analyst: **CEI**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
Antimony	ND	0.16	0.50		µg/L	1	1/15/2019 02:18 PM
Arsenic	2.5	0.081	0.10		µg/L	1	1/15/2019 02:18 PM
Barium	31	0.15	1.0		µg/L	1	1/23/2019 11:36 AM
Copper	ND	0.55	1.0		µg/L	1	1/23/2019 11:36 AM
Lead	ND	0.13	1.0		µg/L	1	1/15/2019 02:18 PM
Manganese	7.3	0.26	0.50		µg/L	1	1/15/2019 02:18 PM
Molybdenum	20	0.21	0.50		µg/L	1	1/15/2019 02:18 PM
Nickel	ND	0.26	1.0		µg/L	1	1/15/2019 02:18 PM
Zinc	ND	2.3	10		µg/L	1	1/15/2019 02:18 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

CLIENT: CH2M HILL
Lab Order: N033679
Project: PG&E Topock, 680375.03.IM.OP.00
Lab ID: N033679-002

Client Sample ID: SC-700B-WDR-582
Collection Date: 1/9/2019 8:50:00 AM
Matrix: WATER

TOTAL METALS BY ICPMS

EPA 200.8

RunID: **NV00922-ICP7_190115A** QC Batch: **72114** PrepDate **1/15/2019** Analyst: **CEI**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
Antimony	ND	0.16	0.50		µg/L	1	1/15/2019 02:41 PM
Arsenic	ND	0.081	0.10		µg/L	1	1/15/2019 02:41 PM
Barium	18	0.15	1.0		µg/L	1	1/23/2019 11:41 AM
Copper	ND	0.55	1.0		µg/L	1	1/23/2019 11:41 AM
Lead	ND	0.13	1.0		µg/L	1	1/15/2019 02:41 PM
Manganese	2.6	0.26	0.50		µg/L	1	1/15/2019 02:41 PM
Molybdenum	20	0.21	0.50		µg/L	1	1/15/2019 02:41 PM
Nickel	1.2	0.26	1.0		µg/L	1	1/15/2019 02:41 PM
Zinc	ND	2.3	10		µg/L	1	1/15/2019 02:41 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

CLIENT: CH2M HILL
Lab Order: N033679
Project: PG&E Topock, 680375.03.IM.OP.00
Lab ID: N033679-003

Client Sample ID: SC-701-WDR-582
Collection Date: 1/9/2019 8:30:00 AM
Matrix: WATER

TOTAL METALS BY ICPMS

EPA 200.8

RunID: **NV00922-ICP7_190115A** QC Batch: **72114** PrepDate **1/15/2019** Analyst: **CEI**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
Antimony	ND	0.78	2.5		µg/L	5	1/15/2019 02:58 PM
Arsenic	1.9	0.081	0.10		µg/L	1	1/15/2019 02:52 PM
Barium	110	0.75	5.0		µg/L	5	1/23/2019 12:05 PM
Beryllium	ND	1.1	12		µg/L	25	1/23/2019 12:11 PM
Cadmium	ND	0.26	2.5		µg/L	5	1/15/2019 02:58 PM
Cobalt	0.50	0.042	0.50		µg/L	1	1/15/2019 02:52 PM
Copper	ND	2.7	5.0		µg/L	5	1/23/2019 12:05 PM
Lead	ND	0.64	5.0		µg/L	5	1/15/2019 02:58 PM
Manganese	46	0.26	0.50		µg/L	1	1/15/2019 02:52 PM
Molybdenum	180	1.1	2.5		µg/L	5	1/15/2019 02:58 PM
Nickel	21	0.26	1.0		µg/L	1	1/15/2019 02:52 PM
Selenium	33	1.8	2.5		µg/L	5	1/23/2019 12:05 PM
Silver	ND	1.2	2.5		µg/L	5	1/15/2019 02:58 PM
Thallium	ND	0.96	2.5		µg/L	5	1/23/2019 12:05 PM
Vanadium	3.9	0.28	1.0		µg/L	1	1/15/2019 02:52 PM
Zinc	ND	2.3	10		µg/L	1	1/15/2019 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

CLIENT: CH2M HILL
Work Order: N033679
Project: PG&E Topock, 680375.03.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID **MB-72114**	SampType: **MBLK**	TestCode: **200.8_W**	Units: **µg/L**	Prep Date: **1/15/2019**	RunNo: **131156**
Client ID: **PBW**	Batch ID: **72114**	TestNo: **EPA 200.8**		Analysis Date: **1/15/2019**	SeqNo: **3258448**

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									
Beryllium	ND	0.50									
Cadmium	ND	0.50									
Cobalt	ND	0.50									
Lead	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Nickel	ND	1.0									
Silver	ND	0.50									
Vanadium	ND	1.0									
Zinc	ND	10									

Sample ID **LCS-72114**	SampType: **LCS**	TestCode: **200.8_W**	Units: **µg/L**	Prep Date: **1/15/2019**	RunNo: **131156**
Client ID: **LCSW**	Batch ID: **72114**	TestNo: **EPA 200.8**		Analysis Date: **1/15/2019**	SeqNo: **3258449**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	9.879	0.50	10.00	0	98.8	85	115				
Arsenic	9.682	0.10	10.00	0	96.8	85	115				
Beryllium	10.121	0.50	10.00	0	101	85	115				
Cadmium	10.195	0.50	10.00	0	102	85	115				
Cobalt	9.393	0.50	10.00	0	93.9	85	115				
Lead	9.629	1.0	10.00	0	96.3	85	115				
Manganese	104.482	0.50	100.0	0	104	85	115				
Molybdenum	9.269	0.50	10.00	0	92.7	85	115				
Nickel	9.540	1.0	10.00	0	95.4	85	115				
Silver	10.998	0.50	10.00	0	110	85	115				
Vanadium	10.218	1.0	10.00	0	102	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		

CLIENT: CH2M HILL
Work Order: N033679
Project: PG&E Topock, 680375.03.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID	LCS-72114	SampType:	LCS	TestCode:	200.8_W	Units:	µg/L	Prep Date:	1/15/2019	RunNo:	131156
Client ID:	LCSW	Batch ID:	72114	TestNo:	EPA 200.8			Analysis Date:	1/15/2019	SeqNo:	3258449

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Zinc	9.606	10	10.00	0	96.1	85	115				

Sample ID	N033749-001D-DUP	SampType:	DUP	TestCode:	200.8_W	Units:	µg/L	Prep Date:	1/15/2019	RunNo:	131156
Client ID:	ZZZZZZ	Batch ID:	72114	TestNo:	EPA 200.8			Analysis Date:	1/15/2019	SeqNo:	3258452

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	ND	0.50						0	0	20	
Arsenic	9.219	0.10						9.124	1.04	20	
Beryllium	0.068	0.50						0.06314	0	20	
Cadmium	ND	0.50						0	0	20	
Cobalt	0.100	0.50						0.09994	0	20	
Lead	ND	1.0						0	0	20	
Manganese	16.869	0.50						16.49	2.28	20	
Molybdenum	4.034	0.50						4.187	3.73	20	
Nickel	1.364	1.0						1.346	1.27	20	
Silver	ND	0.50						0	0	20	
Vanadium	ND	1.0						0	0	20	
Zinc	8.268	10						8.349	0	20	

Sample ID	N033749-001D-MS	SampType:	MS	TestCode:	200.8_W	Units:	µg/L	Prep Date:	1/15/2019	RunNo:	131156
Client ID:	ZZZZZZ	Batch ID:	72114	TestNo:	EPA 200.8			Analysis Date:	1/15/2019	SeqNo:	3258454

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	10.494	0.50	10.00	0	105	75	125				
Arsenic	19.630	0.10	10.00	9.124	105	75	125				
Beryllium	10.379	0.50	10.00	0.06314	103	75	125				
Cadmium	9.774	0.50	10.00	0	97.7	75	125				
Cobalt	8.686	0.50	10.00	0.09994	85.9	75	125				
Lead	9.849	1.0	10.00	0	98.5	75	125				
Manganese	117.201	0.50	100.0	16.49	101	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

CLIENT: CH2M HILL
Work Order: N033679
Project: PG&E Topock, 680375.03.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID	N033749-001D-MS	SampType:	MS	TestCode:	200.8_W	Units:	µg/L	Prep Date:	1/15/2019	RunNo:	131156
Client ID:	ZZZZZZ	Batch ID:	72114	TestNo:	EPA 200.8			Analysis Date:	1/15/2019	SeqNo:	3258454

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	15.718	0.50	10.00	4.187	115	75	125				
Nickel	9.697	1.0	10.00	1.346	83.5	75	125				
Silver	10.220	0.50	10.00	0	102	75	125				
Vanadium	10.405	1.0	10.00	0	104	75	125				
Zinc	16.368	10	10.00	8.349	80.2	75	125				

Sample ID	N033749-001D-MSD	SampType:	MSD	TestCode:	200.8_W	Units:	µg/L	Prep Date:	1/15/2019	RunNo:	131156
Client ID:	ZZZZZZ	Batch ID:	72114	TestNo:	EPA 200.8			Analysis Date:	1/15/2019	SeqNo:	3258455

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	10.633	0.50	10.00	0	106	75	125	10.49	1.31	20	
Arsenic	19.119	0.10	10.00	9.124	99.9	75	125	19.63	2.64	20	
Beryllium	10.247	0.50	10.00	0.06314	102	75	125	10.38	1.28	20	
Cadmium	10.032	0.50	10.00	0	100	75	125	9.774	2.61	20	
Cobalt	8.680	0.50	10.00	0.09994	85.8	75	125	8.686	0.0713	20	
Lead	9.862	1.0	10.00	0	98.6	75	125	9.849	0.130	20	
Manganese	116.762	0.50	100.0	16.49	100	75	125	117.2	0.375	20	
Molybdenum	15.452	0.50	10.00	4.187	113	75	125	15.72	1.70	20	
Nickel	9.555	1.0	10.00	1.346	82.1	75	125	9.697	1.47	20	
Silver	10.426	0.50	10.00	0	104	75	125	10.22	2.00	20	
Vanadium	10.371	1.0	10.00	0	104	75	125	10.40	0.323	20	
Zinc	16.135	10	10.00	8.349	77.9	75	125	16.37	1.44	20	

Sample ID	MB-72114	SampType:	MBLK	TestCode:	200.8_W	Units:	µg/L	Prep Date:	1/15/2019	RunNo:	131356
Client ID:	PBW	Batch ID:	72114	TestNo:	EPA 200.8			Analysis Date:	1/23/2019	SeqNo:	3267714

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	ND	1.0									
Copper	ND	1.0									
Selenium	ND	0.50									

Qualifiers:

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

CLIENT: CH2M HILL
Work Order: N033679
Project: PG&E Topock, 680375.03.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID	MB-72114	SampType:	MBLK	TestCode:	200.8_W	Units:	µg/L	Prep Date:	1/15/2019	RunNo:	131356
Client ID:	PBW	Batch ID:	72114	TestNo:	EPA 200.8			Analysis Date:	1/23/2019	SeqNo:	3267714

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Thallium	ND	0.50									

Sample ID	LCS-72114	SampType:	LCS	TestCode:	200.8_W	Units:	µg/L	Prep Date:	1/15/2019	RunNo:	131356
Client ID:	LCSW	Batch ID:	72114	TestNo:	EPA 200.8			Analysis Date:	1/23/2019	SeqNo:	3267715

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	10.340	1.0	10.00	0	103	85	115				
Copper	10.240	1.0	10.00	0	102	85	115				
Selenium	10.425	0.50	10.00	0	104	85	115				
Thallium	9.490	0.50	10.00	0	94.9	85	115				

Sample ID	N033749-001D-DUP	SampType:	DUP	TestCode:	200.8_W	Units:	µg/L	Prep Date:	1/15/2019	RunNo:	131356
Client ID:	ZZZZZZ	Batch ID:	72114	TestNo:	EPA 200.8			Analysis Date:	1/23/2019	SeqNo:	3267718

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	59.206	1.0						57.62	2.72	20	
Copper	1.265	1.0						1.437	12.7	20	
Selenium	ND	0.50						0	0	20	
Thallium	ND	0.50						0	0	20	

Sample ID	N033749-001D-MS	SampType:	MS	TestCode:	200.8_W	Units:	µg/L	Prep Date:	1/15/2019	RunNo:	131356
Client ID:	ZZZZZZ	Batch ID:	72114	TestNo:	EPA 200.8			Analysis Date:	1/23/2019	SeqNo:	3267720

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	68.370	1.0	10.00	57.62	108	75	125				
Copper	10.245	1.0	10.00	1.437	88.1	75	125				
Selenium	10.980	0.50	10.00	0	110	75	125				
Thallium	9.879	0.50	10.00	0	98.8	75	125				

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

CLIENT: CH2M HILL
Work Order: N033679
Project: PG&E Topock, 680375.03.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID **N033749-001D-MSD**	SampType: **MSD**	TestCode: **200.8_W**	Units: **µg/L**	Prep Date: **1/15/2019**	RunNo: **131356**				
Client ID: **ZZZZZZ**	Batch ID: **72114**	TestNo: **EPA 200.8**		Analysis Date: **1/23/2019**	SeqNo: **3267721**				

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	68.958	1.0	10.00	57.62	113	75	125	68.37	0.857	20	
Copper	9.820	1.0	10.00	1.437	83.8	75	125	10.25	4.24	20	
Selenium	9.876	0.50	10.00	0	98.8	75	125	10.98	10.6	20	
Thallium	9.908	0.50	10.00	0	99.1	75	125	9.879	0.297	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		

CLIENT: CH2M HILL
Lab Order: N033679
Project: PG&E Topock, 680375.03.IM.OP.00
Lab ID: N033679-001

Client Sample ID: SC-100B-WDR-582
Collection Date: 1/9/2019 8:45:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190109A**	QC Batch: **R131047**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	510	3.3	20		µg/L	100	1/9/2019 02:40 PM
TOTAL METALS BY ICPMS							
			EPA 200.8				
RunID: **NV00922-ICP7_190115A**	QC Batch: **72114**			PrepDate	**1/15/2019**		Analyst: **CEI**
Chromium	470	0.65	5.0		µg/L	5	1/15/2019 02:35 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

CLIENT: CH2M HILL
Lab Order: N033679
Project: PG&E Topock, 680375.03.IM.OP.00
Lab ID: N033679-002

Client Sample ID: SC-700B-WDR-582
Collection Date: 1/9/2019 8:50:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190109A**	QC Batch: **R131047**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	1/9/2019 02:21 PM
TOTAL METALS BY ICPMS							
			EPA 200.8				
RunID: **NV00922-ICP7_190115A**	QC Batch: **72114**			PrepDate	**1/15/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	1/15/2019 02:41 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

CLIENT: CH2M HILL
Lab Order: N033679
Project: PG&E Topock, 680375.03.IM.OP.00
Lab ID: N033679-003

Client Sample ID: SC-701-WDR-582
Collection Date: 1/9/2019 8:30:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190109A**	QC Batch: **R131047**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.83	5.0		µg/L	25	1/9/2019 02:58 PM
TOTAL METALS BY ICPMS							
			EPA 200.8				
RunID: **NV00922-ICP7_190115A**	QC Batch: **72114**			PrepDate	**1/15/2019**		Analyst: **CEI**
Chromium	7.9	0.13	1.0		µg/L	1	1/15/2019 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

CLIENT: CH2M HILL
Work Order: N033679
Project: PG&E Topock, 680375.03.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W_CRPGE

Sample ID **MB-72114**	SampType: **MBLK**	TestCode: **200.8_W_CR**	Units: **µg/L**	Prep Date: **1/15/2019**	RunNo: **131156**
Client ID: **PBW**	Batch ID: **72114**	TestNo: **EPA 200.8**		Analysis Date: **1/15/2019**	SeqNo: **3258397**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **LCS-72114**	SampType: **LCS**	TestCode: **200.8_W_CR**	Units: **µg/L**	Prep Date: **1/15/2019**	RunNo: **131156**
Client ID: **LCSW**	Batch ID: **72114**	TestNo: **EPA 200.8**		Analysis Date: **1/15/2019**	SeqNo: **3258398**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.895	1.0	10.00	0	98.9	85	115				

Sample ID **N033749-001D-DUP**	SampType: **DUP**	TestCode: **200.8_W_CR**	Units: **µg/L**	Prep Date: **1/15/2019**	RunNo: **131156**
Client ID: **ZZZZZZ**	Batch ID: **72114**	TestNo: **EPA 200.8**		Analysis Date: **1/15/2019**	SeqNo: **3258401**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0						0	0	20	

Sample ID **N033749-001D-MS**	SampType: **MS**	TestCode: **200.8_W_CR**	Units: **µg/L**	Prep Date: **1/15/2019**	RunNo: **131156**
Client ID: **ZZZZZZ**	Batch ID: **72114**	TestNo: **EPA 200.8**		Analysis Date: **1/15/2019**	SeqNo: **3258403**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.393	1.0	10.00	0	93.9	75	125				

Sample ID **N033749-001D-MSD**	SampType: **MSD**	TestCode: **200.8_W_CR**	Units: **µg/L**	Prep Date: **1/15/2019**	RunNo: **131156**
Client ID: **ZZZZZZ**	Batch ID: **72114**	TestNo: **EPA 200.8**		Analysis Date: **1/15/2019**	SeqNo: **3258404**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.578	1.0	10.00	0	95.8	75	125	9.393	1.95	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

CLIENT: CH2M HILL
Work Order: N033679
Project: PG&E Topock, 680375.03.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WU_PGE

Sample ID **MB-R131047**	SampType: **MBLK**	TestCode: **218.6_WU_P**	Units: **µg/L**	Prep Date:	RunNo: **131047**
Client ID: **PBW**	Batch ID: **R131047**	TestNo: **EPA 218.6**		Analysis Date: **1/9/2019**	SeqNo: **3253507**

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-R131047**	SampType: **LCS**	TestCode: **218.6_WU_P**	Units: **µg/L**	Prep Date:	RunNo: **131047**
Client ID: **LCSW**	Batch ID: **R131047**	TestNo: **EPA 218.6**		Analysis Date: **1/9/2019**	SeqNo: **3253508**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.955	0.20	5.000	0	99.1	90	110				

Sample ID **N033662-001ADUP**	SampType: **DUP**	TestCode: **218.6_WU_P**	Units: **µg/L**	Prep Date:	RunNo: **131047**
Client ID: **ZZZZZZ**	Batch ID: **R131047**	TestNo: **EPA 218.6**		Analysis Date: **1/9/2019**	SeqNo: **3253522**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	6.154	0.20						6.144	0.155	20	

Sample ID **N033661-005AMS**	SampType: **MS**	TestCode: **218.6_WU_P**	Units: **µg/L**	Prep Date:	RunNo: **131047**
Client ID: **ZZZZZZ**	Batch ID: **R131047**	TestNo: **EPA 218.6**		Analysis Date: **1/9/2019**	SeqNo: **3253523**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	162.048	4.0	100.0	63.64	98.4	90	110				

Sample ID **N033661-005AMSD**	SampType: **MSD**	TestCode: **218.6_WU_P**	Units: **µg/L**	Prep Date:	RunNo: **131047**
Client ID: **ZZZZZZ**	Batch ID: **R131047**	TestNo: **EPA 218.6**		Analysis Date: **1/9/2019**	SeqNo: **3253524**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	161.474	4.0	100.0	63.64	97.8	90	110	162.0	0.355	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

CLIENT: CH2M HILL
Work Order: N033679
Project: PG&E Topock, 680375.03.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WU_PGE

Sample ID	N033679-002CMS	SampType:	MS	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	131047
Client ID:	ZZZZZZ	Batch ID:	R131047	TestNo:	EPA 218.6			Analysis Date:	1/9/2019	SeqNo:	3253533

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.911	0.20	1.000	0	91.1	90	110				

Sample ID	N033679-001CMS	SampType:	MS	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	131047
Client ID:	ZZZZZZ	Batch ID:	R131047	TestNo:	EPA 218.6			Analysis Date:	1/9/2019	SeqNo:	3253535

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1047.870	20	500.0	508.3	108	90	110				

Sample ID	N033679-003BMS	SampType:	MS	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	131047
Client ID:	ZZZZZZ	Batch ID:	R131047	TestNo:	EPA 218.6			Analysis Date:	1/9/2019	SeqNo:	3253537

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	24.318	5.0	25.00	0	97.3	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		

CLIENT: CH2M HILL
Lab Order: N033679
Project: PG&E Topock, 680375.03.IM.OP.00
Lab ID: N033679-001

Client Sample ID: SC-100B-WDR-582
Collection Date: 1/9/2019 8:45:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TURBIDITY							
			SM 2130B				
RunID: **NV00922-WC_190109C**	QC Batch: **R131057**			PrepDate			Analyst: **LR**
Turbidity	0.32	0.10	0.10		NTU	1	1/9/2019 03:25 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

CLIENT: CH2M HILL
Lab Order: N033679
Project: PG&E Topock, 680375.03.IM.OP.00
Lab ID: N033679-002

Client Sample ID: SC-700B-WDR-582
Collection Date: 1/9/2019 8:50:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TURBIDITY							
			SM 2130B				
RunID: **NV00922-WC_190109C**	QC Batch: **R131057**			PrepDate			Analyst: **LR**
Turbidity	0.19	0.10	0.10		NTU	1	1/9/2019 03:25 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

CLIENT: CH2M HILL
Work Order: N033679
Project: PG&E Topock, 680375.03.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 2130_W

Sample ID	**MB-R131057**	SampType:	**MBLK**	TestCode:	**2130_W**	Units:	**NTU**	Prep Date:		RunNo:	**131057**
Client ID:	**PBW**	Batch ID:	**R131057**	TestNo:	**SM 2130B**			Analysis Date:	**1/9/2019**	SeqNo:	**3252380**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Turbidity	ND	0.10									

Sample ID	**N033679-001BDUP**	SampType:	**DUP**	TestCode:	**2130_W**	Units:	**NTU**	Prep Date:		RunNo:	**131057**
Client ID:	**ZZZZZZ**	Batch ID:	**R131057**	TestNo:	**SM 2130B**			Analysis Date:	**1/9/2019**	SeqNo:	**3252382**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Turbidity	0.300	0.10						0.3200	6.45	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		

CLIENT: CH2M HILL
Lab Order: N033679
Project: PG&E Topock, 680375.03.IM.OP.00
Lab ID: N033679-003

Client Sample ID: SC-701-WDR-582
Collection Date: 1/9/2019 8:30:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL MERCURY BY COLD VAPOR TECHNIQUE							
EPA 245.1							
RunID: **NV00922-AA1_190115C** QC Batch: **72108** PrepDate **1/15/2019** Analyst: **MG**							
Mercury	1.1	0.13	0.20		µg/L	1	1/15/2019 02:13 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

CLIENT: CH2M HILL
Work Order: N033679
Project: PG&E Topock, 680375.03.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 245.1_W

Sample ID	**MB-72108**	SampType:	**MBLK**	TestCode:	**245.1_W**	Units:	**µg/L**	Prep Date:	**1/15/2019**	RunNo:	**131159**
Client ID:	**PBW**	Batch ID:	**72108**	TestNo:	**EPA 245.1**			Analysis Date:	**1/15/2019**	SeqNo:	**3257046**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.20									

Sample ID	**LCS-72108**	SampType:	**LCS**	TestCode:	**245.1_W**	Units:	**µg/L**	Prep Date:	**1/15/2019**	RunNo:	**131159**
Client ID:	**LCSW**	Batch ID:	**72108**	TestNo:	**EPA 245.1**			Analysis Date:	**1/15/2019**	SeqNo:	**3257050**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	4.585	0.20	5.000	0	91.7	85	115				

Sample ID	**N033679-003C-MS**	SampType:	**MS**	TestCode:	**245.1_W**	Units:	**µg/L**	Prep Date:	**1/15/2019**	RunNo:	**131159**
Client ID:	**ZZZZZZ**	Batch ID:	**72108**	TestNo:	**EPA 245.1**			Analysis Date:	**1/15/2019**	SeqNo:	**3257051**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	3.997	0.20	5.000	1.105	57.8	75	125				S

Sample ID	**N033679-003C-MSD**	SampType:	**MSD**	TestCode:	**245.1_W**	Units:	**µg/L**	Prep Date:	**1/15/2019**	RunNo:	**131159**
Client ID:	**ZZZZZZ**	Batch ID:	**72108**	TestNo:	**EPA 245.1**			Analysis Date:	**1/15/2019**	SeqNo:	**3257052**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	3.929	0.20	5.000	1.105	56.5	75	125	3.997	1.71	20	S

Sample ID	**N033732-001A-MS**	SampType:	**MS**	TestCode:	**245.1_W**	Units:	**µg/L**	Prep Date:	**1/15/2019**	RunNo:	**131159**
Client ID:	**ZZZZZZ**	Batch ID:	**72108**	TestNo:	**EPA 245.1**			Analysis Date:	**1/15/2019**	SeqNo:	**3257066**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	4.741	0.20	5.000	0	94.8	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		

CLIENT: CH2M HILL
Lab Order: N033679
Project: PG&E Topock, 680375.03.IM.OP.00
Lab ID: N033679-001

Client Sample ID: SC-100B-WDR-582
Collection Date: 1/9/2019 8:45:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_190114A** QC Batch: **R131143**				PrepDate			Analyst: **HG**
Fluoride	2.5	0.032	0.50		mg/L	5	1/14/2019 12:42 PM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_190114A** QC Batch: **R131143**				PrepDate			Analyst: **HG**
Sulfate	510	1.1	25		mg/L	50	1/14/2019 11:08 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

CLIENT: CH2M HILL
Lab Order: N033679
Project: PG&E Topock, 680375.03.IM.OP.00
Lab ID: N033679-002

Client Sample ID: SC-700B-WDR-582
Collection Date: 1/9/2019 8:50:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_190114A** QC Batch: **R131143**				PrepDate			Analyst: **HG**
Fluoride	2.2	0.032	0.50		mg/L	5	1/14/2019 12:58 PM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_190114A** QC Batch: **R131143**				PrepDate			Analyst: **HG**
Sulfate	510	1.1	25		mg/L	50	1/14/2019 11:23 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

CLIENT: CH2M HILL
Lab Order: N033679
Project: PG&E Topock, 680375.03.IM.OP.00
Lab ID: N033679-003

Client Sample ID: SC-701-WDR-582
Collection Date: 1/9/2019 8:30:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_190114A**	QC Batch: **R131143**			PrepDate			Analyst: **HG**
Fluoride	17	0.13	2.0		mg/L	20	1/14/2019 01:14 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

CLIENT: CH2M HILL
Work Order: N033679
Project: PG&E Topock, 680375.03.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_FPGE

Sample ID **MB-R131143_F**	SampType: **MBLK**	TestCode: **300_W_FPG**	Units: **mg/L**	Prep Date:	RunNo: **131143**
Client ID: **PBW**	Batch ID: **R131143**	TestNo: **EPA 300.0**		Analysis Date: **1/14/2019**	SeqNo: **3256433**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	ND	0.10									

Sample ID **LCS-R131143_F**	SampType: **LCS**	TestCode: **300_W_FPG**	Units: **mg/L**	Prep Date:	RunNo: **131143**
Client ID: **LCSW**	Batch ID: **R131143**	TestNo: **EPA 300.0**		Analysis Date: **1/14/2019**	SeqNo: **3256434**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	1.246	0.10	1.250	0	99.7	90	110				

Sample ID **N033679-003BDUP**	SampType: **DUP**	TestCode: **300_W_FPG**	Units: **mg/L**	Prep Date:	RunNo: **131143**
Client ID: **ZZZZZZ**	Batch ID: **R131143**	TestNo: **EPA 300.0**		Analysis Date: **1/14/2019**	SeqNo: **3256440**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	16.958	2.0						17.22	1.56	20	

Sample ID **N033679-001BMS**	SampType: **MS**	TestCode: **300_W_FPG**	Units: **mg/L**	Prep Date:	RunNo: **131143**
Client ID: **ZZZZZZ**	Batch ID: **R131143**	TestNo: **EPA 300.0**		Analysis Date: **1/14/2019**	SeqNo: **3256441**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	8.344	0.50	6.250	2.485	93.7	80	120				

Sample ID **N033679-001BMSD**	SampType: **MSD**	TestCode: **300_W_FPG**	Units: **mg/L**	Prep Date:	RunNo: **131143**
Client ID: **ZZZZZZ**	Batch ID: **R131143**	TestNo: **EPA 300.0**		Analysis Date: **1/14/2019**	SeqNo: **3256442**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	8.379	0.50	6.250	2.485	94.3	80	120	8.344	0.413	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

CLIENT: CH2M HILL
Work Order: N033679
Project: PG&E Topock, 680375.03.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID	MB-R131143_SO4	SampType:	MBLK	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	131143
Client ID:	PBW	Batch ID:	R131143	TestNo:	EPA 300.0			Analysis Date:	1/14/2019	SeqNo:	3256455

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID	LCS-R131143_SO4	SampType:	LCS	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	131143
Client ID:	LCSW	Batch ID:	R131143	TestNo:	EPA 300.0			Analysis Date:	1/14/2019	SeqNo:	3256456

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	3.970	0.50	4.000	0	99.3	90	110				

Sample ID	N033660-004CMS	SampType:	MS	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	131143
Client ID:	ZZZZZZ	Batch ID:	R131143	TestNo:	EPA 300.0			Analysis Date:	1/14/2019	SeqNo:	3256461

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	63.032	2.5	20.00	43.26	98.9	80	120				

Sample ID	N033660-007CDUP	SampType:	DUP	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	131143
Client ID:	ZZZZZZ	Batch ID:	R131143	TestNo:	EPA 300.0			Analysis Date:	1/14/2019	SeqNo:	3256462

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	47.400	2.5						47.34	0.122	20	

Sample ID	N033679-001BMS	SampType:	MS	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	131143
Client ID:	ZZZZZZ	Batch ID:	R131143	TestNo:	EPA 300.0			Analysis Date:	1/14/2019	SeqNo:	3256467

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	711.375	25	200.0	509.1	101	80	120				

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

CLIENT: CH2M HILL
Work Order: N033679
Project: PG&E Topock, 680375.03.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID	N033679-001BMSD	SampType:	MSD	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	131143
Client ID:	ZZZZZZ	Batch ID:	R131143	TestNo:	EPA 300.0			Analysis Date:	1/14/2019	SeqNo:	3256468

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	709.605	25	200.0	509.1	100	80	120	711.4	0.249	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		

CLIENT: CH2M HILL
Lab Order: N033679
Project: PG&E Topock, 680375.03.IM.OP.00
Lab ID: N033679-001

Client Sample ID: SC-100B-WDR-582
Collection Date: 1/9/2019 8:45:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190110A**	QC Batch: **R131070**			PrepDate			Analyst: **QBM**
Nitrate/Nitrite as N	2.9	0.16	0.25		mg/L	5	1/10/2019

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

CLIENT: CH2M HILL
Lab Order: N033679
Project: PG&E Topock, 680375.03.IM.OP.00
Lab ID: N033679-002

Client Sample ID: SC-700B-WDR-582
Collection Date: 1/9/2019 8:50:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190110A**	QC Batch: **R131070**			PrepDate			Analyst: **QBM**
Nitrate/Nitrite as N	2.9	0.16	0.25		mg/L	5	1/10/2019

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

CLIENT: CH2M HILL
Work Order: N033679
Project: PG&E Topock, 680375.03.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **MB-R131070**	SampType: **MBLK**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **131070**
Client ID: **PBW**	Batch ID: **R131070**	TestNo: **SM4500-NO3**		Analysis Date: **1/10/2019**	SeqNo: **3253360**

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-R131070**	SampType: **LCS**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **131070**
Client ID: **LCSW**	Batch ID: **R131070**	TestNo: **SM4500-NO3**		Analysis Date: **1/10/2019**	SeqNo: **3253361**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.512	0.050	0.5000	0	102	85	115				

Sample ID **N033679-002DDUP**	SampType: **DUP**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **131070**
Client ID: **ZZZZZZ**	Batch ID: **R131070**	TestNo: **SM4500-NO3**		Analysis Date: **1/10/2019**	SeqNo: **3253363**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	2.684	0.25						2.934	8.88	20	

Sample ID **N033679-001DMS**	SampType: **MS**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **131070**
Client ID: **ZZZZZZ**	Batch ID: **R131070**	TestNo: **SM4500-NO3**		Analysis Date: **1/10/2019**	SeqNo: **3253365**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	5.712	0.25	2.500	2.886	113	75	125				

Sample ID **N033679-001DMSD**	SampType: **MSD**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **131070**
Client ID: **ZZZZZZ**	Batch ID: **R131070**	TestNo: **SM4500-NO3**		Analysis Date: **1/10/2019**	SeqNo: **3253366**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	5.504	0.25	2.500	2.886	105	75	125	5.712	3.71	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

CH2MHILL

CHAIN OF CUSTODY RECORD

Project Name PG&E Topock
Location PG&E Topock
Project Number 680375.03.IM.OP.00
Project Manager Scott O'Donnell
Sample Manager Shawn Duffy

Task Order
Project IM3PLANT-ARAR-WDR-582
Turnaround Time 10 Days
Shipping Date:
COC Number: 582

	DATE	TIME	Matrix	Container	1 Liter Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly	250 ml Poly	1 Liter Poly	1 Liter Poly	500 ml Poly	500 ml Poly	500 ml Poly	1 Liter Poly		Number of Containers	COMMENTS
				Preservatives	4°C Lab H2SO4	4°C	4°C	4°C	4°C	4°C Lab H2SO4	4°C	4°C	4°C	4°C	4°C			
				Filtered	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA			
				Holding Time	28	7	7	7	1	28	7	180	180	180	7			
					AMMONIA (SM4500NH3D)	Anions (E300.0) Fl & SO4	Anions (E300.0) Flouride	CONDUCTIVITY (E120.1)	E218.6 Lab Filtered	Nitrate/Nitrite (SM4500NO3-E)	TDS (SM2540C)	Total Metals (E200.8 Mn)	Total Metals(E200.7 and E200.8)	Total Title22Metals	Turbidity (SM2130)			
SC-100B-WDR-582	1-9-19	0845	Water		X	X		X	X	X	X		X		X	N033679-01	4	
SC-700B-WDR-582	1-9-19	0850	Water		X	X		X	X	X	X		X		X	-02	4	
SC-701-WDR-582	1-9-19	0830	Water				X	X	X		X	X		X		-03	3	
															TOTAL NUMBER OF CONTAINERS		11	

	Signatures	Date/Time
Approved by	Scott Rodnell	1-9-19-0830
Sampled by	Scott Rodnell	1-9-19-0830
Relinquished by	Scott R O'Donnell	1-9-19 0912
Received by		1/9/19 0912
Relinquished by		1/9/19 1129
Received by		1/9/19 11:29

Shipping Details
Method of Shipment: FedEx
On Ice: (yes) / no IR #2 4.5°C
Airbill No:
Lab Name: ASSET Laboratories
Lab Phone: (702) 307-2659

ATTN:
Sample Custody
and
Marion Cartin

Special Instructions:
The SC-100B & SC-700B Total metals List:
Cr,Al,Sb,As,Ba,B,Cu,Pb,Mn,Mo,Ni,Fe,Zn

Report Copy to
Doug Scott
(970) 731-0636

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:	1/9/2019	Workorder:	N033679
Rep sample Temp (Deg C):	4.5	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 ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☐	No ☑	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☐	No ☐	NA ☑
16. Were there Non-Conformance issues at login?	Yes ☑	No ☐	NA ☐
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments: Samples for Cr 6+ were lab filtered and then preserved with Ammonium buffer.
Samples for Ammonia/NO3- were lab preserved with H2SO4 and for Total Metals with HNO3. All adjusted to pH < 2.

Checklist Completed By: YR 1/9/2019

Reviewed By: LG 011019

ASSET Laboratories
3151-3153 W Post Rd., Las Vegas, NV 89118
www.atl-labs.com
TEL: 7023072659 *FAX: 7023072691*

CHAIN-OF-CUSTODY RECORD

QC Level: Level IV

Subcontractor:

BC Labs
4100 Atlas Court
Bakersfield, CA 93308

TEL: (661) 327-4911
FAX: (661) 327-1918
Acct #:

Field Sampler: SIGNED

09-Jan-19

				Requested Tests		
Sample ID	**Matrix**	**Date Collected**	**Bottle Type**	**SM4500-NH3D**		
N033679-001A / SC-100B-WDR-582	Water	1/9/2019 8:45:00 AM	32OZP	1		
N033679-002A / SC-700B-WDR-582	Water	1/9/2019 8:50:00 AM	32OZP	1		

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

Please use PO#:N33679A Please email Invoices and Account Receivable Statements to elvira@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. EDD Requirement Labspec7 edata.

GSO #: 543382212

		Date/Time		Date/Time
Relinquished by:		1/9/2019 17:00	**Received by:**	
Relinquished by:			**Received by:**	

List of Analysts

ASSET Laboratories Work Order: N033679

NAME	TEST METHOD
Quennie Manimtim	SM 4500-NO3F
Claire Ignacio	EPA 200.7, EPA 200.8
Ria Abes	EPA 218.6
Lilia Ramit	EPA 120.1, SM 2540C, SM 2130B
Mark Gesmundo	EPA 245.1
Hanah Glodoviza	EPA 300.0

BC LABORATORIES, INC.

Work Order Number: 1904017

Laboratory Documentation Requirements
For Data Validation of
Wet Chemistry Analysis

Prepared By

BC Laboratories

For ASSET Laboratories- Las Vegas

N034033

Case Narrative

Sample Receipt

Work Order: 1904017
COC Number:
Default Cooler was received at 1.5 °C
Samples were checked for preservation. Where applicable, sample preservation was adjusted in the laboratory.

Requested Analysis

Method	Instrument
SM-4500-NH3G	SC-1

Sample Qualifier Summary

There were no qualifiers for the samples.

Holding Times

All holding time requirements were met.

Method Blanks

There were no detections in the Method Blank(s).

Calibration

Initial calibration criteria for respective analysis were met. Frequency criteria for initial and continuing calibrations were met. Accuracy criteria for initial and continuing calibrations were met.

Matrix Spikes

Source Samples Used For QC

Batch	Method	Source Lab Number	Client Sample Name
B037370	SM-4500-NH3G	1904017-01	N034033-002A / SC-700B-WDR-583

Precision and accuracy requirements were within QC limits.

LCS

The LCS recoveries were within QC limits.

ASSET Laboratories
3151-3153 W Post Rd., Las Vegas, NV 89118
www.atl-labs.com
TEL: 7023072659 FAX: 7023072691

CHAIN-OF-CUSTODY RECORD

19-0401-7

QC Level: Level IV

Subcontractor:
BC Labs
4100 Atlas Court
Bakersfield, CA 93308

TEL: (661) 327-4911
FAX: (661) 327-1918
Acct #:

Field Sampler: SIGNED

06-Feb-19

Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests		
				SM4500-NH3D		
N034033-002A / SC-700B-WDR-583	Water	2/5/2019 12:37:00 PM	32OZP	1		

COOK BY DISTRIBUTION SUB-OUT

Please CC report to Lucille Golosinda at lucille.golosinda@assetlaboratories.com

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

Please use PO#:N34033A Please email Invoices and Account Receivable Statements to elvira@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. EDD Requirement Labspec7 edata.

GSO#: 543698051

	Date/Time		Date/Time
Relinquished by:	2/6/2019 17:00	Received by:	2-7 0552
Relinquished by:		Received by:	

Chain of Custody and Cooler Receipt Form for 1904017 Page 2 of 2

BC LABORATORIES INC. COOLER RECEIPT FORM Page 1 Of 1

Submission #: 19-04017

SHIPPING INFORMATION	SHIPPING CONTAINER	FREE LIQUID
Fed Ex ☐ UPS ☐ Ontrac ☐ Hand Delivery ☐ BC Lab Field Service ☐ Other ☒ (Specify) Esc	Ice Chest ☒ None ☐ Box ☐ Other ☐ (Specify)_____	YES ☐ NO ☐ W / S

Refrigerant: Ice ☒ Blue Ice ☐ None ☐ Other ☐ Comments:

Custody Seals Ice Chest ☐ Intact? Yes ☐ No ☐ Containers ☐ Intact? Yes ☐ No ☐ None ☒ Comments:

All samples received? Yes ☑ No ☐ All samples containers intact? Yes ☑ No ☐ Description(s) match COC? Yes ☑ No ☐

COC Received ☒ YES ☐ NO

Emissivity: 0.95 Container: PE Thermometer ID: 274

Temperature: (A) 1.1 °C / (C) 1.5 °C

Date/Time 2-7-19 0850

Analyst Init MJG

SAMPLE CONTAINERS	SAMPLE NUMBERS 1	2	3	4	5	6	7	8	9	10
QT PE UNPRES										
4oz / 8oz / 16oz PE UNPRES										
2oz Cr+6										
QT INORGANIC CHEMICAL METALS										
INORGANIC CHEMICAL METALS 4oz / 8oz / 16oz										
PT CYANIDE										
PT NITROGEN FORMS	A									
PT TOTAL SULFIDE										
2oz. NITRATE / NITRITE										
PT TOTAL ORGANIC CARBON										
PT CHEMICAL OXYGEN DEMAND										
PtA PHENOLICS										
40ml VOA VIAL TRAVEL BLANK										
40ml VOA VIAL										
QT EPA 1664										
PT ODOR										
RADIOLOGICAL										
BACTERIOLOGICAL										
40 ml VOA VIAL- 504										
QT EPA 508/608/8080										
QT EPA 515.1/8150										
QT EPA 525										
QT EPA 525 TRAVEL BLANK										
40ml EPA 547										
40ml EPA 531.1										
8oz EPA 548										
QT EPA 549										
QT EPA 8015M										
QT EPA 8270										
8oz / 16oz / 32oz AMBER										
8oz / 16oz / 32oz JAR										
SOIL SLEEVE										
PCB VIAL										
PLASTIC BAG										
TEDLAR BAG										
FERROUS IRON										
ENCORE										
SMART KIT										
SUMMA CANISTER										

Comments:

Sample Numbering Completed By: JM Date/Time: 2/7/19 1511

A = Actual / C = Corrected

Rev 21 05/23/2016

IS:\WP\Qual\Word Perfect\LAB FORMS\Misc\SAMREC rev 20

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

Reported: 3/12/2019 3:17:24PM
Project: Level IV
Project Number: N034033
Project Manager: Marlon Cartin

BC Laboratories
4100 Atlas Court
Bakersfield, CA 93308
Phone: 661-327-4911

SDG: **1904017**
Class: **WET**
Method: **SM-4500-NH3G**

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

Reported: 3/12/2019 3:17:24PM
Project: Level IV
Project Number: N034033
Project Manager: Marlon Cartin

ANALYSES DATA PACKAGE COVER PAGE

SM-4500-NH3G

Laboratory: BC Laboratories
Client: ASSET Laboratories- Las Vegas $ADNV

SDG: 1904017
Project: Level IV

Client Sample Id:	Lab Sample Id:
N034033-002A / SC-700B-WDR-583	1904017-01

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in computer-readable data submitted on diskette has been autorized by the Laboratory Manager or the Manager's designee, as verified by the following signatures.

Signature: 
Name: Sara Guron

Date: 03-12-2019
Title: QA/QC Manager

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

Reported: 3/12/2019 3:17:24PM
Project: Level IV
Project Number: N034033
Project Manager: Marlon Cartin

METHOD DETECTION AND REPORTING LIMITS

SM-4500-NH3G

Laboratory: BC Laboratories
SDG: 1904017
Client: ASSET Laboratories- Las Vegas $ADNV
Project: Level IV
Matrix: Water
Instrument: SC-1

Analyte	MDL	PQL	Units
Ammonia as N (Distilled)	0.05	0.2	mg/L

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

Reported: 3/12/2019 3:17:24PM
Project: Level IV
Project Number: N034033
Project Manager: Marlon Cartin

INORGANIC ANALYSIS DATA SHEET

SM-4500-NH3G

034033-002A / SC-700B-WDR-58

Laboratory: BC Laboratories
SDG: 1904017
Client: ASSET Laboratories- Las Vegas $ADNV
Project: Level IV
Matrix: Water
Laboratory ID: 1904017-01
File ID: 20190212001-NH3-074
Sampled: 02/05/19 12:37
Prepared: 02/11/19 15:00
Analyzed: 02/12/19 10:16
Solids: 0.00
Preparation: No Prep
Initial/Final: 6 ml / 6 ml
Batch: B037370
Sequence: 1902705
Calibration: UNASSIGNED
Instrument: SC-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7664-41-7	Ammonia as N (Distilled)	0.20	1	U	SM-4500-NH3G

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

Reported: 3/12/2019 3:17:24PM
Project: Level IV
Project Number: N034033
Project Manager: Marlon Cartin

METHOD BLANK DATA SHEET
SM-4500-NH3G

Laboratory:	BC Laboratories		SDG:	1904017	
Client:	ASSET Laboratories- Las Vegas $ADNV		Project:	Level IV	
Matrix:	Water	Laboratory ID:	B037370-BLK1	File ID:	20190212001-NH3-021
Prepared:	02/11/19 15:30	Preparation:	No Prep	Initial/Final:	6 ml / 6 ml
Analyzed:	02/12/19 09:23	Instrument:	SC-1		
Batch:	B037370	Sequence:	1902705	Calibration:	UNASSIGNED

CAS NO.	COMPOUND	CONC. (mg/L)	Q
7664-41-7	Ammonia as N (Distilled)	0.20	U

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

Reported: 3/12/2019 3:17:24PM
Project: Level IV
Project Number: N034033
Project Manager: Marlon Cartin

33-002A / SC-700B-WD

DUPLICATES

SM-4500-NH3G

Laboratory: BC Laboratories
Client: ASSET Laboratories- Las Vegas $ADNV
Matrix: Water
Batch: B037370
Preparation: No Prep
Source Sample Name: N034033-002A / SC-700B-WDR-583

SDG: 1904017
Project: Level IV
Laboratory ID: B037370-DUP1
Lab Source ID: 1904017-01
Initial/Final: 6 ml / 6 ml
% Solids:

ANALYTE	CONTROL LIMIT	SAMPLE CONCENTRATION (mg/L)	C	DUPLICATE CONCENTRATION (mg/L)	C	RPD %	Q	METHOD
Ammonia as N (Distilled)	20	0.074000		ND				SM-4500-NH3G

* Values outside of QC limits

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

Reported: 3/12/2019 3:17:24PM
Project: Level IV
Project Number: N034033
Project Manager: Marlon Cartin

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

SM-4500-NH3G

034033-002A / SC-700B-WDR-58

Laboratory: BC Laboratories
Client: ASSET Laboratories- Las Vegas $ADNV
Matrix: Water
Batch: B037370
Preparation: No Prep
Source Sample Number: 1904017-01

SDG: 1904017
Project: Level IV
Laboratory ID: B037370-MS1
Initial/Final: 5.4 ml / 6 ml

COMPOUND	SPIKE ADDED (mg/L)	SAMPLE CONCENTRATION (mg/L)	MS CONCENTRATION (mg/L)	MS % REC. #	QC LIMITS REC.
Ammonia as N (Distilled)	1.1111	0.074000	1.1526	97.1	80 - 120

COMPOUND	SPIKE ADDED (mg/L)	MSD CONCENTRATION (mg/L)	MSD % REC. #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Ammonia as N (Distilled)	1.1111	1.1327	95.3	1.74	20	80 - 120

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

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

Reported: 3/12/2019 3:17:24PM
Project: Level IV
Project Number: N034033
Project Manager: Marlon Cartin

LCS RECOVERY

SM-4500-NH3G

Laboratory: BC Laboratories
Client: ASSET Laboratories- Las Vegas $ADNV
Matrix: Water
Batch: B037370
Preparation: No Prep

SDG: 1904017
Project: Level IV
Laboratory ID: B037370-BS1
Initial/Final: 6 ml / 6 ml

COMPOUND	SPIKE ADDED (mg/L)	LCS CONCENTRATION (mg/L)	LCS % REC. #	QC LIMITS REC.
Ammonia as N (Distilled)	1.0000	0.95930	95.9	85 - 115

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

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

Reported: 3/12/2019 3:17:24PM
Project: Level IV
Project Number: N034033
Project Manager: Marlon Cartin

HOLDING TIME SUMMARY

SM-4500-NH3G

Laboratory: BC Laboratories
SDG: 1904017
Client: ASSET Laboratories- Las Vegas $ADNV
Project: Level IV

Sample Name	Date Collected	Date Received	Date Prepared	Days to Prep	Max Days to Prep	Date Analyzed	Days to Analysis	Max Days to Analysis	Q
N034033-002A / SC-700B-WDR-58	02/05/19 12:37	02/07/19 08:50	02/11/19 15:00	7.00	28.00	02/12/19 10:16	7.00	28.00	

* Holding time not met

Note: If Prep or Analysis are performed within the hour (if holding time is based on hours) or within the day (if holding time is based on days), then the sample is not flagged as outside holding times. Calculated number of days are based on date received or date prepared depending on the test.

March 04, 2019

Doug Scott
CH2M HILL
155 Grand Avenue, Suite 1000
Oakland, CA 94612

TEL: (970) 731-0636
FAX: (510) 622-9129

Workorder No.: N034033

RE: PG&E Topock, 680375.03.IM.OP.00

Attention: Doug Scott

Enclosed are the results for sample(s) received on February 05, 2019 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,

Quennie Manimtim
Laboratory Director

CLIENT: CH2M HILL
Project: PG&E Topock, 680375.03.IM.OP.00
Lab Order: N034033

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 BC Labs- Bakersfield,CA.

Analytical Comments for EPA 200.7:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Boron in QC samples N034033-001C-MS and N034033-001C-MSD possibly due to matrix interference. Post Spike and Dilution Test were performed but still failed acceptance criteria. 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 Copper in QC samples N034037-006D-MS and N034037-006D-MSD possibly due to matrix interference. Dilution Test was performed but not applicable since the result for Copper is less than 25x the Reporting Limit(RL). Post Spike was also performed but still failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Analytical Comments for EPA 218.6:

Dilution was necessary for sample N034033-002 due to matrix interference. Sample was analyzed at lower dilution however matrix spike recovery was not met indicating possible matrix interference. Sample was reported at dilution that meets matrix spike recovery limit and the detected peak within retention time window.

ASSET Laboratories

Date: *20-Feb-19*

CLIENT: CH2M HILL
Project: PG&E Topock, 680375.03.IM.OP.00
Lab Order: N034033
Contract No: IM3PLANT-AR

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N034033-001A	SC-100B-WDR-583	Water	2/5/2019 12:35:00 PM	2/5/2019	2/20/2019
N034033-001B	SC-100B-WDR-583	Water	2/5/2019 12:35:00 PM	2/5/2019	2/20/2019
N034033-001C	SC-100B-WDR-583	Water	2/5/2019 12:35:00 PM	2/5/2019	2/20/2019
N034033-002A	SC-700B-WDR-583	Water	2/5/2019 12:37:00 PM	2/5/2019	2/20/2019
N034033-002B	SC-700B-WDR-583	Water	2/5/2019 12:37:00 PM	2/5/2019	2/20/2019
N034033-002C	SC-700B-WDR-583	Water	2/5/2019 12:37:00 PM	2/5/2019	2/20/2019
N034033-002D	SC-700B-WDR-583	Water	2/5/2019 12:37:00 PM	2/5/2019	2/20/2019
N034033-002E	SC-700B-WDR-583	Water	2/5/2019 12:37:00 PM	2/5/2019	2/20/2019

CLIENT:	CH2M HILL	**Client Sample ID:**	SC-100B-WDR-583
Lab Order:	N034033	**Collection Date:**	2/5/2019 12:35:00 PM
Project:	PG&E Topock, 680375.03.IM.OP.00	**Matrix:**	WATER
Lab ID:	N034033-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190206D**	QC Batch: **R131643**			PrepDate			Analyst: **LR**
Specific Conductance	7500	0.10	0.10		umhos/cm	1	2/6/2019 11:10 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

CLIENT:	CH2M HILL	**Client Sample ID:**	SC-700B-WDR-583
Lab Order:	N034033	**Collection Date:**	2/5/2019 12:37:00 PM
Project:	PG&E Topock, 680375.03.IM.OP.00	**Matrix:**	WATER
Lab ID:	N034033-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190206D**	QC Batch: **R131643**			PrepDate			Analyst: **LR**
Specific Conductance	7600	0.10	0.10		umhos/cm	1	2/6/2019 11:10 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

CLIENT: CH2M HILL
Work Order: N034033
Project: PG&E Topock, 680375.03.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID	**N034033-002BDUP**	SampType:	**DUP**	TestCode:	**120.1_WPGE**	Units:	**umhos/cm**	Prep Date:		RunNo:	**131643**
Client ID:	**ZZZZZZ**	Batch ID:	**R131643**	TestNo:	**EPA 120.1**			Analysis Date:	**2/6/2019**	SeqNo:	**3281888**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	7610.000	0.10						7580	0.395	2	

Qualifiers:

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

CLIENT:	CH2M HILL	**Client Sample ID:**	SC-100B-WDR-583
Lab Order:	N034033	**Collection Date:**	2/5/2019 12:35:00 PM
Project:	PG&E Topock, 680375.03.IM.OP.00	**Matrix:**	WATER
Lab ID:	N034033-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **NV00922-WC_190206H**	QC Batch: **72387**			PrepDate	**2/6/2019**		Analyst: **LR**
Total Dissolved Solids (Residue, Filterable)	4400	50	50		mg/L	1	2/6/2019 01:21 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

CLIENT:	CH2M HILL	**Client Sample ID:**	SC-700B-WDR-583
Lab Order:	N034033	**Collection Date:**	2/5/2019 12:37:00 PM
Project:	PG&E Topock, 680375.03.IM.OP.00	**Matrix:**	WATER
Lab ID:	N034033-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **NV00922-WC_190206H**	QC Batch: **72387**			PrepDate	**2/6/2019**		Analyst: **LR**
Total Dissolved Solids (Residue, Filterable)	4200	50	50		mg/L	1	2/6/2019 01:21 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		

CLIENT: CH2M HILL
Work Order: N034033
Project: PG&E Topock, 680375.03.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.1_2540C_W

Sample ID	**LCS-72387**	SampType:	**LCS**	TestCode:	**160.1_2540C**	Units:	**mg/L**	Prep Date:	**2/6/2019**	RunNo:	**131666**
Client ID:	**LCSW**	Batch ID:	**72387**	TestNo:	**SM2540C**			Analysis Date:	**2/6/2019**	SeqNo:	**3282780**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	950.000	10	1000	0	95.0	80	120				

Sample ID	**MB-72387**	SampType:	**MBLK**	TestCode:	**160.1_2540C**	Units:	**mg/L**	Prep Date:	**2/6/2019**	RunNo:	**131666**
Client ID:	**PBW**	Batch ID:	**72387**	TestNo:	**SM2540C**			Analysis Date:	**2/6/2019**	SeqNo:	**3282781**

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	**N034033-002BDUP**	SampType:	**DUP**	TestCode:	**160.1_2540C**	Units:	**mg/L**	Prep Date:	**2/6/2019**	RunNo:	**131666**
Client ID:	**ZZZZZZ**	Batch ID:	**72387**	TestNo:	**SM2540C**			Analysis Date:	**2/6/2019**	SeqNo:	**3282784**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	4260.000	50						4235	0.589	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		

CLIENT:	CH2M HILL	**Client Sample ID:**	SC-100B-WDR-583
Lab Order:	N034033	**Collection Date:**	2/5/2019 12:35:00 PM
Project:	PG&E Topock, 680375.03.IM.OP.00	**Matrix:**	WATER
Lab ID:	N034033-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL METALS BY ICP							
			EPA 200.7				
RunID: **NV00922-ICP2_190219B**	QC Batch: **72426**			PrepDate	**2/11/2019**		Analyst: **CEI**
Iron	ND	18	20		µg/L	1	2/19/2019 10:33 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

CLIENT:	CH2M HILL	**Client Sample ID:**	SC-700B-WDR-583
Lab Order:	N034033	**Collection Date:**	2/5/2019 12:37:00 PM
Project:	PG&E Topock, 680375.03.IM.OP.00	**Matrix:**	WATER
Lab ID:	N034033-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL METALS BY ICP							
			EPA 200.7				
RunID: **NV00922-ICP2_190219B**	QC Batch: **72426**				PrepDate	**2/11/2019**	Analyst: **CEI**
Aluminum	ND	40	50		µg/L	1	2/19/2019 11:08 AM
Boron	990	74	100		µg/L	1	2/19/2019 11:08 AM
Iron	ND	18	20		µg/L	1	2/19/2019 11:08 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

CLIENT: CH2M HILL
Work Order: N034033
Project: PG&E Topock, 680375.03.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WPGEPPB

Sample ID	**MB-72426**	SampType: **MBLK**	TestCode: **200.7_WPGE**	Units: **µg/L**	Prep Date: **2/11/2019**	RunNo: **131925**
Client ID:	**PBW**	Batch ID: **72426**	TestNo: **EPA 200.7**		Analysis Date: **2/19/2019**	SeqNo: **3292962**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	ND	50									
Boron	ND	100									
Iron	ND	20									

Sample ID	**LCS-72426**	SampType: **LCS**	TestCode: **200.7_WPGE**	Units: **µg/L**	Prep Date: **2/11/2019**	RunNo: **131925**
Client ID:	**LCSW**	Batch ID: **72426**	TestNo: **EPA 200.7**		Analysis Date: **2/19/2019**	SeqNo: **3292963**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	5391.046	50	5000	0	108	85	115				
Boron	1049.134	100	1000	0	105	85	115				
Iron	110.606	20	100.0	0	111	85	115				

Sample ID	**N034033-001C-MS**	SampType: **MS**	TestCode: **200.7_WPGE**	Units: **µg/L**	Prep Date: **2/11/2019**	RunNo: **131925**
Client ID:	**ZZZZZZ**	Batch ID: **72426**	TestNo: **EPA 200.7**		Analysis Date: **2/19/2019**	SeqNo: **3292967**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	4921.496	50	5000	0	98.4	75	125				
Boron	2286.016	100	1000	996.5	129	75	125				S
Iron	84.675	20	100.0	0	84.7	75	125				

Sample ID	**N034033-001C-MSD**	SampType: **MSD**	TestCode: **200.7_WPGE**	Units: **µg/L**	Prep Date: **2/11/2019**	RunNo: **131925**
Client ID:	**ZZZZZZ**	Batch ID: **72426**	TestNo: **EPA 200.7**		Analysis Date: **2/19/2019**	SeqNo: **3292968**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	4980.815	50	5000	0	99.6	75	125	4921	1.20	20	
Boron	2294.546	100	1000	996.5	130	75	125	2286	0.372	20	S
Iron	84.244	20	100.0	0	84.2	75	125	84.68	0.510	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		

CLIENT: CH2M HILL
Work Order: N034033
Project: PG&E Topock, 680375.03.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WPGEPPB

Sample ID	**N034033-001C-PS**	SampType: **PS**	TestCode: **200.7_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **131925**
Client ID:	**ZZZZZZ**	Batch ID: **72426**	TestNo: **EPA 200.7**		Analysis Date: **2/19/2019**	SeqNo: **3292966**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	4930.821	50	5000	0	98.6	80	120				
Boron	2222.812	100	1000	996.5	123	80	120				S
Iron	85.756	20	100.0	0	85.8	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		

CLIENT:	CH2M HILL	**Client Sample ID:**	SC-100B-WDR-583
Lab Order:	N034033	**Collection Date:**	2/5/2019 12:35:00 PM
Project:	PG&E Topock, 680375.03.IM.OP.00	**Matrix:**	WATER
Lab ID:	N034033-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL METALS BY ICPMS							
			EPA 200.8				
RunID: **NV00922-ICP7_190206A**	QC Batch: **72386**			PrepDate	**2/6/2019**		Analyst: **CEI**
Manganese	8.1	0.26	0.50		µg/L	1	2/6/2019 08:50 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

ASSET Laboratories

ANALYTICAL RESULTS

Print Date: *04-Mar-19*

CLIENT: CH2M HILL
Lab Order: N034033
Project: PG&E Topock, 680375.03.IM.OP.00
Lab ID: N034033-002

Client Sample ID: SC-700B-WDR-583
Collection Date: 2/5/2019 12:37:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL METALS BY ICPMS							
			EPA 200.8				
RunID: **NV00922-ICP7_190206A**	QC Batch: **72386**				PrepDate	**2/6/2019**	Analyst: **CEI**
Antimony	ND	0.16	0.50		µg/L	1	2/6/2019 09:12 PM
Arsenic	0.19	0.081	0.10		µg/L	1	2/19/2019 02:22 PM
Barium	14	0.15	1.0		µg/L	1	2/6/2019 09:12 PM
Copper	ND	0.55	1.0		µg/L	1	2/22/2019 02:58 PM
Lead	ND	0.13	1.0		µg/L	1	2/6/2019 09:12 PM
Manganese	6.9	0.26	0.50		µg/L	1	2/6/2019 09:12 PM
Molybdenum	21	0.21	0.50		µg/L	1	2/18/2019 01:13 PM
Nickel	ND	0.26	1.0		µg/L	1	2/6/2019 09:12 PM
Zinc	ND	2.3	10		µg/L	1	2/6/2019 09:12 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

Date: *04-Mar-19*

CLIENT: CH2M HILL
Work Order: N034033
Project: PG&E Topock, 680375.03.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID **MB-72386**	SampType: **MBLK**	TestCode: **200.8_W**	Units: **µg/L**	Prep Date: **2/6/2019**	RunNo: **131679**
Client ID: **PBW**	Batch ID: **72386**	TestNo: **EPA 200.8**		Analysis Date: **2/6/2019**	SeqNo: **3283217**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	ND	0.50									
Barium	ND	1.0									
Lead	ND	1.0									
Manganese	ND	0.50									
Nickel	ND	1.0									
Zinc	ND	10									

Sample ID **LCS-72386**	SampType: **LCS**	TestCode: **200.8_W**	Units: **µg/L**	Prep Date: **2/6/2019**	RunNo: **131679**
Client ID: **LCSW**	Batch ID: **72386**	TestNo: **EPA 200.8**		Analysis Date: **2/6/2019**	SeqNo: **3283218**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	9.871	0.50	10.00	0	98.7	85	115				
Barium	10.437	1.0	10.00	0	104	85	115				
Lead	9.781	1.0	10.00	0	97.8	85	115				
Manganese	105.111	0.50	100.0	0	105	85	115				
Nickel	10.380	1.0	10.00	0	104	85	115				
Zinc	10.436	10	10.00	0	104	85	115				

Sample ID **N034037-006D-DUP**	SampType: **DUP**	TestCode: **200.8_W**	Units: **µg/L**	Prep Date: **2/6/2019**	RunNo: **131679**
Client ID: **ZZZZZZ**	Batch ID: **72386**	TestNo: **EPA 200.8**		Analysis Date: **2/6/2019**	SeqNo: **3283221**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	0.199	0.50						0.1765	0	20	
Barium	65.280	1.0						65.35	0.105	20	
Nickel	0.975	1.0						1.288	0	20	
Zinc	ND	10						0	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		

CLIENT: CH2M HILL
Work Order: N034033
Project: PG&E Topock, 680375.03.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID	N034037-006D-MS	SampType:	MS	TestCode:	200.8_W	Units:	µg/L	Prep Date:	2/6/2019	RunNo:	131679
Client ID:	ZZZZZZ	Batch ID:	72386	TestNo:	EPA 200.8			Analysis Date:	2/6/2019	SeqNo:	3283223

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	10.409	0.50	10.00	0.1765	102	75	125				
Barium	75.054	1.0	10.00	65.35	97.1	75	125				
Nickel	10.319	1.0	10.00	1.288	90.3	75	125				
Zinc	10.031	10	10.00	0	100	75	125				

Sample ID	N034037-006D-MSD	SampType:	MSD	TestCode:	200.8_W	Units:	µg/L	Prep Date:	2/6/2019	RunNo:	131679
Client ID:	ZZZZZZ	Batch ID:	72386	TestNo:	EPA 200.8			Analysis Date:	2/6/2019	SeqNo:	3283224

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	10.432	0.50	10.00	0.1765	103	75	125	10.41	0.227	20	
Barium	75.531	1.0	10.00	65.35	102	75	125	75.05	0.634	20	
Nickel	9.926	1.0	10.00	1.288	86.4	75	125	10.32	3.88	20	
Zinc	9.699	10	10.00	0	97.0	75	125	10.03	0	20	

Sample ID	N034037-006D-DUP	SampType:	DUP	TestCode:	200.8_W	Units:	µg/L	Prep Date:	2/6/2019	RunNo:	131679
Client ID:	ZZZZZZ	Batch ID:	72386	TestNo:	EPA 200.8			Analysis Date:	2/6/2019	SeqNo:	3283232

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	5.0						0	0	20	
Manganese	ND	2.5						0	0	20	

Sample ID	N034037-006D-MS	SampType:	MS	TestCode:	200.8_W	Units:	µg/L	Prep Date:	2/6/2019	RunNo:	131679
Client ID:	ZZZZZZ	Batch ID:	72386	TestNo:	EPA 200.8			Analysis Date:	2/6/2019	SeqNo:	3283234

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	7.700	5.0	10.00	0	77.0	75	125				
Manganese	103.408	2.5	100.0	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		

CLIENT: CH2M HILL
Work Order: N034033
Project: PG&E Topock, 680375.03.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID	N034037-006D-MSD	SampType:	MSD	TestCode:	200.8_W	Units:	µg/L	Prep Date:	2/6/2019	RunNo:	131679
Client ID:	ZZZZZZ	Batch ID:	72386	TestNo:	EPA 200.8			Analysis Date:	2/6/2019	SeqNo:	3283235

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	7.708	5.0	10.00	0	77.1	75	125	7.700	0.0983	20	
Manganese	100.836	2.5	100.0	0	101	75	125	103.4	2.52	20	

Sample ID	MB-72386	SampType:	MBLK	TestCode:	200.8_W	Units:	µg/L	Prep Date:	2/6/2019	RunNo:	131902
Client ID:	PBW	Batch ID:	72386	TestNo:	EPA 200.8			Analysis Date:	2/18/2019	SeqNo:	3291896

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Molybdenum	ND	0.50									

Sample ID	LCS-72386	SampType:	LCS	TestCode:	200.8_W	Units:	µg/L	Prep Date:	2/6/2019	RunNo:	131902
Client ID:	LCSW	Batch ID:	72386	TestNo:	EPA 200.8			Analysis Date:	2/18/2019	SeqNo:	3291897

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	9.761	0.10	10.00	0	97.6	85	115				
Molybdenum	9.253	0.50	10.00	0	92.5	85	115				

Sample ID	N034037-006D-DUP	SampType:	DUP	TestCode:	200.8_W	Units:	µg/L	Prep Date:	2/6/2019	RunNo:	131902
Client ID:	ZZZZZZ	Batch ID:	72386	TestNo:	EPA 200.8			Analysis Date:	2/18/2019	SeqNo:	3291900

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	11.380	0.10						11.30	0.747	20	

Sample ID	N034037-006D-MS	SampType:	MS	TestCode:	200.8_W	Units:	µg/L	Prep Date:	2/6/2019	RunNo:	131902
Client ID:	ZZZZZZ	Batch ID:	72386	TestNo:	EPA 200.8			Analysis Date:	2/18/2019	SeqNo:	3291902

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	21.667	0.10	10.00	11.30	104	75	125				

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

CLIENT: CH2M HILL
Work Order: N034033
Project: PG&E Topock, 680375.03.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID	N034037-006D-MSD	SampType:	MSD	TestCode:	200.8_W	Units:	µg/L	Prep Date:	2/6/2019	RunNo:	131902
Client ID:	ZZZZZZ	Batch ID:	72386	TestNo:	EPA 200.8			Analysis Date:	2/18/2019	SeqNo:	3291903

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	21.337	0.10	10.00	11.30	100	75	125	21.67	1.54	20	

Sample ID	N034037-006D-DUP	SampType:	DUP	TestCode:	200.8_W	Units:	µg/L	Prep Date:	2/6/2019	RunNo:	131902
Client ID:	ZZZZZZ	Batch ID:	72386	TestNo:	EPA 200.8			Analysis Date:	2/18/2019	SeqNo:	3291909

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	3.260	2.5						3.125	4.25	20	

Sample ID	N034037-006D-MS	SampType:	MS	TestCode:	200.8_W	Units:	µg/L	Prep Date:	2/6/2019	RunNo:	131902
Client ID:	ZZZZZZ	Batch ID:	72386	TestNo:	EPA 200.8			Analysis Date:	2/18/2019	SeqNo:	3291911

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	13.173	2.5	10.00	3.125	100	75	125				

Sample ID	N034037-006D-MSD	SampType:	MSD	TestCode:	200.8_W	Units:	µg/L	Prep Date:	2/6/2019	RunNo:	131902
Client ID:	ZZZZZZ	Batch ID:	72386	TestNo:	EPA 200.8			Analysis Date:	2/18/2019	SeqNo:	3291912

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	12.673	2.5	10.00	3.125	95.5	75	125	13.17	3.87	20	

Sample ID	MB-72386	SampType:	MBLK	TestCode:	200.8_W	Units:	µg/L	Prep Date:	2/6/2019	RunNo:	132079
Client ID:	PBW	Batch ID:	72386	TestNo:	EPA 200.8			Analysis Date:	2/22/2019	SeqNo:	3300162

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	ND	1.0									

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

CLIENT: CH2M HILL
Work Order: N034033
Project: PG&E Topock, 680375.03.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID	LCS-72386	SampType:	LCS	TestCode:	200.8_W	Units:	µg/L	Prep Date:	2/6/2019	RunNo:	132079
Client ID:	LCSW	Batch ID:	72386	TestNo:	EPA 200.8			Analysis Date:	2/22/2019	SeqNo:	3300163

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	9.531	1.0	10.00	0	95.3	85	115				

Sample ID	N034037-006D-DUP	SampType:	DUP	TestCode:	200.8_W	Units:	µg/L	Prep Date:	2/6/2019	RunNo:	132079
Client ID:	ZZZZZZ	Batch ID:	72386	TestNo:	EPA 200.8			Analysis Date:	2/22/2019	SeqNo:	3300166

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	ND	1.0						0	0	20	

Sample ID	N034037-006D-MS	SampType:	MS	TestCode:	200.8_W	Units:	µg/L	Prep Date:	2/6/2019	RunNo:	132079
Client ID:	ZZZZZZ	Batch ID:	72386	TestNo:	EPA 200.8			Analysis Date:	2/22/2019	SeqNo:	3300168

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	6.425	1.0	10.00	0	64.2	75	125				S

Sample ID	N034037-006D-MSD	SampType:	MSD	TestCode:	200.8_W	Units:	µg/L	Prep Date:	2/6/2019	RunNo:	132079
Client ID:	ZZZZZZ	Batch ID:	72386	TestNo:	EPA 200.8			Analysis Date:	2/22/2019	SeqNo:	3300169

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	6.374	1.0	10.00	0	63.7	75	125	6.425	0.797	20	S

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

ASSET Laboratories

Date: *04-Mar-19*

CLIENT: CH2M HILL
Work Order: N034033
Project: PG&E Topock, 680375.03.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID **N034037-006D-PS**	SampType: **PS**	TestCode: **200.8_W**	Units: **µg/L**	Prep Date:	RunNo: **131679**
Client ID: **ZZZZZZ**	Batch ID: **72386**	TestNo: **EPA 200.8**		Analysis Date: **2/6/2019**	SeqNo: **3283222**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	10.309	0.50	10.00	0.1765	101	80	120				
Barium	74.288	1.0	10.00	65.35	89.4	80	120				
Nickel	10.164	1.0	10.00	1.288	88.8	80	120				
Zinc	9.639	10	10.00	0	96.4	80	120				

Sample ID **N034037-006D-PS**	SampType: **PS**	TestCode: **200.8_W**	Units: **µg/L**	Prep Date:	RunNo: **131679**
Client ID: **ZZZZZZ**	Batch ID: **72386**	TestNo: **EPA 200.8**		Analysis Date: **2/6/2019**	SeqNo: **3283233**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	7.829	5.0	10.00	0	78.3	80	120				S
Manganese	104.669	2.5	100.0	0	105	80	120				

Sample ID **N034037-006D-PS**	SampType: **PS**	TestCode: **200.8_W**	Units: **µg/L**	Prep Date:	RunNo: **131902**
Client ID: **ZZZZZZ**	Batch ID: **72386**	TestNo: **EPA 200.8**		Analysis Date: **2/18/2019**	SeqNo: **3291901**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.684	0.10	10.00	11.30	93.9	80	120				

Sample ID **N034037-006D-PS**	SampType: **PS**	TestCode: **200.8_W**	Units: **µg/L**	Prep Date:	RunNo: **131902**
Client ID: **ZZZZZZ**	Batch ID: **72386**	TestNo: **EPA 200.8**		Analysis Date: **2/18/2019**	SeqNo: **3291910**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	12.480	2.5	10.00	3.125	93.6	80	120				

Sample ID **N034037-006D-PS**	SampType: **PS**	TestCode: **200.8_W**	Units: **µg/L**	Prep Date:	RunNo: **132079**
Client ID: **ZZZZZZ**	Batch ID: **72386**	TestNo: **EPA 200.8**		Analysis Date: **2/22/2019**	SeqNo: **3300167**

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

CLIENT: CH2M HILL
Work Order: N034033
Project: PG&E Topock, 680375.03.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID	N034037-006D-PS	SampType:	PS	TestCode:	200.8_W	Units:	µg/L	Prep Date:		RunNo:	132079
Client ID:	ZZZZZZ	Batch ID:	72386	TestNo:	EPA 200.8			Analysis Date:	2/22/2019	SeqNo:	3300167

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	6.587	1.0	10.00	0	65.9	80	120				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		

CLIENT:	CH2M HILL	**Client Sample ID:**	SC-100B-WDR-583
Lab Order:	N034033	**Collection Date:**	2/5/2019 12:35:00 PM
Project:	PG&E Topock, 680375.03.IM.OP.00	**Matrix:**	WATER
Lab ID:	N034033-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190205B**	QC Batch: **R131697**			PrepDate			Analyst: **HG**
Hexavalent Chromium	440	3.3	20		µg/L	100	2/6/2019 08:38 AM
TOTAL METALS BY ICPMS							
			EPA 200.8				
RunID: **NV00922-ICP7_190206A**	QC Batch: **72386**			PrepDate	**2/6/2019**		Analyst: **CEI**
Chromium	500	0.65	5.0		µg/L	5	2/6/2019 08:56 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

CLIENT:	CH2M HILL	**Client Sample ID:**	SC-700B-WDR-583
Lab Order:	N034033	**Collection Date:**	2/5/2019 12:37:00 PM
Project:	PG&E Topock, 680375.03.IM.OP.00	**Matrix:**	WATER
Lab ID:	N034033-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190205B**	QC Batch: **R131697**			PrepDate			Analyst: **HG**
Hexavalent Chromium	ND	0.17	1.0		µg/L	5	2/6/2019 09:54 AM
TOTAL METALS BY ICPMS							
			EPA 200.8				
RunID: **NV00922-ICP7_190206A**	QC Batch: **72386**			PrepDate	**2/6/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	2/6/2019 09:12 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

CLIENT: CH2M HILL
Work Order: N034033
Project: PG&E Topock, 680375.03.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W_CRPGE

Sample ID	**MB-72386**	SampType:	**MBLK**	TestCode:	**200.8_W_CR**	Units:	**µg/L**	Prep Date:	**2/6/2019**	RunNo:	**131679**
Client ID:	**PBW**	Batch ID:	**72386**	TestNo:	**EPA 200.8**			Analysis Date:	**2/6/2019**	SeqNo:	**3283138**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID	**LCS-72386**	SampType:	**LCS**	TestCode:	**200.8_W_CR**	Units:	**µg/L**	Prep Date:	**2/6/2019**	RunNo:	**131679**
Client ID:	**LCSW**	Batch ID:	**72386**	TestNo:	**EPA 200.8**			Analysis Date:	**2/6/2019**	SeqNo:	**3283139**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.133	1.0	10.00	0	101	85	115				

Sample ID	**N034037-006D-DUP**	SampType:	**DUP**	TestCode:	**200.8_W_CR**	Units:	**µg/L**	Prep Date:	**2/6/2019**	RunNo:	**131679**
Client ID:	**ZZZZZZ**	Batch ID:	**72386**	TestNo:	**EPA 200.8**			Analysis Date:	**2/6/2019**	SeqNo:	**3283153**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	2.747	5.0						2.719	0	20	

Sample ID	**N034037-006D-MS**	SampType:	**MS**	TestCode:	**200.8_W_CR**	Units:	**µg/L**	Prep Date:	**2/6/2019**	RunNo:	**131679**
Client ID:	**ZZZZZZ**	Batch ID:	**72386**	TestNo:	**EPA 200.8**			Analysis Date:	**2/6/2019**	SeqNo:	**3283155**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	12.885	5.0	10.00	2.719	102	75	125				

Sample ID	**N034037-006D-MSD**	SampType:	**MSD**	TestCode:	**200.8_W_CR**	Units:	**µg/L**	Prep Date:	**2/6/2019**	RunNo:	**131679**
Client ID:	**ZZZZZZ**	Batch ID:	**72386**	TestNo:	**EPA 200.8**			Analysis Date:	**2/6/2019**	SeqNo:	**3283156**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	12.845	5.0	10.00	2.719	101	75	125	12.89	0.317	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

CLIENT: CH2M HILL
Work Order: N034033
Project: PG&E Topock, 680375.03.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W_CRPGE

Sample ID	**N034037-006D-PS**	SampType: **PS**	TestCode: **200.8_W_CR**	Units: **µg/L**	Prep Date:	RunNo: **131679**
Client ID:	**ZZZZZZ**	Batch ID: **72386**	TestNo: **EPA 200.8**		Analysis Date: **2/6/2019**	SeqNo: **3283154**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	13.348	5.0	10.00	2.719	106	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		

CLIENT: CH2M HILL
Work Order: N034033
Project: PG&E Topock, 680375.03.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WU_PGE

Sample ID **MB-R131697**	SampType: **MBLK**	TestCode: **218.6_WU_P**	Units: **µg/L**	Prep Date:	RunNo: **131697**
Client ID: **PBW**	Batch ID: **R131697**	TestNo: **EPA 218.6**		Analysis Date: **2/6/2019**	SeqNo: **3284318**

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-R131697**	SampType: **LCS**	TestCode: **218.6_WU_P**	Units: **µg/L**	Prep Date:	RunNo: **131697**
Client ID: **LCSW**	Batch ID: **R131697**	TestNo: **EPA 218.6**		Analysis Date: **2/6/2019**	SeqNo: **3284319**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.726	0.20	5.000	0	94.5	90	110				

Sample ID **N034033-001BDUP**	SampType: **DUP**	TestCode: **218.6_WU_P**	Units: **µg/L**	Prep Date:	RunNo: **131697**
Client ID: **ZZZZZZ**	Batch ID: **R131697**	TestNo: **EPA 218.6**		Analysis Date: **2/6/2019**	SeqNo: **3284329**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	446.780	20						438.1	1.97	20	

Sample ID **N034033-001BMS**	SampType: **MS**	TestCode: **218.6_WU_P**	Units: **µg/L**	Prep Date:	RunNo: **131697**
Client ID: **ZZZZZZ**	Batch ID: **R131697**	TestNo: **EPA 218.6**		Analysis Date: **2/6/2019**	SeqNo: **3284330**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	913.040	20	500.0	438.1	95.0	90	110				

Sample ID **N034033-002CMS**	SampType: **MS**	TestCode: **218.6_WU_P**	Units: **µg/L**	Prep Date:	RunNo: **131697**
Client ID: **ZZZZZZ**	Batch ID: **R131697**	TestNo: **EPA 218.6**		Analysis Date: **2/6/2019**	SeqNo: **3284334**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.748	1.0	5.000	0	95.0	90	110				

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

CLIENT: CH2M HILL
Work Order: N034033
Project: PG&E Topock, 680375.03.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WU_PGE

Sample ID	N034033-002CMSD	SampType:	MSD	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	131697
Client ID:	ZZZZZZ	Batch ID:	R131697	TestNo:	EPA 218.6			Analysis Date:	2/6/2019	SeqNo:	3284335

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.656	1.0	5.000	0	93.1	90	110	4.748	1.96	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		

CLIENT:	CH2M HILL	**Client Sample ID:**	SC-100B-WDR-583
Lab Order:	N034033	**Collection Date:**	2/5/2019 12:35:00 PM
Project:	PG&E Topock, 680375.03.IM.OP.00	**Matrix:**	WATER
Lab ID:	N034033-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TURBIDITY							
			SM 2130B				
RunID: **NV00922-WC_190206F**	QC Batch: **R131645**			PrepDate			Analyst: **LR**
Turbidity	0.10	0.10	0.10		NTU	1	2/6/2019 04:35 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		

CLIENT:	CH2M HILL	**Client Sample ID:**	SC-700B-WDR-583
Lab Order:	N034033	**Collection Date:**	2/5/2019 12:37:00 PM
Project:	PG&E Topock, 680375.03.IM.OP.00	**Matrix:**	WATER
Lab ID:	N034033-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TURBIDITY							
			SM 2130B				
RunID: **NV00922-WC_190206F**	QC Batch: **R131645**			PrepDate			Analyst: **LR**
Turbidity	0.13	0.10	0.10		NTU	1	2/6/2019 04:35 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		

CLIENT: CH2M HILL
Work Order: N034033
Project: PG&E Topock, 680375.03.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 2130_W

Sample ID	**MB-R131645**	SampType: **MBLK**	TestCode: **2130_W**	Units: **NTU**	Prep Date:	RunNo: **131645**
Client ID:	**PBW**	Batch ID: **R131645**	TestNo: **SM 2130B**		Analysis Date: **2/6/2019**	SeqNo: **3281891**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Turbidity	ND	0.10									

Sample ID	**N034033-002BDUP**	SampType: **DUP**	TestCode: **2130_W**	Units: **NTU**	Prep Date:	RunNo: **131645**
Client ID:	**ZZZZZZ**	Batch ID: **R131645**	TestNo: **SM 2130B**		Analysis Date: **2/6/2019**	SeqNo: **3281894**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Turbidity	0.140	0.10						0.1300	7.41	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		

CLIENT:	CH2M HILL	**Client Sample ID:**	SC-700B-WDR-583
Lab Order:	N034033	**Collection Date:**	2/5/2019 12:37:00 PM
Project:	PG&E Topock, 680375.03.IM.OP.00	**Matrix:**	WATER
Lab ID:	N034033-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_190211A** QC Batch: **R131751**				PrepDate			Analyst: **HG**
Fluoride	2.4	0.032	0.50		mg/L	5	2/11/2019 02:39 PM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_190211A** QC Batch: **R131751**				PrepDate			Analyst: **HG**
Sulfate	500	2.3	50		mg/L	100	2/11/2019 03:38 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

CLIENT: CH2M HILL
Work Order: N034033
Project: PG&E Topock, 680375.03.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_FPGE

Sample ID	**MB-R131751_F**	SampType: **MBLK**	TestCode: **300_W_FPG**	Units: **mg/L**	Prep Date:		RunNo: **131751**
Client ID:	**PBW**	Batch ID: **R131751**	TestNo: **EPA 300.0**		Analysis Date:	**2/11/2019**	SeqNo: **3286050**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	ND	0.10									

Sample ID	**LCS-R131751_F**	SampType: **LCS**	TestCode: **300_W_FPG**	Units: **mg/L**	Prep Date:		RunNo: **131751**
Client ID:	**LCSW**	Batch ID: **R131751**	TestNo: **EPA 300.0**		Analysis Date:	**2/11/2019**	SeqNo: **3286051**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	1.268	0.10	1.250	0	101	90	110				

Sample ID	**N034033-002BDUP**	SampType: **DUP**	TestCode: **300_W_FPG**	Units: **mg/L**	Prep Date:		RunNo: **131751**
Client ID:	**ZZZZZZ**	Batch ID: **R131751**	TestNo: **EPA 300.0**		Analysis Date:	**2/11/2019**	SeqNo: **3286053**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	2.616	0.50						2.446	6.70	20	

Sample ID	**N034033-002BMS**	SampType: **MS**	TestCode: **300_W_FPG**	Units: **mg/L**	Prep Date:		RunNo: **131751**
Client ID:	**ZZZZZZ**	Batch ID: **R131751**	TestNo: **EPA 300.0**		Analysis Date:	**2/11/2019**	SeqNo: **3286054**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	8.728	0.50	6.250	2.446	101	80	120				

Sample ID	**N034033-002BMSD**	SampType: **MSD**	TestCode: **300_W_FPG**	Units: **mg/L**	Prep Date:		RunNo: **131751**
Client ID:	**ZZZZZZ**	Batch ID: **R131751**	TestNo: **EPA 300.0**		Analysis Date:	**2/11/2019**	SeqNo: **3286055**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	8.789	0.50	6.250	2.446	101	80	120	8.728	0.691	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

CLIENT: CH2M HILL
Work Order: N034033
Project: PG&E Topock, 680375.03.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID	MB-R131751_SO4	SampType:	MBLK	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	131751
Client ID:	PBW	Batch ID:	R131751	TestNo:	EPA 300.0			Analysis Date:	2/11/2019	SeqNo:	3286126

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	0.150	0.50									

Sample ID	LCS-R131751_SO4	SampType:	LCS	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	131751
Client ID:	LCSW	Batch ID:	R131751	TestNo:	EPA 300.0			Analysis Date:	2/11/2019	SeqNo:	3286127

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	3.852	0.50	4.000	0	96.3	90	110				

Sample ID	N034033-002BDUP	SampType:	DUP	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	131751
Client ID:	ZZZZZZ	Batch ID:	R131751	TestNo:	EPA 300.0			Analysis Date:	2/11/2019	SeqNo:	3286129

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	517.650	50						499.5	3.57	20	

Sample ID	N034033-002BMS	SampType:	MS	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	131751
Client ID:	ZZZZZZ	Batch ID:	R131751	TestNo:	EPA 300.0			Analysis Date:	2/11/2019	SeqNo:	3286130

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	910.890	50	400.0	499.5	103	80	120				

Sample ID	N034033-002BMSD	SampType:	MSD	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	131751
Client ID:	ZZZZZZ	Batch ID:	R131751	TestNo:	EPA 300.0			Analysis Date:	2/11/2019	SeqNo:	3286133

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	917.200	50	400.0	499.5	104	80	120	910.9	0.690	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

CLIENT: CH2M HILL
Lab Order: N034033
Project: PG&E Topock, 680375.03.IM.OP.00
Lab ID: N034033-002

Client Sample ID: SC-700B-WDR-583
Collection Date: 2/5/2019 12:37:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190207C**	QC Batch: **R131675**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	2.9	0.16	0.25		mg/L	5	2/7/2019

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

CLIENT: CH2M HILL
Work Order: N034033
Project: PG&E Topock, 680375.03.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **MB-R131675**	SampType: **MBLK**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **131675**
Client ID: **PBW**	Batch ID: **R131675**	TestNo: **SM4500-NO3**		Analysis Date: **2/7/2019**	SeqNo: **3283089**

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-R131675**	SampType: **LCS**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **131675**
Client ID: **LCSW**	Batch ID: **R131675**	TestNo: **SM4500-NO3**		Analysis Date: **2/7/2019**	SeqNo: **3283090**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.476	0.050	0.5000	0	95.2	85	115				

Sample ID **N034033-002DDUP**	SampType: **DUP**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **131675**
Client ID: **ZZZZZZ**	Batch ID: **R131675**	TestNo: **SM4500-NO3**		Analysis Date: **2/7/2019**	SeqNo: **3283095**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	2.685	0.25						2.925	8.56	20	

Sample ID **N034033-002DMS**	SampType: **MS**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **131675**
Client ID: **ZZZZZZ**	Batch ID: **R131675**	TestNo: **SM4500-NO3**		Analysis Date: **2/7/2019**	SeqNo: **3283096**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	5.458	0.25	2.500	2.925	101	75	125				

Sample ID **N034033-002DMSD**	SampType: **MSD**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **131675**
Client ID: **ZZZZZZ**	Batch ID: **R131675**	TestNo: **SM4500-NO3**		Analysis Date: **2/7/2019**	SeqNo: **3283097**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	5.622	0.25	2.500	2.925	108	75	125	5.458	2.96	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		

CH2MHILL

CHAIN OF CUSTODY RECORD

Project Name PG&E Topock
Location PG&E Topock
Project Number 680375.03.IM.OP.00
Project Manager Scott O'Donnell
Sample Manager Shawn Duffy

Task Order
Project IM3PLANT-ARAR-WDR-583
Turnaround Time 10 Days
Shipping Date:
COC Number: 583

				Container	1 Liter Poly	1 Liter Poly	1 Liter Poly	250 ml Poly	1 Liter Poly	1 Liter Poly	500 ml Poly	500 ml Poly	1 Liter Poly			
				Preservatives	4°C Lab H2SO4	4°C	4°C	4°C	4°C Lab H2SO4	4°C	4°C	4°C	4°C			
				Filtered	NA	NA	NA	NA	NA	NA	NA	NA	NA			
				Holding Time	28	7	7	1	28	7	180	180	7			
	DATE	TIME	Matrix		AMMONIA (SM4500NH3D)	Anions (E300.0) Fl, SO4	CONDUCTIVITY (E120.1)	E218.6 Lab Filtered	Nitrate/Nitrite (SM4500NO3-E)	TDS (SM2540C)	Total Metals(E200.7 and E200.8)	Total Metals(E200.8) Cr, Mn, Fe	Turbidity (SM2130)		Number of Containers	COMMENTS
SC-100B-WDR-583		1235	Water				X	X		X		X	X	N034033-01	3	
SC-700B-WDR-583		1237	Water		X	X	X	X	X	X	X		X	-02	4	
														TOTAL NUMBER OF CONTAINERS	7	

	Signatures	Date/Time
Approved by	Scott O'Donnell	2-5-19 1240
Sampled by		2-5-19 1240
Relinquished by		
Received by		
Relinquished by		2-5-19 1445
Received by		2-5-19 1445
Relinquished By		2-5-19 1703
Received	Joanna Rdgvez	2/5/19 17:03

Shipping Details
Method of Shipment: FedEx
On Ice: (yes) / no
Airbill No:
Lab Name: ASSET Laboratories
Lab Phone: (702) 307-2659

2.0°C
IR#2

ATTN:
Sample Custody
and
Marlon Cartin

Special Instructions:
SC-700B Total metals List:
Cr,Al,Sb,As,Ba,B,Cu,Pb,Mn,Mo,Ni,Fe,Zn

Report Copy to
Doug Scott
(970) 731-0636

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:	2/5/2019	Workorder:	N034033
Rep sample Temp (Deg C):	2.0	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 ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☐	No ☑	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☐	No ☐	NA ☑
16. Were there Non-Conformance issues at login?	Yes ☑	No ☐	NA ☐
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments:

Samples for Cr 6+ were lab filtered and then preserved with Ammonium buffer.
Samples for Ammonia/NO3- were lab preserved with H2SO4 and for Total Metals with HNO3. All adjusted to pH < 2.
Collection date taken from labels. YR 2/20/2019

Checklist Completed By: YR 2/6/2019

Reviewed By: LG 020619

ASSET Laboratories
3151-3153 W Post Rd., Las Vegas, NV 89118
www.atl-labs.com
TEL: 7023072659 *FAX: 7023072691*

CHAIN-OF-CUSTODY RECORD

QC Level: Level IV

Subcontractor:

BC Labs
4100 Atlas Court
Bakersfield, CA 93308

TEL: (661) 327-4911
FAX: (661) 327-1918
Acct #:

Field Sampler: SIGNED

06-Feb-19

				Requested Tests		
Sample ID	**Matrix**	**Date Collected**	**Bottle Type**	**SM4500-NH3D**		
N034033-002A / SC-700B-WDR-583	Water	2/5/2019 12:37:00 PM	32OZP	1		

Please CC report to Lucille Golosinda at lucille.golosinda@assetlaboratories.com

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

Please use PO#:N34033A Please email Invoices and Account Receivable Statements to elvira@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. EDD Requirement Labspec7 edata.

GSO#: 543698051

		Date/Time		Date/Time
Relinquished by:	YRT	2/6/2019 17:00	**Received by:**	
Relinquished by:			**Received by:**	

Subject: Re: [EXTERNAL] N034033 - analytical issue for Copper
From: Nancy Sibucao <nancy@assetlaboratories.com>
Date: 3/4/2019 9:13 AM
To: "Scott, Doug/DEN" <Doug.Scott@jacobs.com>, Marlon Cartin <marlon@assetlaboratories.com>, "shawn.duffy@groundwaterpartners.com" <shawn.duffy@groundwaterpartners.com>
CC: 'Quennie Manimtim' <quennie@assetlaboratories.com>, "Contreras, Erlene/RDD" <Erlene.Contreras@jacobs.com>

Will do Doug.

Thanks,
Nancy

From: Scott, Doug/den <Doug.Scott@jacobs.com>
Sent: Monday, March 04, 2019 9:11AM
To: Marlon B. Cartin <marlon@assetlaboratories.com>, Shawn Duffy <shawn.duffy@groundwaterpartners.com>
Cc: 'Nancy Sibucao' <nancy@assetlaboratories.com>, 'Quennie Manimtim' <quennie@assetlaboratories.com>, 'Contreras, Erlene/rdd' <Erlene.Contreras@jacobs.com>
Subject: RE: [EXTERNAL] N034033 - analytical issue for Copper

Morning Marlon,
We should have the corrected data in both deliveries, level IV and II please. Can you do that?

Thanks
Doug

Doug Scott
Project Chemist
Jacobs
D 1 970 731 0636
M 1 720 445 2278
Doug.scott@Jacobs.com
59 Lilac Ct.
Pagosa Springs, Co 81147
www.jacobs.com

From: Marlon Cartin <marlon@assetlaboratories.com>
Sent: Monday, March 04, 2019 10:04 AM
To: Scott, Doug/DEN <Doug.Scott@jacobs.com>; shawn.duffy@groundwaterpartners.com
Cc: nancy@assetlaboratories.com; 'Quennie Manimtim' <quennie@assetlaboratories.com>
Subject: [EXTERNAL] N034033 - analytical issue for Copper

Hi Doug and Shawn,

For the February sample of IM3 – (SC-700B-WDR-583), when Nancy reviewed the data for metals, the Low Level ICV setting for Copper in LIMS was set at .5 ppb and the on column value was .5 ppb. So she thought that it passed the requirement since she's getting a 100% recovery. Later on she realized that the Low Level ICV of Cu should be 1 ppb. So therefore, that analytical run was a failure since she's only recovering 50%. Cu was ND at this run.
They re-analyze the sample to get a passing LL ICV and still Cu came out ND.
The question is, since we already send you a Level II report for this work order, do you want us to report the original run on the Level IV result and just create a CAR and then attached it to the report together with the re-analysis or do you want us to report the 2nd run with the passing LL ICV?

Thanks,

Marlon Cartin
Sr. Project Manager
California: 11110 Artesia Blvd., Ste. B, Cerritos, CA 90703 | P: 562.219.7435 | F: 562.219.7436
Nevada: 3151 W. Post Road, Las Vegas, NV 89118 | P: 702.307.2659 Ext. 410 | F: 702.307.2691 | M: 702.439.0421
www.assetlaboratories.com

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

ASSET LABORATORIES - Serving Clients with Passion and Professionalism

Nevada: 3151 W. Post Road, Las Vegas, NV 89118 | P: 702.307.2659 | F: 702.307.2691
California: 11110 Artesia Blvd., Ste. B, Cerritos, CA 90703 | P: 562.219.7435 | F: 562.219.7436

List of Analysts

ASSET Laboratories Work Order: N034033

NAME	TEST METHOD
Quennie Manimtim	SM 4500-NO3F
Claire Ignacio	EPA 200.7, EPA 200.8
Lilia Ramit	EPA 120.1, SM 2540C, SM 2130B
Hanah Glodoviza	EPA 218.6, EPA 300.0

BC LABORATORIES, INC.

Work Order Number: 1907351

Laboratory Documentation Requirements
For Data Validation of
Wet Chemistry Analysis

Prepared By

BC Laboratories

For ASSET Laboratories- Las Vegas

N34444A

Case Narrative

Sample Receipt

Work Order: 1907351
COC Number:
Default Cooler was received at 3.8 °C
Samples were checked for preservation. Where applicable, sample preservation was adjusted in the laboratory.

Requested Analysis

Method	Instrument
SM-4500-NH3G	SC-1

Sample Qualifier Summary

There were no qualifiers for the samples.

Holding Times

All holding time requirements were met.

Method Blanks

There were no detections in the Method Blank(s).

Calibration

Initial calibration criteria for respective analysis were met. Frequency criteria for initial and continuing calibrations were met. Accuracy criteria for initial and continuing calibrations were met.

Matrix Spikes

Source Samples Used For QC

Batch	Method	Source Lab Number	Client Sample Name
B039887	SM-4500-NH3G	1907140-02	<Not Client Sample>

Precision and accuracy requirements were within QC limits.

LCS

The LCS recoveries were within QC limits.

ASSET Laboratories
3151-3153 W Post Rd., Las Vegas, NV 89118
www.atl-labs.com
TEL: 7023072659 FAX: 7023072691

CHAIN-OF-CUSTODY RECORD

19-0735 1

QC Level: Level IV

Subcontractor:
BC Labs
4100 Atlas Court
Bakersfield, CA 93308

TEL: (661) 327-4911
FAX: (661) 327-1918
Acct #:

Field Sampler: SIGNED

06-Mar-19

Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests		
				SM4500-NH3D		
N034444-002A / SC-700B-WDR-584	Water	3/5/2019 9:38:00 AM	32OZP	1		

CHK BY DISTRIBUTION
SUB-OUT

Please CC Report to Lucille Golosinda at lucille.golosinda@assetlaboratories.com

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

Please use PO#:N34444A Please email Invoices and Account Receivable Statements to elvira@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. EDD Requirement LabSpec7 edata.

GSO #: 544012176

		Date/Time			Date/Time
Relinquished by:		3/6/2019 17:00	Received by:		3.7.19 10:10
Relinquished by:			Received by:		

Chain of Custody and Cooler Receipt Form for 1907351 Page 2 of 2

BC LABORATORIES INC. COOLER RECEIPT FORM Page 1 Of 1

Submission #: 19-07351

SHIPPING INFORMATION
Fed Ex ☐ UPS ☐ Ontrac ☐ Hand Delivery ☐
BC Lab Field Service ☐ Other ☒ (Specify) GSO

SHIPPING CONTAINER
Ice Chest ☒ None ☐ Box ☐
Other ☐ (Specify)

FREE LIQUID
YES ☐ NO ☐
W / S

Refrigerant: Ice ☐ Blue Ice ☒ None ☐ Other ☐ Comments:

Custody Seals Ice Chest ☐ Intact? Yes ☐ No ☐ Containers ☐ Intact? Yes ☐ No ☐ None ☒ Comments:

All samples received? Yes ☒ No ☐ All samples containers intact? Yes ☒ No ☐ Description(s) match COC? Yes ☒ No ☐

COC Received ☒ YES ☐ NO

Emissivity: .97 Container QT PE Thermometer ID: 274 Date/Time 3-7-19

Temperature: (A) 3.4 °C / (C) 3.8 °C Analyst Init JD 10:10

SAMPLE CONTAINERS	SAMPLE NUMBERS 1	2	3	4	5	6	7	8	9	10
QT PE UNPRES										
4oz / 8oz / 16oz PE UNPRES										
2oz Cr+6										
QT INORGANIC CHEMICAL METALS										
INORGANIC CHEMICAL METALS 4oz / 8oz / 16oz										
PT CYANIDE										
PT NITROGEN FORMS Gt	A									
PT TOTAL SULFIDE										
2oz NITRATE / NITRITE										
PT TOTAL ORGANIC CARBON										
PT CHEMICAL OXYGEN DEMAND										
PtA PHENOLICS										
40ml VOA VIAL TRAVEL BLANK										
40ml VOA VIAL										
QT EPA 1664										
PT ODOR										
RADIOLOGICAL										
BACTERIOLOGICAL										
40 ml VOA VIAL- 504										
QT EPA 508/608/8080										
QT EPA 515.1/8150										
QT EPA 525										
QT EPA 525 TRAVEL BLANK										
40ml EPA 547										
40ml EPA 531.1										
8oz EPA 548										
QT EPA 549										
QT EPA 8015M										
QT EPA 8270										
8oz / 16oz / 32oz AMBER										
8oz / 16oz / 32oz JAR										
SOIL SLEEVE										
PCB VIAL										
PLASTIC BAG										
TEDLAR BAG										
FERROUS IRON										
ENCORE										
SMART KIT										
SUMMA CANISTER										

Comments:
Sample Numbering Completed By: CA Date/Time: 3/7/19 1440
A = Actual / C = Corrected

Rev 21 05/23/2016
(S:\WPDocs\WordPerfect\LAB_DOCS\FORMS\SAMREC rev 20)

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

Reported: 3/12/2019 4:53:42PM
Project: Level IV
Project Number: N34444A
Project Manager: Marlon Cartin

BC Laboratories
4100 Atlas Court
Bakersfield, CA 93308
Phone: 661-327-4911

SDG: **1907351**
Class: **WET**
Method: **SM-4500-NH3G**

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

Reported: 3/12/2019 4:53:42PM
Project: Level IV
Project Number: N34444A
Project Manager: Marlon Cartin

ANALYSES DATA PACKAGE COVER PAGE

SM-4500-NH3G

Laboratory: BC Laboratories
Client: ASSET Laboratories- Las Vegas $ADNV
SDG: 1907351
Project: Level IV

Client Sample Id:	Lab Sample Id:
N034444-002A/SC-700B-WDR-584	1907351-01

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in computer-readable data submitted on diskette has been autorized by the Laboratory Manager or the Manager's designee, as verified by the following signatures.

Signature: 
Name: Sara Guron

Date: 03-12-2019
Title: QA/QC Manager

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

Reported: 3/12/2019 4:53:42PM
Project: Level IV
Project Number: N34444A
Project Manager: Marlon Cartin

METHOD DETECTION AND REPORTING LIMITS

SM-4500-NH3G

Laboratory: BC Laboratories
SDG: 1907351
Client: ASSET Laboratories- Las Vegas $ADNV
Project: Level IV
Matrix: Water
Instrument: SC-1

Analyte	MDL	PQL	Units
Ammonia as N (Distilled)	0.05	0.2	mg/L

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

Reported: 3/12/2019 4:53:42PM
Project: Level IV
Project Number: N34444A
Project Manager: Marlon Cartin

INORGANIC ANALYSIS DATA SHEET

SM-4500-NH3G

N034444-002A/SC-700B-WDR-584

Laboratory: BC Laboratories
SDG: 1907351
Client: ASSET Laboratories- Las Vegas $ADNV
Project: Level IV
Matrix: Water
Laboratory ID: 1907351-01
File ID: 20190312002-NH3-022
Sampled: 03/05/19 09:38
Prepared: 03/11/19 12:25
Analyzed: 03/12/19 09:30
Solids: 0.00
Preparation: No Prep
Initial/Final: 6 ml / 6 ml
Batch: B039887
Sequence: 1904672
Calibration: UNASSIGNED
Instrument: SC-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7664-41-7	Ammonia as N (Distilled)	0.20	1	U	SM-4500-NH3G

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

Reported: 3/12/2019 4:53:42PM
Project: Level IV
Project Number: N34444A
Project Manager: Marlon Cartin

METHOD BLANK DATA SHEET
SM-4500-NH3G

Laboratory:	BC Laboratories		SDG:	1907351	
Client:	ASSET Laboratories- Las Vegas $ADNV		Project:	Level IV	
Matrix:	Water	Laboratory ID:	B039887-BLK1	File ID:	20190312002-NH3-007
Prepared:	03/11/19 12:25	Preparation:	No Prep	Initial/Final:	6 ml / 6 ml
Analyzed:	03/12/19 09:17	Instrument:	SC-1		
Batch:	B039887	Sequence:	1904672	Calibration:	UNASSIGNED

CAS NO.	COMPOUND	CONC. (mg/L)	Q
7664-41-7	Ammonia as N (Distilled)	0.20	U

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

Reported: 3/12/2019 4:53:42PM
Project: Level IV
Project Number: N34444A
Project Manager: Marlon Cartin

Duplicate

DUPLICATES
SM-4500-NH3G

Laboratory: BC Laboratories
Client: ASSET Laboratories- Las Vegas $ADNV
Matrix: Water
Batch: B039887
Preparation: No Prep
Source Sample Name: Duplicate

SDG: 1907351
Project: Level IV
Laboratory ID: B039887-DUP1
Lab Source ID: 1907140-02
Initial/Final: 6 ml / 6 ml
% Solids:

ANALYTE	CONTROL LIMIT	SAMPLE CONCENTRATION (mg/L)	C	DUPLICATE CONCENTRATION (mg/L)	C	RPD %	Q	METHOD
Ammonia as N (Distilled)	20	0.15970		ND				SM-4500-NH3G

* Values outside of QC limits

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

Reported: 3/12/2019 4:53:42PM
Project: Level IV
Project Number: N34444A
Project Manager: Marlon Cartin

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

SM-4500-NH3G

Matrix Spike

Laboratory: BC Laboratories
Client: ASSET Laboratories- Las Vegas $ADNV
Matrix: Water
Batch: B039887
Preparation: No Prep
Source Sample Number: 1907140-02

SDG: 1907351
Project: Level IV
Laboratory ID: B039887-MS1
Initial/Final: 5.4 ml / 6 ml

COMPOUND	SPIKE ADDED (mg/L)	SAMPLE CONCENTRATION (mg/L)	MS CONCENTRATION (mg/L)	MS % REC. #	QC LIMITS REC.
Ammonia as N (Distilled)	1.1111	0.15970	1.2694	99.9	80 - 120

COMPOUND	SPIKE ADDED (mg/L)	MSD CONCENTRATION (mg/L)	MSD % REC. #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Ammonia as N (Distilled)	1.1111	1.3886	111	8.96	20	80 - 120

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

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

Reported: 3/12/2019 4:53:42PM
Project: Level IV
Project Number: N34444A
Project Manager: Marlon Cartin

LCS RECOVERY

SM-4500-NH3G

Laboratory: BC Laboratories
Client: ASSET Laboratories- Las Vegas $ADNV
Matrix: Water
Batch: B039887
Preparation: No Prep

SDG: 1907351
Project: Level IV
Laboratory ID: B039887-BS1
Initial/Final: 6 ml / 6 ml

COMPOUND	SPIKE ADDED (mg/L)	LCS CONCENTRATION (mg/L)	LCS % REC. #	QC LIMITS REC.
Ammonia as N (Distilled)	1.0000	0.92810	92.8	85 - 115

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

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

Reported: 3/12/2019 4:53:42PM
Project: Level IV
Project Number: N34444A
Project Manager: Marlon Cartin

HOLDING TIME SUMMARY

SM-4500-NH3G

Laboratory: BC Laboratories
SDG: 1907351
Client: ASSET Laboratories- Las Vegas $ADNV
Project: Level IV

Sample Name	Date Collected	Date Received	Date Prepared	Days to Prep	Max Days to Prep	Date Analyzed	Days to Analysis	Max Days to Analysis	Q
N034444-002A/SC-700B-WDR-584	03/05/19 09:38	03/07/19 10:10	03/11/19 12:25	7.00	28.00	03/12/19 09:30	7.00	28.00	

* Holding time not met

Note: If Prep or Analysis are performed within the hour (if holding time is based on hours) or within the day (if holding time is based on days), then the sample is not flagged as outside holding times. Calculated number of days are based on date received or date prepared depending on the test.

March 20, 2019

Doug Scott
CH2M HILL
155 Grand Avenue, Suite 1000
Oakland, CA 94612

TEL: (970) 731-0636
FAX: (510) 622-9129

Workorder No.: N034444

RE: PG&E Topock, 680375.03.IM.OP.00

Attention: Doug Scott

Enclosed are the results for sample(s) received on March 05, 2019 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,

Nancy Liburdi for

Quennie Manimtim
Laboratory Director

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 BC Labs- Bakersfield,CA.

Analytical Comments for EPA 200.7:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Boron in QC samples N034443-001B-MS1 and N034443-001B-MSD1 possibly due to matrix interference. Dilution Test was performed but not applicable since the result is less than 25x the reporting limit (RL). Post Spike was also performed but failed acceptance criteria. 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 Nickel in QC samples N034443-001B-MS and N034443-001B-MSD possibly due to matrix interference. Post Spike (PS) and Dilution Test (DT) were performed however, PS failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

ASSET Laboratories

Date: *20-Mar-19*

CLIENT: CH2M HILL
Project: PG&E Topock, 680375.03.IM.OP.00
Lab Order: N034444
Contract No: IM3PLANT-AR

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N034444-001A	SC-100B-WDR-584	Water	3/5/2019 9:35:00 AM	3/5/2019	3/20/2019
N034444-001B	SC-100B-WDR-584	Water	3/5/2019 9:35:00 AM	3/5/2019	3/20/2019
N034444-001C	SC-100B-WDR-584	Water	3/5/2019 9:35:00 AM	3/5/2019	3/20/2019
N034444-002A	SC-700B-WDR-584	Water	3/5/2019 9:38:00 AM	3/5/2019	3/20/2019
N034444-002B	SC-700B-WDR-584	Water	3/5/2019 9:38:00 AM	3/5/2019	3/20/2019
N034444-002C	SC-700B-WDR-584	Water	3/5/2019 9:38:00 AM	3/5/2019	3/20/2019
N034444-002D	SC-700B-WDR-584	Water	3/5/2019 9:38:00 AM	3/5/2019	3/20/2019
N034444-002E	SC-700B-WDR-584	Water	3/5/2019 9:38:00 AM	3/5/2019	3/20/2019

CLIENT: CH2M HILL
Lab Order: N034444
Project: PG&E Topock, 680375.03.IM.OP.00
Lab ID: N034444-001

Client Sample ID: SC-100B-WDR-584
Collection Date: 3/5/2019 9:35:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190306H**	QC Batch: **R132345**			PrepDate			Analyst: **LR**
Specific Conductance	7500	0.10	0.10		umhos/cm	1	3/6/2019 10:50 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

CLIENT: CH2M HILL
Lab Order: N034444
Project: PG&E Topock, 680375.03.IM.OP.00
Lab ID: N034444-002

Client Sample ID: SC-700B-WDR-584
Collection Date: 3/5/2019 9:38:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190306H**	QC Batch: **R132345**			PrepDate			Analyst: **LR**
Specific Conductance	7500	0.10	0.10		umhos/cm	1	3/6/2019 10:50 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

CLIENT: CH2M HILL
Work Order: N034444
Project: PG&E Topock, 680375.03.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID **N034444-001ADUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **132345**
Client ID: **ZZZZZZ** Batch ID: **R132345** TestNo: **EPA 120.1** Analysis Date: **3/6/2019** SeqNo: **3310579**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	7490.000	0.10						7460	0.401	2	

Qualifiers:

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

CLIENT:	CH2M HILL	**Client Sample ID:**	SC-100B-WDR-584
Lab Order:	N034444	**Collection Date:**	3/5/2019 9:35:00 AM
Project:	PG&E Topock, 680375.03.IM.OP.00	**Matrix:**	WATER
Lab ID:	N034444-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **NV00922-WC_190306G**	QC Batch: **72768**			PrepDate	**3/6/2019**		Analyst: **LR**
Total Dissolved Solids (Residue, Filterable)	4400	50	50		mg/L	1	3/6/2019 01:23 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

CLIENT:	CH2M HILL	**Client Sample ID:**	SC-700B-WDR-584
Lab Order:	N034444	**Collection Date:**	3/5/2019 9:38:00 AM
Project:	PG&E Topock, 680375.03.IM.OP.00	**Matrix:**	WATER
Lab ID:	N034444-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **NV00922-WC_190306G**	QC Batch: **72768**			PrepDate	**3/6/2019**		Analyst: **LR**
Total Dissolved Solids (Residue, Filterable)	4400	50	50		mg/L	1	3/6/2019 01:23 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

CLIENT: CH2M HILL
Work Order: N034444
Project: PG&E Topock, 680375.03.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.1_2540C_W

Sample ID **LCS-72768**	SampType: **LCS**	TestCode: **160.1_2540C**	Units: **mg/L**	Prep Date: **3/6/2019**	RunNo: **132344**
Client ID: **LCSW**	Batch ID: **72768**	TestNo: **SM2540C**		Analysis Date: **3/6/2019**	SeqNo: **3310569**

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 **MB-72768**	SampType: **MBLK**	TestCode: **160.1_2540C**	Units: **mg/L**	Prep Date: **3/6/2019**	RunNo: **132344**
Client ID: **PBW**	Batch ID: **72768**	TestNo: **SM2540C**		Analysis Date: **3/6/2019**	SeqNo: **3310570**

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 **N034444-002BDUP**	SampType: **DUP**	TestCode: **160.1_2540C**	Units: **mg/L**	Prep Date: **3/6/2019**	RunNo: **132344**
Client ID: **ZZZZZZ**	Batch ID: **72768**	TestNo: **SM2540C**		Analysis Date: **3/6/2019**	SeqNo: **3310577**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	4425.000	50						4425	0	5	

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

CLIENT:	CH2M HILL	**Client Sample ID:**	SC-100B-WDR-584
Lab Order:	N034444	**Collection Date:**	3/5/2019 9:35:00 AM
Project:	PG&E Topock, 680375.03.IM.OP.00	**Matrix:**	WATER
Lab ID:	N034444-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL METALS BY ICP							
			EPA 200.7				
RunID: **NV00922-ICP2_190319E**	QC Batch: **72815**				PrepDate	**3/11/2019**	Analyst: **CEI**
Iron	ND	18	20		µg/L	1	3/20/2019 01:56 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

CLIENT: CH2M HILL
Lab Order: N034444
Project: PG&E Topock, 680375.03.IM.OP.00
Lab ID: N034444-002

Client Sample ID: SC-700B-WDR-584
Collection Date: 3/5/2019 9:38:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL METALS BY ICP							
			EPA 200.7				
RunID: **NV00922-ICP2_190319E**	QC Batch: **72815**			PrepDate	**3/11/2019**		Analyst: **CEI**
Aluminum	ND	40	50		µg/L	1	3/20/2019 02:03 AM
Boron	1000	74	100		µg/L	1	3/20/2019 02:03 AM
Iron	ND	18	20		µg/L	1	3/20/2019 02:03 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

CLIENT: CH2M HILL
Work Order: N034444
Project: PG&E Topock, 680375.03.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WPGEPPB

Sample ID	LCS1-72815	SampType:	LCS	TestCode:	200.7_WPGE	Units:	µg/L	Prep Date:	3/11/2019	RunNo:	132622
Client ID:	LCSW	Batch ID:	72815	TestNo:	EPA 200.7			Analysis Date:	3/20/2019	SeqNo:	3323119

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	5117.353	50	5000	0	102	85	115				
Boron	986.553	100	1000	0	98.7	85	115				
Iron	113.420	20	100.0	0	113	85	115				

Sample ID	N034443-001B-MS1	SampType:	MS	TestCode:	200.7_WPGE	Units:	µg/L	Prep Date:	3/11/2019	RunNo:	132622
Client ID:	ZZZZZZ	Batch ID:	72815	TestNo:	EPA 200.7			Analysis Date:	3/20/2019	SeqNo:	3323123

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	4856.737	50	5000	0	97.1	75	125				
Boron	1809.474	100	1000	542.1	127	75	125				S
Iron	87.797	20	100.0	0	87.8	75	125				

Sample ID	N034443-001B-MSD	SampType:	MSD	TestCode:	200.7_WPGE	Units:	µg/L	Prep Date:	3/11/2019	RunNo:	132622
Client ID:	ZZZZZZ	Batch ID:	72815	TestNo:	EPA 200.7			Analysis Date:	3/20/2019	SeqNo:	3323124

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	4852.388	50	5000	0	97.0	75	125	4857	0.0896	20	
Boron	1812.761	100	1000	542.1	127	75	125	1809	0.181	20	S
Iron	87.211	20	100.0	0	87.2	75	125	87.80	0.670	20	

Sample ID	MB-72815	SampType:	MBLK	TestCode:	200.7_WPGE	Units:	µg/L	Prep Date:	3/11/2019	RunNo:	132622
Client ID:	PBW	Batch ID:	72815	TestNo:	EPA 200.7			Analysis Date:	3/20/2019	SeqNo:	3323130

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	ND	50									
Boron	ND	100									
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		

CLIENT: CH2M HILL
Work Order: N034444
Project: PG&E Topock, 680375.03.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WPGEPPB

Sample ID	**N034443-001B-PS**	SampType: **PS**	TestCode: **200.7_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **132622**
Client ID:	**ZZZZZZ**	Batch ID: **72815**	TestNo: **EPA 200.7**		Analysis Date: **3/20/2019**	SeqNo: **3323122**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	4873.705	50	5000	0	97.5	80	120				
Boron	1828.984	100	1000	542.1	129	80	120				S
Iron	90.942	20	100.0	0	90.9	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		

CLIENT:	CH2M HILL	**Client Sample ID:**	SC-100B-WDR-584
Lab Order:	N034444	**Collection Date:**	3/5/2019 9:35:00 AM
Project:	PG&E Topock, 680375.03.IM.OP.00	**Matrix:**	WATER
Lab ID:	N034444-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL METALS BY ICPMS							
EPA 200.8							
RunID: **NV00922-ICP7_190307D**	QC Batch: **72774**				PrepDate	**3/7/2019**	Analyst: **CEI**
Manganese	8.9	0.26	0.50		µg/L	1	3/8/2019 04:13 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

CLIENT: CH2M HILL
Lab Order: N034444
Project: PG&E Topock, 680375.03.IM.OP.00
Lab ID: N034444-002

Client Sample ID: SC-700B-WDR-584
Collection Date: 3/5/2019 9:38:00 AM
Matrix: WATER

TOTAL METALS BY ICPMS

EPA 200.8

RunID: **NV00922-ICP7_190307D** QC Batch: **72774** PrepDate **3/7/2019** Analyst: **CEI**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
Antimony	ND	0.16	0.50		µg/L	1	3/8/2019 04:19 AM
Arsenic	0.22	0.081	0.10		µg/L	1	3/12/2019 11:58 PM
Barium	15	0.15	1.0		µg/L	1	3/8/2019 04:19 AM
Copper	ND	0.55	1.0		µg/L	1	3/12/2019 11:58 PM
Lead	ND	0.13	1.0		µg/L	1	3/8/2019 04:19 AM
Manganese	13	0.26	0.50		µg/L	1	3/8/2019 04:19 AM
Molybdenum	24	0.21	0.50		µg/L	1	3/8/2019 04:19 AM
Nickel	ND	0.26	1.0		µg/L	1	3/8/2019 04:19 AM
Zinc	ND	2.3	10		µg/L	1	3/8/2019 04:19 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

CLIENT: CH2M HILL
Work Order: N034444
Project: PG&E Topock, 680375.03.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID **MB-72774**	SampType: **MBLK**	TestCode: **200.8_W**	Units: **µg/L**	Prep Date: **3/7/2019**	RunNo: **132394**
Client ID: **PBW**	Batch ID: **72774**	TestNo: **EPA 200.8**		Analysis Date: **3/8/2019**	SeqNo: **3313142**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	ND	0.50									
Barium	ND	1.0									
Lead	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Nickel	ND	1.0									
Zinc	ND	10									

Sample ID **LCS-72774**	SampType: **LCS**	TestCode: **200.8_W**	Units: **µg/L**	Prep Date: **3/7/2019**	RunNo: **132394**
Client ID: **LCSW**	Batch ID: **72774**	TestNo: **EPA 200.8**		Analysis Date: **3/8/2019**	SeqNo: **3313143**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	9.442	0.50	10.00	0	94.4	85	115				
Barium	10.806	1.0	10.00	0	108	85	115				
Lead	9.724	1.0	10.00	0	97.2	85	115				
Manganese	105.842	0.50	100.0	0	106	85	115				
Molybdenum	9.447	0.50	10.00	0	94.5	85	115				
Nickel	9.395	1.0	10.00	0	94.0	85	115				
Zinc	9.736	10	10.00	0	97.4	85	115				

Sample ID **N034443-001B-MS**	SampType: **MS**	TestCode: **200.8_W**	Units: **µg/L**	Prep Date: **3/7/2019**	RunNo: **132394**
Client ID: **ZZZZZZ**	Batch ID: **72774**	TestNo: **EPA 200.8**		Analysis Date: **3/8/2019**	SeqNo: **3313147**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	10.075	0.50	10.00	0	101	75	125				
Barium	74.232	1.0	10.00	65.63	86.1	75	125				
Lead	10.055	1.0	10.00	0	101	75	125				
Molybdenum	26.186	0.50	10.00	14.46	117	75	125				

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

CLIENT: CH2M HILL
Work Order: N034444
Project: PG&E Topock, 680375.03.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID **N034443-001B-MS**	SampType: **MS**	TestCode: **200.8_W**	Units: **µg/L**	Prep Date: **3/7/2019**	RunNo: **132394**
Client ID: **ZZZZZZ**	Batch ID: **72774**	TestNo: **EPA 200.8**		Analysis Date: **3/8/2019**	SeqNo: **3313147**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nickel	50.655	1.0	10.00	43.33	73.2	75	125				S
Zinc	9.491	10	10.00	0	94.9	75	125				

Sample ID **N034443-001B-MSD**	SampType: **MSD**	TestCode: **200.8_W**	Units: **µg/L**	Prep Date: **3/7/2019**	RunNo: **132394**
Client ID: **ZZZZZZ**	Batch ID: **72774**	TestNo: **EPA 200.8**		Analysis Date: **3/8/2019**	SeqNo: **3313150**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	10.036	0.50	10.00	0	100	75	125	10.08	0.395	20	
Barium	73.805	1.0	10.00	65.63	81.8	75	125	74.23	0.577	20	
Lead	10.076	1.0	10.00	0	101	75	125	10.05	0.215	20	
Molybdenum	25.812	0.50	10.00	14.46	114	75	125	26.19	1.44	20	
Nickel	50.263	1.0	10.00	43.33	69.3	75	125	50.66	0.778	20	S
Zinc	9.455	10	10.00	0	94.6	75	125	9.491	0	20	

Sample ID **N034443-001B-MS**	SampType: **MS**	TestCode: **200.8_W**	Units: **µg/L**	Prep Date: **3/7/2019**	RunNo: **132394**
Client ID: **ZZZZZZ**	Batch ID: **72774**	TestNo: **EPA 200.8**		Analysis Date: **3/8/2019**	SeqNo: **3313181**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	939.656	5.0	100.0	855.5	84.2	75	125				

Sample ID **N034443-001B-MSD**	SampType: **MSD**	TestCode: **200.8_W**	Units: **µg/L**	Prep Date: **3/7/2019**	RunNo: **132394**
Client ID: **ZZZZZZ**	Batch ID: **72774**	TestNo: **EPA 200.8**		Analysis Date: **3/8/2019**	SeqNo: **3313182**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	940.956	5.0	100.0	855.5	85.5	75	125	939.7	0.138	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

CLIENT: CH2M HILL
Work Order: N034444
Project: PG&E Topock, 680375.03.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID	MB-72774	SampType:	MBLK	TestCode:	200.8_W	Units:	µg/L	Prep Date:	3/7/2019	RunNo:	132473
Client ID:	PBW	Batch ID:	72774	TestNo:	EPA 200.8			Analysis Date:	3/12/2019	SeqNo:	3316451

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Copper	ND	1.0									

Sample ID	LCS-72774	SampType:	LCS	TestCode:	200.8_W	Units:	µg/L	Prep Date:	3/7/2019	RunNo:	132473
Client ID:	LCSW	Batch ID:	72774	TestNo:	EPA 200.8			Analysis Date:	3/12/2019	SeqNo:	3316452

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.133	0.10	10.00	0	101	85	115				
Copper	10.410	1.0	10.00	0	104	85	115				

Sample ID	N034443-001B-MS	SampType:	MS	TestCode:	200.8_W	Units:	µg/L	Prep Date:	3/7/2019	RunNo:	132473
Client ID:	ZZZZZZ	Batch ID:	72774	TestNo:	EPA 200.8			Analysis Date:	3/12/2019	SeqNo:	3316456

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	11.695	0.10	10.00	1.042	107	75	125				
Copper	12.047	1.0	10.00	2.923	91.2	75	125				

Sample ID	N034443-001B-MSD	SampType:	MSD	TestCode:	200.8_W	Units:	µg/L	Prep Date:	3/7/2019	RunNo:	132473
Client ID:	ZZZZZZ	Batch ID:	72774	TestNo:	EPA 200.8			Analysis Date:	3/12/2019	SeqNo:	3316457

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	11.688	0.10	10.00	1.042	106	75	125	11.69	0.0610	20	
Copper	12.362	1.0	10.00	2.923	94.4	75	125	12.05	2.58	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

CLIENT: CH2M HILL
Work Order: N034444
Project: PG&E Topock, 680375.03.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID **N034443-001B-PS**	SampType: **PS**	TestCode: **200.8_W**	Units: **µg/L**	Prep Date:	RunNo: **132394**
Client ID: **ZZZZZZ**	Batch ID: **72774**	TestNo: **EPA 200.8**		Analysis Date: **3/8/2019**	SeqNo: **3313146**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	10.214	0.50	10.00	0	102	80	120				
Barium	73.171	1.0	10.00	65.63	75.4	80	120				S
Lead	10.002	1.0	10.00	0	100	80	120				
Molybdenum	25.848	0.50	10.00	14.46	114	80	120				
Nickel	50.977	1.0	10.00	43.33	76.4	80	120				S
Zinc	9.785	10	10.00	0	97.9	80	120				

Sample ID **N034443-001B-PS**	SampType: **PS**	TestCode: **200.8_W**	Units: **µg/L**	Prep Date:	RunNo: **132394**
Client ID: **ZZZZZZ**	Batch ID: **72774**	TestNo: **EPA 200.8**		Analysis Date: **3/8/2019**	SeqNo: **3313180**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	942.313	5.0	100.0	855.5	86.8	80	120				

Sample ID **N034443-001B-PS**	SampType: **PS**	TestCode: **200.8_W**	Units: **µg/L**	Prep Date:	RunNo: **132473**
Client ID: **ZZZZZZ**	Batch ID: **72774**	TestNo: **EPA 200.8**		Analysis Date: **3/12/2019**	SeqNo: **3316455**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	11.860	0.10	10.00	1.042	108	80	120				
Copper	12.086	1.0	10.00	2.923	91.6	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		

CLIENT:	CH2M HILL	**Client Sample ID:**	SC-100B-WDR-584
Lab Order:	N034444	**Collection Date:**	3/5/2019 9:35:00 AM
Project:	PG&E Topock, 680375.03.IM.OP.00	**Matrix:**	WATER
Lab ID:	N034444-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190308A**	QC Batch: **R132383**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	500	3.3	20		µg/L	100	3/8/2019 11:43 AM
TOTAL METALS BY ICPMS							
			EPA 200.8				
RunID: **NV00922-ICP7_190307D**	QC Batch: **72774**			PrepDate	**3/7/2019**		Analyst: **CEI**
Chromium	530	0.65	5.0		µg/L	5	3/8/2019 07:31 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

CLIENT:	CH2M HILL	**Client Sample ID:**	SC-700B-WDR-584
Lab Order:	N034444	**Collection Date:**	3/5/2019 9:38:00 AM
Project:	PG&E Topock, 680375.03.IM.OP.00	**Matrix:**	WATER
Lab ID:	N034444-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190308A**	QC Batch: **R132383**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	3/8/2019 10:36 AM
TOTAL METALS BY ICPMS							
			EPA 200.8				
RunID: **NV00922-ICP7_190307D**	QC Batch: **72774**			PrepDate	**3/7/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	3/8/2019 04:19 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

CLIENT: CH2M HILL
Work Order: N034444
Project: PG&E Topock, 680375.03.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W_CRPGE

Sample ID	**MB-72774**	SampType:	**MBLK**	TestCode:	**200.8_W_CR**	Units:	**µg/L**	Prep Date:	**3/7/2019**	RunNo:	**132394**
Client ID:	**PBW**	Batch ID:	**72774**	TestNo:	**EPA 200.8**			Analysis Date:	**3/8/2019**	SeqNo:	**3313226**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID	**LCS-72774**	SampType:	**LCS**	TestCode:	**200.8_W_CR**	Units:	**µg/L**	Prep Date:	**3/7/2019**	RunNo:	**132394**
Client ID:	**LCSW**	Batch ID:	**72774**	TestNo:	**EPA 200.8**			Analysis Date:	**3/8/2019**	SeqNo:	**3313227**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.072	1.0	10.00	0	101	85	115				

Sample ID	**N034443-001B-MS**	SampType:	**MS**	TestCode:	**200.8_W_CR**	Units:	**µg/L**	Prep Date:	**3/7/2019**	RunNo:	**132394**
Client ID:	**ZZZZZZ**	Batch ID:	**72774**	TestNo:	**EPA 200.8**			Analysis Date:	**3/8/2019**	SeqNo:	**3313231**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.089	1.0	10.00	0	101	75	125				

Sample ID	**N034443-001B-MSD**	SampType:	**MSD**	TestCode:	**200.8_W_CR**	Units:	**µg/L**	Prep Date:	**3/7/2019**	RunNo:	**132394**
Client ID:	**ZZZZZZ**	Batch ID:	**72774**	TestNo:	**EPA 200.8**			Analysis Date:	**3/8/2019**	SeqNo:	**3313234**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.131	1.0	10.00	0	101	75	125	10.09	0.421	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		

CLIENT: CH2M HILL
Work Order: N034444
Project: PG&E Topock, 680375.03.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WU_PGE

Sample ID **MB-R132383**	SampType: **MBLK**	TestCode: **218.6_WU_P**	Units: **µg/L**	Prep Date:	RunNo: **132383**
Client ID: **PBW**	Batch ID: **R132383**	TestNo: **EPA 218.6**		Analysis Date: **3/8/2019**	SeqNo: **3312392**

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-R132383**	SampType: **LCS**	TestCode: **218.6_WU_P**	Units: **µg/L**	Prep Date:	RunNo: **132383**
Client ID: **LCSW**	Batch ID: **R132383**	TestNo: **EPA 218.6**		Analysis Date: **3/8/2019**	SeqNo: **3312393**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.235	0.20	5.000	0	105	90	110				

Sample ID **N034444-002CMS**	SampType: **MS**	TestCode: **218.6_WU_P**	Units: **µg/L**	Prep Date:	RunNo: **132383**
Client ID: **ZZZZZZ**	Batch ID: **R132383**	TestNo: **EPA 218.6**		Analysis Date: **3/8/2019**	SeqNo: **3312401**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.015	0.20	1.000	0	102	90	110				

Sample ID **N034443-002AMS**	SampType: **MS**	TestCode: **218.6_WU_P**	Units: **µg/L**	Prep Date:	RunNo: **132383**
Client ID: **ZZZZZZ**	Batch ID: **R132383**	TestNo: **EPA 218.6**		Analysis Date: **3/8/2019**	SeqNo: **3312405**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1025.520	20	500.0	503.9	104	90	110				

Sample ID **N034443-002AMSD**	SampType: **MSD**	TestCode: **218.6_WU_P**	Units: **µg/L**	Prep Date:	RunNo: **132383**
Client ID: **ZZZZZZ**	Batch ID: **R132383**	TestNo: **EPA 218.6**		Analysis Date: **3/8/2019**	SeqNo: **3312406**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1022.840	20	500.0	503.9	104	90	110	1026	0.262	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

CLIENT: CH2M HILL
Work Order: N034444
Project: PG&E Topock, 680375.03.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WU_PGE

Sample ID **N034444-001BMS**	SampType: **MS**	TestCode: **218.6_WU_P**	Units: **µg/L**	Prep Date:	RunNo: **132383**
Client ID: **ZZZZZZ**	Batch ID: **R132383**	TestNo: **EPA 218.6**		Analysis Date: **3/8/2019**	SeqNo: **3312408**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1032.820	20	500.0	503.5	106	90	110				

Sample ID **N034439-001ADUP**	SampType: **DUP**	TestCode: **218.6_WU_P**	Units: **µg/L**	Prep Date:	RunNo: **132383**
Client ID: **ZZZZZZ**	Batch ID: **R132383**	TestNo: **EPA 218.6**		Analysis Date: **3/8/2019**	SeqNo: **3312413**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.981	0.20						0.9571	2.51	20	

Qualifiers:

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

CLIENT: CH2M HILL
Lab Order: N034444
Project: PG&E Topock, 680375.03.IM.OP.00
Lab ID: N034444-001

Client Sample ID: SC-100B-WDR-584
Collection Date: 3/5/2019 9:35:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TURBIDITY							
			SM 2130B				
RunID: **NV00922-WC_190306C**	QC Batch: **R132316**			PrepDate			Analyst: **LR**
Turbidity	0.23	0.10	0.10		NTU	1	3/6/2019 01:55 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

CLIENT:	CH2M HILL	**Client Sample ID:**	SC-700B-WDR-584
Lab Order:	N034444	**Collection Date:**	3/5/2019 9:38:00 AM
Project:	PG&E Topock, 680375.03.IM.OP.00	**Matrix:**	WATER
Lab ID:	N034444-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TURBIDITY							
			SM 2130B				
RunID: **NV00922-WC_190306C**	QC Batch: **R132316**			PrepDate			Analyst: **LR**
Turbidity	0.26	0.10	0.10		NTU	1	3/6/2019 01:55 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

CLIENT: CH2M HILL
Work Order: N034444
Project: PG&E Topock, 680375.03.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 2130_W

Sample ID	**MB-R132316**	SampType:	**MBLK**	TestCode:	**2130_W**	Units:	**NTU**	Prep Date:		RunNo:	**132316**
Client ID:	**PBW**	Batch ID:	**R132316**	TestNo:	**SM 2130B**			Analysis Date:	**3/6/2019**	SeqNo:	**3309459**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Turbidity	ND	0.10									

Sample ID	**N034444-002BDUP**	SampType:	**DUP**	TestCode:	**2130_W**	Units:	**NTU**	Prep Date:		RunNo:	**132316**
Client ID:	**ZZZZZZ**	Batch ID:	**R132316**	TestNo:	**SM 2130B**			Analysis Date:	**3/6/2019**	SeqNo:	**3309471**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Turbidity	0.270	0.10						0.2600	3.77	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		

CLIENT: CH2M HILL
Lab Order: N034444
Project: PG&E Topock, 680375.03.IM.OP.00
Lab ID: N034444-002

Client Sample ID: SC-700B-WDR-584
Collection Date: 3/5/2019 9:38:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **NV00922-IC8_190308A** QC Batch: **R132421**				PrepDate			Analyst: **RAB**
Fluoride	2.3	0.032	0.50		mg/L	5	3/8/2019 01:20 PM
ANIONS BY ION CHROMATOGRAPHY							
EPA 300.0							
RunID: **NV00922-IC8_190308A** QC Batch: **R132421**				PrepDate			Analyst: **RAB**
Sulfate	510	1.1	25		mg/L	50	3/8/2019 11:22 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

CLIENT: CH2M HILL
Work Order: N034444
Project: PG&E Topock, 680375.03.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_FPGE

Sample ID	MB-R132421_F	SampType:	MBLK	TestCode:	300_W_FPG	Units:	mg/L	Prep Date:		RunNo:	132421
Client ID:	PBW	Batch ID:	R132421	TestNo:	EPA 300.0			Analysis Date:	3/8/2019	SeqNo:	3314687

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	ND	0.10									

Sample ID	LCS-R132421_F	SampType:	LCS	TestCode:	300_W_FPG	Units:	mg/L	Prep Date:		RunNo:	132421
Client ID:	LCSW	Batch ID:	R132421	TestNo:	EPA 300.0			Analysis Date:	3/8/2019	SeqNo:	3314688

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	1.205	0.10	1.250	0	96.4	90	110				

Sample ID	N034444-002BMS	SampType:	MS	TestCode:	300_W_FPG	Units:	mg/L	Prep Date:		RunNo:	132421
Client ID:	ZZZZZZ	Batch ID:	R132421	TestNo:	EPA 300.0			Analysis Date:	3/8/2019	SeqNo:	3314692

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	8.190	0.50	6.250	2.348	93.5	80	120				

Sample ID	N034444-002BMSD	SampType:	MSD	TestCode:	300_W_FPG	Units:	mg/L	Prep Date:		RunNo:	132421
Client ID:	ZZZZZZ	Batch ID:	R132421	TestNo:	EPA 300.0			Analysis Date:	3/8/2019	SeqNo:	3314693

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	8.148	0.50	6.250	2.348	92.8	80	120	8.190	0.514	20	

Sample ID	N034470-001BDUP	SampType:	DUP	TestCode:	300_W_FPG	Units:	mg/L	Prep Date:		RunNo:	132421
Client ID:	ZZZZZZ	Batch ID:	R132421	TestNo:	EPA 300.0			Analysis Date:	3/8/2019	SeqNo:	3314701

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	2.648	0.20						2.626	0.842	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

CLIENT: CH2M HILL
Work Order: N034444
Project: PG&E Topock, 680375.03.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID	MB-R132421_SO4	SampType:	MBLK	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	132421
Client ID:	PBW	Batch ID:	R132421	TestNo:	EPA 300.0			Analysis Date:	3/8/2019	SeqNo:	3314667

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	0.214	0.50									

Sample ID	LCS-R132421_SO4	SampType:	LCS	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	132421
Client ID:	LCSW	Batch ID:	R132421	TestNo:	EPA 300.0			Analysis Date:	3/8/2019	SeqNo:	3314668

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	3.944	0.50	4.000	0	98.6	90	110				

Sample ID	N034444-002BDUP	SampType:	DUP	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	132421
Client ID:	ZZZZZZ	Batch ID:	R132421	TestNo:	EPA 300.0			Analysis Date:	3/8/2019	SeqNo:	3314670

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	512.035	25						513.0	0.194	20	

Sample ID	N034443-001CMS	SampType:	MS	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	132421
Client ID:	ZZZZZZ	Batch ID:	R132421	TestNo:	EPA 300.0			Analysis Date:	3/8/2019	SeqNo:	3314674

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	512.135	25	200.0	316.1	98.0	80	120				

Sample ID	N034443-001CMSD	SampType:	MSD	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	132421
Client ID:	ZZZZZZ	Batch ID:	R132421	TestNo:	EPA 300.0			Analysis Date:	3/8/2019	SeqNo:	3314675

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	517.015	25	200.0	316.1	100	80	120	512.1	0.948	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

CLIENT: CH2M HILL
Lab Order: N034444
Project: PG&E Topock, 680375.03.IM.OP.00
Lab ID: N034444-002

Client Sample ID: SC-700B-WDR-584
Collection Date: 3/5/2019 9:38:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190307E**	QC Batch: **R132358**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	3.0	0.16	0.25		mg/L	5	3/7/2019

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

CLIENT: CH2M HILL
Work Order: N034444
Project: PG&E Topock, 680375.03.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **MB-R132358**	SampType: **MBLK**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **132358**
Client ID: **PBW**	Batch ID: **R132358**	TestNo: **SM4500-NO3**		Analysis Date: **3/7/2019**	SeqNo: **3310834**

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-R132358**	SampType: **LCS**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **132358**
Client ID: **LCSW**	Batch ID: **R132358**	TestNo: **SM4500-NO3**		Analysis Date: **3/7/2019**	SeqNo: **3310835**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.505	0.050	0.5000	0	101	85	115				

Sample ID **N034443-002DDUP**	SampType: **DUP**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **132358**
Client ID: **ZZZZZZ**	Batch ID: **R132358**	TestNo: **SM4500-NO3**		Analysis Date: **3/7/2019**	SeqNo: **3310839**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	2.907	0.25						2.936	1.03	20	

Sample ID **N034444-002DMS**	SampType: **MS**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **132358**
Client ID: **ZZZZZZ**	Batch ID: **R132358**	TestNo: **SM4500-NO3**		Analysis Date: **3/7/2019**	SeqNo: **3310841**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	5.495	0.25	2.500	3.026	98.8	75	125				

Sample ID **N034444-002DMSD**	SampType: **MSD**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **132358**
Client ID: **ZZZZZZ**	Batch ID: **R132358**	TestNo: **SM4500-NO3**		Analysis Date: **3/7/2019**	SeqNo: **3310842**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	5.334	0.25	2.500	3.026	92.3	75	125	5.494	2.97	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

CH2MHILL

CHAIN OF CUSTODY RECORD

Project Name PG&E Topock
Location PG&E Topock
Project Number 680375.03.IM.OP.00
Project Manager Scott O'Donnell
Sample Manager Shawn Duffy

Task Order
Project IM3PLANT-ARAR-WDR-584
Turnaround Time 10 Days
Shipping Date:
COC Number: 584

	DATE	TIME	Matrix	AMMONIA (SM4500NH3D)	Anions (E300.0) Fl, SO4	CONDUCTIVITY (E120.1)	E218.6 Lab Filtered	Nitrate/Nitrite (SM4500NO3-E)	TDS (SM2540C)	Total Metals(E200.7 and E200.8)	Total Metals(E200.8) Cr, Mn, Fe	Turbidity (SM2130)		Number of Containers	COMMENTS
Container:				1 Liter Poly	1 Liter Poly	1 Liter Poly	250 ml Poly	1 Liter Poly	1 Liter Poly	500 ml Poly	500 ml Poly	1 Liter Poly			
Preservatives:				4°C Lab H2SO4	4°C	4°C	4°C	4°C Lab H2SO4	4°C	4°C	4°C	4°C			
Filtered:				NA	NA	NA	NA	NA	NA	NA	NA	NA			
Holding Time:				28	7	7	1	28	7	180	180	7			
SC-100B-WDR-584	3-5-19	9:35	Water			X	X		X		X	X	N034444-01	3	
SC-700B-WDR-584	3-5-19	9:38	Water	X	X	X	X	X	X	X		X	-02	4	
													TOTAL NUMBER OF CONTAINERS	7	

Signatures	Date/Time
Approved by	3-5-19 06:00
Sampled by	3-5-19 9:45
Relinquished by	3-5-19 1622
Received by	3-5-19 1622
Relinquished by	3-5-19 1945
Received by	3-5-19 1945

Shipping Details
Method of Shipment: FedEx
On Ice: ~~yes~~ / no
Airbill No:
Lab Name: ASSET Laboratories
Lab Phone: (702) 307-2659

ATTN:
Sample Custody
and
Marlon Cartin

Special Instructions:
SC-700B Total metals List:
Cr,Al,Sb,As,Ba,B,Cu,Pb,Mn,Mo,Ni,Fe,Zn

Report Copy to
Doug Scott
(970) 731-0636

2.4°C IR#2

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:	3/5/2019	Workorder:	N034444
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 ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☑	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☐	No ☑	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☐	No ☐	NA ☑
16. Were there Non-Conformance issues at login?	Yes ☑	No ☐	NA ☐
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments: Samples for Cr 6+ were lab filtered and then preserved with Ammonium buffer.
Samples for Ammonia/NO3- were lab preserved with H2SO4 and for Total Metals with HNO3. All adjusted to pH < 2.

Checklist Completed By: YR 3/6/2019

Reviewed By: LG 031119

ASSET Laboratories
3151-3153 W Post Rd., Las Vegas, NV 89118
www.atl-labs.com
TEL: 7023072659 *FAX: 7023072691*

CHAIN-OF-CUSTODY RECORD

QC Level: Level IV

Subcontractor:

BC Labs
4100 Atlas Court
Bakersfield, CA 93308

TEL: (661) 327-4911
FAX: (661) 327-1918
Acct #:

Field Sampler: SIGNED

06-Mar-19

				Requested Tests		
Sample ID	**Matrix**	**Date Collected**	**Bottle Type**	**SM4500-NH3D**		
N034444-002A / SC-700B-WDR-584	Water	3/5/2019 9:38:00 AM	32OZP	1		

Please CC Report to Lucille Golosinda at lucille.golosinda@assetlaboratories.com

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

Please use PO#:N34444A Please email Invoices and Account Receivable Statements to elvira@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. EDD Requirement LabSpec7 edata.

GSO #: 544012176

	Date/Time		Date/Time
Relinquished by:	3/6/2019 17:00	**Received by:**	
Relinquished by:		**Received by:**	

List of Analysts

ASSET Laboratories Work Order: N034444

NAME	TEST METHOD
Quennie Manimtim	SM 4500-NO3F
Claire Ignacio	EPA 200.7, EPA 200.8
Ria Abes	EPA 218.6, EPA 300.0
Lilia Ramit	EPA 120.1, SM 2540C, SM 2130B

Analytical Bench Log Book

WDR pH Results

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

	Sample Name	Date of sampling	Time of sampling	Date of analysis	Time of analysis	pH Meter #1, #2, or #3 etc. See cover Sheet for Serial Number	Date pH meter Calibrated	Time pH meter Calibrated	Slope of the Curve	Analyst Name (for the pH result)	pH Result
1	SC-700B-	12-4-18	14:45	12-4-18	14:59	HQ440D	12-4-18	0015	-52.98	Ryan P	7.01
Notes:											
2	SC-100B	12-4-18	14:45	12-4-18	17:00	HQ440D	12-4-18	0015	-52.98	Ryan P	7.22
Notes:											
3	SC 700B	1-8-18	1441	1-8-18	1445	HQ440D	1-8-18	1435	-57.69	Scott O'Donnell	7.44
Notes:	WDR 582 Lab did NOT Pickup Samples										
4	SC 100B	1-8-18	1446	1-8-18	1447	HQ440D	1-8-18	1435	-57.69	Scott ODonnell	7.30
Notes:	WDR 582 Lab did NOT Pickup Samples										
5	SC 701	1-8-18	1439	1-8-18	1449	HQ440D	1-8-18	1435	-57.69	Scott ODonnell	7.60
Notes:	WDR 582 Lab did NOT Pickup Samples										
6	SC 701 WDR	1-9-19	0830	1-9-19	0858	HQ440D	1-9-19	0845	-57.69	Scott O'Donnell	7.61
Notes:	reSample for WDR 582										
7	SC 100B	1-9-19	0845	1-9-19	0859	HQ440D	1-9-19	0845	-57.69	Scott O'Donnell	7.36
Notes:	WRD 582										

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

Analytical Bench Log Book

WDR pH Results

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

	Sample Name	Date of sampling	Time of sampling	Date of analysis	Time of analysis	pH Meter #1, #2, or #3 etc. See cover Sheet for Serial Number	Date pH meter Calibrated	Time pH meter Calibrated	Slope of the Curve	Analyst Name (for the pH result)	pH Result
1	SC 700B U20 582	1-9-19	0850	1-9-19	0859	HQ 440D	1-5-19	0845	-57.69	Scott O'Donnell	~~7.36~~ SR 7.11
Notes:											
2	SC-100B-583	2-5-19	~~1240~~ 1235	2-5-19	1240	HQ440D	2-5-19	0000	-57.34		7.04
Notes:											
3	SC-700B-583	2-5-19	~~1242~~ 1237	2-5-19	1242	HQ440D	2-5-19	0000	-57.34		7.04
Notes:											
4	SC-100B-584	3-5-19	9:35	3-5-19	9:40	HQ440D	3-5-19	0000	-55.99		7.08
Notes:											
5	SC-700B-584	3-5-19	9:38	3-5-19	9:42	HQ440D	3-5-19	0000	-55.99		7.14
Notes:											
6											
Notes:											
7											
Notes:											

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