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July 15, 2019

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Subject: Topock IM-3 Combined Second Quarter 2019 Monitoring, Semiannual January – June 2019 Operation and Maintenance Report
PG&E Topock Compressor Station, Needles, California
Interim Measure No. 3 Groundwater Treatment System
(Document ID: PGE20190715A)

Dear Ms. Innis and Mr. Stormo:

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

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

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

Sustainable remediation is a corporate commitment internally monitored by PG&E. IM-3 is operated in a manner that has resulted in sustainable reductions in electrical use, greenhouse gas (GHG) emissions, and generation of solid and liquid waste. Examples include: (1) reduced electricity use and associated GHG emissions due to use of photocells to manage outdoor lighting at IM-3 and use of solar power for the injection area wellhead data collection system; (2) process optimization initiatives (within constraints of the injection permit) have reduced brine production, treatment sludge production, and

Pamela S. Innis
Scot Stormo
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treatment chemical use, and (3) these efforts also reduce the fuel consumption and GHG emissions from chemical deliveries and waste disposal.

The IM-3 groundwater extraction and treatment system has extracted and treated approximately 926,548,408 gallons of water and removed approximately 7,700 pounds of total chromium from August 1, 2005 through June 30, 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 Combined Second Quarter 2019 Monitoring, Semiannual January – June 2019 Operation and Maintenance Report

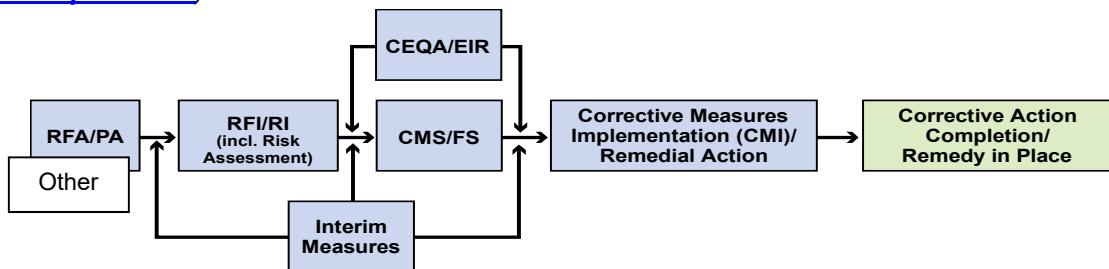
cc: Aaron Yue, California Department of Toxic Substances Control

Topock Project Executive Abstract

<p>Document Title: Topock IM-3 Second Quarter 2019 Monitoring, Semiannual January - June 2019 Operation and Maintenance Report Submitting Agency/Authored by: U.S. Department of the Interior and Regional Water Quality Control Board Final Document? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Priority Status: <input type="checkbox"/> HIGH <input type="checkbox"/> MED <input checked="" type="checkbox"/> LOW Is this time critical? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>Type of Document: <input type="checkbox"/> Draft <input checked="" type="checkbox"/> Report <input type="checkbox"/> Letter <input type="checkbox"/> Memo <input type="checkbox"/> Other / Explain:</p> <p>What does this information pertain to? <input type="checkbox"/> Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA)/Preliminary Assessment (PA) <input type="checkbox"/> RCRA Facility Investigation (RFI)/Remedial Investigation (RI) (including Risk Assessment) <input type="checkbox"/> Corrective Measures Study (CMS)/Feasibility Study (FS) <input type="checkbox"/> Corrective Measures Implementation (CMI)/Remedial Action <input type="checkbox"/> California Environmental Quality Act (CEQA)/Environmental Impact Report (EIR) <input checked="" type="checkbox"/> Interim Measures <input type="checkbox"/> Other / Explain:</p> <p>What is the consequence of NOT doing this item? What is the consequence of DOING this item? Submittal of this report is a compliance requirement of the Applicable or Relevant and Appropriate Requirements (ARARs) for waste discharge as documented in Attachment A to the Letter Agreement issued July 26, 2011.</p> <p>Brief Summary of attached document: This report covers the Interim Measure No. 3 (IM-3) groundwater treatment system monitoring activities during the Second Quarter 2019 period, and the operation and maintenance activities during the January 1, 2019 to June 30, 2019 semiannual period. The groundwater monitoring results for wells OW-1S/M/D, OW-2S/M/D, OW-5S/M/D, CW-1M/D, CW-2M/D, CW-3M/D, and CW-4M/D will be submitted under separate cover as part of the Compliance Monitoring Program.</p> <p>Written by: PG&E</p> <p>Recommendations: This report is for your information only.</p> <p>How is this information related to the Final Remedy or Regulatory Requirements? The Topock IM-3 Second Quarter 2019 Monitoring, Semiannual January - June 2019 Operation and Maintenance Report is related to the Interim Measure. PG&E is currently operating the IM-3 groundwater treatment system as authorized by the U.S. Department of the Interior (DOI) Waste Discharge ARARs as documented in Attachment A to the Letter Agreement issued July 26, 2011 from the Colorado River Basin Regional Water Quality Control Board (Regional Water Board) to DOI, and the subsequent Letter of Concurrence issued August 18, 2011 from DOI to the Regional Water Board.</p> <p>Other requirements of this information? None.</p>	<p>Date of Document: July 15, 2019 Who Created this Document?: (i.e. PG&E, DTSC, DOI, Other) PG&E Document ID Number: PGE20190715A</p> <p>Action Required: <input checked="" type="checkbox"/> Information Only <input type="checkbox"/> Review & Comment Return to: _____ By Date: _____ <input type="checkbox"/> Other / Explain:</p> <p>Is this a Regulatory Requirement? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If no, why is the document needed?</p> <p>Other Justification/s: <input type="checkbox"/> Permit <input type="checkbox"/> Other / Explain:</p>
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Related Reports and Documents:

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



Legend

RFA/PA – RCRA Facility Assessment/Preliminary Assessment
RFI/RI – RCRA Facility Investigation/CERCLA Remedial Investigation (including Risk Assessment)
CMS/FS – RCRA Corrective Measure Study/CERCLA Feasibility Study
CEQA/EIR – California Environmental Quality Act/Environmental Impact Report

Version 9



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

**Combined Second Quarter 2019 Monitoring,
Semiannual January – June 2019
Operation and Maintenance Report
Interim Measure No. 3 Groundwater Treatment System**

July 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



Combined Second Quarter 2019 Monitoring,
Semiannual January - June 2019 Operation and Maintenance 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

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Pacific Gas and Electric Company

July 15, 2019

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

Dennis Fink

Dennis Fink, P.E.
Project Engineer



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TP-PR-10-10-03	Extraction Wells - Influent Metering Locations
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Acronyms and Abbreviations

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

1. Introduction

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

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

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

This report covers monitoring activities related to operation of the IM-3 groundwater treatment system during the Second Quarter 2019 and the operation and maintenance activities during the January 1, 2019 to June 30, 2019 semiannual period. The groundwater monitoring results for wells OW-1S/M/D, OW-2S/M/D, OW-5S/M/D, CW-1M/D, CW-2M/D, CW-3M/D, and CW-4M/D will be submitted under separate cover, as part of the Compliance Monitoring Program.

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

This report describes Second Quarter 2019 monitoring activities and the January 1, 2019 through June 30, 2019 (First and Second Quarters) operation and maintenance activities related to the IM-3 groundwater treatment system. IM-3 monitoring activities from January 1, 2019 through March 31, 2019 (First Quarter) were presented in the First Quarter 2019 Monitoring Report for IM-3 submitted to the DOI and Regional Water Board April 15, 2019.

This report, therefore, serves as the Semiannual January – June 2019 Operation and Maintenance Report for IM-3.

3.1 Groundwater Treatment System

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

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

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

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

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

3.2 Groundwater Treatment System Flow Rates for Second Quarter 2019

Downtime is defined as any periods when all extraction wells are not operating so that no groundwater is being extracted and piped into IM-3 as influent. Periods of planned and unplanned extraction system downtime are summarized in the Semiannual Operations and Maintenance Log provided in Appendix A. The times shown are in Pacific Standard Time to be consistent with other data collected (e.g., water level data) at the site. Periods of planned and unplanned extraction system downtime during the months January 2019 through March 2019 were originally reported in the First Quarter 2019 Monitoring Report for IM-3 submitted to the DOI and Regional Water Board on April 15, 2019, and are also included in Appendix A of this report.

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

3.2.1 Treatment System Influent

During the Second Quarter 2019, extraction well TW-3D operated with a target pumping rate of 135 gallons per minute (gpm), excluding periods of planned and unplanned downtime. Extraction wells TW-2S and TW-2D were not operated during Second Quarter 2019. Extraction well PE-1 was operated

for sample collection only during Second Quarter 2019. The operational run time for the IM groundwater extraction system (combined or individual pumping), by month, was approximately:

- 82.1 percent during April 2019
- 95.7 percent during May 2019
- 98.2 percent during June 2019

The Second 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 flowmeters at groundwater extraction wells TW-2S, TW-2D, TW-3D, and PE-1 (Figure TP-PR-10-10-03).

The IM-3 facility treated approximately 16,238,236 gallons of extracted groundwater during Second Quarter 2019.

In addition to extracted groundwater, during Second Quarter 2019 the IM-3 facility treated 900 gallons of water generated from the groundwater monitoring program and no injection well development water from Groundwater Partners.

3.2.2 Effluent Streams

The treatment system effluent flow rate was measured by flowmeters in the piping leading to injection wells IW-2 and IW-3 (Figure TP-PR-10-10-11) and in the piping running from the treated water tank T-700 to the injection wells (Figure TP-PR-10-10-04). The IM-3 facility injected 16,313,386 gallons of treatment system effluent during Second Quarter 2019. The monthly average flow rate to injection wells is shown in Table 2.

The RO concentrate flow rate was measured by a flowmeter at the piping carrying water from RO concentrate tank T-701 to the truck load-out station (Figure PR-10-04). The IM-3 facility generated 7,439 gallons of RO concentrate during Second Quarter 2019. The monthly average RO concentrate flow rate is shown in Table 2.

The sludge flow rate is measured by the size and weight of containers shipped offsite. Three sludge containers were shipped offsite from the IM-3 facility during Second Quarter 2019. The shipment dates and approximate weights are provided in Section 5.3.

3.3 Sampling and Analytical Procedures

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

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

ASSET is certified by the California Department of Health Services (Certification No. 2676) under the State of California's Environmental Laboratory Accreditation Program. Truesdail is certified by the California Department of Health Services (Certification No. 1237) under the State of California's Environmental Laboratory Accreditation Program. California-certified laboratory analyses were performed in accordance with the latest edition of the *Guidelines Establishing Test Procedures for Analysis of Pollutants* (40 Code of Federal Regulations Part 136), promulgated by the U.S. Environmental Protection Agency.

Analysis of pH was conducted by field method pursuant to the Regional Water Board letter dated October 16, 2007 (subject: Clarification of Monitoring and Reporting Program Requirements) authorizing

pH measurements to be conducted in the field. The field method pH samples were collected at the designated sampling locations and field tested within 15 minutes of sampling.

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

Influent, effluent, RO concentrate, and sludge sampling frequency were in accordance with the MRP. The Second Quarter 2019 sample collection schedule is shown in Table 3.

Groundwater quality is being monitored in observation and compliance wells according to Attachment A, Waste Discharge ARARs, to the Letter Agreement issued July 26, 2011, and the procedures and schedules approved in the *Groundwater Compliance Monitoring Plan for Interim Measure 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.

4. Analytical Results

The analytical results and laboratory reports for the IM-3 groundwater treatment system monitoring program were previously reported for the First Quarter of 2019 in the First Quarter 2019 Monitoring Report submitted to the DOI and Regional Water Board on April 15, 2019.

Laboratory reports for samples collected in Second Quarter 2019 were prepared by certified analytical laboratories and are presented in Appendix D. The Second Quarter 2019 analytical results are presented in Tables 4, 5, 6, and 7:

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

The sludge is required to have an aquatic bioassay test annually. The most recent aquatic bioassay test was conducted on a Third Quarter 2018 sample. The next sludge aquatic bioassay test is scheduled for the Third Quarter 2019 sampling event.

Table 8 identifies the following information for each analysis:

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

5. Semiannual Operation and Maintenance

This section includes the Semiannual Operation and Maintenance Report for the IM-3 groundwater treatment system for the period January 1, 2019 through June 30, 2019.

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

5.1 Flowmeter Calibration Records

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

Location	Location ID Where Flowmeter is Installed	Current Flowmeter Serial No.	Date of Calibration	Date of Installation
Extraction well PE-1	FIT-103	6A022016000	12/5/2018	5/1/2019
Extraction well TW-3D	FIT-102	N6005016000	6/13/2018	5/1/2019
Extraction well TW-2D	FIT-101	6C036F16000	1/15/2016	6/1/2016
Extraction well TW-2S	FIT-100	6A022116000	9/20/2013	7/8/2015
Injection well IW-03	FIT-1203	N6004E16000	6/13/2018	5/1/2019
Injection well IW-02	FIT-1202	7700F216000	5/4/2017	8/8/2017
Combined IW-02 and IW-03	FIT-700	7700F316000	10/28/2016	10/19/2018
Reverse osmosis concentrate	FIT-701	N6004F16000	6/13/2018	11/17/2018

5.2 Volumes of Groundwater Treated

Data regarding daily volumes of groundwater treated between January 1, 2019 through June 30, 2019 are provided in Appendix B.

Approximately 33,511,952 gallons of groundwater were extracted and treated between January 1, 2019 and June 30, 2019. Treatment of this water at the IM-3 facility is being performed in accordance with the conditions of ARARs.

Additionally, approximately 1,300 gallons of well purge water (generated during well development, monitoring well sampling, and/or aquifer testing) and no injection well re-development water from Groundwater Partners was treated at the IM-3 facility during the January 1, 2019 through June 30, 2019 semiannual period.

A total of approximately 33,788,444 gallons of treated groundwater were injected back into the Alluvial Aquifer between January 1, 2019 and June 30, 2019.

5.3 Residual Solids Generated (Sludge)

During the January 1, 2019 through June 30, 2019 reporting period, eleven containers of sludge were shipped offsite for disposal. The sludge was shipped to U.S. Ecology in Beatty, Nevada for disposal. A listing of each shipment during the reporting period is provided below.

Date Sludge Bin Removed from Site	Approximate Quantity from Waste Manifests (cubic yards)	Type of Shipment
1/15/2019	8	Non-RCRA hazardous waste
1/15/2019	8	Non-RCRA hazardous waste
1/22/2019	8	Non-RCRA hazardous waste
1/22/2019	8	Non-RCRA hazardous waste
2/18/2019	8	Non-RCRA hazardous waste
2/18/2019	8	Non-RCRA hazardous waste
3/26/2019	8	Non-RCRA hazardous waste
3/26/2019	8	Non-RCRA hazardous waste
5/20/2019	8	Non-RCRA hazardous waste
5/20/2019	8	Non-RCRA hazardous waste
6/3/2019	8	Non-RCRA hazardous waste

Note:

RCRA = Resource Conservation and Recovery Act

5.4 Reverse Osmosis Concentrate Generated

Data regarding daily volumes of RO concentrate generated are provided in Appendix B, as measured by flowmeter FIT-701 (Figures PR-10-03 and PR-10-04). From January 1, 2019 through June 30, 2019, approximately 10,980 gallons of RO concentrate were transported to Liquid Environmental Solutions in Phoenix, Arizona for disposal.

5.5 Summary of ARARs Compliance

No ARAR violations were identified during the January 1, 2019 through June 30, 2019 semiannual reporting period.

5.6 Operation and Maintenance – Required Shutdowns

Records of routine maintenance are kept onsite.

Appendix A contains a summary of the operation or maintenance issues that required the groundwater extraction system to be shut down during the January 1, 2019 through June 30, 2019 semiannual reporting period.

Activities during the Second Quarter 2019 included one extended shutdown.

- The extraction well system was offline from 7:02 a.m. on April 1, 2019 to April 5, 2019 9:46 a.m. for semiannual scheduled maintenance. Extraction system downtime was 4 days, 2 hours 44 minutes.

5.7 Treatment Facility Modifications

No modifications were made to the IM-3 treatment facility that resulted in a material change in the quality or quantity of wastewater treated or discharged, nor resulted in a material change in the location of discharge, during the January 1, 2019 through June 30, 2019 semiannual period. However, the three existing brine tanks at the MW-20 Bench were replaced in kind with new brine tanks. In addition, the brine tanks' containment structure was replaced with a new concrete containment structure.

6. Conclusions

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

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

7. Certification

Certification Statement:

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

Signature: 

Name: Curt Russell

Company: Pacific Gas and Electric Company

Title: Topock Site Manager

Date: July 15, 2019

Tables

Table 1. Sampling Station Descriptions

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

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

Notes:

= Sequential sample identification number at each sample station

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

Table 2. Flow Monitoring Results

Second Quarter 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)
April 2019 Average Monthly Flowrate	110.5	110.4	0.1
May 2019 Average Monthly Flowrate	130.0	131.0	0.1
June 2019 Average Monthly Flowrate	131.1	131.9	0.0

Notes:

gpm: gallons per minute

^a Extraction well TW-3D was operated during the Second Quarter 2019. Extraction well PE-1 was only operated to collect a sample. Extraction wells TW-2S and TW-2D did not operate during Second Quarter 2019.

^b The difference between influent flow rate and the sum of the effluent and reverse osmosis concentrate flow rates during the Second Quarter 2019 is approximately 0.5% percent.

Table 3. Sample Collection Dates

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

Parameter	Sample Collection Dates	Results
Influent	April 1, 2019 May 9, 2019 June 5, 2019	See Table 4
Effluent	April 1, 2019 April 6, 2019 May 9, 2019 June 5, 2019	See Table 5
Reverse Osmosis Concentrate	April 1, 2019	See Table 6
Sludge ^a	April 1, 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

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

Sampling Frequency		Monthly						Quarterly																
Analytes Units ^b	MDL	TDS mg/L	Turbidity NTU	Specific Conductance μmhos/cm	Field pH pH units	Chromium μg/L	Hexavalent Chromium μg/L	Aluminium μg/L	Ammonia (as N) mg/L	Antimony μg/L	Arsenic μg/L	Barium μg/L	Boron mg/L	Copper μg/L	Fluoride mg/L	Lead μg/L	Manganese μg/L	Molybdenum μg/L	Nickel μg/L	Nitrate/Nitrite (as N) mg/L	Sulfate mg/L	Iron μg/L	Zinc μg/L	
		50.0	0.100	0.100	--	0.500	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-585	4/1/2019	4300	0.130	7700	7.0	460	480	ND (50.0)	ND (0.200)	ND (0.500)	2.80	28.0	1.10 J	ND (1.00)	2.70	ND (1.00)	8.50	22.0	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-588	5/9/2019	4400	0.280	7100	7.2	490	460	---	---	---	---	---	---	---	---	---	13.0	---	---	---	---	---	ND (20.0)	---
RL		50.0	0.100	0.100	---	5.00	20.0	---	---	---	---	---	---	---	---	---	0.500	---	---	---	---	---	20.0	---
SC-100B-WDR-589	6/5/2019	4200	0.240	7100	7.2	420	450	---	---	---	---	---	---	---	---	---	7.50	---	---	---	---	---	ND (50.0)	---
RL		50.0	0.100	0.100	---	3.00	20.0	---	---	---	---	---	---	---	---	---	1.00	---	---	---	---	---	50.0	---

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
Second Quarter 2019 Monitoring Report for Interim Measure No.

Effluent Limits ^b	Ave. Monthly	NA	NA	NA	6.5-8.4	25	8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Max Daily	NA	NA	NA	6.5-8.4	50	16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sampling Frequency		Monthly																						
Analytes Units ^c	TDS	Turbidity	Specific Conductance	Field pH	Hexavalent Chromium	Ammonia (as N)	Antimony	Arsenic	Barium	Boron	Copper	Fluoride	Lead	Manganese	Molybdenum	Nickel	Nitrate/Nitrite (as N)			Sulfate	Iron	Zinc		
	mg/L	NTU	μmhos/cm	pH units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	mg/L	mg/L	µg/L	µg/L	µg/L	
	50.0	0.100	0.100	---	0.130	0.0330	200	0.0500	0.160	0.0810	0.150	0.0100	0.440	0.0320	0.130	0.260	0.210	0.260	0.160	1.10	18.0	2.30		
Sample ID	Date																							
SC-700B-WDR-585	4/1/2019	4200	0.220	7800	6.9	ND (1.00)	ND (0.200)	ND (50.0)	ND (0.200)	ND (0.500)	0.130 J	12.0	1.10	ND (1.00)	2.40	ND (1.00)	3.70	23.0	ND (1.00)	2.80	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-586	4/6/2019	4200	0.220	7000	7.0	ND (1.00)	ND (0.200)	ND (250)	ND (0.200)	ND (0.500)	0.170	15.0	1.10	ND (1.00)	2.30	ND (1.00)	3.60	23.0	ND (1.00)	2.70	510	ND (100)	ND (10.0)	
	RL	50.0	0.100	0.100	---	1.00	0.200	250	0.200	0.500	0.100	1.00	0.500	1.00	0.500	1.00	0.500	0.500	1.00	0.250	25.0	100	10.0	
SC-700B-WDR-588	5/9/2019	4200	0.210	7100	7.0	ND (1.00)	ND (0.200)	ND (50.0)	ND (0.200)	ND (0.500)	0.180	13.0	1.10	ND (1.00)	2.70	ND (1.00)	17.0	22.0	1.80	2.70	500	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-589	6/5/2019	4100	0.210	7200	7.1	ND (6.00)	0.210	ND (50.0)	ND (0.200)	ND (4.00)	ND (4.00)	15.0	1.10	ND (4.00)	2.50	ND (2.00)	6.50	26.0	ND (4.00)	2.80	480	ND (50.0)	ND (50.0)	
	RL	50.0	0.100	0.100	---	6.00	0.200	50.0	0.200	4.00	4.00	2.00	0.100	4.00	0.500	2.00	2.00	2.00	4.00	0.250	25.0	50.0	50.0	

Notes:

(---) = not required by the ARARs Monitoring and Reporting Program
J = concentration or reporting limits estimated by laboratory or validation

J = concentration or reporting

MDL = method detection limit
mg/l = milligrams per liter

$\text{mg/L} = \text{millig}$
 $\text{N} = \text{nitrogen}$

N = nitrogen
NA = not applicable

NA = not applicable
ND = parameter not detected at the listed value

ND = parameter not detected at the NTU = nephelometric turbidity units

NTU = nephelometric turbidity
BL = project reporting limit

RL = project reporting limit
μg/l = micrograms per liter

$\mu\text{g/L}$ = micrograms per liter
 $\mu\text{mhos/cm}$ = micromhos per centimeter

μ inches/cm \equiv 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 ABABs

^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

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

Sampling Frequency		Quarterly																						
Analytes	Units ^b	TDS	Specific Conductance	Field pH ^c	Hexavalent Chromium	Chromium	Antimony	Arsenic	Barium	Beryllium	Cadmium	Cobalt	Copper	Fluoride	Lead	Molybdenum	Mercury	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc	
		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		
Sample ID	Date	MDL	200	0.100	---	0.00013	0.00017	0.00016	0.000081	0.00015	0.00021	0.000053	0.000042	0.00055	0.130	0.00013	0.00021	0.00013	0.00026	0.00036	0.00023	0.00019	0.00028	0.0023
SC-701-WDR-585	4/1/2019	19000	28000	7.4	0.00480	ND (0.0010)	ND (0.00050)	0.00340	0.0460	ND (0.0025)	ND (0.00050)	ND (0.00050)	ND (0.0010)	11.0	ND (0.0010)	0.110	ND (0.00020)	0.00930	0.0210	ND (0.00050)	ND (0.00050)	0.00460	ND (0.0100)	
RL		200	0.100	---	0.0010	0.0010	0.00050	0.00010	0.0010	0.0025	0.00050	0.00050	0.0010	2.00	0.0010	0.00050	0.00020	0.0010	0.00050	0.00050	0.00050	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

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

Sampling Frequency		Quarterly																			
Sample ID	Date	Analytes	Hexavalent Chromium	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	
		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
Phase Separator-585-Sludge	4/1/2019	3000	63.0	21.0	17.0	76.0	ND (2.20)	4.60	5.00	170	15.0	ND (2.20)	ND (2.20)	ND (0.220)	35.0	ND (2.20)	ND (2.20)	7.10	35.0	67.0	
	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

Second 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-585	Ryan Phelps	4/1/2019	7:30:00 AM	ASSET	EPA 120.1	SC	4/1/2019	Lila Ramit
					ASSET	EPA 200.7	AL	4/3/2019	Claire Ignacio
					ASSET	EPA 200.7	B	4/3/2019	Claire Ignacio
					ASSET	EPA 200.7	FE	4/3/2019	Claire Ignacio
					ASSET	EPA 200.8	AS	4/4/2019	Claire Ignacio
					ASSET	EPA 200.8	BA	4/4/2019	Claire Ignacio
					ASSET	EPA 200.8	CR	4/4/2019	Claire Ignacio
					ASSET	EPA 200.8	CU	4/4/2019	Claire Ignacio
					ASSET	EPA 200.8	MN	4/4/2019	Claire Ignacio
					ASSET	EPA 200.8	MO	4/4/2019	Claire Ignacio
					ASSET	EPA 200.8	NI	4/4/2019	Claire Ignacio
					ASSET	EPA 200.8	PB	4/4/2019	Claire Ignacio
					ASSET	EPA 200.8	SB	4/4/2019	Claire Ignacio
					ASSET	EPA 200.8	ZN	4/4/2019	Claire Ignacio
					ASSET	EPA 218.6	CR6	4/1/2019	Ria Abes
					ASSET	EPA 300.0	FL	4/1/2019	Ria Abes
					ASSET	EPA 300.0	SO4	4/1/2019	Ria Abes
					Field	HACH	PH	4/1/2019	Ryan Phelps
					ASSET	SM 2540C	TDS	4/1/2019	Lila Ramit
					ASSET	SM 4500-NO3F	NO3NO2N	4/2/2019	Quennie Manimtim
					ASSET	SM2130B	TRB	4/1/2019	Lila Ramit
					BCLabs	SM4500NH3G	NH3N	4/5/2019	Quennie Manimtim
SC-100B	SC-100B-WDR-588	Ryan Phelps	5/9/2019	2:00:00 PM	ASSET	EPA 120.1	SC	5/10/2019	Lila Ramit
					ASSET	EPA 200.7	FE	5/11/2019	Claire Ignacio
					ASSET	EPA 200.8	CR	5/17/2019	Claire Ignacio
					ASSET	EPA 200.8	MN	5/17/2019	Claire Ignacio
					ASSET	EPA 218.6	CR6	5/13/2019	Ria Abes
					Field	HACH	PH	5/9/2019	Ryan Phelps
					ASSET	SM 2540C	TDS	5/13/2019	Lila Ramit
					ASSET	SM2130B	TRB	5/10/2019	Lila Ramit
SC-100B	SC-100B-WDR-589	Ryan Phelps	6/5/2019	7:00:00 AM	ASSET	EPA 120.1	SC	6/6/2019	Lilia Ramit
					BCLabs	EPA 200.7	FE	6/13/2019	Claire Ignacio
					BCLabs	EPA 200.8	CR	6/13/2019	Claire Ignacio
					BCLabs	EPA 200.8	MN	6/13/2019	Claire Ignacio
					ASSET	EPA 218.6	CR6	6/6/2019	Ria Abes
					Field	HACH	PH	6/5/2019	Ryan Phelps
					ASSET	SM 2540C	TDS	6/6/2019	Lilia Ramit
					ASSET	SM2130B	TRB	6/6/2019	Lilia Ramit

Table 8. Monitoring Information

Second 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-585	Ryan Phelps	4/1/2019	7:25:00 AM	ASSET	EPA 120.1	SC	4/1/2019	Lila Ramit
					ASSET	EPA 200.7	AL	4/3/2019	Claire Ignacio
					ASSET	EPA 200.7	B	4/3/2019	Claire Ignacio
					ASSET	EPA 200.7	FE	4/3/2019	Claire Ignacio
					ASSET	EPA 200.8	AS	4/4/2019	Claire Ignacio
					ASSET	EPA 200.8	BA	4/4/2019	Claire Ignacio
					ASSET	EPA 200.8	CR	4/4/2019	Claire Ignacio
					ASSET	EPA 200.8	CU	4/4/2019	Claire Ignacio
					ASSET	EPA 200.8	MN	4/4/2019	Claire Ignacio
					ASSET	EPA 200.8	MO	4/4/2019	Claire Ignacio
					ASSET	EPA 200.8	NI	4/4/2019	Claire Ignacio
					ASSET	EPA 200.8	PB	4/4/2019	Claire Ignacio
					ASSET	EPA 200.8	SB	4/4/2019	Claire Ignacio
					ASSET	EPA 200.8	ZN	4/4/2019	Claire Ignacio
					ASSET	EPA 218.6	CR6	4/1/2019	Ria Abes
					ASSET	EPA 300.0	FL	4/1/2019	Ria Abes
					ASSET	EPA 300.0	SO4	4/1/2019	Ria Abes
					Field	HACH	PH	4/1/2019	Ryan Phelps
					ASSET	SM 2540C	TDS	4/1/2019	Lila Ramit
					ASSET	SM 4500-NO3F	NO3NO2N	4/2/2019	Quennie Manimtim
					ASSET	SM2130B	TRB	4/1/2019	Lila Ramit
					BCLabs	SM4500NH3G	NH3N	4/5/2019	Quennie Manimtim
SC-700B	SC-700B-WDR-586	Chris Lentz	4/6/2019	9:00:00 AM	ASSET	EPA 120.1	SC	4/8/2019	Lilia Ramit
					ASSET	EPA 200.7	AL	4/15/2019	Claire Ignacio
					ASSET	EPA 200.7	B	4/15/2019	Claire Ignacio
					ASSET	EPA 200.7	FE	4/15/2019	Claire Ignacio
					ASSET	EPA 200.8	AS	4/23/2019	Claire Ignacio
					ASSET	EPA 200.8	BA	4/23/2019	Claire Ignacio
					ASSET	EPA 200.8	CR	4/10/2019	Claire Ignacio
					ASSET	EPA 200.8	CU	4/10/2019	Claire Ignacio
					ASSET	EPA 200.8	MN	4/10/2019	Claire Ignacio
					ASSET	EPA 200.8	MO	4/23/2019	Claire Ignacio
					ASSET	EPA 200.8	NI	4/10/2019	Claire Ignacio
					ASSET	EPA 200.8	PB	4/10/2019	Claire Ignacio
					ASSET	EPA 200.8	SB	4/10/2019	Claire Ignacio
					ASSET	EPA 200.8	ZN	4/10/2019	Claire Ignacio
					ASSET	EPA 218.6	CR6	4/9/2019	Ria Abes
					ASSET	EPA 300.0	FL	4/9/2019	Ria Abes

Table 8. Monitoring Information

Second 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-586	Chris Lentz	4/6/2019	9:00:00 AM	ASSET	EPA 300.0	SO4	4/9/2019	Ria Abes
					Field	HACH	PH	4/6/2019	Chris Lentz
					ASSET	SM 2540C	TDS	4/8/2019	Lilia Ramit
					ASSET	SM 4500-NO3F	NO3NO2N	4/10/2019	Quennie Manimtim
					ASSET	SM2130B	TRB	4/8/2019	Lilia Ramit
					BCLabs	SM4500NH3G	NH3N	4/18/2019	Quennie Manimtim
SC-700B	SC-700B-WDR-588	Ryan Phelps	5/9/2019	1:55:00 PM	ASSET	EPA 120.1	SC	5/10/2019	Lila Ramit
					ASSET	EPA 200.7	AL	5/11/2019	Claire Ignacio
					ASSET	EPA 200.7	B	5/11/2019	Claire Ignacio
					ASSET	EPA 200.7	FE	5/11/2019	Claire Ignacio
					ASSET	EPA 200.8	AS	5/17/2019	Claire Ignacio
					ASSET	EPA 200.8	BA	5/17/2019	Claire Ignacio
					ASSET	EPA 200.8	CR	5/17/2019	Claire Ignacio
					ASSET	EPA 200.8	CU	5/17/2019	Claire Ignacio
					ASSET	EPA 200.8	MN	5/17/2019	Claire Ignacio
					ASSET	EPA 200.8	MO	5/17/2019	Claire Ignacio
					ASSET	EPA 200.8	NI	5/17/2019	Claire Ignacio
					ASSET	EPA 200.8	PB	5/22/2019	Claire Ignacio
					ASSET	EPA 200.8	SB	5/17/2019	Claire Ignacio
					ASSET	EPA 200.8	ZN	5/17/2019	Claire Ignacio
					ASSET	EPA 218.6	CR6	5/13/2019	Ria Abes
					ASSET	EPA 300.0	FL	5/10/2019	Ria Abes
					ASSET	EPA 300.0	SO4	5/10/2019	Ria Abes
					Field	HACH	PH	5/9/2019	Ryan Phelps
					ASSET	SM 2540C	TDS	5/13/2019	Lila Ramit
					ASSET	SM 4500-NO3F	NO3NO2N	5/15/2019	Quennie Manimtim
					ASSET	SM2130B	TRB	5/10/2019	Lila Ramit
					BCLabs	SM4500NH3G	NH3N	5/20/2019	Quennie Manimtim
SC-700B	SC-700B-WDR-589	Ryan Phelps	6/5/2019	7:05:00 AM	ASSET	EPA 120.1	SC	6/6/2019	Lilia Ramit
					BCLabs	EPA 200.7	AL	6/13/2019	Claire Ignacio
					BCLabs	EPA 200.7	B	6/13/2019	Claire Ignacio
					BCLabs	EPA 200.7	FE	6/13/2019	Claire Ignacio
					BCLabs	EPA 200.8	AS	6/13/2019	Claire Ignacio
					BCLabs	EPA 200.8	BA	6/13/2019	Claire Ignacio
					BCLabs	EPA 200.8	CR	6/13/2019	Claire Ignacio
					BCLabs	EPA 200.8	CU	6/13/2019	Claire Ignacio
					BCLabs	EPA 200.8	MN	6/13/2019	Claire Ignacio
					BCLabs	EPA 200.8	MO	6/13/2019	Claire Ignacio

Table 8. Monitoring Information

Second 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-589	Ryan Phelps	6/5/2019	7:05:00 AM	BCLabs	EPA 200.8	NI	6/13/2019	Claire Ignacio
					BCLabs	EPA 200.8	PB	6/13/2019	Claire Ignacio
					BCLabs	EPA 200.8	SB	6/13/2019	Claire Ignacio
					BCLabs	EPA 200.8	ZN	6/14/2019	Claire Ignacio
					ASSET	EPA 218.6	CR6	6/6/2019	Ria Abes
					ASSET	EPA 300.0	FL	6/6/2019	Ria Abes
					ASSET	EPA 300.0	SO4	6/6/2019	Ria Abes
					Field	HACH	PH	6/5/2019	Ryan Phelps
					ASSET	SM 2540C	TDS	6/6/2019	Lilia Ramit
					ASSET	SM 4500-NO3F	NO3NO2N	6/12/2019	Quennie Manimtim
					ASSET	SM2130B	TRB	6/6/2019	Lilia Ramit
					BCLabs	SM4500NH3G	NH3N	6/11/2019	Quennie Manimtim
SC-701	SC-701-WDR-585	Ryan Phelps	4/1/2019	7:20:00 AM	ASSET	EPA 120.1	SC	4/1/2019	Lila Ramit
					ASSET	EPA 200.8	AG	4/4/2019	Claire Ignacio
					ASSET	EPA 200.8	AS	4/4/2019	Claire Ignacio
					ASSET	EPA 200.8	BA	4/4/2019	Claire Ignacio
					ASSET	EPA 200.8	BE	4/4/2019	Claire Ignacio
					ASSET	EPA 200.8	CD	4/4/2019	Claire Ignacio
					ASSET	EPA 200.8	CO	4/4/2019	Claire Ignacio
					ASSET	EPA 200.8	CR	4/4/2019	Claire Ignacio
					ASSET	EPA 200.8	CU	4/4/2019	Claire Ignacio
					ASSET	EPA 200.8	MN	4/4/2019	Claire Ignacio
					ASSET	EPA 200.8	MO	4/4/2019	Claire Ignacio
					ASSET	EPA 200.8	NI	4/4/2019	Claire Ignacio
					ASSET	EPA 200.8	PB	4/4/2019	Claire Ignacio
					ASSET	EPA 200.8	SB	4/4/2019	Claire Ignacio
					ASSET	EPA 200.8	SE	4/4/2019	Claire Ignacio
					ASSET	EPA 200.8	TL	4/4/2019	Claire Ignacio
					ASSET	EPA 200.8	V	4/4/2019	Claire Ignacio
					ASSET	EPA 200.8	ZN	4/4/2019	Claire Ignacio
					ASSET	EPA 218.6	CR6	4/1/2019	Ria Abes
					ASSET	EPA 245.1	HG	4/2/2019	Mark Gesmundo
					ASSET	EPA 300.0	FL	4/1/2019	Ria Abes
					Field	HACH	PH	4/1/2019	Ryan Phelps
					ASSET	SM 2540C	TDS	4/1/2019	Lila Ramit
Phase Separator	Phase Separator-585-Sludge	Ryan Phelps	4/1/2019	7:40:00 AM	ASSET	EPA 300.0	FL	4/8/2019	Ria Abes
					ASSET	EPA 6010B	AG	4/3/2019	Claire Ignacio
					ASSET	EPA 6010B	AS	4/3/2019	Claire Ignacio

Table 8. Monitoring Information

Second 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
Phase Separator	Phase Separator-585-Sludge	Ryan Phelps	4/1/2019	7:40:00 AM	ASSET	EPA 6010B	BA	4/3/2019	Claire Ignacio
					ASSET	EPA 6010B	BE	4/3/2019	Claire Ignacio
					ASSET	EPA 6010B	CD	4/3/2019	Claire Ignacio
					ASSET	EPA 6010B	CO	4/3/2019	Claire Ignacio
					ASSET	EPA 6010B	CR	4/3/2019	Claire Ignacio
					ASSET	EPA 6010B	CU	4/3/2019	Claire Ignacio
					ASSET	EPA 6010B	MN	4/3/2019	Claire Ignacio
					ASSET	EPA 6010B	MO	4/3/2019	Claire Ignacio
					ASSET	EPA 6010B	NI	4/3/2019	Claire Ignacio
					ASSET	EPA 6010B	PB	4/3/2019	Claire Ignacio
					ASSET	EPA 6010B	SB	4/3/2019	Claire Ignacio
					ASSET	EPA 6010B	SE	4/3/2019	Claire Ignacio
					ASSET	EPA 6010B	TL	4/3/2019	Claire Ignacio
					ASSET	EPA 6010B	V	4/3/2019	Claire Ignacio
					ASSET	EPA 6010B	ZN	4/3/2019	Claire Ignacio
					ASSET	EPA 7471A	HG	4/2/2019	Mark Gesmundo
					ASSET	SW 7199	CR6	4/3/2019	Ria Abes

Table 8. Monitoring Information*Second 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).

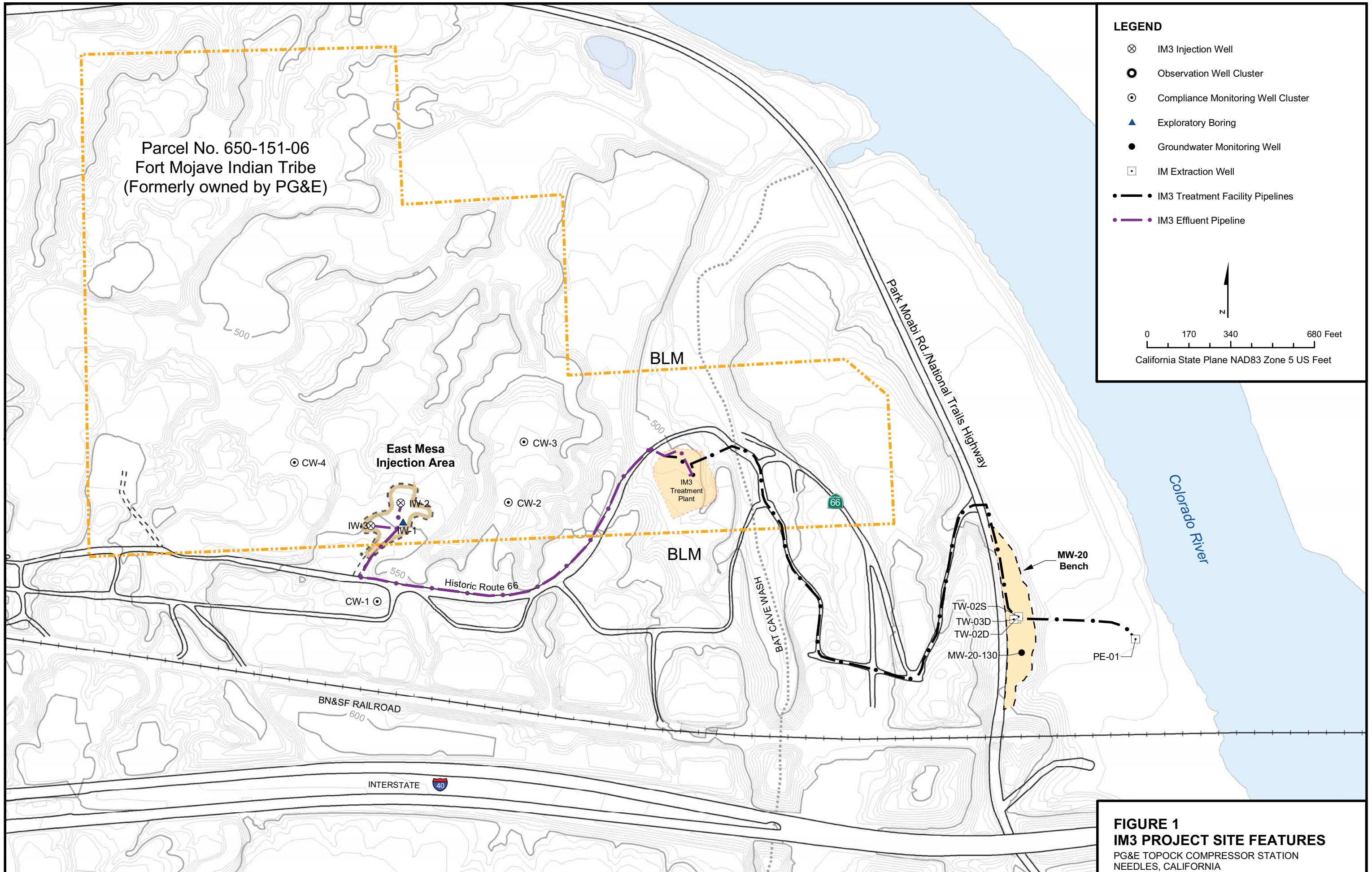
SC-100B = Sampling location for all influent samples is tap on pipe from extraction wells into tank T-100 (see attached P&ID TP-PR-10-10-04).

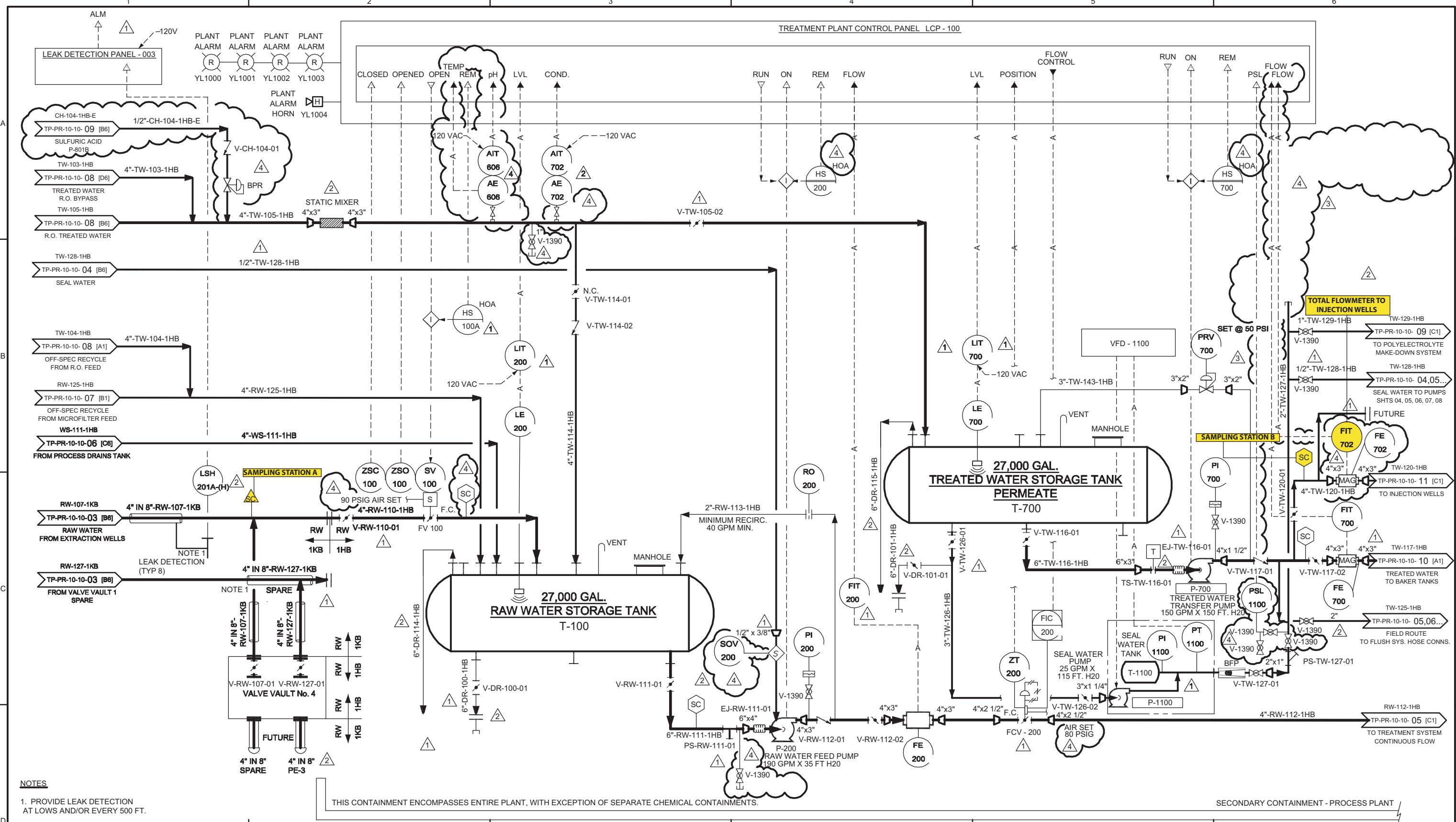
SC-701 = Sampling location for all reverse osmosis samples is tap on pipe T-701 (see attached P&ID PR-10-04).

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

Figures





RESPONSIBLE ENGINEER: Kenneth L. Martins PE # CH4876 Exp. 4-30-06	NO.	DATE	REVISION	BY	CHK	REVISION APPROVAL	REV	DATE 09/21/05	PRINT DISTRIBUTION	STATUS					PACIFIC GAS & ELECTRIC CO. TOPock COMPRESSOR STATION INTERIM MEASURE 3 EXPANDED GROUNDWATER EXTRACTION AND TREATMENT SYSTEM	PROCESS AND INSTRUMENTATION DIAGRAM SHEET 04 STORAGE AREA
										ISSUED	REV	DATE	SDE	PEM		
	D	07/28/04	FOR INTERNAL REVIEW	EFC	AJ	DISCIPLINE	REVIEWED	DISCIPLINE	REVIEWED	DATE						
	O	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.	PRELIMINARY	D	07/28/04				
2	01/23/05	REVISED AND APPROVED FOR CONSTRUCTION	EFC	AJ	MECHANICAL		ARCHITECTURAL		CLIENT	APPROVED FOR CONSTRUCTION	O	09/03/04	KLM	TP		
3	02/14/05	ADDED RECIRC. LINE AND PRV VALVE TO T-700 - APPROVED FOR CONSTRUCTION	EFC	AJ	PROCESS		ENVIRONMENTAL		FIELD	REVISED & APPROVED FOR CONSTRUCTION	4	/	/			PROJ NO. 315994
4	09/21/05	REVISED PER AS-BUILT CONDITIONS	EFC	AJ	PIPELINE		GEN. ARRANG.		INTRA CO.							

BAR IS ONE INCH
ON ORIGINAL DRAWING

SCALE NONE

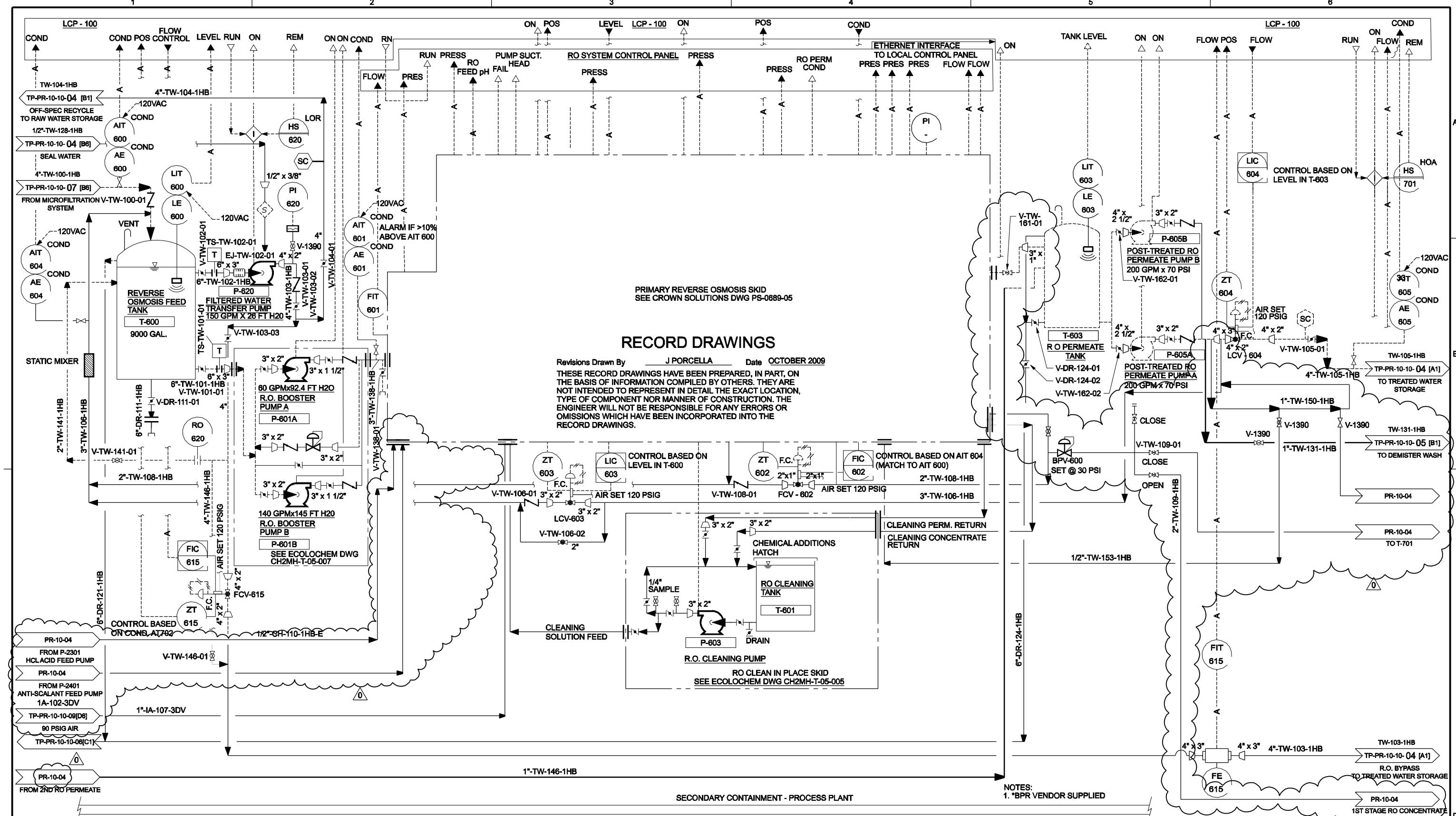
CH2MHILL

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

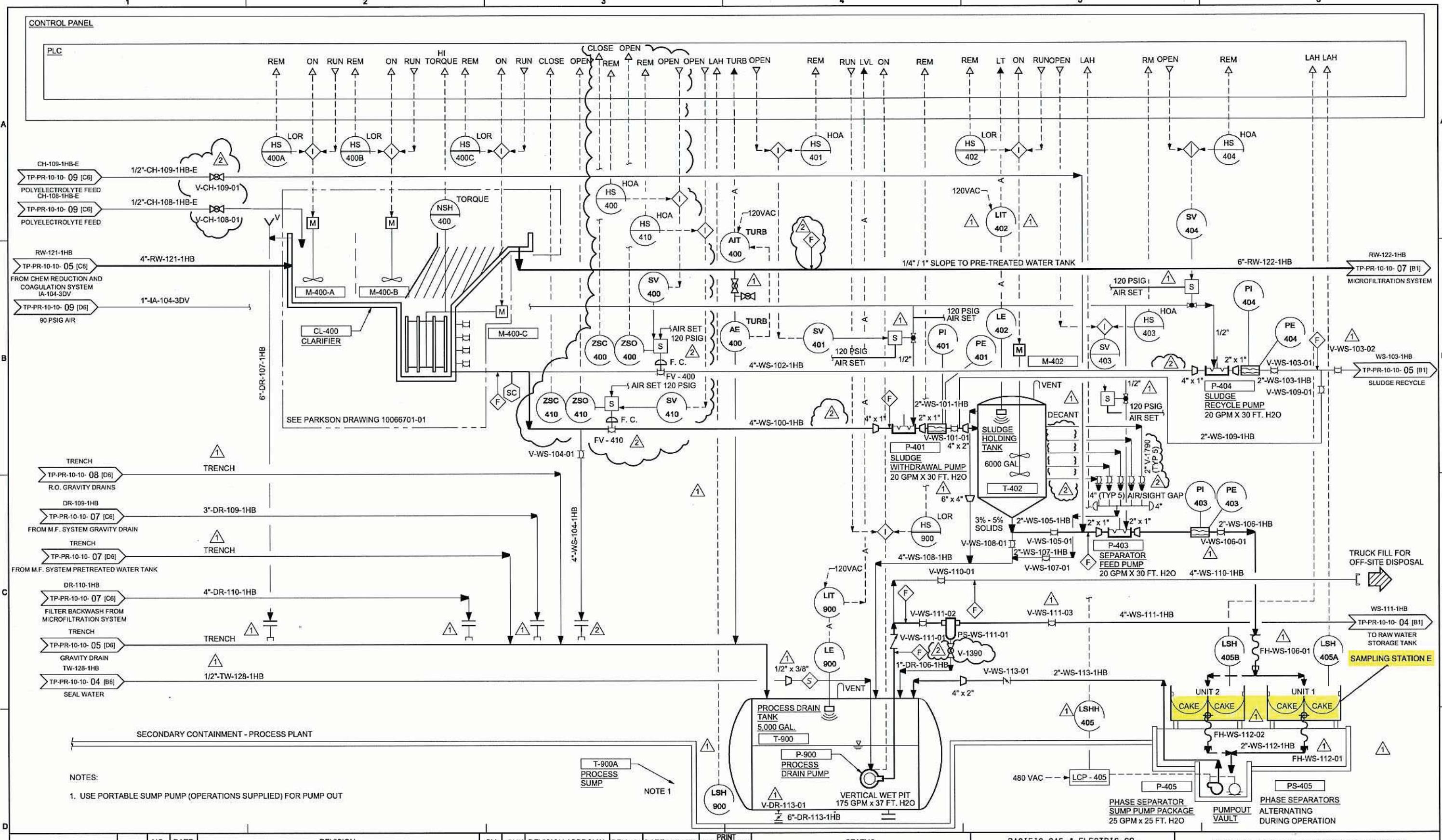
FILENAME: tppr101004.dwg

PLOT DATE: 21-SEP-2005

PLOT TIME:



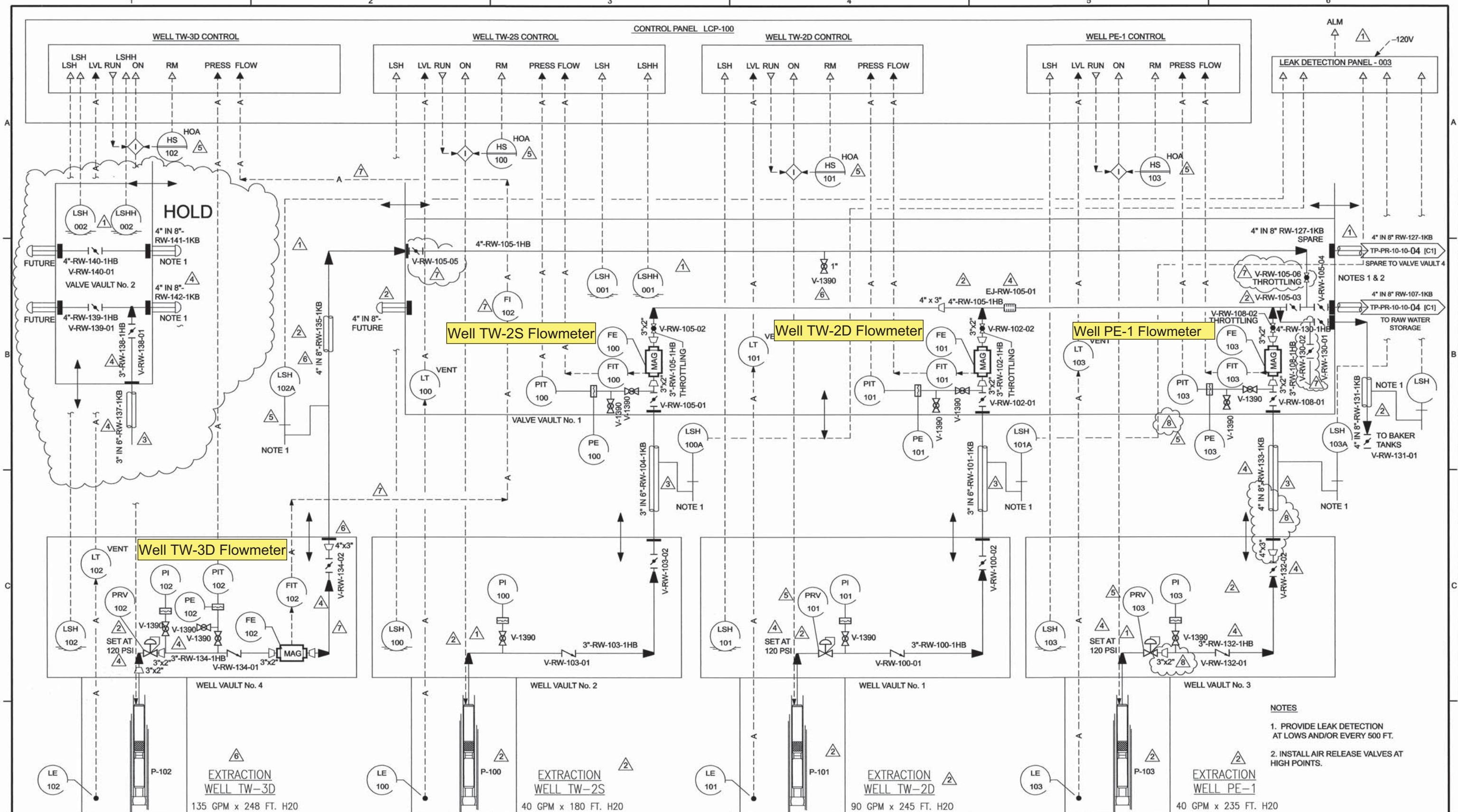
** ORIGINALLY STAMPED AND SIGNED BY: JOHN PORCELLA CALIFORNIA PE NO. C70145 ON 04-01-2009 **	RESPONSIBLE ENGINEER John Porcella C70145 PE#	NO. DATE	REVISION		BY	CHK	REVISION APPROVAL		REV 0	DATE 10/02/09	PRINT DISTRIBUTION		STATUS					PACIFIC GAS & ELECTRIC CO. TOPOCK COMPRESSOR STATION INTERIM MEASURE 3 PLANT PERFORMANCE IMPROVEMENTS	PROCESS AND INSTRUMENTATION DIAGRAM REVERSE OSMOSIS SYSTEM SHEET ONE OF TWO	
			C	D			DISCIPLINE	REVIEWED			DISCIPLINE	REVIEWED	DATE	SDE	PEM	ISSUED	REV	DATE	SDE	PEM
A	2/12/09	INTERNAL REVIEW					CIVIL	SJ	ELECTRICAL	FH	STATUS		PRELIMINARY	A	2/12/09	JP	JP			
B	2/12/09	CLIENT REVIEW					STRUCTURAL		INST & CONTROL	JG	REV.		FOR REVIEW AND APPROVAL	C	4/01/09	JP	JP			
C	4/01/09	FOR REVIEW AND APPROVAL					MECHANICAL	SJ	ARCHITECTURAL		CLIENT		APPROVED FOR CONSTRUCTION							
O	11/17/09	FINAL RECORD ISSUE					PROCESS	DF	ENVIRONMENTAL		FIELD		REVISED & APPROVED FOR CONSTRUCTION	0	10/02/09	JP	JP		PROJ NO. 362032	
							PIPELINE	SJ	GEN. ARRANG.	SJ	INTRA CO.								SCALE NONE	
																			CH2MHILL	
																			DWG. NO. PR - 10 - 03	REV. 0



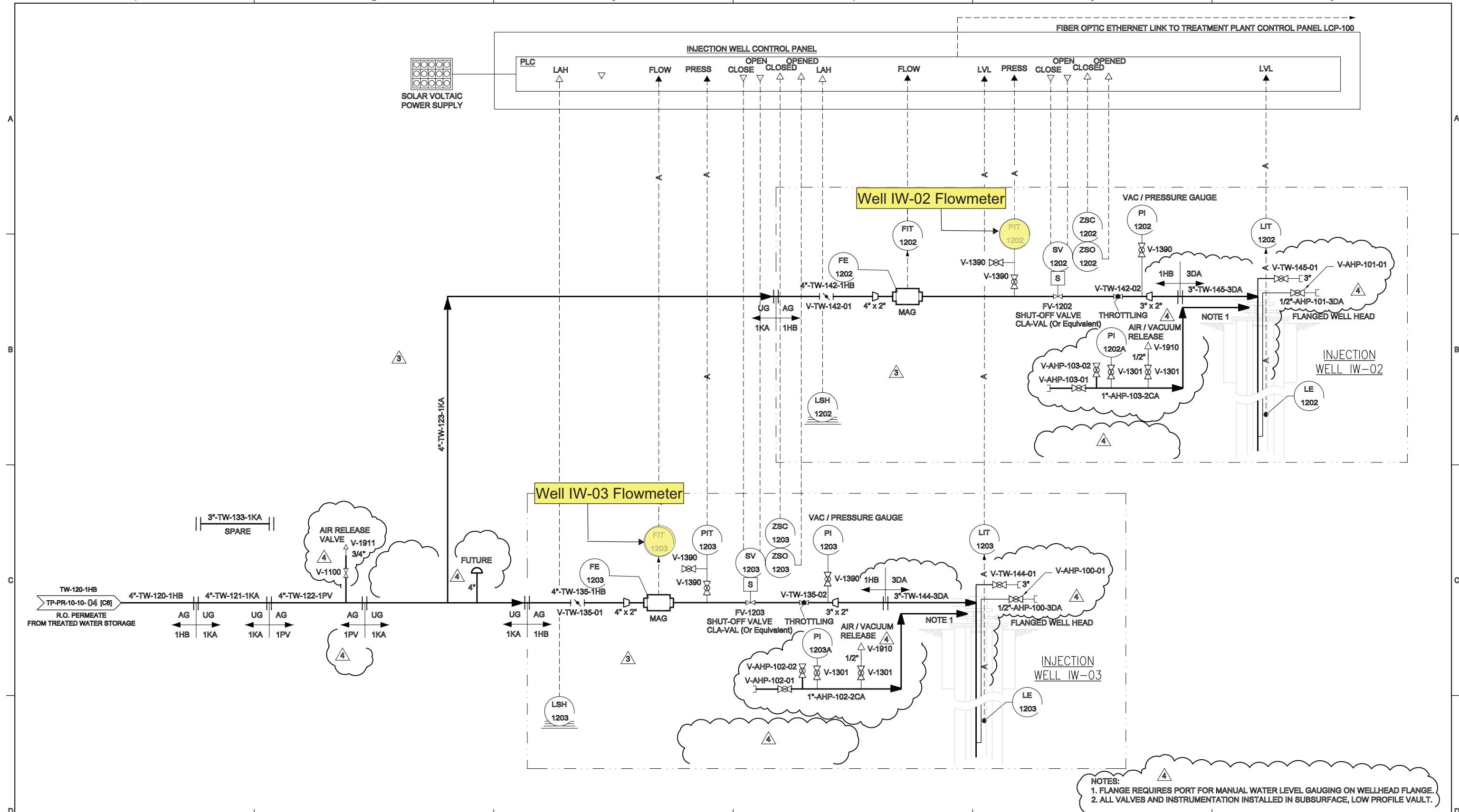
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REUSE OF DOCUMENTS:



RESPONSIBLE ENGINEER: Kenneth L. Martins PE# 4876	NO.	DATE	REVISION			BY	CHK	REVISION APPROVAL	REV	DATE 12/06/05	PRINT DISTRIBUTION	STATUS					PACIFIC GAS & ELECTRIC CO. TOPOCK COMPRESSOR STATION INTERIM MEASURE 3 EXPANDED GROUNDWATER EXTRACTION AND TREATMENT SYSTEM	PROCESS AND INSTRUMENTATION DIAGRAM SHEET 03 EXTRACTION WELLS PE-1, TW-2D, TW-2S AND TW-3D
			DISCIPLINE	REVIEWED	DISCIPLINE							ISSUED	REV	DATE	SDE	PEM		
	8	12/07/05	REMOVED PE-1 HOLDS			JBW	SDH	DISCIPLINE	REVIEWED	DISCIPLINE	REVIEWED	DATE					PRELIMINARY	
	1	10/13/04	REVISED AND APPROVED FOR CONSTRUCTION			EFC	AJ	CIVIL	—	ELECTRICAL	—	STATUS	D	07/28/04			FOR REVIEW AND APPROVAL	
	2	01/23/04	REVISED AND APPROVED FOR CONSTRUCTION			EFC	AJ	STRUCTURAL	—	INST & CONTROL	—	REV.	O	09/03/04	KLM	TP	APPROVED FOR CONSTRUCTION	
	3	03/16/05	DELETED NOTES. APPROVED FOR CONSTRUCTION			EFC	AJ	MECHANICAL	AJ	ARCHITECTURAL	—	CLIENT	7	12/19/05	AT for KLM	AT	REVISED & APPROVED FOR CONSTRUCTION	
	4	07/20/05	RELIEF VALVE SETTINGS. WELL PE-1 LINE TAGS. HOLDS REMOVED. APPROVED FOR CONSTRUCTION			EFC	AJ	PROCESS	—	ENVIRONMENTAL	—	FIELD					PROJ NO. 315994	
	5	09/27/04	FINAL RECORD ISSUE			EFC	AJ	PIPEING	SDH	GEN. ARRANG.	—	INTRA CO.					CH2MHILL	DWG. NO. TP-PR-10-10-03 REV. 8
	6	10/06/05	REVISED FINAL RECORD - ADDED TW-3D			EFC	AJ											
	7	10/19/05	REVISED AS NOTED			EFC	AJ											



RESPONSIBLE ENGINEER: Kenneth L. Martins PE # CH4876 Exp. 04/05	NO.	DATE	REVISION	BY	CHK	REVISION APPROVAL	REV	DATE 03/10/05	PRINT DISTRIBUTION	STATUS					PACIFIC GAS & ELECTRIC CO. TOPOCK COMPRESSOR STATION INTERIM MEASURE 3 EXPANDED GROUNDWATER EXTRACTION AND TREATMENT SYSTEM	PROCESS AND INSTRUMENTATION DIAGRAM SHEET 11 INJECTION WELLS
										ISSUED	REV	DATE	SDE	PEM		
	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						PROJ NO. 315994
	4	03/10/05	REMOVED HOLD AND APPROVED FOR CONSTRUCTION	EFC	AJ	PIPELINE		GEN. ARRANG.		INTRA CO.						
										SCALE		NONE				CH2MHILL
																DWG. NO. TP-PR-10-10-11 REV. 4

Appendix A

Semiannual Operations and

Maintenance Log,

January 1, 2019 through June 30, 2019

Appendix A. Semiannual Operations and Maintenance Log, January 1, 2019 through June 30, 2019

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

January 2019

During January 2019, extraction well TW-3D operated at a target pump rate of 135 gallons per minute (gpm) excluding periods of planned and unplanned downtime. Extraction wells TW-2D and TW-2S were not operated during January 2019. Extraction well PE-1 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 downtime (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.

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-1 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 downtime (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.

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-1 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 downtime (that together resulted in 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.

April 2019

During April 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 April 2019. Extraction well PE-1 was only operated to collect a sample. The operational run time for the IM-3 groundwater extraction system (combined or individual pumping) was 82.1 percent during the April 2019 reporting period.

The IM-3 facility treated approximately 4,774,098 gallons of extracted groundwater during April 2019. The IM-3 facility treated 700 gallons of purge water and no groundwater from injection well backwashing/re-development during April 2019. No containers of solids from the IM-3 facility were transported offsite during April 2019.

Periods of planned and unplanned extraction system downtime (that together resulted in an approximately 17.9 percent downtime during April 2019) are summarized below. The times shown are in PST to be consistent with other data collected (e.g., water level data) at the site.

- **April 1, 2019 (unplanned):** The extraction well system was offline from 1:58 a.m. to 2:30 a.m. due to lower water levels in the Raw Water Storage Tank (T-100) before the semiannual maintenance. Extraction system downtime was 32 minutes.
- **April 1 - 5, 2019 (planned):** The extraction well system was offline from 7:02 a.m. on April 1, 2019 to 9:46 a.m. on April 5, 2019 for semiannual scheduled maintenance. Extraction system downtime was 4 days, 2 hours and 44 minutes.
- **April 5, 2019 (planned):** The extraction well system was offline from 2:04 p.m. to 4:44 p.m. because the plant was put in recirculation mode. Extraction system downtime was 2 hours 40 minutes.
- **April 7 - 9, 2019 (unplanned):** The extraction well system was offline from 10:30 p.m. to 11:12 p.m. on April 7, 2019; from 8:32 a.m. to 8:54 a.m. on April 8, 2019; and from 4:04 a.m. to 4:22 a.m. on April 9, 2019 due to scale build-up on the Clarifier Feed Pump (P-400) that was missed during the semiannual scheduled maintenance because it was thought that the issue was resolved by cleaning the iron oxidation reactor No. 3 tank (T-301C). The scaling caused high water levels in T-100. Later plant outages in April were caused by this situation and the scale was not cleaned from P-400 until the pump was replaced on May 1, 2019. Extraction system downtime was 1 hour 22 minutes.

- **April 9, 2019 (planned):** The extraction well system was offline from 8:00 a.m. to 8:44 a.m. due to testing of the pipeline critical alarms and leak detection system. Extraction system downtime was 44 minutes.
- **April 10, 2019 (unplanned):** The extraction well system was offline from 10:46 a.m. to 11:40 a.m. to change out the microfilter modules due to high transmembrane pressure. The plant was shut down to replace the fouled modules with clean ones. Extraction system downtime was 54 minutes.
- **April 10 - 14, 2019 (unplanned):** The extraction well system was offline from 10:44 p.m. to 11:40 p.m. on April 10, 2019; from 8:42 a.m. to 9:30 a.m. on April 13, 2019; from 2:00 p.m. to 2:32 p.m. on April 14, 2019; and from 2:34 p.m. to 2:46 p.m. on April 14, 2019 to maintain appropriate water levels in T-100. Extraction system downtime was 2 hours 28 minutes.
- **April 14, 2019 (unplanned):** The extraction well system was offline from 2:48 p.m. to 3:00 p.m. due to a PLC and HMI connectivity issue. Extraction system downtime was 12 minutes.
- **April 16 - 18, 2019 (unplanned):** The extraction well system was offline from 12:22 a.m. to 12:44 a.m. on April 16, 2019; from 4:38 p.m. to 5:18 p.m. on April 16, 2019; from 3:42 a.m. to 4:02 a.m. on April 18, 2019; and from 4:04 a.m. to 4:44 a.m. on April 18, 2019 to maintain appropriate water levels in T-100. Extraction system downtime was 2 hours 2 minutes.
- **April 18, 2019 (unplanned):** The extraction well system was offline from 4:46 a.m. to 4:54 a.m. due to a PLC and HMI connectivity issue. Extraction system downtime was 8 minutes.
- **April 19, 2019 (unplanned):** The extraction well system was offline from 9:02 p.m. to 9:38 p.m. and from 9:40 p.m. to 10:08 p.m. to maintain appropriate water levels in T-100. Extraction system downtime was 1 hour 4 minutes.
- **April 20, 2019 (unplanned):** The extraction well system was offline from 6:06 a.m. to 9:30 a.m. to change out the microfilter modules due to high transmembrane pressure. The plant was shut down to replace the fouled modules with clean ones. Extraction system downtime was 3 hours 24 minutes.
- **April 21 - 29, 2019 (unplanned):** The extraction well system was offline from 1:32 a.m. to 2:28 a.m. on April 21, 2019; from 12:50 a.m. to 1:34 a.m. and from 7:48 p.m. to 8:28 p.m. on April 22, 2019; from 6:42 p.m. to 7:46 p.m. on April 23, 2019; from 5:04 p.m. to 6:04 p.m. on April 24, 2019; from 10:44 p.m. on April 25, 2019 to 12:00 a.m. on April 26, 2019; from 10:48 p.m. to 11:42 p.m. on April 26, 2019; from 10:16 p.m. to 11:12 p.m. on April 27, 2019; from 4:06 p.m. to 5:04 p.m. on April 28, 2019; and from 1:48 p.m. to 2:56 p.m. on April 29, 2019 to maintain appropriate water levels in T-100. Extraction system downtime was 9 hours 36 minutes.
- **April 29, 2019 (unplanned):** The extraction well system was offline from 3:02 p.m. to 3:24 p.m.; from 3:28 p.m. to 3:34 p.m.; from 3:38 p.m. to 5:18 p.m.; from 5:24 p.m. to 5:40 p.m.; from 5:42 p.m. to 7:50 p.m.; from 7:58 p.m. to 8:06 p.m.; and from 8:12 p.m. to 8:36 p.m. due to TW-3D pump or motor failure. The pump (and motor) was replaced on May 1, 2019. Extraction system downtime was 5 hours 4 minutes.

May 2019

During May 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 May 2019. Extraction well PE-1 was only operated to collect a sample. The operational run time for the IM-3 groundwater extraction system (combined or individual pumping) was 95.7 percent during the May 2019 reporting period.

The IM-3 facility treated approximately 5,801,622 gallons of extracted groundwater during May 2019. The IM-3 facility treated no purge water and no groundwater from injection well backwashing/re-development during May 2019. Two containers of solids from the IM-3 facility were transported offsite during May 2019.

Periods of planned and unplanned extraction system downtime (that together resulted in approximately 4.3 percent downtime during May 2019) are summarized below. The times shown are in PST to be consistent with other data collected (e.g., water level data) at the site.

- **May 1, 2019 (unplanned):** The extraction well system was offline from 4:56 a.m. to 10:14 a.m. to replace the well pump at TW-3D due to falling flowrate below the target rate of 135 gpm. During this downtime, the Clarifier Feed Pump (P-400) was also replaced. Extraction system downtime was 5 hours 18 minutes.
- **May 2, 2019 (unplanned):** The extraction well system was offline from 9:20 a.m. to 10:58 a.m. to change out the microfilter modules due to high transmembrane pressure. The plant was shut down to replace the fouled modules with clean ones. Extraction system downtime was 1 hour 38 minutes.
- **May 8, 2019 (unplanned):** The extraction well system was offline from 8:28 a.m. to 8:42 a.m., from 8:50 a.m. to 8:54 a.m., and from 8:58 a.m. to 9:00 a.m. due to a PLC and HMI connectivity issue. Extraction system downtime was 20 minutes.
- **May 17, 2019 (unplanned):** The extraction well system was offline from 5:30 a.m. to 5:56 a.m. to maintain appropriate water levels in the Raw Water Storage Tank (T-100) due to new or residual blockages. Extraction system downtime was 26 minutes.
- **May 18, 2019 (unplanned):** The extraction well system was offline from 4:04 a.m. to 4:58 a.m. to maintain appropriate water levels in T-100 due to new or remaining blockages. Extraction system downtime was 54 minutes.
- **May 20, 2019 (unplanned):** The extraction well system was offline from 9:46 a.m. to 11:50 a.m. to change out the microfilter modules due to high transmembrane pressure. The plant was shut down to replace the fouled modules with clean ones. Extraction system downtime was 2 hours 4 minutes.
- **May 22, 2019 (unplanned):** The extraction well system was offline from 8:44 p.m. to 9:48 p.m. to maintain appropriate water levels in T-100 due to new or residual blockages. Extraction system downtime was 1 hour 4 minutes.
- **May 23, 2019 (unplanned):** The extraction well system was offline from 2:26 p.m. to 2:28 p.m. due to a PLC and HMI connectivity issue. Extraction system downtime was 2 minutes.
- **May 24, 2019 (unplanned):** The extraction well system was offline from 8:06 a.m. to 8:32 a.m. due to the City of Needles needing to adjust the incoming power at the electrical transformer (also known as a voltage tap adjustment). Extraction system downtime was 26 minutes.
- **May 26, 2019 (unplanned):** The extraction well system was offline from 3:54 a.m. to 5:12 a.m. to maintain appropriate water levels in T-100 due to new or remaining blockages. Extraction system downtime was 1 hour 18 minutes.
- **May 27, 2019 (unplanned):** The extraction well system was offline from 10:42 a.m. to 11:12 a.m. to maintain appropriate water levels in T-100 due to new or residual blockages. Extraction system downtime was 30 minutes.
- **May 29, 2019 (unplanned):** The extraction well system was offline from 3:44 a.m. to 12:24 p.m. to remove sludge in and scale on P-400. Extraction system downtime was 8 hours 40 minutes.
- **May 29, 2019 (unplanned):** The extraction well system was offline from 1:54 p.m. to 2:24 p.m. to replace a failed backup uninterruptible power supply (UPS) at IM-2. Extraction system downtime was 30 minutes.
- **May 30, 2019 (unplanned):** The extraction well system was offline from 7:02 a.m. to 7:52 a.m. to investigate blockages at P-400. Extraction system downtime was 50 minutes.
- **May 30, 2019 (unplanned):** The extraction well system was offline from 5:02 a.m. to 12:56 p.m. to remove blockages in piping between Iron Oxidation Reactor 1 (T-301A) and Iron Oxidation Reactor 2 (T-301B). Extraction system downtime was 7 hours 54 minutes.

June 2019

During June 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 June 2019. Extraction well PE-1 was only operated to collect a sample. The operational run time for the IM-3 groundwater extraction system (combined or individual pumping) was 98.2 percent during the June 2019 reporting period.

The IM-3 facility treated approximately 5,662,515 gallons of extracted groundwater during June 2019. The IM-3 facility treated 200 gallons of purge water and no groundwater from injection well backwashing/re-development during June 2019. One container of solids from the IM-3 facility were transported offsite during June 2019.

Periods of planned and unplanned extraction system downtime (that together resulted in approximately 1.8 percent downtime during June 2019) are summarized below. The times shown are in PST to be consistent with other data collected (e.g., water level data) at the site.

- **June 4, 2019 (unplanned):** The extraction well system was offline from 7:10 a.m. to 9:30 a.m. to clean the Clarifier Feed Pump (P-400) to regain the design flowrate. Extraction system downtime was 2 hours 20 minutes.
- **June 5, 2019 (planned):** The extraction well system was offline from 7:56 a.m. to 8:50 a.m. due to testing of the pipeline critical alarms and leak detection system. Extraction system downtime was 54 minutes.
- **June 7-9, 2019 (unplanned):** The extraction well system was offline from 12:50 a.m. to 1:40 a.m. on June 7, 2019; from 2:02 a.m. to 3:08 a.m. on June 8, 2019; and from 12:42 a.m. to 1:40 a.m. on June 9, 2019 due to a high-water level in Raw Water Storage Tank (T-100). Low flowrates from P-400 caused the plant to run at a slower rate and fill up T-100. Plant was shut down to drain the water from T-100 and to install a diaphragm pump in parallel with P-400 to enable the plant to operate at design flow rates. Extraction system downtime was 2 hours 54 minutes.
- **June 9, 2019 (unplanned):** The extraction well system was offline from 3:54 p.m. to 5:00 p.m. due to work done on the pump at Iron Oxidation Tank #3 (T-301C). The diaphragm pump installed in parallel with P-400 started to leak; maintenance was performed and the plant returned to service. Extraction system downtime was 1 hour 6 minutes.
- **June 11, 2019 (unplanned):** The extraction well system was offline from 9:32 a.m. to 10:40 a.m. due to work done on P-400. More maintenance was performed on P-400; the impeller and pump casing were cleaned to regain the design flowrate. Extraction system downtime was 1 hour 8 minutes.
- **June 13, 2019 (unplanned):** The extraction well system was offline from 7:04 a.m. to 9:12 a.m. to change out the microfilter modules due to high transmembrane pressure. The plant was shut down to replace the fouled modules with clean ones. Extraction system downtime was 2 hour 8 minutes.
- **June 13, 2019 (unplanned):** The extraction well system was offline from 10:44 a.m. to 12:04 p.m. due to more service work on P-400. The voltage of the variable frequency drive for P-400 was checked. Extraction system downtime was 1 hours 20 minutes.
- **June 22, 2019 (unplanned):** The extraction well system was offline from 2:46 a.m. to 3:32 a.m. due to a City of Needles power outage. Extraction system downtime was 46 minutes.
- **June 25, 2019 (unplanned):** The extraction well system was offline from 6:26 a.m. to 6:30 a.m. due to a PLC and HMI connectivity issue. Extraction system downtime was 4 minutes.

Appendix B

Daily Volumes of Groundwater Treated

January 2019 Operational Data

IM-3 Groundwater Extraction and Treatment System

PG&E Topock Compressor Station, Needles, California

Month	Day	Year	Extraction Well System				Injection Well System			RO Brine (gallons)	
			TW-2S (gallons)	TW-2D (gallons)	TW-3D (gallons)	PE-1 (gallons)	Total (gallons)	IW-02 (gallons)	IW-03 (gallons)		
January	1	2019	--	--	194,409	0	194,409	0	197,256	197,256	0
January	2	2019	--	--	194,336	0	194,336	0	197,140	197,140	0
January	3	2019	--	--	194,262	189	194,451	0	197,199	197,199	0
January	4	2019	--	--	194,201	0	194,201	0	196,750	196,750	0
January	5	2019	--	--	194,148	0	194,148	0	193,202	193,202	0
January	6	2019	--	--	194,194	0	194,194	0	192,894	192,894	0
January	7	2019	--	--	194,010	0	194,010	0	195,781	195,781	0
January	8	2019	--	--	193,876	0	193,876	0	196,626	196,626	0
January	9	2019	--	--	179,774	0	179,774	0	181,792	181,792	0
January	10	2019	--	--	194,358	0	194,358	0	196,211	196,211	0
January	11	2019	--	--	194,357	0	194,357	0	195,484	195,484	0
January	12	2019	--	--	194,164	0	194,164	0	196,125	196,125	0
January	13	2019	--	--	185,352	0	185,352	0	187,172	187,172	0
January	14	2019	--	--	194,476	0	194,476	0	199,981	199,981	0
January	15	2019	--	--	194,358	0	194,358	0	199,813	199,813	0
January	16	2019	--	--	194,299	0	194,299	0	199,314	199,314	0
January	17	2019	--	--	194,171	0	194,171	0	193,409	193,409	193
January	18	2019	--	--	193,928	0	193,928	0	198,511	198,511	315
January	19	2019	--	--	193,747	0	193,747	0	198,002	198,002	0
January	20	2019	--	--	193,603	0	193,603	0	192,607	192,607	0
January	21	2019	--	--	193,517	0	193,517	0	194,936	194,936	0
January	22	2019	--	--	191,000	0	191,000	0	195,780	195,780	0
January	23	2019	--	--	193,866	0	193,866	0	194,254	194,254	0
January	24	2019	--	--	193,898	0	193,898	0	194,046	194,046	0
January	25	2019	--	--	193,850	0	193,850	0	199,950	199,950	0
January	26	2019	--	--	193,834	0	193,834	0	196,609	196,609	0
January	27	2019	--	--	193,829	0	193,829	0	194,761	194,761	0
January	28	2019	--	--	193,764	0	193,764	0	194,386	194,386	0
January	29	2019	--	--	193,756	0	193,756	0	194,249	194,249	0
January	30	2019	--	--	193,805	0	193,805	0	193,846	193,846	0
January	31	2019	--	--	193,933	0	193,933	0	194,486	194,486	0
Total Monthly Volumes (gallons)			0	0	5,989,074	189	5,989,262	0	6,052,568	6,052,568	508
Average Pump/Injection Rates (gpm)			0.0	0.0	134.2	0.0	134.2	0.0	135.6	135.6	0.0

NOTES: gpm: gallons per minute RO: Reverse Osmosis

a. Extraction wells TW-3D and PE-1 were operated during January 2019 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.

b. Effluent was discharged into injection well IW-03.

c. The difference between influent flow rate and the sum of the effluent and reverse osmosis concentrate flow rates during January 2019 is approximately 1.07 percent. This percentage difference includes instrument noise in the system, but is within the accuracy of the flow meters. A well is considered to be offline if the daily reported flow is 140 gallons per day or less.

February 2019 Operational Data

IM-3 Groundwater Extraction and Treatment System

PG&E Topock Compressor Station, Needles, California

Month	Day	Year	Extraction Well System				Injection Well System			RO Brine (gallons)
			TW-2S (gallons)	TW-2D (gallons)	TW-3D (gallons)	PE-1 (gallons)	Total (gallons)	IW-02 (gallons)	IW-03 (gallons)	
February	1	2019	--	--	194,170	0	194,170	0	195,787	195,787
February	2	2019	--	--	194,118	0	194,118	0	196,543	196,543
February	3	2019	--	--	179,580	0	179,580	0	182,723	182,723
February	4	2019	--	--	194,946	0	194,946	0	196,085	196,085
February	5	2019	--	--	194,889	0	194,889	0	196,400	196,400
February	6	2019	--	--	193,081	0	193,081	0	196,229	196,229
February	7	2019	--	--	186,847	0	186,847	0	187,241	187,241
February	8	2019	--	--	192,500	0	192,500	0	193,640	193,640
February	9	2019	--	--	185,417	0	185,417	0	194,506	194,506
February	10	2019	--	--	195,622	0	195,622	0	194,680	194,680
February	11	2019	--	--	195,476	0	195,476	0	195,219	195,219
February	12	2019	--	--	192,790	0	192,790	0	195,751	195,751
February	13	2019	--	--	195,060	0	195,060	0	196,536	196,536
February	14	2019	--	--	194,385	280	194,665	0	199,179	199,179
February	15	2019	--	--	194,225	0	194,225	0	198,441	198,441
February	16	2019	--	--	194,106	0	194,106	0	195,365	195,365
February	17	2019	--	--	186,010	0	186,010	0	195,059	195,059
February	18	2019	--	--	181,000	0	181,000	0	183,008	183,008
February	19	2019	--	--	181,294	0	181,294	0	184,947	184,947
February	20	2019	--	--	179,290	0	179,290	0	181,773	181,773
February	21	2019	--	--	176,434	0	176,434	0	180,159	180,159
February	22	2019	--	--	162,224	0	162,224	0	164,524	164,524
February	23	2019	--	--	194,004	0	194,004	0	199,185	199,185
February	24	2019	--	--	193,976	0	193,976	0	198,938	198,938
February	25	2019	--	--	193,961	0	193,961	0	197,916	197,916
February	26	2019	--	--	193,910	0	193,910	0	197,839	197,839
February	27	2019	--	--	185,743	0	185,743	0	188,922	188,922
February	28	2019	--	--	193,845	0	193,845	0	189,418	189,418
Total Monthly Volumes (gallons)			0	0	5,298,902	280	5,299,182	0	5,376,014	5,376,014
Average Pump/Injection Rates (gpm)			0.0	0.0	131.4	0.0	131.4	0.0	133.3	133.3
										0.1

NOTES: gpm: gallons per minute RO: Reverse Osmosis

- a. Extraction wells TW-3D and PE-1 were operated during February 2019 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.
- b. Effluent was discharged into injection well IW-03.
- c. The difference between influent flow rate and the sum of the effluent and reverse osmosis concentrate flow rates during February 2019 is approximately 1.5 percent. This percentage difference includes instrument noise in the system, but is within the accuracy of the flow meters. A well is considered to be offline if the daily reported flow is 140 gallons per day or less.

March 2019 Operational Data

IM-3 Groundwater Extraction and Treatment System

PG&E Topock Compressor Station, Needles, California

Month	Day	Year	Extraction Well System				Injection Well System			RO Brine (gallons)	
			TW-2S (gallons)	TW-2D (gallons)	TW-3D (gallons)	PE-1 (gallons)	Total (gallons)	IW-02 (gallons)	IW-03 (gallons)		
March	1	2019	--	--	193,731	0	193,731	0	196,769	196,769	116
March	2	2019	--	--	193,697	0	193,697	0	196,978	196,978	0
March	3	2019	--	--	193,663	0	193,663	0	196,960	196,960	0
March	4	2019	--	--	193,662	0	193,662	0	197,255	197,255	0
March	5	2019	--	--	193,504	137	193,641	0	196,440	196,440	0
March	6	2019	--	--	193,463	0	193,463	0	196,529	196,529	0
March	7	2019	--	--	194,313	0	194,313	0	196,895	196,895	0
March	8	2019	--	--	194,976	0	194,976	0	196,743	196,743	0
March	9	2019	--	--	195,049	0	195,049	0	196,691	196,691	0
March	10	2019	--	--	195,131	0	195,131	0	196,768	196,768	125
March	11	2019	--	--	195,117	0	195,117	0	196,910	196,910	0
March	12	2019	--	--	195,150	0	195,150	0	196,959	196,959	0
March	13	2019	--	--	193,213	0	193,213	0	196,761	196,761	0
March	14	2019	--	--	178,163	0	178,163	0	183,074	183,074	0
March	15	2019	--	--	195,946	0	195,946	0	191,993	191,993	0
March	16	2019	--	--	195,811	0	195,811	0	196,264	196,264	0
March	17	2019	--	--	187,395	0	187,395	0	197,077	197,077	0
March	18	2019	--	--	195,818	0	195,818	0	197,127	197,127	0
March	19	2019	--	--	195,791	0	195,791	0	196,807	196,807	0
March	20	2019	--	--	195,828	0	195,828	0	197,200	197,200	0
March	21	2019	--	--	195,674	0	195,674	0	197,172	197,172	0
March	22	2019	--	--	195,541	0	195,541	0	199,980	199,980	0
March	23	2019	--	--	195,396	0	195,396	0	200,033	200,033	0
March	24	2019	--	--	195,372	0	195,372	0	198,752	198,752	0
March	25	2019	--	--	195,261	0	195,261	0	195,663	195,663	0
March	26	2019	--	--	175,191	0	175,191	0	175,173	175,173	0
March	27	2019	--	--	195,523	0	195,523	0	193,108	193,108	0
March	28	2019	--	--	181,333	0	181,333	0	193,176	193,176	0
March	29	2019	--	--	195,524	0	195,524	0	193,237	193,237	0
March	30	2019	--	--	195,440	0	195,440	0	191,009	191,009	0
March	31	2019	--	--	195,458	0	195,458	0	190,972	190,972	0
Total Monthly Volumes (gallons)			0	0	5,985,134	137	5,985,272	0	6,046,477	6,046,477	241
Average Pump/Injection Rates (gpm)			0.0	0.0	134.1	0.0	134.1	0.0	135.4	135.4	0.0

NOTES: gpm: gallons per minute RO: Reverse Osmosis

a. Extraction wells TW-3D and PE-1 were operated during March 2019 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.

b. Effluent was discharged into injection well IW-03.

c. The difference between influent flow rate and the sum of the effluent and reverse osmosis concentrate flow rates during March 2019 is approximately 1.03 percent. This percentage difference includes instrument noise in the system, but is within the accuracy of the flow meters. A well is considered to be offline if the daily reported flow is 140 gallons per day or less.

April 2019 Operational Data

IM-3 Groundwater Extraction and Treatment System

PG&E Topock Compressor Station, Needles, California

Month	Day	Year	Extraction Well System				Injection Well System			RO Brine (gallons)	
			TW-2S (gallons)	TW-2D (gallons)	TW-3D (gallons)	PE-1 (gallons)	Total (gallons)	IW-02 (gallons)	IW-03 (gallons)		
April	1	2019	--	--	52,878	0	52,878	0	74,782	74,782	0
April	2	2019	--	--	0	0	0	0	0	0	0
April	3	2019	--	--	0	0	0	0	0	0	0
April	4	2019	--	--	0	0	0	0	0	0	0
April	5	2019	--	--	94,190	0	94,190	0	71,843	71,843	0
April	6	2019	--	--	195,304	0	195,304	0	195,708	195,708	0
April	7	2019	--	--	188,754	0	188,754	0	192,070	192,070	0
April	8	2019	--	--	191,131	0	191,131	0	191,999	191,999	0
April	9	2019	--	--	185,526	0	185,526	0	191,112	191,112	0
April	10	2019	--	--	178,592	0	178,592	0	174,373	174,373	3,086
April	11	2019	--	--	195,363	0	195,363	0	190,275	190,275	0
April	12	2019	--	--	195,267	0	195,267	0	189,563	189,563	0
April	13	2019	--	--	188,391	0	188,391	0	189,789	189,789	0
April	14	2019	--	--	185,894	0	185,894	0	187,436	187,436	0
April	15	2019	--	--	192,772	0	192,772	0	187,916	187,916	0
April	16	2019	--	--	184,925	0	184,925	0	190,938	190,938	0
April	17	2019	--	--	192,987	0	192,987	0	191,041	191,041	0
April	18	2019	--	--	182,626	0	182,626	0	188,978	188,978	0
April	19	2019	--	--	181,637	0	181,637	0	187,853	187,853	0
April	20	2019	--	--	167,648	0	167,648	0	162,190	162,190	0
April	21	2019	--	--	188,232	0	188,232	0	187,855	187,855	0
April	22	2019	--	--	184,432	0	184,432	0	186,752	186,752	0
April	23	2019	--	--	185,973	209	186,182	0	183,524	183,524	0
April	24	2019	--	--	187,707	0	187,707	0	187,180	187,180	0
April	25	2019	--	--	185,531	0	185,531	0	186,527	186,527	0
April	26	2019	--	--	188,054	0	188,054	0	186,108	186,108	0
April	27	2019	--	--	187,923	0	187,923	0	186,055	186,055	0
April	28	2019	--	--	187,887	0	187,887	0	185,490	185,490	0
April	29	2019	--	--	142,439	0	142,439	0	137,817	137,817	0
April	30	2019	--	--	181,826	0	181,826	0	183,985	183,985	0
Total Monthly Volumes (gallons)			0	0	4,773,889	209	4,774,098	0	4,769,156	4,769,156	3,086
Average Pump/Injection Rates (gpm)			0.0	0.0	110.5	0.0	110.5	0.0	110.4	110.4	0.1

NOTES: gpm: gallons per minute RO: Reverse Osmosis

- a. Extraction wells TW-3D and PE-1 were operated during April 2019 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 April 2019.
- b. Effluent was discharged into injection well IW-03.
- c. The difference between influent flow rate and the sum of the effluent and reverse osmosis concentrate flow rates during April 2019 is approximately 0.04 percent.
This percentage difference includes instrument noise in the system, but is within the accuracy of the flow meters. A well is considered to be offline if the daily reported flow is 140 gallons per day or less.

May 2019 Operational Data

IM-3 Groundwater Extraction and Treatment System

PG&E Topock Compressor Station, Needles, California

Month	Day	Year	Extraction Well System				Injection Well System			RO Brine (gallons)
			TW-2S (gallons)	TW-2D (gallons)	TW-3D (gallons)	PE-1 (gallons)	Total (gallons)	IW-02 (gallons)	IW-03 (gallons)	
May	1	2019	--	--	149,787	0	149,787	0	152,987	152,987
May	2	2019	--	--	183,235	0	183,235	0	187,137	187,137
May	3	2019	--	--	194,713	0	194,713	0	196,822	196,822
May	4	2019	--	--	194,573	0	194,573	0	196,240	196,240
May	5	2019	--	--	194,454	0	194,454	0	197,029	197,029
May	6	2019	--	--	194,327	0	194,327	0	197,329	197,329
May	7	2019	--	--	193,832	0	193,832	0	196,611	196,611
May	8	2019	--	--	190,732	0	190,732	0	192,249	192,249
May	9	2019	--	--	195,167	370	195,537	0	193,650	193,650
May	10	2019	--	--	196,701	0	196,701	0	199,884	199,884
May	11	2019	--	--	196,506	0	196,506	0	196,991	196,991
May	12	2019	--	--	196,479	0	196,479	0	196,602	196,602
May	13	2019	--	--	196,459	0	196,459	0	196,742	196,742
May	14	2019	--	--	196,413	0	196,413	0	196,751	196,751
May	15	2019	--	--	196,360	0	196,360	0	196,965	196,965
May	16	2019	--	--	196,430	0	196,430	28,209	168,099	196,308
May	17	2019	--	--	192,803	0	192,803	0	195,219	195,219
May	18	2019	--	--	189,007	0	189,007	0	195,271	195,271
May	19	2019	--	--	196,485	0	196,485	0	195,224	195,224
May	20	2019	--	--	179,490	0	179,490	0	183,704	183,704
May	21	2019	--	--	196,420	0	196,420	0	193,668	193,668
May	22	2019	--	--	187,470	0	187,470	0	193,872	193,872
May	23	2019	--	--	195,733	0	195,733	0	193,513	193,513
May	24	2019	--	--	191,981	0	191,981	0	191,573	191,573
May	25	2019	--	--	195,306	0	195,306	0	192,831	192,831
May	26	2019	--	--	184,625	0	184,625	0	193,036	193,036
May	27	2019	--	--	191,138	0	191,138	0	192,833	192,833
May	28	2019	--	--	195,142	0	195,142	0	187,380	187,380
May	29	2019	--	--	120,591	0	120,591	0	128,893	128,893
May	30	2019	--	--	188,278	0	188,278	0	181,943	181,943
May	31	2019	--	--	130,616	0	130,616	0	138,120	138,120
Total Monthly Volumes (gallons)			0	0	5,801,252	370	5,801,622	28,209	5,819,170	5,847,379
Average Pump/Injection Rates (gpm)			0.0	0.0	130.0	0.0	130.0	0.6	130.4	131.0
4,353										

NOTES: gpm: gallons per minute RO: Reverse Osmosis

- a. Extraction wells TW-3D and PE-1 were operated during May 2019 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 May 2019.
- b. Effluent was discharged into injection wells IW-02 and IW-03.
- c. The difference between influent flow rate and the sum of the effluent and reverse osmosis concentrate flow rates during May 2019 is approximately 0.86 percent. This percentage difference includes instrument noise in the system, but is within the accuracy of the flow meters. A well is considered to be offline if the daily reported flow is 140 gallons per day or less.

June 2019 Operational Data

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

Month	Day	Year	Extraction Well System				Injection Well System			RO Brine
			TW-2S (gallons)	TW-2D (gallons)	TW-3D (gallons)	PE-1 (gallons)	Total (gallons)	IW-02 (gallons)	IW-03 (gallons)	Total (gallons)
June	1	2019	--	--	194,505	0	194,505	0	189,275	189,275
June	2	2019	--	--	194,308	0	194,308	0	198,551	198,551
June	3	2019	--	--	194,110	0	194,110	0	195,820	195,820
June	4	2019	--	--	174,977	0	174,977	0	178,790	178,790
June	5	2019	--	--	186,349	133	186,482	0	185,169	185,169
June	6	2019	--	--	193,374	0	193,374	0	184,622	184,622
June	7	2019	--	--	186,333	0	186,333	0	193,463	193,463
June	8	2019	--	--	184,096	0	184,096	0	185,936	185,936
June	9	2019	--	--	176,293	0	176,293	0	185,355	185,355
June	10	2019	--	--	192,925	0	192,925	0	185,800	185,800
June	11	2019	--	--	183,615	0	183,615	0	188,032	188,032
June	12	2019	--	--	192,602	0	192,602	0	194,257	194,257
June	13	2019	--	--	164,584	0	164,584	0	169,875	169,875
June	14	2019	--	--	192,488	0	192,488	0	193,159	193,159
June	15	2019	--	--	192,075	0	192,075	0	193,963	193,963
June	16	2019	--	--	192,073	0	192,073	0	190,416	190,416
June	17	2019	--	--	192,059	0	192,059	0	190,393	190,393
June	18	2019	--	--	191,836	0	191,836	0	190,217	190,217
June	19	2019	--	--	191,610	0	191,610	0	192,568	192,568
June	20	2019	--	--	191,442	0	191,442	0	196,645	196,645
June	21	2019	--	--	191,257	0	191,257	0	196,192	196,192
June	22	2019	--	--	185,011	0	185,011	0	182,346	182,346
June	23	2019	--	--	191,112	0	191,112	0	194,162	194,162
June	24	2019	--	--	190,933	0	190,933	0	189,895	189,895
June	25	2019	--	--	190,198	0	190,198	0	189,793	189,793
June	26	2019	--	--	190,581	0	190,581	0	192,809	192,809
June	27	2019	--	--	190,514	0	190,514	0	192,599	192,599
June	28	2019	--	--	190,465	0	190,465	0	192,429	192,429
June	29	2019	--	--	190,390	0	190,390	0	192,522	192,522
June	30	2019	--	--	190,269	0	190,269	132,152	59,644	191,796
Total Monthly Volumes (gallons)			0	0	5,662,382	133	5,662,515	132,152	5,564,698	5,696,850
Average Pump/Injection Rates (gpm)			0.0	0.0	131.1	0.0	131.1	3.1	128.8	131.9
NOTES: gpm: gallons per minute RO: Reverse Osmosis										

- a. Extraction wells TW-3D and PE-1 were operated during June 2019 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 June 2019.
- b. Effluent was discharged into injection wells IW-02 and IW-03.
- c. The difference between influent flow rate and the sum of the effluent and reverse osmosis concentrate flow rates during June 2019 is approximately 0.61 percent. This percentage difference includes instrument noise in the system, but is within the accuracy of the flow meters. A well is considered to be offline if the daily reported flow is 140 gallons per day or less.

Appendix C

Flowmeter Calibration Records

Flow Calibration with Adjustment

92018013-1275191

WWRA7737

Purchase order number

US-3601544787-200 / Endress+Hauser Inc.

Order N°/Manufacturer

23P50-AL1A1RA022AW

Order code

PROMAG 23 P 2"

Transmitter/Sensor

6A022016000

Serial N°

FIT-101

Tag N°

Flow [%]	Flow [us.gal/min]	Duration [sec]	V target [us.gal]	V meas. [us.gal]	Δ o.r.* [%]	Outp.** [mA]
10.0	15.602	60.2	15.653	15.694	0.26	5.61
40.0	62.169	60.2	62.373	62.355	-0.03	10.39
40.0	62.168	60.2	62.373	62.394	0.03	10.39
99.9	155.518	60.2	156.029	155.981	-0.03	19.99
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-

*o.r.: of reading

**Calculated value (4 - 20 mA)

FCP-7.1.6 US

Calibration rig

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

Calibrated full scale

Current 4 - 20 mA

Calibrated output

0.9176

Calibration factor

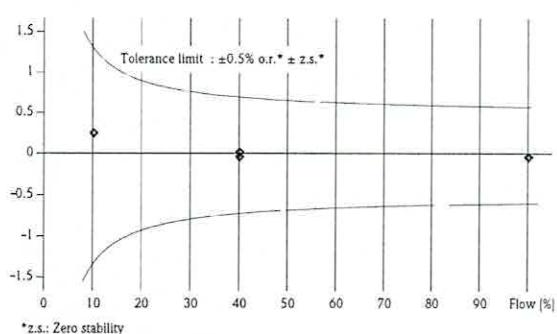
0

Zero point

70.4 °F

Water temperature

Measured error % o.r.



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

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

12-05-2018

Date of calibration

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

John Davis

Operator

Flow Calibration with Adjustment

30437063-4458242

3800382048

Purchase order number

US-3005992023-10 / Endress+Hauser Flowtec

Order N°/Manufacturer

5P2B50-79W4/0

Order code

Promag P 200 2"

Sensor/Transmitter

N6005016000

Serial N°

-

Tag N°

Flow [%]	Flow [us.gal/min]	Duration [s]	V target [us.gal]	V meas. [us.gal]	Δ o.r.* [%]	Outp.** [mA]
40.5	63.018	65.0	68.315	68.302	-0.02	10.48
40.5	63.034	65.0	68.331	68.344	0.02	10.48
99.8	155.341	65.0	168.393	167.890	-0.30	19.92
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-

*o.r.: of reading

**Calculated value (4 - 20 mA)

FCP-8.B

Calibration rig

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

Calibrated full scale

Service interface

Calibrated output

0.93864

Calibration factor

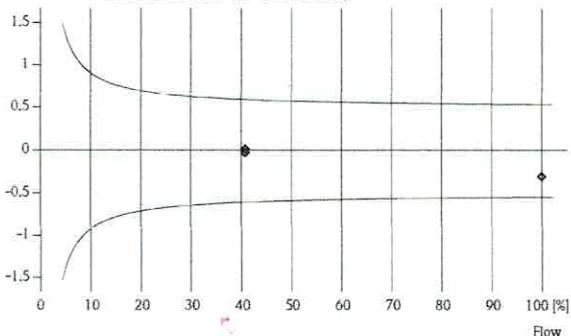
11

Zero point

76.1 °F

Water temperature

Measured error % o.r.

Tolerance limit: $\pm 0.5\% \text{ o.r.} * \pm \text{Zero stability}$ 

For detailed data concerning output specifications of the unit under test, see Technical Information (TI), chapter Performance characteristics.

The calibration is traceable to the N.I.S.T. through standards certified at preset intervals.

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

Robert J Kizzee

06-13-2018

Date of calibration

Endress+Hauser Flowtec, Division USA
2330 Endress Place
Greenwood, IN 46143

Joe Kizzee

Operator

Certified acc. to
ISO 9001, Reg.-Nº 030502.2
ISO 14001, Reg.-Nº EMS561046

Flow Calibration without Adjustment

92010359-1304705

WWRA-017895-F

Purchase order number

US-3601533868-100 / Endress+Hauser Inc.

Order N°/Manufacturer

23P50-AL1A1AA022AW

Order code

PROMAG 23 P 2"

Transmitter/Sensor

6C036F16000

Serial N°

FIT-1201

Tag N°

Flow [%]	Flow [us.gal/min]	Duration [sec]	V target [us.gall]	V meas. [us.gal]	Δ o.r.* [%]	Outp.** [mA]
9.9	15.450	60.2	15.502	15.635	0.85	5.60
39.9	62.130	60.2	62.334	62.134	-0.32	10.37
39.9	62.139	60.2	62.352	62.214	-0.22	10.38
100.4	156.155	60.2	156.670	156.016	-0.42	19.99
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-

*o.r.: of rate

**Calculated value (4 - 20 mA)

FCP-7.1.6 US

Calibration rig

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

Calibrated full scale

Current 4 - 20 mA

Calibrated output

0.9101

Calibration factor

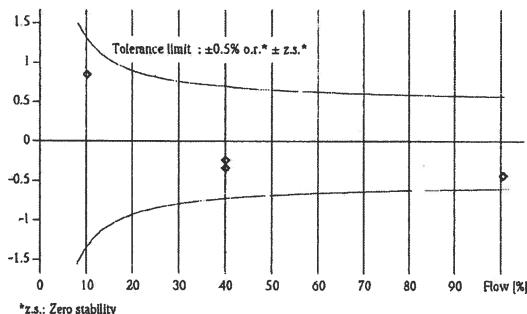
-34

Zero point

70.4 °F

Water temperature

Measured error % o.r.



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

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

01-15-2016

Date of calibration

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

John Davis

Operator

Flow Calibration without Adjustment

92004350-125102

4017515743

Purchase order number

US-3601525789-100 / Endress+Hauser Inc.

Order No./Manufacturer

23P50-AL1A1RA022AW

Order code

PROMAG 23 P 2"

Transmitter/Sensor

6A022116000

Serial N°

FIT-102

Tag N°

Flow [%]	Flow [us.gal/min.]	Duration [sec]	V target [us.gall]	V meas. [us.gal]	Δ o.r.* [%]	Outp.** [mA]
10.0	15.643	60.0	15.654	15.582	-0.46	5.60
40.1	62.618	60.0	62.665	62.443	-0.36	10.40
40.2	62.628	60.0	62.673	62.607	-0.11	10.42
100.3	156.535	60.0	156.646	155.804	-0.54	19.97
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-

*o.r.: of rate

**Calculated value (4 - 20 mA)

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

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

FCP-8.2 US

Calibration rig

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

Calibrated full scale

Current 4 - 20 mA

Calibrated output

0.9082

Calibration factor

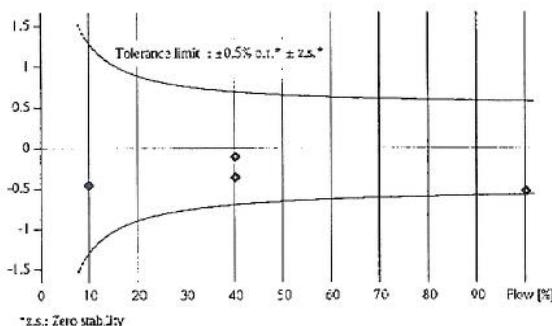
0

Zero point

72.3 °F

Water temperature

Measured error % o.r.



09-20-2013

Date of calibration

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



W. Watkins

Operator

Flow Calibration with Adjustment

30437052-4458240

3800382048

Purchase order number

US-3005992023-10 / Endress+Hauser Flowtec

Order N°/Manufacturer

5P2B50-79W4/0

Order code

Promag P 200 2"

Sensor/Transmitter

N6004E16000

Serial N°

-

Tag N°

Flow [%]	Flow [us.gal/min]	Duration [s]	V target [us.gal]	V meas. [us.gal]	Δ o.r.* [%]	Outp.** [mA]
40.3	62.762	65.0	68.035	68.036	0.00	10.45
40.3	62.776	65.0	68.051	68.049	0.00	10.45
99.7	155.211	65.0	168.253	168.149	-0.06	19.95
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-

*o.r.: of reading

**Calculated value (4 - 20 mA)

FCP-8.B

Calibration rig

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

Calibrated full scale

Service interface

Calibrated output

0.92223

Calibration factor

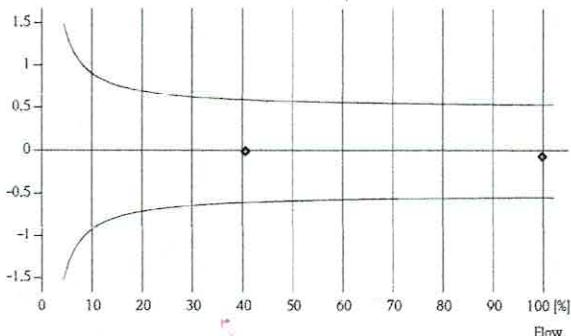
3

Zero point

75.9 °F

Water temperature

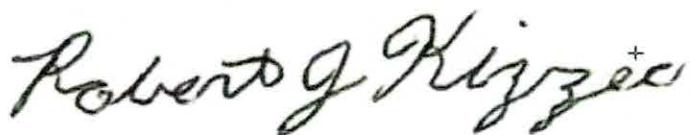
Measured error % o.r.

Tolerance limit: $\pm 0.5\% \text{ o.r.} * \pm \text{Zero stability}$ 

For detailed data concerning output specifications of the unit under test, see Technical Information (TI), chapter Performance characteristics.

The calibration is traceable to the N.I.S.T. through standards certified at preset intervals.

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



06-13-2018

Date of calibration

Endress+Hauser Flowtec, Division USA
2330 Endress Place
Greenwood, IN 46143

Joe Kizzee

Operator

Certified acc. to
ISO 9001, Reg.-Nº 030502.2
ISO 14001, Reg.-Nº EMS561046

Flow Calibration without Adjustment

92013941-1385272

WWRA1095

Purchase order number

US-3601538697-100 / Endress+Hauser Inc.

Order N°/Manufacturer

23P50-AL1A1AA022AW

Order code

PROMAG 23 P 2"

Transmitter/Sensor

7700F216000

Serial N°

-

Tag N°

Flow [%]	Flow [us.gal/min]	Duration [sec]	V target [us.gal]	V meas. [us.gal]	Δ o.r.* [%]	Outp.** [mA]
10.1	15.725	60.2	15.778	15.800	0.14	5.62
40.3	62.822	60.2	63.033	63.055	0.04	10.45
40.3	62.848	60.2	63.063	63.041	-0.04	10.44
100.0	155.916	60.2	156.426	156.516	0.06	20.00
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-

*o.r.: of rate

**Calculated value (4 - 20 mA)

FCP-7.1.6 US

Calibration rig

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

Calibrated full scale

Current 4 - 20 mA

Calibrated output

0.9270

Calibration factor

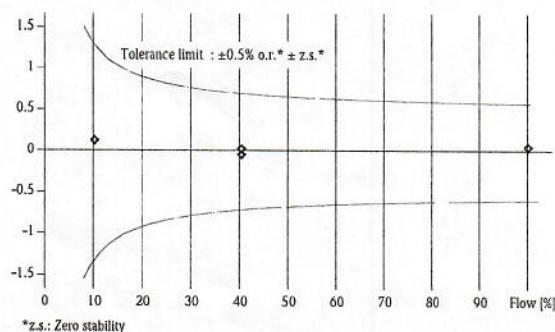
0

Zero point

71.3 °F

Water temperature

Measured error % o.r.



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

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

05-04-2017

Date of calibration

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

John Davis

Operator

Flow Calibration with Adjustment

92012624-1385273

WWRA019463F

Purchase order number

US-3601536867-100 / Endress+Hauser Inc.

Order N°/ Manufacturer

23P80-AL1A1AA022AW

Order code

PROMAG 23 P 3"

Transmitter/Sensor

7700F316000

Serial N°

-

Tag N°

Flow [%]	Flow [us.gal/min]	Duration [sec]	V target [us.gal]	V meas. [us gal]	Δ o.r.* [%]	Outp.** [mA]
10.0	39.861	60.2	39.998	40.030	0.08	5.60
39.2	156.592	60.2	157.110	157.121	0.01	10.26
39.2	156.760	60.2	157.298	157.277	-0.01	10.27
99.4	397.471	60.2	398.771	397.796	-0.24	19.86
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-

*o.r.: of rate

**Calculated value (4 - 20 mA)

FCP-7.1.6 US

Calibration rig

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

Calibrated full scale

Current 4 - 20 mA

Calibrated output

1.1715

Calibration factor

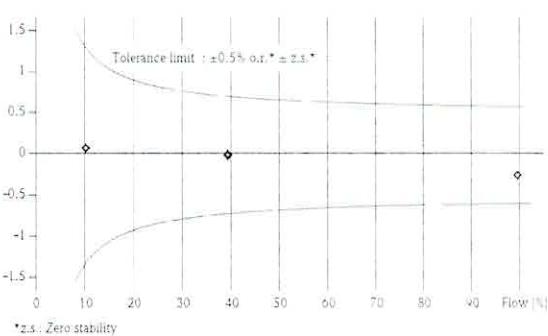
-18

Zero point

70.1 °F

Water temperature

Measured error % o.r.



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

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

John Davis
Operator

10-28-2016

Date of calibration

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

Flow Calibration with Adjustment

30437059-4458241

3800382048

Purchase order number

US-3005992023-10 / Endress+Hauser Flowtec

Order N°/Manufacturer

SP2B50-79W4/0

Order code

Promag P 200 2"

Sensor/Transmitter

N6004F16000

Serial N°

-

Tag N°

Flow [%]	Flow [us.gal/min]	Duration [s]	V target [us.gal]	V meas. [us.gal]	Δ o.r.* [%]	Outp.** [mA]
40.3	62.745	65.0	68.025	68.031	0.01	10.45
40.3	62.739	65.0	68.013	68.006	-0.01	10.45
100.5	156.427	65.0	169.573	169.427	-0.09	20.07
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-

*o.r.: of reading

**Calculated value (4 - 20 mA)

FCP-8.B

Calibration rig

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

Calibrated full scale

Service interface

Calibrated output

0.92113

Calibration factor

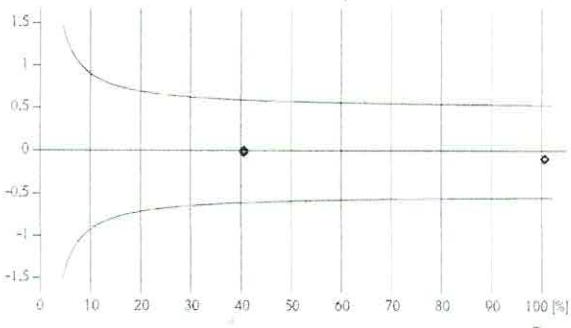
-4

Zero point

76 °F

Water temperature

Measured error % o.r.

Tolerance limit: $\pm 0.5\% \text{ o.r.}^*$ \pm Zero stability

For detailed data concerning output specifications of the unit under test, see Technical Information (TI), chapter Performance characteristics.

The calibration is traceable to the N.I.S.T. through standards certified at preset intervals.

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



06-13-2018

Date of calibration

Endress+Hauser Flowtec, Division USA
2330 Endress Place
Greenwood, IN 46143

Joe Kizzee

Operator

Certified acc. to
ISO 9001, Reg.-N° 030502.2
ISO 14001, Reg.-N° EMS561046

Appendix D
Second Quarter 2019
Laboratory Analytical Reports

Analytical Bench Log Book

WDR pH Results

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

Sample Name	Date of sampling	Time of sampling	Date of analysis	Time of analysis	pH Meter #1, #2, or #3 etc. See cover Sheet for Serial Number	Date pH meter Calibrated	Time pH meter Calibrated	Slope of the Curve	Analyst Name (for the pH result)	pH Result
1 SC-100B - 585	4-1-19	7:30	4-1-19	7:40	HQ440D	4-1-19	00:00	-53.83	Ryan Phelps	7.89
2 SC-700B - 585	4-1-19	7:25	4-1-19	7:38	HQ440D	4-1-19	00:00	-53.83	Ryan Phelps	6.94

Notes:

3 SC-701 - 585	4-1-19	7:20	4-1-19	7:35	HQ440D	4-1-19	00:00	-53.83	Ryan Phelps	7.45
4 SC-700B - 584	4-6-19	9:00	4-6-19	9:05	HQ440D	4-6-19	00:00	-57.84	Chris Lentz	7.03
5										
6										

Notes:

7										

Notes:

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

Analytical Bench Log Book

WDR pH Results

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

Sample Name	Date of sampling	Time of sampling	Date of analysis	Time of analysis	pH Meter #1, #2, or #3 etc. See cover Sheet for Serial Number	Date pH meter Calibrated	Time pH meter Calibrated	Slope of the Curve	Analyst Name (for the pH result)	pH Result
1 SC-100B - 588	5-9-19	1400	5-9-19	1407	HQ440D	5-9-19	00:00	-56.84	Ryan Phelps	7.20

Notes:

2 SC-700B - 588	5-9-19	13:55	5-9-19	1405	HQ440D	5-9-19	00:00	-56.84	Ryan Phelps	7.09
-----------------	--------	-------	--------	------	--------	--------	-------	--------	-------------	------

Notes:

3 SC-100B - 589	6-5-19	0700	6-5-19	0710	HQ440D	6-5-19	00:00	-54.61	Ryan Phelps	7.24
-----------------	--------	------	--------	------	--------	--------	-------	--------	-------------	------

Notes:

4 SC-700B - 589	6-5-19	0705	6-5-19	0715	HQ440D	6-5-19	00:00	-54.61	Ryan Phelps	7.14
-----------------	--------	------	--------	------	--------	--------	-------	--------	-------------	------

Notes:

Notes:

Notes:

Notes:

Notes:

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



Laboratories, Inc.

Environmental Testing Laboratory Since 1949

Date of Report: 04/09/2019

Marlon Cartin

ASSET Laboratories- Las Vegas

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

Client Project: N034880

BCL Project: Level IV

BCL Work Order: 1910195

Invoice ID: B336265

Enclosed are the results of analyses for samples received by the laboratory on 4/2/2019. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Contact Person: Vanessa Sandoval
Client Service Rep

Stuart Butram
Technical Director

Certifications: CA ELAP #1186; NV #CA00014; OR ELAP #4032-001; AK UST101

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BC

Laboratories, Inc.

Environmental Testing Laboratory Since 1949

Chain of Custody and Cooler Receipt Form for 1910195 Page 1 of 2

ASSET Laboratories

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

www.assetlabs.com

TEL: 7023072659

**CHAIN-OF-CUSTODY RECORD**

Page 1 of 1

FAX: 7023072659

Subcontractor:

BC Labs
4100 Atlas Court
Bakersfield, CA 93308

TEL: (661) 327-4911
FAX: (661) 327-1918
Act #: 2

QC Level: Level IV
01-Apr-19

Sample ID	Matrix	Date Collected	Bottle Type	Requested Test(s)
ND34860-001A / SC-100B-WDR-585	Water	4/1/2019 7:30:00 AM	320ZP	1
ND34860-002A / SC-700B-WDR-585	Water	4/1/2019 7:25:00 AM	320ZP	1

CHK BY	DISTRIBUTION
	<input checked="" type="checkbox"/> IN-HOUSE <input type="checkbox"/> SUB OUT <input type="checkbox"/>

RUSH!

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

General Comments:

Please email sample receipt acknowledgement to the PM.
 Please use PO#: N34860A. Please email invoices and Account Receivable Statements to enviro@assetlaboratories.com. For questions, call Marlon at (702)-307-2659. Please e-mail results to reports.m@assetlaboratories.com by Normal TAT.
 Please analyze for Ammonia by SM4500NH3D, EDD Requirement LabSpec7 edata.

GSO #: 544301006

Relinquished by:	Date/Time	Date/Time
	4/1/2019 17:01:00	Received by:
Relinquished by:		Received by:

Date/Time
01-30

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Chain of Custody and Cooler Receipt Form for 1910195 Page 2 of 2

BC LABORATORIES INC.		COOLER RECEIPT FORM						Page <u>1</u> Of <u>1</u>			
Submission #: <u>19-10195</u>											
SHIPPING INFORMATION				SHIPPING CONTAINER			FREE LIQUID				
Fed Ex <input type="checkbox"/>	UPS <input type="checkbox"/>	Ontrac <input type="checkbox"/>	Hand Delivery <input type="checkbox"/>	Ice Chest <input checked="" type="checkbox"/>	None <input type="checkbox"/>	Box <input type="checkbox"/>	YES <input type="checkbox"/>	NO <input type="checkbox"/>			
BC Lab Field Service <input type="checkbox"/> Other <input checked="" type="checkbox"/> (Specify) <u>G50</u>				Other <input type="checkbox"/> (Specify)			W / S				
Refrigerant: Ice <input checked="" type="checkbox"/> Blue Ice <input type="checkbox"/> None <input type="checkbox"/> Other <input type="checkbox"/>				Comments:							
Custody Seals: Ice Chest <input checked="" type="checkbox"/> Container <input type="checkbox"/> Intact Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				Comments:							
All samples received? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		All samples containers intact? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		Description(s) match COC? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		Date/Time <u>4/21/19</u>					
COC Received <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		Emissivity: <u>.95</u>		Container: <u>10pe</u> Thermometer ID: <u>214</u>		Analyst Init <u>JP 09.30</u>					
Temperature: (A) <u>0.0</u> °C / (C) <u>0.1</u> °C											
SAMPLE CONTAINERS		SAMPLE NUMBERS									
		1	2	3	4	5	6	7	8	9	10
QT PE UNPRES <u>X8</u>		<u>A-A</u>	<u>ML 8/11</u>								
4oz / 8oz / 16oz PE UNPRES											
2oz Cr ⁶⁺											
QT INORGANIC CHEMICAL METALS											
INORGANIC CHEMICAL METALS 4oz / 8oz / 16oz											
PT CYANIDE											
PT NITROGEN FORMS		<u>A</u>	<u>A</u>								
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 513/518/5190											
QT EPA 515.1/8150											
QT EPA 525											
QT EPA 525 TRAVEL BLANK											
40ml RPA 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											
ENCORK											
SMART KIT											
SUMMA CANISTER											
Comments: _____											
Sample Numbering Completed By: <u>JM</u> Date/Time: <u>4/21/19</u> Rev 21 05/23/2016											
Δ - Actual / C - Corrected											



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

Reported: 04/09/2019 18:43
Project: Level IV
Project Number: N034880
Project Manager: Marlon Cartin

Laboratory / Client Sample Cross Reference

Laboratory	Client Sample Information			
1910195-01	COC Number: --- Project Number: --- Sampling Location: --- Sampling Point: N034880-001A / SC-100B-WDR-585 Sampled By: ---	Receive Date: 04/02/2019 09:30 Sampling Date: 04/01/2019 07:30 Sample Depth: --- Lab Matrix: Water Sample Type: Water		
1910195-02	COC Number: --- Project Number: --- Sampling Location: --- Sampling Point: N034880-002A / SC-700B-WDR-585 Sampled By: ---	Receive Date: 04/02/2019 09:30 Sampling Date: 04/01/2019 07:25 Sample Depth: --- Lab Matrix: Water Sample Type: Water		

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

Reported: 04/09/2019 18:43
Project: Level IV
Project Number: N034880
Project Manager: Marlon Cartin

Water Analysis (General Chemistry)

BCL Sample ID:	1910195-01	Client Sample Name:	N034880-001A / SC-100B-WDR-585, 4/1/2019 7:30:00AM				
Constituent	Result	Units	PQL	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		Analyst	Instrument	Dilution	QC	Batch ID
			Date/Time						
1	SM-4500-NH3G	04/04/19 13:53	04/05/19 10:37		JMH	SC-1	1		B042641

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

Reported: 04/09/2019 18:43
Project: Level IV
Project Number: N034880
Project Manager: Marlon Cartin

Water Analysis (General Chemistry)

BCL Sample ID:	1910195-02	Client Sample Name:	N034880-002A / SC-700B-WDR-585, 4/1/2019 7:25:00AM				
Constituent	Result	Units	PQL	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		Analyst	Instrument	Dilution	QC	Batch ID
			Date/Time						
1	SM-4500-NH3G	04/04/19 13:53	04/05/19 10:50		JMH	SC-1	1		B042641

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

Reported: 04/09/2019 18:43
Project: Level IV
Project Number: N034880
Project Manager: Marlon Cartin

Water Analysis (General Chemistry)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	Lab Quals
QC Batch ID: B042641					
Ammonia as N (Distilled)	B042641-BLK1	ND	mg/L	0.20	



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

Reported: 04/09/2019 18:43
Project: Level IV
Project Number: N034880
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	Control Limits		Lab Quals
							Percent Recovery	RPD	
QC Batch ID: B042641									
Ammonia as N (Distilled)	B042641-BS1	LCS	0.99150	1.0000	mg/L	99.2		85 - 115	



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

Reported: 04/09/2019 18:43
Project: Level IV
Project Number: N034880
Project Manager: Marlon Martin

Water Analysis (General Chemistry)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Control Limits		
								Percent Recovery	Percent RPD	Lab Quals
QC Batch ID: B042641		Used client sample: Y - Description: N034880-001A / SC-100B-WDR-585, 04/01/2019 07:30								
Ammonia as N (Distilled)	DUP	1910195-01	ND	ND		mg/L		20		
	MS	1910195-01	ND	1.1503	1.1111	mg/L		104	80 - 120	
	MSD	1910195-01	ND	1.0833	1.1111	mg/L	6.0	97.5	20	80 - 120

May 20, 2019

Doug Scott
CH2M HILL
155 Grand Avenue, Suite 1000
Oakland, CA 94612
TEL: (970) 731-0636
FAX: (510) 622-9129

Workorder No.: N034880

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

Attention: Doug Scott

Enclosed are the results for sample(s) received on April 01, 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,

Nancy Manimtim

Quennie Manimtim
Laboratory Director

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



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3151 W. Post Rd., Las Vegas, NV 89118
ELAP Cert 2676 | NV Cert NV00922
ORELAP/NELAP Cert 4046

CLIENT: CH2M HILL
Project: PG&E Topock, 680375.03.IM.OP.00
Lab Order: N034880

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 N034880-001E-MS and N034880-001E-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.

Analytical Comments for EPA 200.8:

Dilution was necessary on Beryllium for sample N034880-003 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.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for some analytes in QC samples N034919-001A-MS and N034919-001A-MSD 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.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Barium and Zinc in QC samples N034919-001A-MS and N034919-001A-MSD since the analyte concentration in



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CLIENT: CH2M HILL
Project: PG&E Topock, 680375.03.IM.OP.00
Lab Order: N034880

CASE NARRATIVE

the sample is disproportionate to the spike level. Post Spike and Dilution Test were performed but failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Analytical Comments for EPA 218.6:

Dilution was necessary for sample N034880-003 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.



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ASSET Laboratories**Date:** 15-Apr-19

CLIENT: CH2M HILL
Project: PG&E Topock, 680375.03.IM.OP.00
Lab Order: N034880
Contract No: IM3PLANT-AR

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N034880-001A	SC-100B-WDR-585	Water	4/1/2019 7:30:00 AM	4/1/2019	4/15/2019
N034880-001B	SC-100B-WDR-585	Water	4/1/2019 7:30:00 AM	4/1/2019	4/15/2019
N034880-001C	SC-100B-WDR-585	Water	4/1/2019 7:30:00 AM	4/1/2019	4/15/2019
N034880-001D	SC-100B-WDR-585	Water	4/1/2019 7:30:00 AM	4/1/2019	4/15/2019
N034880-001E	SC-100B-WDR-585	Water	4/1/2019 7:30:00 AM	4/1/2019	4/15/2019
N034880-002A	SC-700B-WDR-585	Water	4/1/2019 7:25:00 AM	4/1/2019	4/15/2019
N034880-002B	SC-700B-WDR-585	Water	4/1/2019 7:25:00 AM	4/1/2019	4/15/2019
N034880-002C	SC-700B-WDR-585	Water	4/1/2019 7:25:00 AM	4/1/2019	4/15/2019
N034880-002D	SC-700B-WDR-585	Water	4/1/2019 7:25:00 AM	4/1/2019	4/15/2019
N034880-002E	SC-700B-WDR-585	Water	4/1/2019 7:25:00 AM	4/1/2019	4/15/2019
N034880-003A	SC-701-WDR-585	Water	4/1/2019 7:20:00 AM	4/1/2019	4/15/2019
N034880-003B	SC-701-WDR-585	Water	4/1/2019 7:20:00 AM	4/1/2019	4/15/2019
N034880-003C	SC-701-WDR-585	Water	4/1/2019 7:20:00 AM	4/1/2019	4/15/2019



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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 15-Apr-19

CLIENT: CH2M HILL
Lab Order: N034880
Project: PG&E Topock, 680375.03.IM.OP.00
Lab ID: N034880-001

Client Sample ID: SC-100B-WDR-585
Collection Date: 4/1/2019 7:30:00 AM
Matrix: WATER

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

SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: NV00922-WC_190401C	QC Batch: R132907	PrepDate	Analyst: LR
Specific Conductance	7700	0.10	umhos/cm
		0.10	1
			4/1/2019 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

**ASSET LABORATORIES**
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3151 W. Post Rd., Las Vegas, NV 89118
ELAP Cert 2676 | NV Cert NV00922
ORELAP/NELAP Cert 4046

ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 15-Apr-19

CLIENT: CH2M HILL
Lab Order: N034880
Project: PG&E Topock, 680375.03.IM.OP.00
Lab ID: N034880-002

Client Sample ID: SC-700B-WDR-585
Collection Date: 4/1/2019 7:25:00 AM
Matrix: WATER

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

SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: NV00922-WC_190401C	QC Batch: R132907	PrepDate	Analyst: LR
Specific Conductance	7800	0.10	umhos/cm
		0.10	1
			4/1/2019 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

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ORELAP/NELAP Cert 4046

ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 15-Apr-19

CLIENT: CH2M HILL
Lab Order: N034880
Project: PG&E Topock, 680375.03.IM.OP.00
Lab ID: N034880-003

Client Sample ID: SC-701-WDR-585
Collection Date: 4/1/2019 7:20:00 AM
Matrix: WATER

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

RunID: NV00922-WC_190401C	QC Batch: R132907	PrepDate	Analyst: LR
Specific Conductance	28000	0.10	umhos/cm
		0.10	1
			4/1/2019 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

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ASSET Laboratories

Date: 15-Apr-19

CLIENT: CH2M HILL
Work Order: N034880
Project: PG&E Topock, 680375.03.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID	N034880-003ADUP	SampType:	DUP	TestCode:	120.1_WPGE	Units:	umhos/cm	Prep Date:	RunNo:	132907		
Client ID:	ZZZZZZ	Batch ID:	R132907	TestNo:	EPA 120.1			Analysis Date:	SeqNo:	3336166		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	28100.000	0.10				28200		0.355	2			

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
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference



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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 15-Apr-19

CLIENT: CH2M HILL
Lab Order: N034880
Project: PG&E Topock, 680375.03.IM.OP.00
Lab ID: N034880-001

Client Sample ID: SC-100B-WDR-585
Collection Date: 4/1/2019 7:30:00 AM
Matrix: WATER

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

RunID: NV00922-WC_190401F	QC Batch: 73164		PrepDate	4/1/2019	Analyst: LR
Total Dissolved Solids (Residue, Filterable)	4300	50	50	mg/L	1
					4/1/2019 01:25 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

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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 15-Apr-19

CLIENT: CH2M HILL
Lab Order: N034880
Project: PG&E Topock, 680375.03.IM.OP.00
Lab ID: N034880-002

Client Sample ID: SC-700B-WDR-585
Collection Date: 4/1/2019 7:25:00 AM
Matrix: WATER

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

RunID: NV00922-WC_190401F	QC Batch: 73164		PrepDate	4/1/2019	Analyst: LR
Total Dissolved Solids (Residue, Filterable)	4200	50	50	mg/L	1
					4/1/2019 01:25 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

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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 15-Apr-19

CLIENT: CH2M HILL
Lab Order: N034880
Project: PG&E Topock, 680375.03.IM.OP.00
Lab ID: N034880-003

Client Sample ID: SC-701-WDR-585
Collection Date: 4/1/2019 7:20:00 AM
Matrix: WATER

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

RunID: NV00922-WC_190401F	QC Batch: 73164		PrepDate	4/1/2019	Analyst: LR
Total Dissolved Solids (Residue, Filterable)	19000	200	200	mg/L	1
					4/1/2019 01:25 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

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ASSET Laboratories

Date: 15-Apr-19

CLIENT: CH2M HILL
Work Order: N034880
Project: PG&E Topock, 680375.03.IM.OP.00

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

Sample ID	SampType:	TestCode:	Units:	Prep Date:	Analysis Date:	LowLimit	HighLimit	RPD	Ref Val	% RPD	RPDLimit	Qual
Sample ID LCS-73164	SampType: LCS	TestCode: 160.1_2540C	Units: mg/L	4/1/2019	4/1/2019					RunNo: 132918		
Client ID: LCSW	Batch ID: 73164	TestNo: SM2540C								SeqNo: 3337263		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC							
Total Dissolved Solids (Residue, Filtera)	962.000	10	1000	0	96.2				80	120		
Sample ID MB-73164	SampType: MBLK	TestCode: 160.1_2540C	Units: mg/L	4/1/2019	4/1/2019					RunNo: 132918		
Client ID: PBW	Batch ID: 73164	TestNo: SM2540C								SeqNo: 3337264		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC							
Total Dissolved Solids (Residue, Filtera)	ND	10										
Sample ID N034880-003ADUP	SampType: DUP	TestCode: 160.1_2540C	Units: mg/L	4/1/2019	4/1/2019					RunNo: 132918		
Client ID: ZZZZZZ	Batch ID: 73164	TestNo: SM2540C								SeqNo: 3337270		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC							
Total Dissolved Solids (Residue, Filtera)	19580.000	200								18720	4.49	5

Qualifiers:

- B Analyte detected in the associated Method Blank
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- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- DO Surrogate Diluted Out
- S Spike/Surrogate outside of limits due to matrix interference

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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 15-Apr-19

CLIENT: CH2M HILL
Lab Order: N034880
Project: PG&E Topock, 680375.03.IM.OP.00
Lab ID: N034880-001

Client Sample ID: SC-100B-WDR-585
Collection Date: 4/1/2019 7:30:00 AM
Matrix: WATER

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

RunID: NV00922-ICP2_190403B	QC Batch: 73200			PrepDate	4/3/2019	Analyst: CEI
Aluminum	ND	40	50	µg/L	1	4/3/2019 11:57 AM
Boron	1100	74	100	µg/L	1	4/3/2019 11:57 AM
Iron	ND	18	20	µg/L	1	4/3/2019 11:57 AM

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

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

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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 15-Apr-19

CLIENT: CH2M HILL
Lab Order: N034880
Project: PG&E Topock, 680375.03.IM.OP.00
Lab ID: N034880-002

Client Sample ID: SC-700B-WDR-585**Collection Date:** 4/1/2019 7:25:00 AM**Matrix:** WATER

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

RunID: NV00922-ICP2_190403B	QC Batch:	73200		PrepDate	4/3/2019	Analyst: CEI
Aluminum	ND	40	50	µg/L	1	4/3/2019 12:27 PM
Boron	1100	74	100	µg/L	1	4/3/2019 12:27 PM
Iron	ND	18	20	µg/L	1	4/3/2019 12:27 PM

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

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

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ASSET Laboratories

Date: 15-Apr-19

CLIENT: CH2M HILL
Work Order: N034880
Project: PG&E Topock, 680375.03.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WPGEPPB

Sample ID	MB-73200	SampType: MBLK	TestCode: 200.7_WPGE	Units: µg/L	Prep Date:	4/3/2019	RunNo:	132965					
Client ID:	PBW	Batch ID:	73200	TestNo: EPA 200.7	Analysis Date:	4/3/2019	SeqNo:	3339389					
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Aluminum		ND	50	5000	0	110	85	115					
Boron		ND	100	1000	0	104	85	115					
Iron		ND	20	100.0	0	106	85	115					

Sample ID	LCS-73200	SampType: LCS	TestCode: 200.7_WPGE	Units: µg/L	Prep Date:	4/3/2019	RunNo:	132965					
Client ID:	LCSW	Batch ID:	73200	TestNo: EPA 200.7	Analysis Date:	4/3/2019	SeqNo:	3339390					
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Aluminum		5487.267	50	5000	0	110	85	115					
Boron		1040.324	100	1000	0	104	85	115					
Iron		105.684	20	100.0	0	106	85	115					

Sample ID	N034880-001E-MS	SampType: MS	TestCode: 200.7_WPGE	Units: µg/L	Prep Date:	4/3/2019	RunNo:	132965					
Client ID:	ZZZZZZZ	Batch ID:	73200	TestNo: EPA 200.7	Analysis Date:	4/3/2019	SeqNo:	3339394					
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Aluminum		5306.652	50	5000	0	106	75	125					
Boron		2470.170	100	1000	1083	139	75	125					
Iron		96.502	20	100.0	0	96.5	75	125					

Sample ID	N034880-001E-MSD	SampType: MSD	TestCode: 200.7_WPGE	Units: µg/L	Prep Date:	4/3/2019	RunNo:	132965					
Client ID:	ZZZZZZZ	Batch ID:	73200	TestNo: EPA 200.7	Analysis Date:	4/3/2019	SeqNo:	3339395					
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Aluminum		5266.862	50	5000	0	105	75	125					
Boron		2469.685	100	1000	1083	139	75	125					
Iron		99.074	20	100.0	0	99.1	75	125					

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- DO Surrogate Diluted Out
- Calculations are based on raw values



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H Holding times for preparation or analysis exceeded
 S Spike/Surrogate outside of limits due to matrix interference

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ASSET Laboratories

Date: 15-Apr-19

CLIENT: CH2M HILL
Work Order: N0348880
Project: PG&E Topock, 680375.03.IM.OP.00

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

Sample ID	N 034880-001E-PS	SampType: PS	TestCode: 200.7_WPGE	Units: µg/L	Prep Date:	RunNo: 132965						
Client ID:	ZZZZZZ	Batch ID: 73200	TestNo: EPA 200.7		Analysis Date:	SeqNo: 3339393						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Aluminum	5319.311	50	5000	0	106	80	120					
Boron	2450.456	100	1000	1083	137	80	120					S
Iron	85.913	20	100.0	0	85.9	80	120					

Qualifiers:

- B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out



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H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 15-Apr-19

CLIENT: CH2M HILL
Lab Order: N034880
Project: PG&E Topock, 680375.03.IM.OP.00
Lab ID: N034880-001

Client Sample ID: SC-100B-WDR-585**Collection Date:** 4/1/2019 7:30:00 AM**Matrix:** WATER

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

RunID: NV00922-ICP7_190403C	QC Batch:	73205			PrepDate	4/3/2019	Analyst: CEI
Antimony		ND	0.16	0.50	µg/L	1	4/4/2019 02:55 AM
Arsenic		2.8	0.081	0.10	µg/L	1	4/4/2019 02:55 AM
Barium		28	0.15	1.0	µg/L	1	4/4/2019 02:55 AM
Copper		ND	0.55	1.0	µg/L	1	4/4/2019 04:49 PM
Lead		ND	0.13	1.0	µg/L	1	4/4/2019 02:55 AM
Manganese		8.5	0.26	0.50	µg/L	1	4/4/2019 02:55 AM
Molybdenum		22	0.21	0.50	µg/L	1	4/4/2019 02:55 AM
Nickel		ND	0.26	1.0	µg/L	1	4/4/2019 02:55 AM
Zinc		ND	2.3	10	µg/L	1	4/4/2019 02:55 AM

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

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

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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 20-May-19

CLIENT: CH2M HILL
Lab Order: N034880
Project: PG&E Topock, 680375.03.IM.OP.00
Lab ID: N034880-002

Client Sample ID: SC-700B-WDR-585
Collection Date: 4/1/2019 7:25:00 AM
Matrix: WATER

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

RunID: NV00922-ICP7_190403C	QC Batch: 73205			PrepDate:	4/3/2019	Analyst: CEI
Antimony	ND	0.16	0.50	µg/L	1	4/4/2019 03:07 AM
Arsenic	ND	0.081	0.10	µg/L	1	4/4/2019 05:07 PM
Barium	12	0.15	1.0	µg/L	1	4/4/2019 03:07 AM
Copper	ND	0.55	1.0	µg/L	1	4/4/2019 05:07 PM
Lead	ND	0.13	1.0	µg/L	1	4/4/2019 03:07 AM
Manganese	3.7	0.26	0.50	µg/L	1	4/4/2019 03:07 AM
Molybdenum	23	0.21	0.50	µg/L	1	4/4/2019 03:07 AM
Nickel	ND	0.26	1.0	µg/L	1	4/4/2019 03:07 AM
Zinc	ND	2.3	10	µg/L	1	4/4/2019 03:07 AM

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

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



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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 15-Apr-19

CLIENT: CH2M HILL
Lab Order: N034880
Project: PG&E Topock, 680375.03.IM.OP.00
Lab ID: N034880-003

Client Sample ID: SC-701-WDR-585**Collection Date:** 4/1/2019 7:20:00 AM**Matrix:** WATER

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

TOTAL METALS BY ICPMS**EPA 200.8**

RunID: NV00922-ICP7_190403C	QC Batch:	73205			PrepDate	4/3/2019	Analyst: CEI
Antimony		ND	0.16	0.50	µg/L	1	4/4/2019 03:19 AM
Arsenic		3.4	0.081	0.10	µg/L	1	4/4/2019 03:19 AM
Barium		46	0.15	1.0	µg/L	1	4/4/2019 03:19 AM
Beryllium		ND	0.21	2.5	µg/L	5	4/4/2019 03:25 AM
Cadmium		ND	0.053	0.50	µg/L	1	4/4/2019 03:19 AM
Cobalt		ND	0.042	0.50	µg/L	1	4/4/2019 03:19 AM
Copper		ND	0.55	1.0	µg/L	1	4/4/2019 08:59 PM
Lead		ND	0.13	1.0	µg/L	1	4/4/2019 03:19 AM
Manganese		160	0.26	0.50	µg/L	1	4/4/2019 03:19 AM
Molybdenum		110	0.21	0.50	µg/L	1	4/4/2019 03:19 AM
Nickel		9.3	0.26	1.0	µg/L	1	4/4/2019 03:19 AM
Selenium		21	0.36	0.50	µg/L	1	4/4/2019 08:59 PM
Silver		ND	0.23	0.50	µg/L	1	4/4/2019 03:19 AM
Thallium		ND	0.19	0.50	µg/L	1	4/4/2019 03:19 AM
Vanadium		4.6	0.28	1.0	µg/L	1	4/4/2019 03:19 AM
Zinc		ND	2.3	10	µg/L	1	4/4/2019 03:19 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

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ASSET Laboratories

Date: 15-Apr-19

CLIENT: CH2M HILL
Work Order: N034880
Project: PG&E Topock, 680375.03.IM.OP.00

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

Sample ID	MB-73205	SampType: MBLK	TestCode: 200.8_W	Units: µg/L	Prep Date: 4/3/2019	RunNo: 132981							
Client ID:	PBW	Batch ID: 73205	TestNo: EPA 200.8		Analysis Date: 4/4/2019	SeqNo: 3340205							
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Antimony		ND	0.50										
Arsenic		ND	0.10										
Barium		ND	1.0										
Beryllium		ND	0.50										
Cadmium		ND	0.50										
Cobalt		ND	0.50										
Lead		ND	1.0										
Manganese		ND	0.50										
Molybdenum		ND	0.50										
Nickel		ND	1.0										
Silver		ND	0.50										
Thallium		ND	0.50										
Vanadium		ND	1.0										
Zinc		ND	10										

Sample ID	LCS-73205	SampType: LCS	TestCode: 200.8_W	Units: µg/L	Prep Date: 4/3/2019	RunNo: 132981							
Client ID:	LCSW	Batch ID: 73205	TestNo: EPA 200.8		Analysis Date: 4/4/2019	SeqNo: 3340206							
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Antimony		9.974	0.50	10.00	0	99.7	85	115					
Arsenic		9.657	0.10	10.00	0	96.6	85	115					
Barium		10.154	1.0	10.00	0	102	85	115					
Beryllium		9.700	0.50	10.00	0	97.0	85	115					
Cadmium		10.016	0.50	10.00	0	100	85	115					
Cobalt		9.660	0.50	10.00	0	96.6	85	115					
Lead		9.820	1.0	10.00	0	98.2	85	115					
Manganese		104.822	0.50	100.00	0	105	85	115					
Molybdenum		9.430	0.50	10.00	0	94.3	85	115					

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

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 EPA ID CA01638

CLIENT: CH2M HILL
Work Order: N034880
Project: PG&E Topock, 680375.03.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID	LCS-73205	SampType: LCS	TestCode: 200.8_W	Units: µg/L	Prep Date: 4/3/2019	RunNo: 132981						
Client ID:	LCSW	Batch ID: 73205	TestNo: EPA 200.8		Analysis Date: 4/4/2019	SeqNo: 3340206						
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nickel		10.073	1.0	10.00	0	101	85	115				
Silver		9.218	0.50	10.00	0	92.2	85	115				
Thallium		9.698	0.50	10.00	0	97.0	85	115				
Vanadium		9.943	1.0	10.00	0	99.4	85	115				
Zinc		9.176	10	10.00	0	91.8	85	115				

Sample ID	N034919-001A-MS	SampType: MS	TestCode: 200.8_W	Units: µg/L	Prep Date: 4/3/2019	RunNo: 132981						
Client ID:	ZZZZZZZ	Batch ID: 73205	TestNo: EPA 200.8		Analysis Date: 4/4/2019	SeqNo: 3340212						
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony		10.582	0.50	10.00	0.4795	101	75	125				
Arsenic		12.699	0.10	10.00	2.583	101	75	125				
Beryllium		12.263	0.50	10.00	0.1448	121	75	125				
Cadmium		10.077	0.50	10.00	0.06431	100	75	125				
Cobalt		10.064	0.50	10.00	1.773	82.9	75	125				
Lead		11.995	1.0	10.00	1.714	103	75	125				
Molybdenum		105.130	0.50	10.00	93.81	113	75	125				
Nickel		13.378	1.0	10.00	4.598	87.8	75	125				
Silver		9.581	0.50	10.00	0	95.8	75	125				
Thallium		10.693	0.50	10.00	0.3139	104	75	125				
Vanadium		21.613	1.0	10.00	13.52	80.9	75	125				
Zinc		146.508	10	10.00	151.2	-46.5	75	125				

Sample ID	N034919-001A-MS	SampType: MS	TestCode: 200.8_W	Units: µg/L	Prep Date: 4/3/2019	RunNo: 132981						
Client ID:	ZZZZZZZ	Batch ID: 73205	TestNo: EPA 200.8		Analysis Date: 4/4/2019	SeqNo: 3340213						
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium		305.736	5.0	10.00	309.3	-35.3	75	125				
Manganese		238.461	2.5	100.0	146.7	91.8	75	125				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out



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- E Value above quantitation range
- R RPD outside accepted recovery limits
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

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CLIENT: CH2M HILL
Work Order: N034880
Project: PG&E Topock, 680375.03.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID	SampType: MSD	Batch ID: 73205	TestNo: EPA 200.8	Units: µg/L	Prep Date: 4/3/2019	RunNo: 132981
Client ID:	SeqNo: 3340214				Analysis Date: 4/4/2019	SeqNo:
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC
Antimony	10.719	0.50	10.00	0.4795	102	75
Arsenic	12.161	0.10	10.00	2.583	95.8	75
Beryllium	12.139	0.50	10.00	0.1448	120	75
Cadmium	9.970	0.50	10.00	0.06431	99.1	75
Cobalt	10.266	0.50	10.00	1.773	84.9	75
Lead	11.984	1.0	10.00	1.714	103	75
Molybdenum	105.799	0.50	10.00	93.81	120	75
Nickel	13.207	1.0	10.00	4.598	86.1	75
Silver	9.502	0.50	10.00	0	95.0	75
Thallium	10.764	0.50	10.00	0.3139	104	75
Vanadium	22.255	1.0	10.00	13.52	87.3	75
Zinc	143.021	10	10.00	151.2	-81.3	75

Sample ID	SampType: MSD	Batch ID: 73205	TestNo: EPA 200.8	Units: µg/L	Prep Date: 4/3/2019	RunNo: 132981
Client ID:	SeqNo: 3340217				Analysis Date: 4/4/2019	SeqNo:
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC
Barium	305.784	5.0	10.00	309.3	-34.9	75
Manganese	231.087	2.5	100.0	146.7	84.4	75

Sample ID	SampType: MBLK	Batch ID: 73205	TestNo: EPA 200.8	Units: µg/L	Prep Date: 4/3/2019	RunNo: 132987
Client ID:	SeqNo: 3340746				Analysis Date: 4/4/2019	SeqNo:
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC
Copper	ND	1.0				
Selenium	ND	0.50				

Qualifiers:

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



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CLIENT: CH2M HILL**Work Order:** N034880**Project:** PG&E Topock, 680375.03.IM.OP.00**ANALYTICAL QC SUMMARY REPORT****TestCode:** 200.8_W

Sample ID	SampType:	Batch ID:	TestCode:	Units:	Prep Date:	Analysis Date:	RunNo:					
Client ID:	LCSW	73205	EPA 200.8	µg/L	4/3/2019	4/4/2019	132987					
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper		8.923	1.0	10.00	0	89.2	85	115				
Selenium		10.202	0.50	10.00	0	102	85	115				S

Sample ID	SampType:	Batch ID:	TestCode:	Units:	Prep Date:	Analysis Date:	RunNo:					
Client ID:	ZZZZZZ	73205	EPA 200.8	µg/L	4/3/2019	4/4/2019	132987					
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper		3.933	1.0	10.00	0	39.3	75	125				
Selenium		11.603	0.50	10.00	2.835	87.7	75	125				S

Sample ID	SampType:	Batch ID:	TestCode:	Units:	Prep Date:	Analysis Date:	RunNo:					
Client ID:	ZZZZZZ	73205	EPA 200.8	µg/L	4/3/2019	4/4/2019	132987					
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper		3.800	1.0	10.00	0	38.0	75	125	3.933	3.45	20	S
Selenium		11.929	0.50	10.00	2.835	90.9	75	125	11.60	2.77	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

ASSET Laboratories

Date: 15-Apr-19

CLIENT: CH2M HILL
Work Order: N034880
Project: PG&E Topock, 680375.03.IM.OP.00

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

Sample ID	Client ID:	SampType: PS	TestCode: 200.8_W	Units: µg/L	Prep Date:	RunNo: 132981						
Sample ID	Client ID:	Batch ID:	TestNo: EPA 200.8		Analysis Date:	SeqNo: 3340210						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Antimony	10.616	0.50	10.00	0.4795	101	80	120					
Arsenic	12.996	0.10	10.00	2.583	104	80	120					
Beryllium	12.150	0.50	10.00	0.1448	120	80	120					S
Cadmium	9.949	0.50	10.00	0.06431	98.8	80	120					
Cobalt	10.287	0.50	10.00	1.773	85.1	80	120					
Lead	11.931	1.0	10.00	1.714	102	80	120					
Molybdenum	107.867	0.50	10.00	93.81	141	80	120					S
Nickel	13.396	1.0	10.00	4.598	88.0	80	120					
Silver	9.275	0.50	10.00	0	92.7	80	120					
Thallium	10.625	0.50	10.00	0.3139	103	80	120					
Vanadium	22.546	1.0	10.00	13.52	90.2	80	120					
Zinc	153.871	10	10.00	151.2	27.2	80	120					S
Sample ID	Client ID:	SampType: PS	TestCode: 200.8_W	Units: µg/L	Prep Date:	RunNo: 132981						
Sample ID	Client ID:	Batch ID:	TestNo: EPA 200.8		Analysis Date:	SeqNo: 3340211						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Barium	314.838	5.0	10.00	309.3	55.7	80	120					
Manganese	244.147	2.5	100.0	146.7	97.5	80	120					S
Sample ID	Client ID:	SampType: PS	TestCode: 200.8_W	Units: µg/L	Prep Date:	RunNo: 132987						
Sample ID	Client ID:	Batch ID:	TestNo: EPA 200.8		Analysis Date:	SeqNo: 3340751						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Copper	3.065	1.0	10.00	0	30.7	80	120					
Selenium	12.632	0.50	10.00	2.835	98.0	80	120					S

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out



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H Holding times for preparation or analysis exceeded
 S Spike/Surrogate outside of limits due to matrix interference

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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 15-Apr-19

CLIENT: CH2M HILL
Lab Order: N034880
Project: PG&E Topock, 680375.03.IM.OP.00
Lab ID: N034880-001

Client Sample ID: SC-100B-WDR-585**Collection Date:** 4/1/2019 7:30:00 AM**Matrix:** WATER

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

RunID: NV00922-IC7_190401A	QC Batch: R132893	PrepDate	Analyst: RAB		
Hexavalent Chromium	480 3.3	20	µg/L	100	4/1/2019 11:23 PM

TOTAL METALS BY ICPMS**EPA 200.8**

RunID: NV00922-ICP7_190403C	QC Batch: 73205	PrepDate	4/3/2019	Analyst: CEI	
Chromium	460 0.65	5.0	µg/L	5	4/4/2019 03:01 AM

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

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

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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 15-Apr-19

CLIENT: CH2M HILL
Lab Order: N034880
Project: PG&E Topock, 680375.03.IM.OP.00
Lab ID: N034880-002

Client Sample ID: SC-700B-WDR-585
Collection Date: 4/1/2019 7:25:00 AM
Matrix: WATER

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

RunID: NV00922-IC7_190401A	QC Batch: R132893	PrepDate	Analyst: RAB
Hexavalent Chromium	ND 0.033	0.20	µg/L
			1 4/1/2019 10:44 PM

TOTAL METALS BY ICPMS**EPA 200.8**

RunID: NV00922-ICP7_190403C	QC Batch: 73205	PrepDate	4/3/2019	Analyst: CEI
Chromium	ND 0.13	1.0	µg/L	1 4/4/2019 03:07 AM

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

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

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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 15-Apr-19

CLIENT: CH2M HILL
Lab Order: N034880
Project: PG&E Topock, 680375.03.IM.OP.00
Lab ID: N034880-003

Client Sample ID: SC-701-WDR-585**Collection Date:** 4/1/2019 7:20:00 AM**Matrix:** WATER

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

RunID: NV00922-IC7_190401A	QC Batch: R132893	PrepDate	Analyst: RAB
Hexavalent Chromium	ND 0.17	1.0	µg/L
			5
			4/1/2019 11:02 PM

TOTAL METALS BY ICPMS**EPA 200.8**

RunID: NV00922-ICP7_190403C	QC Batch: 73205	PrepDate	4/3/2019	Analyst: CEI
Chromium	4.8 0.13	1.0	µg/L	1
				4/4/2019 03:19 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

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ASSET Laboratories

Date: 15-Apr-19

CLIENT: CH2M HILL
Work Order: N034880
Project: PG&E Topock, 680375.03.IM.OP.00

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

Sample ID	SampType:	TestCode:	Units:	Prep Date:	Analysis Date:	LowLimit	HighLimit	RPD	Ref Val	%RDP	RPDLimit	Qual
Sample ID MB-73205	SampType: MBLK	TestCode: 200.8_W_CR	Units: µg/L	Prep Date: 4/3/2019	Analysis Date: 4/4/2019							
Client ID: PBW	Batch ID: 73205	TestNo: EPA 200.8										
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC							
Chromium	ND	1.0										
Sample ID	SampType:	TestCode:	Units:	Prep Date:	Analysis Date:	LowLimit	HighLimit	RPD	Ref Val	%RDP	RPDLimit	Qual
Sample ID LCS-73205	SampType: LCS	TestCode: 200.8_W_CR	Units: µg/L	Prep Date: 4/3/2019	Analysis Date: 4/4/2019							
Client ID: LCSW	Batch ID: 73205	TestNo: EPA 200.8										
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC							
Chromium	9.758	1.0	10.00	0	97.6							
Sample ID	SampType:	TestCode:	Units:	Prep Date:	Analysis Date:	LowLimit	HighLimit	RPD	Ref Val	%RDP	RPDLimit	Qual
Sample ID N034919-001A-MS	SampType: MS	TestCode: 200.8_W_CR	Units: µg/L	Prep Date: 4/3/2019	Analysis Date: 4/4/2019							
Client ID: ZZZZZZ	Batch ID: 73205	TestNo: EPA 200.8										
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC							
Chromium	19.316	1.0	10.00	1.196	73.6							
Sample ID	SampType:	TestCode:	Units:	Prep Date:	Analysis Date:	LowLimit	HighLimit	RPD	Ref Val	%RDP	RPDLimit	Qual
Sample ID N034919-001A-MSD	SampType: MSD	TestCode: 200.8_W_CR	Units: µg/L	Prep Date: 4/3/2019	Analysis Date: 4/4/2019							
Client ID: ZZZZZZ	Batch ID: 73205	TestNo: EPA 200.8										
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC							
Chromium	19.662	1.0	10.00	1.196	77.0							

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
- S Calculations are based on raw values

CLIENT: CH2M HILL
Work Order: N034880
Project: PG&E Topock, 680375.03.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WU_PGE

Sample ID	MB-R132893	SampType:	MBLK	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	132893
Client ID:	PBW	Batch ID:	R132893	TestNo:	EPA 218.6			Analysis Date:	4/1/2019	SeqNo:	3337274
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit
Hexavalent Chromium	ND	0.20									Qual

Sample ID	LCS-R132893	SampType:	LCS	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	132893
Client ID:	LCSW	Batch ID:	R132893	TestNo:	EPA 218.6			Analysis Date:	4/1/2019	SeqNo:	3337275
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit
Hexavalent Chromium	5.170	0.20	5.000	0	103	90	90	110			Qual

Sample ID	N034872-001AMS	SampType:	MS	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	132893
Client ID:	ZZZZZZ	Batch ID:	R132893	TestNo:	EPA 218.6			Analysis Date:	4/1/2019	SeqNo:	3337283
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit
Hexavalent Chromium	55.528	1.0	25.00	29.46	104	90	90	110			Qual

Sample ID	N034872-001AMSD	SampType:	MSD	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	132893
Client ID:	ZZZZZZ	Batch ID:	R132893	TestNo:	EPA 218.6			Analysis Date:	4/1/2019	SeqNo:	3337284
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit
Hexavalent Chromium	55.527	1.0	25.00	29.46	104	90	90	110			Qual

Sample ID	N034858-001ADUP	SampType:	DUP	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	132893
Client ID:	ZZZZZZ	Batch ID:	R132893	TestNo:	EPA 218.6			Analysis Date:	4/1/2019	SeqNo:	3337294
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit
Hexavalent Chromium	17.682	0.40								17.80	0.646

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- DO Surrogate Diluted Out
- S Spike/Surrogate outside of limits due to matrix interference



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CLIENT: CH2M HILL**Work Order:** N034880**Project:** PG&E Topock, 680375.03.IM.OP.00**ANALYTICAL QC SUMMARY REPORT****TestCode:** 218.6_WU_PGE

Sample ID	N034880-002CMS	SampType:	MS	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	132893	
Client ID:	ZZZZZZ	Batch ID:	R132893	TestNo:	EPA 218.6			Analysis Date:	4/1/2019	SeqNo:	3337321	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium		1.070	0.20	1.000	0	107	90	110				

Sample ID	N034880-003BMS	SampType:	MS	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	132893	
Client ID:	ZZZZZZ	Batch ID:	R132893	TestNo:	EPA 218.6			Analysis Date:	4/1/2019	SeqNo:	3337323	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium		4.805	1.0	5.000	0	96.1	90	110				

Sample ID	N034880-001CMS	SampType:	MS	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	132893	
Client ID:	ZZZZZZ	Batch ID:	R132893	TestNo:	EPA 218.6			Analysis Date:	4/1/2019	SeqNo:	3337325	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium		992.780	20	500.0	481.2	102	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
 ND Not Detected at the Reporting Limit
 DO Surrogate Diluted Out

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 R RPD outside accepted recovery limits
 Calculations are based on raw values
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S Spike/Surrogate outside of limits due to matrix interference
 RunNo: 132893
 SeqNo: 3337321

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ASSET Laboratories

Date: 15-Apr-19

CLIENT: CH2M HILL
Work Order: N034880
Project: PG&E Topock, 680375.03.IM.OP.00

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

Sample ID	N034919-001A-PS	SampType:	PS	TestCode:	200.8_W_CR	Units:	µg/L	Prep Date:		RunNo:	132981			
Client ID:	ZZZZZZ	Batch ID:	73205	TestNo:	EPA 200.8			Analysis Date:	4/4/2019	SeqNo:	3340142			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC		LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Chromium		19.946	1.0	10.00	11.96	79.9		80	120					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

ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 15-Apr-19

CLIENT: CH2M HILL
Lab Order: N034880
Project: PG&E Topock, 680375.03.IM.OP.00
Lab ID: N034880-001

Client Sample ID: SC-100B-WDR-585
Collection Date: 4/1/2019 7:30:00 AM
Matrix: WATER

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

RunID: NV00922-WC_190401B	QC Batch: R132906	PrepDate	Analyst: LR
Turbidity	0.13	0.10	0.10
	NTU	1	4/1/2019 03:00 PM

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

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



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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 15-Apr-19

CLIENT: CH2M HILL
Lab Order: N034880
Project: PG&E Topock, 680375.03.IM.OP.00
Lab ID: N034880-002

Client Sample ID: SC-700B-WDR-585
Collection Date: 4/1/2019 7:25:00 AM
Matrix: WATER

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

RunID: NV00922-WC_190401B	QC Batch: R132906	PrepDate	Analyst: LR
Turbidity	0.22	0.10	0.10
	NTU	1	4/1/2019 03:00 PM

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

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

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ASSET Laboratories

Date: 15-Apr-19

CLIENT: CH2M HILL
Work Order: N034880
Project: PG&E Topock, 680375.03.IM.OP.00

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

Sample ID	MB-R132906	SampType: MBLK	TestCode: 2130_W	Units: NTU	Prep Date:	RunNo: 132906							
Client ID:	PBW	Batch ID: R132906	TestNo: SM 2130B		Analysis Date:	SeqNo: 3336159							
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Turbidity		ND	0.10										
Sample ID	N034880-001BDUP	SampType: DUP	TestCode: 2130_W	Units: NTU	Prep Date:	RunNo: 132906							
Client ID:	ZZZZZZZ	Batch ID: R132906	TestNo: SM 2130B		Analysis Date:	SeqNo: 3336161							
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Turbidity		0.120	0.10				0.1300			0.1300	8.00	30	

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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 15-Apr-19

CLIENT: CH2M HILL
Lab Order: N034880
Project: PG&E Topock, 680375.03.IM.OP.00
Lab ID: N034880-003

Client Sample ID: SC-701-WDR-585
Collection Date: 4/1/2019 7:20:00 AM
Matrix: WATER

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

RunID: NV00922-AA1_190402B	QC Batch: 73174		PrepDate	4/2/2019	Analyst: MG
Mercury	ND	0.13	0.20	µg/L	1
					4/2/2019 03:58 PM

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

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

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ASSET Laboratories

Date: 15-Apr-19

CLIENT: CH2M HILL
Work Order: N034880
Project: PG&E Topock, 680375.03.IM.OP.00

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

Sample ID	SampType:	Batch ID:	TestCode:	Units:	Prep Date:	Analysis Date:	LowLimit	HighLimit	RPD	Ref Val	%RDP	RPDLimit	Qual
Sample ID MB-73174	SampType: MBLK	Batch ID: 73174	TestNo: EPA 245.1	Units: µg/L	Prep Date: 4/2/2019	Analysis Date: 4/2/2019							
Client ID: PBW													RunNo: 132929 SeqNo: 3337805
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC								
Mercury	ND	0.20											
Sample ID	SampType:	Batch ID:	TestCode:	Units:	Prep Date:	Analysis Date:	LowLimit	HighLimit	RPD	Ref Val	%RDP	RPDLimit	Qual
Sample ID LCS-73174	SampType: LCS	Batch ID: 73174	TestNo: EPA 245.1	Units: µg/L	Prep Date: 4/2/2019	Analysis Date: 4/2/2019							RunNo: 132929 SeqNo: 3337807
Client ID: LCSW													
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC								
Mercury	4.721	0.20	5.000	0	94.4								115
Sample ID	SampType:	Batch ID:	TestCode:	Units:	Prep Date:	Analysis Date:	LowLimit	HighLimit	RPD	Ref Val	%RDP	RPDLimit	Qual
Sample ID N034880-003C-MS	SampType: MS	Batch ID: 73174	TestNo: EPA 245.1	Units: µg/L	Prep Date: 4/2/2019	Analysis Date: 4/2/2019							RunNo: 132929 SeqNo: 3337808
Client ID: ZZZZZZ													
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC								
Mercury	4.768	0.20	5.000	0	95.4								125
Sample ID	SampType:	Batch ID:	TestCode:	Units:	Prep Date:	Analysis Date:	LowLimit	HighLimit	RPD	Ref Val	%RDP	RPDLimit	Qual
Sample ID N034880-003C-MSD	SampType: MSD	Batch ID: 73174	TestNo: EPA 245.1	Units: µg/L	Prep Date: 4/2/2019	Analysis Date: 4/2/2019							RunNo: 132929 SeqNo: 3337809
Client ID: ZZZZZZ													
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC								
Mercury	4.321	0.20	5.000	0	86.4								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
- C Calculations are based on raw values

ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 15-Apr-19

CLIENT: CH2M HILL
Lab Order: N034880
Project: PG&E Topock, 680375.03.IM.OP.00
Lab ID: N034880-001

Client Sample ID: SC-100B-WDR-585**Collection Date:** 4/1/2019 7:30:00 AM**Matrix:** WATER

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

RunID: NV00922-IC8_190401A	QC Batch: R132904	PrepDate	Analyst: RAB		
Fluoride	2.7	0.032	mg/L	5	4/1/2019 07:09 PM

ANIONS BY ION CHROMATOGRAPHY**EPA 300.0**

RunID: NV00922-IC8_190401A	QC Batch: R132904	PrepDate	Analyst: RAB		
Sulfate	510	1.1	mg/L	50	4/1/2019 08:37 PM

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

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

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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 15-Apr-19

CLIENT: CH2M HILL
Lab Order: N034880
Project: PG&E Topock, 680375.03.IM.OP.00
Lab ID: N034880-002

Client Sample ID: SC-700B-WDR-585**Collection Date:** 4/1/2019 7:25:00 AM**Matrix:** WATER

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

RunID: NV00922-IC8_190401A	QC Batch: R132904	PrepDate	Analyst: RAB		
Fluoride	2.4	0.032	mg/L	5	4/1/2019 07:53 PM

ANIONS BY ION CHROMATOGRAPHY**EPA 300.0**

RunID: NV00922-IC8_190401A	QC Batch: R132904	PrepDate	Analyst: RAB		
Sulfate	510	1.1	mg/L	50	4/1/2019 09:51 PM

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

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

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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 15-Apr-19

CLIENT: CH2M HILL
Lab Order: N034880
Project: PG&E Topock, 680375.03.IM.OP.00
Lab ID: N034880-003

Client Sample ID: SC-701-WDR-585
Collection Date: 4/1/2019 7:20:00 AM
Matrix: WATER

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

RunID: NV00922-IC8_190401A	QC Batch: R132904	PrepDate	Analyst: RAB
Fluoride	11 0.13	2.0 mg/L	4/1/2019 08:23 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

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ASSET Laboratories

Date: 15-Apr-19

CLIENT: CH2M HILL
Work Order: N034880
Project: PG&E Topock, 680375.03.IM.OP.00

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

Sample ID	MB-R132904_F	SampType: MBLK	TestCode: 300_W_FPG	Units: mg/L	Prep Date:	RunNo: 132904							
Client ID:	PBW	Batch ID: R132904	TestNo: EPA 300.0		Analysis Date:	SeqNo: 3336119							
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Fluoride		ND	0.10										
Sample ID	LCS-R132904_F	SampType: LCS	TestCode: 300_W_FPG	Units: mg/L	Prep Date:	RunNo: 132904							
Client ID:	LCSW	Batch ID: R132904	TestNo: EPA 300.0		Analysis Date:	SeqNo: 3336120							
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Fluoride		1.235	0.10	1.250	0	98.8	90	110					
Sample ID	N034880-001BMS	SampType: MS	TestCode: 300_W_FPG	Units: mg/L	Prep Date:	RunNo: 132904							
Client ID:	ZZZZZZ	Batch ID: R132904	TestNo: EPA 300.0		Analysis Date:	SeqNo: 3336124							
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Fluoride		8.681	0.50	6.250	2.719	95.4	80	120					
Sample ID	N034880-001BMSD	SampType: MSD	TestCode: 300_W_FPG	Units: mg/L	Prep Date:	RunNo: 132904							
Client ID:	ZZZZZZ	Batch ID: R132904	TestNo: EPA 300.0		Analysis Date:	SeqNo: 3336125							
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Fluoride		8.626	0.50	6.250	2.719	94.5	80	120					
Sample ID	N034880-002BDUP	SampType: DUP	TestCode: 300_W_FPG	Units: mg/L	Prep Date:	RunNo: 132904							
Client ID:	ZZZZZZ	Batch ID: R132904	TestNo: EPA 300.0		Analysis Date:	SeqNo: 3336127							
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Fluoride		2.229	0.50								2.431	8.67	20

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out



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ELAP Cert 2676 | NV Cert NV00922
ORELAP/NELAP Cert 4046

H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
Calculations are based on raw values
S Spike/Surrogate outside of limits due to matrix interference

ANALYTICAL QC SUMMARY REPORT

CLIENT: CH2M HILL
Work Order: N034880
Project: PG&E Topock, 680375.03.IM.OP.00

TestCode: 300_W_SO4PGE

Sample ID	Client ID:	SampType:	Batch ID:	TestCode:	Units:	Prep Date:	Analysis Date:	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
MB-R132904_SO4	PBW	MBLK	R132904	300_W_SO4P	mg/L								
				TestNo: EPA 300.0									
Analyte			Result	PQL	SPK value	SPK Ref Val	%REC						
Sulfate				ND	0.50								
LCS-R132904_SO4	LCSW	LCS	R132904	300_W_SO4P	mg/L								
				TestNo: EPA 300.0									
Analyte			Result	PQL	SPK value	SPK Ref Val	%REC						
Sulfate				4.043	0.50	4.000	0						
N034880-001BMS	ZZZZZZ	MS	R132904	300_W_SO4P	mg/L								
				TestNo: EPA 300.0									
Analyte			Result	PQL	SPK value	SPK Ref Val	%REC						
Sulfate				713.315	25	200.0	5.12.5	100	101	90	110		
N034880-001BMSD	ZZZZZZ	MSD	R132904	300_W_SO4P	mg/L								
				TestNo: EPA 300.0									
Analyte			Result	PQL	SPK value	SPK Ref Val	%REC						
Sulfate				719.695	25	200.0	5.12.5	104	100	80	120		
N034880-002BDUP	ZZZZZZ	DUP	R132904	300_W_SO4P	mg/L								
				TestNo: EPA 300.0									
Analyte			Result	PQL	SPK value	SPK Ref Val	%REC						
Sulfate				503.905	25								

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out



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 R RPD outside accepted recovery limits
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RunNo: 132904
 SeqNo: 3336135
 RunNo: 132904
 SeqNo: 3336136
 RunNo: 132904
 SeqNo: 3336142
 RunNo: 132904
 SeqNo: 3336143
 RunNo: 132904
 SeqNo: 3336145
 RunNo: 132904
 SeqNo: 3336146

ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 15-Apr-19

CLIENT: CH2M HILL
Lab Order: N034880
Project: PG&E Topock, 680375.03.IM.OP.00
Lab ID: N034880-001

Client Sample ID: SC-100B-WDR-585
Collection Date: 4/1/2019 7:30:00 AM
Matrix: WATER

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

RunID: NV00922-WC_190402D	QC Batch: R132926	PrepDate	Analyst: QBM			
Nitrate/Nitrite as N	2.9	0.16	0.25	mg/L	5	4/2/2019

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

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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 15-Apr-19

CLIENT: CH2M HILL
Lab Order: N034880
Project: PG&E Topock, 680375.03.IM.OP.00
Lab ID: N034880-002

Client Sample ID: SC-700B-WDR-585
Collection Date: 4/1/2019 7:25:00 AM
Matrix: WATER

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

NITRATE/NITRITE-N BY CADMIUM REDUCTION**SM4500-NO3F**

RunID: NV00922-WC_190402D	QC Batch: R132926	PrepDate	Analyst: QBM			
Nitrate/Nitrite as N	2.8	0.16	0.25	mg/L	5	4/2/2019

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

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ASSET Laboratories

Date: 15-Apr-19

CLIENT: CH2M HILL
Work Order: N034880
Project: PG&E Topock, 680375.03.IM.OP.00

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

Sample ID	Client ID:	SampType:	Batch ID:	TestCode:	Units:	Prep Date:	Analysis Date:	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
MB-R132926	**PBW	MBLK	R132926	4500N03F_W	mg/L		4/2/2019						
				SM4500-NO3									
Analyte				Result	PQL	SPK value	SPK Ref Val	%REC					
Nitrate/Nitrite as N			ND	ND	0.050								
Sample ID	Client ID:	SampType:	Batch ID:	TestCode:	Units:	Prep Date:	Analysis Date:	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
LCS-R132926	LCSW	LCS	R132926	4500N03F_W	mg/L		4/2/2019						
				SM4500-NO3									
Analyte				Result	PQL	SPK value	SPK Ref Val	%REC					
Nitrate/Nitrite as N			0.569	0.050	0.5000	0		114	85	115			
Sample ID	Client ID:	SampType:	Batch ID:	TestCode:	Units:	Prep Date:	Analysis Date:	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
N034880-001DDUP	ZZZZZZ	DUP	R132926	4500N03F_W	mg/L		4/2/2019						
				SM4500-NO3									
Analyte				Result	PQL	SPK value	SPK Ref Val	%REC					
Nitrate/Nitrite as N			2.924	0.25							2.889	1.19	20
Sample ID	Client ID:	SampType:	Batch ID:	TestCode:	Units:	Prep Date:	Analysis Date:	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
N034880-002DMDS	ZZZZZZ	MS	R132926	4500N03F_W	mg/L		4/2/2019						
				SM4500-NO3									
Analyte				Result	PQL	SPK value	SPK Ref Val	%REC					
Nitrate/Nitrite as N			5.541	0.25	2.500	2.793		110	75	125			
Sample ID	Client ID:	SampType:	Batch ID:	TestCode:	Units:	Prep Date:	Analysis Date:	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
N034880-002DMSD	ZZZZZZ	MSD	R132926	4500N03F_W	mg/L		4/2/2019						
				SM4500-NO3									
Analyte				Result	PQL	SPK value	SPK Ref Val	%REC					
Nitrate/Nitrite as N			5.606	0.25	2.500	2.793		113	75	125	5.541	1.17	20

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out



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H Holding times for preparation or analysis exceeded
 R RPD outside accepted recovery limits
 Calculations are based on raw values
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RunNo: 132926
 SeqNo: 3337783

RunNo: 132926
 SeqNo: 3337785

RunNo: 132926
 SeqNo: 3337787

RunNo: 132926
 SeqNo: 3337788

CH2MHILL

CHAIN OF CUSTODY RECORD

Page 1 OF 1

Number of Containers											
	1 Liter Poly	1 Liter Poly	1 Liter Poly	250 ml Poly	1 Liter Poly	500 ml Poly	500 ml Poly	500 ml Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly
	4°C Lab H2SO4	4°C	4°C	4°C	4°C	4°C	4°C	4°C	4°C	4°C	4°C
Preservatives:											
Filtered:	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Holding Time:	28	7	7	1	28	7	160	180	180	7	
Turbidity (SM2130)											
Total Title22Metals											
Total Metals(E200.7 and E200.8)											
Total Metals (E200.8 Mn)											
TDS (SM2540C)											
Nitrate/Nitrite (SM4500NO3-E)											
E218.6 Lab Filtered											
CONDUCTIVITY (E120.1)											
Anions (E300.0) Fluoride											
Anions (E300.0) F ⁻ & SO ₄ ²⁻											
AMMONIA (SM4500NH3D)											
	DATE	TIME	MATRIX								
SC-100B-WDR-585	4-1-19	7:30	Water	X	X	X	X	X	X	X	N034880-01
SC-700B-WDR-585	4-1-19	7:25	Water	X	X	X	X	X	X	X	-02
SC-701-WDR-585	4-1-19	7:20	Water		X	X	X	X	X	X	-03
TOTAL NUMBER OF CONTAINERS											
11											

Approved by Sampled by Relinquished by Received by Relinquished by Received by	Signatures     	Date/Time 4-1-19 7:10 4-1-19 7:20 4-1-19 7:25 4-1-19 7:25 4-1-19 7:25 4-1-19 7:25	Method of Shipment: FedEx On Ice: Airbill No: Lab Name: ASSET Laboratories Lab Phone: (702) 307-2859	ATTN: FedEx / no Marlon Martin Marlon Martin	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: 4/1/2019 Workorder: N034880
Rep sample Temp (Deg C): 4.4 IR Gun ID: 2
Temp Blank: Yes No
Carrier name: ASSET
Last 4 digits of Tracking No.: NA Packing Material Used: None
Cooling process: Ice Ice Pack Dry Ice Other None

Sample Receipt Checklist

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

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

4/2/2019

Reviewed By:

 LG 040319

Subject: Re: N034880

From: Nancy Sibucao <nancy@assetlaboratories.com>

Date: 5/20/2019, 11:41 AM

To: Shawn Duffy <shawn.duffy@groundwaterpartners.com>, "Scott, Doug/DEN"

<Doug.Scott@jacobs.com>

CC: 'Marlon Cartin' <marlon@assetlaboratories.com>, "Contreras, Erlene/RDD"

<Erlene.Contreras@jacobs.com>

Hi Shawn,

We have another run on 4/4 and the As for N034880-002 was non-detect but some of the IQCs were biased high for this analyte. I am not sure what happened why it was not toggled here but I can amend the report and the EDD. Please advise how you want us to proceed.

Thanks,

Nancy

On 5/19/2019 1:59 PM, Shawn Duffy wrote:

Hi Nancy,

I see in the %RSD Summary Table, the As for N034880-002E at 1X and 5X dilutions are marked as NR because they exceed the 15% criteria. However, the lab still reported the 1X result (0.13 ug/L). Are there additional runs that were not included in the report?

Shawn

**ASSET Laboratories**

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

www.atl-labs.com
TEL: 7023072659**CHAIN-OF-CUSTODY RECORD**

Page 1 of 1

QC Level: Level IV**Subcontractor:**BC Labs
4100 Atlas Court
Bakersfield, CA 93308TEL: (661) 327-4911
FAX: (661) 327-1918
Acct #:

Date: 01-Apr-19

Field Sampler: SIGNED

Requested Tests

Sample ID	Matrix	Date Collected	Bottle Type	SM4500-NH3D
N034880-001A / SC-100B-WDR-585	Water	4/1/2019 7:30:00 AM	32CZP	1
N034880-002A / SC-700B-WDR-585	Water	4/1/2019 7:25:00 AM	32CZP	1

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

General Comments:

Please email sample receipt acknowledgement to the PM.

Please use PC# N34880A. Please email Invoices and Account Receivable Statements to elvira@assetlaboratories.com. For questions, call Marion at (702) 307-2659. Please e-mail results to reports.lv@assetlaboratories.com by: Normal TAT.

Please analyze for Ammonia by SM4500NH3D. EDD Requirement Labspec7 edata.

GSO #:

544301006

Date/Time**Date/Time**

4/1/2019 17:010

Date/Time

Received by:

Date/Time**Date/Time**

Received by:

Date/Time

List of Analysts

ASSET Laboratories Work Order: N034880

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
Mark Gesmundo	EPA 245.1



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METHOD DETECTION LIMIT 2017

Method Name:
SM4500NO3F
Method Number:
10/25/2017, 10/26/2017, 10/27/2017
Analysis Date(s):
Quennie B. Manimit
Analyst/Technician:

Nitrate/Nitrite by Cadmium Reduction
Matrix: Water
Unit: mg/L
Spike Conc: 0.05 mg/L

Analyte	#1	#2	#3	#4	#5	#6	#7	Ave	SD	$t_{(n-1)}$ value	MDL	PQL
Nitrate/Nitrite as N	0.0573	0.0562	0.0500	0.0730	0.0698	0.0637	0.0564	0.0609	0.0082	3.143	0.0259	0.05
Method Blank												
Nitrate/Nitrite as N	0.0160	0.0067	0.0064	0.0204	0.0173	0.0036	0.0083	0.0112	0.0065	3.143	0.0317	0.05
MDL:	0.0317	mg/L										

Method Blank

Nitrate/Nitrite as N 0.0160 0.0067 0.0064 0.0204 0.0173 0.0036 0.0083 0.0112 0.0065 3.143 0.0317 0.05

MDL:

April 15, 2019

Doug Scott
CH2M HILL
155 Grand Avenue, Suite 1000
Oakland, CA 94612
TEL: (970) 731-0636
FAX: (510) 622-9129

Workorder No.: N034881

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

Attention: Doug Scott

Enclosed are the results for sample(s) received on April 01, 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 Littauer

Quennie Manimtim
Laboratory Director

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



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CLIENT: CH2M HILL
Project: PG&E Topock, 680375.03.IM.OP.00
Lab Order: N034881

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 6010B:

Matrix Spike (MS) is outside recovery criteria for Silver in QC sample N034856-001A-MS1 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.



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ASSET Laboratories**Date:** 15-Apr-19

CLIENT: CH2M HILL
Project: PG&E Topock, 680375.03.IM.OP.00
Lab Order: N034881
Contract No: IM3PLANT-AR

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N034881-001A	Phase Separator-585-Sludge	Soil	4/1/2019 7:40:00 AM	4/1/2019	4/15/2019
N034881-001B	Phase Separator-585-Sludge	Soil	4/1/2019 7:40:00 AM	4/1/2019	4/15/2019



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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 15-Apr-19

CLIENT: CH2M HILL
Lab Order: N034881
Project: PG&E Topock, 680375.03.IM.OP.00
Lab ID: N034881-001

Client Sample ID: Phase Separator-585-Sludge
Collection Date: 4/1/2019 7:40:00 AM
Matrix: SOIL

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

ANIONS BY ION CHROMATOGRAPHY**EPA 300.0**

RunID: NV00922-IC8_190408A	QC Batch: R133068	PrepDate	Analyst: RAB
Fluoride	15 0.15	2.2 mg/Kg-dry	1 4/8/2019 11:55 AM

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

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



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ASSET Laboratories

Date: 15-Apr-19

CLIENT: CH2M HILL
Work Order: N034881
Project: PG&E Topock, 680375.03.IM.OP.00

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

Sample ID	SampType:	Batch ID:	TestCode:	Units:	Prep Date:	Analysis Date:	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Client ID:	PBS	R133068	EPA 300.0	mg/Kg		4/8/2019						
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	Ref Val			
Fluoride		ND	1.0									
Sample ID	LCS-R133068	SampType: LCS	TestCode: 300_S	Units: mg/Kg	Prep Date:	Analysis Date:	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Client ID:	LCSS	Batch ID: R133068	EPA 300.0			4/8/2019						
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	Ref Val			
Fluoride		12.492	1.0	12.50	0	99.9	90	110				
Sample ID	N034881-001ADUP	SampType: DUP	TestCode: 300_S	Units: mg/Kg-dry	Prep Date:	Analysis Date:	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Client ID:	ZZZZZZ	Batch ID: R133068	EPA 300.0			4/8/2019						
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	Ref Val			
Fluoride		15.627	2.2							15.34	1.86	20
Sample ID	N034881-001AMS	SampType: MS	TestCode: 300_S	Units: mg/Kg-dry	Prep Date:	Analysis Date:	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Client ID:	ZZZZZZ	Batch ID: R133068	EPA 300.0			4/8/2019						
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	Ref Val			
Fluoride		41.904	2.2	27.66	15.34	96.0	80	120				
Sample ID	N034881-001AMSD	SampType: MSD	TestCode: 300_S	Units: mg/Kg-dry	Prep Date:	Analysis Date:	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Client ID:	ZZZZZZ	Batch ID: R133068	EPA 300.0			4/8/2019						
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	Ref Val			
Fluoride		41.995	2.2	27.66	15.34	96.4	80	120	41.90	0.216	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out



H Holding times for preparation or analysis exceeded
 R RPD outside accepted recovery limits
 Calculations are based on raw values
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RunNo: 133068
 SeqNo: 3343770

RunNo: 133068
 SeqNo: 3343771

RunNo: 133068
 SeqNo: 3343773

RunNo: 133068
 SeqNo: 3343774

CLIENT: CH2M HILL
Work Order: N034881
Project: PG&E Topock, 680375.03.1M.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_S

Sample ID	N034881-001APS	SampType:	MS	TestCode:	300_S	Units:	mg/Kg-dry	Prep Date:		RunNo:	133068	
Client ID:	zzzzzz	Batch ID:	R133068	TestNo:	EPA 300.0			Analysis Date:	4/8/2019	SeqNo:	3343776	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride		43.730	2.2	27.66	15.34	103	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

ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 15-Apr-19

CLIENT: CH2M HILL
Lab Order: N034881
Project: PG&E Topock, 680375.03.IM.OP.00
Lab ID: N034881-001

Client Sample ID: Phase Separator-585-Sludge
Collection Date: 4/1/2019 7:40:00 AM
Matrix: SOIL

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL METALS BY ICP							
	EPA 3050B			EPA 6010B			
RunID: NV00922-ICP2_190403A	QC Batch: 73196			PrepDate	4/3/2019		Analyst: CEI
Antimony	21	0.73	4.4	mg/Kg-dry	1	4/3/2019 06:37 PM	
Arsenic	17	1.2	2.2	mg/Kg-dry	1	4/3/2019 06:37 PM	
Barium	76	0.69	2.2	mg/Kg-dry	1	4/3/2019 06:37 PM	
Beryllium	ND	0.48	2.2	mg/Kg-dry	1	4/3/2019 06:37 PM	
Cadmium	4.6	0.59	2.2	mg/Kg-dry	1	4/3/2019 06:37 PM	
Chromium	3000	0.72	2.2	mg/Kg-dry	1	4/3/2019 06:37 PM	
Cobalt	5.0	0.63	2.2	mg/Kg-dry	1	4/3/2019 06:37 PM	
Copper	170	2.0	4.4	mg/Kg-dry	1	4/3/2019 06:37 PM	
Lead	ND	0.65	2.2	mg/Kg-dry	1	4/3/2019 06:37 PM	
Manganese	530	1.1	2.2	mg/Kg-dry	1	4/3/2019 06:37 PM	
Molybdenum	ND	0.66	2.2	mg/Kg-dry	1	4/3/2019 06:37 PM	
Nickel	35	0.75	2.2	mg/Kg-dry	1	4/3/2019 06:37 PM	
Selenium	ND	1.3	2.2	mg/Kg-dry	1	4/3/2019 06:37 PM	
Silver	ND	1.4	2.2	mg/Kg-dry	1	4/3/2019 06:37 PM	
Thallium	7.1	0.78	4.4	mg/Kg-dry	1	4/3/2019 06:37 PM	
Vanadium	35	0.49	2.2	mg/Kg-dry	1	4/3/2019 06:37 PM	
Zinc	67	0.66	2.2	mg/Kg-dry	1	4/3/2019 06:37 PM	

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

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



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ASSET Laboratories

Date: 15-Apr-19

CLIENT: CH2M HILL
Work Order: N034881
Project: PG&E Topock, 680375.03.IM.OP.00

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

Sample ID	MB-73196	SampType: MBLK	TestCode: 6010_SPGE	Units: mg/Kg	Prep Date: 4/3/2019	RunNo: 132947							
Client ID:	PBS	Batch ID: 73196	TestNo: EPA 6010B	EPA 3050B	Analysis Date: 4/3/2019	SeqNo: 3339853							
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Antimony		ND	2.0										
Arsenic		ND	1.0										
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										
Thallium		ND	2.0										
Vanadium		ND	1.0										
Zinc		ND	1.0										

Sample ID	LCS1-73196	SampType: LCS	TestCode: 6010_SPGE	Units: mg/Kg	Prep Date: 4/3/2019	RunNo: 132947							
Client ID:	LCSS	Batch ID: 73196	TestNo: EPA 6010B	EPA 3050B	Analysis Date: 4/3/2019	SeqNo: 3339854							
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Antimony		24.865	2.0	25.00	0	99.5	85	115					
Arsenic		24.657	1.0	25.00	0	98.6	85	115					
Barium		25.247	1.0	25.00	0	101	85	115					
Beryllium		24.767	1.0	25.00	0	99.1	85	115					
Cadmium		25.547	1.0	25.00	0	102	85	115					
Chromium		25.261	1.0	25.00	0	101	85	115					

Qualifiers:

B Analyte detected in the associated Method Blank

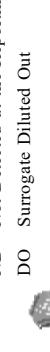
E Value above quantitation range

R RPD outside accepted recovery limits

S Calculations are based on raw values

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference



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CLIENT: CH2M HILL
Work Order: N034881
Project: PG&E Topock, 680375.03.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_SPGE

Sample ID	LCS1-73196	SampType: LCS	TestCode: 6010_SPGE	Units: mg/Kg	Prep Date:	4/3/2019	RunNo:	132947				
Client ID:	LCSS	Batch ID: 73196	TestNo: EPA 6010B	EPA 3050B	Analysis Date:	4/3/2019	SeqNo:	3339854				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cobalt		25.310	1.0	25.00	0	101	85	115				
Copper		25.076	2.0	25.00	0	100	85	115				
Lead		25.441	1.0	25.00	0	102	85	115				
Manganese		50.233	1.0	50.00	0	100	85	115				
Molybdenum		25.185	1.0	25.00	0	101	85	115				
Nickel		25.142	1.0	25.00	0	101	85	115				
Selenium		24.738	1.0	25.00	0	99.0	85	115				
Silver		25.195	1.0	25.00	0	101	85	115				
Thallium		25.735	2.0	25.00	0	103	85	115				
Vanadium		25.583	1.0	25.00	0	102	85	115				
Zinc		25.575	1.0	25.00	0	102	85	115				

Sample ID	N034856-001A-MS1	SampType: MS	TestCode: 6010_SPGE	Units: mg/Kg-dry	Prep Date:	4/3/2019	RunNo:	132947				
Client ID:	ZZZZZZ	Batch ID: 73196	TestNo: EPA 6010B	EPA 3050B	Analysis Date:	4/3/2019	SeqNo:	3339860				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony		27.065	2.1	25.93	0	104	75	125				
Arsenic		29.155	1.0	25.93	2.579	102	75	125				
Barium		75.031	1.0	25.93	50.47	94.7	75	125				
Beryllium		27.195	1.0	25.93	0	105	75	125				
Cadmium		26.838	1.0	25.93	0	104	75	125				
Chromium		29.303	1.0	25.93	2.375	104	75	125				
Cobalt		29.329	1.0	25.93	1.431	108	75	125				
Copper		28.901	2.1	25.93	1.674	105	75	125				
Lead		29.493	1.0	25.93	3.846	98.9	75	125				
Manganese		157.111	1.0	51.86	100.3	110	75	125				
Molybdenum		27.751	1.0	25.93	0	107	75	125				
Nickel		28.770	1.0	25.93	2.093	103	75	125				
Selenium		25.400	1.0	25.93	0	98.0	75	125				
Silver		17.809	1.0	25.93	0	68.7	75	125				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out



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- E Value above quantitation range
- R RPD outside accepted recovery limits
- R Calculations are based on raw values

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- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N034881
Project: PG&E Topock, 680375.03.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_SPGE

Sample ID	N034856-001A-MS1	SampType: MS	TestCode: 6010_SPGE	Units: mg/Kg-dry	Prep Date: 4/3/2019	RunNo: 132947
Client ID:	zzzzzz	Batch ID: 73196	TestNo: EPA 3050B	%REC	Analysis Date: 4/3/2019	SeqNo: 3339860
Analyte		Result	PQL	SPK value	SPK Ref Val	
Thallium	26.530	2.1	25.93	0.9367	98.7	75
Vanadium	32.803	1.0	25.93	5.535	105	75
Zinc	36.423	1.0	25.93	9.366	104	75

TestCode: 6010_SPGE

Sample ID	N034856-001A-MSD	SampType: MSD	TestCode: 6010_SPGE	Units: mg/Kg-dry	Prep Date: 4/3/2019	RunNo: 132947
Client ID:	zzzzzz	Batch ID: 73196	TestNo: EPA 3050B	%REC	Analysis Date: 4/3/2019	SeqNo: 3339861
Analyte		Result	PQL	SPK value	SPK Ref Val	
Antimony	27.073	2.1	25.88	0	105	75
Arsenic	29.215	1.0	25.88	2.579	103	75
Barium	75.190	1.0	25.88	50.47	95.5	75
Beryllium	27.163	1.0	25.88	0	105	75
Cadmium	26.507	1.0	25.88	0	102	75
Chromium	29.287	1.0	25.88	2.375	104	75
Cobalt	29.180	1.0	25.88	1.431	107	75
Copper	28.899	2.1	25.88	1.674	105	75
Lead	29.420	1.0	25.88	3.846	98.8	75
Manganese	156.799	1.0	51.75	100.3	109	75
Molybdenum	27.785	1.0	25.88	0	107	75
Nickel	28.746	1.0	25.88	2.093	103	75
Selenium	25.543	1.0	25.88	0	98.7	75
Silver	19.518	1.0	25.88	0	75.4	75
Thallium	26.374	2.1	25.88	0.9367	98.3	75
Vanadium	32.303	1.0	25.88	5.535	103	75
Zinc	36.295	1.0	25.88	9.366	104	75

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

ASSET Laboratories

Date: 15-Apr-19

CLIENT: CH2M HILL
Work Order: N034881
Project: PG&E Topock, 680375.03.IM.OP.00

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

Sample ID	N034856-001A-PS	SampType: PS	TestCode: 6010_SPGE	Units: mg/Kg-dry	Prep Date:	RunNo: 132947						
Client ID:	ZZZZZZ	Batch ID: 73196	TestNo: EPA 6010B	EPA 3050B	Analysis Date: 4/3/2019	SeqNo: 3339859						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Antimony	26.900	2.1	25.88	0	104	80	120					
Arsenic	28.765	1.0	25.88	2.579	101	80	120					
Barium	74.849	1.0	25.88	50.47	94.2	80	120					
Beryllium	27.078	1.0	25.88	0	105	80	120					
Cadmium	26.704	1.0	25.88	0	103	80	120					
Chromium	29.236	1.0	25.88	2.375	104	80	120					
Cobalt	29.242	1.0	25.88	1.431	107	80	120					
Copper	28.805	2.1	25.88	1.674	105	80	120					
Lead	29.408	1.0	25.88	3.846	98.8	80	120					
Manganese	157.494	1.0	51.75	100.3	111	80	120					
Molybdenum	27.577	1.0	25.88	0	107	80	120					
Nickel	28.659	1.0	25.88	2.093	103	80	120					
Selenium	24.971	1.0	25.88	0	96.5	80	120					
Silver	17.471	1.0	25.88	0	67.5	80	120					
Thallium	26.541	2.1	25.88	0.9367	98.9	80	120					
Vanadium	32.769	1.0	25.88	5.535	105	80	120					
Zinc	36.346	1.0	25.88	9.366	104	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

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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 15-Apr-19

CLIENT: CH2M HILL
Lab Order: N034881
Project: PG&E Topock, 680375.03.IM.OP.00
Lab ID: N034881-001

Client Sample ID: Phase Separator-585-Sludge
Collection Date: 4/1/2019 7:40:00 AM
Matrix: SOIL

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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HEXAVALENT CHROMIUM BY IC**EPA 3060A****EPA 7199**

RunID: NV00922-IC6_190403A	QC Batch: 73186		PrepDate	4/2/2019	Analyst: RAB
Hexavalent Chromium	63	0.64	2.2	mg/Kg-dry	5
					4/3/2019 04:04 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

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ASSET Laboratories

Date: 15-Apr-19

CLIENT: CH2M HILL
Work Order: N034881
Project: PG&E Topock, 680375.03.IM.OP.00

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

Sample ID	SampType: MB-73186	SampType: MBLK	TestCode: 7199_S_PGE	Units: mg/Kg	Prep Date: 4/2/2019	RunNo: 132984						
Client ID:	Batch ID: 73186	TestNo: EPA 7199	EPA 3060A	Analysis Date: 4/3/2019	SeqNo: 3340649							
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-73186	SampType: LCS	TestCode: 7199_S_PGE	Units: mg/Kg		Prep Date: 4/2/2019	RunNo: 132984						
Client ID: LCSS	Batch ID: 73186	TestNo: EPA 7199	EPA 3060A	Analysis Date: 4/3/2019	SeqNo: 3340650							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	3.873	0.20	4.000	0	96.8	80	120					
Sample ID N034857-001A-REP	SampType: DUP	TestCode: 7199_S_PGE	Units: mg/Kg-dry		Prep Date: 4/2/2019	RunNo: 132984						
Client ID: ZZZZZZ	Batch ID: 73186	TestNo: EPA 7199	EPA 3060A	Analysis Date: 4/3/2019	SeqNo: 3340652							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.21								0	0	20
Sample ID N034857-001A-DUP	SampType: DUP	TestCode: 7199_S_PGE	Units: mg/Kg-dry		Prep Date: 4/2/2019	RunNo: 132984						
Client ID: ZZZZZZ	Batch ID: 73186	TestNo: EPA 7199	EPA 3060A	Analysis Date: 4/3/2019	SeqNo: 3340653							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.090	0.21								0	0	20
Sample ID N034857-001A-MS	SampType: MS	TestCode: 7199_S_PGE	Units: mg/Kg-dry		Prep Date: 4/2/2019	RunNo: 132984						
Client ID: ZZZZZZ	Batch ID: 73186	TestNo: EPA 7199	EPA 3060A	Analysis Date: 4/3/2019	SeqNo: 3340654							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	3.994	0.21	4.184	0	95.5	75	125			0	0	20

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out



H Holding times for preparation or analysis exceeded
 R RPD outside accepted recovery limits
 Calculations are based on raw values
 S Spike/Surrogate outside of limits due to matrix interference

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 EPA ID CA01638

CLIENT: CH2M HILL
Work Order: N034881
Project: PG&E Topock, 680375.03.IMP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 7199_S_PGE

Sample ID	N034857-001A-MSD	SampType:	MSD	TestCode:	7199_S_PGE	Units:	mg/Kg-dry	Prep Date:	4/2/2019	RunNo:	132984	
Client ID:	ZZZZZZ	Batch ID:	73186	TestNo:	EPA 7199	EPA 3060A		Analysis Date:	4/3/2019	SeqNo:	3340655	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium		4.071	0.21	4.189	0	97.2	75	125	3.994	1.91	20	

Sample ID	N034857-001A-MS I	SampType:	MS	TestCode:	7199_S_PGE	Units:	mg/Kg-dry	Prep Date:	4/2/2019	RunNo:	132984	
Client ID:	ZZZZZZ	Batch ID:	73186	TestNo:	EPA 7199	EPA 3060A		Analysis Date:	4/3/2019	SeqNo:	3340656	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium		645.687	10	693.8	0	93.1	75	125				

Sample ID	N034881-001A-REP	SampType:	DUP	TestCode:	7199_S_PGE	Units:	mg/Kg-dry	Prep Date:	4/2/2019	RunNo:	132984	
Client ID:	ZZZZZZ	Batch ID:	73186	TestNo:	EPA 7199	EPA 3060A		Analysis Date:	4/3/2019	SeqNo:	3340660	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium		63.281	2.2						63.48	0.320	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out



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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 15-Apr-19

CLIENT: CH2M HILL
Lab Order: N034881
Project: PG&E Topock, 680375.03.IM.OP.00
Lab ID: N034881-001

Client Sample ID: Phase Separator-585-Sludge
Collection Date: 4/1/2019 7:40:00 AM
Matrix: SOIL

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

RunID: NV00922-AA1_190402A	QC Batch: 73172	PrepDate	4/2/2019	Analyst: MG
Mercury	ND 0.059	0.22	mg/Kg-dry	1 4/2/2019 12:31 PM

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

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

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ASSET Laboratories

Date: 15-Apr-19

CLIENT: CH2M HILL
Work Order: N034881
Project: PG&E Topock, 680375.03.IM.OP.00

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

Sample ID	MB-73172	SampType: MBLK	TestCode: 7471_S_PGE	Units: mg/Kg	Prep Date: 4/2/2019	RunNo: 132924						
Client ID:	PBS	Batch ID: 73172	TestNo: EPA 7471A	Analysis Date: 4/2/2019	SeqNo: 3337355							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.10										
Sample ID	LCS-73172	SampType: LCS	TestCode: 7471_S_PGE	Units: mg/Kg	Prep Date: 4/2/2019	RunNo: 132924						
Client ID:	LCSS	Batch ID: 73172	TestNo: EPA 7471A	Analysis Date: 4/2/2019	SeqNo: 3337356							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Mercury	0.428	0.10	0.4167	0	103	75	125					
Sample ID	N034881-001B-MS	SampType: MS	TestCode: 7471_S_PGE	Units: mg/Kg-dry	Prep Date: 4/2/2019	RunNo: 132924						
Client ID:	ZZZZZZZ	Batch ID: 73172	TestNo: EPA 7471A	Analysis Date: 4/2/2019	SeqNo: 3337357							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Mercury	1.012	0.22	0.9161	0.07347	102	75	125					
Sample ID	N034881-001B-MSD	SampType: MSD	TestCode: 7471_S_PGE	Units: mg/Kg-dry	Prep Date: 4/2/2019	RunNo: 132924						
Client ID:	ZZZZZZZ	Batch ID: 73172	TestNo: EPA 7471A	Analysis Date: 4/2/2019	SeqNo: 3337358							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Mercury	1.163	0.22	0.9116	0.07347	120	75	125	1.012	13.9	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

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H Holding times for preparation or analysis exceeded
 S Spike/Surrogate outside of limits due to matrix interference

ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 15-Apr-19

CLIENT: CH2M HILL
Lab Order: N034881
Project: PG&E Topock, 680375.03.IM.OP.00
Lab ID: N034881-001

Client Sample ID: Phase Separator-585-Sludge
Collection Date: 4/1/2019 7:40:00 AM
Matrix: SOIL

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

PERCENT MOISTURE**D2216**

RunID: NV00922-WC_190402A	QC Batch: R132920	PrepDate	Analyst: LR
Percent Moisture	54.82	0.1000	wt%
			1 4/2/2019 10:30 AM

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

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

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ASSET Laboratories

Date: 15-Apr-19

CLIENT: CH2M HILL
Work Order: N034881
Project: PG&E Topock, 680375.03.IM.OP.00

ANALYTICAL QC SUMMARY REPORT**TestCode:** PMOIST

Sample ID	MB-R132920	SampType: MBLK	TestCode: PMOIST	Units: wt%	Prep Date:	RunNo: 132920							
Client ID:	PBS	Batch ID: R132920	TestNo: D2216		Analysis Date:	SeqNo: 3337337							
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Percent Moisture		ND	0.1000										
Sample ID	N034881-001BDUP	SampType: DUP	TestCode: PMOIST	Units: wt%	Prep Date:	RunNo: 132920							
Client ID:	ZZZZZZZ	Batch ID: R132920	TestNo: D2216		Analysis Date:	SeqNo: 3337339							
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Percent Moisture		54.910	0.1000										

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
S 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**

				Page 1 OF 1				
Project Name	PG&E Topock	Container	Glass Jar(8 oz)	Glass Jar(8 oz)	4 oz jar			
Location	PG&E Topock	Preservatives:	none	none	4°C			
Project Number	680375.03.IIM.OP.00	Filtered:	NA	NA	NA			
Project Manager	Scott O'Donnell	Holding Time:	NA	NA	180			
Sample Manager	Shawn Duffy							
				Number of Containers				
				3				
				COMMENTS				
				3				
<p>Task Order</p> <p>Project 1M3PLANT-ARAR-WDR-585-SLUDGE</p> <p>Turnaround Time 10 Days</p> <p>Shipping Date:</p> <p>COC Number: 585s</p> <p>Metals (7199) Metals (6010B_Soil) Title 22, Mercury, Mn Anions (E300_Soil) Fl</p>								
Phase Separator-585-Sludge	DATE	TIME	Matrix					
	4-1-19	7:40	Soil	X	X	X	N034881-01	
TOTAL NUMBER OF CONTAINERS 3								

Approved by	Signatures	Date/Time	Shipping Details	ATTN:	Special Instructions:
Sampled by		4-1-19 7:10	Method of Shipment: FedEx		
Relinquished by		4-1-19 9:40	On Ice: yes / no	Sample Custody	
Received by		4-1-19 9:25	Airbill No: 1R42	and	
Relinquished by		4-1-19 9:25	Lab Name: ASSET Laboratories	Marlon Cartin	Report Copy to Doug Scott
Received by		4-1-19 11:51	Lab Phone: (702) 307-2659		(970) 731-0636
		4-1-19 11:51	Am		

ASSET Laboratories

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

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

Cooler Received/Opened On: 4/1/2019 Workorder: N034881
Rep sample Temp (Deg C): 4.4 IR Gun ID: 2
Temp Blank: Yes No
Carrier name: ASSET
Last 4 digits of Tracking No.: NA Packing Material Used: None
Cooling process: Ice Ice Pack Dry Ice Other None

Sample Receipt Checklist

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

Comments:

Checklist Completed By: YR  4/2/2019

Reviewed By:  LG 040319

List of Analysts

ASSET Laboratories Work Order: N034881

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



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AN ENVIRONMENTAL CONSULTING COMPANY

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Laboratories, Inc.

Environmental Testing Laboratory Since 1949

Date of Report: 04/22/2019

Marlon Cartin

ASSET Laboratories- Las Vegas

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

Client Project: N034983

BCL Project: Level IV

BCL Work Order: 1911355

Invoice ID: B337710

Enclosed are the results of analyses for samples received by the laboratory on 4/9/2019. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Contact Person: Vanessa Sandoval
Client Service Rep

Stuart Butram
Technical Director

Certifications: CA ELAP #1186; NV #CA00014; OR ELAP #4032-001; AK UST101

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Chain of Custody and Cooler Receipt Form for 1911055 Page 1 of :



ASSET Laboratories

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

www.asset-labs.com

TEL: 7023072659

FAX: 7023072659

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

Subcontractor:

BC Labs
4100 Atlas Court
Bakersfield, CA 93308
191-113555

QC Level: Level IV

Field Sampler: SIGNED

08-Apr-19

		Requested Tests		
Sample ID	Matrix	Date Collected	Bottle Type	SM4500-NH3D
N034983-001A / SC-700B-WDR-586	-1 Water	4/6/2019 9:00:00 AM	32OZP	1

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

CHK BY	DISTRIBUTION
	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
	SUB-OUT <input type="checkbox"/>

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

Please use PO# N34983A. Please email Invoiced and Account Receivable Statements to ekrira@assetlaboratories.com. For questions, call Marion at (702)-307-2659. Please e-mail results to reports.lv@assetlaboratories.com by: Normal TAT.

Please analyze for Ammonia by SM4500-NH3D. EDD Requirement LabSpec7 edata.

GSO #: 54373678 544373878

Date/Time	Date/Time
	4/8/2019 17:00
Received by:	4-9-19 10:00
Relinquished by:	
Received by:	

BC

Laboratories, Inc.

Environmental Testing Laboratory Since 1949

Chain of Custody and Cooler Receipt Form for 1911055 Page : of :

BC LABORATORIES INC.		COOLER RECEIPT FORM								Page 1 Of 1	
Submission #: 19-11355											
SHIPPING INFORMATION				SHIPPING CONTAINER				FREE LIQUID			
Fed Ex <input type="checkbox"/>	UPS <input type="checkbox"/>	Ontrac <input type="checkbox"/>	Hand Delivery <input type="checkbox"/>	Ice Chest <input checked="" type="checkbox"/>	None <input type="checkbox"/>	Box <input type="checkbox"/>	Other <input type="checkbox"/> (Specify) GSO	YES <input type="checkbox"/>	NO <input type="checkbox"/>	W / S	
Refrigerant: <input checked="" type="checkbox"/> Blue Ice <input type="checkbox"/> None <input type="checkbox"/> Other <input type="checkbox"/>				Comments:							
Custody Seals		Ice Chest <input type="checkbox"/>	Containers <input type="checkbox"/>	Comments:							
Intact? Yes <input type="checkbox"/> No <input type="checkbox"/>		Intact? Yes <input type="checkbox"/> No <input type="checkbox"/>									
All samples received? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		All samples containers intact? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		Description(s) match COC? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>							
COC Received <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		Emissivity: <u>.99</u>	Container: <u>Apple</u>	Thermometer ID: <u>274</u>				Date/Time: <u>4-9-19</u>			
		Temperature: (A) <u>24.0</u> °C / (C) <u>0.1</u> °C					Analyst Info: <u>1000</u>				
SAMPLE CONTAINERS		SAMPLE NUMBERS									
		1	2	3	4	5	6	7	8	9	10
QT PE UNPRES											
4oz / 8oz / 16oz PE UNPRES											
2oz Cr ⁴⁺											
QT INORGANIC CHEMICAL METALS											
INORGANIC CHEMICAL METALS 4oz / 8oz / 16oz											
PT CYANIDE											
PT NITROGEN FORMS QT											
PT TOTAL SULFIDE											
2oz NITRATE / NITRITE											
PT TOTAL ORGANIC CARBON											
PT CHEMICAL OXYGEN DEMAND											
PT PHENOLICS											
40ml VOA VIAL TRAVEL BLANK											
40ml VOA VIAL											
QT EPA 1664											
PT ODOR											
RADIOLOGICAL											
BACTERIOLOGICAL											
40 ml VOA VIAL - 504											
QT EPA 503/608/808											
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: <u>RAM</u> Date/Time: <u>4-9-10</u> <u>1827</u> Rev 21 05/23/2016											
A = Actual / C = Corrected											

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

ReportedL 04/22/2019 13:18
Project: Level IV
Project Number: N034983
Project Manager: Marlon Cartin

Laboratory / Client Sample Cross Reference

Laboratory	Client Sample Information			
1911055-M1	Cv C NumberL	---	ReceiMb 2 ateL	04/09/2019 10:00
	Pro@ct NumberL	---	Sampling 2 ateL	04/06/2019 09:00
	Sampling j ocationL	---	Sample 2 ephL	---
	Sampling PointL	N034983-001A / SC-700B-WDR-586	j ab x atriUL	Water
	Sampled WyL	---	Sample TypeL	Water



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

ReportedL 04/22/2019 13:18
Project: Level IV
Project Number: N034983
Project Manager: Marlon Cartin

D ater Analysis (General Chemistry)

WCj	Sample I2 L	1911355-01	Client Sample NameL	N034983-001A / SC-700B-WDR-586, 4/6/2019 9:00:00AM				
Constituent		Result	# nits	PQj	x ethod	x W Was	j ab Quals	Run k
Ammonia as N (Distilled)		ND	mg/L	0.20	SM-4500-NH3G	ND		1

Run k	x ethod	Prep 2 ate	Run 2 ate/Time	Analyst	Instrument	2 ilution	QC	Watch I2
1	SM-4500-NH3G	04/12/19 13:35	04/18/19 16:39	JMH	SC-1	1	B043500	

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ASSET Laboratories- Las Vegas
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ReportedL 04/22/2019 13:18
Project: Level IV
Project Number: N034983
Project Manager: Marlon Cartin

Dater Analysis (General Chemistry)

Quality Control Report - x ethod Wan6 Analysis

Constituent	QC Sample I2	x WResult	# nits	PQj	j ab Quals
QC Watch I2 L WN405NN					
Ammonia as N (Distilled)	B043500-BLK1	ND	mg/L	0.20	



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

ReportedL 04/22/2019 13:18
Project: Level IV
Project Number: N034983
Project Manager: Marlon Cartin

Dater Analysis (General Chemistry)

Quality Control Report - jaboratory Control Sample

Constituent	QC Sample I2	Type	Result	Spie j eMl	# nits	Percent RecoMery	Control j imits		
							Percent RecoMery	RP2	j ab RP2
QC Watch I2 L WN405NN									
Ammonia as N (Distilled)	B043500-BS1	LCS	1.0154	1.0000	mg/L	102			85 - 115



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

ReportedL 04/22/2019 13:18
Project: Level IV
Project Number: N034983
Project Manager: Marlon Cartin

Dater Analysis (General Chemistry)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spiee Added	# nits	RP2	Control j imits		
								Percent Recomery	Percent Recomery	j ab Quals
QC Watch I2 L WN405NN		Used client sample: N								
Ammonia as N (Distilled)	DUP	1910631-01	0.069600	ND			mg/L		20	A02
	MS	1910631-01	0.069600	1.0897	1.1111		mg/L	91.8	80 - 120	
	MSD	1910631-01	0.069600	1.1633	1.1111		mg/L	6.5	98.4	20 80 - 120

April 25, 2019

Doug Scott
CH2M HILL
155 Grand Avenue, Suite 1000
Oakland, CA 94612
TEL: (970) 731-0636
FAX: (510) 622-9129

Workorder No.: N034983

RE: PG&E Topock, 680375.02.IM.OP.00

Attention: Doug Scott

Enclosed are the results for sample(s) received on April 06, 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 Libucavator

Quennie Manimtim
Laboratory Director

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



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CLIENT: CH2M HILL
Project: PG&E Topock, 680375.02.IM.OP.00
Lab Order: N034983

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 200.7:

Dilution was necessary since plasma was extinguished when sample N034983-001 was analyzed at no dilution.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Iron in QC samples N035087-001A-MS and N035087-001A-MSD since the analyte concentration in the sample is disproportionate to the spike level. Post Spike (PS) and Dilution Test (DT) were 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 Barium in QC samples N035008-001D-MS and N035008-001D-MSD possibly due to matrix interference. Post Spike (PS) and Dilution Test (DT) were performed but failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Analytical Comments for SM 4500-NO3F:

Method Blank (MB) has detect greater than 1/2 the reporting limit. However, sample result was greater than 5x the Method Blank concentration therefore reanalysis of the sample was not necessary.



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ASSET Laboratories**Date:** 25-Apr-19

CLIENT: CH2M HILL
Project: PG&E Topock, 680375.02.IM.OP.00
Lab Order: N034983
Contract No: IM3PLANT-AR

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N034983-001A	SC-700B-WDR-586	Water	4/6/2019 9:00:00 AM	4/6/2019	4/25/2019
N034983-001B	SC-700B-WDR-586	Water	4/6/2019 9:00:00 AM	4/6/2019	4/25/2019
N034983-001C	SC-700B-WDR-586	Water	4/6/2019 9:00:00 AM	4/6/2019	4/25/2019
N034983-001D	SC-700B-WDR-586	Water	4/6/2019 9:00:00 AM	4/6/2019	4/25/2019
N034983-001E	SC-700B-WDR-586	Water	4/6/2019 9:00:00 AM	4/6/2019	4/25/2019



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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 25-Apr-19

CLIENT: CH2M HILL
Lab Order: N034983
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N034983-001

Client Sample ID: SC-700B-WDR-586
Collection Date: 4/6/2019 9:00:00 AM
Matrix: WATER

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

SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: NV00922-WC_190408B	QC Batch: R133054	PrepDate	Analyst: LR
Specific Conductance	7000	0.10	0.10
		umhos/cm	1
			4/8/2019 09:00 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

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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 25-Apr-19

CLIENT: CH2M HILL
Lab Order: N034983
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N034983-001

Client Sample ID: SC-700B-WDR-586
Collection Date: 4/6/2019 9:00:00 AM
Matrix: WATER

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

TOTAL FILTERABLE RESIDUE**SM2540C**

RunID: NV00922-WC_190408D	QC Batch: 73286		PrepDate	4/8/2019	Analyst: LR
Total Dissolved Solids (Residue, Filterable)	4200	50	50	mg/L	1
					4/8/2019 01:11 PM

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

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

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ORELAP/NELAP Cert 4046

ASSET Laboratories

Date: 25-Apr-19

CLIENT: CH2M HILL
Work Order: N034983
Project: PG&E Topock, 680375.02.IM.OP.00

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

Sample ID	Client ID:	SampType:	Batch ID:	TestCode:	Units:	Prep Date:	Analysis Date:	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Sample ID LCS-73286	Client ID: LCSW	SampType: LCS	Batch ID: 73286	TestNo: SM2540C	Units: mg/L	Prep Date: 4/8/2019	Analysis Date: 4/8/2019				RunNo: 133103			SeqNo: 3345520
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC								
Total Dissolved Solids (Residue, Filtera		981.000	10	1000	0	98.1		80	120					
Sample ID MB-73286	Client ID: PBW	SampType: MBLK	Batch ID: 73286	TestCode: 160.1_2540C	Units: mg/L	Prep Date: 4/8/2019	Analysis Date: 4/8/2019				RunNo: 133103			SeqNo: 3345521
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC								
Total Dissolved Solids (Residue, Filtera		ND	10											
Sample ID N034983-001BDUP	Client ID: ZZZZZZ	SampType: DUP	Batch ID: 73286	TestCode: 160.1_2540C	Units: mg/L	Prep Date: 4/8/2019	Analysis Date: 4/8/2019				RunNo: 133103			SeqNo: 3345532
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC								
Total Dissolved Solids (Residue, Filtera		4425.000	50									4245	4.15	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
- C Calculations are based on raw values

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H Holding times for preparation or analysis exceeded
 S Spike/Surrogate outside of limits due to matrix interference

ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 25-Apr-19

CLIENT: CH2M HILL
Lab Order: N034983
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N034983-001

Client Sample ID: SC-700B-WDR-586**Collection Date:** 4/6/2019 9:00:00 AM**Matrix:** WATER

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

RunID: NV00922-ICP2_190415A	QC Batch: 73373		PrepDate	4/13/2019	Analyst: CEI
Aluminum	ND	200	250	µg/L	5
Boron	1100	370	500	µg/L	5
Iron	ND	89	100	µg/L	5

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

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

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ASSET Laboratories

Date: 25-Apr-19

CLIENT: CH2M HILL
Work Order: N034983
Project: PG&E Topock, 680375.02.IM.OP.00

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

Sample ID	MB-73373	SampType: MBLK	TestCode: 200.7_WPGE	Units: µg/L	Prep Date: 4/13/2019	RunNo: 133202							
Client ID:	PBW	Batch ID: 73373	TestNo: EPA 200.7		Analysis Date: 4/15/2019	SeqNo: 3351275							
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Aluminum		ND	50	5000	0	105	85	115					
Boron		ND	100	1000	0	103	85	115					
Iron		ND	20	100.0	0	113	85	115					
Sample ID	LCS-73373	SampType: LCS	TestCode: 200.7_WPGE	Units: µg/L	Prep Date: 4/13/2019	RunNo: 133202							
Client ID:	LCSW	Batch ID: 73373	TestNo: EPA 200.7		Analysis Date: 4/15/2019	SeqNo: 3351276							
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Aluminum		5234.880	50	5000	0	105	85	115					
Boron		1032.958	100	1000	0	103	85	115					
Iron		112.818	20	100.0	0	113	85	115					
Sample ID	N035087-001A-MS	SampType: MS	TestCode: 200.7_WPGE	Units: µg/L	Prep Date: 4/13/2019	RunNo: 133202							
Client ID:	ZZZZZZZ	Batch ID: 73373	TestNo: EPA 200.7		Analysis Date: 4/15/2019	SeqNo: 3351280							
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Aluminum		4783.835	50	5000	0	95.7	75	125					
Boron		1767.701	100	1000	567.7	120	75	125					
Iron		873.278	20	100.0	805.9	67.4	75	125					
S													
Sample ID	N035087-001A-MSD	SampType: MSD	TestCode: 200.7_WPGE	Units: µg/L	Prep Date: 4/13/2019	RunNo: 133202							
Client ID:	ZZZZZZZ	Batch ID: 73373	TestNo: EPA 200.7		Analysis Date: 4/15/2019	SeqNo: 3351281							
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Aluminum		4800.986	50	5000	0	96.0	75	125	4784	0.358	20		
Boron		1780.840	100	1000	567.7	121	75	125	1768	0.740	20		
Iron		877.383	20	100.0	805.9	71.5	75	125	873.3	0.469	20	S	

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- DO Surrogate Diluted Out
- Calculations are based on raw values

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ASSET Laboratories

Date: 25-Apr-19

ANALYTICAL QC SUMMARY REPORT

CLIENT: CH2M HILL
Work Order: N034983
Project: PG&E Topock, 680375.02.IM.OP.00

TestCode: 200.7_WPGEPPB

Sample ID	N035087-001A-PS	SampType: PS	TestCode: 200.7_WPGE	Units: µg/L	Prep Date:	RunNo: 133202						
Client ID:	ZZZZZZ	Batch ID: 73373	TestNo: EPA 200.7		Analysis Date:	SeqNo: 3351279						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Aluminum	4684.962	50	5000	0	93.7	80	120					
Boron	1740.466	100	1000	567.7	117	80	120					
Iron	870.416	20	100.0	805.9	64.5	80	120					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



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- H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 25-Apr-19

CLIENT: CH2M HILL
Lab Order: N034983
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N034983-001

Client Sample ID: SC-700B-WDR-586
Collection Date: 4/6/2019 9:00:00 AM
Matrix: WATER

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

RunID: NV00922-ICP7_190409F	QC Batch: 73306			PrepDate	4/9/2019	Analyst: CEI
Antimony	ND	0.16	0.50	µg/L	1	4/10/2019 12:23 AM
Arsenic	0.17	0.081	0.10	µg/L	1	4/23/2019 05:10 PM
Barium	15	0.15	1.0	µg/L	1	4/23/2019 05:10 PM
Copper	ND	0.55	1.0	µg/L	1	4/10/2019 01:25 PM
Lead	ND	0.13	1.0	µg/L	1	4/10/2019 12:23 AM
Manganese	3.6	0.26	0.50	µg/L	1	4/10/2019 01:25 PM
Molybdenum	23	0.21	0.50	µg/L	1	4/23/2019 05:10 PM
Nickel	ND	0.26	1.0	µg/L	1	4/10/2019 01:25 PM
Zinc	ND	2.3	10	µg/L	1	4/10/2019 12:23 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
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Date: 25-Apr-19

CLIENT: CH2M HILL
Work Order: N034983
Project: PG&E Topock, 680375.02.IM.OP.00

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

Sample ID	MB-73306	SampType: MBLK	TestCode: 200.8_W	Units: µg/L	Prep Date: 4/9/2019	RunNo: 133130							
Client ID:	PBW	Batch ID: 73306	TestNo: EPA 200.8		Analysis Date: 4/9/2019	SeqNo: 3347015							
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Antimony		ND	0.50										
Lead		ND	1.0										
Zinc		ND	10										

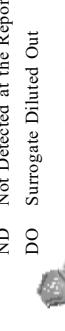
Sample ID	LCS-73306	SampType: LCS	TestCode: 200.8_W	Units: µg/L	Prep Date: 4/9/2019	RunNo: 133130							
Client ID:	LCSW	Batch ID: 73306	TestNo: EPA 200.8		Analysis Date: 4/9/2019	SeqNo: 3347016							
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Antimony		9.549	0.50	10.00	0	95.5	85	115					
Lead		9.735	1.0	10.00	0	97.3	85	115					
Zinc		9.457	10	10.00	0	94.6	85	115					

Sample ID	N035008-001D-DUP	SampType: DUP	TestCode: 200.8_W	Units: µg/L	Prep Date: 4/9/2019	RunNo: 133130							
Client ID:	zzzzzzz	Batch ID: 73306	TestNo: EPA 200.8		Analysis Date: 4/9/2019	SeqNo: 3347021							
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Antimony		0.432	0.50										
Lead		ND	1.0										
Zinc		ND	10										

Sample ID	N035008-001D-MS	SampType: MS	TestCode: 200.8_W	Units: µg/L	Prep Date: 4/9/2019	RunNo: 133130							
Client ID:	zzzzzzz	Batch ID: 73306	TestNo: EPA 200.8		Analysis Date: 4/10/2019	SeqNo: 3347023							
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Antimony		11.191	0.50	10.00	0.4990	107	75	125					
Lead		10.365	1.0	10.00	0	104	75	125					
Zinc		10.577	10	10.00	0	106	75	125					

Qualifiers:

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- Calculations are based on raw values



H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

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CLIENT: CH2M HILL
Work Order: N034983
Project: PG&E Topock, 680375.02.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID	N035008-001D-M-SD	SampType: MSD	TestCode: 200.8_W	Units: µg/L	Prep Date:	4/9/2019	RunNo:	133130				
Client ID:	zzzzzz	Batch ID: 73306	TestNo: EPA 200.8		Analysis Date:	4/10/2019	SeqNo:	3347024				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony		10.923	0.50	10.00	0.4990	104	75	125	11.19	2.42	20	
Lead		10.071	1.0	10.00	0	101	75	125	10.37	2.88	20	
Zinc		10.390	10	10.00	0	104	75	125	10.58	1.78	20	

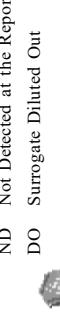
Sample ID	MB-73306	SampType: MBLK	TestCode: 200.8_W	Units: µg/L	Prep Date:	4/9/2019	RunNo:	133162				
Client ID:	PBW	Batch ID: 73306	TestNo: EPA 200.8		Analysis Date:	4/10/2019	SeqNo:	3348075				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper		ND	1.0									
Manganese		ND	0.50									
Nickel		ND	1.0									

Sample ID	LCS-73306	SampType: LCS	TestCode: 200.8_W	Units: µg/L	Prep Date:	4/9/2019	RunNo:	133162				
Client ID:	LCSW	Batch ID: 73306	TestNo: EPA 200.8		Analysis Date:	4/10/2019	SeqNo:	3348076				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper		10.305	1.0	10.00	0	103	85	115	115			
Manganese		104.690	0.50	100.0	0	105	85	115	115			
Nickel		9.978	1.0	10.00	0	99.8	85	115	115			

Sample ID	N035008-001D-DUP	SampType: DUP	TestCode: 200.8_W	Units: µg/L	Prep Date:	4/9/2019	RunNo:	133162				
Client ID:	zzzzzz	Batch ID: 73306	TestNo: EPA 200.8		Analysis Date:	4/10/2019	SeqNo:	3348079				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper		ND	1.0							0	0	20
Manganese		ND	0.50							0	0	20
Nickel		ND	1.0							0	0	20

Qualifiers:

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- E Value above quantitation range
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- DO Surrogate Diluted Out
- Calculations are based on raw values



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CLIENT: CH2M HILL
Work Order: N034983
Project: PG&E Topock, 680375.02.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID	Client ID:	SampType:	Batch ID:	TestCode:	Units:	Prep Date:	Analysis Date:	RunNo:	SeqNo:	
Analyte				TestNo:	µg/L	4/9/2019	4/10/2019	133162	3348081	
Copper	zzzzzz	MS	73306	EPA 200.8	10.00	0	75.8	75	125	
Manganese				PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	
Nickel				93.270	0.50	100.0	0	93.3	75	125
				9.644	1.0	10.00	0	96.4	75	125
Copper	zzzzzz	MSD	73306	EPA 200.8_W	10.00	0	75.8	75	125	
Manganese				PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	
Nickel				93.410	0.50	100.0	0	93.4	75	125
				9.619	1.0	10.00	0	96.2	75	125
Arsenic	MB-73306	MBLK	73306	EPA 200.8_W	10.00	0	76.7	75	125	
Barium	PBW			PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	
Molybdenum				9.668	1.0	10.00	0	93.27	93.27	125
				93.410	0.50	100.0	0	96.44	0.150	20
				9.619	1.0	10.00	0	96.2	0.253	20
Arsenic	LCS-73306	LCS	73306	EPA 200.8_W	10.00	0	75.8	75	125	
Barium	LCSW			PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	
Molybdenum				ND	0.10	1.0		1.12	1.12	20
				ND	ND	ND				
				ND	0.50	0.50				
Arsenic	LCS-73306	LCS	73306	EPA 200.8_W	10.00	0	105	85	115	
Barium				PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	
Molybdenum				10.458	0.10	10.00	0	104	85	115
				10.365	1.0	10.00	0	99.4	85	115
				9.936	0.50	10.00	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

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- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N034983
Project: PG&E Topock, 680375.02.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID	N035008-001D-DUP	SampType:	DUP	TestCode:	200.8_W	Units:	µg/L	Prep Date:	4/9/2019	RunNo:	133425	
Client ID:	ZZZZZZ	Batch ID:	73306	TestNo:	EPA 200.8			Analysis Date:	4/23/2019	SeqNo:	3361798	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic		13.524	0.10							14.74	8.57	20
Barium		46.226	1.0							48.47	4.75	20
Molybdenum		9.081	0.50							9.703	6.62	20

Sample ID	N035008-001D-MS	SampType:	MS	TestCode:	200.8_W	Units:	µg/L	Prep Date:	4/9/2019	RunNo:	133425	
Client ID:	ZZZZZZ	Batch ID:	73306	TestNo:	EPA 200.8			Analysis Date:	4/23/2019	SeqNo:	3361800	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic		23.324	0.10	10.00	14.74	85.9	75	125				
Barium		54.204	1.0	10.00	48.47	57.3	75	125				S
Molybdenum		19.919	0.50	10.00	9.703	102	75	125				

Sample ID	N035008-001D-MSD	SampType:	MSD	TestCode:	200.8_W	Units:	µg/L	Prep Date:	4/9/2019	RunNo:	133425	
Client ID:	ZZZZZZ	Batch ID:	73306	TestNo:	EPA 200.8			Analysis Date:	4/23/2019	SeqNo:	3361801	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic		23.650	0.10	10.00	14.74	89.1	75	125	23.32	1.39	20	
Barium		54.779	1.0	10.00	48.47	63.0	75	125	54.20	1.06	20	
Molybdenum		19.697	0.50	10.00	9.703	99.9	75	125	19.92	1.12	20	

Qualifiers:

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- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- DO Surrogate Diluted Out
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

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ASSET Laboratories

Date: 25-Apr-19

CLIENT: CH2M HILL
Work Order: N034983
Project: PG&E Topock, 680375.02.IM.OP.00

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

Sample ID	N035008-001D-PS	SampType: PS	TestCode: 200.8_W	Units: µg/L	Prep Date:	RunNo: 133130							
Client ID:	ZZZZZZZ	Batch ID: 73306	TestNo: EPA 200.8		Analysis Date:	SeqNo: 3347022							
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Antimony		10.948	0.50	10.00	0.4990	104	80	120					
Lead		10.063	1.0	10.00	0	101	80	120					
Zinc		10.298	10	10.00	0	103	80	120					

Sample ID	N035008-001D-PS	SampType: PS	TestCode: 200.8_W	Units: µg/L	Prep Date:	RunNo: 133162							
Client ID:	ZZZZZZZ	Batch ID: 73306	TestNo: EPA 200.8		Analysis Date:	SeqNo: 3348080							
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Copper		7.546	1.0	10.00	0	75.5	80	120					
Manganese		93.304	0.50	100.0	0	93.3	80	120					
Nickel		9.604	1.0	10.00	0	96.0	80	120					

Sample ID	N035008-001D-PS	SampType: PS	TestCode: 200.8_W	Units: µg/L	Prep Date:	RunNo: 133425							
Client ID:	ZZZZZZZ	Batch ID: 73306	TestNo: EPA 200.8		Analysis Date:	SeqNo: 3361799							
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Arsenic		22.959	0.10	10.00	14.74	82.2	80	120					
Barium		54.636	1.0	10.00	48.47	61.6	80	120					
Molybdenum		19.852	0.50	10.00	9.703	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

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H Holding times for preparation or analysis exceeded
 S Spike/Surrogate outside of limits due to matrix interference

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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 25-Apr-19

CLIENT: CH2M HILL
Lab Order: N034983
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N034983-001

Client Sample ID: SC-700B-WDR-586
Collection Date: 4/6/2019 9:00:00 AM
Matrix: WATER

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

RunID: NV00922-IC7_190409A	QC Batch: R133124	PrepDate	Analyst: RAB
Hexavalent Chromium	ND 0.033	0.20	µg/L
			1 4/9/2019 10:53 AM

TOTAL METALS BY ICPMS**EPA 200.8**

RunID: NV00922-ICP7_190409F	QC Batch: 73306	PrepDate	4/9/2019	Analyst: CEI
Chromium	ND 0.13	1.0	µg/L	1 4/10/2019 12:23 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

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ASSET Laboratories

Date: 25-Apr-19

CLIENT: CH2M HILL
Work Order: N034983
Project: PG&E Topock, 680375.02.IM.OP.00

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

Sample ID	SampType: MBLK	TestCode: 200.8_W_CR	Units: µg/L	Prep Date:	4/9/2019	RunNo:	133130				
Client ID:	Batch ID: 73306	TestNo: EPA 200.8		Analysis Date:	4/9/2019	SeqNo:	3346859				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									
Sample ID LCS-73306	SampType: LCS	TestCode: 200.8_W_CR	Units: µg/L	Prep Date:	4/9/2019	RunNo:	133130				
Client ID: LCSW	Batch ID: 73306	TestNo: EPA 200.8		Analysis Date:	4/9/2019	SeqNo:	3346860				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.622	1.0	10.00	0	96.2	85	115				
Sample ID N035008-001D-DUP	SampType: DUP	TestCode: 200.8_W_CR	Units: µg/L	Prep Date:	4/9/2019	RunNo:	133130				
Client ID: ZZZZZZZ	Batch ID: 73306	TestNo: EPA 200.8		Analysis Date:	4/9/2019	SeqNo:	3346865				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	2.230	1.0							2.544	13.2	20
Sample ID N035008-001D-MS	SampType: MS	TestCode: 200.8_W_CR	Units: µg/L	Prep Date:	4/9/2019	RunNo:	133130				
Client ID: ZZZZZZZ	Batch ID: 73306	TestNo: EPA 200.8		Analysis Date:	4/10/2019	SeqNo:	3346867				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	11.727	1.0	10.00	2.544	91.8	75	125				
Sample ID N035008-001D-MSD	SampType: MSD	TestCode: 200.8_W_CR	Units: µg/L	Prep Date:	4/9/2019	RunNo:	133130				
Client ID: ZZZZZZZ	Batch ID: 73306	TestNo: EPA 200.8		Analysis Date:	4/10/2019	SeqNo:	3346868				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	11.811	1.0	10.00	2.544	92.7	75	125	11.73	0.719	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out

C Calculations are based on raw values
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H Holding times for preparation or analysis exceeded
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CLIENT: CH2M HILL
Work Order: N034983
Project: PG&E Topock, 680375.02.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WU_PGE

Sample ID	Client ID:	SampType:	Batch ID:	TestNo:	TestCode:	Units:	Prep Date:	RunNo:
Analyte		MBLK	R133124	EPA 218.6	218.6_WU_P	µg/L	Analysis Date:	3346656
Hexavalent Chromium		ND	0.20					

Sample ID	Client ID:	SampType:	Batch ID:	TestNo:	TestCode:	Units:	Prep Date:	RunNo:
Analyte		LCS	R133124	EPA 218.6	218.6_WU_P	µg/L	Analysis Date:	3346657
Hexavalent Chromium		5.158	0.20	5.000	0	103	90	110

Sample ID	Client ID:	SampType:	Batch ID:	TestNo:	TestCode:	Units:	Prep Date:	RunNo:
Analyte		MS	R133124	EPA 218.6	218.6_WU_P	µg/L	Analysis Date:	3346659
Hexavalent Chromium		4.561	0.20	1.000	3.564	99.6	90	110

Sample ID	Client ID:	SampType:	Batch ID:	TestNo:	TestCode:	Units:	Prep Date:	RunNo:
Analyte		MSD	R133124	EPA 218.6	218.6_WU_P	µg/L	Analysis Date:	3346660
Hexavalent Chromium		4.602	0.20	1.000	3.564	104	90	110

Sample ID	Client ID:	SampType:	Batch ID:	TestNo:	TestCode:	Units:	Prep Date:	RunNo:
Analyte		MS	R133124	EPA 218.6	218.6_WU_P	µg/L	Analysis Date:	3346662
Hexavalent Chromium		1.167	0.20	1.000	0.1345	103	90	110

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- DO Surrogate Diluted Out
- S Spike/Surrogate outside of limits due to matrix interference



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CLIENT: CH2M HILL
Work Order: N034983
Project: PG&E Topock, 680375.02.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WU_PGE

Sample ID	N034974-003ADUP	SampType:	DUP	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:	
Client ID:	zzzzzz	Batch ID:	R133124	TestNo:	EPA 218.6			Analysis Date:	4/9/2019
Analyte		Result	PQL	SPK value	SPK Ref Val	% REC	LowLimit	HighLimit	RPD Ref Val
Hexavalent Chromium		3.955	0.20				3.941	3.965	0.365

Qualifiers:

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



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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 25-Apr-19

CLIENT: CH2M HILL
Lab Order: N034983
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N034983-001

Client Sample ID: SC-700B-WDR-586
Collection Date: 4/6/2019 9:00:00 AM
Matrix: WATER

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

RunID: NV00922-WC_190408A	QC Batch: R133052	PrepDate	Analyst: LR
Turbidity	0.22	0.10	0.10
		NTU	1
			4/8/2019 08:30 AM

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

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

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ASSET Laboratories

Date: 25-Apr-19

CLIENT: CH2M HILL
Work Order: N034983
Project: PG&E Topock, 680375.02.IM.OP.00

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

Sample ID	MB-R133052	SampType: MBLK	TestCode: 2130_W	Units: NTU	Prep Date:	RunNo: 133052							
Client ID:	PBW	Batch ID: R133052	TestNo: SM 2130B		Analysis Date:	SeqNo: 3343146							
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Turbidity		ND	0.10										
Sample ID	N034983-001BDUP	SampType: DUP	TestCode: 2130_W	Units: NTU	Prep Date:	RunNo: 133052							
Client ID:	ZZZZZZZ	Batch ID: R133052	TestNo: SM 2130B		Analysis Date:	SeqNo: 3343148							
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Turbidity		0.220	0.10				0.2200	0	30				

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
S Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference



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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 25-Apr-19

CLIENT: CH2M HILL
Lab Order: N034983
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N034983-001

Client Sample ID: SC-700B-WDR-586**Collection Date:** 4/6/2019 9:00:00 AM**Matrix:** WATER

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

RunID: NV00922-IC8_190409A	QC Batch: R133098	PrepDate	Analyst: RAB			
Fluoride	2.3	0.032	0.50	mg/L	5	4/9/2019 06:52 PM

ANIONS BY ION CHROMATOGRAPHY**EPA 300.0**

RunID: NV00922-IC8_190409A	QC Batch: R133098	PrepDate	Analyst: RAB			
Sulfate	510	1.1	25	mg/L	50	4/9/2019 06:37 PM

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

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

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ASSET Laboratories

Date: 25-Apr-19

CLIENT: CH2M HILL
Work Order: N034983
Project: PG&E Topock, 680375.02.IM.OP.00

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

Sample ID	Client ID:	SampType:	Batch ID:	TestCode:	TestNo:	Units:	Prep Date:	Analysis Date:	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
MB-R133098_F	MBW	MLK	R133098	300_W_FPG	EPA 300.0	mg/L		4/9/2019						
Analyte				Result	PQL	SPK value	SPK Ref Val		%REC					
Fluoride			ND	ND										
Sample ID	Client ID:	SampType:	Batch ID:	TestCode:	TestNo:	Units:	Prep Date:	Analysis Date:	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
LCS-R133098_F	LCSW	LCS	R133098	300_W_FPG	EPA 300.0	mg/L		4/9/2019						
Analyte				Result	PQL	SPK value	SPK Ref Val		%REC					
Fluoride			1.221	0.10	1.250	0	97.6		90	110				
Sample ID	Client ID:	SampType:	Batch ID:	TestCode:	TestNo:	Units:	Prep Date:	Analysis Date:	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
N034983-001BDUP	ZZZZZZ	DUP	R133098	300_W_FPG	EPA 300.0	mg/L		4/9/2019						
Analyte				Result	PQL	SPK value	SPK Ref Val		%REC					
Fluoride			2.453	0.50										
Sample ID	Client ID:	SampType:	Batch ID:	TestCode:	TestNo:	Units:	Prep Date:	Analysis Date:	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
N034983-001BMS	ZZZZZZ	MS	R133098	300_W_FPG	EPA 300.0	mg/L		4/9/2019						
Analyte				Result	PQL	SPK value	SPK Ref Val		%REC					
Fluoride			9.495	0.50	6.250	2.304	115		80	120				
Sample ID	Client ID:	SampType:	Batch ID:	TestCode:	TestNo:	Units:	Prep Date:	Analysis Date:	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
N034983-001BMSD	ZZZZZZ	MSD	R133098	300_W_FPG	EPA 300.0	mg/L		4/9/2019						
Analyte				Result	PQL	SPK value	SPK Ref Val		%REC					
Fluoride			9.151	0.50	6.250	2.304	110		80	120	9.495	3.70	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out



H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
C Calculations are based on raw values
S Spike/Surrogate outside of limits due to matrix interference
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RunNo: 133098
SeqNo: 3344935

RunNo: 133098
SeqNo: 3344936

RunNo: 133098
SeqNo: 3344942

RunNo: 133098
SeqNo: 3344945

RunNo: 133098
SeqNo: 3344946

ANALYTICAL QC SUMMARY REPORT

CLIENT: CH2M HILL
Work Order: N034983
Project: PG&E Topock, 680375.02.IM.OP.00

TestCode: 300_W_SO4PGE

Sample ID	SampType:	MBLK	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:			RunNo:	133098	
Client ID:	Batch ID:	R133098	TestNo:	EPA 300.0			Analysis Date:	4/9/2019		SeqNo:	3344992	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate		ND	0.50									
Sample ID	SampType:	LCS	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:			RunNo:	133098	
Client ID:	Batch ID:	R133098	TestNo:	EPA 300.0			Analysis Date:	4/9/2019		SeqNo:	3344993	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate		4.087	0.50	4.000	0	102	90	110				
Sample ID	SampType:	MS	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:			RunNo:	133098	
Client ID:	Batch ID:	R133098	TestNo:	EPA 300.0			Analysis Date:	4/9/2019		SeqNo:	3344998	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate		19.984	1.0	8.000	12.05	99.2	80	120				
Sample ID	SampType:	MSD	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:			RunNo:	133098	
Client ID:	Batch ID:	R133098	TestNo:	EPA 300.0			Analysis Date:	4/9/2019		SeqNo:	3345001	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate		19.681	1.0	8.000	12.05	95.4	80	120	19.98	1.53	20	
Sample ID	SampType:	DUP	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:			RunNo:	133098	
Client ID:	Batch ID:	R133098	TestNo:	EPA 300.0			Analysis Date:	4/9/2019		SeqNo:	3345003	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate		38.164	2.5							38.31	0.378	20

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out



H Holding times for preparation or analysis exceeded
 R RPD outside accepted recovery limits
 Calculations are based on raw values
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S Spike/Surrogate outside of limits due to matrix interference

ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 25-Apr-19

CLIENT: CH2M HILL
Lab Order: N034983
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N034983-001

Client Sample ID: SC-700B-WDR-586
Collection Date: 4/6/2019 9:00:00 AM
Matrix: WATER

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

RunID: NV00922-WC_190410B	QC Batch: R133122	PrepDate	Analyst: QBM			
Nitrate/Nitrite as N	2.7	0.16	0.25	mg/L	5	4/10/2019

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

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ASSET Laboratories

Date: 25-Apr-19

CLIENT: CH2M HILL
Work Order: N034983
Project: PG&E Topock, 680375.02.IM.OP.00

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

Sample ID	Client ID:	SampType:	Batch ID:	TestCode:	Units:	Prep Date:	Analysis Date:	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
MB-R133122	**PBW	MBLK	R133122	4500N03F_W	mg/L		4/10/2019				RunNo: 133122		
				SM4500-NO3							SeqNo: 3346535		
Analyte				Result	PQL	SPK value	SPK Ref Val	%REC					
Nitrate/Nitrite as N				0.036	0.050								
Sample ID	Client ID:	SampType:	Batch ID:	TestCode:	Units:	Prep Date:	Analysis Date:	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
LCS-R133122	LCSW	LCS	R133122	4500N03F_W	mg/L		4/10/2019				RunNo: 133122		
				SM4500-NO3							SeqNo: 3346536		
Analyte				Result	PQL	SPK value	SPK Ref Val	%REC					
Nitrate/Nitrite as N				0.472	0.050	0.5000	0	94.5	85	115			
Sample ID	Client ID:	SampType:	Batch ID:	TestCode:	Units:	Prep Date:	Analysis Date:	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
N034983-001DDUP	ZZZZZZ	DUP	R133122	4500N03F_W	mg/L		4/10/2019				RunNo: 133122		
				SM4500-NO3							SeqNo: 3346538		
Analyte				Result	PQL	SPK value	SPK Ref Val	%REC					
Nitrate/Nitrite as N				2.576	0.25						2.732	5.88	20
Sample ID	Client ID:	SampType:	Batch ID:	TestCode:	Units:	Prep Date:	Analysis Date:	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
N034983-001DMS	ZZZZZZ	MS	R133122	4500N03F_W	mg/L		4/10/2019				RunNo: 133122		
				SM4500-NO3							SeqNo: 3346539		
Analyte				Result	PQL	SPK value	SPK Ref Val	%REC					
Nitrate/Nitrite as N				5.373	0.25	2.500	2.732	106	75	125			
Sample ID	Client ID:	SampType:	Batch ID:	TestCode:	Units:	Prep Date:	Analysis Date:	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
N034983-001DMSD	ZZZZZZ	MSD	R133122	4500N03F_W	mg/L		4/10/2019				RunNo: 133122		
				SM4500-NO3							SeqNo: 3346540		
Analyte				Result	PQL	SPK value	SPK Ref Val	%REC					
Nitrate/Nitrite as N				5.056	0.25	2.500	2.732	93.0	75	125	5.373	6.07	20

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out



EPA ID CA01638
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H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CH2MHILL**CHAIN OF CUSTODY RECORD**

Page 1 OF 1

Project Name	PG&E Topock	Container:	1 Liter Poly	1 Liter Poly	250 ml Poly	1 Liter Poly	500 ml Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly
Location	PG&E Topock	Preservatives:	4°C Lab H2SO4	4°C	4°C	4°C	4°C Lab H2SO4	4°C								
Project Number	680375.02.JM.OP.00	Filtered:	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Project Manager	Scott O'Donnell	Holding Time:	28	7	7	1	28	7	7	160	7	7	7	7	7	7
Sample Manager	Shawn Duffy	Turbidity (SM2130)													Comments:	
Total Metals(E200.7 and E200.8) See list below															4 NO34983-01	
TDS (SM2540C)																
Nitrate/Nitrite (SM4500NO3-E)																
E218.6 Lab Filtered																
CONDUCTIVITY (E120.1)																
Anions (E300.0) F ⁻ , SO ₄ ²⁻																
AMMONIA (SM4500NH3D)																
		DATE	TIME	MATRIX												
SC-700B-WDR-586		4-6-19	9:00	Water	X	X	X	X	X	X	X	X	X	X	X	TIN-3 pH result
																7.03 @ 9:05
																TOTAL NUMBER OF CONTAINERS
																4

Task Order

Project IM3PLANT-ARAR-WDR-586

Turnaround Time 10 Days

Shipping Date:

COC Number: 586

Approved by	<i>Chris Lentz</i>	Date/Time	4-6-19 8:30	Shipping Details	FedEx	ATTN:	Special Instructions:
Sampled by	<i>John</i>	Method of Shipment:	On Ice: <input checked="" type="checkbox"/> / no	2 1/2 IR42	Sample Custody and	Post Startup SC-700B Total metals List: Cr,Al,Sb,As,Ba,B,Cu,Pb,Mn,Mo,Ni,Fe,Zn	
Relinquished by	<i>John</i>	Airbill No:	<i>46-19 C-3</i>				
Received by	<i>John</i>	Lab Name: ASSET Laboratories					
Relinquished by	<i>John</i>	Lab Phone: (702) 307-2659					
Received by	<i>John</i>						

ASSET Laboratories

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

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

Cooler Received/Opened On: 4/6/2019 Workorder: N034983
Rep sample Temp (Deg C): 2.1 IR Gun ID: 2
Temp Blank: Yes No
Carrier name: ASSET
Last 4 digits of Tracking No.: NA Packing Material Used: None
Cooling process: Ice Ice Pack Dry Ice Other None

Sample Receipt Checklist

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

Comments: Sample for Cr 6+ was 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.

For:

Checklist Completed By: RM  4/8/2019

Reviewed By:  LG 041119

**ASSET Laboratories**

3151-3753 W Post Rd., Las Vegas, NV 89118

www.atl-labs.com

TEL: 7023072659 FAX: 7023072691

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

QC Level: Level IV**Subcontractor:**

BC Labs
4100 Atlas Court
Bakersfield, CA 93308

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

08-Apr-19

Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests	
				SM4500-NH3D	_____
N034983-001A / SC-700B-WDR-586	Water	4/6/2019 9:00:00 AM	32CZP	1	_____

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

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

Please use PC# N34983A. Please email Invoices and Account Receivable Statements to elvira@assetlaboratories.com. For questions, call Marion at (702) 307-2659. Please e-mail results to reports.IV@assetlaboratories.com by: Normal TA1.

Please analyze for Ammonia by SM4500NH3D. EDD Requirement LabSpec7 edata.

GSO #: ~~54373678~~ 544373878

Relinquished by:	Date/Time	Date/Time
	4/8/2019 17:00	Received by:
Relinquished by:	Received by:	_____

List of Analysts

ASSET Laboratories Work Order: N034983

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



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3151 W. Post Rd., Las Vegas, NV 89118
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Laboratories, Inc.

Environmental Testing Laboratory Since 1949

Date of Report: 0/ 24/2019

Arlon - artin

VSSET Laboratories 3 Las 5egas

C1/ 13C1/ CW. Post Rd
Las 5egas, N5 89118

- Client Project: N0C/ 490
B- L Project: Level I5
B- L Work Order: 191/ CC4
Invoice ID: BC41164

Enclosed are the results of analyses for samples received by the laboratory on / 21/2019. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Contact Person: Vanessa Sandoval
Client Service Rep

Stuart Butram
Technical Director

Certifications: - V ELVP #1186; N5 #- V00014; OR ELVP #40CM001; VK UST101

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Chain of Custody and Cooler Receipt Form for 191055- Page 1 of 2



ASSET Laboratories
3155-3153 W Post Rd., Las Vegas, NV 89118
www.all-labs.com
TEL: 7023072659

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

/9-15334

Sub-contractor:
BC Labs
4100 Atlas Court
Bakersfield, CA 93308

TEL: (661) 327-4911
FAX: (661) 327-1918
Act #: _____

QC Level: Level IV

Field Sampler: SIGNED
13-May-19

Sample ID		Matrix	Date Collected	Bottle Type	SM4500-NH3D	Requested Tests
N035490-0020A	/ SC-700B-WDR-468	Water	5/9/2019 1:55:00 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 cc andrea.gallardo@assetlaboratories.com
Please use PO#N35490A. Please email Invoices and Account Receivable Statements to elura@assetlaboratories.com. For questions, call Marion at (702)-307-2659. Please e-mail results to reports@assetlaboratories.com by Normal TAT.
Please analyze for Ammonia by SM4500, EDD Requirement Labspc7 edata.

Relinquished by:	<i>JK</i>	Date/Time	5/13/2019 17:00	Received by:	<i>S. 14/09/10.30</i>	Date/Time	GSO # 544781767
Relinquished by:				Received by:			



Chain of Custody and Cooler Receipt Form for 191055- Page 2 of 2

BC LABORATORIES INC.		COOLER RECEIPT FORM				Page <u>1</u> Of <u>1</u>					
Submission #: <u>19-15334</u>											
SHIPPING INFORMATION						SHIPPING CONTAINER					
Fed Ex <input type="checkbox"/>	UPS <input type="checkbox"/>	Ontrac <input type="checkbox"/>	Hand Delivery <input type="checkbox"/>	Ice Chest <input checked="" type="checkbox"/>	None <input type="checkbox"/>	Box <input type="checkbox"/>	FREE LIQUID				
BC Lab Field Service <input type="checkbox"/>	Other <input type="checkbox"/> (Specify) <u>GSO</u>			Other <input type="checkbox"/> (Specify)	YES <input type="checkbox"/>	NO <input type="checkbox"/>	W / S				
Refrigerant: Ice <input checked="" type="checkbox"/> Blue Ice <input type="checkbox"/> None <input type="checkbox"/> Other <input type="checkbox"/> Comments:											
Custody Seals		Ice Chest <input checked="" type="checkbox"/>	Containers <input type="checkbox"/>	None <input checked="" type="checkbox"/> Comments:							
Intact? Yes <input type="checkbox"/> No <input type="checkbox"/>		Intact? Yes <input type="checkbox"/> No <input type="checkbox"/>		Description(s) match COC? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>							
COC Received <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		Emissivity: <u>0.9</u>	Container: <u>GSO</u>	Thermometer ID: <u>274</u>	Date/Time <u>5-14-19</u>						
		Temperature: (A) <u>2.0</u> °C	(C) <u>2.1</u> °C	Analyst Init <u>JD</u>			<u>10:30</u>				
SAMPLE CONTAINERS		SAMPLE NUMBERS									
		1	2	3	4	5	6	7	8	9	10
QT PE UNPRES											
4oz / 8oz / 16oz PE UNPRES											
2oz Cr ¹⁴											
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 508608/6089											
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 5015M											
QT EPA 5270											
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: <u>DM</u>		Date/Time: <u>5/19/19</u>		_____ <u>1135</u>		Rev 21 05/23/2016					
A = Actual / C = Corrected											

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VSSET Laboratories 3 Las 5egas
C1/ 13C1 CW. Post Rd
Las 5egas, N5 89118

Reported: 0/24/2019 17:00
Project: Level I5
Project Number: N0C/490
Project Manager: Arlon - artin

Laboratory / Client Sample Cross Reference

Laboratory	Client Sample Information			
191055-NM	COC Number: 333 Project Number: 333 Sampling Location: 333 Sampling Point: N0C/490300M/2S-3700B3WDR3'88 Sampled By: 333	Receive Date: 0/24/2019 10:00 Sampling Date: 0/29/2019 1C// Sample Depth: 333 Lab Matrix: Water Sample Type: Water		



VSSET Laboratories 3 Las 5egas
C1/ 13C1 CW. Post Rd
Las 5egas, N5 89118

Reported: 0/ 2021 17:00
Project: Level I5
Project Number: N0C/ 490
Project Manager: Arlon - artin

Dater Analysis (General Chemistry)

WCL Sample ID:	191/ CC4301	Client Sample Name:	N0C/ 49030M/ 2S- 3700B3/WDR3/ 88, / 2021 1:/ :00PA				
Constituent	Result	Units	PQL	Method	MW Was	Lab Quals	Run #
Vmmonia as N (Distilled)	ND	mg/L	0.0D	SA 34/ 003NHCG	ND		1

Run #	Method	Prep Date	Run		Instrument	Dilution	QC Watch ID
			Date/Time	Analyst			
1	SA 34/ 003NHCG	0/ 27/21 1M00	0/ 2021 14:16	JAH	S- 3I	1	B046/ M

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VSET Laboratories 3 Las 5egas
C1/ 13C1 CW. Post Rd
Las 5egas, N5 89118

Reported: 0/24/2019 17:0M
Project: Level I5
Project Number: N0C/490
Project Manager: Arlon - artin

Dater Analysis (General Chemistry)

Quality Control Report NMethod Wank Analysis

Constituent	QC Sample I2	MWResult	Units	PQL	Lab Quals
QC Watch I2: WN-6021					
Vmonia as N (Distilled)	B046/ M3BLK1	ND	mg/L	0.00	



VSET Laboratories 3 Las 5egas
C1/ 13C1 CW. Post Rd
Las 5egas, N5 89118

Reported: 0/ 2019 17:0M
Project: Level I5
Project Number: N0C 490
Project Manager: Arlon - artin

Dater Analysis (General Chemistry)

Quality Control Report NLaboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	Control Limits		Lab Quals
							RP2	Percent Recovery	
QC Watch I2 : WN-6021	Vmmonia as N (Distilled)	B046/ MBS1	L- S	0.981M	1.0000	mgL	98.1	8/ 311/	



VSET Laboratories 3 Las 5egas
C1/ 13C1 CW. Post Rd
Las 5egas, N5 89118

Reported: 0/2/2019 17:0M
Project: Level I5
Project Number: N0C/490
Project Manager: Arlon - artin

Dater Analysis (General Chemistry)

Quality Control Report NPrecision & Accuracy

Constituent	Type	Source	Source	Spike	Units	RP2	Percent	Percent	Lab	Control Limits	
		Sample I2	Result	Added			Recovery	RP2	Recovery		
QC Watch I2 : WN-6021		Used client sample: Y 3 Description: N0C/490300M/2S-3700B3/WDR3 88, 0/2092M19 1C//									
Nmmonia as N (Distilled)	DUP	191/ CC4301	0.070700	ND	mg2			M0		V0M	
	AS	191/ CC4301	0.070700	1.M080	mg2		10/	80.31M0			
	ASD	191/ CC4301	0.070700	1.M / 0	mg2	1.4	107	M0	80.31M0		

May 24, 2019

Doug Scott
CH2M HILL
155 Grand Avenue, Suite 1000
Oakland, CA 94612
TEL: (970) 731-0636
FAX: (510) 622-9129

Workorder No.: N035490

RE: PG&E Topock, 680375CH.04.IM.OP.00

Attention: Doug Scott

Enclosed are the results for sample(s) received on May 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 Lubecavator

Quennie Manimtim
Laboratory Director

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



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3151 W. Post Rd., Las Vegas, NV 89118
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CLIENT: CH2M HILL
Project: PG&E Topock, 680375CH.04.IM.OP.00
Lab Order: N035490

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 some analytes in QC samples N035484-001B-MS1 and N035484-001B-MSD1 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.

Analytical Comments for EPA 200.8:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Chromium and Zinc in QC samples N035441-001B-MS and N035441-001B-MSD since the analyte concentration in the sample is disproportionate to the spike level. Post Spike (PS) and Dilution Test (DT) were performed however, PS failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

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ASSET Laboratories**Date:** 24-May-19

CLIENT: CH2M HILL
Project: PG&E Topock, 680375CH.04.IM.OP.00
Lab Order: N035490

Work Order Sample Summary**Contract No:**

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N035490-001A	SC-100B-WDR-588	Water	5/9/2019 2:00:00 PM	5/9/2019	5/24/2019
N035490-001B	SC-100B-WDR-588	Water	5/9/2019 2:00:00 PM	5/9/2019	5/24/2019
N035490-001C	SC-100B-WDR-588	Water	5/9/2019 2:00:00 PM	5/9/2019	5/24/2019
N035490-002A	SC-700B-WDR-588	Water	5/9/2019 1:55:00 PM	5/9/2019	5/24/2019
N035490-002B	SC-700B-WDR-588	Water	5/9/2019 1:55:00 PM	5/9/2019	5/24/2019
N035490-002C	SC-700B-WDR-588	Water	5/9/2019 1:55:00 PM	5/9/2019	5/24/2019
N035490-002D	SC-700B-WDR-588	Water	5/9/2019 1:55:00 PM	5/9/2019	5/24/2019
N035490-002E	SC-700B-WDR-588	Water	5/9/2019 1:55:00 PM	5/9/2019	5/24/2019

**ASSET LABORATORIES**
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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 24-May-19

CLIENT: CH2M HILL
Lab Order: N035490
Project: PG&E Topock, 680375CH.04.IM.OP.00
Lab ID: N035490-001

Client Sample ID: SC-100B-WDR-588
Collection Date: 5/9/2019 2:00:00 PM
Matrix: WATER

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

SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: NV00922-WC_190510G	QC Batch: R133819	PrepDate:	Analyst: LR
Specific Conductance	7100	0.10	umhos/cm
		0.10	1
			5/10/2019 10:20 AM

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

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



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ORELAP/NELAP Cert 4046

ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 24-May-19

CLIENT: CH2M HILL
Lab Order: N035490
Project: PG&E Topock, 680375CH.04.IM.OP.00
Lab ID: N035490-002

Client Sample ID: SC-700B-WDR-588
Collection Date: 5/9/2019 1:55:00 PM
Matrix: WATER

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

SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: NV00922-WC_190510G	QC Batch: R133819	PrepDate:	Analyst: LR
Specific Conductance	7100	0.10	umhos/cm
		0.10	1
			5/10/2019 10:20 AM

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

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



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ASSET Laboratories

Date: 24-May-19

CLIENT: CH2M HILL
Work Order: N035490
Project: PG&E Topock, 680375CH.04.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: N035490-002BDUP	SampType: DUP	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:	RunNo: 133819							
Client ID: ZZZZZZ	Batch ID: R133819	TestNo: EPA 120.1		Analysis Date: 5/10/2019	SeqNo: 3381086							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	7110.000	0.10				7140		0.421	2			

Qualifiers:
B Analytic detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out

H Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values

S Spike/Surrogate outside of limits due to matrix interference



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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 24-May-19

CLIENT: CH2M HILL
Lab Order: N035490
Project: PG&E Topock, 680375CH.04.IM.OP.00
Lab ID: N035490-001

Client Sample ID: SC-100B-WDR-588**Collection Date:** 5/9/2019 2:00:00 PM**Matrix:** WATER

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

RunID: NV00922-WC_190513C	QC Batch: 73830	PrepDate: 5/13/2019	Analyst: LR
Total Dissolved Solids (Residue, Filterable)	4400	50	50
		mg/L	1
			5/13/2019 01:02 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

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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 24-May-19

CLIENT: CH2M HILL
Lab Order: N035490
Project: PG&E Topock, 680375CH.04.IM.OP.00
Lab ID: N035490-002

Client Sample ID: SC-700B-WDR-588
Collection Date: 5/9/2019 1:55:00 PM
Matrix: WATER

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

RunID: NV00922-WC_190513C	QC Batch: 73830	PrepDate: 5/13/2019	Analyst: LR
Total Dissolved Solids (Residue, Filterable)	4200	50	mg/L
		50	1
			5/13/2019 01:02 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
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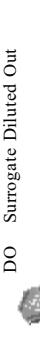
Date: 24-May-19

CLIENT: CH2M HILL
Work Order: N035490
Project: PG&E Topock, 680375CH.04.IM.OP.00**ANALYTICAL QC SUMMARY REPORT****TestCode:** 160.1_2540C_W

Sample ID: LCS-73830	SampType: LCS	TestCode: 160.1_2540C	Units: mg/L	Prep Date: 5/13/2019	RunNo: 133890						
Client ID: LCSW	Batch ID: 73830	TestNo: SM2540C		Analysis Date: 5/13/2019	SeqNo: 3385466						
Analyte	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera)	979,000	10	1000	0	97.9	80	120				
Sample ID: MB-73830	SampType: MBLK	TestCode: 160.1_2540C	Units: mg/L	Prep Date: 5/13/2019	RunNo: 133890						
Client ID: PBW	Batch ID: 73830	TestNo: SM2540C		Analysis Date: 5/13/2019	SeqNo: 3385467						
Analyte	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera)	ND	10									
Sample ID: N035484-002CDUP	SampType: DUP	TestCode: 160.1_2540C	Units: mg/L	Prep Date: 5/13/2019	RunNo: 133890						
Client ID: ZZZZZZ	Batch ID: 73830	TestNo: SM2540C		Analysis Date: 5/13/2019	SeqNo: 3385470						
Analyte	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera)	4280,000	50			4250	0.703	5				

Qualifiers:

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



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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 24-May-19

CLIENT: CH2M HILL
Lab Order: N035490
Project: PG&E Topock, 680375CH.04.IM.OP.00
Lab ID: N035490-001

Client Sample ID: SC-100B-WDR-588
Collection Date: 5/9/2019 2:00:00 PM
Matrix: WATER

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

RunID: NV00922-ICP2_190511D	QC Batch: 73817	PrepDate: 5/11/2019	Analyst: CEI
Iron	ND 18 20	µg/L	1 5/11/2019 08:11 PM

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

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



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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 24-May-19

CLIENT: CH2M HILL
Lab Order: N035490
Project: PG&E Topock, 680375CH.04.IM.OP.00
Lab ID: N035490-002

Client Sample ID: SC-700B-WDR-588
Collection Date: 5/9/2019 1:55:00 PM
Matrix: WATER

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

RunID: NV00922-ICP2_190511D	QC Batch: 73817			PrepDate: 5/11/2019		Analyst: CEI
Aluminum	ND	40	50	µg/L	1	5/11/2019 08:19 PM
Boron	1100	74	100	µg/L	1	5/11/2019 08:19 PM
Iron	ND	18	20	µg/L	1	5/11/2019 08:19 PM

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

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



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ASSET Laboratories

Date: 24-May-19

CLIENT: CH2M HILL
Work Order: N035490
Project: PG&E Topock, 680375CH.04.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WPGEPPB

Sample ID: MB-73817	SampType: MBLK	TestCode: 200.7_WPGE	Units: µg/L	Prep Date: 5/11/2019	RunNo: 133835						
Client ID: PBW	Batch ID: 73817	TestNo: EPA 200.7		Analysis Date: 5/11/2019	SeqNo: 3382700						
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: LCS1-73817	SampType: LCS	TestCode: 200.7_WPGE	Units: µg/L	Prep Date: 5/11/2019	RunNo: 133835						
Client ID: LCSW	Batch ID: 73817	TestNo: EPA 200.7		Analysis Date: 5/11/2019	SeqNo: 3382701						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	5481.183	50	5000	0	110	85	115				
Boron	1023.565	100	1000	0	102	85	115				
Iron	103.088	20	100.0	0	103	85	115				

Sample ID: N035484-001B-MS1	SampType: MS	TestCode: 200.7_WPGE	Units: µg/L	Prep Date: 5/11/2019	RunNo: 133835						
Client ID: ZZZZZZ	Batch ID: 73817	TestNo: EPA 200.7		Analysis Date: 5/11/2019	SeqNo: 3382707						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	5222.710	50	5000	0	104	75	125				
Boron	1624.849	100	1000	245.6	138	75	125				S
Iron	1274.357	20	100.0	1198	76.0	75	125				

Sample ID: N035484-001B-MSD	SampType: MSD	TestCode: 200.7_WPGE	Units: µg/L	Prep Date: 5/11/2019	RunNo: 133835						
Client ID: ZZZZZZ	Batch ID: 73817	TestNo: EPA 200.7		Analysis Date: 5/11/2019	SeqNo: 3382708						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	5208.860	50	5000	0	104	75	125	5223	0.266	20	
Boron	1619.037	100	1000	245.6	137	75	125	1625	0.358	20	S
Iron	1270.762	20	100.0	1198	72.4	75	125	1274	0.282	20	S

Qualifiers:

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



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ASSET Laboratories

Date: 24-May-19

CLIENT: CH2M HILL
Work Order: N035490
Project: PG&E Topock, 680375CH.04.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WPGEPPB

Sample ID: N035484-001B-PS	SampType: PS	TestCode: 200.7_WPGE	Units: µg/L	Prep Date:	RunNo: 133835							
Client ID: ZZZZZZ	Batch ID: 73817	TestNo: EPA 200.7		Analysis Date:	SeqNo: 3382706							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Aluminum	5206.627	50	5000	0	104	80	120					
Boron	1622.215	100	1000	245.6	138	80	120					S
Iron	1288.886	20	100.0	1198	90.5	80	120					

Qualifiers:

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



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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 24-May-19

CLIENT: CH2M HILL
Lab Order: N035490
Project: PG&E Topock, 680375CH.04.IM.OP.00
Lab ID: N035490-001

Client Sample ID: SC-100B-WDR-588
Collection Date: 5/9/2019 2:00:00 PM
Matrix: WATER

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

RunID: NV00922-ICP7_190517C	QC Batch: 73814		PrepDate: 5/11/2019		Analyst: CEI	
Manganese	13	0.26	0.50	µg/L	1	5/17/2019 07:45 PM

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

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



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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 24-May-19

CLIENT: CH2M HILL
Lab Order: N035490
Project: PG&E Topock, 680375CH.04.IM.OP.00
Lab ID: N035490-002

Client Sample ID: SC-700B-WDR-588
Collection Date: 5/9/2019 1:55:00 PM
Matrix: WATER

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

RunID: NV00922-ICP7_190517C	QC Batch:	73814			PrepDate:	5/11/2019	Analyst: CEI
Antimony		ND	0.16	0.50	µg/L	1	5/17/2019 07:55 PM
Arsenic		0.18	0.081	0.10	µg/L	1	5/17/2019 07:55 PM
Barium		13	0.15	1.0	µg/L	1	5/17/2019 07:55 PM
Copper		ND	0.55	1.0	µg/L	1	5/17/2019 07:55 PM
Lead		ND	0.13	1.0	µg/L	1	5/22/2019 10:26 PM
Manganese		17	0.26	0.50	µg/L	1	5/17/2019 07:55 PM
Molybdenum		22	0.21	0.50	µg/L	1	5/17/2019 07:55 PM
Nickel		1.8	0.26	1.0	µg/L	1	5/17/2019 07:55 PM
Zinc		ND	2.3	10	µg/L	1	5/17/2019 07:55 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
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ASSET Laboratories

Date: 24-May-19

CLIENT: CH2M HILL
Work Order: N035490
Project: PG&E Topock, 680375CH.04.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID:	MB-73814	SampType: MBLK	TestCode: 200.8_W	Units: µg/L	Prep Date:	5/11/2019	RunNo:	134071				
Client ID:	PBW	Batch ID:	73814	TestNo: EPA 200.8	Analysis Date:	5/17/2019	SeqNo:	3392962				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony		ND	0.50									
Arsenic		ND	0.10									
Barium		ND	1.0									
Copper		ND	1.0									
Manganese		ND	0.50									
Molybdenum		ND	0.50									
Nickel		ND	1.0									
Zinc		ND	10									

Sample ID:	LCS-73814	SampType: LCS	TestCode: 200.8_W	Units: µg/L	Prep Date:	5/11/2019	RunNo:	134071				
Client ID:	LCSW	Batch ID:	73814	TestNo: EPA 200.8	Analysis Date:	5/17/2019	SeqNo:	3392963				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony		9.519	0.50	10.00	0	95.2	85	115				
Arsenic		9.568	0.10	10.00	0	95.7	85	115				
Barium		9.041	1.0	10.00	0	90.4	85	115				
Copper		9.747	1.0	10.00	0	97.5	85	115				
Manganese		101.202	0.50	100.0	0	101	85	115				
Molybdenum		9.571	0.50	10.00	0	95.7	85	115				
Nickel		9.604	1.0	10.00	0	96.0	85	115				
Zinc		9.761	10	10.00	0	97.6	85	115				

Sample ID:	N05441-001B-MS	SampType: MS	TestCode: 200.8_W	Units: µg/L	Prep Date:	5/11/2019	RunNo:	134071				
Client ID:	ZZZZZZ	Batch ID:	73814	TestNo: EPA 200.8	Analysis Date:	5/17/2019	SeqNo:	3392967				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony		9.778	0.50	10.00	0	97.8	75	125				
Arsenic		10.584	0.10	10.00	1.069	95.2	75	125				

Qualifiers:

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



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EPA ID CA01638

CLIENT: CH2M HILL
Work Order: N035490
Project: PG&E Topock, 680375CH.04.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID: N035441-001B-MSD	SampType: MS	TestCode: 200.8_W	Units: µg/L	Prep Date: 5/11/2019	RunNo: 134071
Client ID: ZZZZZZ	Batch ID: 73814	TestNo: EPA 200.8		Analysis Date: 5/17/2019	SeqNo: 3392987
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC

Barium	124.663	1.0	10.00	115.4	93.0	75	125
Copper	8.855	1.0	10.00	0	88.5	75	125
Manganese	99.407	0.50	100.0	0	99.4	75	125
Molybdenum	12.283	0.50	10.00	1.719	106	75	125
Nickel	8.998	1.0	10.00	0	90.0	75	125

Sample ID: N035441-001B-MSD	SampType: MSD	TestCode: 200.8_W	Units: µg/L	Prep Date: 5/11/2019	RunNo: 134071
Client ID: ZZZZZZ	Batch ID: 73814	TestNo: EPA 200.8		Analysis Date: 5/17/2019	SeqNo: 3392988
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC

Antimony	9.764	0.50	10.00	0	97.6	75	125	9.778	0.137	20
Arsenic	10.540	0.10	10.00	1.069	94.7	75	125	10.58	0.424	20
Barium	127.822	1.0	10.00	115.4	125	75	125	124.7	2.50	20
Copper	8.778	1.0	10.00	0	87.8	75	125	8.855	0.867	20
Manganese	98.901	0.50	100.0	0	98.9	75	125	99.41	0.510	20
Molybdenum	12.405	0.50	10.00	1.719	107	75	125	12.28	0.993	20
Nickel	9.068	1.0	10.00	0	90.7	75	125	8.998	0.777	20

Sample ID: N035441-001B-MS	SampType: MS	TestCode: 200.8_W	Units: µg/L	Prep Date: 5/11/2019	RunNo: 134071
Client ID: ZZZZZZ	Batch ID: 73814	TestNo: EPA 200.8		Analysis Date: 5/17/2019	SeqNo: 3392982
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC

Zinc	1082.376	100	100.0	1112	-29.8	75	125	S
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Sample ID: N035441-001B-MSD	SampType: MSD	TestCode: 200.8_W	Units: µg/L	Prep Date: 5/11/2019	RunNo: 134071
Client ID: ZZZZZZ	Batch ID: 73814	TestNo: EPA 200.8		Analysis Date: 5/17/2019	SeqNo: 3392983
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC

Qualifiers:

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



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 EPA ID CA01638

CLIENT: CH2M HILL
Work Order: N035490
Project: PG&E Topock, 680375CH.04.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID: MB-73814	SampType: MBLK	TestCode: 200.8_W	Units: µg/L	Prep Date: 5/11/2019	RunNo: 134112						
Client ID: PBW	Batch ID: 73814	TestNo: EPA 200.8		Analysis Date: 5/22/2019	SeqNo: 3394403						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	1.0									

Sample ID: LCS-73814	SampType: LCS	TestCode: 200.8_W	Units: µg/L	Prep Date: 5/11/2019	RunNo: 134112						
Client ID: LCSW	Batch ID: 73814	TestNo: EPA 200.8		Analysis Date: 5/22/2019	SeqNo: 3394404						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	9.348	1.0	10.00	0	93.5	85	115				

Sample ID: N035441-001B-MS	SampType: MS	TestCode: 200.8_W	Units: µg/L	Prep Date: 5/11/2019	RunNo: 134112						
Client ID: ZZZZZZ	Batch ID: 73814	TestNo: EPA 200.8		Analysis Date: 5/22/2019	SeqNo: 3394408						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	11.645	1.0	10.00	1.941	97.0	75	125				

Sample ID: N035441-001B-MSD	SampType: MSD	TestCode: 200.8_W	Units: µg/L	Prep Date: 5/11/2019	RunNo: 134112						
Client ID: ZZZZZZ	Batch ID: 73814	TestNo: EPA 200.8		Analysis Date: 5/22/2019	SeqNo: 3394409						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	11.692	1.0	10.00	1.941	97.5	75	125	11.64	0.408	20	

Qualifiers:

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



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EPA ID CA01638

ASSET Laboratories

Date: 24-May-19

CLIENT: CH2M HILL
Work Order: N035490
Project: PG&E Topock, 680375CH.04.IM.OP.00

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

Sample ID: N035441-001B-PS		SampType: PS	TestCode: 200.8_W	Units: µg/L	Prep Date:		RunNo: 134071				
Client ID: ZZZZZZ		Batch ID: 73814	TestNo: EPA 200.8		Analysis Date: 5/17/2019		SeqNo: 3392966				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	9.783	0.50	10.00	0	97.8	80	120				
Arsenic	10.699	0.10	10.00	1.069	96.3	80	120				
Barium	130.468	1.0	10.00	115.4	151	80	120				S
Copper	8.955	1.0	10.00	0	89.5	80	120				
Manganese	97.939	0.50	100.0	0	97.9	80	120				
Molybdenum	12.355	0.50	10.00	1.719	106	80	120				
Nickel	9.127	1.0	10.00	0	91.3	80	120				
Sample ID: N035441-001B-PS		SampType: PS	TestCode: 200.8_W	Units: µg/L	Prep Date:		RunNo: 134071				
Client ID: ZZZZZZ		Batch ID: 73814	TestNo: EPA 200.8		Analysis Date: 5/17/2019		SeqNo: 3392981				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Zinc	1099.040	100	100.0	1112	-13.1	80	120				S
Sample ID: N035441-001B-PS		SampType: PS	TestCode: 200.8_W	Units: µg/L	Prep Date:		RunNo: 134112				
Client ID: ZZZZZZ		Batch ID: 73814	TestNo: EPA 200.8		Analysis Date: 5/22/2019		SeqNo: 3394407				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	11.817	1.0	10.00	1.941	98.8	80	120				

Qualifiers:

- B Analytic detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out



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E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values

H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 24-May-19

CLIENT: CH2M HILL
Lab Order: N035490
Project: PG&E Topock, 680375CH.04.IM.OP.00
Lab ID: N035490-001

Client Sample ID: SC-100B-WDR-588**Collection Date:** 5/9/2019 2:00:00 PM**Matrix:** WATER

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

RunID: NV00922-IC7_190513A	QC Batch: R133862	PrepDate:	Analyst: RAB
Hexavalent Chromium	460 3.3	20	µg/L
		100	5/13/2019 01:44 PM

TOTAL METALS BY ICPMS**EPA 200.8**

RunID: NV00922-ICP7_190517C	QC Batch: 73814	PrepDate:	5/11/2019	Analyst: CEI
Chromium	490 0.65	5.0	µg/L	5
				5/17/2019 07:50 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

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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 24-May-19

CLIENT: CH2M HILL
Lab Order: N035490
Project: PG&E Topock, 680375CH.04.IM.OP.00
Lab ID: N035490-002

Client Sample ID: SC-700B-WDR-588**Collection Date:** 5/9/2019 1:55:00 PM**Matrix:** WATER

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

RunID: NV00922-IC7_190513A	QC Batch: R133862	PrepDate:	Analyst: RAB
Hexavalent Chromium	ND 0.033	0.20	µg/L
			1 5/13/2019 02:02 PM

TOTAL METALS BY ICPMS**EPA 200.8**

RunID: NV00922-ICP7_190517C	QC Batch: 73814	PrepDate:	5/11/2019	Analyst: CEI
Chromium	ND 0.13	1.0	µg/L	1 5/17/2019 07:55 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

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ASSET Laboratories

Date: 24-May-19

CLIENT: CH2M HILL
Work Order: N035490
Project: PG&E Topock, 680375CH.04.IM.OP.00

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

Sample ID:	MB-73814	SampType:	MBLK	TestCode:	200.8_W_CR	Units:	µg/L	Prep Date:	5/11/2019	RunNo:	134071	
Client ID:	PBW	Batch ID:	73814	TestNo:	EPA 200.8			Analysis Date:	5/17/2019	SeqNo:	3393071	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	% RPD	RPDLimit	Qual
Chromium	ND	1.0										S
Sample ID:	LCS-73814	SampType:	LCS	TestCode:	200.8_W_CR	Units:	µg/L	Prep Date:	5/11/2019	RunNo:	134071	
Client ID:	LCSW	Batch ID:	73814	TestNo:	EPA 200.8			Analysis Date:	5/17/2019	SeqNo:	3393072	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	% RPD	RPDLimit	Qual
Chromium	9.956	1.0	10.00	0	99.6	85	115					S
Sample ID:	N035441-001B-MS	SampType:	MS	TestCode:	200.8_W_CR	Units:	µg/L	Prep Date:	5/11/2019	RunNo:	134071	
Client ID:	ZZZZZZ	Batch ID:	73814	TestNo:	EPA 200.8			Analysis Date:	5/17/2019	SeqNo:	3393076	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	% RPD	RPDLimit	Qual
Chromium	130.524	1.0	10.00	128.7	18.2	75	125					S
Sample ID:	N035441-001B-MSD	SampType:	MSD	TestCode:	200.8_W_CR	Units:	µg/L	Prep Date:	5/11/2019	RunNo:	134071	
Client ID:	ZZZZZZ	Batch ID:	73814	TestNo:	EPA 200.8			Analysis Date:	5/17/2019	SeqNo:	3393077	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	% RPD	RPDLimit	Qual
Chromium	130.049	1.0	10.00	128.7	13.4	75	125					S

Qualifiers:

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



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ELAP Cert 2676 | NY Cert NY00922 ORELAP/NELAP Cert 4046

CLIENT: CH2M HILL
Work Order: N035490
Project: PG&E Topock, 680375CH.04.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WU_PGE

Sample ID: MB-R133862	SampType: MBLK	TestCode: 218.6_WU_P	Units: µg/L	Prep Date:	RunNo: 133862		
Client ID: PBW	Batch ID: R133862	TestNo: EPA 218.6		Analysis Date:	5/13/2019		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit
Hexavalent Chromium	ND	0.20					
Sample ID: LCS-R133862	SampType: LCS	TestCode: 218.6_WU_P	Units: µg/L	Prep Date:	RunNo: 133862		
Client ID: LCSW	Batch ID: R133862	TestNo: EPA 218.6		Analysis Date:	5/13/2019		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit
Hexavalent Chromium	5.091	0.20	5.000	0	102	90	110
Sample ID: N035517-001AMSD	SampType: MS	TestCode: 218.6_WU_P	Units: µg/L	Prep Date:	RunNo: 133862		
Client ID: ZZZZZZ	Batch ID: R133862	TestNo: EPA 218.6		Analysis Date:	5/13/2019		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit
Hexavalent Chromium	1.019	0.20	1.000	0	102	90	110
Sample ID: N035517-001AMSD	SampType: MSD	TestCode: 218.6_WU_P	Units: µg/L	Prep Date:	RunNo: 133862		
Client ID: ZZZZZZ	Batch ID: R133862	TestNo: EPA 218.6		Analysis Date:	5/13/2019		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit
Hexavalent Chromium	1.050	0.20	1.000	0	105	90	110
Sample ID: N035511-001ADUP	SampType: DUP	TestCode: 218.6_WU_P	Units: µg/L	Prep Date:	RunNo: 133862		
Client ID: ZZZZZZ	Batch ID: R133862	TestNo: EPA 218.6		Analysis Date:	5/13/2019		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit
Hexavalent Chromium	2.314	0.20					

Qualifiers:

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



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ANALYTICAL QC SUMMARY REPORT**CLIENT:** CH2M HILL**Work Order:** N035490**Project:** PG&E Topock, 680375CH.04.IM.OP.00**TestCode:** 218.6_WU_PGE

Sample ID: N035490-001BMS	SampType: MS	TestCode: 218.6_WU_P	Units: µg/L	Prep Date:			
Client ID: ZZZZZZ	Batch ID: R133862	TestNo: EPA 218.6		Analysis Date:	5/13/2019	RunNo:	133862
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit
Hexavalent Chromium	968.820	20	500.0	462.1	101	90	110
Sample ID: N035490-002CMS	SampType: MS	TestCode: 218.6_WU_P	Units: µg/L	Prep Date:			
Client ID: ZZZZZZ	Batch ID: R133862	TestNo: EPA 218.6		Analysis Date:	5/13/2019	RunNo:	133862
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit
Hexavalent Chromium	1.165	0.20	1.000	0.1082	106	90	110

Qualifiers:

- B Analytic 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
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference



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EPA ID CA01638

ASSET Laboratories

Date: 24-May-19

CLIENT: CH2M HILL
Work Order: N035490
Project: PG&E Topock, 680375CH.04.IM.OP.00**ANALYTICAL QC SUMMARY REPORT****TestCode:** 200.8_W_CRPGE

Sample ID: N035441-001B-PS	SampType: PS	TestCode: 200.8_W_CR	Units: µg/L	Prep Date:	RunNo: 134071		
Client ID: ZZZZZZ	Batch ID: 73814	TestNo: EPA 200.8		Analysis Date:	SeqNo: 3393075		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit
Chromium	133.458	1.0	10.00	128.7	47.5	80	120

Qualifiers:

- B Analytic detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out

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H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 24-May-19

CLIENT: CH2M HILL
Lab Order: N035490
Project: PG&E Topock, 680375CH.04.IM.OP.00
Lab ID: N035490-001

Client Sample ID: SC-100B-WDR-588
Collection Date: 5/9/2019 2:00:00 PM
Matrix: WATER

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

RunID: NV00922-WC_190510C	QC Batch: R133815	PrepDate:	Analyst: LR
Turbidity	0.28	0.10	0.10
		NTU	1
			5/10/2019 11:15 AM

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

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



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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 24-May-19

CLIENT: CH2M HILL
Lab Order: N035490
Project: PG&E Topock, 680375CH.04.IM.OP.00
Lab ID: N035490-002

Client Sample ID: SC-700B-WDR-588
Collection Date: 5/9/2019 1:55:00 PM
Matrix: WATER

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

RunID: NV00922-WC_190510C	QC Batch: R133815	PrepDate:	Analyst: LR
Turbidity	0.21	0.10	0.10
	NTU	NTU	1
			5/10/2019 11:15 AM

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

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



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ASSET Laboratories

Date: 24-May-19

CLIENT: CH2M HILL
Work Order: N035490
Project: PG&E Topock, 680375CH.04.IM.OP.00**ANALYTICAL QC SUMMARY REPORT****TestCode:** 2130_W

Sample ID:	MB-R133815	SampType:	MBLK	TestCode:	2130_W	Units:	NTU	Prep Date:		RunNo:	133815
Client ID:	PBW	Batch ID:	R133815	TestNo:	SM 2130B			Analysis Date:	5/10/2019	SeqNo:	3381070
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD
Turbidity		ND	0.10								
Sample ID:	N035490-002BDUP	SampType:	DUP	TestCode:	2130_W	Units:	NTU	Prep Date:		RunNo:	133815
Client ID:	ZZZZZZ	Batch ID:	R133815	TestNo:	SM 2130B			Analysis Date:	5/10/2019	SeqNo:	3381073
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD
Turbidity		0.220	0.10							0.2100	4.65
											30

Qualifiers:

- B Analytic 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**ANALYTICAL RESULTS**

Print Date: 24-May-19

CLIENT: CH2M HILL
Lab Order: N035490
Project: PG&E Topock, 680375CH.04.IM.OP.00
Lab ID: N035490-002

Client Sample ID: SC-700B-WDR-588
Collection Date: 5/9/2019 1:55:00 PM
Matrix: WATER

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

RunID: NV00922-IC8_190510B	QC Batch: R133848	PrepDate:	Analyst: RAB		
Fluoride	2.7	0.032	mg/L	5	5/10/2019 10:40 PM

ANIONS BY ION CHROMATOGRAPHY**EPA 300.0**

RunID: NV00922-IC8_190510B	QC Batch: R133848	PrepDate:	Analyst: RAB		
Sulfate	500	1.1	mg/L	50	5/10/2019 09:55 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



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ASSET Laboratories

Date: 24-May-19

CLIENT: CH2M HILL
Work Order: N035490
Project: PG&E Topock, 680375CH.04.IM.OP.00

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

Sample ID: LCS-R133848_F	SampType: LCS	TestCode: 300_W_FPGE	Units: mg/L	Prep Date:	RunNo: 133848		
Client ID: LCSW	Batch ID: R133848	TestNo: EPA 300.0		Analysis Date:	SeqNo: 3383569		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit
Fluoride	1.303	0.10	1.250	0	104	90	110
Sample ID: MB-R133848_F	SampType: MBLK	TestCode: 300_W_FPGE	Units: mg/L	Prep Date:	RunNo: 133848		
Client ID: PBW	Batch ID: R133848	TestNo: EPA 300.0		Analysis Date:	SeqNo: 3383570		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit
Fluoride	ND	0.10					
Sample ID: N035490-002BDUP	SampType: DUP	TestCode: 300_W_FPGE	Units: mg/L	Prep Date:	RunNo: 133848		
Client ID: ZZZZZZ	Batch ID: R133848	TestNo: EPA 300.0		Analysis Date:	SeqNo: 3383574		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit
Fluoride	2.559	0.50					
Sample ID: N035490-002BMS	SampType: MS	TestCode: 300_W_FPGE	Units: mg/L	Prep Date:	RunNo: 133848		
Client ID: ZZZZZZ	Batch ID: R133848	TestNo: EPA 300.0		Analysis Date:	SeqNo: 3383575		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit
Fluoride	9.702	0.50	6.250	2.685	112	80	120
Sample ID: N035490-002BM SD	SampType: MSD	TestCode: 300_W_FPGE	Units: mg/L	Prep Date:	RunNo: 133848		
Client ID: ZZZZZZ	Batch ID: R133848	TestNo: EPA 300.0		Analysis Date:	SeqNo: 3383576		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit
Fluoride	9.773	0.50	6.250	2.685	113	80	120

Qualifiers:

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



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EPA ID CA01638

NEVADA | P: 702.307.2659 F: 702.307.2691
3151 W. Post Rd., Las Vegas, NV 89118
ELAP Cert 2676 | NV Cert NV00922
ORELAP/NELAP Cert 4046

ANALYTICAL QC SUMMARY REPORT**CLIENT:** CH2M HILL**Work Order:** N035490**Project:** PG&E Topock, 680375CH.04.IM.OP.00**TestCode:** 300_W_SO4PGE

Sample ID: LCS-R133848_SO4	SampType: LCS	Batch ID: R133848	TestCode: 300_W_SO4P	Units: mg/L	Prep Date:	Analysis Date: 5/10/2019	LowLimit	HighLimit	RPD Ref Val	% RPD	RPDLimit	Qual	RunNo: 133848	SeqNo: 3383609
Client ID: LCSW			TestNo: EPA 300.0											
Analyte			Result	PQL	SPK value	SPK Ref Val	%REC							
Sulfate			4.042	0.50	4.000	0	101	90	110					
Sample ID: MB-R133848_SO4	SampType: MBLK	Batch ID: R133848	TestCode: 300_W_SO4P	Units: mg/L	Prep Date:	Analysis Date: 5/10/2019	LowLimit	HighLimit	RPD Ref Val	% RPD	RPDLimit	Qual	RunNo: 133848	SeqNo: 3383610
Client ID: PBW			TestNo: EPA 300.0											
Analyte			Result	PQL	SPK value	SPK Ref Val	%REC							
Sulfate			ND	0.50										
Sample ID: N035484-001CDUP	SampType: DUP	Batch ID: R133848	TestCode: 300_W_SO4P	Units: mg/L	Prep Date:	Analysis Date: 5/10/2019	LowLimit	HighLimit	RPD Ref Val	% RPD	RPDLimit	Qual	RunNo: 133848	SeqNo: 3383612
Client ID: ZZZZZZ			TestNo: EPA 300.0											
Analyte			Result	PQL	SPK value	SPK Ref Val	%REC							
Sulfate			272.490	25									272.2	0.110
														20
Sample ID: N035490-002BMS	SampType: MS	Batch ID: R133848	TestCode: 300_W_SO4P	Units: mg/L	Prep Date:	Analysis Date: 5/10/2019	LowLimit	HighLimit	RPD Ref Val	% RPD	RPDLimit	Qual	RunNo: 133848	SeqNo: 3383617
Client ID: ZZZZZZ			TestNo: EPA 300.0											
Analyte			Result	PQL	SPK value	SPK Ref Val	%REC							
Sulfate			698.710	25	200.0	495.6	102	80	120					
Sample ID: N035490-002BM SD	SampType: MSD	Batch ID: R133848	TestCode: 300_W_SO4P	Units: mg/L	Prep Date:	Analysis Date: 5/10/2019	LowLimit	HighLimit	RPD Ref Val	% RPD	RPDLimit	Qual	RunNo: 133848	SeqNo: 3383618
Client ID: ZZZZZZ			TestNo: EPA 300.0											
Analyte			Result	PQL	SPK value	SPK Ref Val	%REC							
Sulfate			698.615	25	200.0	495.6	102	80	120					
Sample ID: CALIFORNIA P: F: 362.219/7435	SampType: CA	Batch ID: 11110 Artesia Blvd.	TestCode: 300_W_SO4P	Units: mg/L	Prep Date:	Analysis Date: 5/10/2019	LowLimit	HighLimit	RPD Ref Val	% RPD	RPDLimit	Qual	RunNo: 133848	SeqNo: 3383619
Client ID: ELAP Cert 2921			TestNo: EPA 300.0											
Analyte			Result	PQL	SPK value	SPK Ref Val	%REC							
Sulfate			698.615	25	200.0	495.6	102	80	120					

Qualifiers:

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



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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 24-May-19

CLIENT: CH2M HILL
Lab Order: N035490
Project: PG&E Topock, 680375CH.04.IM.OP.00
Lab ID: N035490-002

Client Sample ID: SC-700B-WDR-588
Collection Date: 5/9/2019 1:55:00 PM
Matrix: WATER

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

NITRATE/NITRITE-N BY CADMIUM REDUCTION**SM4500-NO3F**

RunID: NV00922-WC_190515E	QC Batch: R133920	PrepDate:	Analyst: QBM
Nitrate/Nitrite as N	2.7	0.16	mg/L
	0.25		5

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 SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES**"Serving Clients with Passion and Professionalism"**

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ASSET Laboratories

Date: 24-May-19

CLIENT: CH2M HILL
Work Order: N035490
Project: PG&E Topock, 680375CH.04.I.M.OP.00

ANALYTICAL OC SUMMARY REPORT

PC&E Tonock 680375CH 04 M OP 00

卷之三

TestCode: 4500N03E W

Sample ID:	Client ID:	Analyte	SampType:	Batch ID:	TestCode:	Units:	%REC	LowLimit	HighLimit	RPD Ref Val	Prep Date:	Analysis Date:	RunNo:	SeqNo:
Sample ID: MB-R133920	Client ID: PBW	Nitrate/Nitrite as N	SampType: MBLK	Batch ID: R133920	TestNo: SM4500-NO3	Units: mg/L					5/15/2019	5/15/2019	133920	3386157
Sample ID: LCS-R133920	Client ID: LCSW	Nitrate/Nitrite as N	SampType: LCS	Batch ID: R133920	TestNo: SM4500-NO3	Units: mg/L					5/15/2019	5/15/2019	133920	3386158
Sample ID: N035484-002DDUP	Client ID: ZZZZZZ	Nitrate/Nitrite as N	SampType: DUP	Batch ID: R133920	TestCode: 4500N03F_W	Units: mg/L					5/15/2019	5/15/2019	133920	3386161
Sample ID: N035490-002DMS	Client ID: ZZZZZZ	Nitrate/Nitrite as N	SampType: MS	Batch ID: R133920	TestNo: SM4500-NO3	Units: mg/L					5/15/2019	5/15/2019	133920	3386163
Sample ID: N035490-002DMSD	Client ID: ZZZZZZ	Nitrate/Nitrite as N	SampType: MSD	Batch ID: R133920	TestCode: 4500N03F_W	Units: mg/L					5/15/2019	5/15/2019	133920	3386164

Qualifiers:

B	Analyte detected in the associated Method Blank
ND	Not Detected at the Reporting Limit



RPD outside accepted recovery limits S Spike/Surrogate outside of limits due to matrix interference

Calculations are based on raw values
[A] P#562-219-7435 F#562-219-7436 NEVADA
Pecos Blvd., Ste B, Cerritos, CA 90033 3151 W. Post Rd. 207-2459 F:702-307-2691
ELAP Cert. 2921 ELAP Cert. 267 L NV Cert NV0922
Cert. 267 L NV Cert NV0922

JACOBS ch2m**CHAIN OF CUSTODY RECORD**

Project Name		Container	1 Liter Poly	1 Liter Poly	250 ml Poly	1 Liter Poly	500 ml Poly	500 ml Poly	1 Liter Poly	Comments						
Location	PG&E Topock	Preservatives:	4°C Lab H2SO4	4°C	4°C	4°C Lab H2SO4	4°C	4°C	4°C	PH - 7.20						
Project Number	683375CH04.IW.CP.00	Filtered:	NA	NA	NA	NA	NA	NA	NA	NA						
Project Manager	Scott O'Donnell	Holding Time:	28	7	7	1	28	7	180	7						
Sample Manager	Shawn Duffy									Total Number of Containers 7						
Task Order																
Project	W3PLANT-ARAR-WDR-588															
Turnaround Time	10 Days															
Shipping Date:	5/9/2019															
COC Number:	588															
		DATE	TIME	MATRIX												
SC-100B-WDR-588	5-9-19	14:00	Water		X	X	X	X	X	N035490-01						
SC-700B-WDR-588	5-9-19	13:55	Water	X	X	X	X	X	X	-02						
										TOTAL NUMBER OF CONTAINERS 7						

ASSET Laboratories

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

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

Cooler Received/Opened On: 5/9/2019 Workorder: N035490
Rep sample Temp (Deg C): 1.7 IR Gun ID: 2
Temp Blank: Yes No
Carrier name: ASSET
Last 4 digits of Tracking No.: NA Packing Material Used: None
Cooling process: Ice Ice Pack Dry Ice Other None

Sample Receipt Checklist

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

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. Adjusted to pH < 2.

For:
YKT
Checklist Completed By: MBC 5/10/2019

Reviewed By: *JG* LG 052219



ASSET Laboratories

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

www.atl-labs.com

TEL: 7023072659

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

QC Level: Level IV

Subcontractor:

BC Labs
4100 Atlas Court
Bakersfield, CA 93308

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

13-May-19

Field Sampler: SIGNED

Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests	
				SM4500-NH3D	
N035490-002A / SC-700B-WDR-588	Water	5/9/2019 1:55:00 PM	32CZP	1	

Please cc Report to Lucille Golosinda at lucille.golosinda@assetlaboratories.com

General Comments:

Please email sample receipt acknowledgement to the PM. Please cc andrea.gallardo@assetlaboratories.com

Please use PO#N35490A. Please email Invoices and Account Receivable Statements to elvira@assetlaboratories.com. For questions, call Marion at (702)-307-2659. Please e-mail results to reports.IV@assetlaboratories.com by: Normal TAT.

Please analyze for Ammonia by SM4500. EDD Requirement Labspc7 edata.

Relinquished by:	Date/Time	GSO #:	Date/Time
	5/13/2019 17:00	544781767	Received by: _____
Relinquished by: _____	_____	_____	Received by: _____

List of Analysts

ASSET Laboratories Work Order: N035490

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



ASSET LABORATORIES
AN ISO/IEC 17025 CERTIFIED ENVIRONMENTAL LABORATORY

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Laboratories, Inc.

Environmental Testing Laboratory Since 1949

Date of Report: 0/ 21/2019

Aaron - V3 artin

5 SSET Laboratories Las . egas

P1d1W1dP , VNost R8
Las . egasj B. M011M

Cient Nrolect: B0PdMM0

- 3 L Nrolect: Level 7.

- 3 L , orOh r8er: 191MC9q

Invoice ID: - P4PMM

Enclose8 are tue resl lts of analyses for samples receive8 by tue laboratory on / 21/2019V f yol uave
any #I estions concerning tuis reportj please feel free to contact meV

Sincerely,

Contact Person: Anna San8oval
Cient Service Rep

Steve Hart - Director
Technical Director

Certifications: 35 EL5N 611M ; B. 63500014; h R EL5N 640PC001; 5K UST101

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Chain of Custody and Cooler Receipt Form for 1918297 Page 1 of 2



ASSET Laboratories

3151-3153 W Post Rd., Las Vegas, NV 89118
www.asset-labs.com
TEL: 7023072659

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

Subcontractor:

BC Labs
4100 Atlas Court
Bakersfield, CA 93308

QC Level: Level IV 19-108297

Field Sampler: SIGNED

06-Jun-19

Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests
N035B65-002A / SC-700B-WDR-589	Water	6/5/2019 7:05:00 AM	32OZ/P	1

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



General Comments:

Please email sample receipt acknowledgement to the P.M. Please cc andrea.gallardo@assetlaboratories.com
Please use PO#:N35B65A. Please email Invoices and Account Receivable Statements to elvina@assetlaboratories.com. For questions, call Marion at (702) 307-2659. Please e-mail results to reports.iv@assetlaboratories.com by: Normal TAT.

Please analyze for Ammonia by SM4500NH3D. EDD Requirement LabSpecs7 edata.

GSO #: 545061667

Date/Time

Relinquished by:	6/6/2019 17:00	Received by:	<i>[Signature]</i>
Relinquished by:		Received by:	<i>[Signature]</i>

Date/Time
6-7-19 09:00



BC Laboratories, Inc.

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Chain of Custody and Cooler Receipt Form for 1918297 Page 2 of 2

BC LABORATORIES INC.		COOLER RECEIPT FORM						Page <u>1</u> Of <u>1</u>		
Submission #: <u>19-18297</u>										
SHIPPING INFORMATION Fed Ex <input type="checkbox"/> UPS <input type="checkbox"/> Ontrac <input type="checkbox"/> Hand Delivery <input type="checkbox"/> BC Lab Field Service <input type="checkbox"/> Other <input type="checkbox"/> (Specify) <u>GSO</u>				SHIPPING CONTAINER Ice Chest <input checked="" type="checkbox"/> None <input type="checkbox"/> Box <input type="checkbox"/> Other <input type="checkbox"/> (Specify)			FREE LIQUID YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> <u>W/S</u>			
Refrigerant: Ice <input checked="" type="checkbox"/> Blue Ice <input type="checkbox"/> None <input type="checkbox"/> Other <input type="checkbox"/> Comments: Custody Seals Ice Chest <input type="checkbox"/> Containers <input type="checkbox"/> None <input type="checkbox"/> Comments: Intact? Yes <input type="checkbox"/> No <input type="checkbox"/> Intact? Yes <input type="checkbox"/> No <input type="checkbox"/>										
All samples received? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> COC Received <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		All samples containers intact? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Emissivity: <u>.95</u> Container: <u>Chp</u> Thermometer ID: <u>274</u> Temperature: (A) <u>0 - 0</u> °C / (C) <u>0.1</u> °C		Description(s) match COC? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Date/Time <u>6-7-19</u> Analyst <u>JAD</u> <u>09:04</u>						
SAMPLE CONTAINERS	SAMPLE NUMBERS									
	1	2	3	4	5	6	7	8	9	10
QT PE UNPRES										
4oz / 8oz / 16oz PE UNPRES										
2oz Ch ⁴										
QT INORGANIC CHEMICAL METALS										
INORGANIC CHEMICAL METALS 4oz / 8oz / 16oz										
PT CYANIDE										
PT NITROGEN FORMS QT 124 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 SLRVE										
PCB VIAL										
PLASTIC BAG										
TEDLAR BAG										
FERROUS IRON										
ENCORE										
SMART KIT										
SUMMA CANISTER										
Comments:										
Sample Numbering Completed By: <u>JAD</u>										Date/Time: <u>6-9-14</u> <u>NDA</u>
A = Actual / C = Corrected										Rev 21 05/23/2016
[Small print at bottom right]										

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P1d1W1dP , VNost R8
Las . egasj B. M011M

Reported: 0/21/2019 1:30pm
Project: Level 7.
Project Number: B0PdM0
Project Manager: Arlon - V3 Martin

Laboratory / Client Sample Cross Reference

Laboratory	Client Sample Information			
1918297-01	COC Number: WW Project Number: WW Sampling Location: WW Sampling Point: B0PdM0W00C5 2S3 W00- W DRWW Sampled By: WW	Receive Date: 0/20/2019 09:01 Sampling Date: 0/20/2019 09:01 Sample Depth: WW Lab Matrix: water Sample Type: water		

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P1d1W1dP , VNost R8
Las . egasj B. M011M

Reported: 0/21/2019 1:30pm
Nrolect: Level 7.
Nrolect BI mber: B0PdM00
Nrolect A nager: Arlon - V3 artin

Water Analysis (General Chemistry)

BCL Sample ID:	191MC9qW01	Client Sample Name:	B0PdM00W0C5 2S3 W00- W DRWmj / 21/2019 q:0d:005A				
Constituent	Result	Units	PQL	Method	MB Bias	Lab Quals	Run #
5monnia as B (Distille8)	BD	mg/L	0.00	SAWd00VSHPG	BD		1

Run #	Method	Prep Date	Run		Instrument	Dilution	QC Batch ID
			Date/Time	Analyst			
1	SAWd00VSHPG	0/20/2019 1d:00	0/21/2019 1C4d	JAH	S3W	1	-04M41d

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5SSET Laboratories\Las . egas
P1d1W1dP , VNost R8
Las . egasj B. M011M

Reported: 0/21/2019 1:30:00 AM
Nrolect: Level 7.
Nrolect BI mber: B0PdM0
Nrolect A anager: Arlon - V3 artin

Water Analysis (General Chemistry)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	Lab Quals
5monnia as B (Distille8)	- 04M#1dWLK1	BD	mg/L	0.00	

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5SSET Laboratories\Las . egas
P1d1W1dP , VNost R8
Las . egasj B. M011M

Reported: 0/21/2019 1:30:00 AM
Nrolect: Level 7.
Nrolect BI mber: B0PdM0
Nrolect A anager: Arlon - V3 artin

Water Analysis (General Chemistry)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	Control Limits			Lab Quals
							Percent Recovery	RPD	RPD	
QC Batch ID: B048415	5monnia as B (Distille8)	- 04M41dWS1	L3 S	0.09P10	1.0000	mg/L	99.9%	M	W1d	

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5SSET Laboratories\Las . egas
P1d1W1dP , VNost R8
Las . egasj B. M011M

Reported: 0/21/2019 1:30pm
Nrolect: Level 7.
Nrolect BI mber: B0PdM0
Nrolect A nager: Arlon - V3 artin

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	Percent Recovery	Lab Quals
QC Batch ID: B048415			Use8 client sample: B								
5monnia as B (Distille8)	DUN	191/ 941WP	0M1d40	BD		mg2			CO		
	AS	191/ 941WP	0M1d40	009090	10000	mg2		MtV	M0 W1C0		
	ASD	191/ 941WP	0M1d40	100/ d	10000	mg2	1V	M0M	CO	M0 W1C0	

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5SSET Laboratories\Las . egas
P1d1W1dP , VNost R8
Las . egasj B. M011M

Reported: 0/21/2019 1:30:00 AM
Nrolect: Level 7.
Nrolect BI mber: B0PdMM0
Nrolect A anager: Arlon - V3 artin

Notes And Definitions

ADL	Actual Detection Limit
BD	Single Analyte Detection
NQL	Practical Quantitation Limit



Laboratories, Inc.

Environmental Testing Laboratory Since 1949

Date of Report: 06/17/2019

Marlon B. Cartin

ASSET Laboratories- Las Vegas

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

Client Project: N035889

BCL Project: Level IV

BCL Work Order: 1918884

Invoice ID: B343568

Enclosed are the results of analyses for samples received by the laboratory on 6/12/2019. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Contact Person: Vanessa Sandoval
Client Service Rep

Stuart Butram
Technical Director

Certifications: CA ELAP #1186; NV #CA00014; OR ELAP #4032-001; AK UST101

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BC

Laboratories, Inc.

Environmental Testing Laboratory Since 1949

Chain of Custody and Cooler Receipt Form for 1918884 Page 1 of 2

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

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

19-18884

QC Level: Level IV

Subcontractor:

BC Labs
4100 Atlas Court
Bakersfield, CA 93308

TEL: (661) 327-4911
FAX: (661) 327-1918
Act #: _____

11-Jun-19

Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests
N035889-001D / SC-100B-WDR-589	Water	6/5/2019 7:00:00 AM	8QZP	1
N035889-002F / SC-700B-WDR-589	Water	6/5/2019 7:05:00 AM	8QZF	1

Sample 1
200.7: Fe
200.8: Mn, Cr

Sample 2
200.7: Al, B, Fe
200.8: Sb, As, Ba, Cu, Pb, Mn, Mo, Ni, Zn, Cr

Please cc Report to Lucille Golosinda at lucille.golosinda@assetlaboratories.com

CHK BY	DISTRIBUTION
<i>[Signature]</i>	<input checked="" type="checkbox"/> MAIL <input type="checkbox"/> FAX <input type="checkbox"/> INTERNET <input type="checkbox"/> SUB OUT <input type="checkbox"/>

General Comments: Please email sample receipt acknowledgement to the PM. Please cc andrea.gallardo@assetlaboratories.com

Please use POK-N35889B. Please email Invoices and Account Receivable Statements to elvira@assetlaboratories.com. For questions, call Marion at (702) 307-2659. Please e-mail results to reports.iv@assetlaboratories.com by 6/19/19.

Please analyze for Total Metals by 200.7/200.8. EDD Requirement LabSpec7 edata.

GSO #: 545112344	Date/Time	6/11/2019 17:00	Received by:	<i>[Signature]</i> U-12-19 08:24
Relinquished by:	6/11/2019 17:00	Received by:	<i>[Signature]</i>	
Relinquished by:	6/11/2019 17:00	Received by:	<i>[Signature]</i>	

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Chain of Custody and Cooler Receipt Form for 1918884 Page 2 of 2

BC LABORATORIES INC.		COOLER RECEIPT FORM						Page 1 Of 1			
Submission #: 19-18884											
SHIPPING INFORMATION FedEx <input type="checkbox"/> UPS <input type="checkbox"/> Ontrac <input type="checkbox"/> Hand Delivery <input checked="" type="checkbox"/> BC Lab Field Service <input type="checkbox"/> Other <input type="checkbox"/> (Specify) GSO								SHIPPING CONTAINER Ice Chest <input checked="" type="checkbox"/> None <input type="checkbox"/> Box <input type="checkbox"/> Other <input type="checkbox"/> (Specify)			
								FREE LIQUID YES <input type="checkbox"/> NO <input type="checkbox"/> W / S			
Refrigerant: Ice <input checked="" type="checkbox"/> Blue Ice <input type="checkbox"/> None <input type="checkbox"/> Other <input type="checkbox"/> Comments: Custody Seals Ice Chest <input type="checkbox"/> Containers <input type="checkbox"/> None <input checked="" type="checkbox"/> Comments: Intact? Yes <input type="checkbox"/> No <input type="checkbox"/> Intact? Yes <input type="checkbox"/> No <input type="checkbox"/>											
All samples received? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> COC Received <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		All samples containers intact? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Emissivity: 0.95 Container: PPE Thermometer ID: 2767 Temperature: (A) 4.0 °C / (C) 4.1 °C						Description(s) match COC? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Date/Time 01/12/19 Analyst Init. PD 0826			
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		A	A								
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 1644											
PT ODOR											
RADIOLOGICAL											
BACTERIOLOGICAL											
40 ml VOA VIAL - 504											
QT EPA 500/600/800											
QT EPA 515.1/8150											
QT EPA 525											
QT EPA 525 TRAVEL BLANK											
40ml EPA 547											
40ml EPA 531.1											
8oz EPA 543											
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: Open Date/Time: 01/12/19 9:40 Rev 21 05/23/2016											
A = Actual / C = Corrected											

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

Reported: 06/17/2019 9:05
Project: Level IV
Project Number: N035889
Project Manager: Marlon B. Cartin

Laboratory / Client Sample Cross Reference

Laboratory	Client Sample Information			
1918884-01	COC Number: --- Project Number: --- Sampling Location: --- Sampling Point: N035889-001D / SC-100B-WDR-589 Sampled By: ---	Receive Date: 06/12/2019 08:26 Sampling Date: 06/05/2019 07:00 Sample Depth: --- Lab Matrix: Water Sample Type: Water		
1918884-02	COC Number: --- Project Number: --- Sampling Location: --- Sampling Point: N035889-002F / SC-700B-WDR-589 Sampled By: ---	Receive Date: 06/12/2019 08:26 Sampling Date: 06/05/2019 07:05 Sample Depth: --- Lab Matrix: Water Sample Type: Water		

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

Reported: 06/17/2019 9:05
Project: Level IV
Project Number: N035889
Project Manager: Marlon B. Cartin

Metals Analysis

BCL Sample ID:	1918884-01	Client Sample Name: N035889-001D / SC-100B-WDR-589, 6/5/2019 7:00:00AM					
Constituent	Result	Units	PQL	Method	MB Bias	Lab Quals	Run #
Total Recoverable Chromium	420	ug/L	3.0	EPA-200.8	ND		1
Total Recoverable Iron	ND	ug/L	50	EPA-200.7	ND		2
Total Recoverable Manganese	7.5	ug/L	1.0	EPA-200.8	ND		1

Run #	Method	Prep Date	Run		Instrument	Dilution	QC Batch ID
			Date/Time	Analyst			
1	EPA-200.8	06/13/19 11:50	06/13/19 22:30	JNC	PE-EL4	1	B048673
2	EPA-200.7	06/13/19 11:45	06/13/19 17:59	JRG	PE-OP2	1	B048672

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

Reported: 06/17/2019 9:05
Project: Level IV
Project Number: N035889
Project Manager: Marlon B. Cartin

Metals Analysis

BCL Sample ID:	1918884-02	Client Sample Name:	N035889-002F / SC-700B-WDR-589, 6/5/2019 7:05:00AM				
Constituent	Result	Units	PQL	Method	MB Bias	Lab Quals	Run #
Total Recoverable Aluminum	ND	ug/L	50	EPA-200.7	ND		1
Total Recoverable Antimony	ND	ug/L	4.0	EPA-200.8	ND	A07	2
Total Recoverable Arsenic	ND	ug/L	4.0	EPA-200.8	ND	A07	2
Total Recoverable Barium	15	ug/L	2.0	EPA-200.8	ND	A07	2
Total Recoverable Boron	1100	ug/L	100	EPA-200.7	ND		1
Total Recoverable Chromium	ND	ug/L	6.0	EPA-200.8	ND	A07	2
Total Recoverable Copper	ND	ug/L	4.0	EPA-200.8	ND	A07	2
Total Recoverable Iron	ND	ug/L	50	EPA-200.7	ND		1
Total Recoverable Lead	ND	ug/L	2.0	EPA-200.8	ND	A07	2
Total Recoverable Manganese	6.5	ug/L	2.0	EPA-200.8	ND	A07	2
Total Recoverable Molybdenum	26	ug/L	2.0	EPA-200.8	ND	A07	2
Total Recoverable Nickel	ND	ug/L	4.0	EPA-200.8	ND	A07	2
Total Recoverable Zinc	ND	ug/L	50	EPA-200.8	ND	A07	3

Run #	Method	Prep Date	Run	Analyst	Instrument	Dilution	QC Batch ID
			Date/Time				
1	EPA-200.7	06/13/19 11:45	06/13/19 18:01	JRG	PE-OP2	1	B048672
2	EPA-200.8	06/13/19 11:50	06/13/19 22:40	JNC	PE-EL4	2	B048673
3	EPA-200.8	06/13/19 11:50	06/14/19 14:44	AS1	PE-EL4	5	B048673

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

Reported: 06/17/2019 9:05
Project: Level IV
Project Number: N035889
Project Manager: Marlon B. Cartin

Metals Analysis

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	Lab Quals
QC Batch ID: B048672					
Total Recoverable Aluminum	B048672-BLK1	ND	ug/L	50	
Total Recoverable Boron	B048672-BLK1	ND	ug/L	100	
Total Recoverable Iron	B048672-BLK1	ND	ug/L	50	
QC Batch ID: B048673					
Total Recoverable Antimony	B048673-BLK1	ND	ug/L	2.0	
Total Recoverable Arsenic	B048673-BLK1	ND	ug/L	2.0	
Total Recoverable Barium	B048673-BLK1	ND	ug/L	1.0	
Total Recoverable Chromium	B048673-BLK1	ND	ug/L	3.0	
Total Recoverable Copper	B048673-BLK1	ND	ug/L	2.0	
Total Recoverable Lead	B048673-BLK1	ND	ug/L	1.0	
Total Recoverable Manganese	B048673-BLK1	ND	ug/L	1.0	
Total Recoverable Molybdenum	B048673-BLK1	ND	ug/L	1.0	
Total Recoverable Nickel	B048673-BLK1	ND	ug/L	2.0	
Total Recoverable Zinc	B048673-BLK2	ND	ug/L	10	



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

Reported: 06/17/2019 9:05
Project: Level IV
Project Number: N035889
Project Manager: Marlon B. Cartin

Metals Analysis

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	Control Limits		Lab Quals
							RPD	Percent Recovery	
QC Batch ID: B048672									
Total Recoverable Aluminum	B048672-BS1	LCS	1037.1	1000.0	ug/L	104		85 - 115	
Total Recoverable Boron	B048672-BS1	LCS	1012.9	1000.0	ug/L	101		85 - 115	
Total Recoverable Iron	B048672-BS1	LCS	1046.2	1000.0	ug/L	105		85 - 115	
QC Batch ID: B048673									
Total Recoverable Antimony	B048673-BS1	LCS	43.306	40.000	ug/L	108		85 - 115	
Total Recoverable Arsenic	B048673-BS1	LCS	110.13	100.00	ug/L	110		85 - 115	
Total Recoverable Barium	B048673-BS1	LCS	41.927	40.000	ug/L	105		85 - 115	
Total Recoverable Chromium	B048673-BS1	LCS	41.069	40.000	ug/L	103		85 - 115	
Total Recoverable Copper	B048673-BS1	LCS	106.41	100.00	ug/L	106		85 - 115	
Total Recoverable Lead	B048673-BS1	LCS	107.92	100.00	ug/L	108		85 - 115	
Total Recoverable Manganese	B048673-BS1	LCS	102.63	100.00	ug/L	103		85 - 115	
Total Recoverable Molybdenum	B048673-BS1	LCS	39.176	40.000	ug/L	97.9		85 - 115	
Total Recoverable Nickel	B048673-BS1	LCS	107.06	100.00	ug/L	107		85 - 115	
Total Recoverable Zinc	B048673-BS2	LCS	113.42	100.00	ug/L	113		85 - 115	

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

Reported: 06/17/2019 9:05
Project: Level IV
Project Number: N035889
Project Manager: Marlon B. Cartin

Metals Analysis

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Control Limits		
								Percent Recovery	Percent RPD	Lab Quals
QC Batch ID: B048672		Used client sample: N								
Total Recoverable Aluminum	DUP	1918520-02	ND	ND		ug/L		20		
	MS	1918520-02	ND	1007.7	1000.0	ug/L		101	75 - 125	
	MSD	1918520-02	ND	1020.6	1000.0	ug/L	1.3	102	20	75 - 125
Total Recoverable Boron	DUP	1918520-02	26.021	ND		ug/L		20		
	MS	1918520-02	26.021	1030.4	1000.0	ug/L		100	75 - 125	
	MSD	1918520-02	26.021	1033.6	1000.0	ug/L	0.3	101	20	75 - 125
Total Recoverable Iron	DUP	1918520-02	ND	ND		ug/L		20		
	MS	1918520-02	ND	1028.4	1000.0	ug/L		103	75 - 125	
	MSD	1918520-02	ND	1047.8	1000.0	ug/L	1.9	105	20	75 - 125
QC Batch ID: B048673		Used client sample: N								
Total Recoverable Antimony	DUP	1918885-01	0.29000	ND		ug/L		20		
	MS	1918885-01	0.29000	43.174	40.000	ug/L		107	70 - 130	
	MSD	1918885-01	0.29000	44.157	40.000	ug/L	2.3	110	20	70 - 130
Total Recoverable Arsenic	DUP	1918885-01	42.176	43.617		ug/L	3.4	20		
	MS	1918885-01	42.176	153.43	100.00	ug/L		111	70 - 130	
	MSD	1918885-01	42.176	155.71	100.00	ug/L	1.5	114	20	70 - 130
Total Recoverable Barium	DUP	1918885-01	47.804	50.150		ug/L	4.8	20		
	MS	1918885-01	47.804	89.846	40.000	ug/L		105	70 - 130	
	MSD	1918885-01	47.804	91.873	40.000	ug/L	2.2	110	20	70 - 130
Total Recoverable Chromium	DUP	1918885-01	ND	ND		ug/L		20		
	MS	1918885-01	ND	39.431	40.000	ug/L		98.6	70 - 130	
	MSD	1918885-01	ND	39.027	40.000	ug/L	1.0	97.6	20	70 - 130
Total Recoverable Copper	DUP	1918885-01	8.4280	3.7420		ug/L	77.0	20		Q01
	MS	1918885-01	8.4280	103.91	100.00	ug/L		95.5	70 - 130	
	MSD	1918885-01	8.4280	107.74	100.00	ug/L	3.6	99.3	20	70 - 130
Total Recoverable Lead	DUP	1918885-01	0.48000	ND		ug/L		20		
	MS	1918885-01	0.48000	102.74	100.00	ug/L		102	70 - 130	
	MSD	1918885-01	0.48000	104.63	100.00	ug/L	1.8	104	20	70 - 130
Total Recoverable Manganese	DUP	1918885-01	18.951	12.680		ug/L	39.7	20		Q01
	MS	1918885-01	18.951	110.60	100.00	ug/L		91.7	70 - 130	
	MSD	1918885-01	18.951	112.59	100.00	ug/L	1.8	93.6	20	70 - 130
Total Recoverable Molybdenum	DUP	1918885-01	9.7050	9.9430		ug/L	2.4	20		
	MS	1918885-01	9.7050	52.068	40.000	ug/L		106	70 - 130	
	MSD	1918885-01	9.7050	52.815	40.000	ug/L	1.4	108	20	70 - 130
Total Recoverable Nickel	DUP	1918885-01	0.42200	ND		ug/L		20		
	MS	1918885-01	0.42200	97.261	100.00	ug/L		96.8	70 - 130	
	MSD	1918885-01	0.42200	97.926	100.00	ug/L	0.7	97.5	20	70 - 130

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

Reported: 06/17/2019 9:05
Project: Level IV
Project Number: N035889
Project Manager: Marlon B. Cartin

Metals Analysis

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Control Limits		
								Percent Recovery	Percent RPD	Lab Quals
QC Batch ID: B048673			Used client sample: N							
Total Recoverable Zinc	DUP	1918885-01	2.4260	ND		ug/L		20		A02
	MS	1918885-01	2.4260	113.24	100.00	ug/L		111	70 - 130	
	MSD	1918885-01	2.4260	113.17	100.00	ug/L	0.1	111	20	70 - 130



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

Reported: 06/17/2019 9:05
Project: Level IV
Project Number: N035889
Project Manager: Marlon B. Cartin

Notes And Definitions

MDL	Method Detection Limit
ND	Analyte Not Detected
PQL	Practical Quantitation Limit
A02	The difference between duplicate readings is less than the quantitation limit.
A07	Detection and quantitation limits were raised due to sample dilution caused by high analyte concentration or matrix interference.
Q01	Sample precision is not within the control limits.

June 21, 2019

Doug Scott
CH2M HILL
155 Grand Avenue, Suite 1000
Oakland, CA 94612
TEL: (970) 731-0636
FAX: (510) 622-9129

Workorder No.: N035889

RE: PG&E Topock, 680375CH.04.IM.OP.00

Attention: Doug Scott

Enclosed are the results for sample(s) received on June 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 Libucavator

Quennie Manimtim
Laboratory Director

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



ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

"Serving Clients with Passion and Professionalism"

CALIFORNIA | P:562.219.7435 F:562.219.7436
11110 Artesia Blvd., Ste B, Cerritos, CA 90703
ELAP Cert 2921
EPA ID CA01638

NEVADA | P:702.307.2659 F:702.307.2691
3151 W. Post Rd., Las Vegas, NV 89118
ELAP Cert 2676 | NV Cert NV00922
ORELAP/NELAP Cert 4046

CLIENT: CH2M HILL
Project: PG&E Topock, 680375CH.04.IM.OP.00
Lab Order: N035889

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, EPA 200.7 and EPA 200.8 were subcontracted to BC Labs- Bakersfield,CA.

**ASSET LABORATORIES**

ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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3151 W. Post Rd., Las Vegas, NV 89118
ELAP Cert 2676 | NV Cert NV00922
ORELAP/NELAP Cert 4046

ASSET Laboratories**Date:** 21-Jun-19

CLIENT: CH2M HILL
Project: PG&E Topock, 680375CH.04.IM.OP.00
Lab Order: N035889
Contract No: IM3PLANT-AR

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N035889-001A	SC-100B-WDR-589	Water	6/5/2019 7:00:00 AM	6/5/2019	6/21/2019
N035889-001B	SC-100B-WDR-589	Water	6/5/2019 7:00:00 AM	6/5/2019	6/21/2019
N035889-001C	SC-100B-WDR-589	Water	6/5/2019 7:00:00 AM	6/5/2019	6/21/2019
N035889-001D	SC-100B-WDR-589	Water	6/5/2019 7:00:00 AM	6/5/2019	6/21/2019
N035889-002A	SC-700B-WDR-589	Water	6/5/2019 7:05:00 AM	6/5/2019	6/21/2019
N035889-002B	SC-700B-WDR-589	Water	6/5/2019 7:05:00 AM	6/5/2019	6/21/2019
N035889-002C	SC-700B-WDR-589	Water	6/5/2019 7:05:00 AM	6/5/2019	6/21/2019
N035889-002D	SC-700B-WDR-589	Water	6/5/2019 7:05:00 AM	6/5/2019	6/21/2019
N035889-002E	SC-700B-WDR-589	Water	6/5/2019 7:05:00 AM	6/5/2019	6/21/2019
N035889-002F	SC-700B-WDR-589	Water	6/5/2019 7:05:00 AM	6/5/2019	6/21/2019



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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 21-Jun-19

CLIENT: CH2M HILL
Lab Order: N035889
Project: PG&E Topock, 680375CH.04.IM.OP.00
Lab ID: N035889-001

Client Sample ID: SC-100B-WDR-589
Collection Date: 6/5/2019 7:00:00 AM
Matrix: WATER

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

RunID: NV00922-WC_190606B	QC Batch: R134349	PrepDate:	Analyst: LR
Specific Conductance	7100	0.10	umhos/cm
		0.10	1
			6/6/2019 09:30 AM

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

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



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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 21-Jun-19

CLIENT: CH2M HILL
Lab Order: N035889
Project: PG&E Topock, 680375CH.04.IM.OP.00
Lab ID: N035889-002

Client Sample ID: SC-700B-WDR-589
Collection Date: 6/5/2019 7:05:00 AM
Matrix: WATER

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

RunID: NV00922-WC_190606B	QC Batch: R134349	PrepDate:	Analyst: LR
Specific Conductance	7200	0.10	umhos/cm
		0.10	1
			6/6/2019 09:30 AM

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

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



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ASSET Laboratories

Date: 21-Jun-19

CLIENT: CH2M HILL
Work Order: N035889
Project: PG&E Topock, 680375CH.04.I.M.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: N035889-001ADUP	SampType: DUP	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:	RunNo: 134349							
Client ID: ZZZZZZ	Batch ID: R134349	TestNo: EPA 120.1		Analysis Date:	SeqNo: 3402592							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	7150.000	0.10				7140		0.140	2			

Qualifiers:

- B Analytic 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

ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 21-Jun-19

CLIENT: CH2M HILL
Lab Order: N035889
Project: PG&E Topock, 680375CH.04.IM.OP.00
Lab ID: N035889-001

Client Sample ID: SC-100B-WDR-589
Collection Date: 6/5/2019 7:00:00 AM
Matrix: WATER

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

RunID: NV00922-WC_190606F	QC Batch: 74128	PrepDate: 6/6/2019	Analyst: LR
Total Dissolved Solids (Residue, Filterable)	4200	50	mg/L
		50	1
			6/6/2019 12:58 PM

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

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

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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 21-Jun-19

CLIENT: CH2M HILL
Lab Order: N035889
Project: PG&E Topock, 680375CH.04.IM.OP.00
Lab ID: N035889-002

Client Sample ID: SC-700B-WDR-589
Collection Date: 6/5/2019 7:05:00 AM
Matrix: WATER

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

RunID: NV00922-WC_190606F	QC Batch: 74128	PrepDate: 6/6/2019	Analyst: LR
Total Dissolved Solids (Residue, Filterable)	4100	50	mg/L
	50		1
			6/6/2019 12:58 PM

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

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

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ASSET Laboratories

Date: 21-Jun-19

CLIENT: CH2M HILL
Work Order: N035889
Project: PG&E Topock, 680375CH.04.IM.OP.00**ANALYTICAL QC SUMMARY REPORT****TestCode:** 160.1_2540C_W

Sample ID: LCS-74128	SampType: LCS	TestCode: 160.1_2540C	Units: mg/L	Prep Date: 6/6/2019	RunNo: 134385						
Client ID: LCSW	Batch ID: 74128	TestNo: SM2540C		Analysis Date: 6/6/2019	SeqNo: 3405303						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera)	976.000	10	1000	0	97.6	80	120				
Sample ID: MB-74128	SampType: MBLK	TestCode: 160.1_2540C	Units: mg/L	Prep Date: 6/6/2019	RunNo: 134385						
Client ID: PBW	Batch ID: 74128	TestNo: SM2540C		Analysis Date: 6/6/2019	SeqNo: 3405304						
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: N035889-001ADUP	SampType: DUP	TestCode: 160.1_2540C	Units: mg/L	Prep Date: 6/6/2019	RunNo: 134385						
Client ID: ZZZZZZ	Batch ID: 74128	TestNo: SM2540C		Analysis Date: 6/6/2019	SeqNo: 3405306						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera)	4155.000	50							4150	0.120	5

Qualifiers:

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



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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 21-Jun-19

CLIENT: CH2M HILL
Lab Order: N035889
Project: PG&E Topock, 680375CH.04.IM.OP.00
Lab ID: N035889-001

Client Sample ID: SC-100B-WDR-589
Collection Date: 6/5/2019 7:00:00 AM
Matrix: WATER

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

RunID: NV00922-WC_190606A	QC Batch: R134347	PrepDate:	Analyst: LR
Turbidity	0.24	0.10	0.10
		NTU	1
			6/6/2019 09:50 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



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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 21-Jun-19

CLIENT: CH2M HILL
Lab Order: N035889
Project: PG&E Topock, 680375CH.04.IM.OP.00
Lab ID: N035889-002

Client Sample ID: SC-700B-WDR-589
Collection Date: 6/5/2019 7:05:00 AM
Matrix: WATER

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

RunID: NV00922-WC_190606A	QC Batch: R134347	PrepDate:	Analyst: LR
Turbidity	0.21	0.10	0.10
		NTU	1
			6/6/2019 09:50 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



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ASSET Laboratories

Date: 21-Jun-19

CLIENT: CH2M HILL
Work Order: N035889
Project: PG&E Topock, 680375CH.04.IM.OP.00**ANALYTICAL QC SUMMARY REPORT****TestCode:** 2130_W

Sample ID:	MB-R134347	SampType:	MBLK	TestCode:	2130_W	Units:	NTU	Prep Date:		RunNo:	134347	
Client ID:	PBW	Batch ID:	R134347	TestNo:	SM 2130B			Analysis Date:	6/6/2019	SeqNo:	3402587	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Turbidity		ND	0.10									
Sample ID:	N035889-001ADUP	SampType:	DUP	TestCode:	2130_W	Units:	NTU	Prep Date:		RunNo:	134347	
Client ID:	ZZZZZZ	Batch ID:	R134347	TestNo:	SM 2130B			Analysis Date:	6/6/2019	SeqNo:	3402589	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Turbidity		0.230	0.10						0.2400	4.26	30	

Qualifiers:

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

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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 21-Jun-19

CLIENT: CH2M HILL
Lab Order: N035889
Project: PG&E Topock, 680375CH.04.IM.OP.00
Lab ID: N035889-001

Client Sample ID: SC-100B-WDR-589**Collection Date:** 6/5/2019 7:00:00 AM**Matrix:** WATER

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

RunID: NV00922-IC7_190606A	QC Batch: R134359	PrepDate:	Analyst: RAB			
Hexavalent Chromium	450	3.3	20	µg/L	100	6/6/2019 10:27 AM

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

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

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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 21-Jun-19

CLIENT: CH2M HILL
Lab Order: N035889
Project: PG&E Topock, 680375CH.04.IM.OP.00
Lab ID: N035889-002

Client Sample ID: SC-700B-WDR-589**Collection Date:** 6/5/2019 7:05:00 AM**Matrix:** WATER

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

RunID: NV00922-IC7_190606A	QC Batch: R134359	PrepDate:	Analyst: RAB
Hexavalent Chromium	0.21	0.033	0.20
		µg/L	1
			6/6/2019 10:56 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

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ASSET Laboratories

Date: 21-Jun-19

CLIENT: CH2M HILL
Work Order: N035889
Project: PG&E Topock, 680375CH.04.I.M.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WU_PGE

Sample ID:	MB-R134359	SampType:	MBLK	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	134359	
Client ID:	PBW	Batch ID:	R134359	TestNo:	EPA 218.6			Analysis Date:	6/6/2019	SeqNo:	3402717	
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-R134359	SampType:	LCS	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	134359	
Client ID:	LCSW	Batch ID:	R134359	TestNo:	EPA 218.6			Analysis Date:	6/6/2019	SeqNo:	3402718	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.065	0.20	5.000	0		101	90	110				
Sample ID:	N035889-001BDUP	SampType:	DUP	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	134359	
Client ID:	ZZZZZZ	Batch ID:	R134359	TestNo:	EPA 218.6			Analysis Date:	6/6/2019	SeqNo:	3402721	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	452.230	20								448.1	0.913	20
Sample ID:	N035889-001BMS	SampType:	MS	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	134359	
Client ID:	ZZZZZZ	Batch ID:	R134359	TestNo:	EPA 218.6			Analysis Date:	6/6/2019	SeqNo:	3402722	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	951.810	20	500.0	448.1		101	90	110				
Sample ID:	N035889-002CMS	SampType:	MS	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	134359	
Client ID:	ZZZZZZ	Batch ID:	R134359	TestNo:	EPA 218.6			Analysis Date:	6/6/2019	SeqNo:	3402724	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.219	0.20	1.000	0.2083		101	90	110				

Qualifiers:

- B Analytic detected in the associated Method Blank
- E Value above quantitation range
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- DO Surrogate Diluted Out
- Calculations are based on raw values



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CLIENT: CH2M HILL**Work Order:** N035889**Project:** PG&E Tapock, 680375CH.04.IM.OP.00**ANALYTICAL QC SUMMARY REPORT****TestCode:** 218.6_WU_PGE

Sample ID: N035890-001BM S	SampType: MS	TestCode: 218.6_WU_P	Units: µg/L	Prep Date:			
Client ID: ZZZZZZ	Batch ID: R134359	TestNo: EPA 218.6		Analysis Date:	6/6/2019	RunNo:	134359
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit
Hexavalent Chromium	2418.640	40	1000	1439	98.0	90	110
Sample ID: N035890-001BM SD	SampType: MSD	TestCode: 218.6_WU_P	Units: µg/L	Prep Date:			
Client ID: ZZZZZZ	Batch ID: R134359	TestNo: EPA 218.6		Analysis Date:	6/6/2019	RunNo:	134359
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit
Hexavalent Chromium	2419.900	40	1000	1439	98.1	90	110

Qualifiers:

- B Analytic 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**ANALYTICAL RESULTS**

Print Date: 21-Jun-19

CLIENT: CH2M HILL
Lab Order: N035889
Project: PG&E Topock, 680375CH.04.IM.OP.00
Lab ID: N035889-002

Client Sample ID: SC-700B-WDR-589**Collection Date:** 6/5/2019 7:05:00 AM**Matrix:** WATER

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

RunID: NV00922-IC8_190606B	QC Batch: R134375	PrepDate:	Analyst: RAB
Fluoride	2.5 0.032	0.50 mg/L	6/6/2019 05:03 PM

ANIONS BY ION CHROMATOGRAPHY**EPA 300.0**

RunID: NV00922-IC8_190606B	QC Batch: R134375	PrepDate:	Analyst: RAB
Sulfate	480 1.1	25 mg/L	6/6/2019 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

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ASSET Laboratories

Date: 21-Jun-19

CLIENT: CH2M HILL
Work Order: N035889
Project: PG&E Topock, 680375CH.04.I.M.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_FPPGE

Sample ID: MB-R134375_F	SampType: MBLK	TestCode: 300_W_FPPGE	Units: mg/L	Prep Date:	RunNo: 134375						
Client ID: PBW	Batch ID: R134375	TestNo: EPA 300.0		Analysis Date:	SeqNo: 3403102						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	ND	0.10									
Sample ID: LCS-R134375_F	SampType: LCS	TestCode: 300_W_FPPGE	Units: mg/L	Prep Date:	RunNo: 134375						
Client ID: LCSW	Batch ID: R134375	TestNo: EPA 300.0		Analysis Date:	SeqNo: 3403103						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	1.260	0.10	1.250	0	101	90	110				
Sample ID: N035889-002BDUP	SampType: DUP	TestCode: 300_W_FPPGE	Units: mg/L	Prep Date:	RunNo: 134375						
Client ID: ZZZZZZ	Batch ID: R134375	TestNo: EPA 300.0		Analysis Date:	SeqNo: 3403109						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	2.405	0.50									
Sample ID: N035889-002BMS	SampType: MS	TestCode: 300_W_FPPGE	Units: mg/L	Prep Date:	RunNo: 134375						
Client ID: ZZZZZZ	Batch ID: R134375	TestNo: EPA 300.0		Analysis Date:	SeqNo: 3403110						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	8.703	0.50	6.250	2.525	98.8	80	120				
Sample ID: N035889-002BMSD	SampType: MSD	TestCode: 300_W_FPPGE	Units: mg/L	Prep Date:	RunNo: 134375						
Client ID: ZZZZZZ	Batch ID: R134375	TestNo: EPA 300.0		Analysis Date:	SeqNo: 3403111						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	8.680	0.50	6.250	2.525	98.5	80	120	8.703	0.270	20	

Qualifiers:

- B Analytic detected in the associated Method Blank
- E Value above quantitation range
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- DO Surrogate Diluted Out
- Calculations are based on raw values



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 EPA ID CA01638

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 3151 W. Post Rd., Las Vegas, NV 89118
 ELAP Cert 2976 | NY Cert NY00922
 ORELAP/NELAP Cert 4046

CLIENT: CH2M HILL
Work Order: N035889
Project: PG&E Topock, 680375CH.04.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: MB-R134375_SO4	SampType: MBLK	Batch ID: R134375	TestCode: 300_W_SO4P	Units: mg/L	Prep Date:	RunNo: 134375					
Client ID: LCSW			TestNo: EPA 300.0		Analysis Date:	SeqNo: 3403142					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									
<hr/>											
Sample ID: LCS-R134375_SO4	SampType: LCS	Batch ID: R134375	TestCode: 300_W_SO4P	Units: mg/L	Prep Date:	RunNo: 134375					
Client ID: LCSW			TestNo: EPA 300.0		Analysis Date:	SeqNo: 3403143					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	3.965	0.50	4.000	0	99.1	90	110				
<hr/>											
Sample ID: N035891-002CM SD	SampType: MSD	Batch ID: R134375	TestCode: 300_W_SO4P	Units: mg/L	Prep Date:	RunNo: 134375					
Client ID: ZZZZZZ			TestNo: EPA 300.0		Analysis Date:	SeqNo: 3403149					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	695.750	25	200.0	483.6	106	80	120				
<hr/>											
Sample ID: N035891-002CM SD	SampType: MSD	Batch ID: R134375	TestCode: 300_W_SO4P	Units: mg/L	Prep Date:	RunNo: 134375					
Client ID: ZZZZZZ			TestNo: EPA 300.0		Analysis Date:	SeqNo: 3403150					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	685.740	25	200.0	483.6	101	80	120	695.8	1.45	20	
<hr/>											
Sample ID: N035891-001CDUP	SampType: DUP	Batch ID: R134375	TestCode: 300_W_SO4P	Units: mg/L	Prep Date:	RunNo: 134375					
Client ID: ZZZZZZ			TestNo: EPA 300.0		Analysis Date:	SeqNo: 3403151					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	245.490	25									

Qualifiers:

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



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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 21-Jun-19

CLIENT: CH2M HILL
Lab Order: N035889
Project: PG&E Topock, 680375CH.04.IM.OP.00
Lab ID: N035889-002

Client Sample ID: SC-700B-WDR-589
Collection Date: 6/5/2019 7:05:00 AM
Matrix: WATER

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

NITRATE/NITRITE-N BY CADMIUM REDUCTION**SM4500-NO3F**

RunID: NV00922-WC_190612B	QC Batch: R134466	PrepDate:	Analyst: QBM
Nitrate/Nitrite as N	2.8 0.16	0.25	mg/L 5

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

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

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ASSET Laboratories

Date: 21-Jun-19

CLIENT: CH2M HILL
Work Order: N035889
Project: PG&E Topock, 680375CH.04.I.M.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID:	MB-R134466	SampType:	MBLK	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	134466	
Client ID:	PBW	Batch ID:	R134466	TestNo:	SM4500-NO3			Analysis Date:	6/12/2019	SeqNo:	3408760	
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-R134466	SampType:	LCS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	134466	
Client ID:	LCSW	Batch ID:	R134466	TestNo:	SM4500-NO3			Analysis Date:	6/12/2019	SeqNo:	3408761	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N		0.480	0.050	0.5000	0	95.9	85	115				
Sample ID:	N035891-002DDUP	SampType:	DUP	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	134466	
Client ID:	ZZZZZZ	Batch ID:	R134466	TestNo:	SM4500-NO3			Analysis Date:	6/12/2019	SeqNo:	3408765	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N		2.625	0.25							2.638	0.475	20
Sample ID:	N035891-002DMDS	SampType:	MS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	134466	
Client ID:	ZZZZZZ	Batch ID:	R134466	TestNo:	SM4500-NO3			Analysis Date:	6/12/2019	SeqNo:	3408767	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N		5.517	0.25	2.500	2.847	107	75	125				
Sample ID:	N035891-002DMSD	SampType:	MSD	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	134466	
Client ID:	ZZZZZZ	Batch ID:	R134466	TestNo:	SM4500-NO3			Analysis Date:	6/12/2019	SeqNo:	3408768	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N		5.395	0.25	2.500	2.847	102	75	125	5.516	2.23	20	

Qualifiers:

- B Analytic detected in the associated Method Blank
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- ND Not Detected at the Reporting Limit
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H Holding times for preparation or analysis exceeded
 S Spike/Surrogate outside of limits due to matrix interference

CH2MHILL**CHAIN OF CUSTODY RECORD**

Number of Containers												Comments	Page 1 OF 1
1 liter Poly	1 liter Poly	1 liter Poly	250 ml Poly	1 Liter Poly	500 ml Poly	500 ml Poly	1 Liter Poly	500 ml Poly	1 Liter Poly	500 ml Poly	1 Liter Poly		
4°C Lab H2SO4	4°C Lab H2SO4	4°C Lab H2SO4	4°C Lab H2SO4	4°C Lab H2SO4	4°C Lab H2SO4	4°C Lab H2SO4	4°C Lab H2SO4	4°C Lab H2SO4	4°C Lab H2SO4	4°C Lab H2SO4	4°C Lab H2SO4		
Preservatives:													
Filtered:	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Holding Time:	28	7	7	1	28	7	380	180	7				
Turbidity (SM2130)													
Total Metals(E200.8) Cr, Mn, Fe												3	7.24 24
Total Metals(E200.7 and E200.8)												4	7.14 04
TDS (SM2540C)													
Nitrate/Nitrite (SM4500NO3-E)													
E218.6 Lab Filtered													
CONDUCTIVITY (E120.1)													
Anions (E300.0) F ⁻ , SO ₄ ²⁻													
AMMONIA (SM4500NH3D)													
	DATE	TIME	Matrix										
SC-100B-WDR-589	6-5-19	0700	Water										
SC-700B-WDR-589	6-5-19	0705	Water	X	X	X	X	X	X	X	X	N035889-01	
												-02	
	TOTAL NUMBER OF CONTAINERS											7	

Approved by 	Date/Time 6-5-19 0645	Shipping Details Method of Shipment: FedEx On Ice: Yes / no Yes (R/H) Airbill No: 65191545	ATTN: Sample Custody and Report Copy to Marlon Cartin	Special Instructions: SC-700B Total metals List: Cr,Al,Sb,As,Ba,B,Cu,Pb,Mn,Mo,Ni,Fe,Zn
Sampled by 	Received by 	Relinquished by 	Received by 	Received by 
Lab Name: ASSET Laboratories Lab Phone: (702) 307-2659				

ASSET Laboratories

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

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

Cooler Received/Opened On: 6/5/2019 Workorder: N035889
Rep sample Temp (Deg C): 2.1 IR Gun ID: 2
Temp Blank: Yes No
Carrier name: ASSET
Last 4 digits of Tracking No.: NA Packing Material Used: None
Cooling process: Ice Ice Pack Dry Ice Other None

Sample Receipt Checklist

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

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

Checklist Completed By: YR

YR

6/6/2019

Reviewed By:

JLG

LG 06/09/19



ASSET Laboratories

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FAX: 7023072691

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

QC Level: Level IV

Subcontractor:

BC Labs
4100 Atlas Court
Bakersfield, CA 93308

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

06-Jun-19

06-Jun-19

Field Sampler: SIGNED

Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests	
				SM4500-NH3D	
N035889-002A / SC-700B-WDR-589	Water	6/5/2019 7:05:00 AM	32CZP	1	

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

General Comments:

Please email sample receipt acknowledgement to the PM. Please cc andrea.gallardo@assetlaboratories.com

Please use PO#N35889A. Please email Invoices and Account Receivable Statements to elvira@assetlaboratories.com. For questions, call Marion at (702)-307-2659. Please e-mail results to reports.IV@assetlaboratories.com by: Normal TAT.

Please analyze for Ammonia by SM4500NH3D. EDD Requirement Labspec7 edata.

GSO #: 545061667

Relinquished by:	Date/Time	Received by:	Date/Time
<i>YRJ</i>	6/6/2019 17:00		

**ASSET Laboratories**

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

www.atl-labs.com

TEL: 7023072659

FAX: 7023072691

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

QC Level: Level IV**Subcontractor:**

BC Labs
4100 Atlas Court
Bakersfield, CA 93308

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

11-Jun-19

Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests	
				EPA 200.7	EPA 200.8
N035889-001D / SC-100B-WDR-589	Water	6/5/2019 7:00:00 AM	8OZP	1	✓ 1
N035889-002F / SC-700B-WDR-589	Water	6/5/2019 7:05:00 AM	8OZP	1	✓ 1

Sample 1
200.7: Fe
200.8: Mn, Cr

Sample 2

200.7: Al, B, Fe
200.8: Sb, As, Ba, Cu, Pb, Mn, Mo, Ni, Zn, Cr

Please cc Report to Lucille Golosinda at lucille.golosinda@assetlaboratories.com

General Comments: Please email sample receipt acknowledgement to the PM. Please cc andrea.gallardo@assetlaboratories.com
 Please use PO#N35889B. Please email Invoices and Account Receivable Statements to elvira@assetlaboratories.com. For questions, call Marion at (702)-307-2659. Please e-mail results to reports.IV@assetlaboratories.com by: 6/19/19.
 Please analyze for Total Metals by 200.7/200.8. EDD Requirement Labspec7 edta.

GSO #: 545112344

Relinquished by:	Date/Time	Received by:	Date/Time
<i>J.R.</i>	6/11/2019 17:00		

List of Analysts

ASSET Laboratories Work Order: N035889

NAME	TEST METHOD
Quennie Manimtim	SM 4500-NO3F
Ria Abes	EPA 218.6, EPA 300.0
Lilia Ramit	EPA 120.1, SM 2540C, SM 2130B



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