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July 15, 2020

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**Subject: Topock IM-3 Combined Second Quarter 2020 Monitoring, Semiannual January – June 2020 Operation and Maintenance Report  
PG&E Topock Compressor Station, Needles, California  
Interim Measure No. 3 Groundwater Treatment System**

Dear Ms. Innis and Mr. Stormo:

Enclosed is the Second Quarter 2020 Monitoring, Semiannual January – June 2020 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 treatment chemical use, and (3) these efforts also reduce the fuel consumption and GHG emissions from chemical deliveries and waste disposal.

Pamela S. Innis  
Scot Stormo  
July 15, 2020  
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The IM-3 groundwater extraction and treatment system has extracted and treated approximately 989,688,879 gallons of water and removed approximately 7,960 pounds of total chromium from August 1, 2005 through June 30, 2020.

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

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

Sincerely,

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

Curt Russell  
Topock Project Manager

Enclosures:

Topock IM-3 Combined Second Quarter 2020 Monitoring, Semiannual January – June 2020 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 2020 Monitoring, Semiannual January - June 2020 Operation and Maintenance Report</p> <p>Final Document?     <input checked="" type="checkbox"/> Yes     <input type="checkbox"/> No</p>	<p>Date of Document: July 15, 2020</p> <p>Who Created this Document?: (i.e. PG&amp;E, DTSC, DOI, Other)  PG&amp;E</p>
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<p>What does this information pertain to?</p> <p><input type="checkbox"/> Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA)/Preliminary Assessment (PA)</p> <p><input type="checkbox"/> RCRA Facility Investigation (RFI)/Remedial Investigation (RI) (including Risk Assessment)</p> <p><input type="checkbox"/> Corrective Measures Study (CMS)/Feasibility Study (FS)</p> <p><input type="checkbox"/> Corrective Measures Implementation (CMI)/Remedial Action (RA)</p> <p><input type="checkbox"/> California Environmental Quality Act (CEQA)/Environmental Impact Report (EIR)</p> <p><input checked="" type="checkbox"/> Interim Measures</p> <p><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>What is the consequence of NOT doing this item? What is the consequence of DOING this item?</p> <p>Submittal of this report is a compliance requirement of the ARARs for waste discharge as documented in Attachment A to the Letter Agreement issued July 26, 2011.</p>	<p>Other Justification/s:  <input type="checkbox"/> Permit     <input type="checkbox"/> Other / Explain:</p>
<p>Brief Summary of attached document:</p> <p>This report covers the Interim Measure No. 3 (IM-3) groundwater treatment system monitoring activities during the Second Quarter 2020 period, and the operation and maintenance activities during the January 1, 2020 to June 30, 2020 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: Pacific Gas and Electric Company</p>	
<p>Recommendations:</p> <p>This report is for your information only.</p>	
<p>How is this information related to the Final Remedy or Regulatory Requirements?</p> <p>The Topock IM-3 Second Quarter 2020 Monitoring, Semiannual January - June 2020 Operation and Maintenance Report is related to the Interim Measure. PG&amp;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?</p> <p>None.</p>	



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

### **Combined Second Quarter 2020 Monitoring, Semiannual January – June 2020 Operation and Maintenance Report Interim Measure No. 3 Groundwater Treatment System**

July 15, 2020

*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 2020 Monitoring,  
Semiannual January - June 2020 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

on behalf of

Pacific Gas and Electric Company

July 15, 2020

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



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Dennis Fink, P.E.  
Project Engineer

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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 Conservations and Recovery Act
Regional Water Board	Colorado River Basin Regional Water Quality Control Board
RO	reverse osmosis
Truesdail	Truesdail Laboratories, Inc.
WDR	Waste Discharge Requirements

## 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 2020 and the operation and maintenance activities during the January 1, 2020 to June 30, 2020 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 2020 monitoring activities and the January 1, 2020 through June 30, 2020 (First and Second Quarters) operation and maintenance activities related to the IM-3 groundwater treatment system. IM-3 monitoring activities from January 1, 2020 through March 31, 2020 (First Quarter) were presented in the First Quarter 2020 Monitoring Report for IM-3 submitted to the DOI and Regional Water Board April 15, 2020.

This report, therefore, serves as the Semiannual January – June 2020 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 2020

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 2020 through March 2020 were originally reported in the First Quarter 2020 Monitoring Report for IM-3 submitted to the DOI and Regional Water Board on April 15, 2020, 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 2020, 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, TW-2D, and PE-1 were not operated during Second Quarter 2020. The operational run time for the IM groundwater extraction system (combined or individual pumping), by month, was approximately:

- 93.7 percent during April 2020
- 69.6 percent during May 2020
- 69.3 percent during June 2020

The Second Quarter 2020 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). Other sources contributing to the influent, specifically groundwater remedy construction water and injection well backwash water will be considered as part of the total influent stream for percent flow difference calculations shown in Appendix B.

The IM-3 facility treated approximately 13,461,071 gallons of extracted groundwater during Second Quarter 2020.

In addition to extracted groundwater, during Second Quarter 2020 the IM-3 facility treated 121,300 gallons of Final Groundwater Remedy wastewater, 980 gallons of water generated from the groundwater monitoring program, and 27,500 gallons of injection well development water.

### **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 13,771,552 gallons of treatment system effluent during Second Quarter 2020. 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), or from Liquid Environmental Solutions non-hazardous waste manifests (provided in Appendix D). The monthly average RO concentrate flow rate measured by flowmeter is shown in Table 2. Due to Final Groundwater Remedy construction activities at the MW-20 Bench adjacent to the IM-3 RO concentrate storage tank, RO concentrate is temporarily being stored and shipped from the RO concentrate process collection tank. Since the flowmeter is located between the RO concentrate process collection tank and the RO concentrate storage tank, the RO concentrate shipped from the process collection tank was not recorded by the flowmeter. The additional RO concentrate shipped from the process collection tank was transported to Liquid Environmental Solutions in Phoenix, Arizona for disposal. According to the non-hazardous waste manifests provided by Liquid Environmental Solutions, in Appendix D, approximately 43,700 gallons of RO concentrate was shipped off-site.

The sludge flow rate is measured by the size and weight of containers shipped offsite. Eight sludge containers were shipped offsite from the IM-3 facility during Second Quarter 2020. 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 2020 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 2020 in the First Quarter 2020 Monitoring Report submitted to the DOI and Regional Water Board on April 15, 2020.

Laboratory reports for samples collected in Second Quarter 2020 were prepared by certified analytical laboratories and are presented in Appendix E. The Second Quarter 2020 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 2019 sample. The next sludge aquatic bioassay test is scheduled for the Third Quarter 2020 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, 2020 through June 30, 2020.

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	6C037116000	9/17/2015	1/6/2016
Extraction well TW-3D	FIT-102	6C036F16000	2/7/2020	5/27/2020
Extraction well TW-2D	FIT-101	6A022016000	12/5/2018	8/22/2019
Extraction well TW-2S	FIT-100	6A021F16000	12/5/2018	8/22/2019
Injection well IW-03	FIT-1203	N6004E16000	6/13/2018	5/1/2019
Injection well IW-02	FIT-1202	6C037316000	2/7/2020	7/8/2020
Combined IW-02 and IW-03	FIT-700	L200E016000	5/28/2019	7/7/2020
Reverse osmosis concentrate	FIT-701	N6004F16000	6/13/2018	11/17/2018

Percent flow difference calculations are made monthly to assess the performance of the IM3 system flowmeters and included in the footnotes for Table 2 and Appendix B. These calculations are done to determine whether the flowmeters may need re-calibration.

Due to changes in influent sources and the flow path for reverse osmosis concentrate, the percent flow difference calculations will be changed in this report to include reverse osmosis concentrate as discussed in Section 5.4 and to include the intermittent streams of groundwater remedy construction water and injection well backwash water (per Section 3.2.1). This change will be made for the months of January through June 2020 as reported in Appendix B. While groundwater monitoring purge water is generated regularly and treated at IM-3, the volume is less than 1,000 gallons per month and is not included in the calculation.

During the groundwater remedy construction, PG&E may decide to do additional monitoring of the flowmeters and the recorded data beyond that required for the quarterly WDR reports, PG&E will also perform other investigation of the system and the flowmeters as appropriate.

## 5.2 Volumes of Groundwater Treated

Data regarding daily volumes of groundwater treated between January 1, 2020 through June 30, 2020 are provided in Appendix B.

Approximately 30,009,651 gallons of groundwater were extracted and treated between January 1, 2020 and June 30, 2020. Treatment of this water at the IM-3 facility is being performed in accordance with the conditions of ARARs.

Additionally, approximately 163,300 gallons of Final Groundwater Remedy wastewater, 1,350 gallons of well purge water (generated during well development, monitoring well sampling, and/or aquifer testing) and 67,500 injection well re-development water from Groundwater Partners was treated at the IM-3 facility during the January 1, 2020 through June 30, 2020 semiannual period.

A total of approximately 30,478,156 gallons of treated groundwater were injected back into the Alluvial Aquifer between January 1, 2020 and June 30, 2020.

## 5.3 Residual Solids Generated (Sludge)

During the January 1, 2020 through June 30, 2020 reporting period, fifteen 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
1/20/2020	8	Non-RCRA hazardous waste
1/20/2020	8	Non-RCRA hazardous waste
2/11/2020	8	Non-RCRA hazardous waste
2/11/2020	8	Non-RCRA hazardous waste
3/23/2020	8	Non-RCRA hazardous waste
3/23/2020	8	Non-RCRA hazardous waste
3/24/2020	8	Non-RCRA hazardous waste
4/28/2020	8	Non-RCRA hazardous waste
4/29/2020	8	Non-RCRA hazardous waste
4/29/2020	8	Non-RCRA hazardous waste
5/6/2020	8	Non-RCRA hazardous waste
5/6/2020	8	Non-RCRA hazardous waste
5/27/2020	8	Non-RCRA hazardous waste
5/27/2020	8	Non-RCRA hazardous waste
5/28/2020	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) or from Liquid Environmental Solutions non-hazardous waste manifests (provided in Appendix D).

As noted in Section 3, due to Final Groundwater Remedy construction activities at the MW-20 Bench adjacent to the IM-3 RO concentrate storage tank, RO concentrate is temporarily being stored and shipped from the RO concentrate process collection tank. Since the flowmeter is located between the RO concentrate process collection tank and the RO concentrate storage tank, the RO concentrate shipped from the process collection tank was not recorded by the flowmeter. The additional RO concentrate shipped from the process collection tank was transported to Liquid Environmental Solutions in Phoenix, Arizona for disposal. According to the non-hazardous waste manifests provided by Liquid Environmental Solutions, in Appendix D, approximately 58,200 gallons of RO concentrate was shipped off-site from January 1, 2020 through June 30, 2020.

## **5.5 Summary of ARARs Compliance**

No ARAR violations were identified during the January 1, 2020 through June 30, 2020 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, 2020 through June 30, 2020 semiannual reporting period.

Activities during the Second Quarter 2020 included three extended shutdowns, one for annual routine maintenance and two for the Final Groundwater Remedy 72-hour pumping test (recovery before and after the test).

## **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, 2020 through June 30, 2020 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 Project Manager

Date: \_\_\_\_\_ July 15, 2020

## Tables



**Table 1. Sampling Station Descriptions**

*Second Quarter 2020 Monitoring Report for Interim Measure No. 3 Groundwater Treatment System*

Sample Station	Sample ID <sup>a</sup>	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

<sup>a</sup> 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 2020 Monitoring Report for Interim Measure No. 3 Groundwater Treatment System*

Parameter	System Influent <sup>a,b</sup> (gpm)	System Effluent <sup>b</sup> (gpm)	Reverse Osmosis Concentrate <sup>b, d</sup> (gpm)
April 2020 Average Monthly Flowrate	126.7 <sup>c</sup>	127.6	0.1
May 2020 Average Monthly Flowrate	93.6 <sup>e</sup>	94.8	0.3
June 2020 Average Monthly Flowrate	91.7	93.2	0.5

**Notes:**

gpm: gallons per minute

<sup>a</sup> Extraction well TW-3D was operated during the Second Quarter 2020. Extraction wells TW-2S, TW-2D, and PE-1 did not operate during Second Quarter 2020.

<sup>b</sup> The difference between influent flow rate (including groundwater remedy wastewater and injection well backwash water) and the sum of the effluent and reverse osmosis concentrate flow rates during the Second Quarter 2020 is approximately 1.60 percent.

<sup>c</sup> The larger than normal amount of groundwater remedy wastewater during April 2020 (58,300 gallons) was included in the system influent value shown.

<sup>d</sup> Due to Final Groundwater Remedy construction activities at the MW-20 bench, brine (RO) concentrate was no longer sent to the brine tanks since May 8, 2019. The total gallons removed from IM-3 since that date are an estimate from the Liquid Environmental Systems non-hazardous waste manifests..

<sup>e</sup> The larger than normal amount of injection well development water and groundwater remedy wastewater (90,500 gallons) during May 2020 was included in the system influent value shown.

**Table 3. Sample Collection Dates**

*Second Quarter 2020 Monitoring Report for Interim Measure No. 3 Groundwater Treatment System*

Parameter	Sample Collection Dates	Results
Influent	April 7, 2020 May 5, 2020 June 8, 2020	See Table 4
Effluent	April 7, 2020 May 5, 2020 May 15, 2020 June 8, 2020	See Table 5
Reverse Osmosis Concentrate	April 7, 2020	See Table 6
Sludge <sup>a</sup>	April 7, 2020	See Table 7

**Notes:**

<sup>a</sup> 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<sup>a</sup>  
Second Quarter 2020 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

Analytes Units <sup>b</sup>	MDL	TDS	Turbidity	Specific Conductance	Field <sup>c</sup> pH	Chromium	Hexavalent Chromium	Aluminium	Ammonia (as N)	Antimony	Arsenic	Barium	Boron	Copper	Fluoride	Lead	Manganese	Molybdenum	Nickel	Nitrate/Nitrite (as N)	Sulfate	Iron	Zinc
		mg/L	NTU	µmhos/cm	pH units	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	mg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	µg/L	µg/L
		50.0	0.100	0.100	---	0.650	1.70	200	0.0200	0.160	0.0810	0.150	0.370	0.550	0.0480	0.130	0.260	0.210	0.260	0.160	2.00	18.0	2.30
Sampling Frequency		Monthly						Quarterly															
Sample ID	Date																						
SC-100B-WDR-600	4/7/2020	4700	0.270	6800	7.2	420	420	ND (250)	0.0400 J	ND (0.500)	0.210	31.0	1.20	ND (1.00)	2.70	ND (1.00)	7.30	19.0	1.00 R	2.40	490	200 J	10.0 R
	RL	50.0	0.100	0.100	---	5.00	20.0	250	0.100	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-100B-WDR-601	5/5/2020	4600	0.180	7700	7.3	430	440	---	---	---	---	---	---	---	---	---	14.0	---	---	---	---	ND (20.0)	---
	RL	50.0	0.100	0.100	---	5.00	20.0	---	---	---	---	---	---	---	---	---	0.500	---	---	---	---	20.0	---
SC-100B-WDR-603	6/8/2020	4600	0.230	6900	7.3	410	410	---	---	---	---	---	---	---	---	---	8.40	---	---	---	---	79.0	---
	RL	50.0	0.100	0.100	---	5.00	10.0	---	---	---	---	---	---	---	---	---	0.500	---	---	---	---	20.0	---

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

<sup>a</sup> 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).  
<sup>b</sup> Units reported in this table are those units required in the ARARs.  
<sup>c</sup> 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 <sup>a</sup>  
Second Quarter 2020 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

Analytes Units <sup>c</sup> MDL <sup>d</sup>		TDS	Turbidity	Specific Conductance	Field <sup>e</sup> pH pH units	Chromium	Hexavalent Chromium	Aluminiur	Ammonia (as N)	Antimony	Arsenic	Barium	Boron	Copper	Fluoride	Lead	Manganese	Molybdenurr	Nickel	Nitrate/Nitrite (as N)	Sulfate	Iron	Zinc
		mg/L	NTU	µmhos/cm		µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	mg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	µg/L	µg/L
		50.0	0.100	0.100	---	0.130	0.0330	200	0.0200	0.160	0.0810	0.150	0.0740	0.550	0.0480	0.130	0.260	0.210	0.260	0.160	2.00	18.0	2.30
Effluent Limits <sup>b</sup>	Ave. Monthly	NA	NA	NA	6.5-8.4	25	8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Max Daily	NA	NA	NA	6.5-8.4	50	16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sampling Frequency		Monthly																					
Sample ID	Date																						
SC-700B-WDR-600	4/7/2020	4600	0.270	6700	7.1	ND (1.00)	ND (0.200)	ND (250)	0.0400 J	ND (0.500)	ND (0.100)	16.0	1.10	ND (1.00)	2.60	ND (1.00)	8.80	20.0	ND (1.00)	2.90	480	ND (100)	ND (10.0)
	RL	50.0	0.100	0.100	---	1.00	0.200	250	0.100	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-601	5/5/2020	4600	0.150	7600	6.9	ND (1.00)	ND (0.200)	ND (50.0)	0.120	ND (0.500)	ND (0.100)	18.0	1.10	ND (1.00)	2.40	ND (1.00)	41.0	21.0	ND (1.00)	2.70	490	130	ND (10.0)
	RL	50.0	0.100	0.100	---	1.00	0.200	50.0	0.100	0.500	0.100	1.00	0.100	1.00	0.500	1.00	0.500	0.500	1.00	1.00	25.0	20.0	10.0
SC-700B-WDR-602	5/15/2020	4700	0.300 J	7700	7.2	1.40	1.00	ND (50.0)J	0.210	ND (0.500)	ND (0.100)	18.0	0.930 J	ND (1.00)	2.50	ND (1.00)	52.0	22.0	ND (1.00)J	2.70	510	100 J	ND (10.0)J
	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	0.500	25.0	20.0	10.0
SC-700B-WDR-603	6/8/2020	4500	0.140	6700	7.0	ND (1.00)	ND (0.200)	ND (50.0)	ND (0.200)	ND (0.500)	ND (0.100)	19.0	0.940	ND (1.00)	2.10	ND (1.00)	24.0	18.0	ND (1.00)	2.30	470	140	ND (10.0)
	RL	50.0	0.100	0.100	---	1.00	0.200	50.0	0.200	0.500	0.100	1.00	0.100	1.00	0.500	1.00	0.500	0.500	1.00	0.250	25.0	20.0	10.0

Notes:

(---) = not required by the ARARs Monitoring and Reporting Program

J = concentration or reporting limits estimated by laboratory or validation

MDL = method detection limit

mg/L = milligrams per liter

N = nitrogen

NA = not applicable

ND = parameter not detected at the listed value

NTU = nephelometric turbidity units

RL = project reporting limit

µg/L = micrograms per liter

µmhos/cm = micromhos per centimeter

<sup>a</sup> 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).

<sup>b</sup> 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.

<sup>c</sup> Units reported in this table are those units required in the ARARs.

<sup>d</sup> 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.

<sup>e</sup> 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<sup>a</sup>  
Second Quarter 2020 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

Analytes	Units <sup>b</sup>	MDL	TDS	Specific Conductance	Field pH <sup>c</sup>	Chromium	Hexavalent 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	mg/L
			500	0.100	---	0.0032	0.00017	0.0039	0.0020	0.0037	0.00021	0.0013	0.0011	0.0140	0.480	0.0032	0.0054	0.00013	0.0065	0.0091	0.0059	0.0048	0.0069	0.0570
Sampling Frequency			Quarterly																					
Sample ID	Date																							
SC-701-WDR-600	4/7/2020	34000	38000	7.8	ND (0.0250)	ND (0.0010)	ND (0.0120)	ND (0.0025)	0.0450	ND (0.0025)	ND (0.0120)	ND (0.0120)	ND (0.0250)	19.0	ND (0.0250)	0.160	ND (0.00020)	ND (0.0250)	0.0370	ND (0.0120)	ND (0.0120)	ND (0.0250)	ND (0.250)	
RL		500	0.100	---	0.0250	0.0010	0.0120	0.0025	0.0250	0.0025	0.0120	0.0120	0.0250	5.00	0.0250	0.0120	0.00020	0.0250	0.0120	0.0120	0.0120	0.0250	0.250	

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

<sup>a</sup> Sampling location for all reverse osmosis samples is tap on pipe T-701 (see attached P&ID PR-10-04).  
<sup>b</sup> Units reported in this table are those units required in the ARARs.  
<sup>c</sup> 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<sup>a</sup>  
Second Quarter 2020 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

Analytes	Units <sup>b</sup>	MDL	Chromium	Hexavalent Chromium	Antimony	Arsenic	Barium	Beryllium	Cadmium	Cobalt	Copper	Fluoride	Lead	Molybdenum	Mercury	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc	
			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
			1.20	1.10	1.20	2.00	1.10	0.790	0.980	1.10	3.30	0.350	1.10	1.10	0.0990	1.30	2.20	2.30	1.30	0.820	1.10	
Sampling Frequency			Quarterly																			
Sample ID	Date																					
Phase Separator-600-Sludge	4/7/2020		3700	86.0	18.0	23.0	86.0	ND (3.70)	ND (3.70)	7.60	200	33.0	ND (3.70)	14.0	ND (0.370)	53.0	ND (3.70)J	ND (3.70)	ND (7.30)	59.0	45.0	
RL			3.70	3.70	7.30	3.70	3.70	3.70	3.70	3.70	7.30	3.70	3.70	3.70	0.370	3.70	3.70	3.70	7.30	3.70	3.70	

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

<sup>a</sup> Sampling location for all sludge samples is the sludge collection bin (see attached P&ID TP-PR-10-10-06).  
<sup>b</sup> Units reported in this table are those units required in the ARARs.  
<sup>c</sup> 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 2020 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-600	Ryan Phelps	4/7/2020	10:40:00 AM	ASSET	EPA 120.1	SC	4/8/2020	Lilia Ramit
					ASSET	EPA 200.7	AL	4/16/2020	Diane Jetajobe
					ASSET	EPA 200.7	B	4/10/2020	Diane Jetajobe
					ASSET	EPA 200.7	FE	4/10/2020	Diane Jetajobe
					ASSET	EPA 200.8	AS	4/9/2020	Claire Ignacio
					ASSET	EPA 200.8	BA	4/9/2020	Claire Ignacio
					ASSET	EPA 200.8	CR	4/9/2020	Claire Ignacio
					ASSET	EPA 200.8	CU	4/9/2020	Claire Ignacio
					ASSET	EPA 200.8	MN	4/9/2020	Claire Ignacio
					ASSET	EPA 200.8	MO	4/9/2020	Claire Ignacio
					ASSET	EPA 200.8	NI	4/9/2020	Claire Ignacio
					ASSET	EPA 200.8	PB	4/9/2020	Claire Ignacio
					ASSET	EPA 200.8	SB	4/9/2020	Claire Ignacio
					ASSET	EPA 200.8	ZN	4/9/2020	Claire Ignacio
					ASSET	EPA 218.6	CR6	4/10/2020	Hanah Glodoviza
					ASSET	EPA 300.0	FL	4/13/2020	Hanah Glodoviza
					ASSET	EPA 300.0	SO4	4/13/2020	Hanah Glodoviza
					Field	HACH	PH	4/7/2020	Ryan Phelps
					ASSET	SM 2540C	TDS	4/8/2020	Lilia Ramit
					ASSET	SM 4500-NO3F	NO3NO2N	4/13/2020	Julia Bundalian
					ASSET	SM2130B	TRB	4/8/2020	Lilia Ramit
					CTBERK	SM4500NH3D	NH3N	4/9/2020	Elisa Gonzalez
SC-100B	SC-100B-WDR-601	Ryan Phelps	5/5/2020	8:10:00 AM	ASSET	EPA 120.1	SC	5/6/2020	Lilia Ramit
					ASSET	EPA 200.7	FE	5/7/2020	Diane Jetajobe
					ASSET	EPA 200.8	CR	5/8/2020	Claire Ignacio
					ASSET	EPA 200.8	MN	5/8/2020	Claire Ignacio
					ASSET	EPA 218.6	CR6	5/6/2020	Ria Abes
					Field	HACH	PH	5/5/2020	Ryan Phelps
					ASSET	SM 2540C	TDS	5/6/2020	Lilia Ramit
					ASSET	SM2130B	TRB	5/7/2020	Lilia Ramit
SC-100B	SC-100B-WDR-603	Ron Phelps	6/8/2020	8:30:00 AM	ASSET	EPA 120.1	SC	6/9/2020	Lilia Ramit
					ASSET	EPA 200.7	FE	6/23/2020	Diane Jetajobe
					ASSET	EPA 200.8	CR	6/13/2020	Claire Ignacio
					ASSET	EPA 200.8	MN	6/13/2020	Claire Ignacio
					ASSET	EPA 218.6	CR6	6/9/2020	Ria Abes
					Field	HACH	PH	6/8/2020	Ryan Phelps
					ASSET	SM 2540C	TDS	6/10/2020	Lilia Ramit
					ASSET	SM2130B	TRB	6/9/2020	Lilia Ramit



**Table 8. Monitoring Information***Second Quarter 2020 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-600	Ryan Phelps	4/7/2020	10:50:00 AM	ASSET	EPA 120.1	SC	4/8/2020	Lilia Ramit
					ASSET	EPA 200.7	AL	4/10/2020	Diane Jetajobe
					ASSET	EPA 200.7	B	4/10/2020	Diane Jetajobe
					ASSET	EPA 200.7	FE	4/10/2020	Diane Jetajobe
					ASSET	EPA 200.8	AS	4/9/2020	Claire Ignacio
					ASSET	EPA 200.8	BA	4/13/2020	Claire Ignacio
					ASSET	EPA 200.8	CR	4/9/2020	Claire Ignacio
					ASSET	EPA 200.8	CU	4/9/2020	Claire Ignacio
					ASSET	EPA 200.8	MN	4/9/2020	Claire Ignacio
					ASSET	EPA 200.8	MO	4/9/2020	Claire Ignacio
					ASSET	EPA 200.8	NI	4/9/2020	Claire Ignacio
					ASSET	EPA 200.8	PB	4/9/2020	Claire Ignacio
					ASSET	EPA 200.8	SB	4/9/2020	Claire Ignacio
					ASSET	EPA 200.8	ZN	4/9/2020	Claire Ignacio
					ASSET	EPA 218.6	CR6	4/10/2020	Hanah Glodoviza
					ASSET	EPA 300.0	FL	4/13/2020	Hanah Glodoviza
					ASSET	EPA 300.0	SO4	4/13/2020	Hanah Glodoviza
					Field	HACH	PH	4/7/2020	Ryan Phelps
					ASSET	SM 2540C	TDS	4/8/2020	Lilia Ramit
					ASSET	SM 4500-NO3F	NO3NO2N	4/13/2020	Julia Bundalian
					ASSET	SM2130B	TRB	4/8/2020	Lilia Ramit
					CTBERK	SM4500NH3D	NH3N	4/9/2020	Elisa Gonzalez
SC-700B	SC-700B-WDR-601	Ryan Phelps	5/5/2020	8:00:00 AM	ASSET	EPA 120.1	SC	5/6/2020	Lilia Ramit
					ASSET	EPA 200.7	AL	5/7/2020	Diane Jetajobe
					ASSET	EPA 200.7	B	5/8/2020	Diane Jetajobe
					ASSET	EPA 200.7	FE	5/7/2020	Diane Jetajobe
					ASSET	EPA 200.8	AS	5/8/2020	Claire Ignacio
					ASSET	EPA 200.8	BA	5/14/2020	Claire Ignacio
					ASSET	EPA 200.8	CR	5/8/2020	Claire Ignacio
					ASSET	EPA 200.8	CU	5/8/2020	Claire Ignacio
					ASSET	EPA 200.8	MN	5/8/2020	Claire Ignacio
					ASSET	EPA 200.8	MO	5/8/2020	Claire Ignacio
					ASSET	EPA 200.8	NI	5/8/2020	Claire Ignacio
					ASSET	EPA 200.8	PB	5/8/2020	Claire Ignacio
					ASSET	EPA 200.8	SB	5/8/2020	Claire Ignacio
					ASSET	EPA 200.8	ZN	5/8/2020	Claire Ignacio
					ASSET	EPA 218.6	CR6	5/6/2020	Ria Abes
					ASSET	EPA 300.0	FL	5/7/2020	Ria Abes

**Table 8. Monitoring Information***Second Quarter 2020 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-601	Ryan Phelps	5/5/2020	8:00:00 AM	ASSET	EPA 300.0	SO4	5/6/2020	Ria Abes
					Field	HACH	PH	5/5/2020	Ryan Phelps
					ASSET	SM 2540C	TDS	5/6/2020	Lilia Ramit
					ASSET	SM 4500-NO3F	NO3NO2N	5/15/2020	Hanah Glodoviza
					ASSET	SM2130B	TRB	5/7/2020	Lilia Ramit
					CTBERK	SM4500NH3D	NH3N	5/8/2020	Elisa Gonzalez
SC-700B	SC-700B-WDR-602	Ryan Phelps	5/15/2020	3:30:00 PM	ASSET	EPA 120.1	SC	5/16/2020	Lilia Ramit
					ASSET	EPA 200.7	AL	5/20/2020	Diane Jetajobe
					ASSET	EPA 200.7	B	5/21/2020	Diane Jetajobe
					ASSET	EPA 200.7	FE	5/20/2020	Diane Jetajobe
					ASSET	EPA 200.8	AS	5/23/2020	Claire Ignacio
					ASSET	EPA 200.8	BA	5/22/2020	Claire Ignacio
					ASSET	EPA 200.8	CR	5/22/2020	Claire Ignacio
					ASSET	EPA 200.8	CU	5/23/2020	Claire Ignacio
					ASSET	EPA 200.8	MN	5/22/2020	Claire Ignacio
					ASSET	EPA 200.8	MO	5/22/2020	Claire Ignacio
					ASSET	EPA 200.8	NI	5/23/2020	Claire Ignacio
					ASSET	EPA 200.8	PB	5/22/2020	Claire Ignacio
					ASSET	EPA 200.8	SB	5/23/2020	Claire Ignacio
					ASSET	EPA 200.8	ZN	5/22/2020	Claire Ignacio
					ASSET	EPA 218.6	CR6	5/19/2020	Ria Abes
					ASSET	EPA 300.0	FL	5/19/2020	Ria Abes
					ASSET	EPA 300.0	SO4	5/20/2020	Ria Abes
					Field	HACH	PH	5/15/2020	Ryan Phelps
					ASSET	SM 2540C	TDS	5/19/2020	Lilia Ramit
					ASSET	SM 4500-NO3F	NO3NO2N	5/21/2020	Hanah Glodoviza
					ASSET	SM2130B	TRB	5/18/2020	Lilia Ramit
					BCLabs	SM4500NH3G	NH3N	5/21/2020	Marion Cartin
SC-700B	SC-700B-WDR-603	Ron Phelps	6/8/2020	8:32:00 AM	ASSET	EPA 120.1	SC	6/9/2020	Lilia Ramit
					ASSET	EPA 200.7	AL	6/12/2020	Diane Jetajobe
					ASSET	EPA 200.7	B	6/12/2020	Diane Jetajobe
					ASSET	EPA 200.7	FE	6/23/2020	Diane Jetajobe
					ASSET	EPA 200.8	AS	6/13/2020	Claire Ignacio
					ASSET	EPA 200.8	BA	6/13/2020	Claire Ignacio
					ASSET	EPA 200.8	CR	6/13/2020	Claire Ignacio
					ASSET	EPA 200.8	CU	6/13/2020	Claire Ignacio
					ASSET	EPA 200.8	MN	6/13/2020	Claire Ignacio
					ASSET	EPA 200.8	MO	6/13/2020	Claire Ignacio

**Table 8. Monitoring Information***Second Quarter 2020 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-603	Ron Phelps	6/8/2020	8:32:00 AM	ASSET	EPA 200.8	NI	6/13/2020	Claire Ignacio
					ASSET	EPA 200.8	PB	6/13/2020	Claire Ignacio
					ASSET	EPA 200.8	SB	6/13/2020	Claire Ignacio
					ASSET	EPA 200.8	ZN	6/14/2020	Claire Ignacio
					ASSET	EPA 218.6	CR6	6/9/2020	Ria Abes
					ASSET	EPA 300.0	FL	6/9/2020	Ria Abes
					ASSET	EPA 300.0	SO4	6/9/2020	Ria Abes
					Field	HACH	PH	6/8/2020	Ryan Phelps
					ASSET	SM 2540C	TDS	6/10/2020	Lilia Ramit
					ASSET	SM 4500-NO3F	NO3NO2N	6/13/2020	Julia Bundalian
					ASSET	SM2130B	TRB	6/9/2020	Lilia Ramit
					BCLabs	SM4500NH3G	NH3N	6/16/2020	Marion Cartin
SC-701	SC-701-WDR-600	Ryan Phelps	4/7/2020	10:55:00 AM	ASSET	EPA 120.1	SC	4/8/2020	Lilia Ramit
					ASSET	EPA 200.8	AG	4/9/2020	Claire Ignacio
					ASSET	EPA 200.8	AS	4/9/2020	Claire Ignacio
					ASSET	EPA 200.8	BA	4/13/2020	Claire Ignacio
					ASSET	EPA 200.8	BE	4/9/2020	Claire Ignacio
					ASSET	EPA 200.8	CD	4/9/2020	Claire Ignacio
					ASSET	EPA 200.8	CO	4/9/2020	Claire Ignacio
					ASSET	EPA 200.8	CR	4/9/2020	Claire Ignacio
					ASSET	EPA 200.8	CU	4/9/2020	Claire Ignacio
					ASSET	EPA 200.8	MN	4/9/2020	Claire Ignacio
					ASSET	EPA 200.8	MO	4/9/2020	Claire Ignacio
					ASSET	EPA 200.8	NI	4/9/2020	Claire Ignacio
					ASSET	EPA 200.8	PB	4/9/2020	Claire Ignacio
					ASSET	EPA 200.8	SB	4/9/2020	Claire Ignacio
					ASSET	EPA 200.8	SE	4/9/2020	Claire Ignacio
					ASSET	EPA 200.8	TL	4/9/2020	Claire Ignacio
					ASSET	EPA 200.8	V	4/9/2020	Claire Ignacio
					ASSET	EPA 200.8	ZN	4/9/2020	Claire Ignacio
					ASSET	EPA 218.6	CR6	4/13/2020	Hanah Glodoviza
					ASSET	EPA 245.1	HG	4/13/2020	Diane Jetajobe
					ASSET	EPA 300.0	FL	4/14/2020	Hanah Glodoviza
Phase Separator	Phase Separator-600-Sludge	Ryan Phelps	4/7/2020	10:30:00 AM	Field	HACH	PH	4/7/2020	Ryan Phelps
					ASSET	SM 2540C	TDS	4/8/2020	Lilia Ramit
					ASSET	EPA 300.0	FL	4/20/2020	Ria Abes
					ASSET	EPA 6010B	AG	4/10/2020	Diane Jetajobe
					ASSET	EPA 6010B	AS	4/10/2020	Diane Jetajobe

**Table 8. Monitoring Information***Second Quarter 2020 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-600-Sludge	Ryan Phelps	4/7/2020	10:30:00 AM	ASSET	EPA 6010B	BA	4/10/2020	Diane Jetajobe
					ASSET	EPA 6010B	BE	4/10/2020	Diane Jetajobe
					ASSET	EPA 6010B	CD	4/10/2020	Diane Jetajobe
					ASSET	EPA 6010B	CO	4/10/2020	Diane Jetajobe
					ASSET	EPA 6010B	CR	4/10/2020	Diane Jetajobe
					ASSET	EPA 6010B	CU	4/10/2020	Diane Jetajobe
					ASSET	EPA 6010B	MN	4/10/2020	Diane Jetajobe
					ASSET	EPA 6010B	MO	4/10/2020	Diane Jetajobe
					ASSET	EPA 6010B	NI	4/14/2020	Diane Jetajobe
					ASSET	EPA 6010B	PB	4/10/2020	Diane Jetajobe
					ASSET	EPA 6010B	SB	4/14/2020	Diane Jetajobe
					ASSET	EPA 6010B	SE	4/10/2020	Diane Jetajobe
					ASSET	EPA 6010B	TL	4/10/2020	Diane Jetajobe
					ASSET	EPA 6010B	V	4/10/2020	Diane Jetajobe
					ASSET	EPA 6010B	ZN	4/10/2020	Diane Jetajobe
					ASSET	EPA 7471A	HG	4/10/2020	Diane Jetajobe
					ASSET	SW 7199	CR6	4/20/2020	Ria Abes

## Table 8. Monitoring Information

### Second Quarter 2020 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).

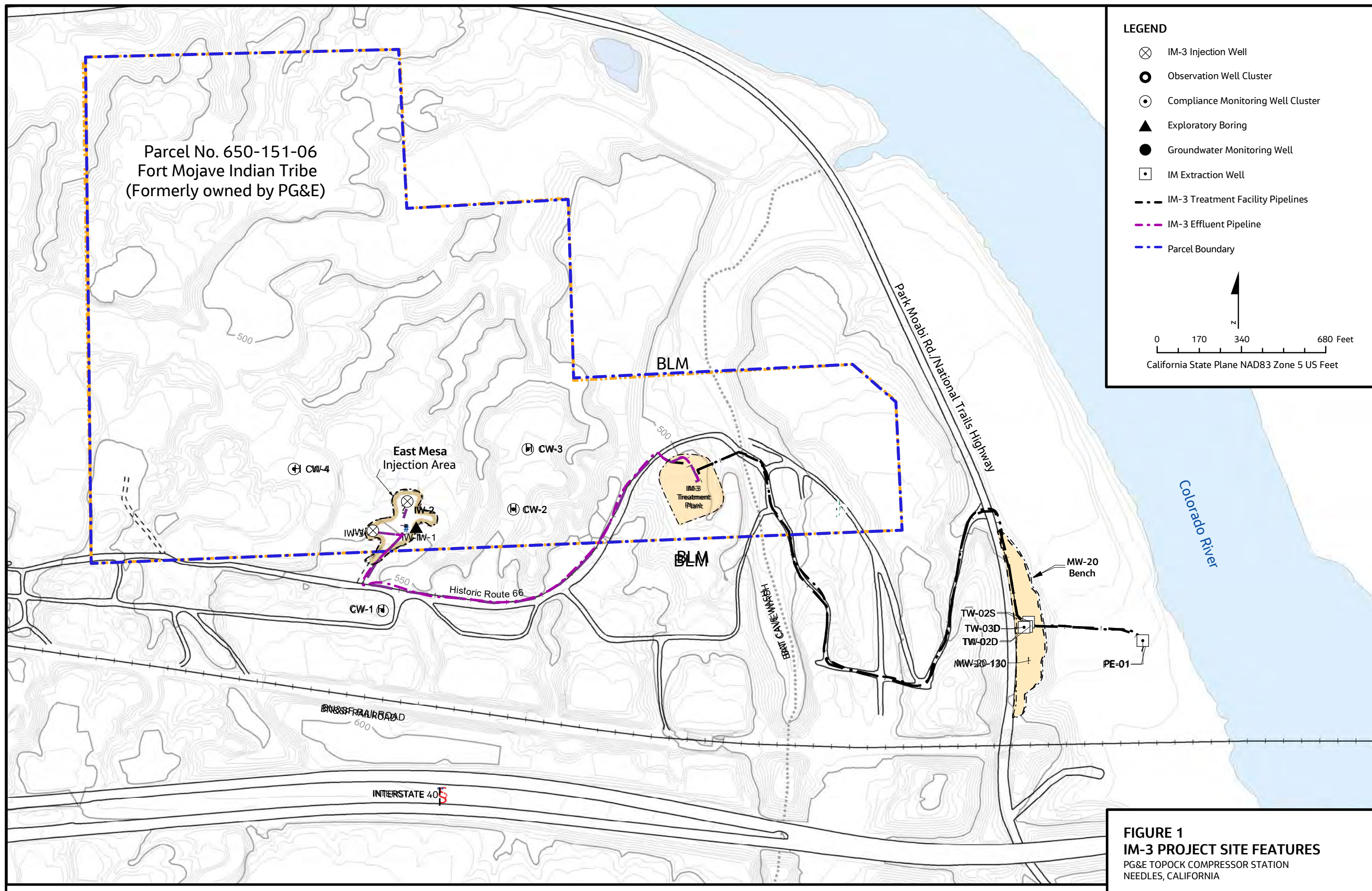
SC-701 = Sampling location for all reverse osmosis samples is tap on pipe T-701 (see attached P&ID PR-10-04).

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 <sub>3</sub>	MO =	molybdenum
ALKC =	alkalinity, carb as CaCO <sub>3</sub>	MOIST =	moisture
AL =	aluminum	NH <sub>3</sub> N =	ammonia (as N)
Ag =	silver	NI =	nickel
AS =	arsenic	NO <sub>3</sub> NO <sub>2</sub> 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 <sub>4</sub> =	sulfate
CR <sub>6</sub> =	hexavalent chromium	TDS =	total dissolved solids
CU =	copper	TL =	thallium
FE =	iron	TRB =	turbidity
FETD =	iron, dissolved	V =	vanadium
FL =	fluoride	ZN =	zinc
HG =	mercury		
MN =	manganese		
MND =	manganese, dissolved		

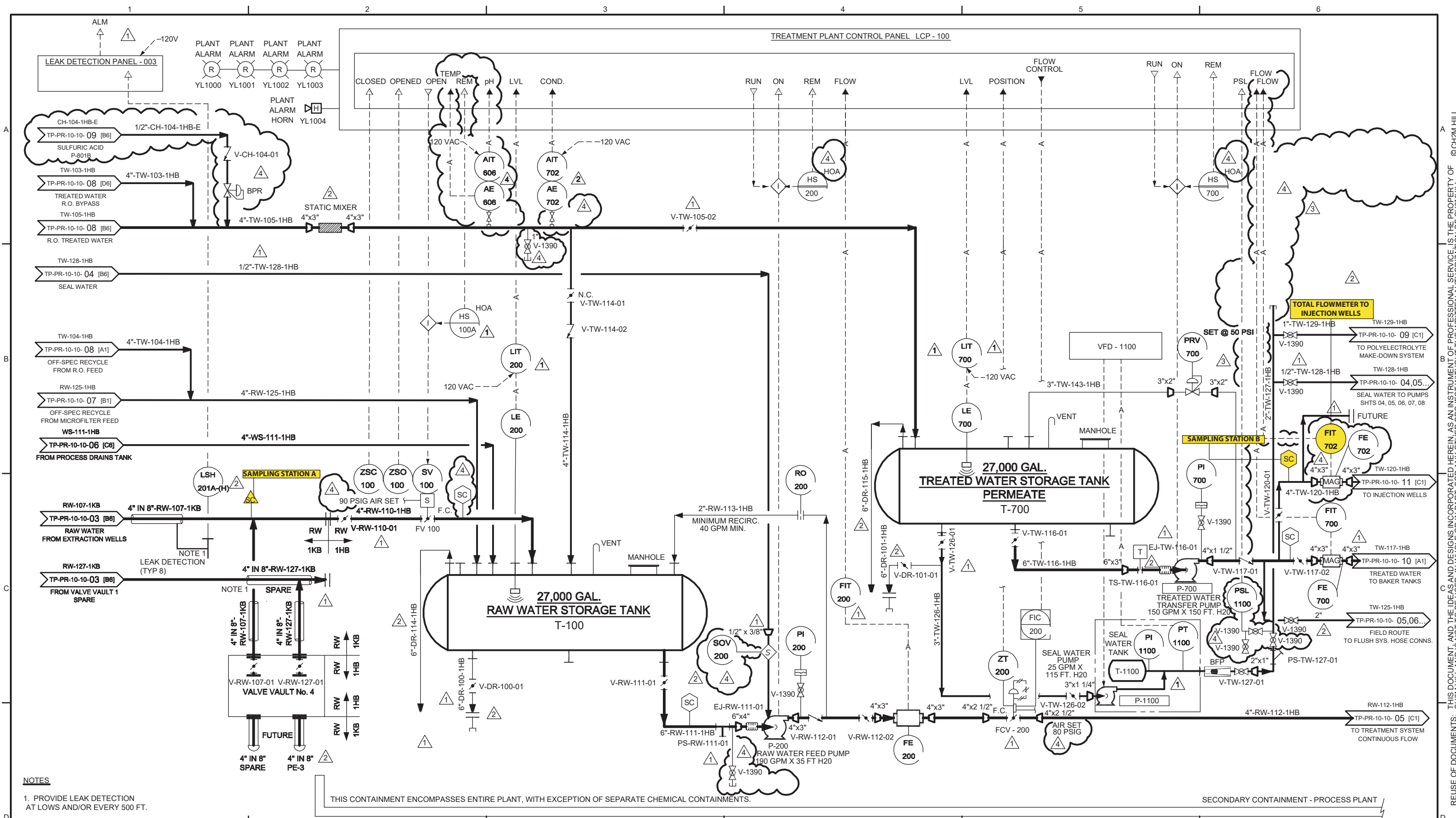
## Figures





**FIGURE 1**  
**IM-3 PROJECT SITE FEATURES**  
PG&E TOPECO COMPRESSOR STATION  
NEEDLES, CALIFORNIA





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

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

SECONDARY CONTAINMENT - PROCESS PLANT

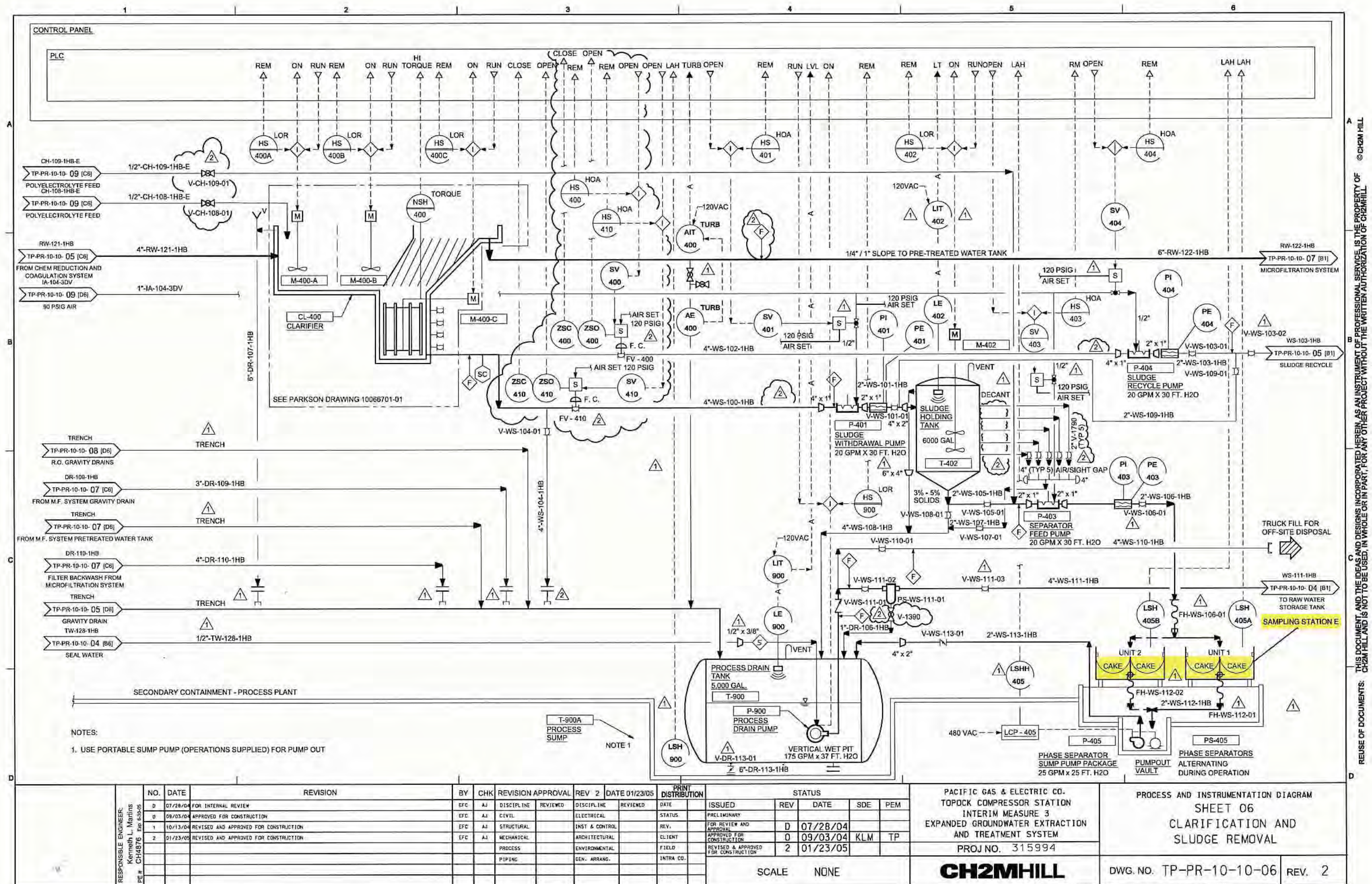
RESPONSIBLE ENGINEER: Kenneth L. Martins CH4876 PE #	NO.	DATE	REVISION	BY	CHK	REVISION APPROVAL	REV 4	DATE 09/21/05	PRINT DISTRIBUTION	STATUS					PACIFIC GAS & ELECTRIC CO. TOPOCK COMPRESSOR STATION INTERIM MEASURE 3 EXPANDED GROUNDWATER EXTRACTION AND TREATMENT SYSTEM PROJ NO. 315994	PROCESS AND INSTRUMENTATION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



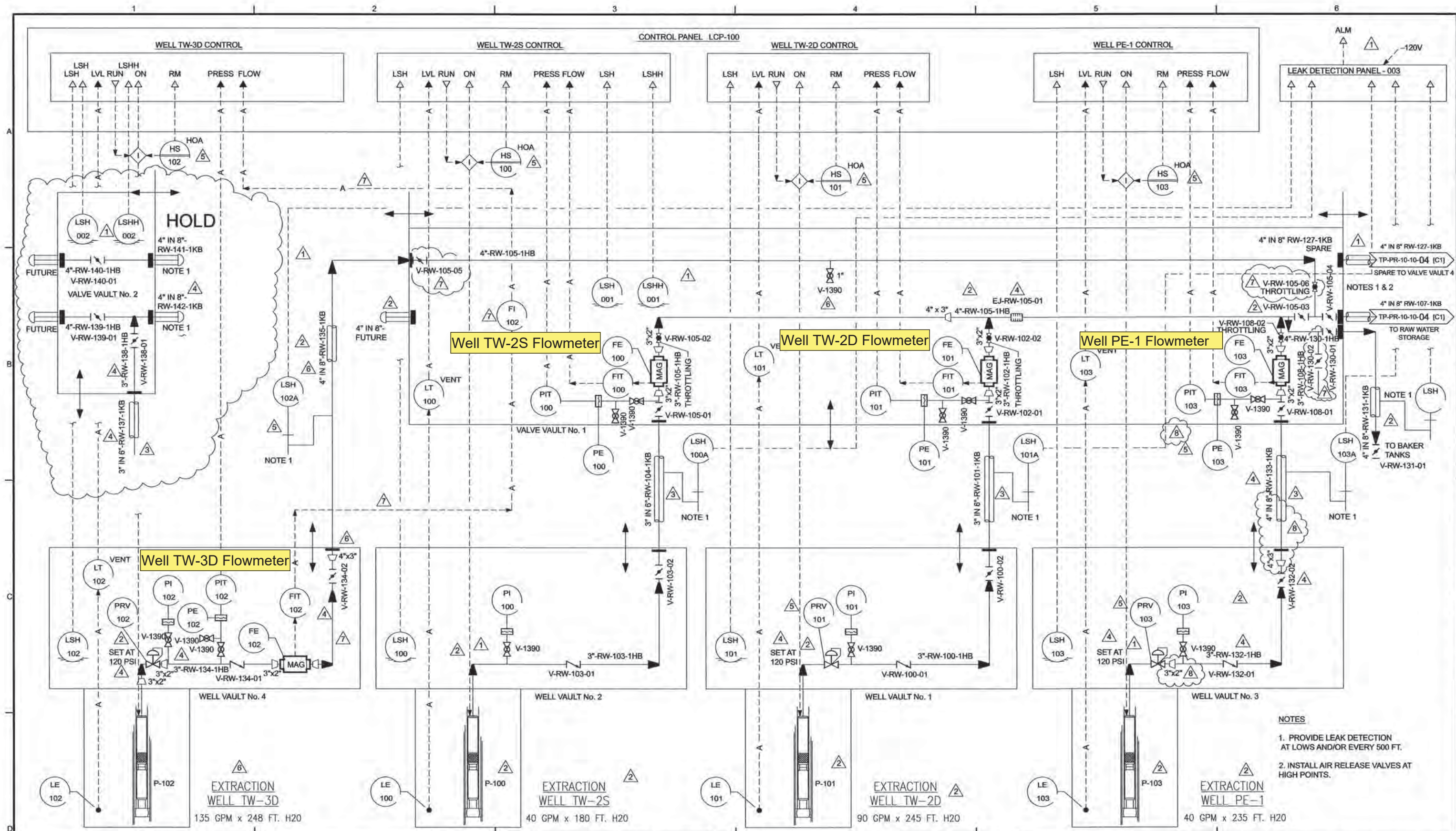












- NOTES**
1. PROVIDE LEAK DETECTION AT LOWS AND/OR EVERY 500 FT.
  2. INSTALL AIR RELEASE VALVES AT HIGH POINTS.



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

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

SCALE NONE

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

**CH2MHILL**

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

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

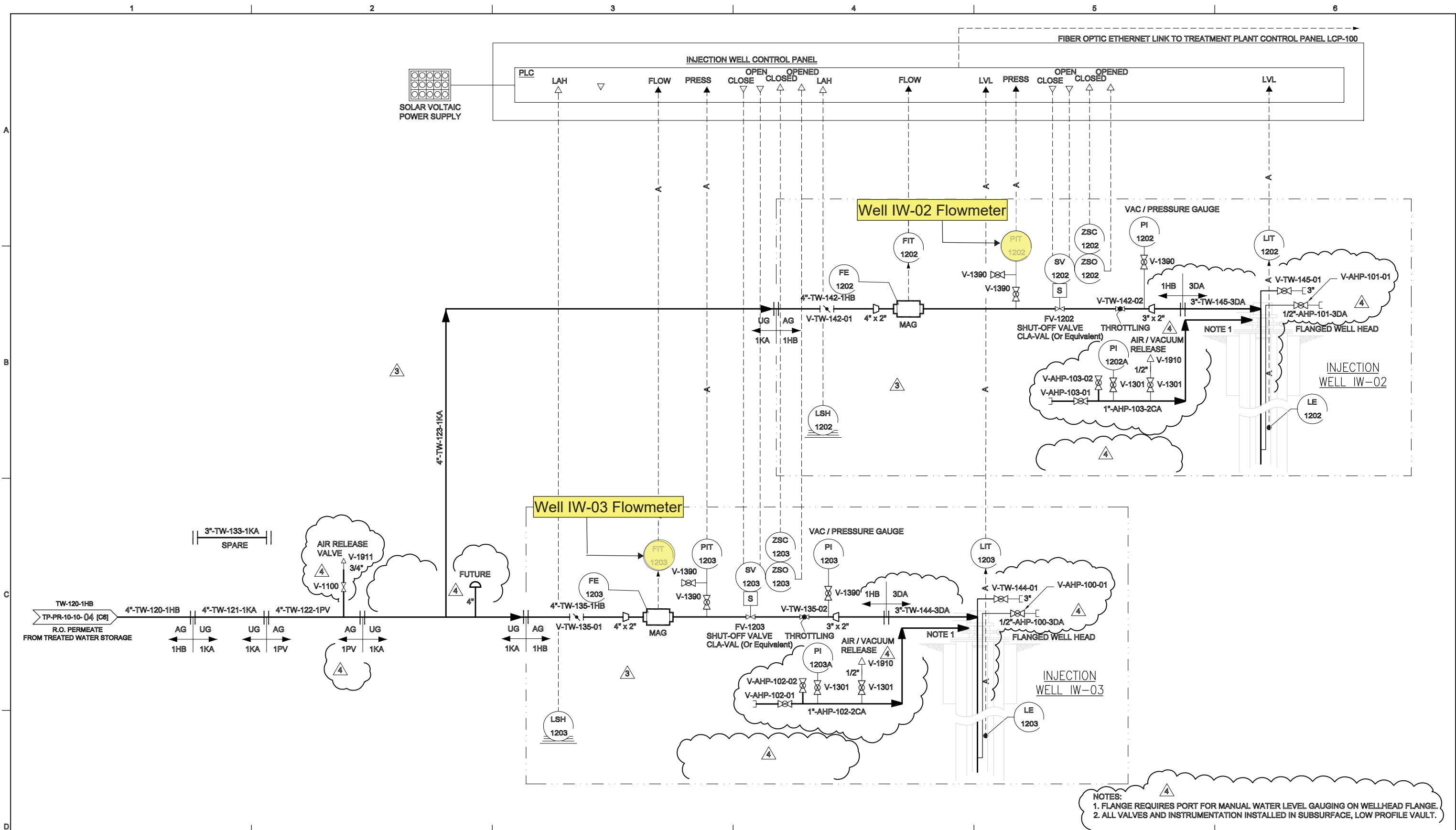
FILENAME: tppr101003.dwg

PLOT DATE: 19-OCT-2005

PLOT TIME:

THIS DOCUMENT AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF CH2M HILL AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CH2M HILL.





NO.	DATE	REVISION	BY	CHK	REVISION APPROVAL	REV 4	DATE 03/10/05	PRINT DISTRIBUTION	STATUS					PACIFIC GAS & ELECTRIC CO. TOPOCK COMPRESSOR STATION INTERIM MEASURE 3 EXPANDED GROUNDWATER EXTRACTION AND TREATMENT SYSTEM PROJ NO. 315994	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							
4	03/10/05	REMOVED HOLD AND APPROVED FOR CONSTRUCTION	EFC	AJ	PIPING		GEN. ARRANG.		INTRA CO.							

**Appendix A**  
**Semiannual Operations and**  
**Maintenance Log,**  
**January 1, 2020 through June 30, 2020**

## Appendix A. Semiannual Operations and Maintenance Log, January 1, 2020 through June 30, 2020

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 2020

During January 2020, 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, TW-2S, PE-1 were not operated during January 2020. The operational run time for the IM-3 groundwater extraction system (combined or individual pumping) was 96.5 percent during the January 2020 reporting period.

The IM-3 facility treated approximately 5,754,306 gallons of extracted groundwater during January 2020. The IM-3 facility also treated 9,500 gallons of Final Groundwater Remedy waste water, zero gallons of sampling purge water and 40,000 groundwater from injection well backwashing/re-development during January 2020. Two containers of solids from the IM-3 facility were transported offsite during January 2020.

Periods of planned and unplanned extraction system down time (that together resulted an approximately 3.5 percent downtime during January 2020) are summarized below.

- **January 6, 2020 (unplanned):** The extraction well system was offline from 6:52 p.m. to 8:14 p.m. due microfilter problems. The basket strainer in the microfilter unit was plugged. The operator shut down extraction to put in a clean strainer and reassemble the basket. Extraction system downtime was 1 hour 22 minutes.
- **January 6, 2020 (unplanned):** The extraction well system was offline from 10:04 p.m. to 10:48 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 below the high-level alarm setpoint. Extraction system downtime was 44 minutes.
- **January 7, 2020 (unplanned):** The extraction well system was offline from 10:34 a.m. to 12:14 p.m. due to replacing microfilter modules. Extraction system downtime was 1 hour 40 minutes.
- **January 8, 2020 (unplanned):** The extraction well system was offline from 4:16 a.m. to 4:32 a.m. due to a City of Needles Power outage. The treatment plant was switched to generator power. Extraction system downtime was 16 minutes.
- **January 9, 2020 (planned):** The extraction well system was offline from 8:12 a.m. to 9:14 a.m. to process remedy wastewater generated from remedy well construction activities. Extraction system downtime was 1 hour 2 minutes.
- **January 10, 2020 (unplanned):** The extraction well system was offline from 9:06 a.m. to 10:42 a.m. to perform maintenance on the microfilter strainer system. Operators cleaned the inside of the Feed Tank (T-501), cleaned the discharge strainer, and cleaned a hand operated valve. Extraction system downtime was 1 hour 36 minutes.
- **January 12, 2020 (unplanned):** The extraction well system was offline from 9:44 a.m. to 10:50 a.m. due to a high-water level in T-100. The plant was shut down so the tank could drain below the high-level alarm setpoint. Extraction system downtime was 1 hour 6 minutes.
- **January 13, 2020 (unplanned):** The extraction well system was offline from 10:02 a.m. to 11:10 a.m. due to replacing microfilter modules. Extraction system downtime was 1 hour 8 minutes.
- **January 13-14, 2020 (unplanned):** The extraction well system was offline from 4:34 p.m. to 5:44 p.m. on January 13, 2020; and from 8:32 p.m. to 9:28 p.m. January 14, 2020 due to a high

water-level in T-100. The plant was shut down so the tank could drain below the high-level alarm setpoint. Extraction system downtime was 2 hours 6 minutes.

- **January 15, 2020 (unplanned):** The extraction well system was offline from 10:22 a.m. to 11:50 a.m. to replace a failed water-level sensor in the Treated Water Tank (T-700). Extraction system downtime was 1 hour 28 minutes.
- **January 16-21, 2020 (unplanned):** The extraction well system was offline from 2:20 a.m. to 3:36 a.m. on January 16, 2020; from 3:40 a.m. to 4:40 a.m. on January 18, 2020; from 11:48 a.m. to 1:14 p.m. on January 19, 2020; from 2:12 p.m. to 3:16 p.m. on January 20, 2020; and from 12:00 p.m. to 5:00 p.m. on January 21, 2020 due to a high-water level in Raw Water Storage Tank (T-100). The plant was shut down so the tank could drain below the high-level alarm setpoint. Extraction system downtime was 9 hours 46 minutes.
- **January 23-24, 2020 (unplanned):** The extraction well system was offline from 4:36 a.m. to 5:22 a.m. on January 23, 2020; from 2:56 p.m. to 4:04 p.m. on January 23, 2020; and from 1:04 p.m. to 1:52 p.m. on January 24, 2020 due to Groundwater Partners offloading backwash water from the injection wells. Extraction was shut down due to large backwash water volumes and to control tank levels. Extraction system downtime was 2 hours 42 minutes.
- **January 29, 2020 (unplanned):** The extraction well system was offline from 5:32 p.m. to 6:24 p.m. due to a high-water level in T-100. The plant was shut down so the tank could drain below the high-level alarm setpoint. Extraction system downtime was 52 minutes.

## February 2020

During February 2020, extraction well TW-3D operated at a target pump rate of 135 gpm excluding periods of planned and unplanned downtime. Extraction wells TW-2D, TW-2S, and PE-1 were not operated during February 2020. The operational run time for the IM-3 groundwater extraction system (combined or individual pumping) was 94.6 percent during the February 2020 reporting period.

The IM-3 facility treated approximately 5,318,999 gallons of extracted groundwater during February 2020. The IM-3 facility also treated zero gallons of Final Groundwater Remedy waste water, 370 gallons of sampling purge water, and zero gallons of groundwater from injection well backwashing/re-development during February 2020. Two containers of solids from the IM-3 facility were transported offsite during February 2020.

Periods of planned and unplanned extraction system down time (that together resulted an approximately 5.4 percent downtime during February 2020) are summarized below.

- **February 5, 2020 (unplanned):** The extraction well system was offline from 12:50 p.m. to 1:26 p.m. due to replacing microfilter modules. Extraction system downtime was 36 minutes.
- **February 7, 2020 (unplanned):** The extraction well system was offline from 5:40 a.m. to 6:24 a.m. due to high-water levels in Iron Oxidation Reactor No. 3 (T-301C) and Raw Water Storage Tank (T-100). The high-water levels were caused by blockages in the piping between the oxidation tanks. Extraction system downtime was 44 minutes.
- **February 7, 2020 (unplanned):** The extraction well system was offline from 5:30 p.m. to 6:12 p.m. due to high-water levels in the Chromium Reduction Reactor (T-300A), Iron Oxidation Reactor #2 (T-301B), T-301C, and T-100. There were blockages in the piping between the oxidation tanks causing the high water levels. Extraction system downtime was 42 minutes.
- **February 8-10, 2020 (unplanned):** The extraction well system was offline from 9:44 p.m. to 10:54 p.m. on February 8, 2020; and from 3:38 a.m. to 4:34 a.m. February 10, 2020 due to a high-water level in Raw Water Storage Tank (T-100). The plant was shut down so the tank could drain below the high-level alarm setpoint. Extraction system downtime was 2 hours 6 minutes.



- **February 10, 2020 (unplanned):** The extraction well system was offline from 4:48 p.m. to 9:46 p.m. because the compressor had a high temperature alarm that caused the extraction system to shut down. Maintenance was performed on the unit and the plant was returned to service. Extraction system downtime was 4 hours 58 minutes.
- **February 11, 2020 (unplanned):** The extraction well system was offline from 2:58 p.m. to 4:32 p.m. due to a high-water level in T-100. The plant was shut down so the tank could drain below the high-level alarm setpoint. Extraction system downtime was 1 hour 34 minutes.
- **February 12, 2020 (unplanned):** The extraction well system was offline from 8:18 a.m. to 1:38 p.m. to find and remove blockages from piping connecting the oxidation tanks. Two valves were scaled sufficiently to cause the previous flow restrictions. The valves were cleaned and replaced, and the plant returned to service. Extraction system downtime was 5 hour 20 minutes.
- **February 13, 2020 (planned):** The extraction well system was offline from 10:00 a.m. to 11:08 a.m. due to testing of the pipeline critical alarms and leak detection system. Extraction system downtime was 1 hour 8 minutes.
- **February 14, 2020 (unplanned):** The extraction well system was offline from 7:12 a.m. to 8:52 a.m. due to replacing microfilter modules and so T-100 could drain below the high-level alarm setpoint. Extraction system downtime was 1 hour 40 minutes.
- **February 15-23, 2020 (unplanned):** The extraction well system was offline from 2:34 p.m. to 3:56 p.m. on February 15, 2020; 6:04 p.m. to 7:10 p.m. on February 17, 2020; 4:44 p.m. to 5:48 p.m. on February 19, 2020; and from 2:34 a.m. to 3:20 a.m. February 23, 2020 due to a high-water level in T-100. The plant was shut down so the tank could drain below the high-level alarm setpoint. Extraction system downtime was 4 hour 18 minutes.
- **February 23, 2020 (unplanned):** The extraction well system was offline from 9:22 a.m. to 10:12 a.m. due to replacing microfilter modules. Extraction system downtime was 50 minutes.
- **February 24, 2020 (unplanned):** The extraction well system was offline from 11:58 a.m. to 12:06 p.m. due to a programmable logic controller (PLC) and human machine interface (HMI) connectivity issue. Extraction system downtime was 8 minutes.
- **February 25, 2020 (unplanned):** The extraction well system was offline from 3:06 p.m. to 4:24 p.m. due to a high-water level in T-100. The plant was shut down so the tank could drain below the high-level alarm setpoint. Extraction system downtime was 1 hour 18 minutes.
- **February 27, 2020 (unplanned):** The extraction well system was offline from 7:16 a.m. to 12:04 p.m. due to maintenance at the Clarifier Feed Pump (P-400). During maintenance on a pressure gauge, a valve broke. The valve and gauge were replaced, and the plant was returned to service. Extraction system downtime was 4 hours 48 minutes.
- **February 29, 2020 (unplanned):** The extraction well system was offline from 4:52 p.m. to 11:58 p.m. due to plant laboratory testing results not detecting ferrous iron and having a slightly elevated hexavalent chromium concentration (0.009 mg/L). The extraction system was shut down and the plant placed into recirculation mode until the ferrous iron was detected and the hexavalent chromium went back down to normal (maximum of 0.008 mg/L with a typical range being between 0.002 mg/L and 0.005 mg/L). Extraction system downtime was 7 hours 6 minutes.

## March 2020

During March 2020, extraction wells TW-3D, TW-2D, and TW-2S operated at a target pump rate of 135 gpm excluding periods of planned and unplanned downtime. Extraction well PE-1 was not operated during March 2020. A portion of the piping/conduit for PE-1 at the MW-20 Bench was disconnected from the IM-3 system on December 18, 2019 to allow for remedy construction activities without crossing under the PE-1 piping/conduit. The operational run time for the IM-3 groundwater extraction system (combined or individual pumping) was 90.1 percent during the March 2020 reporting period.

The IM-3 facility treated approximately 5,475,275 gallons of extracted groundwater during March 2020. The IM-3 facility also treated 32,500 gallons of Final Groundwater Remedy waste water, zero gallons of sampling purge water, and zero gallons of groundwater from injection well backwashing/re-development during March 2020. Three containers of solids from the IM-3 facility were transported offsite during March 2020.

Periods of planned and unplanned extraction system down time (that together resulted in approximately 9.9 percent downtime during March 2020) are summarized below.

- **March 3, 2020 (unplanned):** The extraction well system was offline from 8:58 a.m. to 10:08 a.m. to treat remedy wastewater generated from remedy well construction activities. Extraction system downtime was 1 hour 10 minutes.
- **March 3, 2020 (unplanned):** The extraction well system was offline from 7:58 p.m. to 9:12 p.m. due to clogged pre-filters in the Primary Reverse Osmosis system. Plugged filters caused the secondary RO to shut down due to safety interlocks. The operator changed the pre-filter cartridges and the plant was returned to service. Extraction system downtime was 1 hour 14 minutes.
- **March 4, 2020 (planned):** The extraction well system was offline from 10:20 a.m. to 10:44 a.m. due to a high-water level in Raw Water Storage Tank (T-100) and due to testing of the pipeline critical alarms and leak detection system. The plant was shut down so the tank could drain below the high-level alarm setpoint. Extraction system downtime was 24 minutes.
- **March 4, 2020 (unplanned):** The extraction well system was offline from 10:50 a.m. to 10:52 a.m. due to a PLC and HMI connectivity issue. Extraction system downtime was 2 minutes.
- **March 4, 2020 (unplanned):** The extraction well system was offline from 2:04 p.m. to 3:52 p.m. due to a high-water level in T-100. The plant was shut down so the tank could drain below the high-level alarm setpoint. Extraction system downtime was 1 hour 48 minutes.
- **March 5, 2020 (unplanned):** The extraction well system was offline from 6:06 p.m. to 11:24 p.m. due to the extraction pump failing at TW-3D. Extraction system downtime was 5 hours 18 minutes.
- **March 6, 2020 (unplanned):** The extraction well system was offline from 2:08 a.m. to 2:10 a.m.; from 2:14 a.m. to 2:16 a.m.; from 2:38 a.m. to 2:40 a.m.; from 2:52 a.m. to 2:54 a.m.; from 3:10 a.m. to 3:12 a.m.; from 3:24 a.m. to 3:26 a.m.; from 3:28 a.m. to 3:30 a.m.; from 4:06 a.m. to 4:08 a.m.; from 4:16 a.m. to 4:20 a.m.; from 4:30 a.m. to 4:32 a.m.; and from 4:36 a.m. to 4:38 a.m. due to a PLC and HMI connectivity issue. Extraction system downtime was 24 minutes.
- **March 6-7, 2020 (planned):** The extraction well system was offline from 5:54 p.m. on March 6, 2020 to 12:24 a.m. on March 7, 2020 due to replacing the failed pump at TW-3D. Extraction system downtime was 6 hours 30 minutes.
- **March 7, 2020 (unplanned):** The extraction well system was offline from 12:28 p.m. to 12:30 p.m. due to a PLC and HMI connectivity issue. Extraction system downtime was 2 minutes.
- **March 9-12, 2020 (unplanned):** The extraction well system was offline from 1:36 a.m. to 2:50 a.m. and from 9:44 p.m. to 10:48 p.m. on March 9, 2020; from 10:16 p.m. to 11:18 p.m. on March 10, 2020; from 10:38 p.m. to 11:42 p.m. on March 11, 2020; and from 11:42 a.m. to 12:42 p.m. on March 12, 2020 due to a high-water level in T-100. The plant was shut down so the tank could drain below the high-level alarm setpoint. Extraction system downtime was 4 hours 56 minutes.
- **March 13, 2020 (unplanned):** The extraction well system was offline from 3:08 a.m. to 3:48 a.m. due to a high-water level in T-100. A storm event occurred that had a lot of rain. Rain that hits the rooftop of the IM-3 Treatment Plant drains into the gutters in the facility; the gutters drain into Process Drain Tank T-900, which is then transferred to T-100 for processing. The plant was shut down so the tank could drain below the high-level alarm setpoint. Extraction system downtime was 40 minutes.
- **March 13, 2020 (unplanned):** The extraction well system was offline from 8:10 a.m. to 10:50 a.m. to install a new water level sensor in T-100. Extraction system downtime was 2 hours 40 minutes.

- **March 14-16, 2020 (unplanned):** The extraction well system was offline from 4:06 p.m. to 5:14 p.m. on March 14, 2020; from 9:40 p.m. to 10:40 p.m. on March 15, 2020; from 7:58 p.m. to 8:48 p.m. on March 16, 2020 due to a high-water level in T-100. The plant was shut down so the tank could drain below the high-level alarm setpoint. Extraction system downtime was 2 hours 58 minutes.
- **March 17, 2020 (unplanned):** The extraction well system was offline from 9:58 a.m. to 11:16 a.m. due to replacing microfilter modules. Extraction system downtime was 1 hour 18 minutes.
- **March 17-25, 2020 (unplanned):** The extraction well system was offline from 11:04 p.m. on March 17, 2020 to 12:14 a.m. on March 18, 2020; from 4:00 p.m. to 5:06 p.m. on March 18, 2020; from 12:12 p.m. to 1:04 p.m. on March 19, 2020; from 12:06 a.m. to 1:04 a.m. on March 20, 2020; from 6:06 p.m. to 7:12 p.m. on March 20, 2020; from 5:12 p.m. to 6:50 p.m. on March 21, 2020; from 3:32 a.m. to 4:18 a.m. on March 22, 2020; from 7:06 a.m. to 8:22 a.m. on March 24, 2020; and from 10:20 p.m. to 11:38 p.m. on March 25, 2020 due to a high-water level in T-100. The plant was shut down so the tank could drain below the high-level alarm setpoint. Extraction system downtime was 10 hours 10 minutes.
- **March 25, 2020 (unplanned):** The extraction well system was offline from 11:44 p.m. to 11:28 p.m. due to replacing microfilter modules. Extraction system downtime was 14 minutes.
- **March 26-31, 2020 (unplanned):** The extraction well system was offline from 5:54 p.m. to 7:06 p.m. on March 26, 2020; from 6:04 p.m. to 7:06 p.m. on March 28, 2020; from 2:04 p.m. to 3:02 p.m. on March 29, 2020; from 9:18 a.m. to 10:30 a.m. on March 30, 2020; from 2:40 a.m. to 3:46 a.m. on March 31, 2020; and from 1:58 p.m. to 3:16 p.m. on March 31, 2020 due to a high-water level in T-100. The plant was shut down so the tank could drain below the high-level alarm setpoint. Extraction system downtime was 6 hours 48 minutes.

## April 2020

During April 2020, extraction well TW-3D operated at a target pump rate of 135 gpm excluding periods of planned and unplanned downtime. Extraction wells TW-2D, TW-3D, and PE-1 were not operated during April 2020. A portion of the piping/conduit for PE-1 at the MW-20 Bench was disconnected from the IM-3 system on December 18, 2019 to allow for remedy construction activities without crossing under the PE-1 piping/conduit. The operational run time for the IM-3 groundwater extraction system (combined or individual pumping) was 93.7 percent during the April 2020 reporting period.

The IM-3 facility treated approximately 5,415,462 gallons of extracted groundwater during April 2020. The IM-3 facility also treated 58,300 gallons of Final Groundwater Remedy waste water, 230 gallons of sampling purge water and zero gallons of groundwater from injection well backwashing/re-development during April 2020. Three containers of solids from the IM-3 facility were transported offsite during April 2020.

Periods of planned and unplanned extraction system down time (that together resulted in approximately 6.3 percent downtime during April 2020) are summarized below.

- **April 1, 2020 (unplanned):** The extraction well system was offline from 5:30 a.m. to 6:00 a.m. due to a high-water level in Raw Water Storage Tank (T-100). The plant was shut down so the tank could drain below the high-level alarm setpoint. Extraction system downtime was 30 minutes.
- **April 1, 2020 (planned):** The extraction well system was offline from 6:20 a.m. to 1:48 p.m. due to plant maintenance to locate a blockage. Blockage was found in the piping connecting Iron Oxidation Reactor T-301B and C. Extraction system downtime was 7 hours 28 minutes.
- **April 1, 2020 (unplanned):** The extraction well system was offline from 1:50 p.m. to 2:04 p.m., and from 2:06 p.m. to 2:48 p.m. due to a PLC and HMI connectivity issue. Extraction system downtime was 36 minutes.

- **April 2, 2020 (unplanned):** The extraction well system was offline from 7:24 p.m. to 8:32 p.m. due to a high-water level in T-100. The plant was shut down so the tank could drain below the high-level alarm setpoint. Extraction system downtime was 1 hour 8 minutes.
- **April 3, 2020 (planned):** The extraction well system was offline from 7:40 a.m. to 8:00 a.m. and from 8:02 a.m. to 8:14 a.m. to process wastewater generated from remedy well construction activities. Extraction system downtime was 32 minutes.
- **April 3, 2020 (unplanned):** The extraction well system was offline from 8:52 a.m. to 10:28 a.m. due to replacing microfilter modules. Extraction system downtime was 1 hour 36 minutes.
- **April 4-10, 2020 (unplanned):** The extraction well system was offline from 7:18 p.m. to 8:42 p.m. on April 4, 2020; from 2:54 a.m. to 3:30 a.m. on April 6, 2020; from 12:50 a.m. to 1:38 a.m. and from 10:10 p.m. to 10:52 p.m. on April 7, 2020; from 1:32 a.m. to 2:24 a.m. on April 9, 2020; and from 2:34 a.m. to 3:04 a.m. on April 10, 2020 due to a high-water level in T-100. The plant was shut down so the tank could drain below the high-level alarm setpoint. Extraction system downtime was 4 hours 52 minutes.
- **April 11, 2020 (unplanned):** The extraction well system was offline from 6:58 a.m. to 8:56 a.m. due to replacing microfilter modules. Extraction system downtime was 1 hour 58 minutes.
- **April 11-14, 2020 (unplanned):** The extraction well system was offline from 9:46 p.m. to 10:28 p.m. on April 11, 2020; from 12:08 a.m. to 1:00 a.m. on April 13, 2020; and from 12:00 a.m. to 12:52 a.m. on April 14, 2020 due to a high-water level in T-100. The plant was shut down so the tank could drain below the high-level alarm setpoint. Extraction system downtime was 2 hours 26 minutes.
- **April 14, 2020 (unplanned):** The extraction well system was offline from 7:00 p.m. to 7:58 p.m. due to replacing microfilter modules. Extraction system downtime was 58 minutes.
- **April 15-17, 2020 (unplanned):** The extraction well system was offline from 2:30 p.m. to 3:36 p.m. on April 15, 2020 and from 1:52 a.m. to 2:26 a.m. on April 17, 2020 due to a high-water level in T-100. The plant was shut down so the tank could drain below the high-level alarm setpoint. Extraction system downtime was 1 hours 40 minutes.
- **April 18, 2020 (unplanned):** The extraction well system was offline from 2:46 a.m. to 4:22 a.m. due to clogged pre-filters in the Primary Reverse Osmosis system. Clogged filters caused the secondary RO to shut down due to safety interlocks. The operator changed the pre-filter cartridges and the plant was returned to service. Extraction system downtime was 1 hour 36 minutes.
- **April 20, 2020 (unplanned):** The extraction well system was offline from 7:02 p.m. to 7:58 p.m. due to a high-water level in T-100. The plant was shut down so the tank could drain below the high-level alarm setpoint. Extraction system downtime was 56 minutes.
- **April 21, 2020 (unplanned):** The extraction well system was offline from 7:12 a.m. to 8:18 a.m. due to replacing microfilter modules. Extraction system downtime was 1 hour 6 minutes.
- **April 22-26, 2020 (unplanned):** The extraction well system was offline from 7:44 p.m. to 8:38 p.m. on April 22, 2020; from 2:14 a.m. to 3:00 a.m. and from 8:02 p.m. to 8:56 p.m. on April 24, 2020; and from 1:58 a.m. to 3:04 a.m. and from 9:38 p.m. to 10:30 p.m. on April 26, 2020 due to a high-water level in T-100. The plant was shut down so the tank could drain below the high-level alarm setpoint. Extraction system downtime was 4 hours 32 minutes.
- **April 27, 2020 (planned):** The extraction well system was offline from 10:00 a.m. on to 10:26 a.m. due to a failed air release valve on the extraction line. The line was replaced and the plant returned to service. Extraction system downtime was 26 minutes.
- **April 27-28, 2020 (unplanned):** The extraction well system was offline from 11:32 p.m. on April 27, 2020 to 12:36 a.m. on April 28, 2020 due to a high-water level in T-100. The plant was shut down so the tank could drain below the high-level alarm setpoint. Extraction system downtime was 1 hour 4 minutes.

- **April 28-29, 2020 (unplanned):** The extraction well system was offline from 6:56 a.m. to 11:58 a.m. on April 28, 2020 and from 6:12 a.m. to 9:54 a.m. on April 29, 2020 to process wastewater generated from remedy well construction activities. Extraction system downtime was 5 hours 2 minutes.
- **April 29, 2020 (unplanned):** The extraction well system was offline from 5:42 p.m. to 6:58 p.m. due to a high flow alarm on TW-3D causing it to shut down. Extraction system downtime was 1 hour 16 minutes.
- **April 30, 2019 (unplanned):** The extraction well system was offline from 11:24 a.m. to 11:40 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 16 minutes.
- **April 30, 2020 (unplanned):** The extraction well system was offline from 7:10 p.m. to 7:34 p.m. and from 7:36 p.m. to 8:40 p.m. due to a high-water level in T-100. The plant was shut down so the tank could drain below the high-level alarm setpoint. Extraction system downtime was 1 hour 28 minutes.

## May 2020

During May 2020, extraction well TW-3D operated at a target pump rate of 135 gpm excluding periods of planned and unplanned downtime. Extraction wells TW-2D, TW-3D, and PE-1 were not operated during May 2020. A portion of the piping/conduit for PE-1 at the MW-20 Bench was disconnected from the IM-3 system on December 18, 2019 to allow for remedy construction activities without crossing under the PE-1 piping/conduit. The operational run time for the IM-3 groundwater extraction system (combined or individual pumping) was 69.6 percent during the May 2020 reporting period.

The IM-3 facility treated approximately 4,085,942 gallons of extracted groundwater during May 2020. The IM-3 facility also treated 63,000 gallons of Final Groundwater Remedy waste water, 200 gallons of sampling purge water and 27,500 gallons of groundwater from injection well backwashing/re-development during May 2020. Five containers of solids from the IM-3 facility were transported offsite during May 2020.

Periods of planned and unplanned extraction system down time (that together resulted in approximately 30.4 percent downtime during May 2020) are summarized below.

- **May 1-2, 2020 (unplanned):** The extraction well system was offline from 7:42 p.m. to 8:36 p.m. on May 1, 2020; and from 3:06 a.m. to 3:52 a.m. on May 2, 2020 due to a high-water level in Raw Water Storage Tank (T-100). The operator shut down extraction so the tank could drain below the high-level alarm setpoint. Extraction system downtime was 1 hour 40 minutes.
- **May 2, 2020 (unplanned):** The extraction well system was offline from 9:16 a.m. to 9:18 p.m. due to a PLC and HMI connectivity issue. Extraction system downtime was 2 minutes.
- **May 3-5, 2020 (unplanned):** The extraction well system was offline from 12:42 a.m. to 2:02 a.m., from 10:28 p.m. to 11:08 p.m., and from 11:10 p.m. to 11:30 p.m. on May 3, 2020; from 7:10 p.m. to 8:26 p.m. on May 4, 2020; and from 10:08 a.m. to 10:46 a.m. on May 5, 2020 due to a high-water level in T-100. The operator shut down extraction so the tank could drain below the high-level alarm setpoint. Extraction system downtime was 4 hour 14 minutes.
- **May 5, 2020 (unplanned):** The extraction well system was offline from 10:48 a.m. to 10:58 a.m.; from 11:00 a.m. to 11:10 a.m.; and from 3:12 p.m. to 3:14 p.m. due to a PLC and HMI connectivity issue. Extraction system downtime was 22 minutes.
- **May 6, 2020 (unplanned):** The extraction well system was offline from 6:40 a.m. to 7:38 a.m. because of a high level in T-100 due to backwashing of the injection wells. Extraction system downtime was 58 minutes.
- **May 7, 2020 (unplanned):** The extraction well system was offline from 12:02 a.m. to 12:56 a.m. due to a high-water level in T-100. The operator shut down extraction so the tank could drain below the high-level alarm setpoint. Extraction system downtime was 54 minutes.



- **May 7, 2020 (unplanned):** The extraction well system was offline from 8:12 a.m. to 9:00 a.m. because of a high level in T-100 due to backwashing of the injection wells. Extraction system downtime was 48 minutes.
- **May 7, 2020 (unplanned):** The extraction well system was offline from 8:12 a.m. to 9:00 a.m.; from 1:06 p.m. to 1:30 p.m.; from 1:32 p.m. to 2:12 p.m.; from 2:14 p.m. to 2:20 p.m.; from 2:22 p.m. to 2:42 p.m.; from 2:44 p.m. to 2:52 p.m.; from 2:54 p.m. to 3:16 p.m.; and from 3:18 p.m. to 3:24 p.m. because of a high level in T-100 due to backwashing of the injection wells. Extraction system downtime was 1 hour 54 minutes.
- **May 8, 2020 (unplanned):** The extraction well system was offline from 7:42 p.m. to 8:08 p.m.; and from 8:10 p.m. to 8:46 p.m. due to a high-water level in T-100. The operator shut down extraction so the tank could drain below the high-level alarm setpoint. Extraction system downtime was 1 hour 2 minutes.
- **May 9, 2020 (unplanned):** The extraction well system was offline from 2:16 a.m. to 4:08 a.m. due to replacing microfilter modules. Extraction system downtime was 1 hour 52 minutes.
- **May 9, 2020 (unplanned):** The extraction well system was offline from 11:56 a.m. to 11:58 a.m. due to a PLC and HMI connectivity issue. Extraction system downtime was 2 minutes.
- **May 10, 2020 (unplanned):** The extraction well system was offline from 12:10 a.m. to 12:36 a.m.; from 12:38 a.m. to 1:06 a.m.; from 1:08 a.m. to 1:28 a.m. due to a high-water level in T-100. The operator shut down extraction so the tank could drain below the high-level alarm setpoint. Extraction system downtime was 1 hour 14 minutes.
- **May 10, 2020 (unplanned):** The extraction well system was offline from 4:16 p.m. to 4:18 a.m. due to a PLC and HMI connectivity issue. Extraction system downtime was 2 minutes.
- **May 10, 2020 (unplanned):** The extraction well system was offline from 8:44 p.m. to 9:46 p.m. due to a high-water level in T-100. The operator shut down extraction so the tank could drain below the high-level alarm setpoint. Extraction system downtime was 1 hour 2 minutes.
- **May 11-15, 2020 (planned):** The extraction well system was offline from 6:22 a.m. to 6:30 a.m., from 6:32 a.m. to 7:30 a.m., from 7:36 a.m. to 8:32 a.m., from 8:34 a.m. to 8:38 a.m., from 8:40 a.m. to 9:16 a.m., from 9:18 a.m. to 9:20 a.m., from 9:24 a.m. to 9:38 a.m., from 9:40 a.m. to 9:52 a.m., from 9:54 a.m. to 10:04 a.m., from 10:06 a.m. to 10:28 a.m., from 10:30 a.m. to 10:46 a.m., from 10:48 a.m. to 4:52 p.m., from 4:54 p.m. to 6:14 p.m., and from 6:16 p.m. to 8:32 p.m. on May 11, 2020; from 10:34 p.m. on May 11, 2020 to 9:22 a.m. on May 15, 2020; and from 11:48 a.m. to 1:10 p.m. on May 15, 2020 for the semiannual scheduled maintenance. Extraction system downtime was 4 days 3 hours 48 minutes.
- **May 16-19, 2020 (unplanned):** The extraction well system was offline from 8:50 a.m. to 9:24 a.m. on May 16, 2020; from 2:14 a.m. to 3:16 a.m. on May 17, 2020; from 8:50 a.m. to 10:42 on May 18, 2020; and from 2:26 a.m. to 2:52 a.m. and from 7:18 p.m. to 8:14 p.m. on May 19, 2020 due to a high-water level in T-100. The operator shut down extraction so the tank could drain below the high-level alarm setpoint. Extraction system downtime was 4 hour 50 minutes.
- **May 20, 2020 (unplanned):** The extraction well system was offline from 6:34 a.m. to 10:04 a.m.; from 10:06 a.m. to 10:16 a.m.; from 10:18 a.m. to 11:42 a.m.; and from 11:44 a.m. to 1:56 p.m. due to replacing two failed check valves stuck in the open position from buildup. Operator also replaced plugged microfilter modules. Groundwater Partners made modifications to TW-3D in preparation for the 72-hour test. Extraction system downtime was 7 hour 16 minutes.
- **May 21, 2020 (unplanned):** The extraction well system was offline from 1:34 p.m. to 1:56 p.m. due the air compressor failing due to high temperatures causing the shutdown. Operator switched to the backup compressor and started the plant back up. Extraction system downtime was 22 minutes.
- **May 22, 2020 (unplanned):** The extraction well system was offline from 8:18 p.m. to 9:08 p.m. due to a high-water level in T-100. The operator shut down extraction so the tank could drain below the high-level alarm setpoint. Extraction system downtime was 50 minutes.

- **May 23, 2020 (planned):** The extraction well system was offline from 8:50 a.m. to 9:38 a.m. due to testing of the pipeline critical alarms and leak detection system and also to process wastewater generated from remedy well construction activities. Extraction system downtime was 48 minutes.
- **May 24, 2020 (unplanned):** The extraction well system was offline from 2:10 a.m. to 3:02 a.m. due to a high-water level in T-100. The operator shut down extraction so the tank could drain below the high-level alarm setpoint. Extraction system downtime was 52 minutes.
- **May 24, 2020 (planned):** The extraction well system was offline from 8:18 a.m. to 8:36 a.m. and from 11:02 to 11:16 to process wastewater generated from remedy well construction activities. Extraction system downtime was 32 minutes.
- **May 25, 2020 (unplanned):** The extraction well system was offline from 2:16 a.m. to 3:06 a.m. due to a high-water level in T-100. The operator shut down extraction so the tank could drain below the high-level alarm setpoint. Extraction system downtime was 50 minutes.
- **May 25, 2020 (planned):** The extraction well system was offline from 4:44 a.m. to 4:58 a.m.; from 11:10 a.m. to 12:16 p.m.; and from 7:32 p.m. to 11:28 p.m. to process wastewater generated from remedy well construction activities. Extraction system downtime was 5 hours 16 minutes.
- **May 26, 2020 (unplanned):** The extraction well system was offline from 5:58 p.m. to 6:42 p.m. due to a high-water level in T-100. The operator shut down extraction so the tank could drain below the high-level alarm setpoint. Extraction system downtime was 44 minutes.
- **May 26, 2020 (unplanned):** The extraction well system was offline from 6:58 p.m. to 10:10 p.m. due to replacing microfilter modules, replacing the microfiltration skid pump (P-501), and cleaning and descaling pipe near the pump. Extraction system downtime was 3 hours 12 minutes.
- **May 28-31, 2020 (planned):** The extraction well system was offline from 11:14 a.m. on May 28, 2020 to midnight on May 31, 2020 to shut down for pre-recovery for the planned 72-hour test. Extraction system downtime was 3 days 12 hours 46 minutes.

## June 2020

During June 2020, extraction well TW-3D operated at a target pump rate of 135 gpm excluding periods of planned and unplanned downtime. Extraction wells TW-2D, TW-3D, and PE-1 were not operated during June 2020. A portion of the piping/conduit for PE-1 at the MW-20 Bench was disconnected from the IM-3 system on December 18, 2019 to allow for remedy construction activities without crossing under the PE-1 piping/conduit. The operational run time for the IM-3 groundwater extraction system (combined or individual pumping) was 69.3 percent during the June 2020 reporting period.

The IM-3 facility treated approximately 3,959,668 gallons of extracted groundwater during June 2020. The IM-3 facility also treated zero gallons of Final Groundwater Remedy wastewater, 550 gallons of sampling purge water and zero gallons of groundwater from injection well backwashing/re-development during June 2020. No containers of solids from the IM-3 facility were transported offsite during June 2020.

Periods of planned and unplanned extraction system down time (that together resulted in approximately 30.7 percent downtime during June 2020) are summarized below.

- **June 1 - 6, 2020 (planned):** The extraction well system was offline from 12:00 a.m. on June 1, 2020 to 11:34 a.m. on June 6, 2020 to shut down for groundwater level recovery before the Final Groundwater Remedy 72-hour pumping test. Extraction system downtime was 5 days 11 hours 32 minutes.
- **June 9 - 12, 2020 (planned):** The extraction well system was offline from 11:34 a.m. on June 9, 2020 to 12:04 p.m. on June 12, 2020 to shut down for groundwater level recovery after the Final Groundwater Remedy 72-hour pumping test. Extraction system downtime was 3 days 30 minutes.
- **June 12, 2020 (unplanned):** The extraction well system was offline from 12:08 p.m. to 2:02 p.m. due to the ferrous feed pump shutting down. The pump was repaired. A repair was also made to the

ferrous feed flow meter which was clogged by ferrous particles. Extraction system downtime was 1 hour 54 minutes.

- **June 14, 2020 (unplanned):** The extraction well system was offline from 5:50 p.m. to 6:50 p.m. due to a high-water level in Raw Water Storage Tank (T-100). The operator shut down extraction so the tank could drain below the high-level alarm setpoint. Extraction system downtime was 1 hour.
- **June 18, 2020 (unplanned):** The extraction well system was offline from 3:10 a.m. to 6:16 a.m. due to ferrous feed system problems. Sludge buildup was found in the ferrous system and in the tote. The sludge was cleaned off, the extraction restarted, and the tote was taken offline and returned to the vendor. Extraction system downtime was 3 hours 6 minutes.
- **June 23, 2020 (unplanned):** The extraction well system was offline from 10:46 a.m. to 11:44 a.m. due to replacing microfilter modules. Extraction system downtime was 58 minutes.
- **June 23 - 24, 2020 (unplanned):** The extraction well system was offline from 6:48 p.m. to 7:44 p.m. on June 23, 2020; and from 9:50 a.m. to 11:38 a.m. on June 24, 2020 due to a high-water level in T-100. The operator shut down extraction so the tank could drain below the high-level alarm setpoint. Extraction system downtime was 2 hours 44 minutes.
- **June 25, 2020 (unplanned):** The extraction well system was offline from 12:20 a.m. to 11:44 a.m. due to replacing microfilter modules. Extraction system downtime was 1 hour 22 minutes.
- **June 26 - 28, 2020 (unplanned):** The extraction well system was offline from 2:26 a.m. to 3:20 a.m. on June 26, 2020; from 6:16 a.m. to 6:46 a.m. on June 27, 2020; and from 2:24 a.m. to 3:48 a.m. on June 28, 2020 due to a high-water level in T-100. The operator shut down extraction so the tank could drain below the high-level alarm setpoint. Extraction system downtime was 2 hours 48 minutes.
- **June 28, 2020 (unplanned):** The extraction well system was offline from 10:20 p.m. to 10:50 p.m. due to clogged pre-filters in the Primary Reverse Osmosis system. The operator changed the pre-filter cartridges and the plant was returned to service. Extraction system downtime was 30 minutes.
- **June 29 - 30, 2020 (unplanned):** The extraction well system was offline from 9:52 a.m. to 11:04 a.m. on June 29, 2020; from 2:46 a.m. to 3:52 a.m. on June 30, 2020; and from 11:42 p.m. to 11:58 p.m. on June 30, 2020 due to a high-water level in T-100. The operator shut down extraction so the tank could drain below the high-level alarm setpoint. Extraction system downtime was 2 hours 34 minutes.



## **Appendix B**

### **Daily Volumes of Groundwater Treated**

**January 2020 Operational Data**  
IM-3 Groundwater Extraction and Treatment System  
PG&E Topock Compressor Station, Needles, California

			Extraction Well System					Injection Well System			RO Brine
Month	Day	Year	TW-2S (gallons)	TW-2D (gallons)	TW-3D (gallons)	PE-1 (gallons)	Total (gallons)	IW-02 (gallons)	IW-03 (gallons)	Total (gallons)	(gallons)
January	1	2020	--	--	190,608	0	190,608	0	186,786	186,786	0
January	2	2020	--	--	190,610	0	190,610	0	187,147	187,147	0
January	3	2020	--	--	190,672	0	190,672	0	187,134	187,134	0
January	4	2020	--	--	190,899	0	190,899	0	191,634	191,634	0
January	5	2020	--	--	190,727	0	190,727	0	193,434	193,434	0
January	6	2020	--	--	173,741	0	173,741	0	179,107	179,107	0
January	7	2020	--	--	177,446	0	177,446	0	178,613	178,613	0
January	8	2020	--	--	190,191	0	190,191	0	183,358	183,358	0
January	9	2020	--	--	182,624	0	182,624	0	194,478	194,478	0
January	10	2020	--	--	179,617	0	179,617	0	182,561	182,561	0
January	11	2020	--	--	191,952	0	191,952	0	181,845	181,845	0
January	12	2020	--	--	183,647	0	183,647	0	186,675	186,675	0
January	13	2020	--	--	174,173	0	174,173	0	179,580	179,580	0
January	14	2020	--	--	185,041	0	185,041	0	184,882	184,882	0
January	15	2020	--	--	181,065	0	181,065	0	173,912	173,912	0
January	16	2020	--	--	182,667	0	182,667	0	190,233	190,233	0
January	17	2020	--	--	192,931	0	192,931	0	187,943	187,943	0
January	18	2020	--	--	185,148	0	185,148	0	186,397	186,397	0
January	19	2020	--	--	181,769	0	181,769	0	188,714	188,714	0
January	20	2020	--	--	184,749	0	184,749	0	185,000	185,000	0
January	21	2020	--	--	153,059	0	153,059	0	153,726	153,726	0
January	22	2020	--	--	193,489	0	193,489	131,642	65,472	197,115	0
January	23	2020	--	--	177,860	0	177,860	126,413	71,143	197,557	0
January	24	2020	--	--	186,712	0	186,712	0	186,848	186,848	0
January	25	2020	--	--	193,208	0	193,208	0	200,177	200,177	0
January	26	2020	--	--	193,153	0	193,153	0	193,156	193,156	0
January	27	2020	--	--	192,978	0	192,978	0	191,835	191,835	0
January	28	2020	--	--	192,890	0	192,890	0	191,554	191,554	0
January	29	2020	--	--	185,707	0	185,707	0	192,122	192,122	0
January	30	2020	--	--	192,535	0	192,535	0	192,705	192,705	0
January	31	2020	--	--	192,439	0	192,439	0	192,566	192,566	0
<b>Total Monthly Volumes (gallons)</b>			<b>0</b>	<b>0</b>	<b>5,754,306</b>	<b>0</b>	<b>5,754,306</b>	<b>258,056</b>	<b>5,540,738</b>	<b>5,798,793</b>	<b>0</b>
<b>Average Pump/Injection Rates (gpm)</b>			<b>0.0</b>	<b>0.0</b>	<b>128.9</b>	<b>0.0</b>	<b>128.9</b>	<b>5.8</b>	<b>124.1</b>	<b>129.9</b>	<b>0.0</b>

NOTES: gpm: gallons per minute RO: Reverse Osmosis

- Extraction well TW-3D was operated during January 2020 at a target pump rate of 135 gpm excluding periods of planned and unplanned downtime. Extraction wells PE-01, TW-2S and TW-2D were not operated during January 2020.
- Effluent was discharged into injection wells IW-02 and IW-03.
- The difference between influent flow rate and the sum of the effluent and reverse osmosis concentrate flow rates during January 2020 is approximately 0.09 percent including approximately 9,500 gallons of groundwater remedy construction water and 40,000 gallons of injection well backwash/re-development water. 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 2020 Operational Data**

IM-3 Groundwater Extraction and Treatment System

PG&amp;E Topock Compressor Station, Needles, California

			Extraction Well System					Injection Well System			RO Brine
Month	Day	Year	TW-2S (gallons)	TW-2D (gallons)	TW-3D (gallons)	PE-1 (gallons)	Total (gallons)	IW-02 (gallons)	IW-03 (gallons)	Total (gallons)	(gallons)
February	1	2020	--	--	192,149	0	192,149	0	185,528	185,528	0
February	2	2020	--	--	191,924	0	191,924	0	198,782	198,782	0
February	3	2020	--	--	191,567	0	191,567	0	195,077	195,077	0
February	4	2020	--	--	192,602	0	192,602	0	189,767	189,767	0
February	5	2020	--	--	189,371	0	189,371	0	186,290	186,290	0
February	6	2020	--	--	194,459	0	194,459	0	192,597	192,597	0
February	7	2020	--	--	182,487	0	182,487	0	186,236	186,236	0
February	8	2020	--	--	184,502	0	184,502	0	189,196	189,196	0
February	9	2020	--	--	193,915	0	193,915	0	192,057	192,057	0
February	10	2020	--	--	146,011	0	146,011	0	152,489	152,489	0
February	11	2020	--	--	180,245	0	180,245	0	185,086	185,086	0
February	12	2020	--	--	151,760	0	151,760	0	142,243	142,243	0
February	13	2020	--	--	185,384	0	185,384	0	190,561	190,561	0
February	14	2020	--	--	181,683	0	181,683	0	179,929	179,929	0
February	15	2020	--	--	184,011	0	184,011	0	190,331	190,331	0
February	16	2020	--	--	195,415	0	195,415	0	189,919	189,919	0
February	17	2020	--	--	186,264	0	186,264	0	188,524	188,524	0
February	18	2020	--	--	195,024	0	195,024	0	187,041	187,041	0
February	19	2020	--	--	186,312	0	186,312	0	190,522	190,522	0
February	20	2020	--	--	194,579	0	194,579	0	190,657	190,657	0
February	21	2020	--	--	194,967	0	194,967	0	195,150	195,150	0
February	22	2020	--	--	194,433	0	194,433	0	195,951	195,951	0
February	23	2020	--	--	179,557	0	179,557	0	184,283	184,283	0
February	24	2020	--	--	191,299	0	191,299	0	191,789	191,789	0
February	25	2020	--	--	182,011	0	182,011	0	188,312	188,312	0
February	26	2020	--	--	193,097	0	193,097	0	188,365	188,365	0
February	27	2020	--	--	154,578	0	154,578	0	164,138	164,138	0
February	28	2020	--	--	193,447	0	193,447	0	193,865	193,865	0
February	29	2020	--	--	135,945	0	135,945	0	136,519	136,519	0
<b>Total Monthly Volumes (gallons)</b>			<b>0</b>	<b>0</b>	<b>5,318,999</b>	<b>0</b>	<b>5,318,999</b>	<b>0</b>	<b>5,341,203</b>	<b>5,341,203</b>	<b>0</b>
<b>Average Pump/Injection Rates (gpm)</b>			<b>0.0</b>	<b>0.0</b>	<b>127.4</b>	<b>0.0</b>	<b>127.4</b>	<b>0.0</b>	<b>127.9</b>	<b>127.9</b>	<b>0.0</b>

NOTES: gpm: gallons per minute RO: Reverse Osmosis

- Extraction well TW-3D was operated during February 2020 at a target pump rate of 135 gpm excluding periods of planned and unplanned downtime. Extraction wells PE-01, TW-2S and TW-2D were not operated during February 2020.
- Effluent was discharged into injection well IW-03.
- The difference between influent flow rate and the sum of the effluent and reverse osmosis concentrate flow rates during February 2020 is approximately 0.42 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 2020 Operational Data**

IM-3 Groundwater Extraction and Treatment System

PG&amp;E Topock Compressor Station, Needles, California

			Extraction Well System					Injection Well System			RO Brine
Month	Day	Year	TW-2S (gallons)	TW-2D (gallons)	TW-3D (gallons)	PE-1 (gallons)	Total (gallons)	IW-02 (gallons)	IW-03 (gallons)	Total (gallons)	(gallons)
March	1	2020	--	--	193,548	0	193,548	0	190,247	190,247	0
March	2	2020	--	--	194,231	0	194,231	0	190,079	190,079	0
March	3	2020	--	--	175,073	0	175,073	0	183,682	183,682	0
March	4	2020	--	--	176,599	0	176,599	0	193,738	193,738	0
March	5	2020	696	672	146,196	0	147,564	0	154,928	154,928	5,000
March	6	2020	14,804	6,674	317	0	21,795	0	37,675	37,675	0
March	7	2020	--	--	95,485	0	95,485	0	99,378	99,378	0
March	8	2020	--	--	196,545	0	196,545	0	191,077	191,077	0
March	9	2020	--	--	177,441	0	177,441	0	196,882	196,882	0
March	10	2020	--	--	187,195	0	187,195	0	195,170	195,170	0
March	11	2020	--	--	186,687	0	186,687	0	186,968	186,968	0
March	12	2020	--	--	191,188	0	191,188	0	192,484	192,484	0
March	13	2020	--	--	169,514	0	169,514	0	171,265	171,265	0
March	14	2020	--	--	187,295	0	187,295	0	191,402	191,402	0
March	15	2020	--	--	187,790	0	187,790	0	190,261	190,261	0
March	16	2020	--	--	188,293	0	188,293	0	188,676	188,676	0
March	17	2020	--	--	179,334	0	179,334	0	178,332	178,332	4,500
March	18	2020	--	--	186,044	0	186,044	0	188,728	188,728	0
March	19	2020	--	--	190,153	0	190,153	0	189,001	189,001	0
March	20	2020	--	--	180,426	0	180,426	0	188,736	188,736	0
March	21	2020	--	--	183,733	0	183,733	0	180,688	180,688	0
March	22	2020	--	--	191,062	0	191,062	0	186,669	186,669	0
March	23	2020	--	--	197,122	0	197,122	0	191,798	191,798	0
March	24	2020	--	--	186,802	0	186,802	0	198,180	198,180	0
March	25	2020	--	--	184,255	0	184,255	0	182,371	182,371	0
March	26	2020	--	--	186,821	0	186,821	0	190,206	190,206	0
March	27	2020	--	--	196,662	0	196,662	0	191,022	191,022	0
March	28	2020	--	--	187,540	0	187,540	0	193,831	193,831	0
March	29	2020	--	--	187,848	0	187,848	0	180,411	180,411	0
March	30	2020	--	--	185,760	0	185,760	0	186,997	186,997	5,000
March	31	2020	--	--	175,470	0	175,470	0	185,729	185,729	0
<b>Total Monthly Volumes (gallons)</b>			<b>15,500</b>	<b>7,346</b>	<b>5,452,429</b>	<b>0</b>	<b>5,475,275</b>	<b>0</b>	<b>5,566,608</b>	<b>5,566,608</b>	<b>14,500</b>
<b>Average Pump/Injection Rates (gpm)</b>			<b>0.3</b>	<b>0.2</b>	<b>122.1</b>	<b>0.0</b>	<b>122.7</b>	<b>0.0</b>	<b>124.7</b>	<b>124.7</b>	<b>0.3</b>

NOTES: gpm: gallons per minute RO: Reverse Osmosis

- Extraction well TW-3D was operated during March 2020 at a target pump rate of 135 gpm excluding periods of planned and unplanned downtime. Extraction wells TW-2D and TW-2S were operated during March 2020.
- Effluent was discharged into injection well IW-03.
- The difference between influent flow rate and the sum of the effluent and reverse osmosis concentrate flow rates during March 2020 is approximately 1.33 percent including approximately 32,500 gallons of groundwater remedy construction water. 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 2020 Operational Data**

IM-3 Groundwater Extraction and Treatment System

PG&amp;E Topock Compressor Station, Needles, California

			Extraction Well System					Injection Well System			RO Brine
Month	Day	Year	TW-2S (gallons)	TW-2D (gallons)	TW-3D (gallons)	PE-1 (gallons)	Total (gallons)	IW-02 (gallons)	IW-03 (gallons)	Total (gallons)	(gallons)
April	1	2020	--	--	123,867	0	123,867	0	142,600	142,600	0
April	2	2020	--	--	181,473	0	181,473	0	192,485	192,485	0
April	3	2020	--	--	175,180	0	175,180	0	183,693	183,693	0
April	4	2020	--	--	183,984	0	183,984	0	186,597	186,597	0
April	5	2020	--	--	195,340	0	195,340	0	188,545	188,545	0
April	6	2020	--	--	190,554	0	190,554	0	191,606	191,606	0
April	7	2020	--	--	182,967	0	182,967	0	190,625	190,625	0
April	8	2020	--	--	195,311	0	195,311	0	186,104	186,104	0
April	9	2020	--	--	188,120	0	188,120	0	192,773	192,773	0
April	10	2020	--	--	191,071	0	191,071	0	191,380	191,380	0
April	11	2020	--	--	173,259	0	173,259	0	175,179	175,179	0
April	12	2020	--	--	194,812	0	194,812	0	185,904	185,904	0
April	13	2020	--	--	187,337	0	187,337	0	186,172	186,172	0
April	14	2020	--	--	179,472	0	179,472	0	180,820	180,820	0
April	15	2020	--	--	185,387	0	185,387	0	189,972	189,972	0
April	16	2020	--	--	194,188	0	194,188	0	189,875	189,875	0
April	17	2020	--	--	188,816	0	188,816	0	189,318	189,318	5,000
April	18	2020	--	--	180,769	0	180,769	0	180,892	180,892	0
April	19	2020	--	--	193,472	0	193,472	0	191,372	191,372	0
April	20	2020	--	--	185,942	0	185,942	0	191,440	191,440	0
April	21	2020	--	--	184,713	0	184,713	0	180,250	180,250	0
April	22	2020	--	--	186,035	0	186,035	0	186,477	186,477	0
April	23	2020	--	--	192,701	0	192,701	0	187,652	187,652	0
April	24	2020	--	--	179,031	0	179,031	0	186,175	186,175	0
April	25	2020	--	--	192,468	0	192,468	0	183,716	183,716	0
April	26	2020	--	--	175,717	0	175,717	0	182,844	182,844	0
April	27	2020	--	--	179,612	0	179,612	0	179,136	179,136	0
April	28	2020	--	--	137,755	0	137,755	0	169,791	169,791	0
April	29	2020	--	--	143,324	0	143,324	0	165,912	165,912	0
April	30	2020	--	--	172,783	0	172,783	0	183,648	183,648	0
<b>Total Monthly Volumes (gallons)</b>			<b>0</b>	<b>0</b>	<b>5,415,462</b>	<b>0</b>	<b>5,415,462</b>	<b>0</b>	<b>5,512,955</b>	<b>5,512,955</b>	<b>5,000</b>
<b>Average Pump/Injection Rates (gpm)</b>			<b>0.0</b>	<b>0.0</b>	<b>125.4</b>	<b>0.0</b>	<b>125.4</b>	<b>0.0</b>	<b>127.6</b>	<b>127.6</b>	<b>0.1</b>

NOTES: gpm: gallons per minute RO: Reverse Osmosis

- Extraction well TW-3D was operated during April 2020 at a target pump rate of 135 gpm excluding periods of planned and unplanned downtime. Extraction wells PE-01, TW-2S and TW-2D were not operated during April 2020.
- Effluent was discharged into injection well IW-03.
- The difference between influent flow rate and the sum of the effluent and reverse osmosis concentrate flow rates during April 2020 is approximately 0.81 percent including approximately 58,300 gallons of groundwater remedy construction water. 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 2020 Operational Data

IM-3 Groundwater Extraction and Treatment System

PG&E Topock Compressor Station, Needles, California

			Extraction Well System					Injection Well System			RO Brine
Month	Day	Year	TW-2S (gallons)	TW-2D (gallons)	TW-3D (gallons)	PE-1 (gallons)	Total (gallons)	IW-02 (gallons)	IW-03 (gallons)	Total (gallons)	(gallons)
May	1	2020	--	--	182,704	0	182,704	0	182,106	182,106	0
May	2	2020	--	--	183,052	0	183,052	0	182,042	182,042	0
May	3	2020	--	--	169,330	0	169,330	0	181,986	181,986	0
May	4	2020	--	--	177,383	0	177,383	0	181,660	181,660	0
May	5	2020	--	--	178,718	0	178,718	88,109	93,935	182,044	0
May	6	2020	--	--	179,409	0	179,409	66,528	117,560	184,088	0
May	7	2020	--	--	157,656	0	157,656	83,854	101,993	185,847	0
May	8	2020	--	--	178,365	0	178,365	183,713	0	183,713	5,000
May	9	2020	--	--	170,762	0	170,762	170,292	0	170,292	0
May	10	2020	--	--	164,814	0	164,814	183,127	0	183,127	0
May	11	2020	--	--	51,678	0	51,678	72,688	0	72,688	0
May	12	2020	--	--	0	0	0	0	0	0	0
May	13	2020	--	--	0	0	0	0	0	0	0
May	14	2020	--	--	0	0	0	0	0	0	5,000
May	15	2020	--	--	107,894	0	107,894	84,261	0	84,261	0
May	16	2020	--	--	190,461	0	190,461	188,161	0	188,161	0
May	17	2020	--	--	186,829	0	186,829	196,167	0	196,167	0
May	18	2020	--	--	180,349	0	180,349	178,011	0	178,011	0
May	19	2020	--	--	183,714	0	183,714	185,496	0	185,496	0
May	20	2020	--	--	134,849	0	134,849	137,083	0	137,083	0
May	21	2020	--	--	189,384	0	189,384	195,145	0	195,145	0
May	22	2020	--	--	182,903	0	182,903	187,633	0	187,633	0
May	23	2020	--	--	182,361	0	182,361	185,388	0	185,388	0
May	24	2020	--	--	176,029	0	176,029	184,112	0	184,112	0
May	25	2020	--	--	139,828	0	139,828	187,085	0	187,085	0
May	26	2020	--	--	159,518	0	159,518	157,419	0	157,419	0
May	27	2020	--	--	189,515	0	189,515	190,575	0	190,575	5,000
May	28	2020	--	--	88,440	0	88,440	87,778	0	87,778	0
May	29	2020	--	--	0	0	0	0	0	0	0
May	30	2020	--	--	0	0	0	0	0	0	0
May	31	2020	--	--	0	0	0	0	0	0	0
<b>Total Monthly Volumes (gallons)</b>			<b>0</b>	<b>0</b>	<b>4,085,942</b>	<b>0</b>	<b>4,085,942</b>	<b>3,192,626</b>	<b>1,041,282</b>	<b>4,233,908</b>	<b>15,000</b>
<b>Average Pump/Injection Rates (gpm)</b>			<b>0.0</b>	<b>0.0</b>	<b>91.5</b>	<b>0.0</b>	<b>91.5</b>	<b>71.5</b>	<b>23.3</b>	<b>94.8</b>	<b>0.3</b>

NOTES: gpm: gallons per minute RO: Reverse Osmosis

- Extraction well TW-3D was operated during May 2020 at a target pump rate of 135 gpm excluding periods of planned and unplanned downtime. Extraction wells PE-01, TW-2S and TW-2D were not operated during May 2020.
- Effluent was discharged into injection wells IW-02 and IW-03.
- The difference between influent flow rate and the sum of the effluent and reverse osmosis concentrate flow rates during May 2020 is approximately 1.74 percent including approximately 63,000 gallons of groundwater remedy construction water and approximately 27,500 gallons of injection backwash water. This percentage difference includes instrument noise in the system, but is outside the accuracy of the flow meters indicating a faulty flowmeter. The flowmeter in well TW-3D was replaced at the end of May 2020. A well is considered to be offline if the daily reported flow is 140 gallons per day or less.

# June 2020 Operational Data

IM-3 Groundwater Extraction and Treatment System

PG&E Topock Compressor Station, Needles, California

			Extraction Well System					Injection Well System			RO Brine
Month	Day	Year	TW-2S (gallons)	TW-2D (gallons)	TW-3D (gallons)	PE-1 (gallons)	Total (gallons)	IW-02 (gallons)	IW-03 (gallons)	Total (gallons)	(gallons)
June	1	2020	--	--	0	0	0	0	0	0	0
June	2	2020	--	--	0	0	0	0	0	0	0
June	3	2020	--	--	0	0	0	0	0	0	0
June	4	2020	--	--	0	0	0	0	0	0	0
June	5	2020	--	--	0	0	0	0	0	0	0
June	6	2020	--	--	97,328	0	97,328	101,272	0	101,272	0
June	7	2020	--	--	188,099	0	188,099	193,331	0	193,331	0
June	8	2020	--	--	188,856	0	188,856	189,188	0	189,188	0
June	9	2020	--	--	91,391	0	91,391	89,736	0	89,736	0
June	10	2020	--	--	0	0	0	0	0	0	0
June	11	2020	--	--	0	0	0	0	0	0	0
June	12	2020	--	--	79,074	0	79,074	86,641	0	86,641	5,000
June	13	2020	--	--	189,706	0	189,706	188,445	0	188,445	0
June	14	2020	--	--	181,681	0	181,681	183,146	0	183,146	0
June	15	2020	--	--	189,724	0	189,724	190,178	0	190,178	0
June	16	2020	--	--	189,329	0	189,329	189,970	0	189,970	0
June	17	2020	--	--	189,449	0	189,449	190,168	0	190,168	5,000
June	18	2020	--	--	164,175	0	164,175	170,716	0	170,716	0
June	19	2020	--	--	188,342	0	188,342	193,463	0	193,463	0
June	20	2020	--	--	188,025	0	188,025	194,435	0	194,435	0
June	21	2020	--	--	188,234	0	188,234	194,543	0	194,543	0
June	22	2020	--	--	191,877	0	191,877	194,246	0	194,246	5,000
June	23	2020	--	--	177,836	0	177,836	181,770	0	181,770	0
June	24	2020	--	--	178,413	0	178,413	177,759	0	177,759	0
June	25	2020	--	--	181,860	0	181,860	179,776	0	179,776	0
June	26	2020	--	--	185,481	0	185,481	188,848	0	188,848	4,700
June	27	2020	--	--	188,550	0	188,550	188,436	0	188,436	0
June	28	2020	--	--	177,285	0	177,285	184,401	0	184,401	0
June	29	2020	--	--	182,786	0	182,786	188,308	0	188,308	0
June	30	2020	--	--	182,166	0	182,166	185,916	0	185,916	4,000
<b>Total Monthly Volumes (gallons)</b>			<b>0</b>	<b>0</b>	<b>3,959,668</b>	<b>0</b>	<b>3,959,668</b>	<b>4,024,689</b>	<b>0</b>	<b>4,024,689</b>	<b>23,700</b>
<b>Average Pump/Injection Rates (gpm)</b>			<b>0.0</b>	<b>0.0</b>	<b>91.7</b>	<b>0.0</b>	<b>91.7</b>	<b>93.2</b>	<b>0.0</b>	<b>93.2</b>	<b>0.5</b>

NOTES: gpm: gallons per minute RO: Reverse Osmosis

- Extraction well TW-3D was operated during June 2020 at a target pump rate of 135 gpm excluding periods of planned and unplanned downtime. Extraction wells PE-01, TW-2S and TW-2D were not operated during June 2020.
- Effluent was discharged into injection well IW-02.
- The difference between influent flow rate and the sum of the effluent and reverse osmosis concentrate flow rates during June 2020 is approximately 2.24 percent. This percentage difference includes instrument noise in the system but was found to be outside of the accuracy of the flow meters, indicating a faulty flow meter. Two flow meters were replaced (in July 2020) as result. The meter at IW-2 was replaced and the flow meter recording total flow leaving the plant was also replaced. A well is considered to be offline if the daily reported flow is 140 gallons per day or less.

## **Appendix C**

### **Flowmeter Calibration Records**



**Endress+Hauser**   
People for Process Automation

## Flow Calibration with Adjustment

92009500-1304707

WWRA017112F

Purchase order number

US-3601532757-200 / Endress+Hauser Inc.

Order N°/Manufacturer

23P50-AL1A1AA022AW

Order code

PROMAG 23 P 2"

Transmitter/Sensor

6C037116000

Serial N°

-

Tag N°

FCP-8.2 US

Calibration rig

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

Calibrated full scale

Current 4 - 20 mA

Calibrated output

0.9164

Calibration factor

5

Zero point

77 °F

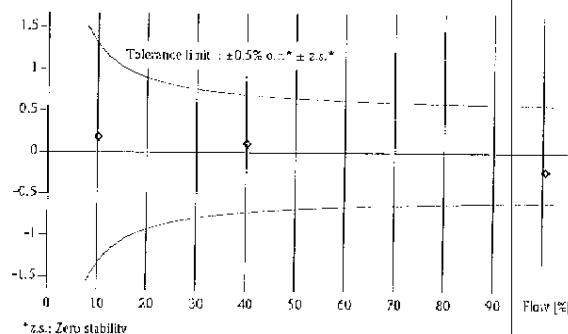
Water temperature

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

\*o.p.: of rate

\*\*Calculated value [4 - 20 mA]

Measured error % o.r.



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

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

*Calvin Williams*

09-17-2015

Date of calibration

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

Calvin Williams  
Operator

## Flow Calibration with Adjustment

92020932-1304705

WWRA12397

Purchase order number

US-3601548887-200 / Endress+Hauser Inc.

Order N°/Manufacturer

23P50-AL1A1AA022AW

Order code

PROMAG 23 P 2"

Transmitter/Sensor

6C036F16000

Serial N°

FIT-1201

Tag N°

FCP-8.2 US

Calibration rig

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

Calibrated full scale

Current 4 - 20 mA

Calibrated output

0.9146

Calibration factor

-34

Zero point

73.2 °F

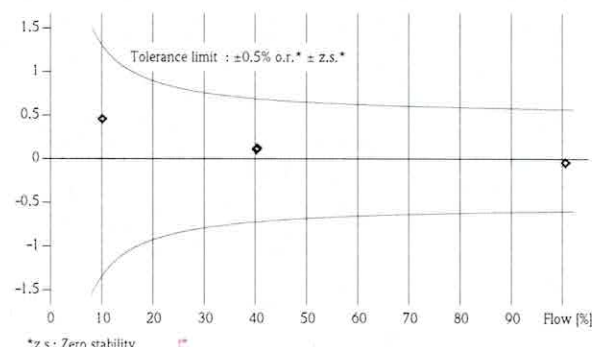
Water temperature

Flow [%]	Flow [us.gal/min]	Duration [sec]	V target [us.gal]	V meas. [us.gal]	$\Delta$ o.r.* [%]	Outp.** [mA]
10.0	15.520	60.1	15.536	15.608	0.47	5.60
40.1	62.554	60.1	62.611	62.688	0.12	10.42
40.2	62.731	60.1	62.796	62.882	0.14	10.44
100.4	156.663	60.1	156.815	156.776	-0.02	20.06
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-

\*o.r.: of reading

\*\*Calculated value (4 - 20 mA)

Measured error % o.r.



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

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



J. Reasoner

Operator

02-07-2020

Date of calibration

Endress+Hauser Inc.

10057 Porter Road

La Porte, Texas 77571

## 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 *TWRS*

Tag N°

FCP-7.1.6 US

Calibration rig

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

Calibrated full scale

Current 4 - 20 mA

Calibrated output

0.9176

Calibration factor

0

Zero point

70.4 °F

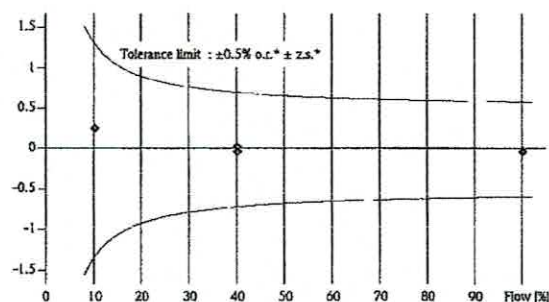
Water temperature

Flow [%]	Flow [us.gal/min]	Duration [sec]	V target [us.gal]	V meas. [us.gal]	$\Delta$ 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)

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*

John Davis  
Operator

## Flow Calibration with Adjustment

92018011-1275190

WWRA7737

Purchase order number

US-3601544787-100 / Endress+Hauser Inc.

Order N°/Manufacturer

23P50-AL1A1RA022AW

Order code

PROMAG 23 P 2"

Transmitter/Sensor

6A021F16000

Serial N°

FIT-100 TW 2D

Tag N°

FCP-7.1.6 US

Calibration rig

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

Calibrated full scale

Current 4 - 20 mA

Calibrated output

0.9035

Calibration factor

-17

Zero point

70.6 °F

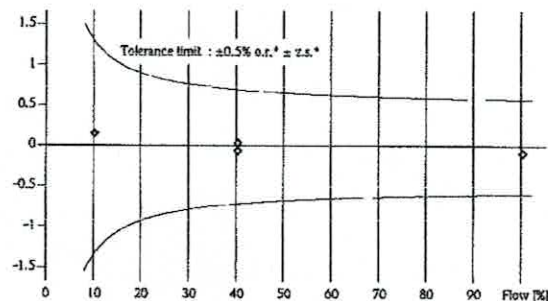
Water temperature

Flow [%]	Flow [us.gal/min]	Duration [sec]	V target [us.gal]	V meas. [us.gal]	$\Delta$ o.r.* [%]	Outp.** [mA]
10.0	15.541	60.2	15.592	15.618	0.16	5.61
40.2	62.279	60.2	62.481	62.510	0.05	10.43
40.2	62.297	60.2	62.511	62.477	-0.05	10.43
100.2	155.312	60.2	155.827	155.705	-0.08	20.02
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-

\*o.r.: of reading

\*\*Calculated value (4 - 20 mA)

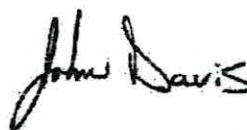
Measured error % o.r.



\*z.s.: Zero stability

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

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



John Davis

Operator

12-05-2018

Date of calibration

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

## 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°

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

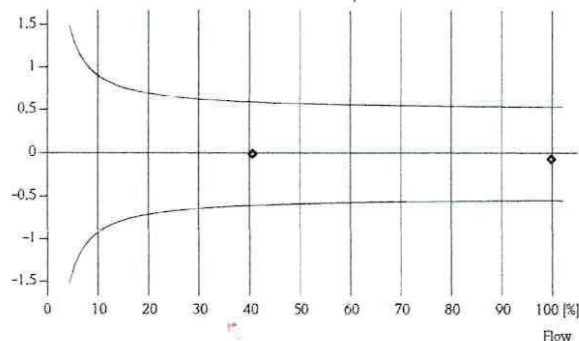
Flow [%]	Flow [us.gal/min]	Duration [s]	V target [us.gal]	V meas. [us.gal]	$\Delta$ o.r.* [%]	Outp.** [mA]
40.3	62.762	65.0	68.035	68.036	0.00	10.45
40.3	62.776	65.0	68.051	68.049	0.00	10.45
99.7	155.211	65.0	168.253	168.149	-0.06	19.95
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-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

\*o.r.: of reading

\*\*Calculated value (4 - 20 mA)

Measured error % o.r.

Tolerance limit:  $\pm 0.5\%$  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).

*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.-N° 030502.2  
ISO 14001, Reg.-N° EMS561046



## Flow Calibration without Adjustment

92020933-1304709

WWRA12397

Purchase order number

US-3601548887-100 / Endress+Hauser Inc.

Order N°/Manufacturer

23P50-AL1A1AA022AW

Order code

PROMAG 23 P 2"

Transmitter/Sensor

6C037316000

Serial N°

FIT-1205

Tag N°

FCP-8.2 US

Calibration rig

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

Calibrated full scale

Current 4 - 20 mA

Calibrated output

0.9189

Calibration factor

0

Zero point

73.2 °F

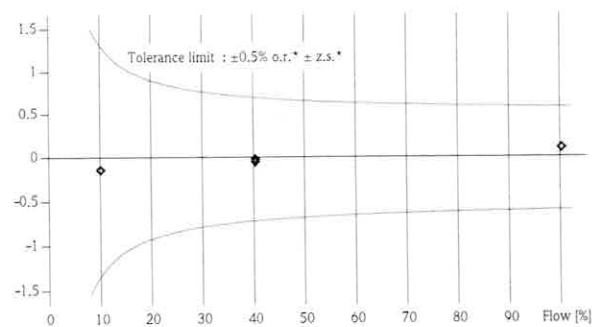
Water temperature

Flow [%]	Flow [us.gal/min]	Duration [sec]	V target [us.gal]	V meas. [us.gal]	$\Delta$ o.r.* [%]	Outp.** [mA]
9.9	15.472	60.1	15.487	15.468	-0.12	5.58
40.2	62.742	60.1	62.804	62.801	-0.01	10.43
40.2	62.739	60.1	62.803	62.779	-0.04	10.43
100.1	156.178	60.0	156.287	156.462	0.11	20.04
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-

\*o.r.: of reading

\*\*Calculated value (4 - 20 mA)

Measured error % o.r.



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

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



J. Reasoner

Operator

02-07-2020

Date of calibration

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

## Flow Calibration without Adjustment

92019262-3757980

WWRA9505

Purchase order number

US-3601546580-100 / Endress+Hauser Inc.

Order N°/Manufacturer

5P2B80-1CX9/0

Order code

Promag P 200 3"

Sensor/Transmitter

L200E016000

Serial N°

FIT\_700

Tag N°

FCP-7.1.6 US

Calibration rig

398.3621 us.gal/min ( $\pm 100\%$ )

Calibrated full scale

Current 4 - 20 mA

Calibrated output

1.1823

Calibration factor

1.0

Zero point

72.6 °F

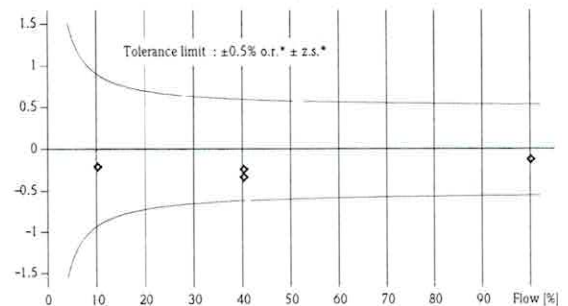
Water temperature

Flow [%]	Flow [us.gal/min]	Duration [sec]	V target [us.gal]	V meas. [us.gal]	$\Delta$ o.r.* [%]	Outp.** [mA]
10.1	40.040	60.2	40.172	40.094	-0.19	5.61
40.2	160.047	60.2	160.572	160.060	-0.32	10.41
40.2	160.116	60.2	160.669	160.306	-0.23	10.42
99.9	398.117	60.2	399.474	399.035	-0.11	19.97
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-

\*o.r.: of reading

\*\*Calculated value (4 - 20 mA)

Measured error % o.r.



\*z.s.: Zero stability

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

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



A. Geminden  
Operator

05-28-2019

Date of calibration

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

## Flow Calibration with Adjustment

30437050-4458241

3800382048

Purchase order number

US-3005992023-10 / Endress+Hauser Flowtec

Order N°/Manufacturer

5P2B50-79W4/0

Order code

Promag P 200 2"

Sensor/Transmitter

N6004F16000

Serial N°

-

Tag N°

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

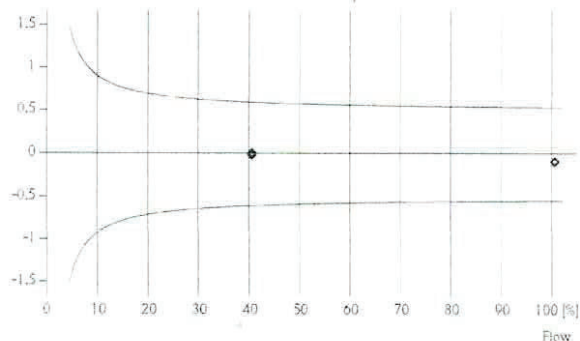
Flow [%]	Flow [us.gal/min]	Duration [s]	V target [us.gal]	V meas. [us.gal]	$\Delta$ o.r.* [%]	Outp.** [mA]
40.3	62.745	65.0	68.025	68.031	0.01	10.45
40.3	62.739	65.0	68.013	68.006	-0.01	10.45
100.5	156.427	65.0	169.573	169.427	-0.09	20.07
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-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

\*o.r.: of reading

\*\*Calculated value (4-20 mA)

Measured error % o.r.

Tolerance limit:  $\pm 0.5\%$  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 Itatuba (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.-N° 030502.2  
ISO 14001, Reg.-N° EMS561046



**Appendix D**  
**RO Concentrate Non-hazardous**  
**Waste Manifests**



# LIQUID ENVIRONMENTAL SOLUTIONS

P 5452

## NON-HAZARDOUS WASTE MANIFEST

Profile Number

15713

Generator Name	PG&E Topock Groundwater Extraction Site Phone: (760) 326-3326 Emergency: (800) 833-7602	Generator Address	15 Mi Southwest of Needles Hwy 140 & Park Moabi Rd. Needles, CA 92363 EPA ID#: CAR000151118
Waste Type	Non Hazardous Waste, Liquid (Brine Water)		
I certify that the waste material removed from the above premises does not contain any radioactive, flammable, explosive, toxic or hazardous material ("Excluded Waste"). The term "hazardous material" is defined as any one or more pollutant, toxic substance, hazardous substance, solvent or oil as defined in or pursuant to the Resource Conservation and Recovery Act, the Comprehensive Environmental Response Compensation and Liability Act, the Federal Clean Water Act, or any other federal, state or local environmental law, regulation, ordinance, or rule, whether existing as of the date of this agreement or subsequently enacted. I also acknowledge that the Generator shall be responsible for any costs incurred by the Transporter or Disposal Facility in handling or proper disposal of any hazardous waste and that the Generator expressly agrees to defend, indemnify and hold harmless the Transporter from and against any and all damages, costs, fines and liabilities resulting from or arising out of any such hazardous waste.			
Generator Rep. Name (please print)	Scott A. Daniels	Generator Rep. Signature	[Signature]
Transporter Name	MP Environmental Services	Transporter Address	3045 S. 51st Ave. Phoenix, AZ 85043

### Vehicle Information

Truck #	Tank#		Inspection Paperwork Verified By:			
782	3346		[Signature]			
Waste Removed (Gallons)	Totalizer Readings (Gallons)	Start	Finish	Date	Time	
5000				3-5-20	0800	
I certify that the information above is accurate, and that only the waste certified for removal by the Generator is contained in the servicing vehicle. I am aware that falsification of this manifest may result in prosecution.						
Driver must comply with proper PPE requirements. Including: gloves, safety vest, hard hat, steel toes shoes & safety glasses						
Driver Name (please print)	Driver Signature		[Signature]			

Disposal Facility	Liquid Environmental Solutions of Arizona	Address	5159 West Van Buren Street Phoenix, AZ 85043		
Waste Received (Gallons)		Date	Time		
Facility Rep. Name (please print)		Facility Rep. Signature	[Signature]		

WHITE - Transporter    YELLOW - Second Generator    GOLDENROD - Disposal Facility    PINK - Generator

Liquid Environmental Solutions of Arizona  
5159 West Van Buren Street    Phoenix, AZ 85043    (602) 278-3442

[www.liquidenviro.com](http://www.liquidenviro.com)





# LIQUID ENVIRONMENTAL SOLUTIONS

P 5453

## NON-HAZARDOUS WASTE MANIFEST

Profile Number

15713

Generator Name	PG&E Topock Groundwater Extraction Site Phone: (760) 326-3326 Emergency: (800) 833-7602	Generator Address	15 Mi Southwest of Needles Hwy 140 & Park Moabi Rd. Needles, CA 92363 EPA ID#: CAR000151118
Waste Type	Non Hazardous Waste, Liquid (Brine Water)		
I certify that the waste material removed from the above premises does not contain any radioactive, flammable, explosive, toxic or hazardous material ("Excluded Waste"). The term "hazardous material" is defined as any one or more pollutant, toxic substance, hazardous substance, solvent or oil as defined in or pursuant to the Resource Conservation and Recovery Act, the Comprehensive Environmental Response Compensation and Liability Act, the Federal Clean Water Act, or any other federal, state or local environmental law, regulation, ordinance, or rule, whether existing as of the date of this agreement or subsequently enacted. I also acknowledge that the Generator shall be responsible for any costs incurred by the Transporter or Disposal Facility in handling or proper disposal of any hazardous waste and that the Generator expressly agrees to defend, indemnify and hold harmless the Transporter from and against any and all damages, costs, fines and liabilities resulting from or arising out of any such hazardous waste.			
Generator Rep. Name (please print)	Bryan Phelps	Generator Rep. Signature	
Transporter Name	MP Environmental Services	Transporter Address	3045 S. 51st Ave. Phoenix, AZ 85043

### Vehicle Information

Truck #	782	Tank#	3346	Inspection Paperwork Verified By:			
Waste Removed (Gallons)	4,500	Totalizer Readings (Gallons)	NA	Finish	NA	Date	Time
						3-17-20	6:15
I certify that the information above is accurate, and that only the waste certified for removal by the Generator is contained in the servicing vehicle. I am aware that falsification of this manifest may result in prosecution.							
Driver must comply with proper PPE requirements. Including: gloves, safety vest, hard hat, steel toes shoes & safety glasses							
Driver Name (please print)	Miguel Alvarez			Driver Signature			

Disposal Facility	Liquid Environmental Solutions of Arizona	Address	5159 West Van Buren Street Phoenix, AZ 85043				
Waste Received (Gallons)			Date		Time		
Facility Rep. Name (please print)			Facility Rep. Signature				

WHITE - Transporter    YELLOW - Second Generator    GOLDENROD - Disposal Facility    PINK - Generator

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# LIQUID ENVIRONMENTAL SOLUTIONS

P 5454

## NON-HAZARDOUS WASTE MANIFEST

Profile Number

15713

Generator Name	PG&E Topock Groundwater Extraction Site Phone: (760) 326-3326 Emergency: (800) 833-7602	Generator Address	15 Mi Southwest of Needles Hwy 140 & Park Moabi Rd. Needles, CA 92363 EPA ID#: CAR000151118
Waste Type	Non Hazardous Waste, Liquid (Brine Water)		
I certify that the waste material removed from the above premises does not contain any radioactive, flammable, explosive, toxic or hazardous material ("Excluded Waste"). The term "hazardous material" is defined as any one or more pollutant, toxic substance, hazardous substance, solvent or oil as defined in or pursuant to the Resource Conservation and Recovery Act, the Comprehensive Environmental Response Compensation and Liability Act, the Federal Clean Water Act, or any other federal, state or local environmental law, regulation, ordinance, or rule, whether existing as of the date of this agreement or subsequently enacted. I also acknowledge that the Generator shall be responsible for any costs incurred by the Transporter or Disposal Facility in handling or proper disposal of any hazardous waste and that the Generator expressly agrees to defend, indemnify and hold harmless the Transporter from and against any and all damages, costs, fines and liabilities resulting from or arising out of any such hazardous waste.			
Generator Rep. Name (please print)	<i>Ken Phelps</i>	Generator Rep. Signature	<i>[Signature]</i>
Transporter Name	MP Environmental Services	Transporter Address	3045 S. 51st Ave. Phoenix, AZ 85043

### Vehicle Information

Truck #	<i>782</i>	Tank#	<i>3346</i>	Inspection Paperwork Verified By:	
Waste Removed (Gallons)	<i>5,000</i>	Totalizer Readings (Gallons)		Start	Finish
				<i>8</i>	<i>8</i>
				Date	Time
				<i>3-30-20</i>	<i>9:00</i>
I certify that the information above is accurate, and that only the waste certified for removal by the Generator is contained in the servicing vehicle. I am aware that falsification of this manifest may result in prosecution.					
Driver must comply with proper PPE requirements. Including: gloves, safety vest, hard hat, steel toes shoes & safety glasses					
Driver Name (please print)	<i>Mauro Arreola</i>		Driver Signature	<i>[Signature]</i>	

Disposal Facility	Liquid Environmental Solutions of Arizona	Address	5159 West Van Buren Street Phoenix, AZ 85043		
Waste Received (Gallons)		Date	Time		
Facility Rep. Name (please print)		Facility Rep. Signature			

WHITE - Transporter    YELLOW - Second Generator    GOLDENROD - Disposal Facility    PINK - Generator

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# LIQUID ENVIRONMENTAL SOLUTIONS

P 5463

## NON-HAZARDOUS WASTE MANIFEST

Profile Number

15713

Generator Name	PG&E Topock Groundwater Extraction Site Phone: (760) 326-3326 Emergency: (800) 833-7602	Generator Address	15 Mi Southwest of Needles Hwy I40 & Park Moabi Rd. Needles, CA 92363 EPA ID#: CAR000151118
Waste Type	Non Hazardous Waste, Liquid (Brine Water)		
I certify that the waste material removed from the above premises does not contain any radioactive, flammable, explosive, toxic or hazardous material ("Excluded Waste"). The term "hazardous material" is defined as any one or more pollutant, toxic substance, hazardous substance, solvent or oil as defined in or pursuant to the Resource Conservation and Recovery Act, the Comprehensive Environmental Response Compensation and Liability Act, the Federal Clean Water Act, or any other federal, state or local environmental law, regulation, ordinance, or rule, whether existing as of the date of this agreement or subsequently enacted. I also acknowledge that the Generator shall be responsible for any costs incurred by the Transporter or Disposal Facility in handling or proper disposal of any hazardous waste and that the Generator expressly agrees to defend, indemnify and hold harmless the Transporter from and against any and all damages, costs, fines and liabilities resulting from or arising out of any such hazardous waste.			
Generator Rep. Name (please print)	Scott O'Donnell	Generator Rep. Signature	
Transporter Name	MP Environmental Services	Transporter Address	3045 S. 51st Ave. Phoenix, AZ 85043

### Vehicle Information

Truck #	764	Tank#	3346	Inspection Paperwork Verified By:			
Waste Removed (Gallons)	4000	Totalizer Readings (Gallons)	N/A	Start	Finish	Date	Time
						6-30-70	1200
I certify that the information above is accurate, and that only the waste certified for removal by the Generator is contained in the servicing vehicle. I am aware that falsification of this manifest may result in prosecution.							
Driver must comply with proper PPE requirements. Including: gloves, safety vest, hard hat, steel toes shoes & safety glasses							
Driver Name (please print)	Manuel Avena			Driver Signature			

Disposal Facility	Liquid Environmental Solutions of Arizona	Address	5159 West Van Buren Street Phoenix, AZ 85043	
Waste Received (Gallons)		Date	Time	
Facility Rep. Name (please print)		Facility Rep. Signature		

WHITE - Transporter    YELLOW - Second Generator    GOLDENROD - Disposal Facility    PINK - Generator

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# LIQUID ENVIRONMENTAL SOLUTIONS

P 5462

## NON-HAZARDOUS WASTE MANIFEST

Profile Number

15713

Generator Name	PG&E Topock Groundwater Extraction Site Phone: (760) 326-3326 Emergency: (800) 833-7602	Generator Address	15 Mi Southwest of Needles Hwy I40 & Park Moabi Rd. Needles, CA 92363 EPA ID#: CAR000151118
Waste Type	Non Hazardous Waste, Liquid (Brine Water)		
I certify that the waste material removed from the above premises does not contain any radioactive, flammable, explosive, toxic or hazardous material ("Excluded Waste"). The term "hazardous material" is defined as any one or more pollutant, toxic substance, hazardous substance, solvent or oil as defined in or pursuant to the Resource Conservation and Recovery Act, the Comprehensive Environmental Response Compensation and Liability Act, the Federal Clean Water Act, or any other federal, state or local environmental law, regulation, ordinance, or rule, whether existing as of the date of this agreement or subsequently enacted. I also acknowledge that the Generator shall be responsible for any costs incurred by the Transporter or Disposal Facility in handling or proper disposal of any hazardous waste and that the Generator expressly agrees to defend, indemnify and hold harmless the Transporter from and against any and all damages, costs, fines and liabilities resulting from or arising out of any such hazardous waste.			
Generator Rep. Name (please print)	Chris Lentz	Generator Rep. Signature	[Signature]
Transporter Name	MP Environmental Services	Transporter Address	3045 S. 51st Ave. Phoenix, AZ 85043

### Vehicle Information

Truck #	Tank#		Inspection Paperwork Verified By:	
Waste Removed (Gallons)	4700	Totalizer Readings (Gallons)	Start Finish	Date Time
				6/24/20
I certify that the information above is accurate, and that only the waste certified for removal by the Generator is contained in the servicing vehicle. I am aware that falsification of this manifest may result in prosecution.				
Driver must comply with proper PPE requirements. Including; gloves, safety vest, hard hat, steel toes shoes & safety glasses				
Driver Name (please print)	Manuel Avenda		Driver Signature	[Signature]

Disposal Facility	Liquid Environmental Solutions of Arizona	Address	5159 West Van Buren Street Phoenix, AZ 85043	
Waste Received (Gallons)		Date	Time	
Facility Rep. Name (please print)		Facility Rep. Signature		

WHITE - Transporter YELLOW - Second Generator GOLDENROD - Disposal Facility PINK - Generator

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# LIQUID ENVIRONMENTAL SOLUTIONS

P 5461

## NON-HAZARDOUS WASTE MANIFEST

Profile Number

15713

<b>Generator Name</b>	PG&E Topock Groundwater Extraction Site Phone: (760) 326-3326 Emergency: (800) 833-7602	<b>Generator Address</b>	15 Mi Southwest of Needles Hwy I40 & Park Moabi Rd. Needles, CA 92363 EPA ID#: CAR000151118
<b>Waste Type</b>	Non Hazardous Waste, Liquid (Brine Water)		
I certify that the waste material removed from the above premises does not contain any radioactive, flammable, explosive, toxic or hazardous material ("Excluded Waste"). The term "hazardous material" is defined as any one or more pollutant, toxic substance, hazardous substance, solvent or oil as defined in or pursuant to the Resource Conservation and Recovery Act, the Comprehensive Environmental Response Compensation and Liability Act, the Federal Clean Water Act, or any other federal, state or local environmental law, regulation, ordinance, or rule, whether existing as of the date of this agreement or subsequently enacted. I also acknowledge that the Generator shall be responsible for any costs incurred by the Transporter or Disposal Facility in handling or proper disposal of any hazardous waste and that the Generator expressly agrees to defend, indemnify and hold harmless the Transporter from and against any and all damages, costs, fines and liabilities resulting from or arising out of any such hazardous waste.			
<b>Generator Rep. Name</b> (please print)	<i>Don Phelps</i>	<b>Generator Rep. Signature</b>	<i>[Signature]</i>
<b>Transporter Name</b>	MP Environmental Services	<b>Transporter Address</b>	3045 S. 51st Ave. Phoenix, AZ 85043

### Vehicle Information

<b>Truck #</b>	<i>782</i>	<b>Tank#</b>	<i>3346</i>	<b>Inspection Paperwork Verified By:</b> <i>[Signature]</i>			
<b>Waste Removed (Gallons)</b>	<i>5,000</i>	<b>Totalizer Readings (Gallons)</b>	<i>-</i>	<b>Start</b>	<b>Finish</b>	<b>Date</b>	<b>Time</b>
				<i>-</i>	<i>-</i>	<i>6-22-20</i>	<i>9:00</i>

I certify that the information above is accurate, and that only the waste certified for removal by the Generator is contained in the servicing vehicle. I am aware that falsification of this manifest may result in prosecution.

Driver must comply with proper PPE requirements. Including; gloves, safety vest, hard hat, steel toes shoes & safety glasses

<b>Driver Name</b> (please print)	<i>Manuel Arce</i>	<b>Driver Signature</b>	<i>[Signature]</i>
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<b>Disposal Facility</b>	Liquid Environmental Solutions of Arizona	<b>Address</b>	5159 West Van Buren Street Phoenix, AZ 85043
<b>Waste Received (Gallons)</b>		<b>Date</b>	<b>Time</b>
<b>Facility Rep. Name</b> (please print)		<b>Facility Rep. Signature</b>	

WHITE - Transporter    YELLOW - Second Generator    GOLDENROD - Disposal Facility    PINK - Generator

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# LIQUID ENVIRONMENTAL SOLUTIONS

P 5460

## NON-HAZARDOUS WASTE MANIFEST

Profile Number

15713

Generator Name	PG&E Topock Groundwater Extraction Site Phone: (760) 326-3326 Emergency: (800) 833-7602	Generator Address	15 Mi Southwest of Needles Hwy 140 & Park Moabi Rd. Needles, CA 92363 EPA ID#: CAR000151118
Waste Type	Non Hazardous Waste, Liquid (Brine Water)		
I certify that the waste material removed from the above premises does not contain any radioactive, flammable, explosive, toxic or hazardous material ("Excluded Waste"). The term "hazardous material" is defined as any one or more pollutant, toxic substance, hazardous substance, solvent or oil as defined in or pursuant to the Resource Conservation and Recovery Act, the Comprehensive Environmental Response Compensation and Liability Act, the Federal Clean Water Act, or any other federal, state or local environmental law, regulation, ordinance, or rule, whether existing as of the date of this agreement or subsequently enacted. I also acknowledge that the Generator shall be responsible for any costs incurred by the Transporter or Disposal Facility in handling or proper disposal of any hazardous waste and that the Generator expressly agrees to defend, indemnify and hold harmless the Transporter from and against any and all damages, costs, fines and liabilities resulting from or arising out of any such hazardous waste.			
Generator Rep. Name (please print)	CHRIS LEMME	Generator Rep. Signature	
Transporter Name	MP Environmental Services	Transporter Address	3045 S. 51st Ave. Phoenix, AZ 85043

### Vehicle Information

Truck #	782	Tank#	3346	Inspection Paperwork Verified By:	
Waste Removed (Gallons)	5000	Totalizer Readings (Gallons)		Date	6-17-20
		Start		Finish	0900

I certify that the information above is accurate, and that only the waste certified for removal by the Generator is contained in the servicing vehicle. I am aware that falsification of this manifest may result in prosecution.

Driver must comply with proper PPE requirements. Including; gloves, safety vest, hard hat, steel toes shoes & safety glasses

Driver Name (please print)	Manuel Ayala	Driver Signature	
-------------------------------	--------------	------------------	--

Disposal Facility	Liquid Environmental Solutions of Arizona	Address	5159 West Van Buren Street Phoenix, AZ 85043
Waste Received (Gallons)		Date	
		Time	
Facility Rep. Name (please print)		Facility Rep. Signature	

WHITE - Transporter    YELLOW - Second Generator    GOLDENROD - Disposal Facility    PINK - Generator

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**NON-HAZARDOUS WASTE MANIFEST**

**Profile Number**

**15713**

<b>Generator Name</b>	PG&E Topock Groundwater Extraction Site Phone: (760) 326-3326 Emergency: (800) 833-7602	<b>Generator Address</b>	15 Mi Southwest of Needles Hwy 140 & Park Moabi Rd. Needles, CA 92363 EPA ID#: CAR000151118
<b>Waste Type</b>	Non Hazardous Waste, Liquid (Brine Water)		
I certify that the waste material removed from the above premises does not contain any radioactive, flammable, explosive, toxic or hazardous material ("Excluded Waste"). The term "hazardous material" is defined as any one or more pollutant, toxic substance, hazardous substance, solvent or oil as defined in or pursuant to the Resource Conservation and Recovery Act, the Comprehensive Environmental Response Compensation and Liability Act, the Federal Clean Water Act, or any other federal, state or local environmental law, regulation, ordinance, or rule, whether existing as of the date of this agreement or subsequently enacted. I also acknowledge that the Generator shall be responsible for any costs incurred by the Transporter or Disposal Facility in handling or proper disposal of any hazardous waste and that the Generator expressly agrees to defend, indemnify and hold harmless the Transporter from and against any and all damages, costs, fines and liabilities resulting from or arising out of any such hazardous waste.			
<b>Generator Rep. Name</b> (please print)	CHRIS CENTE	<b>Generator Rep. Signature</b>	
<b>Transporter Name</b>	MP Environmental Services	<b>Transporter Address</b>	3045 S. 51st Ave. Phoenix, AZ 85043

Vehicle Information					
<b>Truck #</b>	782	<b>Tank#</b>	3346	<b>Inspection Paperwork Verified By:</b> AC	
<b>Waste Removed (Gallons)</b>	5000	<b>Totalizer Readings (Gallons)</b>		<b>Date</b>	<b>Time</b>
				6/12/20	9:00
I certify that the information above is accurate, and that only the waste certified for removal by the Generator is contained in the servicing vehicle. I am aware that falsification of this manifest may result in prosecution.					
Driver must comply with proper PPE requirements. Including; gloves, safety vest, hard hat, steel toes shoes & safety glasses					
<b>Driver Name</b> (please print)	Manuel Alvarez	<b>Driver Signature</b>			

<b>Disposal Facility</b>	Liquid Environmental Solutions of Arizona	<b>Address</b>	5159 West Van Buren Street Phoenix, AZ 85043		
<b>Waste Received (Gallons)</b>		<b>Date</b>	<b>Time</b>		
<b>Facility Rep. Name</b> (please print)		<b>Facility Rep. Signature</b>			

WHITE - Transporter    YELLOW - Second Generator    GOLDENROD - Disposal Facility    PINK - Generator

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**Appendix E**  
**Second Quarter 2020**  
**Laboratory Analytical Reports**

April 21, 2020

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

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

Workorder No.: N040229

RE: PG&E Topock, D3184A1.EV.05-OM-TS

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on April 07, 2020 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 Ruben* for

Puri Romualdo  
Laboratory Director

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



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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

**CLIENT:** CH2M HILL  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS  
**Lab Order:** N040229

**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 Enthalpy Analytical- Berkeley, CA.

**Analytical Comments for EPA 200.7:**

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Iron in QC samples N040229-001E-MS1 and N040229-001E-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.

RPD for Matrix Spike (MS) and Matrix Spike Duplicate (MSD) is outside criteria for Iron ; however, the associated Laboratory Control Sample (LCS) recovery was acceptable.

Dilution was necessary since plasma was extinguished when samples were analyzed at lower dilution.

**Analytical Comments for EPA 200.8:**

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for some analytes in QC samples N040229-001E-MS and N040229-001E-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.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Chromium in QC samples N040229-001E-MS and N040229-001E-MSD since the analyte concentration in the sample is disproportionate to the spike level. Post Spike (PS) and Dilution Test (DT) were performed



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---

**CLIENT:** CH2M HILL  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS  
**Lab Order:** N040229

---

## CASE NARRATIVE

however, PS failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Dilution was necessary for sample N040229-003 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 meets internal standard recovery limit.

Analytical Comments for EPA 218.6:

Dilution was necessary for sample N040229-003 due to matrix interference. Sample was analyzed at lower dilution however matrix spike recovery and retention time criteria were not met indicating possible matrix interference. Sample was reported at dilution that meets matrix spike recovery limit and the detected peak within retention time window.



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**ASSET Laboratories**

Date: 21-Apr-20

**CLIENT:** CH2M HILL  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS  
**Lab Order:** N040229  
**Contract No:** IM3PLANT-AR

**Work Order Sample Summary**

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N040229-001A	SC-100B-WDR-600	Water	4/7/2020 10:40:00 AM	4/7/2020	4/21/2020
N040229-001B	SC-100B-WDR-600	Water	4/7/2020 10:40:00 AM	4/7/2020	4/21/2020
N040229-001C	SC-100B-WDR-600	Water	4/7/2020 10:40:00 AM	4/7/2020	4/21/2020
N040229-001D	SC-100B-WDR-600	Water	4/7/2020 10:40:00 AM	4/7/2020	4/21/2020
N040229-001E	SC-100B-WDR-600	Water	4/7/2020 10:40:00 AM	4/7/2020	4/21/2020
N040229-001F	SC-100B-WDR-600	Water	4/7/2020 10:40:00 AM	4/7/2020	4/21/2020
N040229-002A	SC-700B-WDR-600	Water	4/7/2020 10:50:00 AM	4/7/2020	4/21/2020
N040229-002B	SC-700B-WDR-600	Water	4/7/2020 10:50:00 AM	4/7/2020	4/21/2020
N040229-002C	SC-700B-WDR-600	Water	4/7/2020 10:50:00 AM	4/7/2020	4/21/2020
N040229-002D	SC-700B-WDR-600	Water	4/7/2020 10:50:00 AM	4/7/2020	4/21/2020
N040229-002E	SC-700B-WDR-600	Water	4/7/2020 10:50:00 AM	4/7/2020	4/21/2020
N040229-002F	SC-700B-WDR-600	Water	4/7/2020 10:50:00 AM	4/7/2020	4/21/2020
N040229-003A	SC-701-WDR-600	Water	4/7/2020 10:55:00 AM	4/7/2020	4/21/2020
N040229-003B	SC-701-WDR-600	Water	4/7/2020 10:55:00 AM	4/7/2020	4/21/2020
N040229-003C	SC-701-WDR-600	Water	4/7/2020 10:55:00 AM	4/7/2020	4/21/2020
N040229-003D	SC-701-WDR-600	Water	4/7/2020 10:55:00 AM	4/7/2020	4/21/2020



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**ASSET Laboratories**
**ANALYTICAL RESULTS**
**Print Date:** 21-Apr-20

<b>CLIENT:</b>	CH2M HILL	<b>Client Sample ID:</b>	SC-100B-WDR-600
<b>Lab Order:</b>	N040229	<b>Collection Date:</b>	4/7/2020 10:40:00 AM
<b>Project:</b>	PG&E Topock, D3184A1.EV.05-OM-TS	<b>Matrix:</b>	WATER
<b>Lab ID:</b>	N040229-001		

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

**SPECIFIC CONDUCTANCE**
**EPA 120.1**

RunID: <b>NV00922-WC_200408C</b>	QC Batch: <b>R143495</b>	PrepDate:	Analyst: <b>LR</b>
Specific Conductance	6800	0.10	0.10
		umhos/cm	1
			4/8/2020 11:20 AM

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


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

Print Date: 21-Apr-20

<b>CLIENT:</b>	CH2M HILL	<b>Client Sample ID:</b>	SC-700B-WDR-600
<b>Lab Order:</b>	N040229	<b>Collection Date:</b>	4/7/2020 10:50:00 AM
<b>Project:</b>	PG&E Topock, D3184A1.EV.05-OM-TS	<b>Matrix:</b>	WATER
<b>Lab ID:</b>	N040229-002		

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

RunID: <b>NV00922-WC_200408C</b>	QC Batch: <b>R143495</b>	PrepDate:	Analyst: <b>LR</b>
Specific Conductance	6700	0.10	0.10
		umhos/cm	1
			4/8/2020 11:20 AM

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


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

Print Date: 21-Apr-20

<b>CLIENT:</b>	CH2M HILL	<b>Client Sample ID:</b>	SC-701-WDR-600
<b>Lab Order:</b>	N040229	<b>Collection Date:</b>	4/7/2020 10:55:00 AM
<b>Project:</b>	PG&E Topock, D3184A1.EV.05-OM-TS	<b>Matrix:</b>	WATER
<b>Lab ID:</b>	N040229-003		

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

RunID: <b>NV00922-WC_200408C</b>	QC Batch: <b>R143495</b>	PrepDate:	Analyst: <b>LR</b>
Specific Conductance	38000	0.10	0.10
		umhos/cm	1
			4/8/2020 11:20 AM

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


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**CLIENT:** CH2M HILL  
**Work Order:** N040229  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

## ANALYTICAL QC SUMMARY REPORT

**TestCode:** 120.1\_WPGE

Sample ID	<b>N040229-003ADUP</b>	SampType:	<b>DUP</b>	TestCode:	<b>120.1_WPGE</b>	Units:	<b>umhos/cm</b>	Prep Date:		RunNo:	<b>143495</b>
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>R143495</b>	TestNo:	<b>EPA 120.1</b>			Analysis Date:	<b>4/8/2020</b>	SeqNo:	<b>3742822</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Specific Conductance		37900.000		0.10						38000	0.264 2

## Qualifiers:

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



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**ANALYTICAL RESULTS**

Print Date: 21-Apr-20

<b>CLIENT:</b>	CH2M HILL	<b>Client Sample ID:</b>	SC-100B-WDR-600
<b>Lab Order:</b>	N040229	<b>Collection Date:</b>	4/7/2020 10:40:00 AM
<b>Project:</b>	PG&E Topock, D3184A1.EV.05-OM-TS	<b>Matrix:</b>	WATER
<b>Lab ID:</b>	N040229-001		

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

RunID: <b>NV00922-WC_200408I</b>	QC Batch: <b>78835</b>	PrepDate: <b>4/8/2020</b>	Analyst: <b>LR</b>
Total Dissolved Solids (Residue, Filterable)	4700	50	50
		mg/L	1
			4/8/2020 01:05 PM

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


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

Print Date: 21-Apr-20

<b>CLIENT:</b>	CH2M HILL	<b>Client Sample ID:</b>	SC-700B-WDR-600
<b>Lab Order:</b>	N040229	<b>Collection Date:</b>	4/7/2020 10:50:00 AM
<b>Project:</b>	PG&E Topock, D3184A1.EV.05-OM-TS	<b>Matrix:</b>	WATER
<b>Lab ID:</b>	N040229-002		

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

RunID: <b>NV00922-WC_200408I</b>	QC Batch: <b>78835</b>	PrepDate: <b>4/8/2020</b>	Analyst: <b>LR</b>
Total Dissolved Solids (Residue, Filterable)	4600	50	50
		mg/L	1
			4/8/2020 01:05 PM

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


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**ANALYTICAL RESULTS**

Print Date: 21-Apr-20

<b>CLIENT:</b>	CH2M HILL	<b>Client Sample ID:</b>	SC-701-WDR-600
<b>Lab Order:</b>	N040229	<b>Collection Date:</b>	4/7/2020 10:55:00 AM
<b>Project:</b>	PG&E Topock, D3184A1.EV.05-OM-TS	<b>Matrix:</b>	WATER
<b>Lab ID:</b>	N040229-003		

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

RunID: <b>NV00922-WC_200408I</b>	QC Batch: <b>78835</b>	PrepDate: <b>4/8/2020</b>	Analyst: <b>LR</b>
Total Dissolved Solids (Residue, Filterable)	34000	500	500
		mg/L	1
			4/8/2020 01:05 PM

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


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CLIENT: CH2M HILL  
 Work Order: N040229  
 Project: PG&E Topock, D3184A1.EV.05-OM-TS

## ANALYTICAL QC SUMMARY REPORT

TestCode: 160.1\_2540C\_W

Sample ID	LCS-78835	SampType:	LCS	TestCode:	160.1_2540C	Units:	mg/L	Prep Date:	4/8/2020	RunNo:	143547			
Client ID:	LCSW	Batch ID:	78835	TestNo:	SM2540C			Analysis Date:	4/8/2020	SeqNo:	3746834			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera		987.000		10	1000	0		98.7	80	120				

Sample ID	MB-78835	SampType:	MBLK	TestCode:	160.1_2540C	Units:	mg/L	Prep Date:	4/8/2020	RunNo:	143547			
Client ID:	PBW	Batch ID:	78835	TestNo:	SM2540C			Analysis Date:	4/8/2020	SeqNo:	3746835			
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	N040229-003ADUP	SampType:	DUP	TestCode:	160.1_2540C	Units:	mg/L	Prep Date:	4/8/2020	RunNo:	143547			
Client ID:	ZZZZZZ	Batch ID:	78835	TestNo:	SM2540C			Analysis Date:	4/8/2020	SeqNo:	3746842			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera		33850.000		500							34050	0.589	5	

## Qualifiers:

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



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

Print Date: 21-Apr-20

<b>CLIENT:</b>	CH2M HILL	<b>Client Sample ID:</b>	SC-100B-WDR-600
<b>Lab Order:</b>	N040229	<b>Collection Date:</b>	4/7/2020 10:40:00 AM
<b>Project:</b>	PG&E Topock, D3184A1.EV.05-OM-TS	<b>Matrix:</b>	WATER
<b>Lab ID:</b>	N040229-001		

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

RunID: <b>NV00922-ICP2_200416A</b>	QC Batch: <b>78843</b>	PrepDate: <b>4/9/2020</b>	Analyst: <b>DJ</b>			
Aluminum	ND	200	250	µg/L	5	4/16/2020 07:33 AM
Boron	1200	370	500	µg/L	5	4/10/2020 09:42 AM
Iron	200	89	100	µg/L	5	4/10/2020 09:42 AM

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


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**ANALYTICAL RESULTS**

Print Date: 21-Apr-20

<b>CLIENT:</b>	CH2M HILL	<b>Client Sample ID:</b>	SC-700B-WDR-600
<b>Lab Order:</b>	N040229	<b>Collection Date:</b>	4/7/2020 10:50:00 AM
<b>Project:</b>	PG&E Topock, D3184A1.EV.05-OM-TS	<b>Matrix:</b>	WATER
<b>Lab ID:</b>	N040229-002		

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

RunID: <b>NV00922-ICP2_200410A</b>	QC Batch: <b>78843</b>	PrepDate: <b>4/9/2020</b>	Analyst: <b>DJ</b>			
Aluminum	ND	200	250	µg/L	5	4/10/2020 10:32 AM
Boron	1100	370	500	µg/L	5	4/10/2020 10:32 AM
Iron	ND	89	100	µg/L	5	4/10/2020 10:32 AM

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


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CLIENT: CH2M HILL  
 Work Order: N040229  
 Project: PG&E Topock, D3184A1.EV.05-OM-TS

## ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7\_WPGEPB

Sample ID	N040229-001E-MS1	SampType:	MS	TestCode:	200.7_WPGE	Units:	µg/L	Prep Date:	4/9/2020	RunNo:	143544
Client ID:	ZZZZZZ	Batch ID:	78843	TestNo:	EPA 200.7			Analysis Date:	4/10/2020	SeqNo:	3746754
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	6082.391	500	5000	1159	98.5	75	125				
Iron	201.239	100	100.0	203.1	-1.87	75	125				S

Sample ID	N040229-001E-MSD	SampType:	MSD	TestCode:	200.7_WPGE	Units:	µg/L	Prep Date:	4/9/2020	RunNo:	143544
Client ID:	ZZZZZZ	Batch ID:	78843	TestNo:	EPA 200.7			Analysis Date:	4/10/2020	SeqNo:	3746755
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron	6045.278	500	5000	1159	97.7	75	125	6082	0.612	20	
Iron	164.335	100	100.0	203.1	-38.8	75	125	201.2	20.2	20	SR

Sample ID	MB-78843	SampType:	MBLK	TestCode:	200.7_WPGE	Units:	µg/L	Prep Date:	4/9/2020	RunNo:	143544
Client ID:	PBW	Batch ID:	78843	TestNo:	EPA 200.7			Analysis Date:	4/10/2020	SeqNo:	3746758
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	LCS1-78843	SampType:	LCS	TestCode:	200.7_WPGE	Units:	µg/L	Prep Date:	4/9/2020	RunNo:	143544
Client ID:	LCSW	Batch ID:	78843	TestNo:	EPA 200.7			Analysis Date:	4/10/2020	SeqNo:	3746759
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	10333.699	50	10000	0	103	85	115				
Boron	4989.352	100	5000	0	99.8	85	115				
Iron	114.326	20	100.0	0	114	85	115				

## 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

Calculations are based on raw values

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**CLIENT:** CH2M HILL  
**Work Order:** N040229  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

## ANALYTICAL QC SUMMARY REPORT

**TestCode:** 200.7\_WPGEPBB

Sample ID	<b>N040229-001E-MS1</b>	SampType:	<b>MS</b>	TestCode:	<b>200.7_WPGE</b>	Units:	<b>µg/L</b>	Prep Date:	<b>4/9/2020</b>	RunNo:	<b>143544</b>
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>78843</b>	TestNo:	<b>EPA 200.7</b>			Analysis Date:	<b>4/10/2020</b>	SeqNo:	<b>3756133</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Aluminum	9902.308	250	10000	0	99.0	75	125				
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Sample ID	<b>N040229-001E-MSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>200.7_WPGE</b>	Units:	<b>µg/L</b>	Prep Date:	<b>4/9/2020</b>	RunNo:	<b>143544</b>
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>78843</b>	TestNo:	<b>EPA 200.7</b>			Analysis Date:	<b>4/10/2020</b>	SeqNo:	<b>3756134</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Aluminum	9800.414	250	10000	0	98.0	75	125	9902	1.03	20	
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### Qualifiers:

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



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**“Serving Clients with Passion and Professionalism”**

CLIENT: CH2M HILL  
 Work Order: N040229  
 Project: PG&E Topock, D3184A1.EV.05-OM-TS

## ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7\_WPGEPB

Sample ID	N040229-001E-PS	SampType:	PS	TestCode:	200.7_WPGE	Units:	µg/L	Prep Date:		RunNo:	143544		
Client ID:	ZZZZZZ	Batch ID:	78843	TestNo:	EPA 200.7			Analysis Date:	4/10/2020	SeqNo:	3746753		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Boron		5617.974		500	5000	1159	89.2	80	120				
Iron		182.506		100	100.0	203.1	-20.6	80	120				S

Sample ID	N040229-001E-PS	SampType:	PS	TestCode:	200.7_WPGE	Units:	µg/L	Prep Date:		RunNo:	143544		
Client ID:	ZZZZZZ	Batch ID:	78843	TestNo:	EPA 200.7			Analysis Date:	4/10/2020	SeqNo:	3756132		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum		9180.437		250	10000	0	91.8	80	120				

## Qualifiers:

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



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

Print Date: 21-Apr-20

<b>CLIENT:</b>	CH2M HILL	<b>Client Sample ID:</b>	SC-100B-WDR-600
<b>Lab Order:</b>	N040229	<b>Collection Date:</b>	4/7/2020 10:40:00 AM
<b>Project:</b>	PG&E Topock, D3184A1.EV.05-OM-TS	<b>Matrix:</b>	WATER
<b>Lab ID:</b>	N040229-001		

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

RunID: NV00922-ICP8_200409A	QC Batch: 78841	PrepDate: 4/9/2020	Analyst: CEI			
Antimony	ND	0.16	0.50	µg/L	1	4/9/2020 10:21 AM
Arsenic	0.21	0.081	0.10	µg/L	1	4/9/2020 02:26 PM
Barium	31	0.15	1.0	µg/L	1	4/9/2020 10:21 AM
Copper	ND	0.55	1.0	µg/L	1	4/9/2020 10:21 AM
Lead	ND	0.13	1.0	µg/L	1	4/9/2020 10:21 AM
Manganese	7.3	0.26	0.50	µg/L	1	4/9/2020 10:21 AM
Molybdenum	19	0.21	0.50	µg/L	1	4/9/2020 10:21 AM
Nickel	ND	0.26	1.0	µg/L	1	4/9/2020 10:21 AM
Zinc	ND	2.3	10	µg/L	1	4/9/2020 10:21 AM

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


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

Print Date: 21-Apr-20

<b>CLIENT:</b>	CH2M HILL	<b>Client Sample ID:</b>	SC-700B-WDR-600
<b>Lab Order:</b>	N040229	<b>Collection Date:</b>	4/7/2020 10:50:00 AM
<b>Project:</b>	PG&E Topock, D3184A1.EV.05-OM-TS	<b>Matrix:</b>	WATER
<b>Lab ID:</b>	N040229-002		

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

RunID: NV00922-ICP8_200409A	QC Batch: 78841	PrepDate: 4/9/2020	Analyst: CEI			
Antimony	ND	0.16	0.50	µg/L	1	4/9/2020 11:23 AM
Arsenic	ND	0.081	0.10	µg/L	1	4/9/2020 11:23 AM
Barium	16	0.15	1.0	µg/L	1	4/13/2020 01:02 PM
Copper	ND	0.55	1.0	µg/L	1	4/9/2020 11:23 AM
Lead	ND	0.13	1.0	µg/L	1	4/9/2020 11:23 AM
Manganese	8.8	0.26	0.50	µg/L	1	4/9/2020 11:23 AM
Molybdenum	20	0.21	0.50	µg/L	1	4/9/2020 11:23 AM
Nickel	ND	0.26	1.0	µg/L	1	4/9/2020 11:23 AM
Zinc	ND	2.3	10	µg/L	1	4/9/2020 11:23 AM

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


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

Print Date: 21-Apr-20

<b>CLIENT:</b>	CH2M HILL	<b>Client Sample ID:</b>	SC-701-WDR-600
<b>Lab Order:</b>	N040229	<b>Collection Date:</b>	4/7/2020 10:55:00 AM
<b>Project:</b>	PG&E Topock, D3184A1.EV.05-OM-TS	<b>Matrix:</b>	WATER
<b>Lab ID:</b>	N040229-003		

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

RunID: <b>NV00922-ICP8_200409A</b>	QC Batch: <b>78841</b>	PrepDate: <b>4/9/2020</b>	Analyst: <b>CEI</b>			
Antimony	ND	3.9	12	µg/L	25	4/9/2020 12:09 PM
Arsenic	ND	2.0	2.5	µg/L	25	4/9/2020 12:09 PM
Barium	45	3.7	25	µg/L	25	4/13/2020 01:07 PM
Beryllium	ND	0.21	2.5	µg/L	5	4/9/2020 11:37 AM
Cadmium	ND	1.3	12	µg/L	25	4/9/2020 12:09 PM
Cobalt	ND	1.1	12	µg/L	25	4/9/2020 12:09 PM
Copper	ND	14	25	µg/L	25	4/9/2020 12:09 PM
Lead	ND	3.2	25	µg/L	25	4/9/2020 12:09 PM
Manganese	180	6.4	12	µg/L	25	4/9/2020 12:09 PM
Molybdenum	160	5.4	12	µg/L	25	4/9/2020 12:09 PM
Nickel	ND	6.5	25	µg/L	25	4/9/2020 12:09 PM
Selenium	37	9.1	12	µg/L	25	4/9/2020 12:09 PM
Silver	ND	5.9	12	µg/L	25	4/9/2020 12:09 PM
Thallium	ND	4.8	12	µg/L	25	4/9/2020 12:09 PM
Vanadium	ND	6.9	25	µg/L	25	4/9/2020 12:09 PM
Zinc	ND	57	250	µg/L	25	4/9/2020 12:09 PM

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


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**"Serving Clients with Passion and Professionalism"**

CLIENT: CH2M HILL  
 Work Order: N040229  
 Project: PG&E Topock, D3184A1.EV.05-OM-TS

## ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8\_W

Sample ID	MB-78841	SampType:	MBLK	TestCode:	200.8_W	Units:	µg/L	Prep Date:	4/9/2020	RunNo:	143524
Client ID:	PBW	Batch ID:	78841	TestNo:	EPA 200.8			Analysis Date:	4/9/2020	SeqNo:	3744505
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	ND	0.50									
Arsenic	ND	0.10									
Barium	ND	1.0									
Beryllium	ND	0.50									
Cadmium	ND	0.50									
Cobalt	ND	0.50									
Copper	ND	1.0									
Lead	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Nickel	ND	1.0									
Selenium	ND	0.50									
Silver	ND	0.50									
Thallium	ND	0.50									
Vanadium	ND	1.0									
Zinc	ND	10									

Sample ID	LCS-78841	SampType:	LCS	TestCode:	200.8_W	Units:	µg/L	Prep Date:	4/9/2020	RunNo:	143524
Client ID:	LCSW	Batch ID:	78841	TestNo:	EPA 200.8			Analysis Date:	4/9/2020	SeqNo:	3744506
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	10.039	0.50	10.00	0	100	85	115				
Arsenic	10.367	0.10	10.00	0	104	85	115				
Barium	10.076	1.0	10.00	0	101	85	115				
Beryllium	9.809	0.50	10.00	0	98.1	85	115				
Cadmium	10.118	0.50	10.00	0	101	85	115				
Cobalt	9.839	0.50	10.00	0	98.4	85	115				
Copper	9.480	1.0	10.00	0	94.8	85	115				

## 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

Calculations are based on raw values



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**CLIENT:** CH2M HILL  
**Work Order:** N040229  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

## ANALYTICAL QC SUMMARY REPORT

**TestCode:** 200.8\_W

Sample ID	<b>LCS-78841</b>	SampType:	<b>LCS</b>	TestCode:	<b>200.8_W</b>	Units:	<b>µg/L</b>	Prep Date:	<b>4/9/2020</b>	RunNo:	<b>143524</b>
Client ID:	<b>LCSW</b>	Batch ID:	<b>78841</b>	TestNo:	<b>EPA 200.8</b>			Analysis Date:	<b>4/9/2020</b>	SeqNo:	<b>3744506</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	10.194	1.0	10.00	0	102	85	115				
Manganese	101.879	0.50	100.0	0	102	85	115				
Molybdenum	9.629	0.50	10.00	0	96.3	85	115				
Nickel	10.104	1.0	10.00	0	101	85	115				
Selenium	10.358	0.50	10.00	0	104	85	115				
Silver	10.744	0.50	10.00	0	107	85	115				
Thallium	10.390	0.50	10.00	0	104	85	115				
Vanadium	10.160	1.0	10.00	0	102	85	115				
Zinc	10.214	10	10.00	0	102	85	115				

Sample ID	<b>N040229-001E-MS</b>	SampType:	<b>MS</b>	TestCode:	<b>200.8_W</b>	Units:	<b>µg/L</b>	Prep Date:	<b>4/9/2020</b>	RunNo:	<b>143524</b>
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>78841</b>	TestNo:	<b>EPA 200.8</b>			Analysis Date:	<b>4/9/2020</b>	SeqNo:	<b>3744512</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	10.159	0.50	10.00	0	102	75	125				
Barium	41.004	1.0	10.00	31.13	98.8	75	125				
Beryllium	6.708	0.50	10.00	0	67.1	75	125				S
Cadmium	9.748	0.50	10.00	0	97.5	75	125				
Cobalt	8.525	0.50	10.00	0.05036	84.7	75	125				
Copper	7.775	1.0	10.00	0	77.8	75	125				
Lead	10.227	1.0	10.00	0	102	75	125				
Manganese	100.510	0.50	100.0	7.272	93.2	75	125				
Molybdenum	29.165	0.50	10.00	18.90	103	75	125				
Nickel	ND	1.0	10.00	0	0	75	125				S
Selenium	14.147	0.50	10.00	4.074	101	75	125				
Silver	9.456	0.50	10.00	0	94.6	75	125				
Thallium	7.100	0.50	10.00	0	71.0	75	125				S
Vanadium	16.902	1.0	10.00	7.365	95.4	75	125				
Zinc	ND	10	10.00	0	0	75	125				S

### Qualifiers:

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

**CLIENT:** CH2M HILL  
**Work Order:** N040229  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

## ANALYTICAL QC SUMMARY REPORT

**TestCode:** 200.8\_W

Sample ID	<b>N040229-001E-MSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>200.8_W</b>	Units:	<b>µg/L</b>	Prep Date:	<b>4/9/2020</b>	RunNo:	<b>143524</b>
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>78841</b>	TestNo:	<b>EPA 200.8</b>	Analysis Date:	<b>4/9/2020</b>	SeqNo:	<b>3744517</b>		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	9.901	0.50	10.00	0	99.0	75	125	10.16	2.57	20	
Barium	41.420	1.0	10.00	31.13	103	75	125	41.00	1.01	20	
Beryllium	6.786	0.50	10.00	0	67.9	75	125	6.708	1.16	20	S
Cadmium	9.593	0.50	10.00	0	95.9	75	125	9.748	1.60	20	
Cobalt	8.578	0.50	10.00	0.05036	85.3	75	125	8.525	0.621	20	
Copper	7.750	1.0	10.00	0	77.5	75	125	7.775	0.330	20	
Lead	10.317	1.0	10.00	0	103	75	125	10.23	0.874	20	
Manganese	100.727	0.50	100.0	7.272	93.5	75	125	100.5	0.216	20	
Molybdenum	29.285	0.50	10.00	18.90	104	75	125	29.16	0.412	20	
Nickel	ND	1.0	10.00	0	0	75	125	0	0	20	S
Selenium	13.879	0.50	10.00	4.074	98.1	75	125	14.15	1.91	20	
Silver	9.534	0.50	10.00	0	95.3	75	125	9.456	0.821	20	
Thallium	7.547	0.50	10.00	0	75.5	75	125	7.100	6.10	20	
Vanadium	16.959	1.0	10.00	7.365	95.9	75	125	16.90	0.336	20	
Zinc	ND	10	10.00	0	0	75	125	0	0	20	S

Sample ID	<b>N040229-001E-MS</b>	SampType:	<b>MS</b>	TestCode:	<b>200.8_W</b>	Units:	<b>µg/L</b>	Prep Date:	<b>4/9/2020</b>	RunNo:	<b>143524</b>
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>78841</b>	TestNo:	<b>EPA 200.8</b>	Analysis Date:	<b>4/9/2020</b>	SeqNo:	<b>3756130</b>		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.887	0.10	10.00	0.2063	107	75	125				

Sample ID	<b>N040229-001E-MSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>200.8_W</b>	Units:	<b>µg/L</b>	Prep Date:	<b>4/9/2020</b>	RunNo:	<b>143524</b>
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>78841</b>	TestNo:	<b>EPA 200.8</b>	Analysis Date:	<b>4/9/2020</b>	SeqNo:	<b>3756131</b>		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.707	0.10	10.00	0.2063	105	75	125	10.89	1.66	20	

### Qualifiers:

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

CLIENT: CH2M HILL  
 Work Order: N040229  
 Project: PG&E Topock, D3184A1.EV.05-OM-TS

## ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8\_W

Sample ID	N040229-001E-PS	SampType:	PS	TestCode:	200.8_W	Units:	µg/L	Prep Date:		RunNo:	143524
Client ID:	ZZZZZZ	Batch ID:	78841	TestNo:	EPA 200.8			Analysis Date:	4/9/2020	SeqNo:	3744510
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	10.153	0.50	10.00	0	102	80	120				
Barium	40.972	1.0	10.00	31.13	98.5	80	120				
Beryllium	6.676	0.50	10.00	0	66.8	80	120				S
Cadmium	9.816	0.50	10.00	0	98.2	80	120				
Cobalt	8.530	0.50	10.00	0.05036	84.8	80	120				
Copper	7.751	1.0	10.00	0	77.5	80	120				S
Lead	10.285	1.0	10.00	0	103	80	120				
Manganese	100.522	0.50	100.0	7.272	93.2	80	120				
Molybdenum	29.390	0.50	10.00	18.90	105	80	120				
Nickel	ND	1.0	10.00	0	0	80	120				S
Selenium	13.850	0.50	10.00	4.074	97.8	80	120				
Silver	9.458	0.50	10.00	0	94.6	80	120				
Thallium	7.529	0.50	10.00	0	75.3	80	120				S
Vanadium	16.917	1.0	10.00	7.365	95.5	80	120				
Zinc	ND	10	10.00	0	0	80	120				S

Sample ID	N040229-001E-PS	SampType:	PS	TestCode:	200.8_W	Units:	µg/L	Prep Date:		RunNo:	143524
Client ID:	ZZZZZZ	Batch ID:	78841	TestNo:	EPA 200.8			Analysis Date:	4/9/2020	SeqNo:	3756129
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.904	0.10	10.00	0.2063	107	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  
 H Holding times for preparation or analysis exceeded  
 S Spike/Surrogate outside of limits due to matrix interference

Calculations are based on raw values



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

Print Date: 21-Apr-20

**CLIENT:** CH2M HILL  
**Lab Order:** N040229  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS  
**Lab ID:** N040229-001

**Client Sample ID:** SC-100B-WDR-600  
**Collection Date:** 4/7/2020 10:40:00 AM  
**Matrix:** WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
<b>HEXAVALENT CHROMIUM BY IC</b>							
<b>EPA 218.6</b>							
RunID: NV00922-IC7_200410B	QC Batch: R143557			PrepDate:		Analyst: HG	
Hexavalent Chromium	420	3.3	20		µg/L	100	4/10/2020 09:57 PM
<b>TOTAL METALS BY ICPMS</b>							
<b>EPA 200.8</b>							
RunID: NV00922-ICP8_200409A	QC Batch: 78841			PrepDate:	4/9/2020	Analyst: CEI	
Chromium	420	0.65	5.0		µg/L	5	4/9/2020 10:26 AM

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



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**“Serving Clients with Passion and Professionalism”**

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

Print Date: 21-Apr-20

<b>CLIENT:</b>	CH2M HILL	<b>Client Sample ID:</b>	SC-700B-WDR-600
<b>Lab Order:</b>	N040229	<b>Collection Date:</b>	4/7/2020 10:50:00 AM
<b>Project:</b>	PG&E Topock, D3184A1.EV.05-OM-TS	<b>Matrix:</b>	WATER
<b>Lab ID:</b>	N040229-002		

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

RunID: <b>NV00922-IC7_200410B</b>	QC Batch: <b>R143557</b>	PrepDate:	Analyst: <b>HG</b>
Hexavalent Chromium	ND 0.033	0.20	4/10/2020 10:25 PM
		µg/L	

**TOTAL METALS BY ICPMS**
**EPA 200.8**

RunID: <b>NV00922-ICP8_200409A</b>	QC Batch: <b>78841</b>	PrepDate: <b>4/9/2020</b>	Analyst: <b>CEI</b>
Chromium	ND 0.13	1.0	4/9/2020 11:23 AM
		µg/L	

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


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

Print Date: 21-Apr-20

<b>CLIENT:</b>	CH2M HILL	<b>Client Sample ID:</b>	SC-701-WDR-600
<b>Lab Order:</b>	N040229	<b>Collection Date:</b>	4/7/2020 10:55:00 AM
<b>Project:</b>	PG&E Topock, D3184A1.EV.05-OM-TS	<b>Matrix:</b>	WATER
<b>Lab ID:</b>	N040229-003		

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

RunID: <b>NV00922-IC7_200413A</b>	QC Batch: <b>R143580</b>	PrepDate:	Analyst: <b>HG</b>
Hexavalent Chromium	ND 0.17	1.0	4/13/2020 02:48 PM
		µg/L	5

**TOTAL METALS BY ICPMS**
**EPA 200.8**

RunID: <b>NV00922-ICP8_200409A</b>	QC Batch: <b>78841</b>	PrepDate: <b>4/9/2020</b>	Analyst: <b>CEI</b>
Chromium	ND 3.2	25	4/9/2020 12:09 PM
		µg/L	25

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


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**"Serving Clients with Passion and Professionalism"**

CLIENT: CH2M HILL  
 Work Order: N040229  
 Project: PG&E Topock, D3184A1.EV.05-OM-TS

## ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8\_W\_CRPGE

Sample ID	MB-78841	SampType:	MBLK	TestCode:	200.8_W_CR	Units:	µg/L	Prep Date:	4/9/2020	RunNo:	143524			
Client ID:	PBW	Batch ID:	78841	TestNo:	EPA 200.8			Analysis Date:	4/9/2020	SeqNo:	3744458			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium		ND		1.0										

Sample ID	LCS-78841	SampType:	LCS	TestCode:	200.8_W_CR	Units:	µg/L	Prep Date:	4/9/2020	RunNo:	143524			
Client ID:	LCSW	Batch ID:	78841	TestNo:	EPA 200.8			Analysis Date:	4/9/2020	SeqNo:	3744459			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium		9.912		1.0	10.00	0		99.1	85	115				

Sample ID	N040229-001E-MS	SampType:	MS	TestCode:	200.8_W_CR	Units:	µg/L	Prep Date:	4/9/2020	RunNo:	143524			
Client ID:	ZZZZZZ	Batch ID:	78841	TestNo:	EPA 200.8			Analysis Date:	4/9/2020	SeqNo:	3744469			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium		442.946		5.0	10.00	415.6		273	75	125				S

Sample ID	N040229-001E-MSD	SampType:	MSD	TestCode:	200.8_W_CR	Units:	µg/L	Prep Date:	4/9/2020	RunNo:	143524			
Client ID:	ZZZZZZ	Batch ID:	78841	TestNo:	EPA 200.8			Analysis Date:	4/9/2020	SeqNo:	3744471			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium		455.171		5.0	10.00	415.6		396	75	125	442.9	2.72	20	S

## Qualifiers:

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



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**CLIENT:** CH2M HILL  
**Work Order:** N040229  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

## ANALYTICAL QC SUMMARY REPORT

**TestCode:** 218.6\_WU\_PGE

Sample ID	MB-R143557	SampType:	MBLK	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	143557		
Client ID:	PBW	Batch ID:	R143557	TestNo:	EPA 218.6			Analysis Date:	4/10/2020	SeqNo:	3747042		
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-R143557	SampType:	LCS	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	143557		
Client ID:	LCSW	Batch ID:	R143557	TestNo:	EPA 218.6			Analysis Date:	4/10/2020	SeqNo:	3747043		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium 4.740 0.20 5.000 0 94.8 90 110

Sample ID	N040229-001CMS	SampType:	MS	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	143557		
Client ID:	ZZZZZZ	Batch ID:	R143557	TestNo:	EPA 218.6			Analysis Date:	4/10/2020	SeqNo:	3747045		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium 899.740 20 500.0 420.5 95.9 90 110

Sample ID	N040229-001CMSD	SampType: MSD	TestCode: 218.6_WU_P	Units: µg/L	Prep Date:	RunNo: 143557					
Client ID:	ZZZZZZ	Batch ID: R143557	TestNo: EPA 218.6		Analysis Date: 4/10/2020	SeqNo: 3747046					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium 897.390 20 500.0 420.5 95.4 90 110 899.7 0.262 20

Sample ID	N040229-002CDUP	SampType:	DUP	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	143557		
Client ID:	ZZZZZZ	Batch ID:	R143557	TestNo:	EPA 218.6			Analysis Date:	4/10/2020	SeqNo:	3747048		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium ND 0.20 0 0 20

### Qualifiers:

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

**CLIENT:** CH2M HILL  
**Work Order:** N040229  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

## ANALYTICAL QC SUMMARY REPORT

**TestCode:** 218.6\_WU\_PGE

Sample ID	N040229-002CMS	SampType:	MS	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	143557		
Client ID:	ZZZZZZ	Batch ID:	R143557	TestNo:	EPA 218.6			Analysis Date:	4/10/2020	SeqNo:	3747049		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium		1.032		0.20	1.000	0	103	90	110				

### Qualifiers:

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



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**CLIENT:** CH2M HILL  
**Work Order:** N040229  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

## ANALYTICAL QC SUMMARY REPORT

**TestCode:** 218.6\_WU\_PGE

Sample ID	MB-R143580	SampType:	MBLK	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	143580		
Client ID:	PBW	Batch ID:	R143580	TestNo:	EPA 218.6			Analysis Date:	4/13/2020	SeqNo:	3749162		
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-R143580	SampType:	LCS	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	143580		
Client ID:	LCSW	Batch ID:	R143580	TestNo:	EPA 218.6			Analysis Date:	4/13/2020	SeqNo:	3749163		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium 4.912 0.20 5.000 0 98.2 90 110

Sample ID	N040263-001ADUP	SampType:	DUP	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	143580		
Client ID:	ZZZZZZ	Batch ID:	R143580	TestNo:	EPA 218.6			Analysis Date:	4/13/2020	SeqNo:	3749165		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium 25.475 1.0 25.49 0.0530 20

Sample ID	N040262-002AMS	SampType:	MS	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	143580		
Client ID:	ZZZZZZ	Batch ID:	R143580	TestNo:	EPA 218.6			Analysis Date:	4/13/2020	SeqNo:	3749167		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium 138.101 2.0 50.00 89.93 96.3 90 110

Sample ID	N040262-002AMSD	SampType:	MSD	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	143580		
Client ID:	ZZZZZZ	Batch ID:	R143580	TestNo:	EPA 218.6			Analysis Date:	4/13/2020	SeqNo:	3749168		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium 139.043 2.0 50.00 89.93 98.2 90 110 138.1 0.680 20

### Qualifiers:

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

**CLIENT:** CH2M HILL  
**Work Order:** N040229  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

## ANALYTICAL QC SUMMARY REPORT

**TestCode:** 218.6\_WU\_PGE

Sample ID	N040229-003BMS	SampType:	MS	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	143580		
Client ID:	ZZZZZZ	Batch ID:	R143580	TestNo:	EPA 218.6			Analysis Date:	4/13/2020	SeqNo:	3749174		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium		4.956		1.0	5.000	0	99.1	90	110				

### Qualifiers:

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

CLIENT: CH2M HILL  
Work Order: N040229  
Project: PG&E Topock, D3184A1.EV.05-OM-TS

## ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8\_W\_CRPGE

Sample ID	N040229-001E-PS	SampType:	PS	TestCode:	200.8_W_CR	Units:	µg/L	Prep Date:		RunNo:	143524		
Client ID:	ZZZZZZ	Batch ID:	78841	TestNo:	EPA 200.8			Analysis Date:	4/9/2020	SeqNo:	3744464		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium		437.239		5.0	10.00	415.6	216	80	120				S

## Qualifiers:

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



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

Print Date: 21-Apr-20

<b>CLIENT:</b>	CH2M HILL	<b>Client Sample ID:</b>	SC-100B-WDR-600
<b>Lab Order:</b>	N040229	<b>Collection Date:</b>	4/7/2020 10:40:00 AM
<b>Project:</b>	PG&E Topock, D3184A1.EV.05-OM-TS	<b>Matrix:</b>	WATER
<b>Lab ID:</b>	N040229-001		

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

RunID: <b>NV00922-WC_200408G</b>	QC Batch: <b>R143503</b>	PrepDate:	Analyst: <b>LR</b>
Turbidity	0.27 0.10 0.10	NTU	1 4/8/2020 03:10 PM

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


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**ANALYTICAL RESULTS**

Print Date: 21-Apr-20

<b>CLIENT:</b>	CH2M HILL	<b>Client Sample ID:</b>	SC-700B-WDR-600
<b>Lab Order:</b>	N040229	<b>Collection Date:</b>	4/7/2020 10:50:00 AM
<b>Project:</b>	PG&E Topock, D3184A1.EV.05-OM-TS	<b>Matrix:</b>	WATER
<b>Lab ID:</b>	N040229-002		

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

RunID: <b>NV00922-WC_200408G</b>	QC Batch: <b>R143503</b>	PrepDate:	Analyst: <b>LR</b>
Turbidity	0.27 0.10 0.10	NTU	1 4/8/2020 03:10 PM

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


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**CLIENT:** CH2M HILL  
**Work Order:** N040229  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

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

Sample ID	MB-R143503	SampType:	MBLK	TestCode:	2130_W	Units:	NTU	Prep Date:		RunNo:	143503		
Client ID:	PBW	Batch ID:	R143503	TestNo:	SM 2130B			Analysis Date:	4/8/2020	SeqNo:	3742991		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Turbidity		ND		0.10									

Sample ID	N040229-002BDUP	SampType:	DUP	TestCode:	2130_W	Units:	NTU	Prep Date:		RunNo:	143503		
Client ID:	ZZZZZZ	Batch ID:	R143503	TestNo:	SM 2130B			Analysis Date:	4/8/2020	SeqNo:	3742994		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Turbidity		0.260		0.10						0.2700	3.77	30	

**Qualifiers:**

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

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

Print Date: 21-Apr-20

<b>CLIENT:</b>	CH2M HILL	<b>Client Sample ID:</b>	SC-701-WDR-600
<b>Lab Order:</b>	N040229	<b>Collection Date:</b>	4/7/2020 10:55:00 AM
<b>Project:</b>	PG&E Topock, D3184A1.EV.05-OM-TS	<b>Matrix:</b>	WATER
<b>Lab ID:</b>	N040229-003		

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

RunID: <b>NV00922-AA2_200413B</b>	QC Batch: <b>78863</b>	PrepDate: <b>4/10/2020</b>	Analyst: <b>DJ</b>
Mercury	ND 0.13	0.20	µg/L 1 4/13/2020 10:14 AM

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


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**"Serving Clients with Passion and Professionalism"**

CLIENT: CH2M HILL  
 Work Order: N040229  
 Project: PG&E Topock, D3184A1.EV.05-OM-TS

## ANALYTICAL QC SUMMARY REPORT

TestCode: 245.1\_W

Sample ID	MB-78863	SampType:	MBLK	TestCode:	245.1_W	Units:	µg/L	Prep Date:	4/10/2020	RunNo:	143575			
Client ID:	PBW	Batch ID:	78863	TestNo:	EPA 245.1			Analysis Date:	4/13/2020	SeqNo:	3747984			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		ND		0.20										

Sample ID	LCS-78863	SampType:	LCS	TestCode:	245.1_W	Units:	µg/L	Prep Date:	4/10/2020	RunNo:	143575			
Client ID:	LCSW	Batch ID:	78863	TestNo:	EPA 245.1			Analysis Date:	4/13/2020	SeqNo:	3747985			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		4.980		0.20	5.000	0		99.6	85	115				

Sample ID	N040229-003C-MS	SampType:	MS	TestCode:	245.1_W	Units:	µg/L	Prep Date:	4/10/2020	RunNo:	143575			
Client ID:	ZZZZZZ	Batch ID:	78863	TestNo:	EPA 245.1			Analysis Date:	4/13/2020	SeqNo:	3747989			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		4.820		0.20	5.000	0		96.4	75	125				

Sample ID	N040229-003C-MSD	SampType:	MSD	TestCode:	245.1_W	Units:	µg/L	Prep Date:	4/10/2020	RunNo:	143575			
Client ID:	ZZZZZZ	Batch ID:	78863	TestNo:	EPA 245.1			Analysis Date:	4/13/2020	SeqNo:	3747990			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		4.690		0.20	5.000	0		93.8	75	125	4.820	2.73	20	

## Qualifiers:

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



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

Print Date: 21-Apr-20

<b>CLIENT:</b>	CH2M HILL	<b>Client Sample ID:</b>	SC-100B-WDR-600
<b>Lab Order:</b>	N040229	<b>Collection Date:</b>	4/7/2020 10:40:00 AM
<b>Project:</b>	PG&E Topock, D3184A1.EV.05-OM-TS	<b>Matrix:</b>	WATER
<b>Lab ID:</b>	N040229-001		

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

RunID: NV00922-IC8_200413A	QC Batch: R143584	PrepDate:	Analyst: HG
Fluoride	2.7 0.048	0.50	mg/L 5 4/13/2020 07:21 PM

**ANIONS BY ION CHROMATOGRAPHY**
**EPA 300.0**

RunID: NV00922-IC8_200413A	QC Batch: R143584	PrepDate:	Analyst: HG
Sulfate	490 2.0	25	mg/L 50 4/13/2020 12:44 PM

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


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**ANALYTICAL RESULTS**

Print Date: 21-Apr-20

<b>CLIENT:</b>	CH2M HILL	<b>Client Sample ID:</b>	SC-700B-WDR-600
<b>Lab Order:</b>	N040229	<b>Collection Date:</b>	4/7/2020 10:50:00 AM
<b>Project:</b>	PG&E Topock, D3184A1.EV.05-OM-TS	<b>Matrix:</b>	WATER
<b>Lab ID:</b>	N040229-002		

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

RunID: NV00922-IC8_200413A	QC Batch: R143584	PrepDate:	Analyst: HG
Fluoride	2.6 0.048	0.50	mg/L 5 4/13/2020 07:36 PM

**ANIONS BY ION CHROMATOGRAPHY**
**EPA 300.0**

RunID: NV00922-IC8_200413A	QC Batch: R143584	PrepDate:	Analyst: HG
Sulfate	480 2.0	25	mg/L 50 4/13/2020 12:59 PM

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


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**ANALYTICAL RESULTS**

Print Date: 21-Apr-20

<b>CLIENT:</b>	CH2M HILL	<b>Client Sample ID:</b>	SC-701-WDR-600
<b>Lab Order:</b>	N040229	<b>Collection Date:</b>	4/7/2020 10:55:00 AM
<b>Project:</b>	PG&E Topock, D3184A1.EV.05-OM-TS	<b>Matrix:</b>	WATER
<b>Lab ID:</b>	N040229-003		

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

RunID: <b>NV00922-IC8_200414A</b>	QC Batch: <b>R143606</b>	PrepDate:	Analyst: <b>RAB</b>
Fluoride	19 0.48	5.0	mg/L 50 4/14/2020 09:58 PM

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


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CLIENT: CH2M HILL  
 Work Order: N040229  
 Project: PG&E Topock, D3184A1.EV.05-OM-TS

## ANALYTICAL QC SUMMARY REPORT

TestCode: 300\_W\_FPGE

Sample ID	MB-R143584_F	SampType:	MBLK	TestCode:	300_W_FPG	Units:	mg/L	Prep Date:		RunNo:	143584		
Client ID:	PBW	Batch ID:	R143584	TestNo:	EPA 300.0			Analysis Date:	4/13/2020	SeqNo:	3748904		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride		ND		0.10									

Sample ID	LCS-R143584_F	SampType:	LCS	TestCode:	300_W_FPG	Units:	mg/L	Prep Date:		RunNo:	143584		
Client ID:	LCSW	Batch ID:	R143584	TestNo:	EPA 300.0			Analysis Date:	4/13/2020	SeqNo:	3748905		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride		1.234		0.10	1.250	0	98.7	90	110				

Sample ID	N040229-003BDUP	SampType:	DUP	TestCode:	300_W_FPG	Units:	mg/L	Prep Date:		RunNo:	143584		
Client ID:	ZZZZZZ	Batch ID:	R143584	TestNo:	EPA 300.0			Analysis Date:	4/13/2020	SeqNo:	3748909		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride		16.688		2.0						16.37	1.91	20	

Sample ID	N040229-003BMS	SampType:	MS	TestCode:	300_W_FPG	Units:	mg/L	Prep Date:		RunNo:	143584		
Client ID:	ZZZZZZ	Batch ID:	R143584	TestNo:	EPA 300.0			Analysis Date:	4/13/2020	SeqNo:	3748910		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride		42.114		2.0	25.00	16.37	103	80	120				

Sample ID	N040229-003BMSD	SampType:	MSD	TestCode:	300_W_FPG	Units:	mg/L	Prep Date:		RunNo:	143584		
Client ID:	ZZZZZZ	Batch ID:	R143584	TestNo:	EPA 300.0			Analysis Date:	4/13/2020	SeqNo:	3748911		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride		41.794		2.0	25.00	16.37	102	80	120	42.11	0.763	20	

## Qualifiers:

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



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**CLIENT:** CH2M HILL  
**Work Order:** N040229  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

## ANALYTICAL QC SUMMARY REPORT

**TestCode:** 300\_W\_FPG

Sample ID	<b>MB-R143606_F</b>	SampType:	<b>MBLK</b>	TestCode:	<b>300_W_FPG</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>143606</b>
Client ID:	<b>PBW</b>	Batch ID:	<b>R143606</b>	TestNo:	<b>EPA 300.0</b>			Analysis Date:	<b>4/14/2020</b>	SeqNo:	<b>3749661</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Fluoride ND 0.10

Sample ID	<b>LCS-R143606_F</b>	SampType:	<b>LCS</b>	TestCode:	<b>300_W_FPG</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>143606</b>
Client ID:	<b>LCSW</b>	Batch ID:	<b>R143606</b>	TestNo:	<b>EPA 300.0</b>			Analysis Date:	<b>4/14/2020</b>	SeqNo:	<b>3749662</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Fluoride 1.181 0.10 1.250 0 94.5 90 110

Sample ID	<b>N040229-003ADUP</b>	SampType:	<b>DUP</b>	TestCode:	<b>300_W_FPG</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>143606</b>
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>R143606</b>	TestNo:	<b>EPA 300.0</b>			Analysis Date:	<b>4/14/2020</b>	SeqNo:	<b>3749676</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Fluoride 19.305 5.0 19.14 0.858 20

Sample ID	<b>N040229-003AMS</b>	SampType:	<b>MS</b>	TestCode:	<b>300_W_FPG</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>143606</b>
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>R143606</b>	TestNo:	<b>EPA 300.0</b>			Analysis Date:	<b>4/14/2020</b>	SeqNo:	<b>3749677</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Fluoride 78.470 5.0 62.50 19.14 94.9 80 120

Sample ID	<b>N040229-003AMSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>300_W_FPG</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>143606</b>
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>R143606</b>	TestNo:	<b>EPA 300.0</b>			Analysis Date:	<b>4/14/2020</b>	SeqNo:	<b>3749678</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Fluoride 78.240 5.0 62.50 19.14 94.6 80 120 78.47 0.294 20

### Qualifiers:

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

**CLIENT:** CH2M HILL  
**Work Order:** N040229  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

## ANALYTICAL QC SUMMARY REPORT

**TestCode:** 300\_W\_SO4PGE

Sample ID	<b>MB-R143584_SO4</b>	SampType:	<b>MBLK</b>	TestCode:	<b>300_W_SO4P</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>143584</b>
Client ID:	<b>PBW</b>	Batch ID:	<b>R143584</b>	TestNo:	<b>EPA 300.0</b>			Analysis Date:	<b>4/13/2020</b>	SeqNo:	<b>3748922</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Sulfate ND 0.50

Sample ID	<b>LCS-R143584_SO4</b>	SampType:	<b>LCS</b>	TestCode:	<b>300_W_SO4P</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>143584</b>
Client ID:	<b>LCSW</b>	Batch ID:	<b>R143584</b>	TestNo:	<b>EPA 300.0</b>			Analysis Date:	<b>4/13/2020</b>	SeqNo:	<b>3748923</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Sulfate 3.746 0.50 4.000 0 93.6 90 110

Sample ID	<b>N040229-001BDUP</b>	SampType:	<b>DUP</b>	TestCode:	<b>300_W_SO4P</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>143584</b>
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>R143584</b>	TestNo:	<b>EPA 300.0</b>			Analysis Date:	<b>4/13/2020</b>	SeqNo:	<b>3748929</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Sulfate 512.235 25 495.0 3.43 20

Sample ID	<b>N040231-001CMS</b>	SampType:	<b>MS</b>	TestCode:	<b>300_W_SO4P</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>143584</b>
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>R143584</b>	TestNo:	<b>EPA 300.0</b>			Analysis Date:	<b>4/13/2020</b>	SeqNo:	<b>3748931</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Sulfate 725.205 25 200.0 497.2 114 80 120

Sample ID	<b>N040231-001CMSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>300_W_SO4P</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>143584</b>
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>R143584</b>	TestNo:	<b>EPA 300.0</b>			Analysis Date:	<b>4/13/2020</b>	SeqNo:	<b>3748932</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Sulfate 719.380 25 200.0 497.2 111 80 120 725.2 0.806 20

### Qualifiers:

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

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

Print Date: 21-Apr-20

<b>CLIENT:</b>	CH2M HILL	<b>Client Sample ID:</b>	SC-100B-WDR-600
<b>Lab Order:</b>	N040229	<b>Collection Date:</b>	4/7/2020 10:40:00 AM
<b>Project:</b>	PG&E Topock, D3184A1.EV.05-OM-TS	<b>Matrix:</b>	WATER
<b>Lab ID:</b>	N040229-001		

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

RunID: <b>NV00922-WC_200413A</b>	QC Batch: <b>R143581</b>	PrepDate:	Analyst: <b>JBB</b>
Nitrate/Nitrite as N	2.4 0.16	0.25	mg/L 5 4/13/2020 02:54 PM

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


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**ANALYTICAL RESULTS**

Print Date: 21-Apr-20

<b>CLIENT:</b>	CH2M HILL	<b>Client Sample ID:</b>	SC-700B-WDR-600
<b>Lab Order:</b>	N040229	<b>Collection Date:</b>	4/7/2020 10:50:00 AM
<b>Project:</b>	PG&E Topock, D3184A1.EV.05-OM-TS	<b>Matrix:</b>	WATER
<b>Lab ID:</b>	N040229-002		

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

RunID: <b>NV00922-WC_200413A</b>	QC Batch: <b>R143581</b>	PrepDate:	Analyst: <b>JBB</b>
Nitrate/Nitrite as N	2.9 0.16	0.25	mg/L 5 4/13/2020 02:15 PM

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


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CLIENT: CH2M HILL  
 Work Order: N040229  
 Project: PG&E Topock, D3184A1.EV.05-OM-TS

## ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F\_W\_PGE

Sample ID	MB-R143581	SampType:	MBLK	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	143581		
Client ID:	PBW	Batch ID:	R143581	TestNo:	SM4500-NO3			Analysis Date:	4/13/2020	SeqNo:	3748752		
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-R143581	SampType:	LCS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	143581		
Client ID:	LCSW	Batch ID:	R143581	TestNo:	SM4500-NO3			Analysis Date:	4/13/2020	SeqNo:	3748753		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N		0.976		0.050	1.000	0	97.6	85	115				

Sample ID	N040229-002DDUP	SampType:	DUP	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	143581		
Client ID:	ZZZZZZ	Batch ID:	R143581	TestNo:	SM4500-NO3			Analysis Date:	4/13/2020	SeqNo:	3748755		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N		2.858		0.25						2.874	0.576	20	

Sample ID	N040231-001DMS	SampType:	MS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	143581		
Client ID:	ZZZZZZ	Batch ID:	R143581	TestNo:	SM4500-NO3			Analysis Date:	4/13/2020	SeqNo:	3748757		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N		8.384		0.25	5.000	2.904	110	75	125				

Sample ID	N040231-001DMSD	SampType:	MSD	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	143581		
Client ID:	ZZZZZZ	Batch ID:	R143581	TestNo:	SM4500-NO3			Analysis Date:	4/13/2020	SeqNo:	3748758		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N		7.720		0.25	5.000	2.904	96.3	75	125	8.384	8.25	20	

## Qualifiers:

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



**ASSET LABORATORIES**  
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL, SOIL AND WATER

**CALIFORNIA** | P: 562.219.7435 F: 562.219.7436  
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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

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## 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: 4/7/2020 Workorder: N040229  
 Rep sample Temp (Deg C): 3.8 IR Gun ID: 2  
 Temp Blank: ☒ Yes ☐ No  
 Carrier name: ASSET  
 Last 4 digits of Tracking No.: NA Packing Material Used: None  
 Cooling process: ☒ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None

### Sample Receipt Checklist

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

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

For:   
 Checklist Completed By: MPB *YRT* 4/8/2020

Reviewed By: *ABC* 4/9/2020

# ASSET Laboratories

## WORK ORDER Summary

09-Apr-20

WorkOrder: N040229

Client ID: CH2HI01

Project: PG&E Topock, D3184A1.EV.05-OM-TS

QC Level: Level IV

Date Received: 4/7/2020

Comments: SC-100B & SC-700BTotal metals List:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N040229-001A	SC-100B-WDR-600	4/7/2020 10:40:00 AM	4/17/2020	Water	SM4500-NH3D	AMMONIA-N BY ION SELECTIVE ELECTRODE	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	SUB
N040229-001B			4/17/2020		EPA 120.1	SPECIFIC CONDUCTANCE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LSR
			4/17/2020		SM2540C	TOTAL FILTERABLE RESIDUE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LSR
			4/17/2020			Total Dissolved Solids Prep	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LSR
			4/17/2020		SM 2130B	TURBIDITY	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LSR
			4/17/2020		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LSR
			4/17/2020		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LSR
N040229-001C			4/17/2020		EPA 218.6	Hexavalent Chromium by IC	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
N040229-001D			4/17/2020		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
N040229-001E			4/17/2020			AQPREP TOTAL METALS: ICP, FLAA	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
			4/17/2020		EPA 200.7	TOTAL METALS BY ICP	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
			4/17/2020			AQPREP TOTAL METALS: ICP, FLAA	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
			4/17/2020		EPA 200.8	TOTAL METALS BY ICPMS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
			4/17/2020		EPA 200.8	TOTAL METALS BY ICPMS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
N040229-001F							<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
N040229-002A	SC-700B-WDR-600	4/7/2020 10:50:00 AM	4/17/2020		SM4500-NH3D	AMMONIA-N BY ION SELECTIVE ELECTRODE	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	SUB
N040229-002B			4/17/2020		EPA 120.1	SPECIFIC CONDUCTANCE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LSR
			4/17/2020		SM2540C	TOTAL FILTERABLE RESIDUE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LSR
			4/17/2020			Total Dissolved Solids Prep	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LSR
			4/17/2020		SM 2130B	TURBIDITY	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LSR
			4/17/2020		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LSR

# ASSET Laboratories

## WORK ORDER Summary

09-Apr-20

WorkOrder: N040229

Client ID: CH2HI01

Project: PG&E Topock, D3184A1.EV.05-OM-TS

QC Level: Level IV

Date Received: 4/7/2020

Comments: SC-100B & SC-700B Total metals List:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N040229-002B	SC-700B-WDR-600	4/7/2020 10:50:00 AM	4/17/2020	Water	EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LSR
N040229-002C			4/17/2020		EPA 218.6	Hexavalent Chromium by IC	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
N040229-002D			4/17/2020		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
N040229-002E			4/17/2020			AQPREP TOTAL METALS: ICP, FLAA	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
			4/17/2020		EPA 200.7	TOTAL METALS BY ICP	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
			4/17/2020			AQPREP TOTAL METALS: ICP, FLAA	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
			4/17/2020		EPA 200.8	TOTAL METALS BY ICPMS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
			4/17/2020		EPA 200.8	TOTAL METALS BY ICPMS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
N040229-002F							<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
N040229-003A	SC-701-WDR-600	4/7/2020 10:55:00 AM	4/17/2020		EPA 120.1	SPECIFIC CONDUCTANCE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LSR
			4/17/2020		SM2540C	TOTAL FILTERABLE RESIDUE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LSR
			4/17/2020			Total Dissolved Solids Prep	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LSR
			4/17/2020		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LSR
N040229-003B			4/17/2020		EPA 218.6	Hexavalent Chromium by IC	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
N040229-003C			4/17/2020			AQPREP TOTAL METALS: ICP, FLAA	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
			4/17/2020		EPA 200.8	TOTAL METALS BY ICPMS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
			4/17/2020		EPA 200.8	TOTAL METALS BY ICPMS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
			4/17/2020		EPA 245.1	TOTAL MERCURY BY COLD VAPOR TECHNIQUE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
			4/17/2020			MERCURY PREP	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
N040229-003D							<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
N040229-004A	FOLDER	4/21/2020	4/17/2020		Folder	Level IV Report	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LAB

## ASSET Laboratories

### WORK ORDER Summary

09-Apr-20

**WorkOrder:** N040229

**Client ID:** CH2HI01

**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

**QC Level:** Level IV

**Date Received:** 4/7/2020

**Comments:** SC-100B & SC-700B Total metals List:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N040229-004A	FOLDER	4/21/2020	4/17/2020		Folder	Folder	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LAB
			4/21/2020		Folder	Folder	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LAB

**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:**Enthalpy Analytical  
2323 5th St  
Berkeley, CA 94710

TEL: (510) 486-0900

FAX:

Acct #:

Field Sampler: SIGNED

**08-Apr-20**

Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests		
				SM4500-NH3D		
N040229-001A / SC-100B-WDR-600	Water	4/7/2020 10:40:00 AM	32OZP	1		
N040229-002A / SC-700B-WDR-600	Water	4/7/2020 10:50:00 AM	32OZP	1		

**General Comments:**

Please email sample receipt acknowledgement to the PM.

Plesase cc sonny.lorenzo@assetlaboratories.com

Please use PO#:N40229A Please email Invoices and Account Receivable Statements to elvira@assetlaboratories.com. For questions, call Marlon at (702)-307-2659. Please e-mail results to reports.lv@assetlaboratories.com by: Normal TAT.

Please analyze for Amminia by SM4500NH3D. EDD requirement Labspec7 edata.

GSO #: 548601577

	Date/Time		Date/Time
Relinquished by: <u>YLT</u>	4/8/2020 16:30	Received by: _____	_____
Relinquished by: _____	_____	Received by: _____	_____

## List of Analysts

### ASSET Laboratories Work Order: N040229

NAME	TEST METHOD
Claire Ignacio	EPA 200.8
Lilia Ramit	EPA 120.1, SM 2540C, SM 2130B
Hanah Glodoviza	EPA 218.6, EPA 300.0
Diane Jetajobe	EPA 200.7, EPA 245.1
Julia Bundalian	SM 4500-NO3F



**ASSET LABORATORIES**  
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Enthalpy Analytical  
2323 Fifth Street  
Berkeley, CA 94710  
(510) 486-0900

enthalpy.com

Lab Job Number: 319287  
Report Level: IV  
Report Date: 04/16/2020

### Wet Chemistry

#### **Analytical Report** *prepared for:*

Sonny Lorenzo  
ASSET LABS  
3151-3153 W Post Road  
Las Vegas, NV 89118

*Authorized for release by:*

Patrick McCarthy, Project Manager  
(510) 204-2236 ext 13115  
[patrick.mccarthy@enthalpy.com](mailto:patrick.mccarthy@enthalpy.com)

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the above signature which applies to this PDF file as well as any associated electronic data deliverable files. The results contained in this report meet all requirements of NELAP and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

CA ELAP# 2896, NELAP# 4044-001

## Sample Summary

Sonny Lorenzo  
ASSET LABS  
3151-3153 W Post Road  
Las Vegas, NV 89118

Lab Job #: 319287  
Date Received: 04/09/20

Sample ID	Lab ID	Collected	Matrix
SC-100B-WDR-600	319287-001	04/07/20 10:40	Water
SC-700B-WDR-600	319287-002	04/07/20 10:50	Water

## Case Narrative

### WET CHEMISTRY (SM4500NH3-D)

---

ASSET LABS

3151-3153 W Post Road

Las Vegas, NV 89118

Sonny Lorenzo

Lab Job Number: 319287

Date Received: 04/09/20

---

This data package contains sample and QC results for two water samples, requested for the above referenced project on 04/09/20. See attached cooler receipt form for any sample receipt problems or discrepancies.

#### **Ammonia Nitrogen (SM4500NH3-D):**

No analytical problems were encountered.

319287


**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:**

 Enthalpy Analytical  
 2323 5th St  
 Berkeley, CA 94710

TEL: (510) 486-0900

FAX:

Acct #:

Field Sampler: SIGNED

**08-Apr-20**

Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests		
				SM4500-NH3D		
N040229-001A / SC-100B-WDR-600	Water	4/7/2020 10:40:00 AM	32OZP	1		
N040229-002A / SC-700B-WDR-600	Water	4/7/2020 10:50:00 AM	32OZP	1		

**General Comments:**

Please email sample receipt acknowledgement to the PM.

Please cc sonny.lorenzo@assetlaboratories.com

Please use PO#:N40229A Please email Invoices and Account Receivable Statements to elvira@assetlaboratories.com. For questions, call Marlon at (702)-307-2659. Please e-mail results to reports.lv@assetlaboratories.com by: Normal TAT.

Please analyze for Amminia by SM4500NH3D. EDD requirement Labspec7 edata.

GSO #: 548601577

	Date/Time		Date/Time
Relinquished by: <u>YLT</u>	4/8/2020 16:30	Received by: <u>[Signature]</u>	4/9/20 11:09
Relinquished by: _____	_____	Received by: _____	_____

**SAMPLE RECEIPT CHECKLIST**

 Section 1: Login # 319287

 Client: ASSET LABS

 Date Received: 4-9-20

Project: \_\_\_\_\_


**Section 2: Shipping info (if applicable)**

 Are custody seals present? ☒ No, or ☐ Yes. If yes, where? ☐ on cooler, ☐ on samples, ☐ on package

☐ Date: \_\_\_\_\_ How many \_\_\_\_\_ ☐ Signature, ☐ Initials, ☐ None

 Were custody seals intact upon arrival? ☐ Yes ☐ No ☐ N/A

 Samples received in a cooler? ☒ Yes, how many? 1 ☐ No (skip Section 3 below)

 If no cooler Sample Temp (°C): \_\_\_\_\_ using IR Gun # ☐ B, or ☐ C

☐ Samples received on ice directly from the field. Cooling process had begun

 If in cooler: Date Opened 4-9-20 By (print) JA (sign) JA
**Section 3:**
**Important: Notify PM if temperature exceeds 6°C or arrive frozen.**

Packing in cooler: (if other, describe) \_\_\_\_\_

☐ Bubble Wrap, ☐ Foam blocks, ☒ Bags, ☐ None, ☐ Cloth material, ☐ Cardboard, ☐ Styrofoam, ☐ Paper towels

☐ Samples received on ice directly from the field. Cooling process had begun

 Type of ice used: ☒ Wet, ☐ Blue/Gel, ☐ None

 Temperature blank(s) included? ☐ Yes, ☐ No

 Temperature measured using ☐ Thermometer ID: \_\_\_\_\_, or IR Gun # ☒ B ☐ C

 Cooler Temp (°C): #1: 1.3, #2: \_\_\_\_\_, #3: \_\_\_\_\_, #4: \_\_\_\_\_, #5: \_\_\_\_\_, #6: \_\_\_\_\_, #7: \_\_\_\_\_

**Section 4:**

	YES	NO	N/A
Were custody papers dry, filled out properly, and the project identifiable	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Were Method 5035 sampling containers present?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If YES, what time were they transferred to freezer? _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Did all bottles arrive unbroken/unopened?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are there any missing / extra samples?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Are samples in the appropriate containers for indicated tests?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are sample labels present, in good condition and complete?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Does the container count match the COC?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do the sample labels agree with custody papers?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Was sufficient amount of sample sent for tests requested?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Did you change the hold time in LIMS for unpreserved VOAs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Did you change the hold time in LIMS for preserved terracores?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Are bubbles > 6mm present in VOA samples?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Was the client contacted concerning this sample delivery?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If YES, who was called? _____ By _____ Date: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Section 5:**

	YES	NO	N/A
Are the samples appropriately preserved? (if N/A, skip the rest of section 5)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Did you check preservatives for all bottles for each sample?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Did you document your preservative check?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
pH strip lot# <u>808PH7991</u> , pH strip lot# _____, pH strip lot# _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Preservative added:			
<input type="checkbox"/> H2SO4 lot# <u>K07037</u> added to samples <u>1A</u> on/at <u>4/9/20 12:15</u>			
<input type="checkbox"/> HCL lot# _____ added to samples _____ on/at _____			
<input type="checkbox"/> HNO3 lot# _____ added to samples _____ on/at _____			
<input type="checkbox"/> NaOH lot# _____ added to samples _____ on/at _____			

**Section 6:**

Explanations/Comments: \_\_\_\_\_

 Date Logged in 4/9/20

 By (print) JA

 (sign) JA

 Date Labeled 4/9/20

 By (print) JA

 (sign) JA

## Ammonia Nitrogen

**Lab #:** 319287

**Project#:** STANDARD

**Client:** ASSET LABS

**Location:**
**Field ID:** SC-100B-WDR-600

**Diln Fac:** 1.000

**Prepared:** 04/09/20 10:40

**Type:** SAMPLE

**Batch#:** 279779

**Analyzed:** 04/09/20 12:38

**Lab ID:** 319287-001

**Sampled:** 04/07/20 10:40

**Prep:** SM4500NH3-B

**Matrix:** Water

**Received:** 04/09/20

**Analysis:** SM4500NH3-D

Analyte	Result	RL	MDL	Units
Ammonia-N	0.040 J	0.10	0.020	mg/L

**Field ID:** SC-700B-WDR-600

**Diln Fac:** 1.000

**Prepared:** 04/09/20 10:40

**Type:** SAMPLE

**Batch#:** 279779

**Analyzed:** 04/09/20 12:38

**Lab ID:** 319287-002

**Sampled:** 04/07/20 10:40

**Prep:** SM4500NH3-B

**Matrix:** Water

**Received:** 04/09/20

**Analysis:** SM4500NH3-D

Analyte	Result	RL	MDL	Units
Ammonia-N	0.040 J	0.10	0.020	mg/L

**Type:** BLANK

**Diln Fac:** 1.000

**Analyzed:** 04/09/20 12:38

**Lab ID:** QC1014398

**Batch#:** 279779

**Prep:** SM4500NH3-B

**Matrix:** Water

**Prepared:** 04/09/20 10:40

**Analysis:** SM4500NH3-D

Analyte	Result	RL	MDL	Units
Ammonia-N	ND	0.10	0.020	mg/L

Legend

**J:** Estimated value

**MDL:** Method Detection Limit

**ND:** Not Detected at or above MDL

**RL:** Reporting Limit



## Ammonia Nitrogen: Batch QC

**Lab #:** 319287

**Project#:** STANDARD

**Client:** ASSET LABS

**Location:**
**Type:** LCS

**Diln Fac:** 1.000

**Analyzed:** 04/09/20 12:38

**Lab ID:** QC1014399

**Batch#:** 279779

**Prep:** SM4500NH3-B

**Matrix:** Water

**Prepared:** 04/09/20 10:40

**Analysis:** SM4500NH3-D

Analyte	Spiked	Result	%REC	Limits	Units
Ammonia-N	5.000	4.600	92	78-120	mg/L

**Field ID:** N039976-002F/MW-76-156-0320

**Diln Fac:** 1.000

**Analyzed:** 04/09/20 12:38

**Type:** MS

**Batch#:** 279779

**Prep:** SM4500NH3-B

**MSS Lab ID:** 318994-002

**Sampled:** 03/17/20 11:45

**Analysis:** SM4500NH3-D

**Lab ID:** QC1014400

**Received:** 03/19/20

**Matrix:** Water

**Prepared:** 04/09/20 10:40

Analyte	MSS Result	Spiked	Result	%REC	Limits	Units
Ammonia-N	0.09000	5.000	4.500	88	63-120	mg/L

**Field ID:** N039976-002F/MW-76-156-0320

**Diln Fac:** 1.000

**Analyzed:** 04/09/20 12:38

**Type:** MSD

**Batch#:** 279779

**Prep:** SM4500NH3-B

**MSS Lab ID:** 318994-002

**Sampled:** 03/17/20 11:45

**Analysis:** SM4500NH3-D

**Lab ID:** QC1014401

**Received:** 03/19/20

**Matrix:** Water

**Prepared:** 04/09/20 10:40

Analyte	Spiked	Result	%REC	Limits	Units	RPD	Lim
Ammonia-N	5.000	4.600	90	63-120	mg/L	2	20

Legend

**RPD:** Relative Percent Difference

# Enthalpy Analytical - Berkeley Sample Batch Report

Batch Number: 279779  
Date Started: 09-APR-2020  
Batched by : Elisa Gonzalez

Analysis : AMMONIA  
Bgroup : N/A  
Department : Wet Chemistry

Sample	Type	Client	Matrix	Analyses	Due Date
318994-001		ASSET LABS	Water	AMMONIA	16-APR-2020
318994-002		ASSET LABS	Water	AMMONIA	16-APR-2020
318994-003		ASSET LABS	Water	AMMONIA	16-APR-2020
318994-004		ASSET LABS	Water	AMMONIA	16-APR-2020
318994-005		ASSET LABS	Water	AMMONIA	16-APR-2020
318994-006		ASSET LABS	Water	AMMONIA	16-APR-2020
318994-007		ASSET LABS	Water	AMMONIA	16-APR-2020
319287-001		ASSET LABS	Water	AMMONIA	22-APR-2020
319287-002		ASSET LABS	Water	AMMONIA	22-APR-2020
QC1014398	BLANK		Water	AMMONIA	
QC1014399	LCS		Water	AMMONIA	
QC1014400	MS	of 318994-002	Water	AMMONIA	
QC1014401	MSD	of 318994-002	Water	AMMONIA	

Analysis: **Ammonia**  
 Method: **SM4500NH3-D**  
 SOP#: ammonia\_h2o\_rv15.doc

Analyst: **EGS**      Prep Start Date (A): **4/9/20 10:40**      (B):  
 Batch#: **279779**      Analysis Start Date (A): **4/9/20 12:38**      (B):

ICV/CCV	Reading (mg/L)	Result (mg/L) as NH3-N	RL (mg/L)	Std. Conc. (mg/L)	Recovery, %	Status	Limits, %
ICV	4.80	4.80	0.10	5.00	96		90-110%
ICB	0.02	ND	0.10				
CCV	4.60	4.60	0.10	5.00	92		90-110%
CCB	0.02	ND	0.10				
CCV	4.60	4.60	0.10	5.00	92		90-110%
CCB	0.02	ND	0.10				
CCV							
CCB							
CCV							
CCB							

Ammonia (mg/L) = Reading \* Vf/Vi  
 Where: Vf = Final Distillate Volume (mL)  
 Vi = Initial Sample Volume (mL)

Sample & Batch QC	J-flag	Matrix?	Rqd?	PD	AD	Vol. (mL)	Sample Vol. (mL)	Distillate Vol. (mL)	Reading (mg/L)	Report (mg/L) as NH3-N	RL (mg/L)	Spike Std Conc. (mg/L)	Vol Spike added (mL)	Spiked at (mg/L)	%Rec.	RPD, %
BLANK	QC1014398	1	Y	A	A	50	50	50	0.02	0.020	J	0.10				
LCS/BS	QC1014399	1	Y	A	A	50	50	50	4.60	4.600		0.10	1000	0.25	5.0	92
BSD			N				50	50								
Sample1	318994-002	1	Y	A	A	50	50	50	0.09	0.090	J	0.10				
MS	QC1014400	1	Y	A	A	50	50	50	4.50	4.500		0.10	1000	0.25	5.0	88
MSD	QC1014401	1	Y	A	A	50	50	50	4.60	4.600		0.10	1000	0.25	5.0	90
SDUP		1	Y													2
Sample2	318994-001	1	Y	A	A	50	50	50	0.110	0.110		0.10				
Sample3	318994-003	1	Y	A	A	50	50	50	0.07	0.070	J	0.10				
Sample4	318994-004	1	Y	A	A	50	50	50	0.07	0.070	J	0.10				
Sample5	318994-005	1	Y	A	A	50	50	50	0.07	0.070	J	0.10				
Sample6	318994-006	1	Y	A	A	50	50	50	0.10	0.100		0.10				
Sample7	318994-007	1	Y	A	A	50	50	50	0.06	0.060	J	0.10				
Sample8	319287-001	1	Y	A	A	50	50	50	0.04	0.040	J	0.10				
Sample9	319287-002	1	Y	A	A	50	50	50	0.04	0.040	J	0.10				
Sample10																
Sample11																
Sample12																
Sample13																
Sample14																
Sample15																
Sample16																
Sample17																
Sample18																
Sample19																
Sample20																

If spiked sample was diluted, was the MS/MSD spiked after the dilution? (y or n)      N

QC Limits	Recovery	RPD
LCS/BS/ BSD	78	120
SSPIKE/ SDUP	63	120

MDL (2009) = 0.02 mg/L

Matrix Key:

1	Water
15	Filtrate
11	TCLP Leachate
14	TCLP DI Leach.
12	WET Leachate
13	WET DI Leachate
16	SPLP Leachate
18	SPLP DI Leach.

LIMS Batch #: 279779 Meter ID: 1429065 BK 4510  
 Matrix: water ICA LIMS S#: 41336 exp: 9/30/20 35  
 Prep Date: — 0 mg/L (mV): — Balance ID: —  
 Soil - Prep Start Time: — 0.1 mg/L (mV): 138.4 Calibrated: —  
 Soil - Prep End Time: — 1.0 mg/L (mV): 82.3 Clean & level? ☐ Yes ☐ No ☒ N/A  
 Distillation Date/Time: 4/9/20 1040 10. mg/L (mV): 24.3 Solid Reagent ID: —  
 Analysis Date/Time: 4/9/20 1238 ICV LIMS S#: 42623 exp: 12/6/20 per SOP #

		SOIL		Slope: <u>-57</u> (slope limits: <u>-54</u> to <u>-60</u> )		WC2.1.1 (h2o) rev# <u>15</u> , or	
CL	Wt (g) : Vol (mL)	Vol (mL)	Distillate	ISA	Meter	WC2.1.2 (soil), rev# <u>—</u>	
Sample # / Letter	Chk?	if applicable	Distilled	Vol (mL)	Vol (mL)	Reading (mg/L)	
ICV Reading	--	--	--	--	2	4.8	ICV/CCV conc (mg/L):
CCB	—	—	—	—	2	0.02	(ICV/CCV limits: 90-110%)
MB	—	—	50	50	1	0.02	
LCS	—	—	50	50	1	4.6	
38994-001	A -	—	50	25	0.5	0.09	
↓ -002	A -	—	50	25	0.5	0.09	
MS	A -	—	50	25	0.5	4.5	
MSD	A -	—	50	25	0.5	4.6	
-003	A -	—	50	25	0.5	0.07	
-004	A -	—	50	25	0.5	0.07	
-005	A -	—	50	25	0.5	0.07	
-006	A -	—	50	25	0.5	0.10	
-007	A -	—	50	25	0.5	0.06	
CCV	—	—	—	—	2	4.6	
CCB	—	—	—	—	2	0.02	
319287-001	A -	—	50	25	0.5	0.04	
← -002	A -	—	50	25	0.5	0.04	
CCV	—	—	—	—	2	4.6	
CCB	—	—	—	—	2	0.02	
							EGS
							4/9/20

Chlorine Check - KI paper lot #: 12/11/17 mhm

Used? ☐ 1N Sodium Thiosulfate: —

pH paper strips - lot #: 230148

Thymol blue Reagent ID: 5/14/19 kp1

1N NaOH Reagent ID: 1/30/20 EGS

Borate Buffer ID: 10/28/19 EGS

2% Boric Acid ID: 1/30/20 EGS

Digestion Tube Lot #: 081219

Pipette - Disposable Lot#: 9063023

Pipette - Mechanical ID: 2891064, 63234 ID, K16572.1

ISA Reagent ID: 12/11/19 lot: xol EGS

Spike S#: 41336 exp: 9/30/20

Final Spike Conc (mg/L): 5.0

Spike Vol (mL): 0.304

EGS 4/9/20

Analyst / Date

Continued on p. /  
 Continued from p. /

ST1 04/09/20

Reviewed by / Date

April 21, 2020

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

TEL: (530) 229-3303

FAX: (530) 339-3303

Workorder No.: N040230

RE: PG&E Topock, D3184A1.EV.05-OM-TS

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on April 07, 2020 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 Libucano* Tor

Puri Romualdo  
Laboratory Director

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**CLIENT:** CH2M HILL  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS  
**Lab Order:** N040230

**CASE NARRATIVE****SAMPLE RECEIVING/GENERAL COMMENTS:**

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

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

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

Samples were analyzed within method holding time.

**Analytical Comments for EPA 300.0:**

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria in QC samples N040230-001AMS and N040230-001AMSD possibly due to matrix interference. Post Spike (PS) passed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

**Analytical Comments for EPA 6010B:**

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for some analytes in QC samples N040230-001B-MS and N040230-001B-MSD possibly due to matrix interference. Post Spike (PS) and Dilution Test (DT) were performed however, PS failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

**Analytical Comments for EPA 7199:**

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria in QC samples N040230-001C-MS and N040230-001C-MSD possibly due to matrix interference. Post Spike and Matrix Spike Insoluble passed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was also acceptable.



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## ASSET Laboratories

Date: 21-Apr-20

**CLIENT:** CH2M HILL  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS  
**Lab Order:** N040230  
**Contract No:** IM3PLANT-AR

### Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N040230-001A	Phase Separator-600-Sludge	Soil	4/7/2020 10:30:00 AM	4/7/2020	4/21/2020
N040230-001B	Phase Separator-600-Sludge	Soil	4/7/2020 10:30:00 AM	4/7/2020	4/21/2020
N040230-001C	Phase Separator-600-Sludge	Soil	4/7/2020 10:30:00 AM	4/7/2020	4/21/2020



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

Print Date: 21-Apr-20

<b>CLIENT:</b>	CH2M HILL	<b>Client Sample ID:</b>	Phase Separator-600-Sludge
<b>Lab Order:</b>	N040230	<b>Collection Date:</b>	4/7/2020 10:30:00 AM
<b>Project:</b>	PG&E Topock, D3184A1.EV.05-OM-TS	<b>Matrix:</b>	SOIL
<b>Lab ID:</b>	N040230-001		

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

RunID: <b>NV00922-IC8_200420A</b>	QC Batch: <b>R143720</b>	PrepDate:	Analyst: <b>RAB</b>
Fluoride	33 0.35	3.7	mg/Kg-dry 1 4/20/2020 10:25 AM

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


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CLIENT: CH2M HILL  
 Work Order: N040230  
 Project: PG&E Topock, D3184A1.EV.05-OM-TS

## ANALYTICAL QC SUMMARY REPORT

TestCode: 300\_S

Sample ID: <b>MB-R143720</b>	SampType: <b>MBLK</b>	TestCode: <b>300_S</b>	Units: <b>mg/Kg</b>	Prep Date:				RunNo: <b>143720</b>			
Client ID: <b>PBS</b>	Batch ID: <b>R143720</b>	TestNo: <b>EPA 300.0</b>			Analysis Date: <b>4/20/2020</b>				SeqNo: <b>3755994</b>		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	ND	1.0									

Sample ID: <b>LCS-R143720</b>	SampType: <b>LCS</b>	TestCode: <b>300_S</b>	Units: <b>mg/Kg</b>	Prep Date:				RunNo: <b>143720</b>			
Client ID: <b>LCSS</b>	Batch ID: <b>R143720</b>	TestNo: <b>EPA 300.0</b>			Analysis Date: <b>4/20/2020</b>				SeqNo: <b>3755995</b>		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	11.665	1.0	12.50	0	93.3	90	110				

Sample ID: <b>N040230-001ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>300_S</b>	Units: <b>mg/Kg-dry</b>	Prep Date:				RunNo: <b>143720</b>			
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>R143720</b>	TestNo: <b>EPA 300.0</b>			Analysis Date: <b>4/20/2020</b>				SeqNo: <b>3755997</b>		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	29.762	3.7						32.52	8.85	20	

Sample ID: <b>N040230-001AMS</b>	SampType: <b>MS</b>	TestCode: <b>300_S</b>	Units: <b>mg/Kg-dry</b>	Prep Date:				RunNo: <b>143720</b>				
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>R143720</b>	TestNo: <b>EPA 300.0</b>			Analysis Date: <b>4/20/2020</b>				SeqNo: <b>3755998</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Fluoride	66.028	3.7	46.11	32.52	72.7	80	120					S

Sample ID: <b>N040230-001AMSD</b>	SampType: <b>MSD</b>	TestCode: <b>300_S</b>	Units: <b>mg/Kg-dry</b>	Prep Date:				RunNo: <b>143720</b>			
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>R143720</b>	TestNo: <b>EPA 300.0</b>			Analysis Date: <b>4/20/2020</b>				SeqNo: <b>3755999</b>		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	66.954	3.7	46.11	32.52	74.7	80	120	66.03	1.39	20	S

## Qualifiers:

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



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**CLIENT:** CH2M HILL  
**Work Order:** N040230  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

## ANALYTICAL QC SUMMARY REPORT

**TestCode:** 300\_S

Sample ID: <b>N040230-001APS</b>	SampType: <b>MS</b>	TestCode: <b>300_S</b>	Units: <b>mg/Kg-dry</b>	Prep Date:	RunNo: <b>143720</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>R143720</b>	TestNo: <b>EPA 300.0</b>		Analysis Date: <b>4/20/2020</b>	SeqNo: <b>3756000</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Fluoride	76.051	3.7	46.11	32.52	94.4	80	120				
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Sample ID: <b>N040344-001APS</b>	SampType: <b>MS</b>	TestCode: <b>300_S</b>	Units: <b>mg/Kg</b>	Prep Date:	RunNo: <b>143720</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>R143720</b>	TestNo: <b>EPA 300.0</b>		Analysis Date: <b>4/20/2020</b>	SeqNo: <b>3756005</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Fluoride	613.700	50	625.0	0	98.2	80	120				
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### Qualifiers:

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



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

Print Date: 21-Apr-20

<b>CLIENT:</b>	CH2M HILL	<b>Client Sample ID:</b>	Phase Separator-600-Sludge
<b>Lab Order:</b>	N040230	<b>Collection Date:</b>	4/7/2020 10:30:00 AM
<b>Project:</b>	PG&E Topock, D3184A1.EV.05-OM-TS	<b>Matrix:</b>	SOIL
<b>Lab ID:</b>	N040230-001		

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

RunID: <b>NV00922-ICP2_200414D</b>	QC Batch: <b>78861</b>	PrepDate: <b>4/10/2020</b>	Analyst: <b>DJ</b>			
Antimony	18	1.2	7.3	mg/Kg-dry	1	4/14/2020 04:35 PM
Arsenic	23	2.0	3.7	mg/Kg-dry	1	4/10/2020 01:48 PM
Barium	86	1.1	3.7	mg/Kg-dry	1	4/10/2020 01:48 PM
Beryllium	ND	0.79	3.7	mg/Kg-dry	1	4/10/2020 01:48 PM
Cadmium	ND	0.98	3.7	mg/Kg-dry	1	4/10/2020 01:48 PM
Chromium	3700	1.2	3.7	mg/Kg-dry	1	4/10/2020 01:48 PM
Cobalt	7.6	1.1	3.7	mg/Kg-dry	1	4/10/2020 01:48 PM
Copper	200	3.3	7.3	mg/Kg-dry	1	4/10/2020 01:48 PM
Lead	ND	1.1	3.7	mg/Kg-dry	1	4/10/2020 01:48 PM
Manganese	640	1.9	3.7	mg/Kg-dry	1	4/10/2020 01:48 PM
Molybdenum	14	1.1	3.7	mg/Kg-dry	1	4/10/2020 01:48 PM
Nickel	53	1.3	3.7	mg/Kg-dry	1	4/14/2020 04:35 PM
Selenium	ND	2.2	3.7	mg/Kg-dry	1	4/10/2020 01:48 PM
Silver	ND	2.3	3.7	mg/Kg-dry	1	4/10/2020 01:48 PM
Thallium	ND	1.3	7.3	mg/Kg-dry	1	4/10/2020 01:48 PM
Vanadium	59	0.82	3.7	mg/Kg-dry	1	4/10/2020 01:48 PM
Zinc	45	1.1	3.7	mg/Kg-dry	1	4/10/2020 01:48 PM

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


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**CLIENT:** CH2M HILL  
**Work Order:** N040230  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

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

Sample ID: <b>MB-78861</b>	SampType: <b>MBLK</b>	TestCode: <b>6010_SPGE</b>	Units: <b>mg/Kg</b>	Prep Date: <b>4/10/2020</b>	RunNo: <b>143571</b>						
Client ID: <b>PBS</b>	Batch ID: <b>78861</b>	TestNo: <b>EPA 6010B</b>	<b>EPA 3050B</b>	Analysis Date: <b>4/10/2020</b>	SeqNo: <b>3747733</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
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									
Selenium	ND	1.0									
Silver	ND	1.0									
Thallium	ND	2.0									
Vanadium	ND	1.0									
Zinc	ND	1.0									

Sample ID: <b>LCS-78861</b>	SampType: <b>LCS</b>	TestCode: <b>6010_SPGE</b>	Units: <b>mg/Kg</b>	Prep Date: <b>4/10/2020</b>	RunNo: <b>143571</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>78861</b>	TestNo: <b>EPA 6010B</b>	<b>EPA 3050B</b>	Analysis Date: <b>4/10/2020</b>	SeqNo: <b>3747734</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	25.841	1.0	25.00	0	103	85	115				
Barium	25.866	1.0	25.00	0	103	85	115				
Beryllium	25.621	1.0	25.00	0	102	85	115				
Cadmium	25.909	1.0	25.00	0	104	85	115				
Chromium	25.774	1.0	25.00	0	103	85	115				
Cobalt	26.744	1.0	25.00	0	107	85	115				
Copper	25.564	2.0	25.00	0	102	85	115				
Lead	25.594	1.0	25.00	0	102	85	115				

**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

Calculations are based on raw values


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**"Serving Clients with Passion and Professionalism"**



**CLIENT:** CH2M HILL  
**Work Order:** N040230  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

## ANALYTICAL QC SUMMARY REPORT

**TestCode:** 6010\_SPGE

Sample ID: <b>LCS-78861</b>	SampType: <b>LCS</b>	TestCode: <b>6010_SPGE</b>	Units: <b>mg/Kg</b>	Prep Date: <b>4/10/2020</b>	RunNo: <b>143571</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>78861</b>	TestNo: <b>EPA 6010B</b>	<b>EPA 3050B</b>	Analysis Date: <b>4/10/2020</b>	SeqNo: <b>3747734</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	52.409	1.0	50.00	0	105	85	115				
Molybdenum	25.646	1.0	25.00	0	103	85	115				
Selenium	26.303	1.0	25.00	0	105	85	115				
Silver	24.932	1.0	25.00	0	99.7	85	115				
Thallium	26.893	2.0	25.00	0	108	85	115				
Vanadium	25.861	1.0	25.00	0	103	85	115				
Zinc	26.615	1.0	25.00	0	106	85	115				

Sample ID: <b>N040230-001B-MS</b>	SampType: <b>MS</b>	TestCode: <b>6010_SPGE</b>		Units: <b>mg/Kg-dry</b>	Prep Date: <b>4/10/2020</b>			RunNo: <b>143571</b>			
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>78861</b>	TestNo: <b>EPA 6010B</b>		<b>EPA 3050B</b>	Analysis Date: <b>4/10/2020</b>			SeqNo: <b>3747738</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	120.671	3.7	91.90	22.62	107	75	125				
Barium	173.569	3.7	91.90	86.42	94.8	75	125				
Beryllium	95.112	3.7	91.90	0	103	75	125				
Cadmium	90.224	3.7	91.90	3.204	94.7	75	125				
Chromium	3603.633	3.7	91.90	3698	-103	75	125				S
Cobalt	95.785	3.7	91.90	7.570	96.0	75	125				
Copper	283.632	7.4	91.90	195.7	95.7	75	125				
Lead	86.922	3.7	91.90	0	94.6	75	125				
Manganese	744.949	3.7	183.8	640.5	56.8	75	125				S
Molybdenum	102.596	3.7	91.90	13.66	96.8	75	125				
Selenium	67.250	3.7	91.90	0	73.2	75	125				S
Silver	110.858	3.7	91.90	0	121	75	125				
Thallium	87.704	7.4	91.90	4.652	90.4	75	125				
Vanadium	152.342	3.7	91.90	59.22	101	75	125				
Zinc	127.405	3.7	91.90	45.10	89.6	75	125				

### Qualifiers:

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

**CLIENT:** CH2M HILL  
**Work Order:** N040230  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

## ANALYTICAL QC SUMMARY REPORT

**TestCode:** 6010\_SPGE

Sample ID: <b>N040230-001B-MSD</b>	SampType: <b>MSD</b>	TestCode: <b>6010_SPGE</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>4/10/2020</b>	RunNo: <b>143571</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>78861</b>	TestNo: <b>EPA 6010B</b>	<b>EPA 3050B</b>	Analysis Date: <b>4/10/2020</b>	SeqNo: <b>3747739</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	121.362	3.7	92.08	22.62	107	75	125	120.7	0.571	20	
Barium	175.073	3.7	92.08	86.42	96.3	75	125	173.6	0.863	20	
Beryllium	94.619	3.7	92.08	0	103	75	125	95.11	0.519	20	
Cadmium	90.883	3.7	92.08	3.204	95.2	75	125	90.22	0.728	20	
Chromium	3671.333	3.7	92.08	3698	-29.1	75	125	3604	1.86	20	S
Cobalt	95.654	3.7	92.08	7.570	95.7	75	125	95.78	0.137	20	
Copper	265.441	7.4	92.08	195.7	75.7	75	125	283.6	6.63	20	
Lead	87.161	3.7	92.08	0	94.7	75	125	86.92	0.274	20	
Manganese	715.976	3.7	184.2	640.5	41.0	75	125	744.9	3.97	20	S
Molybdenum	102.255	3.7	92.08	13.66	96.2	75	125	102.6	0.333	20	
Selenium	69.670	3.7	92.08	0	75.7	75	125	67.25	3.54	20	
Silver	112.358	3.7	92.08	0	122	75	125	110.9	1.34	20	
Thallium	90.591	7.4	92.08	4.652	93.3	75	125	87.70	3.24	20	
Vanadium	154.033	3.7	92.08	59.22	103	75	125	152.3	1.10	20	
Zinc	126.692	3.7	92.08	45.10	88.6	75	125	127.4	0.562	20	

Sample ID: <b>MB-78861</b>	SampType: <b>MBLK</b>	TestCode: <b>6010_SPGE</b>	Units: <b>mg/Kg</b>	Prep Date: <b>4/10/2020</b>	RunNo: <b>143604</b>						
Client ID: <b>PBS</b>	Batch ID: <b>78861</b>	TestNo: <b>EPA 6010B</b>	<b>EPA 3050B</b>	Analysis Date: <b>4/14/2020</b>	SeqNo: <b>3749549</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	ND	2.0									
Nickel	ND	1.0									

Sample ID: <b>LCS-78861</b>	SampType: <b>LCS</b>	TestCode: <b>6010_SPGE</b>	Units: <b>mg/Kg</b>	Prep Date: <b>4/10/2020</b>	RunNo: <b>143604</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>78861</b>	TestNo: <b>EPA 6010B</b>	<b>EPA 3050B</b>	Analysis Date: <b>4/14/2020</b>	SeqNo: <b>3749550</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	25.260	2.0	25.00	0	101	85	115				
Nickel	25.728	1.0	25.00	0	103	85	115				

### Qualifiers:

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

**CLIENT:** CH2M HILL  
**Work Order:** N040230  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

## ANALYTICAL QC SUMMARY REPORT

**TestCode:** 6010\_SPGE

Sample ID: <b>N040230-001B-MS</b>	SampType: <b>MS</b>	TestCode: <b>6010_SPGE</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>4/10/2020</b>	RunNo: <b>143604</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>78861</b>	TestNo: <b>EPA 6010B</b>	<b>EPA 3050B</b>	Analysis Date: <b>4/14/2020</b>	SeqNo: <b>3749554</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	119.025	7.4	91.90	18.49	109	75	125				
Nickel	137.645	3.7	91.90	53.27	91.8	75	125				

Sample ID: <b>N040230-001B-MSD</b>	SampType: <b>MSD</b>	TestCode: <b>6010_SPGE</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>4/10/2020</b>	RunNo: <b>143604</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>78861</b>	TestNo: <b>EPA 6010B</b>	<b>EPA 3050B</b>	Analysis Date: <b>4/14/2020</b>	SeqNo: <b>3749555</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	118.551	7.4	92.08	18.49	109	75	125	119.0	0.399	20	
Nickel	134.662	3.7	92.08	53.27	88.4	75	125	137.6	2.19	20	

### Qualifiers:

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

CLIENT: CH2M HILL  
 Work Order: N040230  
 Project: PG&E Topock, D3184A1.EV.05-OM-TS

## ANALYTICAL QC SUMMARY REPORT

TestCode: 6010\_SPGE

Sample ID: N040230-001B-PS	SampType: PS	TestCode: 6010_SPGE	Units: mg/Kg-dry	Prep Date:	RunNo: 143571						
Client ID: ZZZZZZ	Batch ID: 78861	TestNo: EPA 6010B	EPA 3050B	Analysis Date: 4/10/2020	SeqNo: 3747737						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	133.153	3.7	91.86	22.62	120	80	120				S
Barium	188.294	3.7	91.86	86.42	111	80	120				
Beryllium	104.270	3.7	91.86	0	114	80	120				
Cadmium	100.078	3.7	91.86	3.204	105	80	120				
Chromium	3758.765	3.7	91.86	3698	66.1	80	120				S
Cobalt	106.397	3.7	91.86	7.570	108	80	120				
Copper	303.421	7.3	91.86	195.7	117	80	120				
Lead	96.989	3.7	91.86	0	106	80	120				
Manganese	974.822	3.7	183.7	640.5	182	80	120				S
Molybdenum	114.244	3.7	91.86	13.66	109	80	120				
Selenium	74.581	3.7	91.86	0	81.2	80	120				
Silver	119.189	3.7	91.86	0	130	80	120				S
Thallium	100.795	7.3	91.86	4.652	105	80	120				
Vanadium	166.227	3.7	91.86	59.22	116	80	120				
Zinc	138.775	3.7	91.86	45.10	102	80	120				

Sample ID: N040230-001B-PS	SampType: PS	TestCode: 6010_SPGE	Units: mg/Kg-dry	Prep Date:	RunNo: 143604						
Client ID: ZZZZZZ	Batch ID: 78861	TestNo: EPA 6010B	EPA 3050B	Analysis Date: 4/14/2020	SeqNo: 3749553						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	120.236	7.3	91.86	18.49	111	80	120				
Nickel	135.541	3.7	91.86	53.27	89.6	80	120				

## Qualifiers:

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



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

Print Date: 21-Apr-20

<b>CLIENT:</b>	CH2M HILL	<b>Client Sample ID:</b>	Phase Separator-600-Sludge
<b>Lab Order:</b>	N040230	<b>Collection Date:</b>	4/7/2020 10:30:00 AM
<b>Project:</b>	PG&E Topock, D3184A1.EV.05-OM-TS	<b>Matrix:</b>	SOIL
<b>Lab ID:</b>	N040230-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
<b>HEXAVALENT CHROMIUM BY IC</b>							
	<b>EPA 3060A</b>			<b>EPA 7199</b>			
RunID: NV00922-IC6_200420A	QC Batch: 78962			PrepDate:	4/17/2020	Analyst: RAB	
Hexavalent Chromium	86	1.1	3.7		mg/Kg-dry	5	4/20/2020 01:37 PM

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


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**"Serving Clients with Passion and Professionalism"**

CLIENT: CH2M HILL  
 Work Order: N040230  
 Project: PG&E Topock, D3184A1.EV.05-OM-TS

## ANALYTICAL QC SUMMARY REPORT

TestCode: 7199\_S\_PGE

Sample ID: <b>MB-78962</b>	SampType: <b>MBLK</b>	TestCode: <b>7199_S_PGE</b>	Units: <b>mg/Kg</b>	Prep Date: <b>4/17/2020</b>	RunNo: <b>143709</b>
Client ID: <b>PBS</b>	Batch ID: <b>78962</b>	TestNo: <b>EPA 7199</b>	<b>EPA 3060A</b>	Analysis Date: <b>4/20/2020</b>	SeqNo: <b>3755527</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Hexavalent Chromium	ND	0.20			

Sample ID: <b>LCS-78962</b>	SampType: <b>LCS</b>	TestCode: <b>7199_S_PGE</b>	Units: <b>mg/Kg</b>	Prep Date: <b>4/17/2020</b>	RunNo: <b>143709</b>
Client ID: <b>LCSS</b>	Batch ID: <b>78962</b>	TestNo: <b>EPA 7199</b>	<b>EPA 3060A</b>	Analysis Date: <b>4/20/2020</b>	SeqNo: <b>3755528</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Hexavalent Chromium	3.894	0.20	3.998	0	97.4 80 120

Sample ID: <b>N040230-001C-REP</b>	SampType: <b>DUP</b>	TestCode: <b>7199_S_PGE</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>4/17/2020</b>	RunNo: <b>143709</b>
Client ID: <b>ZZZZZ</b>	Batch ID: <b>78962</b>	TestNo: <b>EPA 7199</b>	<b>EPA 3060A</b>	Analysis Date: <b>4/20/2020</b>	SeqNo: <b>3755530</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Hexavalent Chromium	86.726	3.7			86.49 0.272 20

Sample ID: <b>N040230-001C-DUP</b>	SampType: <b>DUP</b>	TestCode: <b>7199_S_PGE</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>4/17/2020</b>	RunNo: <b>143709</b>
Client ID: <b>ZZZZZ</b>	Batch ID: <b>78962</b>	TestNo: <b>EPA 7199</b>	<b>EPA 3060A</b>	Analysis Date: <b>4/20/2020</b>	SeqNo: <b>3755531</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Hexavalent Chromium	75.165	3.7			86.49 14.0 20

Sample ID: <b>N040230-001C-MS</b>	SampType: <b>MS</b>	TestCode: <b>7199_S_PGE</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>4/17/2020</b>	RunNo: <b>143709</b>
Client ID: <b>ZZZZZ</b>	Batch ID: <b>78962</b>	TestNo: <b>EPA 7199</b>	<b>EPA 3060A</b>	Analysis Date: <b>4/20/2020</b>	SeqNo: <b>3755532</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Hexavalent Chromium	94.357	3.7	14.71	86.49	53.5 75 125 S

## Qualifiers:

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



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"Serving Clients with Passion and Professionalism"

**CLIENT:** CH2M HILL  
**Work Order:** N040230  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

## ANALYTICAL QC SUMMARY REPORT

**TestCode:** 7199\_S\_PGE

Sample ID: <b>N040230-001C-MSD</b>	SampType: <b>MSD</b>	TestCode: <b>7199_S_PGE</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>4/17/2020</b>	RunNo: <b>143709</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>78962</b>	TestNo: <b>EPA 7199</b>	<b>EPA 3060A</b>	Analysis Date: <b>4/20/2020</b>	SeqNo: <b>3755533</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	92.807	3.7	14.71	86.49	42.9	75	125	94.36	1.66	20	S

Sample ID: <b>N040230-001C-MS I</b>												SampType: <b>MS</b>		TestCode: <b>7199_S_PGE</b>		Units: <b>mg/Kg-dry</b>		Prep Date: <b>4/17/2020</b>		RunNo: <b>143709</b>	
Client ID: <b>ZZZZZZ</b>				Batch ID: <b>78962</b>				TestNo: <b>EPA 7199</b>		<b>EPA 3060A</b>		Analysis Date: <b>4/20/2020</b>		SeqNo: <b>3755536</b>							
Analyte				Result				PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val		%RPD	RPDLimit	Qual		
Hexavalent Chromium				2019.669				37	2390	86.49		80.9	75	125							

Sample ID: <b>N040230-001C-PS</b>	SampType: <b>MS</b>	TestCode: <b>7199_S_PGE</b>	Units: <b>mg/Kg-dry</b>	Prep Date:	RunNo: <b>143709</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>78962</b>	TestNo: <b>EPA 7199</b>	<b>EPA 3060A</b>	Analysis Date: <b>4/20/2020</b>	SeqNo: <b>3755537</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	159.826	3.7	73.69	86.49	99.5	75	125				

### Qualifiers:

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



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

Print Date: 21-Apr-20

<b>CLIENT:</b>	CH2M HILL	<b>Client Sample ID:</b>	Phase Separator-600-Sludge
<b>Lab Order:</b>	N040230	<b>Collection Date:</b>	4/7/2020 10:30:00 AM
<b>Project:</b>	PG&E Topock, D3184A1.EV.05-OM-TS	<b>Matrix:</b>	SOIL
<b>Lab ID:</b>	N040230-001		

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

RunID: <b>NV00922-AA2_200410A</b>	QC Batch: <b>78862</b>	PrepDate: <b>4/10/2020</b>	Analyst: <b>DJ</b>
Mercury	ND 0.099	0.37	mg/Kg-dry 1 4/10/2020 10:42 AM

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


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**"Serving Clients with Passion and Professionalism"**

**CLIENT:** CH2M HILL  
**Work Order:** N040230  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

**ANALYTICAL QC SUMMARY REPORT****TestCode: 7471\_S\_PGE**

Sample ID: <b>MB-78862</b>	SampType: <b>MBLK</b>	TestCode: <b>7471_S_PGE</b>	Units: <b>mg/Kg</b>	Prep Date: <b>4/10/2020</b>	RunNo: <b>143545</b>
Client ID: <b>PBS</b>	Batch ID: <b>78862</b>	TestNo: <b>EPA 7471A</b>		Analysis Date: <b>4/10/2020</b>	SeqNo: <b>3747077</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Mercury	ND	0.10			

Sample ID: <b>LCS-78862</b>	SampType: <b>LCS</b>	TestCode: <b>7471_S_PGE</b>	Units: <b>mg/Kg</b>	Prep Date: <b>4/10/2020</b>	RunNo: <b>143545</b>
Client ID: <b>LCSS</b>	Batch ID: <b>78862</b>	TestNo: <b>EPA 7471A</b>		Analysis Date: <b>4/10/2020</b>	SeqNo: <b>3747078</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Mercury	0.478	0.10	0.4167	0	115 75 125

Sample ID: <b>N040222-001A-MS</b>	SampType: <b>MS</b>	TestCode: <b>7471_S_PGE</b>	Units: <b>mg/Kg</b>	Prep Date: <b>4/10/2020</b>	RunNo: <b>143545</b>
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>78862</b>	TestNo: <b>EPA 7471A</b>		Analysis Date: <b>4/10/2020</b>	SeqNo: <b>3747082</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Mercury	0.471	0.099	0.4112	0	115 75 125

Sample ID: <b>N040222-001A-MSD</b>	SampType: <b>MSD</b>	TestCode: <b>7471_S_PGE</b>	Units: <b>mg/Kg</b>	Prep Date: <b>4/10/2020</b>	RunNo: <b>143545</b>
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>78862</b>	TestNo: <b>EPA 7471A</b>		Analysis Date: <b>4/10/2020</b>	SeqNo: <b>3747083</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Mercury	0.493	0.099	0.4119	0	120 75 125 0.4712 4.60 20

**Qualifiers:**

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

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

Print Date: 21-Apr-20

<b>CLIENT:</b>	CH2M HILL	<b>Client Sample ID:</b>	Phase Separator-600-Sludge
<b>Lab Order:</b>	N040230	<b>Collection Date:</b>	4/7/2020 10:30:00 AM
<b>Project:</b>	PG&E Topock, D3184A1.EV.05-OM-TS	<b>Matrix:</b>	SOIL
<b>Lab ID:</b>	N040230-001		

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

RunID: <b>NV00922-WC_200410B</b>	QC Batch: <b>R143551</b>	PrepDate:	Analyst: <b>LR</b>
Percent Moisture	72.89	0.1000	0.1000
		wt%	1
			4/10/2020 10:00 AM

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


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**CLIENT:** CH2M HILL  
**Work Order:** N040230  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

**ANALYTICAL QC SUMMARY REPORT****TestCode: PMOIST**

Sample ID: <b>MB-R143551</b>	SampType: <b>MBLK</b>	TestCode: <b>PMOIST</b>	Units: <b>wt%</b>	Prep Date:	RunNo: <b>143551</b>						
Client ID: <b>PBS</b>	Batch ID: <b>R143551</b>	TestNo: <b>D2216</b>		Analysis Date: <b>4/10/2020</b>	SeqNo: <b>3746931</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	ND	0.1000									

Sample ID: <b>N040230-001BDUP</b>	SampType: <b>DUP</b>	TestCode: <b>PMOIST</b>	Units: <b>wt%</b>	Prep Date:	RunNo: <b>143551</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>R143551</b>	TestNo: <b>D2216</b>		Analysis Date: <b>4/10/2020</b>	SeqNo: <b>3746933</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	73.215	0.1000						72.89	0.443	30	

**Qualifiers:**







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

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<b>Signatures</b> Approved by  Sampled by  Relinquished by  Received by  Relinquished by  Received by 		<b>Date/Time</b> 4-7-20 - 7:00 4-7-20 - 10:30 4-7-20 15:20 4/7/20 1528 4/7/20 1534 4/7/20 1934		<b>Shipping Details</b> Method of Shipment: FedEx On Ice: <input checked="" type="radio"/> yes <input type="radio"/> no 9.8°Z 18#2 Airbill No: Lab Name: ASSET Laboratories Lab Phone: (702) 307-2659		<b>Special Instructions:</b> ATTN: Sample Custody and Marlon Cartin Report Copy to Shawn Duffy (530) 870-8894	
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## 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: 4/7/2020 Workorder: N040230  
 Rep sample Temp (Deg C): 3.8 IR Gun ID: 2  
 Temp Blank: ☒ Yes ☐ No  
 Carrier name: ASSET  
 Last 4 digits of Tracking No.: NA Packing Material Used: None  
 Cooling process: ☒ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None

### Sample Receipt Checklist

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

Comments:

For:

Checklist Completed By: MPB YRT 4/8/2020

Reviewed By: MBC 4/9/2020

## ASSET Laboratories

### WORK ORDER Summary

08-Apr-20

**WorkOrder:** N040230

**Client ID:** CH2HI01

**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

**QC Level:** Level IV

**Date Received:** 4/7/2020

**Comments:**

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N040230-001A	Phase Separator-600-Sludge	4/7/2020 10:30:00 AM	4/21/2020	Soil	EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WS
N040230-001B			4/21/2020		EPA 3050B	SOPREP TOTAL METALS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WS
			4/21/2020		EPA 6010B	TOTAL METALS BY ICP	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WS
			4/21/2020			MERCURY PREP	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WS
			4/21/2020		EPA 7471A	TOTAL MERCURY BY COLD VAPOR TECHNIQUE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WS
			4/21/2020		D2216	PERCENT MOISTURE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WS
N040230-001C			4/21/2020		EPA 3060A	Prep for Hexavalend Chromium	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WS
			4/21/2020		EPA 7199	Hexavalent Chromium by IC	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WS
N040230-002A	FOLDER	4/21/2020	4/21/2020		Folder	Folder	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LAB
			4/21/2020		Folder	Level IV Report	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LAB
			4/21/2020		Folder	Folder	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LAB



## List of Analysts

### ASSET Laboratories Work Order: N040230

NAME	TEST METHOD
Lilia Ramit	ASTM D2216
Ria Abes	EPA 300.0, EPA 7199
Diane Jetajobe	EPA 6010B, EPA 7471A



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**“Serving Clients with Passion and Professionalism”**

May 19, 2020

Mark Fesler/RDD  
CH2M HILL  
155 Grand Avenue, Suite 1000  
Oakland, CA 94612

TEL: (530) 229-3273

FAX: (510) 622-9129

Workorder No.: N040512

RE: PG&E Topock, D3184A1.EV.05-OM-TS

Attention: Mark Fesler/RDD

Enclosed are the results for sample(s) received on May 05, 2020 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 Libucano for*

Puri Romualdo  
Laboratory Director

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



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**CLIENT:** CH2M HILL  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS  
**Lab Order:** N040512

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**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 Enthalpy Analytical- Berkeley, CA.

**Analytical Comments for EPA 200.8\_Dissolved:**

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Chromium in QC samples N040512-001C-MS and N040512-001C-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.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for some analytes in QC samples N040512-001C-MS and N040512-001C-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 SM 4500-NO3F:**

Sample was diluted due to high solids concentration.



**ASSET Laboratories**

Date: 19-May-20

**CLIENT:** CH2M HILL  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS  
**Lab Order:** N040512  
**Contract No:** IM3PLANT-AR

**Work Order Sample Summary**

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N040512-001A	SC-100B-WDR-601	Water	5/5/2020 8:10:00 AM	5/5/2020	5/19/2020
N040512-001B	SC-100B-WDR-601	Water	5/5/2020 8:10:00 AM	5/5/2020	5/19/2020
N040512-001C	SC-100B-WDR-601	Water	5/5/2020 8:10:00 AM	5/5/2020	5/19/2020
N040512-001D	SC-100B-WDR-601	Water	5/5/2020 8:10:00 AM	5/5/2020	5/19/2020
N040512-002A	SC-700B-WDR-601	Water	5/5/2020 8:00:00 AM	5/5/2020	5/19/2020
N040512-002B	SC-700B-WDR-601	Water	5/5/2020 8:00:00 AM	5/5/2020	5/19/2020
N040512-002C	SC-700B-WDR-601	Water	5/5/2020 8:00:00 AM	5/5/2020	5/19/2020
N040512-002D	SC-700B-WDR-601	Water	5/5/2020 8:00:00 AM	5/5/2020	5/19/2020
N040512-002E	SC-700B-WDR-601	Water	5/5/2020 8:00:00 AM	5/5/2020	5/19/2020
N040512-002F	SC-700B-WDR-601	Water	5/5/2020 8:00:00 AM	5/5/2020	5/19/2020



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**ASSET Laboratories**
**ANALYTICAL RESULTS**
**Print Date:** 19-May-20

**CLIENT:** CH2M HILL  
**Lab Order:** N040512  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS  
**Lab ID:** N040512-001

**Client Sample ID:** SC-100B-WDR-601  
**Collection Date:** 5/5/2020 8:10:00 AM  
**Matrix:** WATER

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

RunID: <b>NV00922-WC_200506A</b>	QC Batch: <b>R144079</b>			PrepDate:		Analyst: <b>LR</b>
Specific Conductance	7700	0.10	0.10	umhos/cm	1	5/6/2020 10:50 AM

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



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**ASSET Laboratories**
**ANALYTICAL RESULTS**
**Print Date:** 19-May-20

**CLIENT:** CH2M HILL  
**Lab Order:** N040512  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS  
**Lab ID:** N040512-002

**Client Sample ID:** SC-700B-WDR-601  
**Collection Date:** 5/5/2020 8:00:00 AM  
**Matrix:** WATER

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

RunID: <b>NV00922-WC_200506A</b>	QC Batch: <b>R144079</b>			PrepDate:		Analyst: <b>LR</b>
Specific Conductance	7600	0.10	0.10	umhos/cm	1	5/6/2020 10:50 AM

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



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**“Serving Clients with Passion and Professionalism”**

**CLIENT:** CH2M HILL  
**Work Order:** N040512  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

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

Sample ID	N040511-001CDUP	SampType:	DUP	TestCode:	120.1_WPGE	Units:	umhos/cm	Prep Date:		RunNo:	144079		
Client ID:	ZZZZZZ	Batch ID:	R144079	TestNo:	EPA 120.1			Analysis Date:	5/6/2020	SeqNo:	3771560		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance		7630.000		0.10						7600	0.394		2

**Qualifiers:**

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

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**"Serving Clients with Passion and Professionalism"**



**ASSET Laboratories**
**ANALYTICAL RESULTS**
**Print Date:** 19-May-20

**CLIENT:** CH2M HILL  
**Lab Order:** N040512  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS  
**Lab ID:** N040512-001

**Client Sample ID:** SC-100B-WDR-601  
**Collection Date:** 5/5/2020 8:10:00 AM  
**Matrix:** WATER

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

RunID: <b>NV00922-WC_200506F</b>	QC Batch: <b>79183</b>			PrepDate: <b>5/6/2020</b>		Analyst: <b>LR</b>
Total Dissolved Solids (Residue, Filterable)	4600	50	50	mg/L	1	5/6/2020 01:14 PM

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



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**“Serving Clients with Passion and Professionalism”**

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

Print Date: 19-May-20

**CLIENT:** CH2M HILL  
**Lab Order:** N040512  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS  
**Lab ID:** N040512-002

**Client Sample ID:** SC-700B-WDR-601  
**Collection Date:** 5/5/2020 8:00:00 AM  
**Matrix:** WATER

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

RunID: NV00922-WC_200506F	QC Batch: 79183			PrepDate: 5/6/2020	Analyst: LR
Total Dissolved Solids (Residue, Filterable)	4600	50	50	mg/L	5/6/2020 01:14 PM

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



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**"Serving Clients with Passion and Professionalism"**

CLIENT: CH2M HILL  
 Work Order: N040512  
 Project: PG&E Topock, D3184A1.EV.05-OM-TS

## ANALYTICAL QC SUMMARY REPORT

TestCode: 160.1\_2540C\_W

Sample ID	LCS-79183	SampType:	LCS	TestCode:	160.1_2540C	Units:	mg/L	Prep Date:	5/6/2020	RunNo:	144102			
Client ID:	LCSW	Batch ID:	79183	TestNo:	SM2540C			Analysis Date:	5/6/2020	SeqNo:	3772031			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera		981.000		10	1000	0		98.1	80	120				

Sample ID	MB-79183	SampType:	MBLK	TestCode:	160.1_2540C	Units:	mg/L	Prep Date:	5/6/2020	RunNo:	144102			
Client ID:	PBW	Batch ID:	79183	TestNo:	SM2540C			Analysis Date:	5/6/2020	SeqNo:	3772032			
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	N040512-001ADUP	SampType:	DUP	TestCode:	160.1_2540C	Units:	mg/L	Prep Date:	5/6/2020	RunNo:	144102			
Client ID:	ZZZZZZ	Batch ID:	79183	TestNo:	SM2540C			Analysis Date:	5/6/2020	SeqNo:	3772035			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera		4545.000		50							4615	1.53	5	

## Qualifiers:

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



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**ASSET Laboratories**
**ANALYTICAL RESULTS**
**Print Date:** 19-May-20

**CLIENT:** CH2M HILL  
**Lab Order:** N040512  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS  
**Lab ID:** N040512-001

**Client Sample ID:** SC-100B-WDR-601  
**Collection Date:** 5/5/2020 8:10:00 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_200507D	QC Batch: 79171	PrepDate: 5/6/2020	Analyst: DJ
Iron	ND 18	20	5/7/2020 08:02 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  
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 Results are wet unless otherwise specified



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**ASSET Laboratories**
**ANALYTICAL RESULTS**
**Print Date:** 19-May-20

**CLIENT:** CH2M HILL  
**Lab Order:** N040512  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS  
**Lab ID:** N040512-002

**Client Sample ID:** SC-700B-WDR-601  
**Collection Date:** 5/5/2020 8:00:00 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_200507D	QC Batch: 79171			PrepDate: 5/6/2020	Analyst: DJ
Aluminum	ND	40	50	µg/L	1 5/7/2020 08:28 PM
Boron	1100	74	100	µg/L	1 5/8/2020 10:09 AM
Iron	130	18	20	µg/L	1 5/7/2020 08:28 PM

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



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**“Serving Clients with Passion and Professionalism”**

CLIENT: CH2M HILL  
 Work Order: N040512  
 Project: PG&E Topock, D3184A1.EV.05-OM-TS

## ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7\_WPGEPB

Sample ID	MB-79171	SampType:	MBLK	TestCode:	200.7_WPGE	Units:	µg/L	Prep Date:	5/6/2020	RunNo:	144130		
Client ID:	PBW	Batch ID:	79171	TestNo:	EPA 200.7			Analysis Date:	5/7/2020	SeqNo:	3773396		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Aluminum	ND	50												
Iron	ND	20												

Sample ID	N040512-001C-MS1	SampType:	MS	TestCode:	200.7_WPGE	Units:	µg/L	Prep Date:	5/6/2020	RunNo:	144130		
Client ID:	ZZZZZZ	Batch ID:	79171	TestNo:	EPA 200.7			Analysis Date:	5/7/2020	SeqNo:	3773402		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Aluminum	10503.916	50	10000	0	105	75	125							
Iron	95.003	20	100.0	0	95.0	75	125							

Sample ID	N040512-001C-MSD	SampType:	MSD	TestCode:	200.7_WPGE	Units:	µg/L	Prep Date:	5/6/2020	RunNo:	144130		
Client ID:	ZZZZZZ	Batch ID:	79171	TestNo:	EPA 200.7			Analysis Date:	5/7/2020	SeqNo:	3773403		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Aluminum	10436.079	50	10000	0	104	75	125	10500	0.648	20				
Iron	89.483	20	100.0	0	89.5	75	125	95.00	5.98	20				

Sample ID	LCS1-79171	SampType:	LCS	TestCode:	200.7_WPGE	Units:	µg/L	Prep Date:	5/6/2020	RunNo:	144130		
Client ID:	LCSW	Batch ID:	79171	TestNo:	EPA 200.7			Analysis Date:	5/7/2020	SeqNo:	3773418		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Aluminum	10673.050	50	10000	0	107	85	115							
Iron	91.085	20	100.0	0	91.1	85	115							

Sample ID	MB-79171	SampType:	MBLK	TestCode:	200.7_WPGE	Units:	µg/L	Prep Date:	5/6/2020	RunNo:	144198		
Client ID:	PBW	Batch ID:	79171	TestNo:	EPA 200.7			Analysis Date:	5/8/2020	SeqNo:	3774509		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

## Qualifiers:

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



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"Serving Clients with Passion and Professionalism"

**CLIENT:** CH2M HILL  
**Work Order:** N040512  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.7\_WPGEPB**

Sample ID	MB-79171	SampType:	MBLK	TestCode:	200.7_WPGE	Units:	µg/L	Prep Date:	5/6/2020	RunNo:	144198		
Client ID:	PBW	Batch ID:	79171	TestNo:	EPA 200.7			Analysis Date:	5/8/2020	SeqNo:	3774509		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Boron ND 100

Sample ID	LCS1-79171	SampType:	LCS	TestCode:	200.7_WPGE	Units:	µg/L	Prep Date:	5/6/2020	RunNo:	144198		
Client ID:	LCSW	Batch ID:	79171	TestNo:	EPA 200.7			Analysis Date:	5/8/2020	SeqNo:	3774512		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Boron 5043.642 100 5000 0 101 85 115

Sample ID	N040512-001C-MS1	SampType:	MS	TestCode:	200.7_WPGE	Units:	µg/L	Prep Date:	5/6/2020	RunNo:	144198		
Client ID:	ZZZZZZ	Batch ID:	79171	TestNo:	EPA 200.7			Analysis Date:	5/8/2020	SeqNo:	3774516		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Boron 6380.420 100 5000 1015 107 75 125

Sample ID	N040512-001C-MSD	SampType: MSD	TestCode: 200.7_WPGE	Units: µg/L	Prep Date: 5/6/2020	RunNo: 144198					
Client ID:	ZZZZZZ	Batch ID: 79171	TestNo: EPA 200.7		Analysis Date: 5/8/2020	SeqNo: 3774517					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Boron 6467.329 100 5000 1015 109 75 125 6380 1.35 20

### Qualifiers:

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



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

Print Date: 19-May-20

**CLIENT:** CH2M HILL  
**Lab Order:** N040512  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS  
**Lab ID:** N040512-001

**Client Sample ID:** SC-100B-WDR-601  
**Collection Date:** 5/5/2020 8:10:00 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-ICP8_200507F	QC Batch: 79174	PrepDate: 5/6/2020	Analyst: CEI
Manganese	14 0.26 0.50	µg/L	1 5/8/2020 02:17 AM

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



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**ANALYTICAL RESULTS**

Print Date: 19-May-20

**CLIENT:** CH2M HILL  
**Lab Order:** N040512  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS  
**Lab ID:** N040512-002

**Client Sample ID:** SC-700B-WDR-601  
**Collection Date:** 5/5/2020 8:00:00 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-ICP8_200507F	QC Batch: 79174	PrepDate: 5/6/2020	Analyst: CEI			
Antimony	ND	0.16	0.50	µg/L	1	5/8/2020 03:08 AM
Arsenic	ND	0.081	0.10	µg/L	1	5/8/2020 03:08 AM
Barium	18	0.15	1.0	µg/L	1	5/14/2020 11:50 AM
Copper	ND	0.55	1.0	µg/L	1	5/8/2020 03:08 AM
Lead	ND	0.13	1.0	µg/L	1	5/8/2020 03:08 AM
Manganese	41	0.26	0.50	µg/L	1	5/8/2020 03:08 AM
Molybdenum	21	0.21	0.50	µg/L	1	5/8/2020 03:08 AM
Nickel	ND	0.26	1.0	µg/L	1	5/8/2020 03:08 AM
Zinc	ND	2.3	10	µg/L	1	5/8/2020 03:08 AM

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



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**"Serving Clients with Passion and Professionalism"**

CLIENT: CH2M HILL  
 Work Order: N040512  
 Project: PG&E Topock, D3184A1.EV.05-OM-TS

## ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8\_W

Sample ID	MB-79174	SampType:	MBLK	TestCode:	200.8_W	Units:	µg/L	Prep Date:	5/6/2020	RunNo:	144235
Client ID:	PBW	Batch ID:	79174	TestNo:	EPA 200.8			Analysis Date:	5/8/2020	SeqNo:	3776440
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									
Copper	ND	1.0									
Lead	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Nickel	ND	1.0									
Zinc	ND	10									

Sample ID	LCS-79174	SampType:	LCS	TestCode:	200.8_W	Units:	µg/L	Prep Date:	5/6/2020	RunNo:	144235
Client ID:	LCSW	Batch ID:	79174	TestNo:	EPA 200.8			Analysis Date:	5/8/2020	SeqNo:	3776441
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Antimony	10.799	0.50	10.00	0	108	85	115				
Arsenic	10.220	0.10	10.00	0	102	85	115				
Copper	9.829	1.0	10.00	0	98.3	85	115				
Lead	10.337	1.0	10.00	0	103	85	115				
Manganese	98.894	0.50	100.0	0	98.9	85	115				
Molybdenum	10.131	0.50	10.00	0	101	85	115				
Nickel	10.004	1.0	10.00	0	100	85	115				
Zinc	10.314	10	10.00	0	103	85	115				

Sample ID	N040512-001C-MS	SampType:	MS	TestCode:	200.8_W	Units:	µg/L	Prep Date:	5/6/2020	RunNo:	144235
Client ID:	ZZZZZZ	Batch ID:	79174	TestNo:	EPA 200.8			Analysis Date:	5/8/2020	SeqNo:	3776453
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Antimony	10.357	0.50	10.00	0	104	75	125				
Arsenic	11.157	0.10	10.00	0.6201	105	75	125				

## Qualifiers:

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



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**CLIENT:** CH2M HILL  
**Work Order:** N040512  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.8\_W**

Sample ID	<b>N040512-001C-MS</b>	SampType:	<b>MS</b>	TestCode:	<b>200.8_W</b>	Units:	<b>µg/L</b>	Prep Date:	<b>5/6/2020</b>	RunNo:	<b>144235</b>
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>79174</b>	TestNo:	<b>EPA 200.8</b>			Analysis Date:	<b>5/8/2020</b>	SeqNo:	<b>3776453</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	8.841	1.0	10.00	0	88.4	75	125				
Lead	10.212	1.0	10.00	0	102	75	125				
Manganese	102.039	0.50	100.0	14.22	87.8	75	125				
Molybdenum	31.202	0.50	10.00	20.23	110	75	125				
Nickel	ND	1.0	10.00	0	0	75	125				S
Zinc	5.632	10	10.00	0	56.3	75	125				S

Sample ID	<b>N040512-001C-MSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>200.8_W</b>	Units:	<b>µg/L</b>	Prep Date:	<b>5/6/2020</b>	RunNo:	<b>144235</b>
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>79174</b>	TestNo:	<b>EPA 200.8</b>			Analysis Date:	<b>5/8/2020</b>	SeqNo:	<b>3776455</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	10.187	0.50	10.00	0	102	75	125	10.36	1.65	20	
Arsenic	11.291	0.10	10.00	0.6201	107	75	125	11.16	1.20	20	
Copper	8.924	1.0	10.00	0	89.2	75	125	8.841	0.933	20	
Lead	10.076	1.0	10.00	0	101	75	125	10.21	1.34	20	
Manganese	103.164	0.50	100.0	14.22	88.9	75	125	102.0	1.10	20	
Molybdenum	31.269	0.50	10.00	20.23	110	75	125	31.20	0.214	20	
Nickel	ND	1.0	10.00	0	0	75	125	0	0	20	S
Zinc	5.682	10	10.00	0	56.8	75	125	5.632	0	20	S

Sample ID	<b>MB-79174</b>	SampType:	<b>MBLK</b>	TestCode:	<b>200.8_W</b>	Units:	<b>µg/L</b>	Prep Date:	<b>5/6/2020</b>	RunNo:	<b>144351</b>
Client ID:	<b>PBW</b>	Batch ID:	<b>79174</b>	TestNo:	<b>EPA 200.8</b>			Analysis Date:	<b>5/14/2020</b>	SeqNo:	<b>3778959</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	ND	1.0									

### Qualifiers:

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

**CLIENT:** CH2M HILL  
**Work Order:** N040512  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

## ANALYTICAL QC SUMMARY REPORT

**TestCode:** 200.8\_W

Sample ID	<b>LCS-79174</b>	SampType:	<b>LCS</b>	TestCode:	<b>200.8_W</b>	Units:	<b>µg/L</b>	Prep Date:	<b>5/6/2020</b>	RunNo:	<b>144351</b>
Client ID:	<b>LCSW</b>	Batch ID:	<b>79174</b>	TestNo:	<b>EPA 200.8</b>			Analysis Date:	<b>5/14/2020</b>	SeqNo:	<b>3778962</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Barium	10.369	1.0	10.00	0	104	85	115
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Sample ID	<b>N040512-001C-MS</b>	SampType:	<b>MS</b>	TestCode:	<b>200.8_W</b>	Units:	<b>µg/L</b>	Prep Date:	<b>5/6/2020</b>	RunNo:	<b>144351</b>
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>79174</b>	TestNo:	<b>EPA 200.8</b>			Analysis Date:	<b>5/14/2020</b>	SeqNo:	<b>3778966</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Barium	40.961	1.0	10.00	32.71	82.5	75	125
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Sample ID	<b>N040512-001C-MSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>200.8_W</b>	Units:	<b>µg/L</b>	Prep Date:	<b>5/6/2020</b>	RunNo:	<b>144351</b>
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>79174</b>	TestNo:	<b>EPA 200.8</b>			Analysis Date:	<b>5/14/2020</b>	SeqNo:	<b>3778967</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Barium	41.756	1.0	10.00	32.71	90.4	75	125	40.96	1.92	20
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### Qualifiers:

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

CLIENT: CH2M HILL  
 Work Order: N040512  
 Project: PG&E Topock, D3184A1.EV.05-OM-TS

## ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8\_W

Sample ID: <b>N040512-001C-PS</b>	SampType: <b>PS</b>	TestCode: <b>200.8_W</b>	Units: <b>µg/L</b>	Prep Date:	RunNo: <b>144235</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>79174</b>	TestNo: <b>EPA 200.8</b>	Analysis Date: <b>5/8/2020</b>	SeqNo: <b>3776451</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	10.405	0.50	10.00	0	104	80	120				
Arsenic	11.320	0.10	10.00	0.6201	107	80	120				
Copper	8.782	1.0	10.00	0	87.8	80	120				
Lead	10.163	1.0	10.00	0	102	80	120				
Manganese	97.264	0.50	100.0	14.22	83.0	80	120				
Molybdenum	31.464	0.50	10.00	20.23	112	80	120				
Nickel	ND	1.0	10.00	0	0	80	120				S
Zinc	2.993	10	10.00	0	29.9	80	120				S

Sample ID: <b>N040512-001C-PS</b>	SampType: <b>PS</b>	TestCode: <b>200.8_W</b>	Units: <b>µg/L</b>	Prep Date:	RunNo: <b>144351</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>79174</b>	TestNo: <b>EPA 200.8</b>	Analysis Date: <b>5/14/2020</b>	SeqNo: <b>3778965</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	41.570	1.0	10.00	32.71	88.6	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  
 H Holding times for preparation or analysis exceeded  
 S Spike/Surrogate outside of limits due to matrix interference

Calculations are based on raw values



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

Print Date: 19-May-20

**CLIENT:** CH2M HILL  
**Lab Order:** N040512  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS  
**Lab ID:** N040512-001

**Client Sample ID:** SC-100B-WDR-601  
**Collection Date:** 5/5/2020 8:10:00 AM  
**Matrix:** WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
<b>HEXAVALENT CHROMIUM BY IC</b>							
<b>EPA 218.6</b>							
RunID: NV00922-IC7_200506A	QC Batch: R144113			PrepDate:		Analyst: RAB	
Hexavalent Chromium	440	3.3	20		µg/L	100	5/6/2020 04:34 PM
<b>TOTAL METALS BY ICPMS</b>							
<b>EPA 200.8</b>							
RunID: NV00922-ICP8_200507F	QC Batch: 79174			PrepDate:	5/6/2020	Analyst: CEI	
Chromium	430	0.65	5.0		µg/L	5	5/8/2020 02:22 AM

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



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

Print Date: 19-May-20

**CLIENT:** CH2M HILL  
**Lab Order:** N040512  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS  
**Lab ID:** N040512-002

**Client Sample ID:** SC-700B-WDR-601  
**Collection Date:** 5/5/2020 8:00:00 AM  
**Matrix:** WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
<b>HEXAVALENT CHROMIUM BY IC</b>							
<b>EPA 218.6</b>							
RunID: NV00922-IC7_200506A	QC Batch: R144113		PrepDate:		Analyst: RAB		
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	5/6/2020 02:56 PM
<b>TOTAL METALS BY ICPMS</b>							
<b>EPA 200.8</b>							
RunID: NV00922-ICP8_200507F	QC Batch: 79174		PrepDate: 5/6/2020		Analyst: CEI		
Chromium	ND	0.13	1.0		µg/L	1	5/8/2020 03:08 AM

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



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CLIENT: CH2M HILL  
 Work Order: N040512  
 Project: PG&E Topock, D3184A1.EV.05-OM-TS

## ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8\_W\_CRPGE

Sample ID	MB-79174	SampType:	MBLK	TestCode:	200.8_W_CR	Units:	µg/L	Prep Date:	5/6/2020	RunNo:	144235			
Client ID:	PBW	Batch ID:	79174	TestNo:	EPA 200.8			Analysis Date:	5/8/2020	SeqNo:	3776338			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium		ND		1.0										

Sample ID	LCS-79174	SampType:	LCS	TestCode:	200.8_W_CR	Units:	µg/L	Prep Date:	5/6/2020	RunNo:	144235			
Client ID:	LCSW	Batch ID:	79174	TestNo:	EPA 200.8			Analysis Date:	5/8/2020	SeqNo:	3776339			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium		9.688		1.0	10.00	0		96.9	85	115				

Sample ID	N040512-001C-MS	SampType:	MS	TestCode:	200.8_W_CR	Units:	µg/L	Prep Date:	5/6/2020	RunNo:	144235			
Client ID:	ZZZZZZ	Batch ID:	79174	TestNo:	EPA 200.8			Analysis Date:	5/8/2020	SeqNo:	3776352			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium		433.719		5.0	10.00	428.7		50.1	75	125				S

Sample ID	N040512-001C-MSD	SampType:	MSD	TestCode:	200.8_W_CR	Units:	µg/L	Prep Date:	5/6/2020	RunNo:	144235			
Client ID:	ZZZZZZ	Batch ID:	79174	TestNo:	EPA 200.8			Analysis Date:	5/8/2020	SeqNo:	3776356			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium		431.749		5.0	10.00	428.7		30.4	75	125	433.7	0.455	20	S

## Qualifiers:

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



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**CLIENT:** CH2M HILL  
**Work Order:** N040512  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

## ANALYTICAL QC SUMMARY REPORT

**TestCode:** 218.6\_WU\_PGE

Sample ID	MB-R144113	SampType:	MBLK	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	144113		
Client ID:	PBW	Batch ID:	R144113	TestNo:	EPA 218.6			Analysis Date:	5/6/2020	SeqNo:	3772238		
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-R144113	SampType:	LCS	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	144113		
Client ID:	LCSW	Batch ID:	R144113	TestNo:	EPA 218.6			Analysis Date:	5/6/2020	SeqNo:	3772239		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium 5.044 0.20 5.000 0 101 90 110

Sample ID	N040512-002CMS	SampType:	MS	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	144113		
Client ID:	ZZZZZZ	Batch ID:	R144113	TestNo:	EPA 218.6			Analysis Date:	5/6/2020	SeqNo:	3772244		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium 1.135 0.20 1.000 0.1097 103 90 110

Sample ID	N040520-004AMS	SampType:	MS	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	144113		
Client ID:	ZZZZZZ	Batch ID:	R144113	TestNo:	EPA 218.6			Analysis Date:	5/6/2020	SeqNo:	3772246		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium 10.661 0.20 5.000 5.513 103 90 110

Sample ID	N040520-004AMSD	SampType: MSD	TestCode: 218.6_WU_P	Units: µg/L	Prep Date:	RunNo: 144113					
Client ID:	ZZZZZZ	Batch ID: R144113	TestNo: EPA 218.6		Analysis Date: 5/6/2020	SeqNo: 3772247					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium 10.670 0.20 5.000 5.513 103 90 110 10.66 0.0844 20

### Qualifiers:

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

**CLIENT:** CH2M HILL  
**Work Order:** N040512  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

## ANALYTICAL QC SUMMARY REPORT

**TestCode:** 218.6\_WU\_PGE

Sample ID	N040519-003ADUP	SampType:	DUP	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	144113		
Client ID:	ZZZZZZ	Batch ID:	R144113	TestNo:	EPA 218.6			Analysis Date:	5/6/2020	SeqNo:	3772250		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium		3.306		0.20						3.268	1.18	20	

Sample ID	N040512-001BMS	SampType:	MS	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	144113		
Client ID:	ZZZZZZ	Batch ID:	R144113	TestNo:	EPA 218.6			Analysis Date:	5/6/2020	SeqNo:	3772254		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium		949.840		20	500.0	436.7	103	90	110				

### Qualifiers:

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

**CLIENT:** CH2M HILL  
**Work Order:** N040512  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

## ANALYTICAL QC SUMMARY REPORT

**TestCode:** 200.8\_W\_CRPGE

Sample ID: <b>N040512-001C-PS</b>	SampType: <b>PS</b>	TestCode: <b>200.8_W_CR</b>	Units: <b>µg/L</b>	Prep Date:	RunNo: <b>144235</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>79174</b>	TestNo: <b>EPA 200.8</b>		Analysis Date: <b>5/8/2020</b>	SeqNo: <b>3776350</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	435.018	5.0	10.00	428.7	63.1	80	120				S

## Qualifiers:

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



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**ASSET Laboratories**
**ANALYTICAL RESULTS**
**Print Date:** 19-May-20

**CLIENT:** CH2M HILL  
**Lab Order:** N040512  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS  
**Lab ID:** N040512-001

**Client Sample ID:** SC-100B-WDR-601  
**Collection Date:** 5/5/2020 8:10:00 AM  
**Matrix:** WATER

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

RunID: <b>NV00922-WC_200507A</b>	QC Batch: <b>R144098</b>	PrepDate:	Analyst: <b>LR</b>
Turbidity	0.18 0.10 0.10	NTU	1 5/7/2020 07:40 AM

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



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**ASSET Laboratories**
**ANALYTICAL RESULTS**
**Print Date:** 19-May-20

**CLIENT:** CH2M HILL  
**Lab Order:** N040512  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS  
**Lab ID:** N040512-002

**Client Sample ID:** SC-700B-WDR-601  
**Collection Date:** 5/5/2020 8:00:00 AM  
**Matrix:** WATER

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

RunID: <b>NV00922-WC_200507A</b>	QC Batch: <b>R144098</b>	PrepDate:	Analyst: <b>LR</b>
Turbidity	0.15 0.10 0.10	NTU	1 5/7/2020 07:40 AM

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



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**CLIENT:** CH2M HILL  
**Work Order:** N040512  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

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

Sample ID	MB-R144098	SampType:	MBLK	TestCode:	2130_W	Units:	NTU	Prep Date:		RunNo:	144098		
Client ID:	PBW	Batch ID:	R144098	TestNo:	SM 2130B			Analysis Date:	5/7/2020	SeqNo:	3771979		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Turbidity		ND		0.10									

Sample ID	N040512-001ADUP	SampType:	DUP	TestCode:	2130_W	Units:	NTU	Prep Date:		RunNo:	144098		
Client ID:	ZZZZZZ	Batch ID:	R144098	TestNo:	SM 2130B			Analysis Date:	5/7/2020	SeqNo:	3771981		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Turbidity		0.160		0.10						0.1800	11.8	30	

**Qualifiers:**

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

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

Print Date: 19-May-20

**CLIENT:** CH2M HILL  
**Lab Order:** N040512  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS  
**Lab ID:** N040512-002

**Client Sample ID:** SC-700B-WDR-601  
**Collection Date:** 5/5/2020 8:00:00 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_200507A	QC Batch: R144127			PrepDate:		Analyst: RAB
Fluoride	2.4	0.048	0.50	mg/L	5	5/7/2020 07:19 AM

**ANIONS BY ION CHROMATOGRAPHY**
**EPA 300.0**

RunID: NV00922-IC8_200506A	QC Batch: R144086			PrepDate:		Analyst: RAB
Sulfate	490	2.0	25	mg/L	50	5/6/2020 01:34 PM

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



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**"Serving Clients with Passion and Professionalism"**

CLIENT: CH2M HILL  
 Work Order: N040512  
 Project: PG&E Topock, D3184A1.EV.05-OM-TS

## ANALYTICAL QC SUMMARY REPORT

TestCode: 300\_W\_FPGE

Sample ID	MB-R144127_F	SampType: MBLK	TestCode: 300_W_FPG	Units: mg/L	Prep Date:				RunNo: 144127			
Client ID:	PBW	Batch ID: R144127	TestNo: EPA 300.0		Analysis Date: 5/7/2020				SeqNo: 3773051			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride		ND	0.10									

Sample ID	LCS-R144127_F	SampType: LCS	TestCode: 300_W_FPG	Units: mg/L	Prep Date:				RunNo: 144127			
Client ID:	LCSW	Batch ID: R144127	TestNo: EPA 300.0		Analysis Date: 5/7/2020				SeqNo: 3773052			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride		1.279	0.10	1.250	0	102	90	110				

Sample ID	N040512-002BDUP	SampType: DUP	TestCode: 300_W_FPG	Units: mg/L	Prep Date:				RunNo: 144127			
Client ID:	ZZZZZZ	Batch ID: R144127	TestNo: EPA 300.0		Analysis Date: 5/7/2020				SeqNo: 3773054			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride		2.360	0.50						2.359	0.0424	20	

Sample ID	N040512-002BMS	SampType: MS	TestCode: 300_W_FPG	Units: mg/L	Prep Date:				RunNo: 144127			
Client ID:	ZZZZZZ	Batch ID: R144127	TestNo: EPA 300.0		Analysis Date: 5/7/2020				SeqNo: 3773055			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride		8.481	0.50	6.250	2.359	98.0	80	120				

Sample ID	N040512-002BMSD	SampType: MSD	TestCode: 300_W_FPG	Units: mg/L	Prep Date:				RunNo: 144127			
Client ID:	ZZZZZZ	Batch ID: R144127	TestNo: EPA 300.0		Analysis Date: 5/7/2020				SeqNo: 3773056			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride		8.650	0.50	6.250	2.359	101	80	120	8.480	1.97	20	

## Qualifiers:

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



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"Serving Clients with Passion and Professionalism"

**CLIENT:** CH2M HILL  
**Work Order:** N040512  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

## ANALYTICAL QC SUMMARY REPORT

**TestCode:** 300\_W\_SO4PGE

Sample ID	<b>MB-R144086_SO4</b>	SampType:	<b>MBLK</b>	TestCode:	<b>300_W_SO4P</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>144086</b>
Client ID:	<b>PBW</b>	Batch ID:	<b>R144086</b>	TestNo:	<b>EPA 300.0</b>			Analysis Date:	<b>5/6/2020</b>	SeqNo:	<b>3771905</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Sulfate ND 0.50

Sample ID	<b>LCS-R144086_SO4</b>	SampType:	<b>LCS</b>	TestCode:	<b>300_W_SO4P</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>144086</b>
Client ID:	<b>LCSW</b>	Batch ID:	<b>R144086</b>	TestNo:	<b>EPA 300.0</b>			Analysis Date:	<b>5/6/2020</b>	SeqNo:	<b>3771906</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Sulfate 4.098 0.50 4.000 0 102 90 110

Sample ID	<b>N040511-001CDUP</b>	SampType:	<b>DUP</b>	TestCode:	<b>300_W_SO4P</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>144086</b>
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>R144086</b>	TestNo:	<b>EPA 300.0</b>			Analysis Date:	<b>5/6/2020</b>	SeqNo:	<b>3771911</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Sulfate 511.465 25 502.1 1.85 20

Sample ID	<b>N040512-002BMS</b>	SampType:	<b>MS</b>	TestCode:	<b>300_W_SO4P</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>144086</b>
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>R144086</b>	TestNo:	<b>EPA 300.0</b>			Analysis Date:	<b>5/6/2020</b>	SeqNo:	<b>3771914</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Sulfate 699.165 25 200.0 485.5 107 80 120

Sample ID	<b>N040512-002BMSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>300_W_SO4P</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>144086</b>
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>R144086</b>	TestNo:	<b>EPA 300.0</b>			Analysis Date:	<b>5/6/2020</b>	SeqNo:	<b>3771915</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Sulfate 701.815 25 200.0 485.5 108 80 120 699.2 0.378 20

### Qualifiers:

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

**ASSET Laboratories**
**ANALYTICAL RESULTS**
**Print Date:** 19-May-20

**CLIENT:** CH2M HILL  
**Lab Order:** N040512  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS  
**Lab ID:** N040512-002

**Client Sample ID:** SC-700B-WDR-601  
**Collection Date:** 5/5/2020 8:00:00 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: <b>NV00922-WC_200515C</b>	QC Batch: <b>R144372</b>			PrepDate:		Analyst: <b>HG</b>
Nitrate/Nitrite as N	2.7	0.63	1.0	mg/L	20	5/15/2020 01:40 PM

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



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**CLIENT:** CH2M HILL  
**Work Order:** N040512  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

## ANALYTICAL QC SUMMARY REPORT

**TestCode:** 4500N03F\_W\_PGE

Sample ID: <b>MB-R144372</b>	SampType: <b>MBLK</b>	TestCode: <b>4500N03F_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>144372</b>						
Client ID: <b>PBW</b>	Batch ID: <b>R144372</b>	TestNo: <b>SM4500-NO3</b>		Analysis Date: <b>5/15/2020</b>	SeqNo: <b>3779996</b>						
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: <b>LCS-R144372</b>	SampType: <b>LCS</b>	TestCode: <b>4500N03F_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>144372</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>R144372</b>	TestNo: <b>SM4500-NO3</b>	Analysis Date: <b>5/15/2020</b>	SeqNo: <b>3779997</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Nitrate/Nitrite as N 0.997 0.050 1.000 0 99.7 85 115

Sample ID: <b>N040512-002DDUP</b>	SampType: <b>DUP</b>	TestCode: <b>4500N03F_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>144372</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>R144372</b>	TestNo: <b>SM4500-NO3</b>	Analysis Date: <b>5/15/2020</b>	SeqNo: <b>3779999</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Nitrate/Nitrite as N 2.778 1.0 2.690 3.22 20

Sample ID: <b>N040609-001CMS</b>	SampType: <b>MS</b>	TestCode: <b>4500N03F_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>144372</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>R144372</b>	TestNo: <b>SM4500-NO3</b>		Analysis Date: <b>5/15/2020</b>	SeqNo: <b>3780001</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Nitrate/Nitrite as N 19.082 1.0 10.00 8.194 109 75 125

Sample ID: <b>N040609-001CMSD</b>	SampType: <b>MSD</b>	TestCode: <b>4500N03F_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>144372</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>R144372</b>	TestNo: <b>SM4500-NO3</b>	Analysis Date: <b>5/15/2020</b>	SeqNo: <b>3780002</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Nitrate/Nitrite as N 18.222 1.0 10.00 8.194 100 75 125 19.08 4.61 20

### Qualifiers:

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

<b>Signatures</b> Approved by <i>[Signature]</i> Sampled by <i>[Signature]</i> Relinquished by <i>[Signature]</i> Received by <i>[Signature]</i> Relinquished by <i>[Signature]</i> Received by <i>[Signature]</i>		<b>Date/Time</b> 5-5-2020 5-5-20 / 0800 5-5-20 1230 5/5/20 1230 5/5/20 1541 5/5/20 1541		<b>Shipping Details</b> Method of Shipment: FedEx On Ice: <input checked="" type="checkbox"/> yes / no <i>1.82 12#2</i> Airbill No: Lab Name: ASSET Laboratories Lab Phone: (702) 307-2659		<b>ATTN:</b> Sample Custody and Marlon Cartin		<b>Special Instructions:</b> SC-700B Total metals List: Cr,Al,Sb,As,Ba,B,Cu,Pb,Mn,Mo,Ni,Fe,Zn <b>Report Copy to</b> Mark Fesler	
--	--	---	--	---	--	--	--	---	--



## 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: 5/5/2020 Workorder: N040512  
 Rep sample Temp (Deg C): 1.8 IR Gun ID: 2  
 Temp Blank: ☒ Yes ☐ No  
 Carrier name: ASSET  
 Last 4 digits of Tracking No.: NA Packing Material Used: None  
 Cooling process: ☒ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None

### Sample Receipt Checklist

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

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

For:

Checklist Completed By: MPB *YRJ* 5/6/2020

Reviewed By:

*ABC* 5/7/2020

# ASSET Laboratories

## WORK ORDER Summary

06-May-20

WorkOrder: N040512

Client ID: CH2HI01

Project: PG&E Topock, D3184A1.EV.05-OM-TS

QC Level: Level IV

Date Received: 5/5/2020

Comments: SC-700BTotal metals List:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N040512-001A	SC-100B-WDR-601	5/5/2020 8:10:00 AM	5/19/2020	Water	EPA 120.1	SPECIFIC CONDUCTANCE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LSR
			5/19/2020		SM2540C	TOTAL FILTERABLE RESIDUE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LSR
			5/19/2020			Total Dissolved Solids Prep	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LSR
			5/19/2020		SM 2130B	TURBIDITY	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LSR
N040512-001B			5/19/2020		EPA 218.6	Hexavalent Chromium by IC	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
N040512-001C			5/19/2020			AQPREP TOTAL METALS: ICP, FLAA	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
			5/19/2020		EPA 200.7	TOTAL METALS BY ICP	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
			5/19/2020			AQPREP TOTAL METALS: ICP, FLAA	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
			5/19/2020		EPA 200.8	TOTAL METALS BY ICPMS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
			5/19/2020		EPA 200.8	TOTAL METALS BY ICPMS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
N040512-001D							<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
N040512-002A	SC-700B-WDR-601	5/5/2020 8:00:00 AM	5/19/2020		SM4500-NH3D	AMMONIA-N BY ION SELECTIVE ELECTRODE	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	SUB
N040512-002B			5/19/2020		EPA 120.1	SPECIFIC CONDUCTANCE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LSR
			5/19/2020		SM2540C	TOTAL FILTERABLE RESIDUE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LSR
			5/19/2020			Total Dissolved Solids Prep	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LSR
			5/19/2020		SM 2130B	TURBIDITY	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LSR
			5/19/2020		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LSR
			5/19/2020		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LSR
N040512-002C			5/19/2020		EPA 218.6	Hexavalent Chromium by IC	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
N040512-002D			5/19/2020		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
N040512-002E			5/19/2020			AQPREP TOTAL METALS: ICP, FLAA	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW

## ASSET Laboratories

### WORK ORDER Summary

06-May-20

**WorkOrder:** N040512

**Client ID:** CH2HI01

**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

**QC Level:** Level IV

**Date Received:** 5/5/2020

**Comments:** SC-700BTotal metals List:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N040512-002E	SC-700B-WDR-601	5/5/2020 8:00:00 AM	5/19/2020	Water	EPA 200.7	TOTAL METALS BY ICP	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
			5/19/2020			AQPREP TOTAL METALS: ICP, FLAA	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
			5/19/2020		EPA 200.8	TOTAL METALS BY ICPMS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
			5/19/2020		EPA 200.8	TOTAL METALS BY ICPMS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
N040512-002F							<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
N040512-003A	FOLDER	5/19/2020	5/19/2020		Folder	Folder	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LAB
			5/19/2020		Folder	Level IV Report	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LAB
			5/19/2020		Folder	Folder	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LAB



## 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:**

Enthalpy Analytical  
2323 5th St  
Berkeley, CA 94710

TEL: (510) 486-0900  
FAX:  
Acct #:

Field Sampler: SIGNED

06-May-20

Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests		
				SM4500-NH3D		
N040512-002A / SC-700B-WDR-601	Water	5/5/2020 8:00:00 AM	32OZP	1		

General Comments: Please email sample receipt acknowledgement to the PM. Please cc [sonny.lorenzo@assetlaboratories.com](mailto:sonny.lorenzo@assetlaboratories.com)

Please use PO#:N40512A Please email Invoices and Account Receivable Statements to [elvira@assetlaboratories.com](mailto:elvira@assetlaboratories.com). For questions, call Marlon at (702)-307-2659. Please e-mail results to [reports.lv@assetlaboratories.com](mailto:reports.lv@assetlaboratories.com) by: Standard TAT.

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

GSO #: 548925014

	Date/Time		Date/Time
Relinquished by: <u>YLT</u>	5/6/2020 1630	Received by: _____	_____
Relinquished by: _____	_____	Received by: _____	_____

## List of Analysts

### ASSET Laboratories Work Order: N040512

NAME	TEST METHOD
Claire Ignacio	EPA 200.8
Lilia Ramit	EPA 120.1, SM 2540C, SM 2130B
Ria Abes	EPA 218.6, EPA 300.0
Hanah Glodoviza	SM 4500-NO3F
Diane Jetajobe	EPA 200.7



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P: 702.307.2659 F: 702.307.2691

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Enthalpy Analytical  
2323 Fifth Street  
Berkeley, CA 94710  
(510) 486-0900

enthalpy.com

Lab Job Number: 319654  
Report Level: IV  
Report Date: 05/14/2020

### Wet Chemistry

#### **Analytical Report** *prepared for:*

Sonny Lorenzo  
ASSET LABS  
3151-3153 W Post Road  
Las Vegas, NV 89118

*Authorized for release by:*

Patrick McCarthy, Project Manager  
(510) 204-2236 ext 13115  
[patrick.mccarthy@enthalpy.com](mailto:patrick.mccarthy@enthalpy.com)

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the above signature which applies to this PDF file as well as any associated electronic data deliverable files. The results contained in this report meet all requirements of NELAP and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

CA ELAP# 2896, NELAP# 4044-001

## Sample Summary

---

Sonny Lorenzo

ASSET LABS

3151-3153 W Post Road

Las Vegas, NV 89118

---

Lab Job #: 319654

Date Received: 05/07/20

---

Sample ID	Lab ID	Collected	Matrix
N040512-002A / SC-700B-WDR-601	319654-001	05/05/20 08:00	Water

---



## Case Narrative

### WET CHEMISTRY (SM4500NH3-D)

---

ASSET LABS

3151-3153 W Post Road

Las Vegas, NV 89118

Sonny Lorenzo

Lab Job Number: 319654

Date Received: 05/07/20

---

This data package contains sample and QC results for one water sample, requested for the above referenced project on 05/07/20. See attached cooler receipt form for any sample receipt problems or discrepancies.

**Ammonia Nitrogen (SM4500NH3-D):**

No analytical problems were encountered.

319654


**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:**

Enthalpy Analytical

2323 5th St

Berkeley, CA 94710

TEL: (510) 486-0900

FAX:

Acct #:

Field Sampler: SIGNED

**06-May-20**

Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests		
				SM4500-NH3D		
N040512-002A / SC-700B-WDR-601	Water	5/5/2020 8:00:00 AM	32OZP	1		

General Comments: Please email sample receipt acknowledgement to the PM. Please cc sonny.lorenzo@assetlaboratories.com

Please use PO#:N40512A Please email Invoices and Account Receivable Statements to elvira@assetlaboratories.com. For questions, call Marlon at (702)-307-2659. Please e-mail results to reports.lv@assetlaboratories.com by: Standard TAT.

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

GSO #: 548925014

	Date/Time		Date/Time
Relinquished by: <u>YRJ</u>	5/6/2020 1630	Received by: <u>[Signature]</u>	5/7/20 15:56
Relinquished by: _____	_____	Received by: _____	_____

# **SAMPLE RECEIPT CHECKLIST**

Section 1: Login # 319659  
Date Received: 5-7-20

Client: ASSET LABS  
Project: \_\_\_\_\_



## **Section 2: Shipping info (if applicable)**

Are custody seals present? ☒ No, or ☐ Yes. If yes, where? ☐ on cooler, ☐ on samples, ☐ on package

☐ Date: \_\_\_\_\_ How many \_\_\_\_\_ ☐ Signature, ☐ Initials, ☐ None

Were custody seals intact upon arrival? ☐ Yes ☐ No ☐ N/A

Samples received in a cooler? ☒ Yes, how many? 1 ☐ No (skip Section 3 below)

If no cooler Sample Temp (°C): \_\_\_\_\_ using IR Gun # ☐ B, or ☐ C

☐ Samples received on ice directly from the field. Cooling process had begun

If in cooler: Date Opened 5-7-20 By (print) JHL (sign) [Signature]

## **Section 3:**

**Important: Notify PM if temperature exceeds 6°C or arrive frozen.**

Packing in cooler: (if other, describe) \_\_\_\_\_

☐ Bubble Wrap, ☐ Foam blocks, ☒ Bags, ☐ None, ☐ Cloth material, ☐ Cardboard, ☐ Styrofoam, ☐ Paper towels

☐ Samples received on ice directly from the field. Cooling process had begun

Type of ice used: ☒ Wet, ☐ Blue/Gel, ☐ None

Temperature blank(s) included? ☐ Yes, ☐ No

Temperature measured using ☐ Thermometer ID: \_\_\_\_\_, or IR Gun # ☐ B ☒ C

Cooler Temp (°C): #1: 1.1, #2: \_\_\_\_\_, #3: \_\_\_\_\_, #4: \_\_\_\_\_, #5: \_\_\_\_\_, #6: \_\_\_\_\_, #7: \_\_\_\_\_

## **Section 4:**

Were custody papers dry, filled out properly, and the project identifiable

YES NO N/A

Were Method 5035 sampling containers present?

If YES, what time were they transferred to freezer? \_\_\_\_\_

Did all bottles arrive unbroken/unopened?

Are there any missing / extra samples?

Are samples in the appropriate containers for indicated tests?

Are sample labels present, in good condition and complete?

Does the container count match the COC?

Do the sample labels agree with custody papers?

Was sufficient amount of sample sent for tests requested?

Did you change the hold time in LIMS for unpreserved VOAs?

Did you change the hold time in LIMS for preserved terracores?

Are bubbles > 6mm present in VOA samples?

Was the client contacted concerning this sample delivery?

If YES, who was called? \_\_\_\_\_ By \_\_\_\_\_ Date: \_\_\_\_\_

## **Section 5:**

Are the samples appropriately preserved? (if N/A, skip the rest of section 5)

Did you check preservatives for all bottles for each sample?

Did you document your preservative check?

pH strip lot# 808044791, pH strip lot# \_\_\_\_\_

Preservative added:

☐ H2SO4 lot# \_\_\_\_\_ added to samples \_\_\_\_\_ on/at \_\_\_\_\_

☐ HCL lot# \_\_\_\_\_ added to samples \_\_\_\_\_ on/at \_\_\_\_\_

☐ HNO3 lot# \_\_\_\_\_ added to samples \_\_\_\_\_ on/at \_\_\_\_\_

☐ NaOH lot# \_\_\_\_\_ added to samples \_\_\_\_\_ on/at \_\_\_\_\_

## **Section 6:**

Explanations/Comments: \_\_\_\_\_

Date Logged in 5/7/20

By (print) ZA (sign) [Signature]

Date Labeled 5/8/20

By (print) ZA (sign) [Signature]

## Ammonia Nitrogen

**Lab #:** 319654

**Project#:** STANDARD

**Client:** ASSET LABS

**Location:**
**Field ID:** N040512-002A / SC-700B-WDR-601

**Diln Fac:** 1.000

**Prepared:** 05/08/20 10:48

**Type:** SAMPLE

**Batch#:** 280325

**Analyzed:** 05/08/20 11:55

**Lab ID:** 319654-001

**Sampled:** 05/05/20 08:00

**Prep:** SM4500NH3-B

**Matrix:** Water

**Received:** 05/07/20

**Analysis:** SM4500NH3-D

Analyte	Result	RL	MDL	Units
Ammonia-N	0.12	0.10	0.020	mg/L

**Type:** BLANK

**Diln Fac:** 1.000

**Analyzed:** 05/08/20 11:55

**Lab ID:** QC1016589

**Batch#:** 280325

**Prep:** SM4500NH3-B

**Matrix:** Water

**Prepared:** 05/08/20 10:48

**Analysis:** SM4500NH3-D

Analyte	Result	RL	MDL	Units
Ammonia-N	ND	0.10	0.020	mg/L

Legend

**MDL:** Method Detection Limit

**ND:** Not Detected at or above MDL

**RL:** Reporting Limit

## Ammonia Nitrogen: Batch QC

**Lab #:** 319654

**Project#:** STANDARD

**Client:** ASSET LABS

**Location:**
**Type:** LCS

**Diln Fac:** 1.000

**Analyzed:** 05/08/20 11:55

**Lab ID:** QC1016590

**Batch#:** 280325

**Prep:** SM4500NH3-B

**Matrix:** Water

**Prepared:** 05/08/20 10:48

**Analysis:** SM4500NH3-D

Analyte	Spiked	Result	%REC	Limits	Units
Ammonia-N	5.000	5.300	106	78-120	mg/L

**Field ID:** N040512-002A / SC-700B-WDR-601

**Diln Fac:** 1.000

**Analyzed:** 05/08/20 11:55

**Type:** MS

**Batch#:** 280325

**Prep:** SM4500NH3-B

**MSS Lab ID:** 319654-001

**Sampled:** 05/05/20 08:00

**Analysis:** SM4500NH3-D

**Lab ID:** QC1016591

**Received:** 05/07/20

**Matrix:** Water

**Prepared:** 05/08/20 10:48

Analyte	MSS Result	Spiked	Result	%REC	Limits	Units
Ammonia-N	0.1200	5.000	4.600	90	63-120	mg/L

**Field ID:** N040512-002A / SC-700B-WDR-601

**Diln Fac:** 1.000

**Analyzed:** 05/08/20 11:55

**Type:** MSD

**Batch#:** 280325

**Prep:** SM4500NH3-B

**MSS Lab ID:** 319654-001

**Sampled:** 05/05/20 08:00

**Analysis:** SM4500NH3-D

**Lab ID:** QC1016592

**Received:** 05/07/20

**Matrix:** Water

**Prepared:** 05/08/20 10:48

Analyte	Spiked	Result	%REC	Limits	Units	RPD	Lim
Ammonia-N	5.000	4.800	94	63-120	mg/L	4	20

Legend

**RPD:** Relative Percent Difference

# Enthalpy Analytical - Berkeley Sample Batch Report

Batch Number: 280325  
 Date Started: 08-MAY-2020  
 Batched by : Elisa Gonzalez

Analysis : AMMONIA  
 Bgroup : N/A  
 Department : Wet Chemistry

Sample	Type	Client	Matrix	Analyses	Due Date
319053-005		Enthalpy Analytical	Water	AMMONIA	06-APR-2020
319654-001		ASSET LABS	Water	AMMONIA	19-MAY-2020
QC1016589	BLANK		Water	AMMONIA	
QC1016590	LCS		Water	AMMONIA	
QC1016591	MS	of 319654-001	Water	AMMONIA	
QC1016592	MSD	of 319654-001	Water	AMMONIA	



Analysis: **Ammonia**  
 Method: **SM4500NH3-D**  
 SOP#: ammonia\_h2o\_rv15.doc

Analyst: EGS  
 Batch#: **280325**  
 Prep Start Date (A): 5/8/20 10:48  
 Analysis Start Date (A): 5/8/20 11:55  
 (B):  
 (B):

ICV/CCV		Reading (mg/L)	Result (mg/L) as NH3-N	RL (mg/L)	Std. Conc. (mg/L)	Recovery, %	Status	Limits, %
ICV		5.00	5.00	0.10	5.00	100		90-110%
ICB		0.02	ND	0.10				
CCV	Ammonia (mg/L) = Reading * Vf/Vi	4.90	4.90	0.10	5.00	98		90-110%
CCB	Where: Vf = Final Distillate Volume (mL)	0.02	ND	0.10				
CCV	Vi = Initial Sample Volume (mL)							
CCB								
CCV								
CCB								
CCV								
CCB								

Sample & Batch QC	Matrix?	J-flag Rqd?	.PD	.AD	Sample Vol. (mL)	Distillate Vol. (mL)	Reading (mg/L)	Report (mg/L) as NH3-N	RL (mg/L)	Spike Std Conc. (mg/L)	Vol Spike added (mL)	Spiked at (mg/L)	%Rec.	RPD, %
BLANK	QC1016589	1	y	A	A	50	50	0.02	0.020	J	0.10			
LCS/BS	QC1016590	1	y	A	A	50	50	5.30	5.300		1000	0.25	5.0	106
BSD			N			50	50							
Sample1	319654-001	1	y	A	A	50	50	0.12	0.120					
MS	QC1016591	1	y	A	A	50	50	4.60	4.600		1000	0.25	5.0	90
MSD	QC1016592	1	y	A	A	50	50	4.80	4.800		1000	0.25	5.0	94
SDUP		1	y											
Sample2	319053-005	1	y	A	A	0.05	50	7.500	7500.000	100.00	If spiked sample was diluted, was the MS/MSD spiked after the dilution? (y or n) <u>N</u>			
Sample3														
Sample4														
Sample5														
Sample6														
Sample7														
Sample8														
Sample9														
Sample10														
Sample11														
Sample12														
Sample13														
Sample14														
Sample15														
Sample16														
Sample17														
Sample18														
Sample19														
Sample20														

QC Limits	Recovery	RPD
LCS/ BS/ BSD	78 - 120	20
SSPIKE/ SDUP	63 - 120	20

MDL (2009) = 0.02 mg/L

**Matrix Key:**

- 1 Water
- 15 Filtrate
- 11 TCLP Leachate
- 14 TCLP DI Leach.
- 12 WET Leachate
- 13 WET DI Leachate
- 16 SPLP Leachate
- 18 SPLP DI Leach.



## Enthalpy Analytical LLC - Berkeley (version 201911)

BK 4510

43

Balance ID: 

**Calibrated:**

Clean & level? ☐ Yes ☐ No ☒ N/A

Solid Reagent ID: \_\_\_\_\_

per SOP #

WC2.1.1 (h2o) rev# 15,01

WC2.1.2 (soil), rev# —

1. *Journal of the American Medical Association*, 2000; 284: 1039-1044.

01/08/20

Digestion Tube Lot #: 030V20

Pipette - Disposable Lot#: 9063023

Pipette – Mechanical ID:

ISA Reagent ID: 5/4/20 lot: X01 EGS

Spike S#: 41336 exp: 9/30/20

Final Spike Conc (mg/L): 5.0

Spike Vol (mL): 0.304

Continued on p. 1  
Continued from p. 1

ST1 05/11/20

Reviewed by / Date

May 29, 2020

Mark Fesler/RDD  
CH2M HILL  
155 Grand Avenue, Suite 1000  
Oakland, CA 94612

TEL: (530) 229-3273

FAX: (510) 622-9129

Workorder No.: N040645

RE: PG&E Topock, D3184A1.EV.05-OM-TS

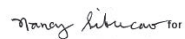
Attention: Mark Fesler/RDD

Enclosed are the results for sample(s) received on May 15, 2020 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,



Puri Romualdo  
Laboratory Director

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



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EPA ID CA01638

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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, D3184A1.EV.05-OM-TS  
**Lab Order:** N040645

**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 except for pH and Turbidity. pH testing is specified to be performed in the field within 15 minutes of sampling; sample was received and analyzed past the regulatory holding time. Please see attached correspondence.

**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 N040645-001E-MS and N040645-001E-MSD possibly due to matrix interference. Post Spike (PS) passed 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 some analytes in QC samples N040645-001E-MS and N040645-001E-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.



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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: 29-May-20

**CLIENT:** CH2M HILL  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS  
**Lab Order:** N040645  
**Contract No:** IM3PLANT-AR

**Work Order Sample Summary**

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N040645-001A	SC-700B-WDR-602	Water	5/15/2020 3:30:00 PM	5/15/2020	5/29/2020
N040645-001B	SC-700B-WDR-602	Water	5/15/2020 3:30:00 PM	5/15/2020	5/29/2020
N040645-001C	SC-700B-WDR-602	Water	5/15/2020 3:30:00 PM	5/15/2020	5/29/2020
N040645-001D	SC-700B-WDR-602	Water	5/15/2020 3:30:00 PM	5/15/2020	5/29/2020
N040645-001E	SC-700B-WDR-602	Water	5/15/2020 3:30:00 PM	5/15/2020	5/29/2020
N040645-001F	SC-700B-WDR-602	Water	5/15/2020 3:30:00 PM	5/15/2020	5/29/2020



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ORELAP/NELAP Cert 4046

**ASSET Laboratories**
**ANALYTICAL RESULTS**
**Print Date:** 29-May-20

<b>CLIENT:</b>	CH2M HILL	<b>Client Sample ID:</b>	SC-700B-WDR-602
<b>Lab Order:</b>	N040645	<b>Collection Date:</b>	5/15/2020 3:30:00 PM
<b>Project:</b>	PG&E Topock, D3184A1.EV.05-OM-TS	<b>Matrix:</b>	WATER
<b>Lab ID:</b>	N040645-001		

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

RunID: <b>NV00922-WC_200516B</b>	QC Batch: <b>R144378</b>	PrepDate:	Analyst: <b>LR</b>
Specific Conductance	7700	0.10	0.10
		umhos/cm	1
			5/16/2020 10:30 AM

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


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**CLIENT:** CH2M HILL  
**Work Order:** N040645  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

## ANALYTICAL QC SUMMARY REPORT

**TestCode:** 120.1\_WPGE

Sample ID	<b>N040662-001BDUP</b>	SampType:	<b>DUP</b>	TestCode:	<b>120.1_WPGE</b>	Units:	<b>umhos/cm</b>	Prep Date:		RunNo:	<b>144378</b>
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>R144378</b>	TestNo:	<b>EPA 120.1</b>			Analysis Date:	<b>5/16/2020</b>	SeqNo:	<b>3780508</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Specific Conductance		1015.000		0.10						1012	0.296 2

## Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
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DO	Surrogate Diluted Out	Calculations are based on raw values			



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**ASSET Laboratories**
**ANALYTICAL RESULTS**
**Print Date:** 29-May-20

**CLIENT:** CH2M HILL  
**Lab Order:** N040645  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS  
**Lab ID:** N040645-001

**Client Sample ID:** SC-700B-WDR-602  
**Collection Date:** 5/15/2020 3:30:00 PM  
**Matrix:** WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
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**PH**
**SM4500-H+B**

RunID: <b>NV00922-WC_200516A</b>	QC Batch: <b>R144377</b>	PrepDate:	Analyst: <b>LR</b>
pH	7.2 0.10 0.10	H pH Units	1 5/16/2020 10:00 AM
Temp. at time of pH Analysis	25 0.10 0.10	H °C	1 5/16/2020 10:00 AM

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



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CLIENT: CH2M HILL  
 Work Order: N040645  
 Project: PG&E Topock, D3184A1.EV.05-OM-TS

## ANALYTICAL QC SUMMARY REPORT

TestCode: 150.1\_4500H+B\_W

Sample ID	N040652-001BDUP	SampType:	DUP	TestCode:	150.1_4500H	Units:	pH Units	Prep Date:		RunNo:	144377
Client ID:	ZZZZZZ	Batch ID:	R144377	TestNo:	SM4500-H+B			Analysis Date:	5/16/2020	SeqNo:	3780089
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.640	0.10						7.610	0.393	10	H
Temp. at time of pH Analysis	25.000	0.10						25.00	0	10	H

Sample ID	N040645-001ADUP	SampType:	DUP	TestCode:	150.1_4500H	Units:	pH Units	Prep Date:		RunNo:	144377
Client ID:	ZZZZZZ	Batch ID:	R144377	TestNo:	SM4500-H+B			Analysis Date:	5/16/2020	SeqNo:	3780101
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.200	0.10						7.180	0.278	10	H
Temp. at time of pH Analysis	25.000	0.10						25.00	0	10	H

## Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
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**ASSET Laboratories**
**ANALYTICAL RESULTS**
**Print Date:** 29-May-20

<b>CLIENT:</b>	CH2M HILL	<b>Client Sample ID:</b>	SC-700B-WDR-602
<b>Lab Order:</b>	N040645	<b>Collection Date:</b>	5/15/2020 3:30:00 PM
<b>Project:</b>	PG&E Topock, D3184A1.EV.05-OM-TS	<b>Matrix:</b>	WATER
<b>Lab ID:</b>	N040645-001		

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

RunID: <b>NV00922-WC_200519G</b>	QC Batch: <b>79335</b>	PrepDate: <b>5/19/2020</b>	Analyst: <b>LR</b>
Total Dissolved Solids (Residue, Filterable)	4700	50	50
		mg/L	1
			5/19/2020 01:05 PM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
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CLIENT: CH2M HILL  
 Work Order: N040645  
 Project: PG&E Topock, D3184A1.EV.05-OM-TS

## ANALYTICAL QC SUMMARY REPORT

TestCode: 160.1\_2540C\_W

Sample ID	LCS-79335	SampType:	LCS	TestCode:	160.1_2540C	Units:	mg/L	Prep Date:	5/19/2020	RunNo:	144484			
Client ID:	LCSW	Batch ID:	79335	TestNo:	SM2540C			Analysis Date:	5/19/2020	SeqNo:	3784798			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera		965.000		10	1000	0		96.5	80	120				

Sample ID	MB-79335	SampType:	MBLK	TestCode:	160.1_2540C	Units:	mg/L	Prep Date:	5/19/2020	RunNo:	144484			
Client ID:	PBW	Batch ID:	79335	TestNo:	SM2540C			Analysis Date:	5/19/2020	SeqNo:	3784799			
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	N040676-001BDUP	SampType:	DUP	TestCode:	160.1_2540C	Units:	mg/L	Prep Date:	5/19/2020	RunNo:	144484			
Client ID:	ZZZZZZ	Batch ID:	79335	TestNo:	SM2540C			Analysis Date:	5/19/2020	SeqNo:	3784804			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera		206800.000		1000							197400	4.65	5	

## Qualifiers:

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**ASSET Laboratories**
**ANALYTICAL RESULTS**
**Print Date:** 29-May-20

<b>CLIENT:</b>	CH2M HILL	<b>Client Sample ID:</b>	SC-700B-WDR-602
<b>Lab Order:</b>	N040645	<b>Collection Date:</b>	5/15/2020 3:30:00 PM
<b>Project:</b>	PG&E Topock, D3184A1.EV.05-OM-TS	<b>Matrix:</b>	WATER
<b>Lab ID:</b>	N040645-001		

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

RunID: <b>NV00922-ICP2_200520D</b>	QC Batch: <b>79330</b>	PrepDate: <b>5/19/2020</b>	Analyst: <b>DJ</b>			
Aluminum	ND	40	50	µg/L	1	5/20/2020 11:35 PM
Boron	930	74	100	µg/L	1	5/21/2020 11:34 AM
Iron	100	18	20	µg/L	1	5/20/2020 11:35 PM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
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CLIENT: CH2M HILL  
 Work Order: N040645  
 Project: PG&E Topock, D3184A1.EV.05-OM-TS

## ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7\_WPGEPB

Sample ID	MB-79330	SampType:	MBLK	TestCode:	200.7_WPGE	Units:	µg/L	Prep Date:	5/19/2020	RunNo:	144482			
Client ID:	PBW	Batch ID:	79330	TestNo:	EPA 200.7			Analysis Date:	5/20/2020	SeqNo:	3784614			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Aluminum		ND		50										
Iron		ND		20										

Sample ID	LCS-79330	SampType:	LCS	TestCode:	200.7_WPGE	Units:	µg/L	Prep Date:	5/19/2020	RunNo:	144482			
Client ID:	LCSW	Batch ID:	79330	TestNo:	EPA 200.7			Analysis Date:	5/20/2020	SeqNo:	3784615			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Aluminum		10567.669		50	10000	0		106	85	115				
Iron		100.018		20	100.0	0		100	85	115				

Sample ID	N040645-001E-MS	SampType:	MS	TestCode:	200.7_WPGE	Units:	µg/L	Prep Date:	5/19/2020	RunNo:	144482		
Client ID:	ZZZZZZ	Batch ID:	79330	TestNo:	EPA 200.7			Analysis Date:	5/20/2020	SeqNo:	3784619		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Aluminum		5724.095		50	10000	0		57.2	75	125				S
Iron		180.204		20	100.0	101.5		78.7	75	125				

Sample ID	N040645-001E-MSD	SampType: MSD	TestCode: 200.7_WPGE	Units: µg/L	Prep Date: 5/19/2020	RunNo: 144482					
Client ID: ZZZZZZ	Batch ID: 79330	TestNo: EPA 200.7	Analysis Date: 5/20/2020	SeqNo: 3784620							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Aluminum		6220.092		50	10000	0		62.2	75	125	5724	8.31	20	S
Iron		189.635		20	100.0	101.5		88.1	75	125	180.2	5.10	20	

Sample ID	MB-79330	SampType:	MBLK	TestCode:	200.7_WPGE	Units:	µg/L	Prep Date:	5/19/2020	RunNo:	144509			
Client ID:	PBW	Batch ID:	79330	TestNo:	EPA 200.7			Analysis Date:	5/21/2020	SeqNo:	3785865			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

## Qualifiers:

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



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**CLIENT:** CH2M HILL  
**Work Order:** N040645  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.7\_WPGEPBB**

Sample ID	MB-79330	SampType:	MBLK	TestCode:	200.7_WPGE	Units:	µg/L	Prep Date:	5/19/2020	RunNo:	144509		
Client ID:	PBW	Batch ID:	79330	TestNo:	EPA 200.7			Analysis Date:	5/21/2020	SeqNo:	3785865		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Boron ND 100

Sample ID	LCS-79330	SampType:	LCS	TestCode:	200.7_WPGE	Units:	µg/L	Prep Date:	5/19/2020	RunNo:	144509		
Client ID:	LCSW	Batch ID:	79330	TestNo:	EPA 200.7			Analysis Date:	5/21/2020	SeqNo:	3785866		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Boron 4934.409 100 5000 0 98.7 85 115

Sample ID	N040645-001E-MS	SampType:	MS	TestCode:	200.7_WPGE	Units:	µg/L	Prep Date:	5/19/2020	RunNo:	144509		
Client ID:	ZZZZZZ	Batch ID:	79330	TestNo:	EPA 200.7			Analysis Date:	5/21/2020	SeqNo:	3785870		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Boron 3856.342 100 5000 929.0 58.5 75 125 S

Sample ID	N040645-001E-MSD	SampType: MSD	TestCode: 200.7_WPGE	Units: µg/L	Prep Date: 5/19/2020	RunNo: 144509					
Client ID: ZZZZZZ	Batch ID: 79330	TestNo: EPA 200.7		Analysis Date: 5/21/2020	SeqNo: 3785871						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Boron 4192.021 100 5000 929.0 65.3 75 125 3856 8.34 20 S

### Qualifiers:

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DO	Surrogate Diluted Out	Calculations are based on raw values			



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CLIENT: CH2M HILL  
 Work Order: N040645  
 Project: PG&E Topock, D3184A1.EV.05-OM-TS

## ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7\_WPGEPBB

Sample ID	N040645-001E-PS	SampType: PS	TestCode: 200.7_WPGE	Units: µg/L	Prep Date:				RunNo: 144482			
Client ID:	ZZZZZZ	Batch ID: 79330	TestNo: EPA 200.7		Analysis Date: 5/20/2020				SeqNo: 3784618			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Aluminum	10329.643	50	10000	0	103	80	120					
Iron	257.117	20	100.0	101.5	156	80	120				S	

Sample ID	N040645-001E-PS	SampType: PS	TestCode: 200.7_WPGE	Units: µg/L	Prep Date:				RunNo: 144509			
Client ID:	ZZZZZZ	Batch ID: 79330	TestNo: EPA 200.7		Analysis Date: 5/21/2020				SeqNo: 3785869			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Boron	6168.044	100	5000	929.0	105	80	120					

## Qualifiers:

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

Print Date: 29-May-20

<b>CLIENT:</b>	CH2M HILL	<b>Client Sample ID:</b>	SC-700B-WDR-602
<b>Lab Order:</b>	N040645	<b>Collection Date:</b>	5/15/2020 3:30:00 PM
<b>Project:</b>	PG&E Topock, D3184A1.EV.05-OM-TS	<b>Matrix:</b>	WATER
<b>Lab ID:</b>	N040645-001		

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

RunID: <b>NV00922-ICP8_200523A</b>	QC Batch: <b>79325</b>	PrepDate: <b>5/19/2020</b>	Analyst: <b>CEI</b>			
Antimony	ND	0.16	0.50	µg/L	1	5/23/2020 09:18 AM
Arsenic	ND	0.081	0.10	µg/L	1	5/23/2020 09:18 AM
Barium	18	0.15	1.0	µg/L	1	5/22/2020 11:26 AM
Copper	ND	0.55	1.0	µg/L	1	5/23/2020 09:18 AM
Lead	ND	0.13	1.0	µg/L	1	5/22/2020 11:26 AM
Manganese	52	0.26	0.50	µg/L	1	5/22/2020 11:26 AM
Molybdenum	22	0.21	0.50	µg/L	1	5/22/2020 11:26 AM
Nickel	ND	0.26	1.0	µg/L	1	5/23/2020 09:18 AM
Zinc	ND	2.3	10	µg/L	1	5/22/2020 11:26 AM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
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CLIENT: CH2M HILL  
 Work Order: N040645  
 Project: PG&E Topock, D3184A1.EV.05-OM-TS

## ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8\_W

Sample ID	MB-79325	SampType:	MBLK	TestCode:	200.8_W	Units:	µg/L	Prep Date:	5/19/2020	RunNo:	144577
Client ID:	PBW	Batch ID:	79325	TestNo:	EPA 200.8			Analysis Date:	5/22/2020	SeqNo:	3789957
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Barium	ND	1.0									
Lead	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Zinc	ND	10									

Sample ID	LCS-79325	SampType:	LCS	TestCode:	200.8_W	Units:	µg/L	Prep Date:	5/19/2020	RunNo:	144577
Client ID:	LCSW	Batch ID:	79325	TestNo:	EPA 200.8			Analysis Date:	5/22/2020	SeqNo:	3789958
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Barium	10.458	1.0	10.00	0	105	85	115				
Lead	10.321	1.0	10.00	0	103	85	115				
Manganese	103.845	0.50	100.0	0	104	85	115				
Molybdenum	9.999	0.50	10.00	0	100	85	115				
Zinc	10.529	10	10.00	0	105	85	115				

Sample ID	N040645-001E-MS	SampType:	MS	TestCode:	200.8_W	Units:	µg/L	Prep Date:	5/19/2020	RunNo:	144577
Client ID:	ZZZZZZ	Batch ID:	79325	TestNo:	EPA 200.8			Analysis Date:	5/22/2020	SeqNo:	3789962
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Barium	28.145	1.0	10.00	18.14	100	75	125				
Lead	10.564	1.0	10.00	0	106	75	125				
Manganese	144.409	0.50	100.0	51.83	92.6	75	125				
Molybdenum	32.700	0.50	10.00	21.52	112	75	125				
Zinc	3.386	10	10.00	0	33.9	75	125				S

## Qualifiers:

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



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**CLIENT:** CH2M HILL  
**Work Order:** N040645  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

## ANALYTICAL QC SUMMARY REPORT

**TestCode:** 200.8\_W

Sample ID	<b>N040645-001E-MSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>200.8_W</b>	Units:	<b>µg/L</b>	Prep Date:	<b>5/19/2020</b>	RunNo:	<b>144577</b>
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>79325</b>	TestNo:	<b>EPA 200.8</b>			Analysis Date:	<b>5/22/2020</b>	SeqNo:	<b>3789963</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	27.814	1.0	10.00	18.14	96.7	75	125	28.14	1.18	20	
Lead	10.528	1.0	10.00	0	105	75	125	10.56	0.336	20	
Manganese	144.213	0.50	100.0	51.83	92.4	75	125	144.4	0.136	20	
Molybdenum	32.697	0.50	10.00	21.52	112	75	125	32.70	0.0110	20	
Zinc	3.726	10	10.00	0	37.3	75	125	3.386	0	20	S

Sample ID	<b>MB-79325</b>	SampType:	<b>MBLK</b>	TestCode:	<b>200.8_W</b>	Units:	<b>µg/L</b>	Prep Date:	<b>5/19/2020</b>	RunNo:	<b>144578</b>
Client ID:	<b>PBW</b>	Batch ID:	<b>79325</b>	TestNo:	<b>EPA 200.8</b>			Analysis Date:	<b>5/23/2020</b>	SeqNo:	<b>3789993</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	0.157	0.50									
Arsenic	ND	0.10									
Copper	ND	1.0									
Nickel	ND	1.0									

Sample ID	<b>LCS-79325</b>	SampType:	<b>LCS</b>	TestCode:	<b>200.8_W</b>	Units:	<b>µg/L</b>	Prep Date:	<b>5/19/2020</b>	RunNo:	<b>144578</b>
Client ID:	<b>LCSW</b>	Batch ID:	<b>79325</b>	TestNo:	<b>EPA 200.8</b>			Analysis Date:	<b>5/23/2020</b>	SeqNo:	<b>3789994</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	9.397	0.50	10.00	0	94.0	85	115				
Arsenic	9.919	0.10	10.00	0	99.2	85	115				
Copper	10.070	1.0	10.00	0	101	85	115				
Nickel	9.851	1.0	10.00	0	98.5	85	115				

Sample ID	<b>N040645-001E-MS</b>	SampType:	<b>MS</b>	TestCode:	<b>200.8_W</b>	Units:	<b>µg/L</b>	Prep Date:	<b>5/19/2020</b>	RunNo:	<b>144578</b>
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>79325</b>	TestNo:	<b>EPA 200.8</b>			Analysis Date:	<b>5/23/2020</b>	SeqNo:	<b>3789998</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	12.113	0.50	10.00	0.3359	118	75	125				

### Qualifiers:

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

**CLIENT:** CH2M HILL  
**Work Order:** N040645  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

## ANALYTICAL QC SUMMARY REPORT

**TestCode:** 200.8\_W

Sample ID	<b>N040645-001E-MS</b>	SampType:	<b>MS</b>	TestCode:	<b>200.8_W</b>	Units:	<b>µg/L</b>	Prep Date:	<b>5/19/2020</b>	RunNo:	<b>144578</b>
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>79325</b>	TestNo:	<b>EPA 200.8</b>			Analysis Date:	<b>5/23/2020</b>	SeqNo:	<b>3789998</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	8.231	0.10	10.00	0	82.3	75	125				
Copper	8.936	1.0	10.00	0	89.4	75	125				
Nickel	ND	1.0	10.00	0	0	75	125				S

Sample ID	<b>N040645-001E-MSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>200.8_W</b>	Units:	<b>µg/L</b>	Prep Date:	<b>5/19/2020</b>	RunNo:	<b>144578</b>
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>79325</b>	TestNo:	<b>EPA 200.8</b>			Analysis Date:	<b>5/23/2020</b>	SeqNo:	<b>3789999</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	12.008	0.50	10.00	0.3359	117	75	125	12.11	0.866	20	
Arsenic	8.147	0.10	10.00	0	81.5	75	125	8.231	1.03	20	
Copper	8.918	1.0	10.00	0	89.2	75	125	8.936	0.199	20	
Nickel	ND	1.0	10.00	0	0	75	125	0	0	20	S

### Qualifiers:

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

CLIENT: CH2M HILL  
 Work Order: N040645  
 Project: PG&E Topock, D3184A1.EV.05-OM-TS

## ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8\_W

Sample ID	N040645-001E-PS	SampType:	PS	TestCode:	200.8_W	Units:	µg/L	Prep Date:		RunNo:	144577
Client ID:	ZZZZZZ	Batch ID:	79325	TestNo:	EPA 200.8			Analysis Date:	5/22/2020	SeqNo:	3789961
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	28.197	1.0	10.00	18.14	101	80	120				
Lead	10.515	1.0	10.00	0	105	80	120				
Manganese	143.827	0.50	100.0	51.83	92.0	80	120				
Molybdenum	32.864	0.50	10.00	21.52	113	80	120				
Zinc	ND	10	10.00	0	0	80	120				S

Sample ID	N040645-001E-PS	SampType:	PS	TestCode:	200.8_W	Units:	µg/L	Prep Date:		RunNo:	144578
Client ID:	ZZZZZZ	Batch ID:	79325	TestNo:	EPA 200.8			Analysis Date:	5/23/2020	SeqNo:	3789997
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	12.088	0.50	10.00	0.3359	118	80	120				
Arsenic	7.951	0.10	10.00	0	79.5	80	120				S
Copper	8.890	1.0	10.00	0	88.9	80	120				
Nickel	ND	1.0	10.00	0	0	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  
 H Holding times for preparation or analysis exceeded  
 S Spike/Surrogate outside of limits due to matrix interference

Calculations are based on raw values



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

Print Date: 29-May-20

**CLIENT:** CH2M HILL  
**Lab Order:** N040645  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS  
**Lab ID:** N040645-001

**Client Sample ID:** SC-700B-WDR-602  
**Collection Date:** 5/15/2020 3:30:00 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_200519A	QC Batch: R144428			PrepDate:		Analyst: RAB
Hexavalent Chromium	1.0	0.033	0.20	µg/L	1	5/19/2020 10:13 AM

**TOTAL METALS BY ICPMS**
**EPA 200.8**

RunID: NV00922-ICP8_200522B	QC Batch: 79325			PrepDate:	5/19/2020	Analyst: CEI
Chromium	1.4	0.13	1.0	µg/L	1	5/22/2020 11:26 AM

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



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**"Serving Clients with Passion and Professionalism"**

CLIENT: CH2M HILL  
 Work Order: N040645  
 Project: PG&E Topock, D3184A1.EV.05-OM-TS

## ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8\_W\_CRPGE

Sample ID	MB-79325	SampType:	MBLK	TestCode:	200.8_W_CR	Units:	µg/L	Prep Date:	5/19/2020	RunNo:	144577			
Client ID:	PBW	Batch ID:	79325	TestNo:	EPA 200.8			Analysis Date:	5/22/2020	SeqNo:	3789921			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium		ND		1.0										

Sample ID	LCS-79325	SampType:	LCS	TestCode:	200.8_W_CR	Units:	µg/L	Prep Date:	5/19/2020	RunNo:	144577			
Client ID:	LCSW	Batch ID:	79325	TestNo:	EPA 200.8			Analysis Date:	5/22/2020	SeqNo:	3789922			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium		10.352		1.0	10.00	0		104	85	115				

Sample ID	N040645-001E-MS	SampType:	MS	TestCode:	200.8_W_CR	Units:	µg/L	Prep Date:	5/19/2020	RunNo:	144577			
Client ID:	ZZZZZZ	Batch ID:	79325	TestNo:	EPA 200.8			Analysis Date:	5/22/2020	SeqNo:	3789926			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium		10.800		1.0	10.00	1.440		93.6	75	125				

Sample ID	N040645-001E-MSD	SampType:	MSD	TestCode:	200.8_W_CR	Units:	µg/L	Prep Date:	5/19/2020	RunNo:	144577			
Client ID:	ZZZZZZ	Batch ID:	79325	TestNo:	EPA 200.8			Analysis Date:	5/22/2020	SeqNo:	3789927			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium		10.730		1.0	10.00	1.440		92.9	75	125	10.80	0.650	20	

## Qualifiers:

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



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**CLIENT:** CH2M HILL  
**Work Order:** N040645  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

## ANALYTICAL QC SUMMARY REPORT

**TestCode:** 218.6\_WU\_PGE

Sample ID	MB-R144428	SampType:	MBLK	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	144428		
Client ID:	PBW	Batch ID:	R144428	TestNo:	EPA 218.6			Analysis Date:	5/19/2020	SeqNo:	3781502		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	ND	0.20									
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Sample ID	LCS-R144428	SampType: LCS	TestCode: 218.6_WU_P	Units: µg/L	Prep Date:	RunNo: 144428					
Client ID:	LCSW	Batch ID: R144428	TestNo: EPA 218.6		Analysis Date: 5/19/2020	SeqNo: 3781503					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	5.031	0.20	5.000	0	101	90	110				
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Sample ID	N040645-001CMS	SampType:	MS	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	144428		
Client ID:	ZZZZZZ	Batch ID:	R144428	TestNo:	EPA 218.6			Analysis Date:	5/19/2020	SeqNo:	3781505		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	2.007	0.20	1.000	0.9999	101	90	110				
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Sample ID	N040689-005AMS	SampType:	MS	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	144428		
Client ID:	ZZZZZZ	Batch ID:	R144428	TestNo:	EPA 218.6			Analysis Date:	5/19/2020	SeqNo:	3781519		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	4.801	1.0	5.000	0	96.0	90	110				
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Sample ID	N040689-005AMSD	SampType: MSD	TestCode: 218.6_WU_P	Units: µg/L	Prep Date:	RunNo: 144428					
Client ID:	ZZZZZZ	Batch ID: R144428	TestNo: EPA 218.6		Analysis Date: 5/19/2020	SeqNo: 3781520					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	5.023	1.0	5.000	0	100	90	110	4.800	4.53	20	
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### Qualifiers:

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

**CLIENT:** CH2M HILL  
**Work Order:** N040645  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

## ANALYTICAL QC SUMMARY REPORT

**TestCode:** 218.6\_WU\_PGE

Sample ID	N040689-003ADUP	SampType:	DUP	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	144428		
Client ID:	ZZZZZZ	Batch ID:	R144428	TestNo:	EPA 218.6			Analysis Date:	5/19/2020	SeqNo:	3781523		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium		54.836		2.0						54.07	1.40	20	

### Qualifiers:

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



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**ASSET Laboratories**
**ANALYTICAL RESULTS**
**Print Date:** 29-May-20

<b>CLIENT:</b>	CH2M HILL	<b>Client Sample ID:</b>	SC-700B-WDR-602
<b>Lab Order:</b>	N040645	<b>Collection Date:</b>	5/15/2020 3:30:00 PM
<b>Project:</b>	PG&E Topock, D3184A1.EV.05-OM-TS	<b>Matrix:</b>	WATER
<b>Lab ID:</b>	N040645-001		

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

RunID: <b>NV00922-WC_200518H</b>	QC Batch: <b>R144416</b>	PrepDate:	Analyst: <b>LR</b>
Turbidity	0.30 0.10 0.10	H NTU	1 5/18/2020 04:00 PM

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


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CLIENT: CH2M HILL  
 Work Order: N040645  
 Project: PG&E Topock, D3184A1.EV.05-OM-TS

## ANALYTICAL QC SUMMARY REPORT

TestCode: 2130\_W

Sample ID	MB-R144416	SampType:	MBLK	TestCode:	2130_W	Units:	NTU	Prep Date:		RunNo:	144416		
Client ID:	PBW	Batch ID:	R144416	TestNo:	SM 2130B			Analysis Date:	5/18/2020	SeqNo:	3781082		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Turbidity		ND		0.10									

Sample ID	N040645-001ADUP	SampType:	DUP	TestCode:	2130_W	Units:	NTU	Prep Date:		RunNo:	144416		
Client ID:	ZZZZZZ	Batch ID:	R144416	TestNo:	SM 2130B			Analysis Date:	5/18/2020	SeqNo:	3781084		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Turbidity		0.340		0.10						0.3000	12.5	30	H

## Qualifiers:

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



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

Print Date: 29-May-20

<b>CLIENT:</b>	CH2M HILL	<b>Client Sample ID:</b>	SC-700B-WDR-602
<b>Lab Order:</b>	N040645	<b>Collection Date:</b>	5/15/2020 3:30:00 PM
<b>Project:</b>	PG&E Topock, D3184A1.EV.05-OM-TS	<b>Matrix:</b>	WATER
<b>Lab ID:</b>	N040645-001		

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

RunID: NV00922-IC8_200519A	QC Batch: R144444	PrepDate:	Analyst: RAB
Fluoride	2.5 0.048	0.50	mg/L 5 5/19/2020 01:01 PM

**ANIONS BY ION CHROMATOGRAPHY**
**EPA 300.0**

RunID: NV00922-IC8_200520A	QC Batch: R144477	PrepDate:	Analyst: RAB
Sulfate	510 2.0	25	mg/L 50 5/20/2020 05:26 PM

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


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**"Serving Clients with Passion and Professionalism"**

CLIENT: CH2M HILL  
 Work Order: N040645  
 Project: PG&E Topock, D3184A1.EV.05-OM-TS

## ANALYTICAL QC SUMMARY REPORT

TestCode: 300\_W\_FPGE

Sample ID	MB-R144444_F	SampType: MBLK	TestCode: 300_W_FPGE	Units: mg/L	Prep Date:	RunNo: 144444					
Client ID:	PBW	Batch ID: R144444	TestNo: EPA 300.0	Analysis Date: 5/19/2020	SeqNo: 3782183						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	ND	0.10									

Sample ID	LCS-R144444_F	SampType: LCS	TestCode: 300_W_FPGE	Units: mg/L	Prep Date:	RunNo: 144444					
Client ID:	LCSW	Batch ID: R144444	TestNo: EPA 300.0	Analysis Date: 5/19/2020	SeqNo: 3782184						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	1.221	0.10	1.250	0	97.7	90	110				

Sample ID	N040690-005AMS	SampType: MS	TestCode: 300_W_FPGE	Units: mg/L	Prep Date:	RunNo: 144444					
Client ID:	ZZZZZZ	Batch ID: R144444	TestNo: EPA 300.0	Analysis Date: 5/19/2020	SeqNo: 3782189						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	15.588	1.0	12.50	3.423	97.3	80	120				

Sample ID	N040690-005AMSD	SampType: MSD	TestCode: 300_W_FPGE	Units: mg/L	Prep Date:	RunNo: 144444					
Client ID:	ZZZZZZ	Batch ID: R144444	TestNo: EPA 300.0	Analysis Date: 5/19/2020	SeqNo: 3782190						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	15.282	1.0	12.50	3.423	94.9	80	120	15.59	1.98	20	

Sample ID	N040690-006ADUP	SampType: DUP	TestCode: 300_W_FPGE	Units: mg/L	Prep Date:	RunNo: 144444					
Client ID:	ZZZZZZ	Batch ID: R144444	TestNo: EPA 300.0	Analysis Date: 5/19/2020	SeqNo: 3782194						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	2.925	1.0						2.826	3.44	20	

## Qualifiers:

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



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"Serving Clients with Passion and Professionalism"

**CLIENT:** CH2M HILL  
**Work Order:** N040645  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

## ANALYTICAL QC SUMMARY REPORT

**TestCode:** 300\_W\_SO4PGE

Sample ID	MB-R144477_SO4	SampType: MBLK	TestCode: 300_W_SO4P	Units: mg/L	Prep Date:	RunNo: 144477					
Client ID:	PBW	Batch ID: R144477	TestNo: EPA 300.0	Analysis Date: 5/20/2020	SeqNo: 3784032						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sulfate ND 0.50

Sample ID	LCS-R144477_SO4	SampType: LCS	TestCode: 300_W_SO4P	Units: mg/L	Prep Date:	RunNo: 144477					
Client ID:	LCSW	Batch ID: R144477	TestNo: EPA 300.0	Analysis Date: 5/20/2020	SeqNo: 3784033						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sulfate 4.018 0.50 4.000 0 100 90 110

Sample ID	N040690-005AMS	SampType: MS	TestCode: 300_W_SO4P	Units: mg/L	Prep Date:	RunNo: 144477					
Client ID:	ZZZZZZ	Batch ID: R144477	TestNo: EPA 300.0	Analysis Date: 5/20/2020	SeqNo: 3784035						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sulfate 2049.960 100 800.0 1240 101 80 120

Sample ID	N040690-005AMSD	SampType: MSD	TestCode: 300_W_SO4P	Units: mg/L	Prep Date:	RunNo: 144477					
Client ID:	ZZZZZZ	Batch ID: R144477	TestNo: EPA 300.0	Analysis Date: 5/20/2020	SeqNo: 3784036						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sulfate 2054.000 100 800.0 1240 102 80 120 2050 0.197 20

Sample ID	N040692-001EDUP	SampType: DUP	TestCode: 300_W_SO4P	Units: mg/L	Prep Date:	RunNo: 144477					
Client ID:	ZZZZZZ	Batch ID: R144477	TestNo: EPA 300.0	Analysis Date: 5/20/2020	SeqNo: 3784040						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sulfate 119.040 10 118.9 0.0773 20

### Qualifiers:

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

**ASSET Laboratories**
**ANALYTICAL RESULTS**
**Print Date:** 29-May-20

<b>CLIENT:</b>	CH2M HILL	<b>Client Sample ID:</b>	SC-700B-WDR-602
<b>Lab Order:</b>	N040645	<b>Collection Date:</b>	5/15/2020 3:30:00 PM
<b>Project:</b>	PG&E Topock, D3184A1.EV.05-OM-TS	<b>Matrix:</b>	WATER
<b>Lab ID:</b>	N040645-001		

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

<b>RunID:</b>	<b>NV00922-WC_200521B</b>	<b>QC Batch:</b>	<b>R144491</b>	<b>PrepDate:</b>		<b>Analyst:</b>	<b>HG</b>
	Nitrate/Nitrite as N	2.7	0.32	0.50	mg/L	10	5/21/2020 01:15 PM

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


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CLIENT: CH2M HILL  
 Work Order: N040645  
 Project: PG&E Topock, D3184A1.EV.05-OM-TS

## ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F\_W\_PGE

Sample ID	MB-R144491	SampType: MBLK	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 144491					
Client ID:	PBW	Batch ID: R144491	TestNo: SM4500-NO3	Analysis Date: 5/21/2020	SeqNo: 3785108						
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-R144491	SampType: LCS	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 144491					
Client ID:	LCSW	Batch ID: R144491	TestNo: SM4500-NO3	Analysis Date: 5/21/2020	SeqNo: 3785109						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.527	0.050	0.5000	0	105	85	115				

Sample ID	N040690-005BMS	SampType: MS	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 144491					
Client ID:	ZZZZZZ	Batch ID: R144491	TestNo: SM4500-NO3	Analysis Date: 5/21/2020	SeqNo: 3785111						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.508	0.050	0.5000	0	102	75	125				

Sample ID	N040690-005BMSD	SampType: MSD	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 144491					
Client ID:	ZZZZZZ	Batch ID: R144491	TestNo: SM4500-NO3	Analysis Date: 5/21/2020	SeqNo: 3785112						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.562	0.050	0.5000	0	112	75	125	0.5078	10.2	20	

Sample ID	N040690-001BDUP	SampType: DUP	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 144491					
Client ID:	ZZZZZZ	Batch ID: R144491	TestNo: SM4500-NO3	Analysis Date: 5/21/2020	SeqNo: 3785114						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050						0	0	20	

## Qualifiers:

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



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<b>Project Name</b> PG&E Topock <b>Location</b> PG&E Topock <b>Project Number</b> D3184A1.EV.05-OM-TS <b>Project Manager</b> Scott O'Donnell <b>Sample Manager</b> Shawn Duffy  <b>Task Order</b> <b>Project</b> IM3PLANT-ARAR-WDR-602 <b>Turnaround Time</b> 10 Days <b>Shipping Date:</b> 5/15/2020 <b>COC Number:</b> IM3-602				<b>Container:</b>				1 Liter Poly	1 Liter Poly	1 Liter Poly	250 ml Poly	1 Liter Poly	1 Liter Poly	500 ml Poly	1 Liter Poly			
				<b>Preservatives:</b>				4°C Lab H2SO4	4°C	4°C	4°C	4°C Lab H2SO4	4°C	4°C	4°C			4°C
				<b>Filtered:</b>				NA	NA	NA	NA	NA	NA	NA	NA			NA
				<b>Holding Time:</b>				28	7	7	1	28	7	180	7			
								AMMONIA (SM4500NH3D)	Anions (E300.0) F <sup>-</sup> , SO <sub>4</sub> <sup>2-</sup>	CONDUCTIVITY (E120.1)	E2 18.6 Lab Filtered	Nitrate/Nitrite (SM4500NO3-E)	TDS (SM2540C)	Total Metals(E200.7 and E200.8)	Turbidity (SM2130)			
				DATE	TIME	Matrix												
SC-700B-WDR-602						Water	X	X	X	X	X	X	X	N040645-01	4			
TOTAL NUMBER OF CONTAINERS															4			

<b>Signatures</b> <b>Approved by</b> _____ <b>Sampled by</b> _____ <b>Relinquished by</b> _____ <b>Received by</b> _____ <b>Relinquished by</b> _____ <b>Received by</b> _____		<b>Date/Time</b> _____ _____ _____ _____ _____	<b>Shipping Details</b> <b>Method of Shipment:</b> FedEx <b>On Ice:</b> yes / no <b>Airbill No:</b> <b>Lab Name:</b> ASSET Laboratories <b>Lab Phone:</b> (702) 307-2659	<b>ATTN:</b>  <b>Sample Custody</b> and <b>Marlon Cartin</b>	<b>Special Instructions:</b> <b>SC-700B Total metals List:</b> Cr,Al,Sb,As,Ba,B,Cu,Pb,Mn,Mo,Ni,Fe,Zn  <b>Report Copy to</b> <b>Mark Fesler</b>
--	--	---	---	--	---

Project Name PG&E Topock				Container:	250 ml Poly 4 °C	pH	Number of Containers	COMMENTS
Location PG&E Topock				Preservatives:				
Project Number D3184A1.EV.05-OM-TS				Filtered: NA				
Project Manager Scott O'Donnell				Holding Time: 5 minutes				
Sample Manager Shawn Duffy								
Task Order								
Project IM3PLANT-ARAR-WDR-602								
Turnaround Time 1 Days								
Shipping Date: 5/15/2020								
COC Number: 602-IM3								
DATE	TIME	Matrix						
SC-700B-WDR-602	5-15-20	15:30	Water	X	N040645-01		1	
TOTAL NUMBER OF CONTAINERS							1	

<b>Signatures</b> Approved by <u>[Signature]</u> Sampled by <u>[Signature]</u> Relinquished by <u>[Signature]</u> Received by <u>[Signature]</u> Relinquished by <u>[Signature]</u> Received by <u>[Signature]</u>		<b>Date/Time</b> <u>5-15-20 15:00</u> <u>5-15-20 15:30</u> <u>5-15-20 15:45</u> <u>5-15-20 15:45</u> <u>5-15-20 17:30</u> <u>5-15-20 17:30</u>		<b>Shipping Details</b> Method of Shipment: <b>FedEx</b> On Ice: yes / no Airbill No: Lab Name: <b>IM3-Plant</b> Lab Phone:		<b>ATTN:</b> Sample Custody		<b>Special Instructions:</b> 4.6° 12#2 Report Copy to Mark Fesler	
--	--	--	--	--	--	--------------------------------	--	--	--



## 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: 5/15/2020

Workorder: N040645

Rep sample Temp (Deg C): 4.6

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 type="checkbox"/>            | No <input checked="" 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?<br>Example: pH > 12 for (CN,S); pH<2 for Metals | Yes <input type="checkbox"/>            | No <input checked="" type="checkbox"/> | NA <input type="checkbox"/>                     |
| 15. Did the bottle labels indicate correct preservatives used?                          | Yes <input type="checkbox"/>            | No <input type="checkbox"/>            | NA <input checked="" type="checkbox"/>          |
| 16. Were there Non-Conformance issues at login?   | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            | NA <input type="checkbox"/>                     |
| Was Client notified?  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            | NA <input type="checkbox"/>                     |

Comments: See Correspondence.

Checklist Completed By: YR YRJ 5/18/2020

Reviewed By: ABC 5/20/2020

**Subject:** Re: [EXTERNAL] PG&E Topock, D3184A1.EV.05-OM-TS (ASSET Labs No. N040645)  
**From:** Yoandra Rodriguez <yoandra@assetlaboratories.com>  
**Date:** 5/18/2020, 11:11 AM  
**To:** "Fesler, Mark/RDD" <Mark.Fesler@jacobs.com>  
**CC:** "maryann.balilu@assetlaboratoriesph.com" <maryann.balilu@assetlaboratoriesph.com>, "O'Donnell, Scott/TCK" <Scott.ODonnell@jacobs.com>

Hello Mark,

Noted. Please be informed that the sample is also expired for Turbidity. We will proceed unless otherwise is instructed.

Thanks,

On 5/18/2020 10:54 AM, Fesler, Mark/RDD wrote:

Yoandra:

The COC you received (pH only) was in error (for internal site use only). The attached COC is what you should have received with the samples.

For the Hex Cr sample, please filter, preserved, and analyze ASAP.

Mark Fesler | Jacobs | Environmental Scientist/Talent Supervisor  
O: 1 530 229 3273 | M: 530 524 8041 | [mark.fesler@jacobs.com](mailto:mark.fesler@jacobs.com)  
2525 Airpark Dr | Redding CA 96001 | USA

-----Original Message-----

From: Yoandra Rodriguez [<mailto:yoandra@assetlaboratories.com>]  
Sent: Monday, May 18, 2020 10:41 AM  
To: Fesler, Mark/RDD <[Mark.Fesler@jacobs.com](mailto:Mark.Fesler@jacobs.com)>  
Cc: [maryann.balilu@assetlaboratoriesph.com](mailto:maryann.balilu@assetlaboratoriesph.com)  
Subject: [EXTERNAL] PG&E Topock, D3184A1.EV.05-OM-TS (ASSET Labs No. N040645)

Hello Mark,

Please be informed that the bottles for Hex Cr, Metals and NH3/NO3 were also received, but these tests are not requested on the attached COC. Please note that these bottles are not preserved, thus Hex Cr is past HT.

Please kindly advise how to proceed ASAP.

Thanks,

--

This email has been checked for viruses by Avast antivirus software.  
[https://urldefense.com/v3/https://www.avast.com/antivirus;!!B5cixuo07ltTeg!U5dIp2K0Gf6nqGXzMh\\_KI-MGyeg\\_1x1XJyf-hQ-jsG8K11wcBUNaFrF7KyfcZnskSA\\$](https://urldefense.com/v3/https://www.avast.com/antivirus;!!B5cixuo07ltTeg!U5dIp2K0Gf6nqGXzMh_KI-MGyeg_1x1XJyf-hQ-jsG8K11wcBUNaFrF7KyfcZnskSA$)

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# ASSET Laboratories

## WORK ORDER Summary

18-May-20

WorkOrder: N040645

Client ID: CH2HI01

Project: PG&E Topock, D3184A1.EV.05-OM-TS

QC Level: Level IV

Date Received: 5/15/2020

Comments: SC-700BTotal metals List:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N040645-001A	SC-700B-WDR-602	5/15/2020 3:30:00 PM	5/29/2020	Water	EPA 120.1	SPECIFIC CONDUCTANCE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
			5/29/2020		SM4500-H+B	pH	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
			5/29/2020		SM2540C	TOTAL FILTERABLE RESIDUE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
			5/29/2020			Total Dissolved Solids Prep	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
			5/29/2020		SM 2130B	TURBIDITY	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
			5/29/2020		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
			5/29/2020		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
N040645-001B			5/29/2020		SM4500-NH3D	AMMONIA-N BY ION SELECTIVE ELECTRODE	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	SUB
N040645-001C			5/29/2020		EPA 218.6	Hexavalent Chromium by IC	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
N040645-001D			5/29/2020		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
N040645-001E			5/29/2020			AQPREP TOTAL METALS: ICP, FLAA	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
			5/29/2020		EPA 200.7	TOTAL METALS BY ICP	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
			5/29/2020			AQPREP TOTAL METALS: ICP, FLAA	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
			5/29/2020		EPA 200.8	TOTAL METALS BY ICPMS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
			5/29/2020		EPA 200.8	TOTAL METALS BY ICPMS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
N040645-001F							<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
N040645-002A	FOLDER	5/29/2020	5/29/2020		Folder	Folder	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LAB
			5/29/2020		Folder	Level IV Report	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LAB
			5/29/2020		Folder	Folder	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LAB

**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

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

Field Sampler: SIGNED

**18-May-20**

Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests		
				SM4500-NH3D		
N040645-001B / SC-700B-WDR-602	Water	5/15/2020 3:30:00 PM	32OZP	1		

General Comments: Please email sample receipt acknowledgement to the PM. Please cc sonny.lorenzo@assetlaboratories.com

Please use PO#: N40645A Please email Invoices and Account Receivable Statements to elvira@assetlaboratories.com. For questions, call Marlon at (702)-307-2659. Please e-mail results to reports.lv@assetlaboratories.com by: Standard TAT.

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

GSO #: 549047144

	Date/Time		Date/Time
Relinquished by: <u>YRJ</u>	5/18/2020 1630	Received by: _____	_____
Relinquished by: _____	_____	Received by: _____	_____

## List of Analysts

**ASSET Laboratories Work Order: N040645**

NAME	TEST METHOD
Claire Ignacio	EPA 200.8
Lilia Ramit	EPA 120.1, SM 4500-H+B, SM 2540C, SM 2130B
Ria Abes	EPA 218.6, EPA 300.0
Hanah Glodoviza	SM 4500-NO3F
Diane Jetajobe	EPA 200.7



**Laboratories, Inc.**

Environmental Testing Laboratory Since 1949



Date of Report: 05/22/2020

Marlon B. Cartin

ASSET Laboratories- Las Vegas

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

Client Project: N040645  
BCL Project: Level IV + labSpec7  
BCL Work Order: 2014511  
Invoice ID: B380773

Enclosed are the results of analyses for samples received by the laboratory on 5/19/2020. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Contact Person: Vanessa Sandoval  
Client Service Rep

Stuart Buttram  
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 2014511 Page 1 of 2



**CHAIN-OF-CUSTODY RECORD**

Page 1 of 1

QC Level: Level IV

Field Sampler: SIGNED

Subcontractor:

BC Labs  
4100 Atlas Court  
Bakersfield, CA 93308

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

18-May-20

Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests
N040645-001B / SC-700B-WDR-602	Water	5/15/2020 3:30:00 PM	320ZP	SM4500-NH3D 1

CHK BY [Signature] DISTRIBUTION [Signature] SUB OUT ☐

General Comments: Please email sample receipt acknowledgement to the PM. Please cc sonny.lorenzo@assetlaboratories.com  
Please use PO#N40645A. 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: Standard TAT.  
Please analyze for Ammonia by SM4500NH3D. EDD requirement Labspec7 edata.

GSO #: 549047144

Relinquished by: <u>[Signature]</u>	Date/Time: <u>5/18/2020 1630</u>
Relinquished by: <u>[Signature]</u>	Date/Time: <u>5-19-20 950</u>

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Chain of Custody and Cooler Receipt Form for 2014511 Page 2 of 2

BC LABORATORIES INC.		COOLER RECEIPT FORM		Page 1 of 1							
Submission #: 20-14511											
<b>SHIPPING INFORMATION</b>		<b>SHIPPING CONTAINER</b>		<b>FREE LIQUID</b>							
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>GLS</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		Containers <input type="checkbox"/>		None <input checked="" type="checkbox"/> Comments: _____							
Ice Chest <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		Emissivity: <u>97</u>		Thermometer ID: <u>274</u>							
<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		Container: <u>FE</u>		Date/Time <u>5-19-20 950</u>							
		Temperature: (A) <u>0.8</u> °C / (C) <u>0.5</u> °C		Analyst Init <u>TKJ</u>							
<b>SAMPLE CONTAINERS</b>		<b>SAMPLE NUMBERS</b>									
		1 2 3 4 5 6 7 8 9 10									
QT PE UNPRES											
4oz / 8oz / 16oz PE UNPRES											
2oz Cr <sup>6+</sup>											
QT INORGANIC CHEMICAL METALS											
INORGANIC CHEMICAL METALS 4oz / 8oz / 16oz											
PT CYANIDE											
PT NITROGEN FORMS <u>RTPE</u>		<u>A</u>									
PT TOTAL SULFIDE											
2oz NITRATE / NITRITE											
PT TOTAL ORGANIC CARBON											
PT CHEMICAL OXYGEN DEMAND											
PIA PHENOLICS											
40ml VOA VIAL TRAVEL BLANK											
40ml VOA VIAL											
QT EPA 1664											
PT ODOR											
RADIOLOGICAL											
BACTERIOLOGICAL											
40 ml VOA VIAL- 504											
QT EPA 503/603/8030											
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>EUK</u> Date/Time: <u>5/19/20 1138</u>											
A = Actual / C = Corrected											
Rev 21 05/23/2016 J5W/PDeel/Ward/Perfected/LAE/DOCS/FORMS/ISAM/REC/rev 201											

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

**Reported:** 05/22/2020 16:28  
**Project:** Level IV + labSpec7  
**Project Number:** N040645  
**Project Manager:** Marlon B. Cartin

## Laboratory / Client Sample Cross Reference

Laboratory	Client Sample Information			
2014511-01	<b>COC Number:</b>	---	<b>Receive Date:</b>	05/19/2020 09:50
	<b>Project Number:</b>	---	<b>Sampling Date:</b>	05/15/2020 15:30
	<b>Sampling Location:</b>	---	<b>Sample Depth:</b>	---
	<b>Sampling Point:</b>	N040645-001B / SC-700B-WDR-602	<b>Lab Matrix:</b>	Water
	<b>Sampled By:</b>	---	<b>Sample Type:</b>	Water



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

**Reported:** 05/22/2020 16:28  
**Project:** Level IV + labSpec7  
**Project Number:** N040645  
**Project Manager:** Marlon B. Cartin

## Water Analysis (General Chemistry)

<b>BCL Sample ID:</b>	2014511-01	<b>Client Sample Name:</b>	N040645-001B / SC-700B-WDR-602, 5/15/2020 3:30:00PM				
<b>Constituent</b>	<b>Result</b>	<b>Units</b>	<b>RL</b>	<b>Method</b>	<b>MB Bias</b>	<b>Lab Quals</b>	<b>Run #</b>
Ammonia as N (Distilled)	0.21	mg/L	0.20	SM-4500-NH3G	ND		1

Run #	Method	Prep Date	Run		Analyst	Instrument	Dilution	QC	
			Date/Time					Batch ID	Prep Method
1	SM-4500-NH3G	05/20/20 12:15	05/21/20 15:02		JMH2	SC-1	1.042	B078339	SM 4500-NH3G

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ASSET Laboratories- Las Vegas  
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Las Vegas, NV 89118

**Reported:** 05/22/2020 16:28  
**Project:** Level IV + labSpec7  
**Project Number:** N040645  
**Project Manager:** Marlon B. Cartin

## Water Analysis (General Chemistry)

### Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	RL	Lab Quals
<b>QC Batch ID: B078339</b>					
Ammonia as N (Distilled)	B078339-BLK1	ND	mg/L	0.20	

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Las Vegas, NV 89118

**Reported:** 05/22/2020 16:28  
**Project:** Level IV + labSpec7  
**Project Number:** N040645  
**Project Manager:** Marlon B. Cartin

## Water Analysis (General Chemistry)

### Quality Control Report - Laboratory Control Sample

								Control Limits		Lab
Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Percent Recovery	RPD	Quals
QC Batch ID: B078339										
Ammonia as N (Distilled)	B078339-BS1	LCS	1.9230	2.0000	mg/L	96.2		85 - 115		

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Las Vegas, NV 89118

**Reported:** 05/22/2020 16:28  
**Project:** Level IV + labSpec7  
**Project Number:** N040645  
**Project Manager:** Marlon B. Cartin

## Water Analysis (General Chemistry)

### Quality Control Report - Precision & Accuracy

									Control Limits		
Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	RPD	Percent Recovery	Lab Quals
QC Batch ID: B078339		Used client sample: N									
Ammonia as N (Distilled)	DUP	2014102-01	0.93923	0.23353		mg/L	120		20		Q01
	MS	2014102-01	0.93923	2.6132	2.3166	mg/L		72.3		80 - 120	Q03
	MSD	2014102-01	0.93923	2.5659	2.3166	mg/L	1.8	70.2	20	80 - 120	Q03

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ASSET Laboratories- Las Vegas  
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Las Vegas, NV 89118

**Reported:** 05/22/2020 16:28  
**Project:** Level IV + labSpec7  
**Project Number:** N040645  
**Project Manager:** Marlon B. Cartin

### Notes And Definitions

MDL Method Detection Limit  
ND Analyte Not Detected  
Q01 Sample precision is not within the control limits.  
Q03 Matrix spike recovery(s) was(were) not within the control limits.

June 23, 2020

Mark Fesler/RDD  
CH2M HILL  
155 Grand Avenue, Suite 1000  
Oakland, CA 94612

TEL: (530) 229-3273

FAX: (510) 622-9129

Workorder No.: N040905

RE: PG&E Topock, D3184A1.EV.05-OM-TS

Attention: Mark Fesler/RDD

Enclosed are the results for sample(s) received on June 08, 2020 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,

*Manay Libucaw*

Puri Romualdo  
Laboratory Director

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



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3151 W. Post Rd., Las Vegas, NV 89118  
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ORELAP/NELAP Cert 4046

**ASSET Laboratories**

Date: 23-Jun-20

**CLIENT:** CH2M HILL  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS  
**Lab Order:** N040905

**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 Iron in QC samples N040965-002B-MS and N040965-002B-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.

RPD for Matrix Spike (MS) and Matrix Spike Duplicate (MSD) is outside criteria for Iron ; however, the associated Laboratory Control Sample (LCS) recovery was acceptable.

The report was amended as the LLICV (Low Level ICV) of Iron from the initial run was inadvertently not noticed to be biased high at 120.7%. Thus, affected samples for Iron were reported from the reanalysis. Please see Corrective Action Report 4261.

**Analytical Comments for EPA 200.8:**

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Nickel in QC samples N040905-001D-MS and N040905-001D-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.



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**ASSET Laboratories**

Date: 22-Jun-20

**CLIENT:** CH2M HILL  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS  
**Lab Order:** N040905  
**Contract No:** IM3PLANT-AR

**Work Order Sample Summary**

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N040905-001A	SC-100B-WDR-603	Water	6/8/2020 8:30:00 AM	6/8/2020	6/22/2020
N040905-001B	SC-100B-WDR-603	Water	6/8/2020 8:30:00 AM	6/8/2020	6/22/2020
N040905-001C	SC-100B-WDR-603	Water	6/8/2020 8:30:00 AM	6/8/2020	6/22/2020
N040905-001D	SC-100B-WDR-603	Water	6/8/2020 8:30:00 AM	6/8/2020	6/22/2020
N040905-002A	SC-700B-WDR-603	Water	6/8/2020 8:32:00 AM	6/8/2020	6/22/2020
N040905-002B	SC-700B-WDR-603	Water	6/8/2020 8:32:00 AM	6/8/2020	6/22/2020
N040905-002C	SC-700B-WDR-603	Water	6/8/2020 8:32:00 AM	6/8/2020	6/22/2020
N040905-002D	SC-700B-WDR-603	Water	6/8/2020 8:32:00 AM	6/8/2020	6/22/2020
N040905-002E	SC-700B-WDR-603	Water	6/8/2020 8:32:00 AM	6/8/2020	6/22/2020
N040905-002F	SC-700B-WDR-603	Water	6/8/2020 8:32:00 AM	6/8/2020	6/22/2020



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**ASSET Laboratories**
**ANALYTICAL RESULTS**
**Print Date:** 22-Jun-20

**CLIENT:** CH2M HILL  
**Lab Order:** N040905  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS  
**Lab ID:** N040905-001

**Client Sample ID:** SC-100B-WDR-603  
**Collection Date:** 6/8/2020 8:30:00 AM  
**Matrix:** WATER

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

**SPECIFIC CONDUCTANCE**
**EPA 120.1**

RunID: <b>NV00922-WC_200609B</b>	QC Batch: <b>R144943</b>			PrepDate:		Analyst: <b>LR</b>
Specific Conductance	6900	0.10	0.10	umhos/cm	1	6/9/2020 10:40 AM

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



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 ORELAP/NELAP Cert 4046

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**ASSET Laboratories**
**ANALYTICAL RESULTS**
**Print Date:** 22-Jun-20

**CLIENT:** CH2M HILL  
**Lab Order:** N040905  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS  
**Lab ID:** N040905-002

**Client Sample ID:** SC-700B-WDR-603  
**Collection Date:** 6/8/2020 8:32:00 AM  
**Matrix:** WATER

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

**SPECIFIC CONDUCTANCE**
**EPA 120.1**

RunID: <b>NV00922-WC_200609B</b>	QC Batch: <b>R144943</b>			PrepDate:		Analyst: <b>LR</b>
Specific Conductance	6700	0.10	0.10	umhos/cm	1	6/9/2020 10:40 AM

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



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**CLIENT:** CH2M HILL  
**Work Order:** N040905  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

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

Sample ID	<b>N040905-001ADUP</b>	SampType:	<b>DUP</b>	TestCode:	<b>120.1_WPGE</b>	Units:	<b>umhos/cm</b>	Prep Date:		RunNo:	<b>144943</b>
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>R144943</b>	TestNo:	<b>EPA 120.1</b>			Analysis Date:	<b>6/9/2020</b>	SeqNo:	<b>3810631</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Specific Conductance		6930.000		0.10						6920	0.144 2

**Qualifiers:**

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

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ORELAP/NELAP Cert 4046

**ASSET Laboratories**
**ANALYTICAL RESULTS**
**Print Date:** 22-Jun-20

**CLIENT:** CH2M HILL  
**Lab Order:** N040905  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS  
**Lab ID:** N040905-001

**Client Sample ID:** SC-100B-WDR-603  
**Collection Date:** 6/8/2020 8:30:00 AM  
**Matrix:** WATER

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

RunID: <b>NV00922-WC_200610C</b>	QC Batch: <b>79662</b>			PrepDate: <b>6/10/2020</b>		Analyst: <b>LR</b>
Total Dissolved Solids (Residue, Filterable)	4600	50	50	mg/L	1	6/10/2020 01:17 PM

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



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**ASSET Laboratories**
**ANALYTICAL RESULTS**
**Print Date:** 22-Jun-20

**CLIENT:** CH2M HILL  
**Lab Order:** N040905  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS  
**Lab ID:** N040905-002

**Client Sample ID:** SC-700B-WDR-603  
**Collection Date:** 6/8/2020 8:32:00 AM  
**Matrix:** WATER

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

RunID: <b>NV00922-WC_200610C</b>	QC Batch: <b>79662</b>			PrepDate: <b>6/10/2020</b>		Analyst: <b>LR</b>
Total Dissolved Solids (Residue, Filterable)	4500	50	50	mg/L	1	6/10/2020 01:17 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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**“Serving Clients with Passion and Professionalism”**

CLIENT: CH2M HILL  
 Work Order: N040905  
 Project: PG&E Topock, D3184A1.EV.05-OM-TS

## ANALYTICAL QC SUMMARY REPORT

TestCode: 160.1\_2540C\_W

Sample ID	LCS-79662	SampType: LCS	TestCode: 160.1_2540C	Units: mg/L	Prep Date: 6/10/2020	RunNo: 144998					
Client ID:	LCSW	Batch ID: 79662	TestNo: SM2540C	Analysis Date: 6/10/2020	SeqNo: 3814196						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	949.000	10	1000	0	94.9	80	120				

Sample ID	MB-79662	SampType: MBLK	TestCode: 160.1_2540C	Units: mg/L	Prep Date: 6/10/2020	RunNo: 144998					
Client ID:	PBW	Batch ID: 79662	TestNo: SM2540C	Analysis Date: 6/10/2020	SeqNo: 3814197						
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	N040905-001ADUP	SampType: DUP	TestCode: 160.1_2540C	Units: mg/L	Prep Date: 6/10/2020	RunNo: 144998					
Client ID:	ZZZZZZ	Batch ID: 79662	TestNo: SM2540C	Analysis Date: 6/10/2020	SeqNo: 3814199						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	4445.000	50						4585	3.10	5	

## Qualifiers:

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



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## ASSET Laboratories

## ANALYTICAL RESULTS

Print Date: 23-Jun-20

CLIENT: CH2M HILL  
 Lab Order: N040905  
 Project: PG&E Topock, D3184A1.EV.05-OM-TS  
 Lab ID: N040905-001

Client Sample ID: SC-100B-WDR-603  
 Collection Date: 6/8/2020 8:30:00 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_200623C	QC Batch: 79679	PrepDate: 6/12/2020	Analyst: DJ
Iron	79 18 20	µg/L	1 6/23/2020 11:26 AM

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



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## ASSET Laboratories

## ANALYTICAL RESULTS

Print Date: 23-Jun-20

CLIENT: CH2M HILL  
 Lab Order: N040905  
 Project: PG&E Topock, D3184A1.EV.05-OM-TS  
 Lab ID: N040905-002

Client Sample ID: SC-700B-WDR-603  
 Collection Date: 6/8/2020 8:32:00 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_200612C	QC Batch: 79679			PrepDate: 6/12/2020	Analyst: DJ
Aluminum	ND	40	50	µg/L	1 6/12/2020 04:05 PM
Boron	940	74	100	µg/L	1 6/12/2020 04:05 PM
Iron	140	18	20	µg/L	1 6/23/2020 11:30 AM

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



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## ASSET Laboratories

Date: 23-Jun-20

CLIENT: CH2M HILL  
 Work Order: N040905  
 Project: PG&E Topock, D3184A1.EV.05-OM-TS

## ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7\_WPGEPB

Sample ID	MB-79679	SampType:	MBLK	TestCode:	200.7_WPGE	Units:	µg/L	Prep Date:	6/12/2020	RunNo:	145028		
Client ID:	PBW	Batch ID:	79679	TestNo:	EPA 200.7			Analysis Date:	6/12/2020	SeqNo:	3815545		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Aluminum		ND		50										
Boron		ND		100										

Sample ID	LCS-79679	SampType:	LCS	TestCode:	200.7_WPGE	Units:	µg/L	Prep Date:	6/12/2020	RunNo:	145028			
Client ID:	LCSW	Batch ID:	79679	TestNo:	EPA 200.7			Analysis Date:	6/12/2020	SeqNo:	3815546			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Aluminum		10355.189		50	10000	0		104	85	115				
Boron		5037.611		100	5000	0		101	85	115				

Sample ID	N040965-002B-DUP	SampType:	DUP	TestCode:	200.7_WPGE	Units:	µg/L	Prep Date:	6/12/2020	RunNo:	145028		
Client ID:	ZZZZZZ	Batch ID:	79679	TestNo:	EPA 200.7			Analysis Date:	6/12/2020	SeqNo:	3815551		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Aluminum		256.050		50							261.3	2.04	20	
Boron		432.869		100							444.1	2.56	20	

Sample ID	N040965-002B-MS	SampType:	MS	TestCode:	200.7_WPGE	Units:	µg/L	Prep Date:	6/12/2020	RunNo:	145028		
Client ID:	ZZZZZZ	Batch ID:	79679	TestNo:	EPA 200.7			Analysis Date:	6/12/2020	SeqNo:	3815553		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Aluminum		10320.805		50	10000	261.3		101	75	125				
Boron		5289.644		100	5000	444.1		96.9	75	125				

Sample ID	N040965-002B-MSD	SampType:	MSD	TestCode:	200.7_WPGE	Units:	µg/L	Prep Date:	6/12/2020	RunNo:	145028		
Client ID:	ZZZZZZ	Batch ID:	79679	TestNo:	EPA 200.7			Analysis Date:	6/12/2020	SeqNo:	3815554		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

## Qualifiers:

B Analyte detected in the associated Method Blank  
 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

Calculations are based on raw values

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**CLIENT:** CH2M HILL  
**Work Order:** N040905  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

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

Sample ID	N040965-002B-MSD	SampType: MSD	TestCode: 200.7_WPGE	Units: µg/L	Prep Date: 6/12/2020	RunNo: 145028					
Client ID:	ZZZZZZ	Batch ID: 79679	TestNo: EPA 200.7	Analysis Date: 6/12/2020	SeqNo: 3815554						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Aluminum	10163.824	50	10000	261.3	99.0	75	125	10320	1.53	20	
Boron	5287.520	100	5000	444.1	96.9	75	125	5290	0.0402	20	

Sample ID	MB-79679	SampType: MBLK	TestCode: 200.7_WPGE	Units: µg/L	Prep Date: 6/12/2020	RunNo: 145258					
Client ID:	PBW	Batch ID: 79679	TestNo: EPA 200.7	Analysis Date: 6/23/2020	SeqNo: 3826836						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Iron	ND	20									
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Sample ID	LCS-79679	SampType: LCS	TestCode: 200.7_WPGE	Units: µg/L	Prep Date: 6/12/2020	RunNo: 145258					
Client ID:	LCSW	Batch ID: 79679	TestNo: EPA 200.7	Analysis Date: 6/23/2020	SeqNo: 3826837						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Iron	101.018	20	100.0	0	101	85	115				
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Sample ID	N040965-002B-DUP	SampType: DUP	TestCode: 200.7_WPGE	Units: µg/L	Prep Date: 6/12/2020	RunNo: 145258					
Client ID: ZZZZZZ	Batch ID: 79679	TestNo: EPA 200.7	Analysis Date: 6/23/2020	SeqNo: 3826842							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Iron	420.065	20						484.0	14.1	20	
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Sample ID	N040965-002B-MS	SampType: MS	TestCode: 200.7_WPGE	Units: µg/L	Prep Date: 6/12/2020	RunNo: 145258					
Client ID: ZZZZZZ	Batch ID: 79679	TestNo: EPA 200.7	Analysis Date: 6/23/2020	SeqNo: 3826844							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Iron	691.351	20	100.0	484.0	207	75	125				S
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**Qualifiers:**

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

**ASSET LABORATORIES**

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**"Serving Clients with Passion and Professionalism"**

**CLIENT:** CH2M HILL  
**Work Order:** N040905  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

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

Sample ID	N040965-002B-MSD	SampType: MSD	TestCode: 200.7_WPGE	Units: µg/L	Prep Date: 6/12/2020	RunNo: 145258					
Client ID: ZZZZZZ	Batch ID: 79679	TestNo: EPA 200.7	Analysis Date: 6/23/2020	SeqNo: 3826845							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	542.838	20	100.0	484.0	58.8	75	125	691.4	24.1	20	SR

**Qualifiers:**

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


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**“Serving Clients with Passion and Professionalism”**

ASSET Laboratories

Date: 23-Jun-20

CLIENT: CH2M HILL  
 Work Order: N040905  
 Project: PG&E Topock, D3184A1.EV.05-OM-TS

## ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7\_WPGEPB

Sample ID	N040965-002B-PS	SampType: PS	TestCode: 200.7_WPGE	Units: µg/L	Prep Date:				RunNo: 145028		
Client ID:	ZZZZZZ	Batch ID: 79679	TestNo: EPA 200.7		Analysis Date: 6/12/2020				SeqNo: 3815552		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	10155.260	50	10000	261.3	98.9	80	120				
Boron	5302.952	100	5000	444.1	97.2	80	120				

Sample ID	N040965-002B-PS	SampType: PS	TestCode: 200.7_WPGE	Units: µg/L	Prep Date:				RunNo: 145258		
Client ID:	ZZZZZZ	Batch ID: 79679	TestNo: EPA 200.7		Analysis Date: 6/23/2020				SeqNo: 3826843		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	518.825	20	100.0	484.0	34.8	80	120				S

## Qualifiers:

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



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**ASSET Laboratories**
**ANALYTICAL RESULTS**
**Print Date:** 22-Jun-20

**CLIENT:** CH2M HILL  
**Lab Order:** N040905  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS  
**Lab ID:** N040905-001

**Client Sample ID:** SC-100B-WDR-603  
**Collection Date:** 6/8/2020 8:30:00 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-ICP8_200613C	QC Batch: 79678	PrepDate: 6/12/2020	Analyst: CEI
Manganese	8.4 0.26 0.50	µg/L	1 6/13/2020 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



**ASSET LABORATORIES**  
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**“Serving Clients with Passion and Professionalism”**

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

Print Date: 22-Jun-20

**CLIENT:** CH2M HILL  
**Lab Order:** N040905  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS  
**Lab ID:** N040905-002

**Client Sample ID:** SC-700B-WDR-603  
**Collection Date:** 6/8/2020 8:32:00 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-ICP8_200613F	QC Batch: 79678	PrepDate: 6/12/2020	Analyst: CEI			
Antimony	ND	0.16	0.50	µg/L	1	6/13/2020 09:04 PM
Arsenic	ND	0.081	0.10	µg/L	1	6/13/2020 11:05 AM
Barium	19	0.15	1.0	µg/L	1	6/13/2020 11:05 AM
Copper	ND	0.55	1.0	µg/L	1	6/13/2020 11:05 AM
Lead	ND	0.13	1.0	µg/L	1	6/13/2020 11:05 AM
Manganese	24	0.26	0.50	µg/L	1	6/13/2020 11:05 AM
Molybdenum	18	0.21	0.50	µg/L	1	6/13/2020 11:05 AM
Nickel	ND	0.26	1.0	µg/L	1	6/13/2020 11:05 AM
Zinc	ND	2.3	10	µg/L	1	6/14/2020 11:39 AM

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



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 EPA ID CA01638

**NEVADA** | P:702.307.2659 F:702.307.2691  
 3151 W. Post Rd., Las Vegas, NV 89118  
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**"Serving Clients with Passion and Professionalism"**

CLIENT: CH2M HILL  
 Work Order: N040905  
 Project: PG&E Topock, D3184A1.EV.05-OM-TS

## ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8\_W

Sample ID	MB-79678	SampType:	MBLK	TestCode:	200.8_W	Units:	µg/L	Prep Date:	6/12/2020	RunNo:	145041
Client ID:	PBW	Batch ID:	79678	TestNo:	EPA 200.8			Analysis Date:	6/13/2020	SeqNo:	3816382
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	ND	1.0									
Copper	ND	1.0									
Lead	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Nickel	ND	1.0									

Sample ID	LCS-79678	SampType:	LCS	TestCode:	200.8_W	Units:	µg/L	Prep Date:	6/12/2020	RunNo:	145041
Client ID:	LCSW	Batch ID:	79678	TestNo:	EPA 200.8			Analysis Date:	6/13/2020	SeqNo:	3816383
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	9.987	0.10	10.00	0	99.9	85	115				
Barium	10.100	1.0	10.00	0	101	85	115				
Copper	9.630	1.0	10.00	0	96.3	85	115				
Lead	10.351	1.0	10.00	0	104	85	115				
Manganese	99.119	0.50	100.0	0	99.1	85	115				
Molybdenum	10.213	0.50	10.00	0	102	85	115				
Nickel	9.779	1.0	10.00	0	97.8	85	115				

Sample ID	N040965-001D-DUP	SampType:	DUP	TestCode:	200.8_W	Units:	µg/L	Prep Date:	6/12/2020	RunNo:	145041
Client ID:	ZZZZZZ	Batch ID:	79678	TestNo:	EPA 200.8			Analysis Date:	6/13/2020	SeqNo:	3816388
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	14.289	0.10						14.23	0.418	20	
Barium	73.523	1.0						75.05	2.06	20	
Copper	ND	1.0						0	0	20	
Lead	ND	1.0						0	0	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  
 H Holding times for preparation or analysis exceeded  
 S Spike/Surrogate outside of limits due to matrix interference

Calculations are based on raw values



ASSET LABORATORIES

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"Serving Clients with Passion and Professionalism"



**CLIENT:** CH2M HILL  
**Work Order:** N040905  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.8\_W**

Sample ID	N040965-001D-DUP	SampType: DUP	TestCode: 200.8_W	Units: µg/L	Prep Date: 6/12/2020	RunNo: 145041					
Client ID: ZZZZZZ	Batch ID: 79678	TestNo: EPA 200.8	Analysis Date: 6/13/2020	SeqNo: 3816388							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	23.066	0.50						22.95	0.497	20	
Molybdenum	3.977	0.50						3.927	1.26	20	
Nickel	ND	1.0						0	0	20	

Sample ID	N040965-001D-MS	SampType: MS	TestCode: 200.8_W	Units: µg/L	Prep Date: 6/12/2020	RunNo: 145041					
Client ID:	ZZZZZZ	Batch ID: 79678	TestNo: EPA 200.8	Analysis Date: 6/13/2020	SeqNo: 3816390						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	24.262	0.10	10.00	14.23	100	75	125				
Barium	85.129	1.0	10.00	75.05	101	75	125				
Copper	8.720	1.0	10.00	0	87.2	75	125				
Lead	10.114	1.0	10.00	0	101	75	125				
Manganese	116.485	0.50	100.0	22.95	93.5	75	125				
Molybdenum	14.472	0.50	10.00	3.927	105	75	125				
Nickel	5.746	1.0	10.00	0	57.5	75	125				S

Sample ID	N040965-001D-MSD	SampType: MSD	TestCode: 200.8_W	Units: µg/L	Prep Date: 6/12/2020				RunNo: 145041		
Client ID:	ZZZZZZ	Batch ID: 79678	TestNo: EPA 200.8	Analysis Date: 6/13/2020				SeqNo: 3816391			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	24.150	0.10	10.00	14.23	99.2	75	125	24.26	0.462	20	
Barium	83.944	1.0	10.00	75.05	88.9	75	125	85.13	1.40	20	
Copper	8.609	1.0	10.00	0	86.1	75	125	8.720	1.29	20	
Lead	10.164	1.0	10.00	0	102	75	125	10.11	0.495	20	
Manganese	116.700	0.50	100.0	22.95	93.7	75	125	116.5	0.184	20	
Molybdenum	14.710	0.50	10.00	3.927	108	75	125	14.47	1.63	20	
Nickel	5.680	1.0	10.00	0	56.8	75	125	5.746	1.16	20	S

### Qualifiers:

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

**CLIENT:** CH2M HILL  
**Work Order:** N040905  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.8\_W**

Sample ID	MB-79678	SampType:	MBLK	TestCode:	200.8_W	Units:	µg/L	Prep Date:	6/12/2020	RunNo:	145044		
Client ID:	PBW	Batch ID:	79678	TestNo:	EPA 200.8			Analysis Date:	6/13/2020	SeqNo:	3816782		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Antimony ND 0.50

Sample ID	LCS-79678	SampType:	LCS	TestCode:	200.8_W	Units:	µg/L	Prep Date:	6/12/2020	RunNo:	145044		
Client ID:	LCSW	Batch ID:	79678	TestNo:	EPA 200.8			Analysis Date:	6/13/2020	SeqNo:	3816783		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Antimony 9.768 0.50 10.00 0 97.7 85 115

Sample ID	N040965-001D-DUP	SampType:	DUP	TestCode:	200.8_W	Units:	µg/L	Prep Date:	6/12/2020	RunNo:	145044		
Client ID:	ZZZZZZ	Batch ID:	79678	TestNo:	EPA 200.8			Analysis Date:	6/13/2020	SeqNo:	3816786		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Antimony 0.483 0.50 0.4914 0 20

Sample ID	N040965-001D-MS	SampType: MS	TestCode: 200.8_W	Units: µg/L	Prep Date: 6/12/2020	RunNo: 145044					
Client ID: ZZZZZZ	Batch ID: 79678	TestNo: EPA 200.8		Analysis Date: 6/13/2020	SeqNo: 3816788						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Antimony 11.794 0.50 10.00 0.4914 113 75 125

Sample ID	N040965-001D-MSD	SampType: MSD	TestCode: 200.8_W	Units: µg/L	Prep Date: 6/12/2020	RunNo: 145044					
Client ID: ZZZZZZ	Batch ID: 79678	TestNo: EPA 200.8		Analysis Date: 6/13/2020	SeqNo: 3816789						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Antimony 11.875 0.50 10.00 0.4914 114 75 125 11.79 0.679 20

### Qualifiers:

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

**CLIENT:** CH2M HILL  
**Work Order:** N040905  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.8\_W**

Sample ID	MB-79678	SampType:	MBLK	TestCode:	200.8_W	Units:	µg/L	Prep Date:	6/12/2020	RunNo:	145045		
Client ID:	PBW	Batch ID:	79678	TestNo:	EPA 200.8			Analysis Date:	6/14/2020	SeqNo:	3816890		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Zinc ND 10

Sample ID	LCS-79678	SampType:	LCS	TestCode:	200.8_W	Units:	µg/L	Prep Date:	6/12/2020	RunNo:	145045		
Client ID:	LCSW	Batch ID:	79678	TestNo:	EPA 200.8			Analysis Date:	6/14/2020	SeqNo:	3816891		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Zinc 10.540 10 10.00 0 105 85 115

Sample ID	N040965-001D-DUP	SampType:	DUP	TestCode:	200.8_W	Units:	µg/L	Prep Date:	6/12/2020	RunNo:	145045		
Client ID:	ZZZZZZ	Batch ID:	79678	TestNo:	EPA 200.8			Analysis Date:	6/14/2020	SeqNo:	3816894		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Zinc 3.580 10 3.440 0 20

Sample ID	N040965-001D-MS	SampType: MS	TestCode: 200.8_W	Units: µg/L	Prep Date: 6/12/2020	RunNo: 145045					
Client ID: ZZZZZZ	Batch ID: 79678	TestNo: EPA 200.8		Analysis Date: 6/14/2020	SeqNo: 3816896						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Zinc 13.650 10 10.00 3.440 102 75 125

Sample ID	N040965-001D-MSD	SampType: MSD	TestCode: 200.8_W	Units: µg/L	Prep Date: 6/12/2020	RunNo: 145045					
Client ID: ZZZZZZ	Batch ID: 79678	TestNo: EPA 200.8		Analysis Date: 6/14/2020	SeqNo: 3816897						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Zinc 13.637 10 10.00 3.440 102 75 125 13.65 0.0976 20

### Qualifiers:

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

CLIENT: CH2M HILL  
 Work Order: N040905  
 Project: PG&E Topock, D3184A1.EV.05-OM-TS

## ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8\_W

Sample ID	N040965-001D-PS	SampType:	PS	TestCode:	200.8_W	Units:	µg/L	Prep Date:		RunNo:	145041
Client ID:	ZZZZZZ	Batch ID:	79678	TestNo:	EPA 200.8			Analysis Date:	6/13/2020	SeqNo:	3816389
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	23.677	0.10	10.00	14.23	94.5	80	120				
Barium	81.013	1.0	10.00	75.05	59.6	80	120				S
Copper	8.622	1.0	10.00	0	86.2	80	120				
Lead	10.219	1.0	10.00	0	102	80	120				
Manganese	115.903	0.50	100.0	22.95	93.0	80	120				
Molybdenum	14.537	0.50	10.00	3.927	106	80	120				
Nickel	5.823	1.0	10.00	0	58.2	80	120				S

Sample ID	N040965-001D-PS	SampType:	PS	TestCode:	200.8_W	Units:	µg/L	Prep Date:		RunNo:	145044
Client ID:	ZZZZZZ	Batch ID:	79678	TestNo:	EPA 200.8			Analysis Date:	6/13/2020	SeqNo:	3816787
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	11.730	0.50	10.00	0.4914	112	80	120				

Sample ID	N040965-001D-PS	SampType:	PS	TestCode:	200.8_W	Units:	µg/L	Prep Date:		RunNo:	145045
Client ID:	ZZZZZZ	Batch ID:	79678	TestNo:	EPA 200.8			Analysis Date:	6/14/2020	SeqNo:	3816895
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Zinc	13.571	10	10.00	3.440	101	80	120				

## Qualifiers:

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



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

Print Date: 22-Jun-20

**CLIENT:** CH2M HILL  
**Lab Order:** N040905  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS  
**Lab ID:** N040905-001

**Client Sample ID:** SC-100B-WDR-603  
**Collection Date:** 6/8/2020 8:30:00 AM  
**Matrix:** WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
<b>HEXAVALENT CHROMIUM BY IC</b>							
<b>EPA 218.6</b>							
RunID: NV00922-IC7_200609A	QC Batch: R144940		PrepDate:		Analyst: RAB		
Hexavalent Chromium	410	1.7	10		µg/L	50	6/9/2020 12:15 PM
<b>TOTAL METALS BY ICPMS</b>							
<b>EPA 200.8</b>							
RunID: NV00922-ICP8_200613C	QC Batch: 79678		PrepDate: 6/12/2020		Analyst: CEI		
Chromium	410	0.65	5.0		µg/L	5	6/13/2020 11:01 AM

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



**ASSET LABORATORIES**  
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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

Print Date: 22-Jun-20

**CLIENT:** CH2M HILL  
**Lab Order:** N040905  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS  
**Lab ID:** N040905-002

**Client Sample ID:** SC-700B-WDR-603  
**Collection Date:** 6/8/2020 8:32:00 AM  
**Matrix:** WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
<b>HEXAVALENT CHROMIUM BY IC</b>							
<b>EPA 218.6</b>							
RunID: NV00922-IC7_200609A	QC Batch: R144940			PrepDate:		Analyst: RAB	
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	6/9/2020 12:52 PM
<b>TOTAL METALS BY ICPMS</b>							
<b>EPA 200.8</b>							
RunID: NV00922-ICP8_200613C	QC Batch: 79678			PrepDate:	6/12/2020	Analyst: CEI	
Chromium	ND	0.13	1.0		µg/L	1	6/13/2020 11:05 AM

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



**ASSET LABORATORIES**  
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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**“Serving Clients with Passion and Professionalism”**

**CLIENT:** CH2M HILL  
**Work Order:** N040905  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

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

Sample ID	MB-79678	SampType:	MBLK	TestCode:	200.8_W_CR	Units:	µg/L	Prep Date:	6/12/2020	RunNo:	145041		
Client ID:	PBW	Batch ID:	79678	TestNo:	EPA 200.8			Analysis Date:	6/13/2020	SeqNo:	3816468		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium		ND		1.0									

Sample ID	LCS-79678	SampType:	LCS	TestCode:	200.8_W_CR	Units:	µg/L	Prep Date:	6/12/2020	RunNo:	145041		
Client ID:	LCSW	Batch ID:	79678	TestNo:	EPA 200.8			Analysis Date:	6/13/2020	SeqNo:	3816469		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium		9.770		1.0	10.00	0	97.7	85	115				

Sample ID	N040965-001D-DUP	SampType:	DUP	TestCode:	200.8_W_CR	Units:	µg/L	Prep Date:	6/12/2020	RunNo:	145041		
Client ID:	ZZZZZZ	Batch ID:	79678	TestNo:	EPA 200.8			Analysis Date:	6/13/2020	SeqNo:	3816474		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium		ND		1.0						0	0	20	

Sample ID	N040965-001D-MS	SampType:	MS	TestCode:	200.8_W_CR	Units:	µg/L	Prep Date:	6/12/2020	RunNo:	145041		
Client ID:	ZZZZZZ	Batch ID:	79678	TestNo:	EPA 200.8			Analysis Date:	6/13/2020	SeqNo:	3816476		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium		9.244		1.0	10.00	0	92.4	75	125				

Sample ID	N040965-001D-MSD	SampType:	MSD	TestCode:	200.8_W_CR	Units:	µg/L	Prep Date:	6/12/2020	RunNo:	145041		
Client ID:	ZZZZZZ	Batch ID:	79678	TestNo:	EPA 200.8			Analysis Date:	6/13/2020	SeqNo:	3816477		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium		9.258		1.0	10.00	0	92.6	75	125	9.244	0.148	20	

**Qualifiers:**

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


**ASSET LABORATORIES**  
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**“Serving Clients with Passion and Professionalism”**

**CLIENT:** CH2M HILL  
**Work Order:** N040905  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

## ANALYTICAL QC SUMMARY REPORT

**TestCode:** 218.6\_WU\_PGE

Sample ID	MB-R144940	SampType:	MBLK	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	144940		
Client ID:	PBW	Batch ID:	R144940	TestNo:	EPA 218.6			Analysis Date:	6/9/2020	SeqNo:	3810599		
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-R144940	SampType:	LCS	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	144940		
Client ID:	LCSW	Batch ID:	R144940	TestNo:	EPA 218.6			Analysis Date:	6/9/2020	SeqNo:	3810600		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium 4.907 0.20 5.000 0 98.1 90 110

Sample ID	N040905-001BDUP	SampType:	DUP	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	144940		
Client ID:	ZZZZZZ	Batch ID:	R144940	TestNo:	EPA 218.6			Analysis Date:	6/9/2020	SeqNo:	3810602		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium 407.280 10 414.9 1.86 20

Sample ID	N040905-001BMS	SampType: MS	TestCode: 218.6_WU_P	Units: µg/L	Prep Date:	RunNo: 144940					
Client ID:	ZZZZZZ	Batch ID: R144940	TestNo: EPA 218.6	Analysis Date: 6/9/2020	SeqNo: 3810603						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium 660.770 10 250.0 414.9 98.3 90 110

Sample ID	N040905-001BMSD	SampType: MSD	TestCode: 218.6_WU_P	Units: µg/L	Prep Date:	RunNo: 144940					
Client ID:	ZZZZZZ	Batch ID: R144940	TestNo: EPA 218.6		Analysis Date: 6/9/2020	SeqNo: 3810604					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium 656.900 10 250.0 414.9 96.8 90 110 660.8 0.587 20

### Qualifiers:

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



**CLIENT:** CH2M HILL  
**Work Order:** N040905  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

## ANALYTICAL QC SUMMARY REPORT

**TestCode:** 218.6\_WU\_PGE

Sample ID	<b>N040905-002CMS</b>	SampType:	<b>MS</b>	TestCode:	<b>218.6_WU_P</b>	Units:	<b>µg/L</b>	Prep Date:		RunNo:	<b>144940</b>
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>R144940</b>	TestNo:	<b>EPA 218.6</b>			Analysis Date:	<b>6/9/2020</b>	SeqNo:	<b>3810606</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Hexavalent Chromium		1.037		0.20	1.000	0	104	90	110		

### Qualifiers:

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



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

Print Date: 22-Jun-20

**CLIENT:** CH2M HILL  
**Lab Order:** N040905  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS  
**Lab ID:** N040905-001

**Client Sample ID:** SC-100B-WDR-603  
**Collection Date:** 6/8/2020 8:30:00 AM  
**Matrix:** WATER

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

RunID: NV00922-WC_200609C	QC Batch: R144944	PrepDate:	Analyst: LR
Turbidity	0.23 0.10 0.10	NTU	1 6/9/2020 03:40 PM

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



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**ASSET Laboratories**
**ANALYTICAL RESULTS**
**Print Date:** 22-Jun-20

**CLIENT:** CH2M HILL  
**Lab Order:** N040905  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS  
**Lab ID:** N040905-002

**Client Sample ID:** SC-700B-WDR-603  
**Collection Date:** 6/8/2020 8:32:00 AM  
**Matrix:** WATER

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

RunID: <b>NV00922-WC_200609C</b>	QC Batch: <b>R144944</b>	PrepDate:	Analyst: <b>LR</b>
Turbidity	0.14 0.10 0.10	NTU	1 6/9/2020 03:40 PM

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



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**CLIENT:** CH2M HILL  
**Work Order:** N040905  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

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

Sample ID	MB-R144944	SampType:	MBLK	TestCode:	2130_W	Units:	NTU	Prep Date:		RunNo:	144944		
Client ID:	PBW	Batch ID:	R144944	TestNo:	SM 2130B			Analysis Date:	6/9/2020	SeqNo:	3810633		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Turbidity		ND		0.10									

Sample ID	N040905-001ADUP	SampType:	DUP	TestCode:	2130_W	Units:	NTU	Prep Date:		RunNo:	144944		
Client ID:	ZZZZZZ	Batch ID:	R144944	TestNo:	SM 2130B			Analysis Date:	6/9/2020	SeqNo:	3810635		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Turbidity		0.220		0.10						0.2300	4.44	30	

**Qualifiers:**

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

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

Print Date: 22-Jun-20

**CLIENT:** CH2M HILL  
**Lab Order:** N040905  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS  
**Lab ID:** N040905-002

**Client Sample ID:** SC-700B-WDR-603  
**Collection Date:** 6/8/2020 8:32:00 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_200609B	QC Batch: R144948			PrepDate:		Analyst: RAB
Fluoride	2.1	0.048	0.50	mg/L	5	6/9/2020 01:35 PM

**ANIONS BY ION CHROMATOGRAPHY**
**EPA 300.0**

RunID: NV00922-IC8_200609B	QC Batch: R144948			PrepDate:		Analyst: RAB
Sulfate	470	2.0	25	mg/L	50	6/9/2020 02:36 PM

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



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CLIENT: CH2M HILL  
 Work Order: N040905  
 Project: PG&E Topock, D3184A1.EV.05-OM-TS

## ANALYTICAL QC SUMMARY REPORT

TestCode: 300\_W\_FPGE

Sample ID	MB-R144948_F	SampType: MBLK	TestCode: 300_W_FPGE	Units: mg/L	Prep Date:	RunNo: 144948					
Client ID:	PBW	Batch ID: R144948	TestNo: EPA 300.0	Analysis Date: 6/9/2020	SeqNo: 3810714						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	ND	0.10									

Sample ID	LCS-R144948_F	SampType: LCS	TestCode: 300_W_FPGE	Units: mg/L	Prep Date:	RunNo: 144948					
Client ID:	LCSW	Batch ID: R144948	TestNo: EPA 300.0	Analysis Date: 6/9/2020	SeqNo: 3810715						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	1.229	0.10	1.250	0	98.3	90	110				

Sample ID	N040905-002BDUP	SampType: DUP	TestCode: 300_W_FPGE	Units: mg/L	Prep Date:	RunNo: 144948					
Client ID:	ZZZZZZ	Batch ID: R144948	TestNo: EPA 300.0	Analysis Date: 6/9/2020	SeqNo: 3810717						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	2.280	0.50						2.082	9.03	20	

Sample ID	N040905-002BMS	SampType: MS	TestCode: 300_W_FPGE	Units: mg/L	Prep Date:	RunNo: 144948					
Client ID:	ZZZZZZ	Batch ID: R144948	TestNo: EPA 300.0	Analysis Date: 6/9/2020	SeqNo: 3810718						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	8.301	0.50	6.250	2.082	99.5	80	120				

Sample ID	N040905-002BMSD	SampType: MSD	TestCode: 300_W_FPGE	Units: mg/L	Prep Date:	RunNo: 144948					
Client ID:	ZZZZZZ	Batch ID: R144948	TestNo: EPA 300.0	Analysis Date: 6/9/2020	SeqNo: 3810719						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	8.488	0.50	6.250	2.082	102	80	120	8.301	2.22	20	

## Qualifiers:

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



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**CLIENT:** CH2M HILL  
**Work Order:** N040905  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

## ANALYTICAL QC SUMMARY REPORT

**TestCode:** 300\_W\_SO4PGE

Sample ID	<b>MB-R144948_SO4</b>	SampType:	<b>MBLK</b>	TestCode:	<b>300_W_SO4P</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>144948</b>
Client ID:	<b>PBW</b>	Batch ID:	<b>R144948</b>	TestNo:	<b>EPA 300.0</b>			Analysis Date:	<b>6/9/2020</b>	SeqNo:	<b>3810730</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Sulfate ND 0.50

Sample ID	<b>LCS-R144948_SO4</b>	SampType:	<b>LCS</b>	TestCode:	<b>300_W_SO4P</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>144948</b>
Client ID:	<b>LCSW</b>	Batch ID:	<b>R144948</b>	TestNo:	<b>EPA 300.0</b>			Analysis Date:	<b>6/9/2020</b>	SeqNo:	<b>3810731</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Sulfate 3.923 0.50 4.000 0 98.1 90 110

Sample ID	<b>N040905-002BDUP</b>	SampType:	<b>DUP</b>	TestCode:	<b>300_W_SO4P</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>144948</b>
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>R144948</b>	TestNo:	<b>EPA 300.0</b>			Analysis Date:	<b>6/9/2020</b>	SeqNo:	<b>3810733</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Sulfate 474.305 25 469.6 0.995 20

Sample ID	<b>N040905-002BMS</b>	SampType:	<b>MS</b>	TestCode:	<b>300_W_SO4P</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>144948</b>
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>R144948</b>	TestNo:	<b>EPA 300.0</b>			Analysis Date:	<b>6/9/2020</b>	SeqNo:	<b>3810734</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Sulfate 679.155 25 200.0 469.6 105 80 120

Sample ID	<b>N040905-002BMSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>300_W_SO4P</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>144948</b>
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>R144948</b>	TestNo:	<b>EPA 300.0</b>			Analysis Date:	<b>6/9/2020</b>	SeqNo:	<b>3810735</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Sulfate 671.310 25 200.0 469.6 101 80 120 679.2 1.16 20

### Qualifiers:

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

**ASSET Laboratories**
**ANALYTICAL RESULTS**
**Print Date:** 22-Jun-20

**CLIENT:** CH2M HILL  
**Lab Order:** N040905  
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS  
**Lab ID:** N040905-002

**Client Sample ID:** SC-700B-WDR-603  
**Collection Date:** 6/8/2020 8:32:00 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: <b>NV00922-WC_200613E</b>	QC Batch: <b>R145076</b>			PrepDate:		Analyst: <b>JBB</b>
Nitrate/Nitrite as N	2.3	0.16	0.25	mg/L	5	6/13/2020 11:12 PM

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



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CLIENT: CH2M HILL  
 Work Order: N040905  
 Project: PG&E Topock, D3184A1.EV.05-OM-TS

## ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F\_W\_PGE

Sample ID	MB-R145076	SampType:	MBLK	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	145076			
Client ID:	PBW	Batch ID:	R145076	TestNo:	SM4500-NO3			Analysis Date:	6/13/2020	SeqNo:	3818010			
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-R145076	SampType:	LCS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	145076			
Client ID:	LCSW	Batch ID:	R145076	TestNo:	SM4500-NO3			Analysis Date:	6/13/2020	SeqNo:	3818011			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N		0.463		0.050	0.5000	0		92.6	85	115				

Sample ID	N040807-017BMS	SampType:	MS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	145076			
Client ID:	ZZZZZZ	Batch ID:	R145076	TestNo:	SM4500-NO3			Analysis Date:	6/13/2020	SeqNo:	3818013			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N		1.070		0.050	0.5000	0.5460		105	75	125				

Sample ID	N040807-017BMSD	SampType:	MSD	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	145076			
Client ID:	ZZZZZZ	Batch ID:	R145076	TestNo:	SM4500-NO3			Analysis Date:	6/13/2020	SeqNo:	3818014			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N		1.078		0.050	0.5000	0.5460		106	75	125	1.070	0.745	20	

Sample ID	N040807-014BDUP	SampType:	DUP	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	145076			
Client ID:	ZZZZZZ	Batch ID:	R145076	TestNo:	SM4500-NO3			Analysis Date:	6/13/2020	SeqNo:	3818016			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N		0.644		0.050							0.6759	4.77	20	

## Qualifiers:

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



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 ORELAP/NELAP Cert 4046

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<b>Project Name</b> PG&E Topock <b>Location</b> PG&E Topock <b>Project Number</b> D3184A1.EV.05-OM-TS <b>Project Manager</b> Scott O'Donnell <b>Sample Manager</b> Shawn Duffy  <b>Task Order</b> <b>Project</b> IM3PLANT-ARAR-WDR-603 <b>Turnaround Time</b> 10 Days <b>Shipping Date:</b> 6/2/2020 <b>COC Number:</b> IM3-603			<b>Container:</b> 1 Liter Poly <b>Preservatives:</b> 4°C Lab H2SO4 <b>Filtered:</b> NA <b>Holding Time:</b> 28	1 Liter Poly	1 Liter Poly	1 Liter Poly	250 ml Poly	1 Liter Poly	1 Liter Poly	500 ml Poly	500 ml Poly	1 Liter Poly	Number of Containers  COMMENTS	
DATE TIME Matrix														
SC-100B-WDR-603	6-8-20	830	Water			X	X		X		X	N040905-01	3	PH 7.31
SC-700B-WDR-603	6-8-20	832	Water	X	X	X	X	X	X		X	-02	4	PH 7.03
TOTAL NUMBER OF CONTAINERS											7			

<b>Signatures</b> <b>Approved by</b> <b>Sampled by</b> <b>Relinquished by</b> <b>Received by</b> <b>Relinquished by</b> <b>Received by</b>		<b>Date/Time</b> 6-8-20 840 6-8-20 1535 6/8/20 @ 1535 6/8/20 @ 1938	<b>Shipping Details</b> <b>Method of Shipment:</b> FedEx <b>On Ice:</b> <input checked="" type="radio"/> yes / no 1.8°C IR#2 <b>Airbill No:</b> <b>Lab Name:</b> ASSET Laboratories <b>Lab Phone:</b> (702) 307-2659	<b>ATTN:</b> <b>Sample Custody</b> and Marlon Cartin	<b>Special Instructions:</b> SC-700B Total metals List: Cr,Al,Sb,As,Ba,B,Cu,Pb,Mn,Mo,Ni,Fe,Zn  <b>Report Copy to</b> Mark Fesler
--	--	---	---	---	---

## 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: 6/8/2020 Workorder: N040905  
 Rep sample Temp (Deg C): 1.8 IR Gun ID: 2  
 Temp Blank: ☒ Yes ☐ No  
 Carrier name: ASSET  
 Last 4 digits of Tracking No.: NA Packing Material Used: None  
 Cooling process: ☒ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None

### Sample Receipt Checklist

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

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

For:

Checklist Completed By: MBC

*YRJ*

6/10/2020

Reviewed By: \_\_\_\_\_

# ASSET Laboratories

## WORK ORDER Summary

09-Jun-20

WorkOrder: N040905

Client ID: CH2HI01

Project: PG&E Topock, D3184A1.EV.05-OM-TS

QC Level: Level IV

Date Received: 6/8/2020

Comments: SC-700B Total metals List:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N040905-001A	SC-100B-WDR-603	6/8/2020 8:30:00 AM	6/22/2020	Water	EPA 120.1	SPECIFIC CONDUCTANCE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
			6/22/2020		SM2540C	TOTAL FILTERABLE RESIDUE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
			6/22/2020			Total Dissolved Solids Prep	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
			6/22/2020		SM 2130B	TURBIDITY	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
N040905-001B			6/22/2020		EPA 218.6	Hexavalent Chromium by IC	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
N040905-001C			6/22/2020			AQPREP TOTAL METALS: ICP, FLAA	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
			6/22/2020		EPA 200.7	TOTAL METALS BY ICP	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
			6/22/2020			AQPREP TOTAL METALS: ICP, FLAA	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
			6/22/2020		EPA 200.8	TOTAL METALS BY ICPMS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
			6/22/2020		EPA 200.8	TOTAL METALS BY ICPMS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
N040905-001D							<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
N040905-002A	SC-700B-WDR-603	6/8/2020 8:32:00 AM	6/22/2020		SM4500-NH3D	AMMONIA-N BY ION SELECTIVE ELECTRODE	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	SUB
N040905-002B			6/22/2020		EPA 120.1	SPECIFIC CONDUCTANCE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
			6/22/2020		SM2540C	TOTAL FILTERABLE RESIDUE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
			6/22/2020			Total Dissolved Solids Prep	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
			6/22/2020		SM 2130B	TURBIDITY	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
			6/22/2020		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
			6/22/2020		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
N040905-002C			6/22/2020		EPA 218.6	Hexavalent Chromium by IC	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
N040905-002D			6/22/2020		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
N040905-002E			6/22/2020			AQPREP TOTAL METALS: ICP, FLAA	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW

## ASSET Laboratories

### WORK ORDER Summary

09-Jun-20

**WorkOrder:** N040905

**Client ID:** CH2HI01

**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

**QC Level:** Level IV

**Date Received:** 6/8/2020

**Comments:** SC-700B Total metals List:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N040905-002E	SC-700B-WDR-603	6/8/2020 8:32:00 AM	6/22/2020	Water	EPA 200.7	TOTAL METALS BY ICP	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
			6/22/2020			AQPREP TOTAL METALS: ICP, FLAA	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
			6/22/2020		EPA 200.8	TOTAL METALS BY ICPMS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
			6/22/2020		EPA 200.8	TOTAL METALS BY ICPMS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
N040905-002F							<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WW
N040905-003A	FOLDER	6/22/2020	6/22/2020		Folder	Folder	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LAB
			6/22/2020		Folder	Level IV Report	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LAB
			6/22/2020		Folder	Folder	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LAB

**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 #:

Field Sampler: SIGNED

**09-Jun-20**

				Requested Tests		
Sample ID	Matrix	Date Collected	Bottle Type	SM4500-NH3D		
N040905-002A / SC-700B-WDR-603	Water	6/8/2020 8:32:00 AM	32OZP	1		

**General Comments:**

Please email sample receipt acknowledgement to the PM.

Please cc sonny.lorenzo@assetlaboratories.com

Please use PO#: N40905A Please email invoices and Account Receivable Statements to elvira@assetlaboratories.com. For questions, call Marlon at (702)-307-2659. Please e-mail results to reports.lv@assetlaboratories.com by: Standard TAT.

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

	Date/Time	GSo #: 549301855	Date/Time
Relinquished by: <u>YRJ</u>	6/9/2020 1630	Received by: _____	_____
Relinquished by: _____	_____	Received by: _____	_____

## List of Analysts

### ASSET Laboratories Work Order: N040905

NAME	TEST METHOD
Claire Ignacio	EPA 200.8
Lilia Ramit	EPA 120.1, SM 2540C, SM 2130B
Ria Abes	EPA 218.6, EPA 300.0
Diane Jetajobe	EPA 200.7
Julia Bundalian	SM 4500-NO3F



**ASSET LABORATORIES**  
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

CALIFORNIA  
11110 Artesia Blvd., Ste B, Cerritos, CA 90703  
P: 562.219.7435 F: 562.219.7436

NEVADA  
3151 W. Post Rd., Las Vegas, NV 89118  
P: 702.307.2659 F: 702.307.2691

**“Serving Clients with Passion and Professionalism”**



**Laboratories, Inc.**

Environmental Testing Laboratory Since 1949



Date of Report: 06/16/2020

Marlon B. Cartin

ASSET Laboratories- Las Vegas

3151-3153 W. Post Rd

Las Vegas, NV 89118

Client Project: N040905

BCL Project: Level IV + labSpec7

BCL Work Order: 2016810

Invoice ID: B383105

Enclosed are the results of analyses for samples received by the laboratory on 6/10/2020. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Contact Person: Vanessa Sandoval  
Client Service Rep

Stuart Buttram  
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 2016810 Page 1 of 2

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

**Subcontractor:**  
BC Labs  
4100 Atlas Court  
Bakersfield, CA 93308

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

**QC Level: Level IV**  
**Field Sampler: SIGNED**

**20-16810**

**09-Jun-20**

**CHAIN-OF-CUSTODY RECORD**

Page 1 of 1

Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests
N040905-002A / SC-700B-WDR-603	Water	6/8/2020 8:32:00 AM	320ZP	SM4500-NH3D 1



**General Comments:** Please email sample receipt acknowledgement to the PM. Please cc sonny.lorenzo@assetlaboratories.com  
Please use PO#N40905A. Please email invoices and Account Receivable Statements to extra@assetlaboratories.com. For questions, call Marlon at (702)-307-2659. Please e-mail results to reports.lv@assetlaboratories.com by: Standard TAT.  
Please analyze for Ammonia by SM4500NH3D, EDD requirement Labspec7 edata.

<b>Relinquished by:</b> <u>YLS</u>	<b>Date/Time</b> <u>6/9/2020 1630</u>	<b>GSo #:</b> <u>549301855</u>	<b>Date/Time</b> <u>6-10-20 0930</u>
<b>Relinquished by:</b>		<b>Received by:</b> <u>[Signature]</u>	
		<b>Received by:</b>	

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Chain of Custody and Cooler Receipt Form for 2016810 Page 2 of 2

BC LABORATORIES INC.		COOLER RECEIPT FORM		Page 1 Of 1							
Submission #: <u>20-16810</u>											
<b>SHIPPING INFORMATION</b> 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 checked="" type="checkbox"/> (Specify) <u>GLS</u>		<b>SHIPPING CONTAINER</b> Ice Chest <input checked="" type="checkbox"/> None <input type="checkbox"/> Box <input type="checkbox"/> Other <input type="checkbox"/> (Specify) _____		<b>FREE LIQUID</b> 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"/> All samples containers intact? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Description(s) match COC? Yes <input type="checkbox"/> No <input type="checkbox"/>											
COC Received <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		Emissivity: <u>91</u> Container: <u>FE</u> Thermometer ID: <u>274</u> Temperature: (A) <u>3.1</u> °C / (C) <u>2.8</u> °C		Date/Time <u>6-10-20 930</u> Analyst Init <u>TKJ</u>							
<b>SAMPLE CONTAINERS</b>		<b>SAMPLE NUMBERS</b>									
		1	2	3	4	5	6	7	8	9	10
QT PE UNPRES											
4oz / 8oz / 16oz PE UNPRES											
2oz Cr <sup>6+</sup>											
QT INORGANIC CHEMICAL METALS											
INORGANIC CHEMICAL METALS 4oz / 8oz / 16oz											
PT CYANIDE											
PT NITROGEN FORMS		X									
PT TOTAL SULFIDE											
2oz NITRATE / NITRITE											
PT TOTAL ORGANIC CARBON											
PT CHEMICAL OXYGEN DEMAND											
PIA PHENOLICS											
40ml VOA VIAL TRAVEL BLANK											
40ml VOA VIAL											
QT EPA 1664											
PT ODOR											
RADIOLOGICAL											
BACTERIOLOGICAL											
40 ml VOA VIAL- 504											
QT EPA 504/503/5080											
QT EPA 515.1/5150											
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											
SMARTKIT											
SUMMA CANISTER											

Comments:

Sample Numbering Completed By: JK  
A = Actual / C = Corrected

Date/Time: 6/10/20 10:55

Rev 21 05/23/2016

IS:\WPDoc\WordPerfect\LAB\_DOC\FORMS\ISAMRECrev 201

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

**Reported:** 06/16/2020 17:26  
**Project:** Level IV + labSpec7  
**Project Number:** N040905  
**Project Manager:** Marlon B. Cartin

## Laboratory / Client Sample Cross Reference

Laboratory	Client Sample Information			
2016810-01	<b>COC Number:</b>	---	<b>Receive Date:</b>	06/10/2020 09:30
	<b>Project Number:</b>	---	<b>Sampling Date:</b>	06/08/2020 08:32
	<b>Sampling Location:</b>	---	<b>Sample Depth:</b>	---
	<b>Sampling Point:</b>	N040905-002A / SC-700B-WDR-603	<b>Lab Matrix:</b>	Water
	<b>Sampled By:</b>	---	<b>Sample Type:</b>	Wastewater



**Laboratories, Inc.**

Environmental Testing Laboratory Since 1949



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

**Reported:** 06/16/2020 17:26  
**Project:** Level IV + labSpec7  
**Project Number:** N040905  
**Project Manager:** Marlon B. Cartin

## Water Analysis (General Chemistry)

<b>BCL Sample ID:</b>	2016810-01	<b>Client Sample Name:</b>	N040905-002A / SC-700B-WDR-603, 6/8/2020 8:32:00AM				
<b>Constituent</b>	<b>Result</b>	<b>Units</b>	<b>RL</b>	<b>Method</b>	<b>MB Bias</b>	<b>Lab Quals</b>	<b>Run #</b>
Ammonia as N (Distilled)	ND	mg/L	0.20	SM-4500-NH3G	ND		1

Run #	Method	Prep Date	Run		Analyst	Instrument	Dilution	QC	
			Date/Time					Batch ID	Prep Method
1	SM-4500-NH3G	06/15/20 10:30	06/16/20 14:03		JMH2	SC-1	1.040	B080201	SM 4500-NH3G

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

**Reported:** 06/16/2020 17:26  
**Project:** Level IV + labSpec7  
**Project Number:** N040905  
**Project Manager:** Marlon B. Cartin

## Water Analysis (General Chemistry)

### Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	RL	Lab Quals
<b>QC Batch ID: B080201</b>					
Ammonia as N (Distilled)	B080201-BLK1	ND	mg/L	0.20	

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**Laboratories, Inc.**

Environmental Testing Laboratory Since 1949



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

**Reported:** 06/16/2020 17:26  
**Project:** Level IV + labSpec7  
**Project Number:** N040905  
**Project Manager:** Marlon B. Cartin

## Water Analysis (General Chemistry)

### Quality Control Report - Laboratory Control Sample

								Control Limits		Lab
Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Percent Recovery	RPD	Quals
QC Batch ID: B080201										
Ammonia as N (Distilled)	B080201-BS1	LCS	1.9048	2.0000	mg/L	95.2		85 - 115		

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

**Reported:** 06/16/2020 17:26  
**Project:** Level IV + labSpec7  
**Project Number:** N040905  
**Project Manager:** Marlon B. Cartin

## Water Analysis (General Chemistry)


### Quality Control Report - Precision & Accuracy

										Control Limits	
Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	RPD	Percent Recovery	Lab Quals
QC Batch ID: B080201		Used client sample: Y - Description: N040905-002A / SC-700B-WDR-603, 06/08/2020 08:32									
Ammonia as N (Distilled)	DUP	2016810-01	0.10461	ND		mg/L			20		
	MS	2016810-01	0.10461	2.2946	2.3121	mg/L		94.7		80 - 120	
	MSD	2016810-01	0.10461	2.2783	2.3121	mg/L	0.7	94.0	20	80 - 120	


# 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-WDR 599	3-3-20	10:15	3-3-20	10:22	HQ440D	3-3-20	0000	-55.82		7.10


Notes:

2 SC-700B-WDR 599	3-3-20	10:20	3-3-20	10:24	HQ440D	3-3-20	0000	-55.82		7.13
-------------------	--------	-------	--------	-------	--------	--------	------	--------	---	------


Notes:

3 SC-701-WDR 592	3-18-20	1305	3-18-20	1308	HQ440D	3-18-20	0000	-53.53		7.74
------------------	---------	------	---------	------	--------	---------	------	--------	---	------

Notes:

4 SC-100B-WDR 600	4-7-20	1040	4-7-20	1045	HQ440D	4-7-20	0015	-56.87		7.20
-------------------	--------	------	--------	------	--------	--------	------	--------	---	------

Notes:

5 SC-700B-WDR 600	4-7-20	1050	4-7-20	1053	HQ440D	4-7-20	0015	-56.87		7.09
-------------------	--------	------	--------	------	--------	--------	------	--------	---	------

Notes:

6 SC-701-WDR 600	4-7-20	1055	4-7-20	1058	HQ440D	4-7-20	0015	-56.87		7.82
------------------	--------	------	--------	------	--------	--------	------	--------	---	------

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-601	5-5-20	0816	5-5-20	0820	HQ440D	5-5-20	0000	-56.42	Ryan Phelps	7.28

Notes:

2 SC-700B-601	5-5-20	08:00	5-5-20	0815	HQ440D	5-5-20	0000	-56.42	Ryan Phelps	6.90
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Notes:

3 SC-700B-602	5-15-20	15:30	5-15-20	0835	HQ440D	5-15-20	15:00	-56.44	Ryan Phelps	7.18
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Notes:

4 SC-100B-603	6-8-20	830	6-8-20	834	HQ440D	6-8-20	0000	-55.25	Ryan Phelps	7.31
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Notes:

5 SC-700B-603	6-8-20	832	6-8-20	834	HQ440D	6-8-20	0000	-55.25	Ryan Phelps	7.03
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Notes:

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Notes:

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