**Curt Russell**
*Topock Project Manager*
*Environmental Remediation*

*Topock Compressor Station*
*145453 National Trails Hwy*
*Needles, CA 92363*

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

*760.791.5884*
*Fax: 760.326.5542*
*Email: gcr4@pge.com*

January 15, 2021

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

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

**Subject: Topock IM-3 Combined Fourth Quarter 2020 Monitoring, Semiannual July – December 2020 and Annual January - December 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 Fourth Quarter 2020 Monitoring, Semiannual July – December 2020 and Annual January – December 2020 Operation and Maintenance Report (4Q2020 Report) for the Pacific Gas and Electric Company (PG&E) Topock Compressor Station, Interim Measure No. 3 (IM-3) Groundwater Treatment System.

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

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

The IM-3 groundwater extraction and treatment system has extracted and treated approximately 1,022,234,840 gallons of water and removed approximately 9,880 pounds of total chromium from August 1, 2005 through December 31, 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) 791-5884.

Sincerely,

Curt Russell
Topock Project Manager

Enclosures:

Topock IM-3 Combined Fourth Quarter 2020 Monitoring, Semiannual July - December 2020, and Annual January - December 2020 Operation and Maintenance Report

cc: Aaron Yue, California Department of Toxic Substances Control

# *Topock Project Executive Abstract*

| | |
|---|---|
| Document Title: *Topock IM-3 Fourth Quarter 2020 Monitoring, Semiannual July - December 2020 and Annual January – December 2020 Operation and Maintenance Report*<br>Submitting Agency/Authored by: U.S. Department of the Interior and Regional Water Quality Control Board<br>Final Document? X Yes __ No<br>Is this time critical? __ Yes X No | Date of Document: January 15, 2021<br>Who Created this Document?: (i.e. PG&E, DTSC, DOI, Other) PG&E |
| Priority Status: __ HIGH __ MED X LOW | Is this time critical? __ Yes X No |
| Type of Document:<br>__ Draft X Report __ Letter __ Memo<br>__ Other / Explain: | Action Required:<br>X Information Only __ Review and Input<br>__ Other / Explain: |
| What does this information pertain to?<br>__ Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA)/Preliminary Assessment (PA)<br>__ RCRA Facility Investigation (RFI)/Remedial Investigation (RI) (including Risk Assessment)<br>__ Corrective Measures Study (CMS)/Feasibility Study (FS)<br>__ Corrective Measures Implementation (CMI)/ Remedial Action (RA)<br>__ California Environmental Quality Act (CEQA)/ Environmental Impact Report (EIR)<br>X Interim Measures<br>__ Other / Explain: | Is this a Regulatory Requirement?<br>X Yes<br>__ No<br>If no, why is the document needed? |
| What is the consequence of NOT doing this item? What is the consequence of DOING this item?<br>Submittal of this report is a compliance requirement of the ARARs for waste discharge as documented in Attachment A to the Letter Agreement issued July 26, 2011. | Other Justification/s:<br>__ Permit __ Other / Explain: |
| Brief Summary of attached document:<br>This report covers the Interim Measure No. 3 (IM-3) groundwater treatment system monitoring activities during the Fourth Quarter 2020 period, and the operation and maintenance activities during the July 1, 2020 to December 31, 2020 semiannual and the January 1, 2020 to December 31, 2020 annual periods. 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.<br><br>Written by: Pacific Gas and Electric Company | |
| Recommendations:<br>This report is for your information only. | |
| How is this information related to the Final Remedy or Regulatory Requirements?<br>The Topock IM-3 Fourth Quarter 2020 Monitoring, Semiannual July - December 2020 and Annual January – December 2020 Operation and Maintenance Report is related to the Interim Measure. PG&E is currently operating the IM-3 groundwater treatment system as authorized by the U.S. Department of the Interior (DOI) Waste Discharge Applicable or Relevant and Appropriate Requirements (ARARs) as documented in Attachment A to the Letter Agreement issued July 26, 2011 from the Colorado River Basin Regional Water Quality Control Board (Regional Water Board) to DOI, and the subsequent Letter of Concurrence issued August 18, 2011 from DOI to the Regional Water Board. | |
| Other requirements of this information?<br>None. | |

JACOBS

# Combined Fourth Quarter 2020 Monitoring, Semiannual July – December 2020 and Annual January – December 2020 Operation and Maintenance Report Interim Measure No. 3 Groundwater Treatment System

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

January 15, 2021

*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 Fourth Quarter 2020 Monitoring, Semiannual July – December 2020, and Annual January – December 2020 Operation and Maintenance Report for the 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

January 15, 2021

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


John Porcella, P.E.
Project Engineer

# Contents



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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 |
| HMI | human-machine interface |
| IM | Interim Measure |
| IM-3 | Interim Measure No. 3 |
| IW | injection well |
| MRP | Monitoring and Reporting Program |
| O&M | operation and maintenance |
| PG&E | Pacific Gas and Electric Company |
| PLC | programmable logic controller |
| 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 Fourth Quarter 2020, as well as the operation and maintenance (O&M) activities during the July 1, 2020 to December 31, 2020 semiannual period and the January 1, 2020 to December 31, 2020 annual 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

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

As previously noted, this report describes Fourth Quarter 2020 monitoring activities and the July 1, 2020 through December 31, 2020 (Third and Fourth Quarters) O&M activities related to the IM-3 groundwater treatment system. It also serves as the Annual January – December 2020 O&M Report for IM-3. IM-3 monitoring activities from January 1, 2020 through September 30, 2020 (First, Second and Third Quarters) were presented in the following monitoring and O&M reports:

- Topock IM-3 First Quarter 2020 Monitoring Report, submitted to the DOI and Regional Water Board April 15, 2020
- Topock IM-3 Second Quarter 2020 Monitoring and Semi-annual January 1, 2020 through June 30, 2020 Operation and Maintenance Report, submitted to the DOI and Regional Water Board July 15, 2020
- Topock IM-3 Third Quarter 2020 Monitoring Report, submitted to the DOI and Regional Water Board October 15, 2020

## 3.1 Groundwater Treatment System

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

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

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

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

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

## 3.2 Groundwater Treatment System Flow Rates for Fourth 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 (that together resulted in approximately 5.5 percent downtime during Fourth Quarter 2020) 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 July 2020 through September 2020 were originally reported in the *Third Quarter 2020 Monitoring Report for Interim*

*Measure No. 3 Groundwater Treatment System, PG&E Topock Compressor Station, Needles, CA*, published October 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 Fourth Quarter 2020, extraction wells TW-3D and TW-2D (for about an hour) operated with a target pumping rate of 135 gallons per minute (gpm), excluding periods of planned and unplanned downtime. Extraction well PE-01 and TW-2S were not operated during Fourth Quarter 2020. The operational run time for the IM groundwater extraction system (combined or individual pumping), by month, was approximately:

- 96.6 percent during October 2020
- 93.0 percent during November 2020
- 93.9 percent during December 2020

The Fourth 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).

The IM-3 facility treated approximately 16,758,720 gallons of extracted groundwater during Fourth Quarter 2020.

In addition to extracted groundwater, during Fourth Quarter 2020 the IM-3 facility treated 74,000 gallons of Final Groundwater Remedy wastewater, 3,090 gallons of water generated from the groundwater monitoring program, and 32,000 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 16,692,760 gallons of treatment system effluent during Fourth Quarter 2020. The monthly average flow rate to injection wells is shown in Table 2.

The RO concentrate flow rate is 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). Due to Final Groundwater Remedy construction activities at the MW-20 Bench adjacent to the IM-3 RO concentrate storage tank, the 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 flow from the process collection tank was not recorded by the flowmeter.

The IM-3 facility generated an estimated 9,650 gallons of RO concentrate during Fourth Quarter 2020. The monthly average RO concentrate flow rate is shown in Table 2.

The sludge flow rate is measured by the size and weight of containers shipped offsite. Four sludge containers were shipped offsite from the IM-3 facility during Fourth 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, samples were collected at the designated sampling locations and placed directly into containers provided by Truesdail Laboratories, Inc. (Truesdail) or ASSET Laboratories (ASSET). Sample containers were labeled and packaged according to standard sampling procedures.

The samples were stored in a sealed container chilled with ice and transported to Truesdail or ASSET via courier under chain-of-custody documentation. The laboratories confirmed the samples were received in chilled condition upon arrival. Truesdail is certified by the California Department of Health Services (Certification No. 1237) under the State of California's Environmental Laboratory Accreditation Program. ASSET is certified by the California Department of Health Services (Certification No. 2676) 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 Fourth 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, Second and Third Quarters of 2020:

- The January 1, 2020 through March 31, 2020 results were included in the First Quarter 2020 Monitoring Report submitted to the DOI and Regional Water Board on April 15, 2020.
- The April 1, 2020 through June 30, 2020 results were included in the Second Quarter 2020 Monitoring Report submitted to the DOI and Regional Water Board on July 15, 2020.
- The July 1, 2020 through September 30, 2020 results were included in the Third Quarter 2020 Monitoring Report submitted to the DOI and Regional Water Board on October 15, 2020.

Laboratory reports for samples collected in Fourth Quarter 2020 were prepared by certified analytical laboratories and are presented in Appendix E. The Fourth 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 in the third quarter 2020, and the results were presented in the Third Quarter 2020 Monitoring Report submitted to the DOI and Regional Water Board on October 15, 2020.

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 July 1, 2020 through December 31, 2020.

All O&M 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. O&M records are also archived using maintenance software. The subsections below summarize the O&M 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 |

## 5.2 Volumes of Groundwater Treated

Data regarding daily volumes of groundwater treated between July 1, 2020 and December 31, 2020 are provided in Appendix B. The daily volumes of groundwater treated from January 1, 2020 through June 30, 2020 were reported in the Second Quarter 2020 Monitoring Report and Semiannual January 1- June 30, 2020 Operation and Maintenance Report submitted on July 15, 2020.

Approximately 32,545,961 gallons of groundwater were extracted and treated between July 1, 2020 and December 31, 2020. Treatment of this water at the IM-3 facility is being performed in accordance with the conditions of ARARs.

Additionally, approximately treated 165,947 gallons of Final Groundwater Remedy wastewater, 4,190 gallons of well purge water (generated during monitoring well sampling), as well as 60,600 gallons of injection well re-development water were treated at the IM-3 facility during the July 1, 2020 through December 31, 2020 semiannual period.

A total of approximately 32,675,267 gallons of treated groundwater were injected back into the Alluvial Aquifer between July 1, 2020 and December 31, 2020. This is greater than the metered influent, but is within the accuracy of the flow meters.

## 5.3 Residual Solids Generated (Sludge)

During the July 1, 2020 through December 31, 2020 reporting period, ten 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 July 1, 2020 through December 31, 2020 reporting period is provided below.

| Date Sludge Bin Removed from Site | Approximate Quantity from Waste Manifests (cubic yards) | Type of Shipment |
|---|---|---|
| 7/30/2020 | 8 | Non-RCRA hazardous waste |
| 7/30/2020 | 8 | Non-RCRA hazardous waste |
| 7/31/2020 | 8 | Non-RCRA hazardous waste |
| 8/31/2020 | 8 | Non-RCRA hazardous waste |
| 8/31/2020 | 8 | Non-RCRA hazardous waste |
| 9/1/2020 | 8 | Non-RCRA hazardous waste |
| 11/9/2020 | 8 | Non-RCRA hazardous waste |
| 11/9/2020 | 8 | Non-RCRA hazardous waste |
| 12/9/2020 | 8 | Non-RCRA hazardous waste |
| 12/9/2020 | 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 manifest (provided in Appendix D).

RO concentrate is a by-product of the IM-3 treatment process and is shipped off-site by tanker truck as non-hazardous waste. Due to Final Groundwater Remedy construction activities at the MW-20 Bench adjacent to the IM-3 RO concentrate storage tank, the 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 flow from the process collection tank was not recorded by the flowmeter. The additional RO concentrate flow data in this 4Q 2020 Report (provided in Appendix B) is from Liquid Environmental Solutions non-hazardous waste manifests.

From July 1, 2020 through December 31, 2020, approximately 74,050 gallons of RO concentrate were transported to Liquid Environmental Solutions in Phoenix, Arizona for disposal according to the non-hazardous waste manifests provided in Appendix D.

## 5.5 Summary of ARARs Compliance

No ARAR violations were identified during the July 1, 2020 through December 31, 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 July 1, 2020 through December 31, 2020 semiannual reporting period.

Activities during the Third and Fourth Quarters 2020 included one extended shutdown for semi-annual routine maintenance for August 2020.

- The extraction well system was offline from 4:18 a.m. August 9, 2020 to 8:44 a.m. August 12, 2020 for the semiannual scheduled maintenance outage. Extraction system downtime was 3 days 4 hours 26 minutes.

## 5.7 Treatment Facility Modifications

No modifications were made to the IM-3 treatment facility that resulted in a material change in the quality or quantity of wastewater treated or discharged, nor resulted in a material change in the location of discharge, during the July 1, 2020 through December 31, 2020 semiannual period.

# 6. Conclusions

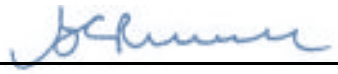
There were no exceedances of effluent limitations during the reporting period.

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

# 7. Certification

Certification Statement:

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

Signature: 

Name: Curt Russell

Company: Pacific Gas and Electric Company

Title: Topock Site Manager

Date: January 15, 2021

# Tables

**Table 1. Sampling Station Descriptions**

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

| Sample Station | Sample ID[a] | Location |
|---|---|---|
| Sampling Station A: Groundwater Treatment System Influent | SC-100B-WDR-### | Sample collected from tap on pipe into T-100 (refer to 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 (refer to 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 (refer to Figures 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 (refer to Figure TP-RP-10-10-06). |

**Notes:**

### = Sequential sample identification number at each sample station

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

## Table 2. Flow Monitoring Results

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

| Parameter | System Influent[a,b] (gpm) | System Effluent[b] (gpm) | Reverse Osmosis Concentrate[b, c] (gpm) |
|---|---|---|---|
| October 2020 Average Monthly Flowrate | 129.8 [d] | 129.3 | 0.1 |
| November 2020 Average Monthly Flowrate | 125.3 [e] | 123.8 | 0.0 |
| December 2020 Average Monthly Flowrate | 126.7 [f] | 124.9 | 0.1 |

**Notes:**

gpm: gallons per minute

[a] Extraction wells TW-3D and TW-2D were operated during the Fourth Quarter 2020. Extraction wells PE-01 and TW-2S were not operated during Fourth Quarter 2020.

[b] The difference between influent flow rate and the sum of the effluent and reverse osmosis concentrate flow rates during the Fourth Quarter 2020 is approximately 0.97 percent.

[c] 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.

[d] The groundwater remedy wastewater (36,000 gallons) during October 2020 was included in the system influent value shown.

[e] The injection backwash water (16,000 gallons) during November 2020 was included in the system influent value shown.

[f] The injection backwash water (16,000) and groundwater remedy wastewater (38,000 gallons) during December 2020 was included in the system influent value shown.

**Table 3. Sample Collection Dates**

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

| Parameter | Sample Collection Dates | Results |
|---|---|---|
| Influent | October 7, 2020<br>November 3, 2020<br>December 1, 2020 | Refer to Table 4 |
| Effluent | October 7, 2020<br>November 3, 2020<br>December 1, 2020 | Refer to Table 5 |
| Reverse Osmosis Concentrate | October 7, 2020 | Refer to Table 6 |
| Sludge[a] | Composite sample sent to lab October 7, 2020 | Refer to Table 7 |

**Note:**

[a] Sludge samples analysis is required quarterly by composite.

**Table 4. Influent Monitoring Results** [a]

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

| Analytes | | TDS | Turbidity | Specific Conductance | Field [c] pH | Chromium | Hexavalent Chromium | Aluminium | Ammonia (as N) | Antimony | Arsenic | Barium | Boron | Copper | Fluoride | Lead | Manganese | Molybdenum | Nickel | Nitrate/Nitrite (as N) | Sulfate | Iron | Zinc |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Units [b] | | mg/L | NTU | µmhos/cm | pH units | µg/L | µg/L | µg/L | mg/L | µg/L | µg/L | µg/L | mg/L | µg/L | mg/L | µg/L | µg/L | µg/L | µg/L | mg/L | mg/L | µg/L | µg/L |
| MDL | | 50.0 | 0.100 | 0.100 | | 0.650 | 1.70 | 200 | 0.0670 | 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-608** | **10/7/2020** | **4600** | **0.220** | **7000** | **7.1** | **420** | **420** | **ND (250)** | **ND (0.200)** | **ND (0.500)** | **3.10** | **33.0** | **3.10** | **ND (1.00)** | **2.40** | **ND (1.00)** | **7.60** | **22.0** | **1.00 R** | **2.60** | **490** | **ND (100)** | **ND (10.0)J** |
| RL | | 50.0 | 0.100 | 0.100 | --- | 5.00 | 10.0 | 250 | 0.200 | 0.500 | 0.100 | 1.00 | 0.500 | 1.00 | 0.500 | 1.00 | 0.500 | 0.500 | 1.00 | 0.250 | 25.0 | 100 | 10.0 |
| **SC-100B-WDR-609** | **11/3/2020** | **4400** | **0.110** | **6600** | **7.2** | **420** | **440** | **---** | **---** | **---** | **---** | **---** | **---** | **---** | **---** | **---** | **8.40** | **---** | **---** | **---** | **---** | **100 J** | **---** |
| RL | | 50.0 | 0.100 | 0.100 | --- | 5.00 | 10.0 | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.500 | --- | --- | --- | --- | 20.0 | --- |
| **SC-100B-WDR-610** | **12/1/2020** | **4500** | **0.530** | **7800** | **7.0** | **350 J** | **430 J** | **---** | **---** | **---** | **---** | **---** | **---** | **---** | **---** | **---** | **570 J** | **---** | **---** | **---** | **---** | **ND (20.0)** | **---** |
| RL | | 50.0 | 0.100 | 0.100 | --- | 5.00 | 10.0 | --- | --- | --- | --- | --- | --- | --- | --- | --- | 12.0 | --- | --- | --- | --- | 20.0 | --- |

**Notes:**

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

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

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

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

**Table 5. Effluent Monitoring Results** [a]

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

| Analytes | | TDS | Turbidity | Specific Conductance | Field pH [e] | Chromium | Hexavalent Chromium | Aluminium | Ammonia (as N) | Antimony | Arsenic | Barium | Boron | Copper | Fluoride | Lead | Manganese | Molybdenum | Nickel | Nitrate/Nitrite (as N) | | Sulfate | Iron | Zinc |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Units [c] | | mg/L | NTU | µmhos/cm | pH units | µg/L | µg/L | µg/L | mg/L | µg/L | µg/L | µg/L | mg/L | µg/L | mg/L | µg/L | µg/L | µg/L | µg/L | mg/L | | mg/L | µg/L | µg/L |
| MDL [d] | | 50.0 | 0.100 | 0.100 | | 0.130 | 0.0330 | 40.0 | 0.0670 | 0.160 | 0.0810 | 0.150 | 0.0740 | 0.550 | 0.0480 | 0.130 | 0.260 | 0.210 | 0.260 | 0.0340 | | 2.00 | 18.0 | 2.30 |
| **Effluent Limits [b]** | Ave. Monthly | NA | NA | NA | 6.5-8.4 | 25 | 8 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | Max Daily | NA | NA | NA | 6.5-8.4 | 50 | 16 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Sampling Frequency** | | **Monthly** | | | | | | | | | | | | | | | | | | | | | | |
| **Sample ID** | **Date** | | | | | | | | | | | | | | | | | | | | | | | |
| **SC-700B-WDR-608** | **10/7/2020** | **4500** | **ND (0.100)** | **7100** | **7.1** | **ND (1.00)** | **ND (0.200)** | **ND (50.0)** | **ND (0.200)** | **ND (0.500)** | **ND (0.100)** | **20.0** | **1.70** | **ND (1.00)** | **2.30** | **ND (1.00)** | **4.60** | **21.0** | **ND (1.00)** | **2.50** | | **490** | **150** | **ND (10.0)** |
| RL | | 50.0 | 0.100 | 0.100 | --- | 1.00 | 0.200 | 50.0 | 0.200 | 0.500 | 0.100 | 1.00 | 0.100 | 1.00 | 0.500 | 1.00 | 0.500 | 0.500 | 1.00 | 0.250 | | 25.0 | 20.0 | 10.0 |
| **SC-700B-WDR-609** | **11/3/2020** | **4200** | **0.120** | **6900** | **7.2** | **ND (1.00)** | **ND (0.200)** | **ND (50.0)** | **ND (0.200)** | **ND (0.500)** | **ND (0.100)** | **16.0** | **1.20** | **ND (1.00)** | **2.50** | **ND (1.00)** | **1.70** | **20.0** | **ND (1.00)** | **2.50** | | **460** | **52.0** | **ND (10.0)** |
| RL | | 50.0 | 0.100 | 0.100 | --- | 1.00 | 0.200 | 50.0 | 0.200 | 0.500 | 0.100 | 1.00 | 0.100 | 1.00 | 0.500 | 1.00 | 0.500 | 0.500 | 1.00 | 0.100 | | 25.0 | 20.0 | 10.0 |
| **SC-700B-WDR-610** | **12/1/2020** | **4400** | **ND (0.100)** | **8000** | **7.1** | **ND (1.00)** | **ND (0.200)** | **ND (50.0)** | **ND (0.200)** | **ND (0.500)** | **ND (0.100)** | **16.0** | **1.20** | **ND (1.00)** | **2.50** | **ND (1.00)** | **0.830** | **20.0** | **ND (1.00)** | **2.80** | | **480** | **ND (20.0)** | **ND (10.0)** |
| RL | | 50.0 | 0.100 | 0.100 | --- | 1.00 | 0.200 | 50.0 | 0.200 | 0.500 | 0.100 | 1.00 | 0.100 | 1.00 | 0.500 | 1.00 | 0.500 | 0.500 | 1.00 | 0.100 | | 25.0 | 20.0 | 10.0 |

**Notes:**

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

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

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

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

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

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

**Table 6. Reverse Osmosis Concentrate Monitoring Results**[a]

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

| Analytes | TDS | Specific Conductance | Field pH [c] | Chromium | Hexavalent Chromium | Antimony | Arsenic | Barium | Beryllium | Cadmium | Cobalt | Copper | Fluoride | Lead | Molybdenum | Mercury | Nickel | Selenium | Silver | Thallium | Vanadium | Zinc |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Units [b] | mg/L | µmhos/cm | pH units | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L | mg/L |
| MDL | 500 | 0.100 | | 0.00013 | 0.00017 | 0.00016 | 0.000081 | 0.00015 | 0.00021 | 0.000053 | 0.000042 | 0.00055 | 0.190 | 0.00013 | 0.00021 | 0.00013 | 0.00026 | 0.00036 | 0.00023 | 0.00019 | 0.00028 | 0.0023 |
| **Sampling Frequency** | **Quarterly** | | | | | | | | | | | | | | | | | | | | | |
| **Sample ID** **Date** | | | | | | | | | | | | | | | | | | | | | | |
| **SC-701-WDR-608** **10/7/2020** | **31000** | **40000** | **7.8** | **0.00320** | **0.00120** | **ND (0.00050)** | **0.00380** | **0.120** | **ND (0.0025)** | **ND (0.00050)** | **0.000540** | **0.00790** | **18.0** | **ND (0.0010)** | **0.150** | **ND (0.00020)** | **0.00960** | **0.0340** | **ND (0.00050)** | **ND (0.00050)** | **0.00490** | **ND (0.0100)** |
| RL | 500 | 0.100 | --- | 0.0010 | 0.0010 | 0.00050 | 0.00010 | 0.0010 | 0.0025 | 0.00050 | 0.00050 | 0.0010 | 2.00 | 0.0010 | 0.00050 | 0.00020 | 0.0010 | 0.00050 | 0.00050 | 0.00050 | 0.0010 | 0.0100 |

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

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

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

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

**Table 7. Sludge Monitoring Results**[a]

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

| Analytes | Chromium | Hexavalent Chromium | Antimony | Arsenic | Barium | Beryllium | Cadmium | Cobalt | Copper | Fluoride | Lead | Molybdenum | Mercury | Nickel | Selenium | Silver | Thallium | Vanadium | Zinc |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Units [b] | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| MDL | 4900 | 100 | 35.0 | 30.0 | 99.0 | ND (3.30) | ND (3.30) | 9.30 | 150 | 36.0 | ND (3.30) | 21.0 | 0.470 | 36.0 J | ND (3.30)J | ND (3.30) | 25.0 | 110 | 75.0 |
| **Sampling Frequency** | **Quarterly** | | | | | | | | | | | | | | | | | | |
| **Sample ID / Date** | | | | | | | | | | | | | | | | | | | |
| **Phase Separator-608-Sludge 10/7/2020** | **4900** | **100** | **35.0** | **30.0** | **99.0** | **ND (3.30)** | **ND (3.30)** | **9.30** | **150** | **36.0** | **ND (3.30)** | **21.0** | **0.470** | **36.0 J** | **ND (3.30)J** | **ND (3.30)** | **25.0** | **110** | **75.0** |
| RL | 3.30 | 3.30 | 6.70 | 0.830 | 3.30 | 3.30 | 3.30 | 3.30 | 6.70 | 6.70 | 3.30 | 3.30 | 0.330 | 3.30 | 3.30 | 3.30 | 6.70 | 3.30 | 3.30 |

**Notes:**

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

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

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

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

**Table 8. Monitoring Information**

*Third 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-608 | Brian Terhune | 10/7/2020 | 12:22:00 PM | ASSET | EPA 120.1 | SC | 10/8/2020 | Lilia Ramit |
| | | | | | ASSET | EPA 200.7 | AL | 10/14/2020 | Diane Jetajobe |
| | | | | | ASSET | EPA 200.7 | B | 10/14/2020 | Diane Jetajobe |
| | | | | | ASSET | EPA 200.7 | FE | 10/14/2020 | Diane Jetajobe |
| | | | | | ASSET | EPA 200.8 | AS | 10/30/2020 | Claire Ignacio |
| | | | | | ASSET | EPA 200.8 | BA | 10/16/2020 | Claire Ignacio |
| | | | | | ASSET | EPA 200.8 | CR | 10/16/2020 | Claire Ignacio |
| | | | | | ASSET | EPA 200.8 | CU | 10/30/2020 | Claire Ignacio |
| | | | | | ASSET | EPA 200.8 | MN | 10/16/2020 | Claire Ignacio |
| | | | | | ASSET | EPA 200.8 | MO | 10/16/2020 | Claire Ignacio |
| | | | | | ASSET | EPA 200.8 | NI | 10/16/2020 | Claire Ignacio |
| | | | | | ASSET | EPA 200.8 | PB | 10/16/2020 | Claire Ignacio |
| | | | | | ASSET | EPA 200.8 | SB | 10/16/2020 | Claire Ignacio |
| | | | | | ASSET | EPA 200.8 | ZN | 10/16/2020 | Claire Ignacio |
| | | | | | ASSET | EPA 218.6 | CR6 | 10/8/2020 | Ria Abes |
| | | | | | ASSET | EPA 300.0 | FL | 10/8/2020 | Ria Abes |
| | | | | | ASSET | EPA 300.0 | SO4 | 10/8/2020 | Ria Abes |
| | | | | | Field | HACH | PH | 10/7/2020 | Brian Terhune |
| | | | | | ASSET | SM 2540C | TDS | 10/9/2020 | Lilia Ramit |
| | | | | | ASSET | SM 4500-NO3F | NO3NO2N | 10/13/2020 | Julia Bundalian |
| | | | | | ASSET | SM2130B | TRB | 10/8/2020 | Lilia Ramit |
| | | | | | BCLabs | SM4500NH3G | NH3N | 10/14/2020 | Marion Cartin |
| SC-100B | SC-100B-WDR-609 | Cameron Stone | 11/3/2020 | 12:20:00 PM | ASSET | EPA 120.1 | SC | 11/4/2020 | Lilia Ramit |
| | | | | | ASSET | EPA 200.7 | FE | 11/19/2020 | Diane Jetajobe |
| | | | | | ASSET | EPA 200.8 | CR | 11/4/2020 | Claire Ignacio |
| | | | | | ASSET | EPA 200.8 | MN | 11/4/2020 | Claire Ignacio |
| | | | | | ASSET | EPA 218.6 | CR6 | 11/4/2020 | Ria Abes |
| | | | | | Field | HACH | PH | 11/3/2020 | Cameron Stone |
| | | | | | ASSET | SM 2540C | TDS | 11/4/2020 | Lilia Ramit |
| | | | | | ASSET | SM2130B | TRB | 11/4/2020 | Lilia Ramit |
| SC-100B | SC-100B-WDR-610 | Cameron Stone | 12/1/2020 | 12:45:00 PM | ASSET | EPA 120.1 | SC | 12/2/2020 | Lilia Ramit |
| | | | | | ASSET | EPA 200.7 | FE | 12/5/2020 | Diane Jetajobe |
| | | | | | ASSET | EPA 200.8 | CR | 12/8/2020 | Claire Ignacio |
| | | | | | ASSET | EPA 200.8 | MN | 12/8/2020 | Claire Ignacio |
| | | | | | ASSET | EPA 218.6 | CR6 | 12/3/2020 | Ria Abes |
| | | | | | Field | HACH | PH | | Cameron Stone |
| | | | | | ASSET | SM 2540C | TDS | 12/2/2020 | Lilia Ramit |
| | | | | | ASSET | SM2130B | TRB | 12/2/2020 | Lilia Ramit |

**Table 8. Monitoring Information**

*Third 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-608 | Brian Terhune | 10/7/2020 | 12:20:00 PM | ASSET | EPA 120.1 | SC | 10/8/2020 | Lilia Ramit |
| | | | | | ASSET | EPA 200.7 | AL | 10/14/2020 | Diane Jetajobe |
| | | | | | ASSET | EPA 200.7 | B | 10/14/2020 | Diane Jetajobe |
| | | | | | ASSET | EPA 200.7 | FE | 10/14/2020 | Diane Jetajobe |
| | | | | | ASSET | EPA 200.8 | AS | 10/17/2020 | Claire Ignacio |
| | | | | | ASSET | EPA 200.8 | BA | 10/16/2020 | Claire Ignacio |
| | | | | | ASSET | EPA 200.8 | CR | 10/16/2020 | Claire Ignacio |
| | | | | | ASSET | EPA 200.8 | CU | 10/30/2020 | Claire Ignacio |
| | | | | | ASSET | EPA 200.8 | MN | 10/16/2020 | Claire Ignacio |
| | | | | | ASSET | EPA 200.8 | MO | 10/16/2020 | Claire Ignacio |
| | | | | | ASSET | EPA 200.8 | NI | 10/16/2020 | Claire Ignacio |
| | | | | | ASSET | EPA 200.8 | PB | 10/16/2020 | Claire Ignacio |
| | | | | | ASSET | EPA 200.8 | SB | 10/16/2020 | Claire Ignacio |
| | | | | | ASSET | EPA 200.8 | ZN | 10/16/2020 | Claire Ignacio |
| | | | | | ASSET | EPA 218.6 | CR6 | 10/8/2020 | Ria Abes |
| | | | | | ASSET | EPA 300.0 | FL | 10/8/2020 | Ria Abes |
| | | | | | ASSET | EPA 300.0 | SO4 | 10/8/2020 | Ria Abes |
| | | | | | Field | HACH | PH | 10/7/2020 | Brian Terhune |
| | | | | | ASSET | SM 2540C | TDS | 10/9/2020 | Lilia Ramit |
| | | | | | ASSET | SM 4500-NO3F | NO3NO2N | 10/13/2020 | Julia Bundalian |
| | | | | | ASSET | SM2130B | TRB | 10/8/2020 | Lilia Ramit |
| | | | | | BCLabs | SM4500NH3G | NH3N | 10/14/2020 | Marion Cartin |
| SC-700B | SC-700B-WDR-609 | Cameron Stone | 11/3/2020 | 12:25:00 PM | ASSET | EPA 120.1 | SC | 11/4/2020 | Lilia Ramit |
| | | | | | ASSET | EPA 200.7 | AL | 11/19/2020 | Diane Jetajobe |
| | | | | | ASSET | EPA 200.7 | B | 11/19/2020 | Diane Jetajobe |
| | | | | | ASSET | EPA 200.7 | FE | 11/19/2020 | Diane Jetajobe |
| | | | | | ASSET | EPA 200.8 | AS | 11/4/2020 | Claire Ignacio |
| | | | | | ASSET | EPA 200.8 | BA | 11/4/2020 | Claire Ignacio |
| | | | | | ASSET | EPA 200.8 | CR | 11/4/2020 | Claire Ignacio |
| | | | | | ASSET | EPA 200.8 | CU | 11/4/2020 | Claire Ignacio |
| | | | | | ASSET | EPA 200.8 | MN | 11/4/2020 | Claire Ignacio |
| | | | | | ASSET | EPA 200.8 | MO | 11/4/2020 | Claire Ignacio |
| | | | | | ASSET | EPA 200.8 | NI | 11/4/2020 | Claire Ignacio |
| | | | | | ASSET | EPA 200.8 | PB | 11/4/2020 | Claire Ignacio |
| | | | | | ASSET | EPA 200.8 | SB | 11/4/2020 | Claire Ignacio |
| | | | | | ASSET | EPA 200.8 | ZN | 11/4/2020 | Claire Ignacio |
| | | | | | ASSET | EPA 218.6 | CR6 | 11/4/2020 | Ria Abes |
| | | | | | ASSET | EPA 300.0 | FL | 11/5/2020 | Ria Abes |

**Table 8. Monitoring Information**

*Third 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-609 | Cameron Stone | 11/3/2020 | 12:25:00 PM | ASSET | EPA 300.0 | SO4 | 11/5/2020 | Ria Abes |
| | | | | | Field | HACH | PH | 11/3/2020 | Brian Terhune |
| | | | | | ASSET | SM 2540C | TDS | 11/4/2020 | Lilia Ramit |
| | | | | | ASSET | SM 4500-NO3F | NO3NO2N | 11/9/2020 | Julia Bundalian |
| | | | | | ASSET | SM2130B | TRB | 11/4/2020 | Lilia Ramit |
| | | | | | BCLabs | SM4500NH3G | NH3N | 11/12/2020 | Marion Cartin |
| SC-700B | SC-700B-WDR-610 | Cameron Stone | 12/1/2020 | 12:45:00 PM | ASSET | EPA 120.1 | SC | 12/2/2020 | Lilia Ramit |
| | | | | | ASSET | EPA 200.7 | AL | 12/5/2020 | Diane Jetajobe |
| | | | | | ASSET | EPA 200.7 | B | 12/15/2020 | Diane Jetajobe |
| | | | | | ASSET | EPA 200.7 | FE | 12/5/2020 | Diane Jetajobe |
| | | | | | ASSET | EPA 200.8 | AS | 12/8/2020 | Claire Ignacio |
| | | | | | ASSET | EPA 200.8 | BA | 12/8/2020 | Claire Ignacio |
| | | | | | ASSET | EPA 200.8 | CR | 12/8/2020 | Claire Ignacio |
| | | | | | ASSET | EPA 200.8 | CU | 12/14/2020 | Claire Ignacio |
| | | | | | ASSET | EPA 200.8 | MN | 12/8/2020 | Claire Ignacio |
| | | | | | ASSET | EPA 200.8 | MO | 12/8/2020 | Claire Ignacio |
| | | | | | ASSET | EPA 200.8 | NI | 12/14/2020 | Claire Ignacio |
| | | | | | ASSET | EPA 200.8 | PB | 12/8/2020 | Claire Ignacio |
| | | | | | ASSET | EPA 200.8 | SB | 12/8/2020 | Claire Ignacio |
| | | | | | ASSET | EPA 200.8 | ZN | 12/8/2020 | Claire Ignacio |
| | | | | | ASSET | EPA 218.6 | CR6 | 12/3/2020 | Ria Abes |
| | | | | | ASSET | EPA 300.0 | FL | 12/3/2020 | Ria Abes |
| | | | | | ASSET | EPA 300.0 | SO4 | 12/3/2020 | Ria Abes |
| | | | | | Field | HACH | PH | | Cameron Stone |
| | | | | | ASSET | SM 2540C | TDS | 12/2/2020 | Lilia Ramit |
| | | | | | ASSET | SM2130B | TRB | 12/2/2020 | Lilia Ramit |
| | | | | | BCLabs | SM4500NH3G | NH3N | 12/11/2020 | Marion Cartin |
| | | | | | BCLabs | SM4500NO3-E | NO3NO2N | 12/16/2020 | Marion Cartin |
| SC-701 | SC-701-WDR-608 | Brian Terhune | 10/7/2020 | 12:30:00 PM | ASSET | EPA 120.1 | SC | 10/8/2020 | Lilia Ramit |
| | | | | | ASSET | EPA 200.8 | AG | 10/16/2020 | Claire Ignacio |
| | | | | | ASSET | EPA 200.8 | AS | 10/17/2020 | Claire Ignacio |
| | | | | | ASSET | EPA 200.8 | BA | 10/16/2020 | Claire Ignacio |
| | | | | | ASSET | EPA 200.8 | BE | 10/16/2020 | Claire Ignacio |
| | | | | | ASSET | EPA 200.8 | CD | 10/16/2020 | Claire Ignacio |
| | | | | | ASSET | EPA 200.8 | CO | 10/16/2020 | Claire Ignacio |
| | | | | | ASSET | EPA 200.8 | CR | 10/16/2020 | Claire Ignacio |
| | | | | | ASSET | EPA 200.8 | CU | 10/30/2020 | Claire Ignacio |
| | | | | | ASSET | EPA 200.8 | MO | 10/16/2020 | Claire Ignacio |

**Table 8. Monitoring Information**

*Third 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-701 | SC-701-WDR-608 | Brian Terhune | 10/7/2020 | 12:30:00 PM | ASSET | EPA 200.8 | NI | 10/16/2020 | Claire Ignacio |
| | | | | | ASSET | EPA 200.8 | PB | 10/16/2020 | Claire Ignacio |
| | | | | | ASSET | EPA 200.8 | SB | 10/30/2020 | Claire Ignacio |
| | | | | | ASSET | EPA 200.8 | SE | 10/17/2020 | Claire Ignacio |
| | | | | | ASSET | EPA 200.8 | TL | 10/16/2020 | Claire Ignacio |
| | | | | | ASSET | EPA 200.8 | V | 10/16/2020 | Claire Ignacio |
| | | | | | ASSET | EPA 200.8 | ZN | 10/16/2020 | Claire Ignacio |
| | | | | | ASSET | EPA 218.6 | CR6 | 10/8/2020 | Ria Abes |
| | | | | | ASSET | EPA 245.1 | HG | 10/10/2020 | Diane Jetajobe |
| | | | | | ASSET | EPA 300.0 | FL | 10/8/2020 | Ria Abes |
| | | | | | Field | HACH | PH | 10/7/2020 | Cameron Stone |
| | | | | | ASSET | SM 2540C | TDS | 10/9/2020 | Lilia Ramit |
| Phase Separator | Phase Separator-608-Sludge | Scott Odonnell | 10/7/2020 | 3:15:00 PM | ASSET | EPA 300.0 | FL | 10/15/2020 | Ria Abes |
| | | | | | ASSET | EPA 6010B | AG | 10/10/2020 | Diane Jetajobe |
| | | | | | ASSET | EPA 6010B | BA | 10/10/2020 | Diane Jetajobe |
| | | | | | ASSET | EPA 6010B | BE | 10/10/2020 | Diane Jetajobe |
| | | | | | ASSET | EPA 6010B | CD | 10/10/2020 | Diane Jetajobe |
| | | | | | ASSET | EPA 6010B | CO | 10/10/2020 | Diane Jetajobe |
| | | | | | ASSET | EPA 6010B | CR | 10/10/2020 | Diane Jetajobe |
| | | | | | ASSET | EPA 6010B | CU | 10/10/2020 | Diane Jetajobe |
| | | | | | ASSET | EPA 6010B | MN | 10/10/2020 | Diane Jetajobe |
| | | | | | ASSET | EPA 6010B | MO | 10/10/2020 | Diane Jetajobe |
| | | | | | ASSET | EPA 6010B | NI | 10/15/2020 | Diane Jetajobe |
| | | | | | ASSET | EPA 6010B | PB | 10/10/2020 | Diane Jetajobe |
| | | | | | ASSET | EPA 6010B | SB | 10/21/2020 | Diane Jetajobe |
| | | | | | ASSET | EPA 6010B | SE | 10/10/2020 | Diane Jetajobe |
| | | | | | ASSET | EPA 6010B | TL | 10/16/2020 | Diane Jetajobe |
| | | | | | ASSET | EPA 6010B | V | 10/10/2020 | Diane Jetajobe |
| | | | | | ASSET | EPA 6010B | ZN | 10/10/2020 | Diane Jetajobe |
| | | | | | ASSET | EPA 7471A | HG | 10/10/2020 | Diane Jetajobe |
| | | | | | ASSET | SW 6020A | AS | 10/10/2020 | Claire Ignacio |
| | | | | | ASSET | SW 7199 | CR6 | 10/12/2020 | Ria Abes |

**Table 8. Monitoring Information**

*Third 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 CaCO3 | MO = | molybdenum |
| ALKC = | alkalinity, carb as CaCO3 | MOIST = | moisture |
| AL = | aluminum | NH3N = | ammonia (as N) |
| Ag = | silver | NI = | nickel |
| AS = | arsenic | NO3NO2N = | nitrate/nitrite (as N) |
| B = | boron | PB = | lead |
| BA = | barium | PH = | pH |
| BE = | beryllium | SB = | antimony |
| CD = | cadmium | SC = | specific conductance |
| CO = | cobalt | SE = | selenium |
| CR = | chromium | SO4 = | sulfate |
| CR6 = | hexavalent chromium | TDS = | total dissolved solids |
| CU = | copper | TL = | thallium |
| FE = | iron | TRB = | turbidity |
| FETD = | iron, dissolved | V = | vanadium |
| FL = | fluoride | ZN = | zinc |
| HG = | mercury | | |
| MN = | manganese | | |
| MND = | manganese, dissolved | | |

# Figures

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

BLM

BLM

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

East Mesa
Injection Area

IW-1
IW-2
IW-3

IM-3
Treatment
Plant

MW-20
Bench

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

500
550
600

Historic Route 66

BAT CAVE WASH

Park Moabi Rd./National Trails Highway

Colorado River

BN&SF RAILROAD

INTERSTATE 40

66

**LEGEND**

- IM-3 Injection Well
- Compliance Monitoring Well Cluster
- Exploratory Boring
- Groundwater Monitoring Well
- IM Extraction Well
- IM-3 Effluent Pipeline
- IM-3 Treatment Facility Pipelines
- PG&E Property Boundary

N

0 170 340 680 Feet

California State Plane NAD83 Zone 5 US Feet

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

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

TREATMENT PLANT CONTROL PANEL LCP - 100

LEAK DETECTION PANEL - 003

ALM

120V

PLANT ALARM R YL1000

PLANT ALARM R YL1001

PLANT ALARM R YL1002

PLANT ALARM R YL1003

PLANT ALARM HORN H YL1004

CLOSED OPENED OPEN TEMP REM pH LVL COND.

RUN ON REM FLOW

LVL POSITION FLOW CONTROL

RUN ON REM PSL FLOW FLOW

CH-104-1HB-E

TP-PR-10-10- 09 [B6]

SULFURIC ACID P-801B

1/2"-CH-104-1HB-E

V-CH-104-01

BPR

TW-103-1HB

TP-PR-10-10- 08 [D6]

TREATED WATER R.O. BYPASS

4"-TW-103-1HB

TW-105-1HB

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

R.O. TREATED WATER

4"-TW-105-1HB

STATIC MIXER 4"x3" 4"x3"

120 VAC

AIT 606 AE 606

AIT 702 AE 702

V-1390

V-TW-105-02

HS 200 HOA

HS 700 HOA

TW-128-1HB

TP-PR-10-10- 04 [B6]

SEAL WATER

1/2"-TW-128-1HB

N.C. V-TW-114-01

V-TW-114-02

HOA HS 100A

TW-104-1HB

TP-PR-10-10- 08 [A1]

OFF-SPEC RECYCLE FROM R.O. FEED

4"-TW-104-1HB

LIT 200

LE 200

RW-125-1HB

TP-PR-10-10- 07 [B1]

OFF-SPEC RECYCLE FROM MICROFILTER FEED

4"-RW-125-1HB

WS-111-1HB

TP-PR-10-10-06 [C6]

FROM PROCESS DRAINS TANK

4"-WS-111-1HB

LIT 700

LE 700

120 VAC

VFD - 1100

3"-TW-143-1HB

PRV 700

SET @ 50 PSI

3"x2" 3"x2"

VENT

MANHOLE

SAMPLING STATION B

TOTAL FLOW/METER TO INJECTION WELLS

1"-TW-129-1HB

V-1390

TW-129-1HB

TP-PR-10-10- 09 [C1]

TO POLYELECTROLYTE MAKE-DOWN SYSTEM

1/2"-TW-128-1HB

V-1390

TW-128-1HB

TP-PR-10-10- 04,05..

SEAL WATER TO PUMPS SHTS 04, 05, 06, 07, 08

FUTURE

2"-TW-127-1HB

FIT 702 FE 702

SC

4"x3" 4"x3"

TW-120-1HB

TP-PR-10-10- 11 [C1]

MAG

4"-TW-120-1HB

TO INJECTION WELLS

V-TW-120-01

FIT 700

RW-107-1KB

TP-PR-10-10-03 [B6]

RAW WATER FROM EXTRACTION WELLS

4" IN 8"-RW-107-1KB

LSH 201A-(H)

SAMPLING STATION A

ZSC 100 ZSO 100 SV 100

90 PSIG AIR SET

4"-RW-110-1HB

F.C.

RW 1KB RW V-RW-110-01 1HB

FV 100

RO 200

2"-RW-113-1HB

MINIMUM RECIRC. 40 GPM MIN.

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

6"-DR-115-1HB

6"-DR-101-1HB

V-DR-101-01

V-TW-126-01

V-TW-116-01

6"-TW-116-1HB

EJ-TW-116-01

TS-TW-116-01

P-700 TREATED WATER TRANSFER PUMP 150 GPM X 150 FT. H20

4"x1 1/2"

V-TW-117-01

V-TW-117-02

TW-117-1HB

TP-PR-10-10- 10 [A1]

TREATED WATER TO BAKER TANKS

RW-127-1KB

TP-PR-10-10-03 [B6]

FROM VALVE VAULT 1 SPARE

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

NOTE 1 SPARE

NOTE 1 LEAK DETECTION (TYP 8)

4" IN 8"-RW-107-1KB

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

V-RW-107-01 V-RW-127-01 VALVE VAULT No. 4

RW 1KB RW 1HB RW 1HB RW 1KB

FUTURE

4" IN 8" SPARE

4" IN 8" PE-3

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

6"-DR-114-1HB

6"-DR-100-1HB

V-DR-100-01

VENT

MANHOLE

V-RW-111-01

SOV 200

1/2" x 3/8"

PI 200

V-1390

SC

EJ-RW-111-01

6"x4"

6"-RW-111-1HB

PS-RW-111-01

4"x3"

V-RW-112-01

P-200 RAW WATER FEED PUMP 190 GPM X 35 FT H20

V-1390

V-RW-112-02

4"x3" 4"x3" 4"x2 1/2"

FE 200

FIT 200

FIC 200

ZT 200

FCV - 200

F.C.

V-TW-126-02

4"x2 1/2"

AIR SET 90 PSIG

SEAL WATER TANK T-1100

PI 1100 PT 1100

SEAL WATER PUMP 25 GPM X 115 FT. H20

3"x1 1/4"

P-1100

PSL 1100

BFP

2"x1"

PS-TW-127-01

V-TW-127-01

4"-RW-112-1HB

RW-112-1HB

TP-PR-10-10- 05 [C1]

TO TREATMENT SYSTEM CONTINUOUS FLOW

TW-125-1HB

2"

TP-PR-10-10- 05,06..

FIELD ROUTE TO FLUSH SYS. HOSE CONNS.

NOTES

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

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

SECONDARY CONTAINMENT - PROCESS PLANT

| NO. | DATE | REVISION | BY | CHK |
|---|---|---|---|---|
| D | 07/28/04 | FOR INTERNAL REVIEW | EFC | AJ |
| 0 | 09/03/04 | APPROVED FOR CONSTRUCTION | EFC | AJ |
| 1 | 10/13/04 | REVISED AND APPROVED FOR CONSTRUCTION | EFC | AJ |
| 2 | 01/23/05 | REVISED AND APPROVED FOR CONSTRUCTION | EFC | AJ |
| 3 | 02/14/05 | ADDED RECIRC. LINE AND PRV VALVE TO T-700 – APPROVED FOR CONSTRUCTION | EFC | AJ |
| 4 | 09/21/05 | REVISED PER AS-BUILT CONDITIONS | EFC | AJ |

| REVISION APPROVAL | | REV 4 | DATE 09/21/05 | PRINT DISTRIBUTION |
|---|---|---|---|---|
| DISCIPLINE | REVIEWED | DISCIPLINE | REVIEWED | DATE |
| CIVIL | | ELECTRICAL | | STATUS |
| STRUCTURAL | | INST & CONTROL | | REV. |
| MECHANICAL | | ARCHITECTURAL | | CLIENT |
| PROCESS | | ENVIRONMENTAL | | FIELD |
| PIPING | | GEN. ARRANG. | | INTRA CO. |

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

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

SCALE NONE

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

PROJ NO. 315994

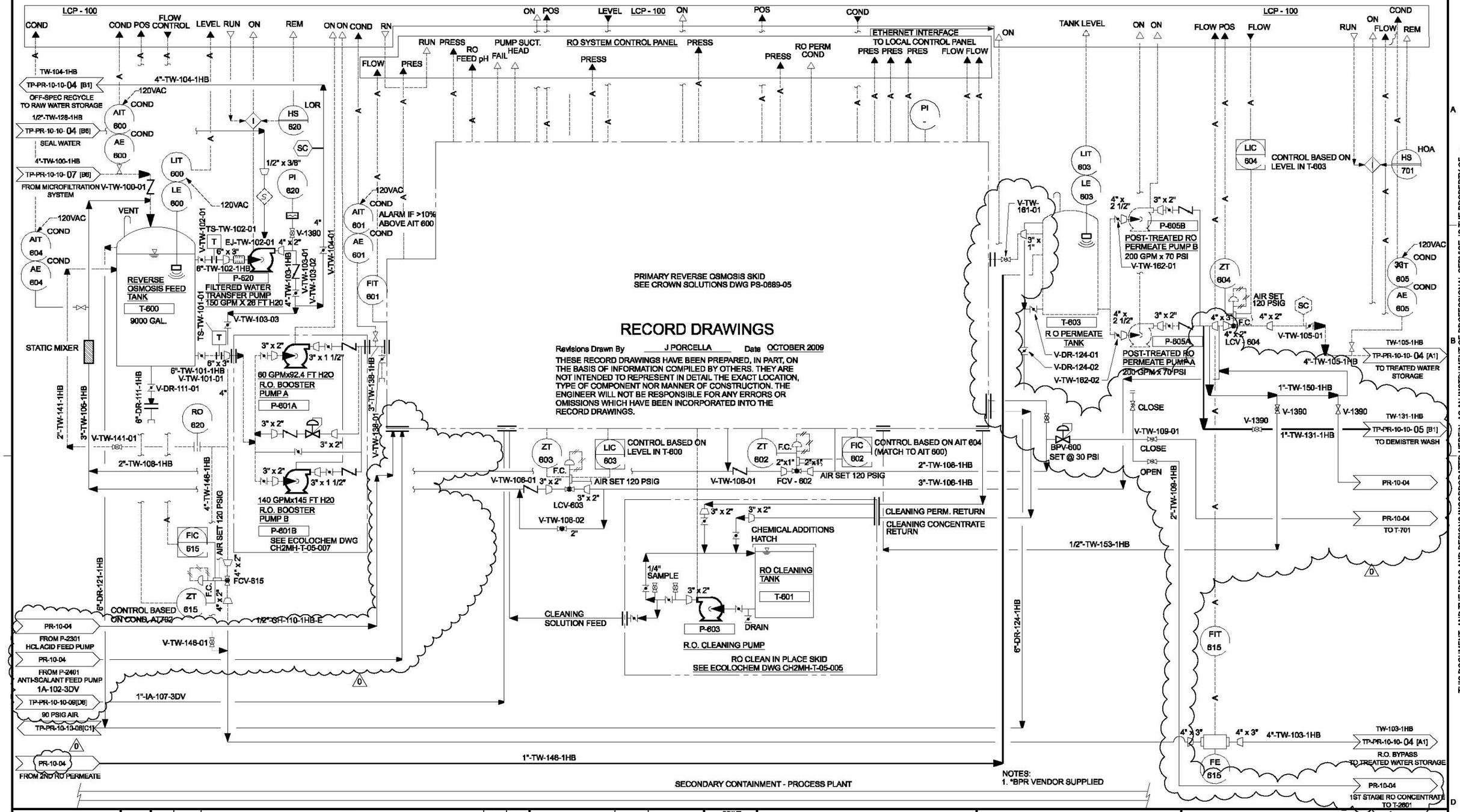
CH2MHILL

PROCESS AND INSTRUMENTATION DIAGRAM
SHEET 04
STORAGE AREA

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

BAR IS ONE INCH ON ORIGINAL DRAWING

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






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

RESPONSIBLE ENGINEER: John Porcella C70145 Exp. 3-30-10
PE#

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

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

| PRINT DISTRIBUTION | |
|---|---|
| DATE | |
| STATUS | |
| REV. | |
| CLIENT | |
| FIELD | |
| INTRA CO. | |

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

SCALE NONE

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

PROJ NO. 362032

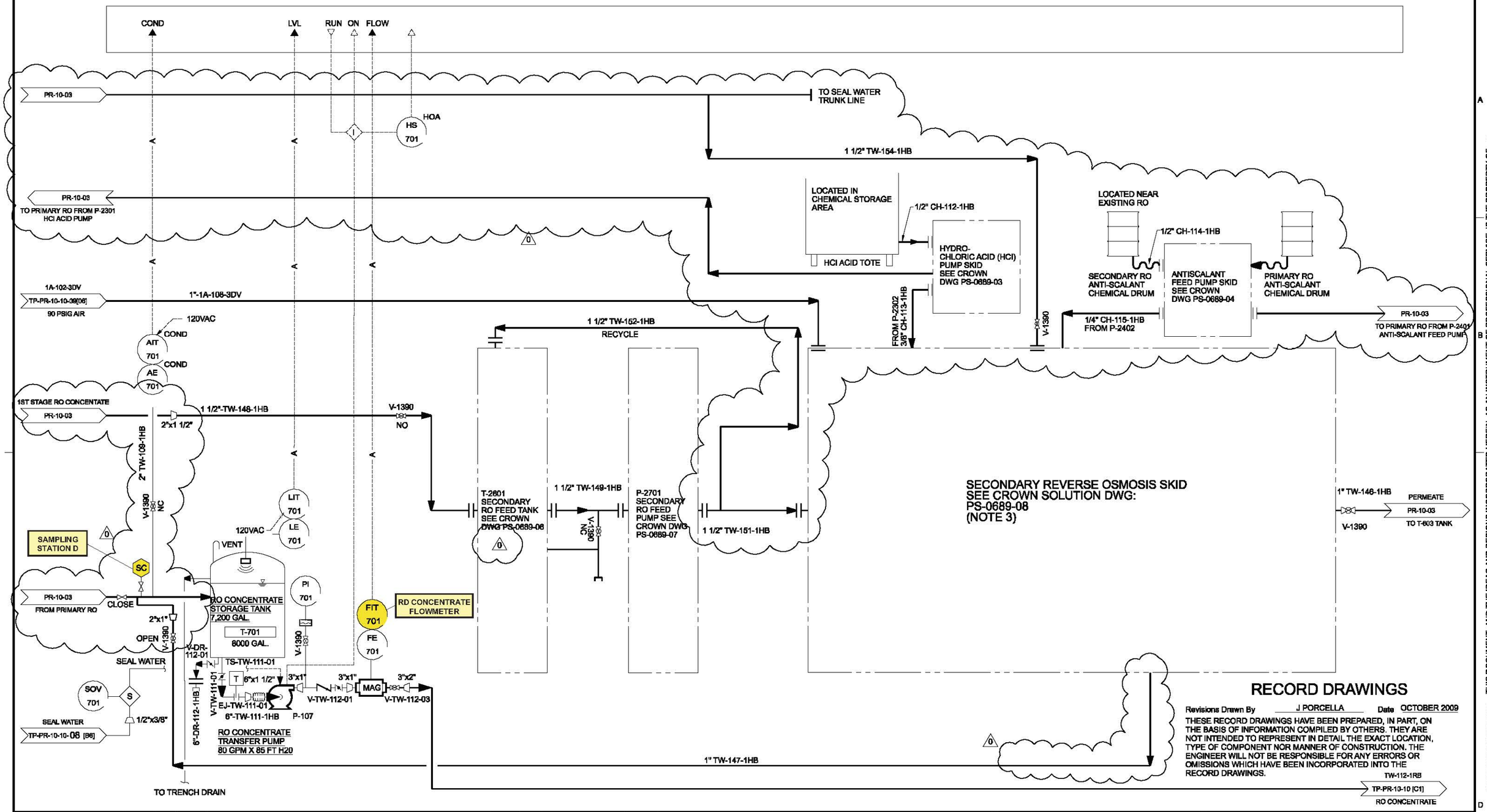
CH2MHILL

PROCESS AND INSTRUMENTATION DIAGRAM
REVERSE OSMOSIS SYSTEM
SHEET ONE OF TWO

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

BAR IS ONE INCH ON ORIGINAL DRAWING
D 1"

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




## RECORD DRAWINGS

Revisions Drawn By J PORCELLA Date OCTOBER 2009

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



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

RESPONSIBLE ENGINEER: John Porcella Exp. 6-30-10 C70145 PE #

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

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

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

SCALE NONE

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

PROJ NO. 362032

CH2MHILL

PROCESS AND INSTRUMENTATION DIAGRAM
REVERSE OSMOSIS SYSTEM
SHEET TWO OF TWO

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

BAR IS ONE INCH ON ORIGINAL DRAWING. D 1"

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

CONTROL PANEL

PLC

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

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

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

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

RW-121-1HB
TP-PR-10-10- 05 [C6]
FROM CHEM REDUCTION AND COAGULATION SYSTEM IA-104-3DV
4"-RW-121-1HB
TP-PR-10-10- 09 [D6]
90 PSIG AIR
1"-IA-104-3DV

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

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

M-400-A · M-400-B · M-400-C · M-402 · M-403 · M-404

CL-400 CLARIFIER

6"-DR-107-1HB

SEE PARKSON DRAWING 10086701-01

SV 400 · SV 401 · SV 403 · SV 410 · AE 400 TURB · ZSC 400 · ZSO 400 · ZSC 410 · ZSO 410 · SC

AIR SET 120 PSIG · F. C. · FV - 400 · FV - 410

4"-WS-102-1HB · 4"-WS-100-1HB · V-WS-104-01

120 PSIG AIR SET · PI 401 · PE 401 · LE 402

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

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

2"-WS-101-1HB · 2" x 1" · V-WS-101-01 · 4" x 2" · P-401 SLUDGE WITHDRAWAL PUMP 20 GPM X 30 FT. H2O · 6" x 4"

SLUDGE HOLDING TANK 6000 GAL T-402 · VENT · DECANT · 2"-V-1790 (TYP 5) · 4" (TYP 5) AIR/SIGHT GAP · 4"

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

PI 403 · PE 403 · 2"-WS-106-1HB · V-WS-106-01 · FH-WS-106-01

TRUCK FILL FOR OFF-SITE DISPOSAL

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

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

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

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

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

TW-128-1HB
TP-PR-10-10- 04 [B6]
SEAL WATER
1/2"-TW-128-1H3

4"-WS-104-1HB

LIT 900 · LE 900 · 1/2" x 3/8" · VENT

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

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

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

LSHH 405

UNIT 2 CAKE CAKE · UNIT 1 CAKE CAKE

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

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

T-900A PROCESS SUMP · NOTE 1

480 VAC · LCP - 405 · P-405 PHASE SEPARATOR SUMP PUMP PACKAGE 25 GPM x 25 FT. H2O · PUMPOUT VAULT · PS-405 PHASE SEPARATORS ALTERNATING DURING OPERATION

SECONDARY CONTAINMENT - PROCESS PLANT

NOTES:

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

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

| REVISION APPROVAL | REVIEWED | REV 2 DATE 01/23/05 | REVIEWED |
|---|---|---|---|
| DISCIPLINE | | DISCIPLINE | |
| CIVIL | | ELECTRICAL | |
| STRUCTURAL | | INST & CONTROL | |
| MECHANICAL | | ARCHITECTURAL | |
| PROCESS | | ENVIRONMENTAL | |
| PIPING | | GEN. ARRANG. | |

PRINT DISTRIBUTION: DATE · STATUS · FIELD · INTRA CO.

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

SCALE NONE

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

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

CH2MHILL

PROCESS AND INSTRUMENTATION DIAGRAM
SHEET 06
CLARIFICATION AND SLUDGE REMOVAL

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

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

BAR IS ONE INCH ON ORIGINAL DRAWING. 0 1"

CONTROL PANEL LCP-100

WELL TW-3D CONTROL: LSH, LSH, LSHH, LVL RUN, ON, RM, PRESS, FLOW

WELL TW-2S CONTROL: LSH, LVL RUN, ON, RM, PRESS FLOW, LSH, LSHH

WELL TW-2D CONTROL: LSH, LVL RUN, ON, RM, PRESS FLOW

WELL PE-1 CONTROL: LSH, LVL RUN, ON, RM, PRESS, FLOW

ALM, 120V

LEAK DETECTION PANEL - 003

HS 102 HOA

HS 100 HOA

HS 101 HOA

HS 103 HOA

HOLD

LSH 002, LSHH 002

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

FUTURE

4"-RW-140-1HB

V-RW-140-01

NOTE 1

VALVE VAULT No. 2

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

FUTURE

4"-RW-139-1HB

V-RW-139-01

NOTE 1

3"-RW-138-1HB

V-RW-138-01

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

4"-RW-105-1HB

V-RW-105-05

4" IN 8"-FUTURE

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

LSH 102A

NOTE 1

FI 102

LSH 001, LSHH 001

1" V-1390

4" x 3"

EJ-RW-105-01

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

4" IN 8" RW-127-1KB

TP-PR-10-10-04 [C1]

SPARE TO VALVE VAULT 4

NOTES 1 & 2

V-RW-105-06 THROTTLING

V-RW-105-04

V-RW-105-03

4" IN 8" RW-107-1KB

TP-PR-10-10-04 [C1]

TO RAW WATER STORAGE

V-RW-108-02 THROTTLING

4"-RW-130-1HB

V-RW-130-02

V-RW-130-01

Well TW-2S Flowmeter

FE 100, FIT 100, PIT 100, PE 100

3"x2" V-RW-105-02

3"-RW-105-1HB THROTTLING

MAG

3"x2" V-RW-105-01

V-1390 V-1390

VENT LT 100

VALVE VAULT No. 1

LT 101

Well TW-2D Flowmeter

FE 101, FIT 101, PIT 101, PE 101

3"x2" V-RW-102-02

3"-RW-102-1HB THROTTLING

MAG

3"x2" V-RW-102-01

V-1390 V-1390

Well PE-1 Flowmeter

FE 103, FIT 103, PIT 103, PE 103

LT 103 VENT

3"x2" V-RW-108-02

3"-RW-108-1HB

MAG

3"x2" V-RW-108-01

V-1390 V-1390

LSH 103A

NOTE 1

4" IN 8"-RW-131-1KB

TO BAKER TANKS V-RW-131-01

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

LSH 100A

NOTE 1

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

LSH 101A

NOTE 1

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

4"x3"

V-RW-132-02

V-RW-134-02

4"x3"

V-RW-103-02

V-RW-100-02

Well TW-3D Flowmeter

VENT LT 102

PI 102, PIT 102, PE 102, FIT 102, FE 102

PRV 102

SET AT 120 PSI

V-1390 V-1390 V-1390

3"x2" 3"x2"

3"-RW-134-1HB

V-RW-134-01

MAG

LSH 102

WELL VAULT No. 4

PI 100

V-1390

3"-RW-103-1HB

V-RW-103-01

LSH 100

WELL VAULT No. 2

PI 101

PRV 101

SET AT 120 PSI

V-1390

3"-RW-100-1HB

V-RW-100-01

LSH 101

WELL VAULT No. 1

PI 103

PRV 103

SET AT 120 PSI

V-1390

3"-RW-132-1HB

3"x2" V-RW-132-01

LSH 103

WELL VAULT No. 3

LE 102, P-102

EXTRACTION WELL TW-3D

135 GPM x 248 FT. H20

LE 100, P-100

EXTRACTION WELL TW-2S

40 GPM x 180 FT. H20

LE 101, P-101

EXTRACTION WELL TW-2D

90 GPM x 245 FT. H20

LE 103, P-103

EXTRACTION WELL PE-1

40 GPM x 235 FT. H20

NOTES

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

REGISTERED PROFESSIONAL ENGINEER KENNETH L. MARTINS No. CH4976 STATE OF CALIFORNIA

RESPONSIBLE ENGINEER: Kenneth L. Martins CH4976 Exp. 6-30-06

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

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

PRINT DISTRIBUTION: DATE, STATUS, CLIENT, FIELD, INTRA CO.

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

SCALE NONE

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

CH2MHILL

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

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

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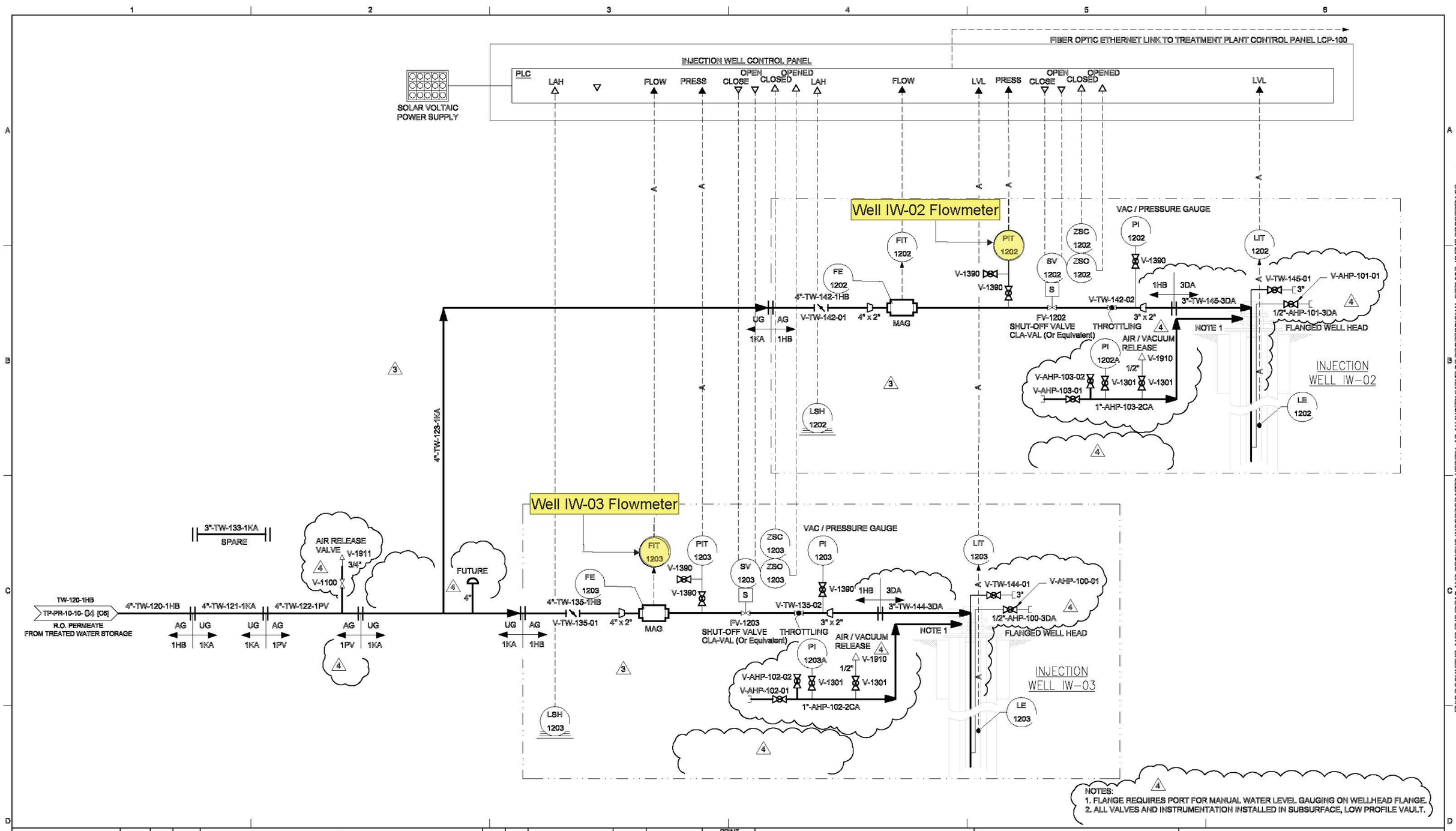
FILENAME: tppr101003.dwg PLOT DATE: 19-OCT-2005 PLOT TIME:




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

RESPONSIBLE ENGINEER: Kenneth L. Martins CH4878 Exp. 6-30-05 PE #

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

SCALE NONE

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

CH2MHILL

PROCESS AND INSTRUMENTATION DIAGRAM
SHEET 11
INJECTION WELLS

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

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

# Appendix A
# Semiannual Operations and Maintenance Log, July 1, 2020 through December 31, 2020

# Appendix A: Semiannual Operations and Maintenance Log, July 1, 2020 through December 31, 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 here. The times shown are in Pacific Standard Time (PST) to be consistent with other data collected at the site.

## July 2020

During July 2020, extraction well TW-3D operated at a target pump rate of 135 gpm excluding periods of planned and unplanned downtime. Extraction wells TW-2S, TW-2D, and PE-01 were not operated during July 2020. A portion of the piping/conduit for PE-01 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-01 piping/conduit. The operational run time for the IM-3 groundwater extraction system (combined or individual pumping) was 95.5 percent during the July 2020 reporting period.

The IM-3 facility treated approximately 5,680,458 gallons of extracted groundwater during July 2020. The IM-3 facility also treated 18,800 gallons of Final Groundwater Remedy wastewater, 400 gallons of sampling purge water and zero gallons of groundwater from injection well backwashing/re-development during July 2020. Three containers of solids from the IM-3 facility were transported offsite during July 2020.

Periods of planned and unplanned extraction system down time (that together resulted in approximately 4.5 percent downtime during July 2020) are summarized below.

- **July 1 - 6, 2020 (unplanned):** The extraction well system was offline from 12:02 a.m. to 12:36 a.m. on July 1, 2020; from 4:52 p.m. to 6:48 p.m. on July 1, 2020; from 12:32 p.m. to 1:50 p.m. on July 2, 2020; from 5:32 a.m. to 6:28 a.m. on July 3, 2020; from 10:06 p.m. to 11:26 p.m. on July 3, 2020; from 7:06 p.m. to 8:32 p.m. on July 4, 2020; from 2:04 p.m. to 3:22 p.m. on July 5, 2020; and from 2:22 a.m. to 3:16 p.m. on July 6, 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 9 hours 42 minutes.
- **July 6, 2020 (unplanned):** The extraction well system was offline from 6:22 a.m. to 10:10 a.m. to replace the flow meters at the Clarifier Feed Pump (P-400) and the Plant Effluent Flow (FIT700). Extraction system downtime was 3 hours 48 minutes.
- **July 6, 2020 (unplanned):** The extraction well system was offline from 7:34 p.m. to 8:50 p.m. due to replacing microfilter modules. Extraction system downtime was 1 hour 16 minutes.
- **July 7 - 9, 2020 (unplanned):** The extraction well system was offline from 10:24 a.m. to 11:20 a.m. on July 7, 2020 and from 7:12 p.m. to 8:18 p.m. on July 9, 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 2 minutes.
- **July 11, 2020 (unplanned):** The extraction well system was offline from 11:14 a.m. to 12:24 p.m. and from 12:26 p.m. to 1:04 p.m. due to replacing microfilter modules. Extraction system downtime was 1 hour 48 minutes.
- **July 12, 2020 (unplanned):** The extraction system was offline from 9:50 a.m. to 9:52 a.m. due to a programmable logic controller (PLC) and human machine interface (HMI) connectivity issue. Extraction system downtime was 2 minutes.
- **July 18, 2020 (unplanned):** The extraction well system was offline from 2:24 a.m. to 4:50 a.m. due to replacing microfilter modules. Extraction system downtime was 2 hours 26 minutes.

- **July 19, 2020 (unplanned):** The extraction well system was offline from 9:36 p.m. to 10:24 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 48 minutes.
- **July 20, 2020 (unplanned):** The extraction well system was offline from 12:12 p.m. to 2:16 p.m. due to replacing microfilter modules. Extraction system downtime was 2 hours 4 minutes.
- **July 22, 2020 (planned):** The extraction well system was offline from 7:38 a.m. to 8:22 a.m. due to testing of the pipeline critical alarms and leak detection system. Extraction system downtime was 44 minutes.
- **July 22, 2020 (unplanned):** The extraction well system was offline from 12:28 a.m. to 1:46 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 18 minutes.
- **July 23, 2020 (planned):** The extraction well system was offline from 8:42 a.m. to 9:10 a.m. to process wastewater (8,000 gallons) generated from remedy well construction activities. Extraction system downtime was 28 minutes.
- **July 23 - 25, 2020 (unplanned):** The extraction well system was offline from 10:58 p.m. to 11:44 p.m. on July 23, 20202 and from 6:10 a.m. to 6:38 a.m. on July 25, 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 1 hour 14 minutes.
- **July 25, 2020 (unplanned):** The extraction well system was offline from 4:52 p.m. to 7:48 p.m. due to replacing microfilter modules. Extraction system downtime was 2 hours 56 minutes.
- **July 26, 2020 (unplanned):** The extraction well system was offline from 1:58 a.m. to 4:12 a.m. because the Acid Pump (P-801B) which feeds the Treated Water Storage Tank (T-700) failed. The pump was repaired and extraction resumed. Extraction system downtime was 2 hours 14 minutes.
- **July 31, 2020 (unplanned):** The extraction well system was offline from 8:42 a.m. to 9:06 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 24 minutes.

## August 2020

During August 2020, extraction well TW-3D operated at a target pump rate of 135 gpm excluding periods of planned and unplanned downtime. Extraction wells TW-2S, TW-2D, and PE-01 were not operated during August 2020; an attempt was made to extract water using well TW-2D during August 2020, but the well was found to be inoperable. A portion of the piping/conduit for PE-01 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-01 piping/conduit. The operational run time for the IM-3 groundwater extraction system (combined or individual pumping) was 81.1 percent during the August 2020 reporting period.

The IM-3 facility treated approximately 4,855,518 gallons of extracted groundwater during August 2020. The IM-3 facility also treated 57,147 gallons of Final Groundwater Remedy wastewater, 700 gallons of sampling purge water, and zero gallons of groundwater from injection well backwashing/re-development during August 2020. Two containers of solids from the IM-3 facility were transported offsite during August 2020.

Periods of planned and unplanned extraction system down time (that together resulted in approximately 18.9 percent downtime during August 2020) are summarized below.

- **August 1, 2020 (unplanned):** The extraction well system was offline from 5:34 p.m. to 8:26 p.m. due to replacing microfilter modules. Extraction system downtime was 2 hours 52 minutes.
- **August 6, 2020 (unplanned):** The extraction well system was offline from 6:26 a.m. to 6:42 a.m. to process wastewater (400 gallons) generated from remedy well construction activities. A leak was

found in the brine return line at the MW-20 Bench; the leak was contained in secondary containment (a flange fitting was loose), and the process was stopped. Extraction system downtime was 16 minutes.

- **August 6, 2020 (unplanned):** The extraction system was offline from 7:28 a.m. to 7:30 a.m. due to a PLC and HMI connectivity issue. Extraction system downtime was 2 minutes.
- **August 6, 2020 (planned):** The extraction well system was offline from 7:44 a.m. to 7:58 a.m. to confirm that the brine return line was repaired and to process wastewater (3,050 gallons) generated from remedy well construction activities. Extraction system downtime was 14 minutes.
- **August 6, 2020 (unplanned):** The extraction well system was offline from 3:44 p.m. to 4:34 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 50 minutes.
- **August 8, 2020 (planned):** The extraction well system was offline from 8:22 a.m. to 9:24 a.m.; and from 12:06 p.m. to 1:02 p.m. to process wastewater (6,000 gallons) generated from remedy well construction activities. Extraction system downtime was 1 hour 58 minutes.
- **August 8, 2020 (unplanned):** The extraction well system was offline from 7:32 p.m. to 8:28 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 56 minutes.
- **August 9-12, 2020 (planned):** The extraction well system was offline from 4:18 a.m. August 9, 2020 to 8:44 a.m. August 12, 2020 for the semiannual scheduled maintenance outage. Extraction system downtime was 3 days 4 hours 26 minutes.
- **August 12, 2020 (unplanned):** The extraction well system was offline from 9:20 a.m. to 2:12 p.m. because as the plant came back online from the semiannual maintenance outage there were low pH values throughout the plant and higher conductivity values. The plant was kept in recirculation until the pH and conductivity values returned to normal. Extraction system downtime was 4 hours 52 minutes.
- **August 14-16, 2020 (unplanned):** The extraction well system was offline from 2:16 a.m. to 3:14 a.m. and from 10:18 p.m. to 11:00 p.m. on August 14, 2020; from 6:36 a.m. to 11:38 a.m. on August 15, 2020; and from 2:26 p.m. to 3:22 p.m. on August 16, 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 7 hours 38 minutes.
- **August 17, 2020 (planned):** The extraction well system was offline from 6:20 a.m. to 6:32 a.m. to process wastewater generated from remedy well construction activities. Extraction system downtime was 12 minutes.
- **August 17, 2020 (unplanned):** The extraction well system was offline from 2:10 p.m. to 3:24 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 14 minutes.
- **August 18, 2020 (planned):** The extraction well system was offline from 6:06 a.m. to 6:12 a.m. to process wastewater generated from remedy well construction activities. Extraction system downtime was 6 minutes.
- **August 18, 2020 (unplanned):** The extraction well system was offline from 6:30 p.m. to 7:46 p.m. due to a City of Needles power outage. The outage tripped out the microfilter and the air compressors. Extraction system downtime was 1 hour 16 minutes.
- **August 19, 2020 (unplanned):** The extraction system was offline from 3:56 a.m. to 3:58 a.m. and from 7:04 a.m. to 7:06 a.m. due to a PLC and HMI connectivity issue. Extraction system downtime was 4 minutes.

- **August 19, 2020 (unplanned):** The extraction well system was offline from 12:10 p.m. to 1:42 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 1 hour 32 minutes.
- **August 20-21, 2020 (unplanned):** The extraction well system was offline from 11:52 p.m. on August 20, 2020 to 12:46 p.m. on August 21, 2020; and from 12:48 a.m. to 12:58 a.m., from 1:02 a.m. to 1:30 a.m., and from 1:32 a.m. to 3:54 a.m. on August 21, 2020 due to a City of Needles power outage caused by high temperatures. The power outage tripped out the microfilter and the blowers resulting in a high-water level in T-100. Extraction system downtime was 3 hours 54 minutes.
- **August 22, 2020 (unplanned):** The extraction well system was offline from 2:56 a.m. to 3:54 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 58 minutes.
- **August 22, 2020 (unplanned):** The extraction well system was offline from 5:04 a.m. to 5:50 a.m. due to a tripped breaker for TW-3D. The operator reset the breaker and restarted the pump. Extraction system downtime was 46 minutes.
- **August 23, 2020 (unplanned):** The extraction well system was offline from 3:18 a.m. to 4:04 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 46 minutes.
- **August 23, 2020 (unplanned):** The extraction well system was offline from 4:32 a.m. to 4:44 a.m. due to a tripped breaker for TW-3D. The operator reset the breaker and restarted the pump. Extraction system downtime was 12 minutes.
- **August 24, 2020 (unplanned):** The extraction well system was offline from 7:46 a.m. to 9:08 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 22 minutes.
- **August 24, 2020 (unplanned):** The extraction well system was offline from 9:28 a.m. to 9:34 a.m. due to a tripped breaker for TW-3D. The operator reset the breaker and restarted the pump. Extraction system downtime was 6 minutes.
- **August 24, 2020 (unplanned):** The extraction well system was offline from 9:40 a.m. to 9:44 a.m.; from 9:48 a.m. to 9:50 a.m.; from 9:54 a.m. to 9:56 a.m.; from 10:00 a.m. to 10:04 a.m.; from 10:08 a.m. to 10:10 a.m., and from 10:14 a.m. to 10:20 a.m. due to a tripped breaker for TW-3D. The TW-3D pump and motor wouldn't stay running. The heaters in the TW-3D panel/bucket kept tripping which stops the well from running. Technicians and electricians were scheduled to troubleshoot and inspect on August 25, 2020. Extraction system downtime was 20 minutes.
- **August 25, 2020 (unplanned):** The extraction well system was offline from 10:36 a.m. to 11:28 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 52 minutes.
- **August 25-26, 2020 (unplanned):** The extraction well system was offline from 11:40 a.m. to 11:44 a.m., from 11:48 a.m. to 11:52 a.m., from 11:56 a.m. to 12:02 p.m., from 12:06 p.m. to 12:10 p.m., from 12:22 p.m. to 12:32 p.m., from 12:46 p.m. to 1:38 p.m., and from 1:50 p.m. to 5:14 p.m. on August 25, 2020; from 5:20 p.m. on August 25, 2020 to 10:06 a.m. on August 26, 2020; and from 10:08 a.m. to 10:14 a.m. on August 26, 2020 due to a tripped breaker for TW-3D. The TW-3D pump and motor wouldn't stay running. Operator and IT technician tried troubleshooting, but no obvious issue was found. Extraction system downtime was 21 hours 36 minutes.
- **August 27-28, 2020 (unplanned):** The extraction well system was offline from 6:34 a.m. to 7:08 a.m. on August 27, 2020 and from 9:18 a.m. to 9:42 a.m. on August 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 58 minutes.
- **August 28, 2020 (unplanned):** The extraction well system was offline from 9:54 a.m. to 10:24 a.m.; from 10:28 a.m. to 10:34 a.m.; from 10:38 a.m. to 11:00 a.m.; and from 11:02 a.m. to 11:28 a.m. due

to a tripped breaker for TW-3D. The TW-3D pump and motor wouldn't stay running. Cascade team and Groundwater Partners team replaced the TW-3D pump and motor to eliminate that as a potential cause. Extraction system downtime was 1 hour 24 minutes.

- **August 29, 2020 (unplanned):** The extraction well system was offline from 12:44 a.m. to 1:40 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 56 minutes.
- **August 29, 2020 (unplanned):** The extraction well system was offline from 9:46 a.m. to 9:50 a.m., from 9:52 a.m. to 9:56 a.m., from 9:58 a.m. to 10:10 a.m., from 10:12 a.m. to 10:38 a.m., 10:40 a.m. to 10:44 a.m., from 10:46 a.m. to 10:50 a.m., from 10:52 to 12:00 p.m. (noon), from 12:02 p.m. 12:22 p.m., from 12:24 p.m. to 1:32 p.m., from 1:38 p.m. to 1:42 p.m., 1:52 p.m. to 2:02 p.m., and from 2:04 p.m. to 2:16 p.m. due to a tripped breaker for TW-3D. The TW-3D pump and motor wouldn't stay running. During this time, an attempt was made to extract groundwater from TW-2D, but it would not stay on. Parts have been since been ordered to replace the Motor Control Center (MCC) and disconnect for TW-2D. Extraction system downtime was 3 hours 56 minutes.
- **August 29, 2020 (unplanned):** The extraction well system was offline from 3:34 p.m. to 4:44 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 10 minutes.
- **August 29, 2020 (unplanned):** The extraction system was offline from 5:16 p.m. to 5:20 p.m. and from 7:10 p.m. to 7:12 p.m. due to a PLC and HMI connectivity issue. Extraction system downtime was 6 minutes.
- **August 30, 2020 (unplanned):** The extraction well system was offline from 9:50 a.m. to 10:32 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 42 minutes.
- **August 30, 2020 (unplanned):** The extraction system was offline from 11:00 a.m. to 11:04 a.m. due to a PLC and HMI connectivity issue. Extraction system downtime was 4 minutes.

## September 2020

During September 2020, extraction well TW-3D operated at a target pump rate of 135 gpm excluding periods of planned and unplanned downtime. Extraction wells TW-2S, TW-2D, and PE-01 were not operated during September 2020. A portion of the piping/conduit for PE-01 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-01 piping/conduit. The operational run time for the IM-3 groundwater extraction system (combined or individual pumping) was 92.3 percent during the September 2020 reporting period.

The IM-3 facility treated approximately 5,251,265 gallons of extracted groundwater during September 2020. The IM-3 facility also treated 16,000 gallons of Final Groundwater Remedy wastewater, zero gallons of sampling purge water, and 28,600 gallons of groundwater from injection well backwashing/re-development during September 2020. One container of solids from the IM-3 facility was transported offsite during September 2020.

Periods of planned and unplanned extraction system down time (that together resulted in approximately 7.7 percent downtime during September 2020) are summarized below.

- **September 2, 2020 (unplanned):** The extraction well system was offline from 6:42 p.m. to 8:12 p.m. due to replacing microfilter modules. Extraction system downtime was 1 hour 30 minutes.
- **September 3, 2020 (unplanned):** The extraction well system was offline from 11:18 a.m. to 12:26 p.m. due to the air compressor failing. The air compressor belt broke; it was changed, and the compressor was restarted. Extraction system downtime was 1 hour 8 minutes.

- **September 4, 2020 (unplanned):** The extraction well system was offline from 6:44 p.m. to 7:36 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 52 minutes.
- **September 4, 2020 (unplanned):** The extraction well system was offline from 9:08 p.m. to 11:26 p.m. due to replacing microfilter modules. Extraction system downtime was 2 hours 18 minutes.
- **September 5-7, 2020 (unplanned):** The extraction well system was offline from 10:26 a.m. to 10:54 a.m. on September 5, 2020; from 7:04 p.m. to 7:52 p.m. on September 6, 2020; from 6:20 p.m. to 7:06 p.m. on September 7, 2020; and from 7:10 p.m. to 7:18 p.m. on September 7, 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 hour 10 minutes.
- **September 7-8, 2020 (unplanned):** The extraction system was offline from 7:28 p.m. to 7:34 p.m., from 7:40 p.m. to 7:46 p.m., and from 7:50 p.m. to 8:02 p.m. on September 7, 2020; from 8:28 p.m. on September 7, 2020 to 2:06 p.m. on September 8, 2020; and from 2:14 p.m. to 3:50 p.m. and from 3:54 p.m. to 4:28 p.m. on September 8, 2020 due to TW-3D shutting off for an unknown cause. The cause was investigated, repairs were attempted, and the system was restarted; however, the issue was not resolved (see below). Extraction system downtime was 20 hours 12 minutes.
- **September 8-11, 2020 (unplanned):** The extraction well system was offline from 11:34 p.m. on September 8, 2020 to 12:26 a.m. on September 9, 2020; from 3:16 a.m. to 4:02 a.m. on September 10, 2020; and from 2:40 a.m. to 3:36 a.m. on September 11, 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.
- **September 11, 2020 (unplanned):** The extraction well system was offline from 6:14 a.m. to 6:16 a.m. and from 7:00 a.m. to 7:04 a.m. on September 11, 2020 due to TW-3D failing and working on the electrical components in the MCC enclosure (bucket) for TW-3D. Extraction system downtime was 6 minutes.
- **September 12-13, 2020 (unplanned):** The extraction well system was offline from 1:50 a.m. to 2:50 a.m. on September 12, 2020 and from 3:42 a.m. to 7:54 a.m. on September 13, 2020 due to a high-water level in T-100 and TW-3D not working. The operator shut down extraction so the tank could drain below the high-level alarm setpoint. The TW-3D MCC enclosure was also replaced and the TW-3D starting issue was resolved. Extraction system downtime was 5 hours 12 minutes.
- **September 13, 2020 (unplanned):** The extraction system was offline from 7:56 a.m. to 7:58 a.m. due to a PLC and HMI connectivity issue. Extraction system downtime was 2 minutes.
- **September 14, 2020 (unplanned):** The extraction well system was offline from 3:08 a.m. to 3:56 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 48 minutes.
- **September 14, 2020 (unplanned):** The extraction well system was offline from 10:00 a.m. to 11:06 a.m. due to replacing microfilter modules. Extraction system downtime was 1 hour 6 minutes.
- **September 18-19, 2020 (unplanned):** The extraction well system was offline from 3:14 a.m. to 4:06 a.m. on September 18, 2020 and from 6:32 p.m. to 7:42 p.m. on September 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 2 hours 34 minutes.
- **September 20, 2020 (unplanned):** The extraction well system was offline from 3:28 p.m. to 4:00 p.m. and from 4:06 p.m. to 4:18 p.m. due to a City of Needles power outage. Extraction system downtime was 44 minutes.
- **September 21, 2020 (unplanned):** The extraction well system was offline from 1:58 a.m. to 2:56 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 58 minutes.

- **September 22, 2020 (unplanned):** The extraction well system was offline from 11:26 a.m. to 12:44 p.m. due to replacing microfilter modules. Extraction system downtime was 1 hour 18 minutes.
- **September 22, 2020 (unplanned):** The extraction system was offline from 3:26 p.m. to 15:40 a.m. due to a PLC and HMI connectivity issue. Extraction system downtime was 14 minutes.
- **September 22, 2020 (unplanned):** The extraction well system was offline from 3:44 p.m. to 8:14 p.m. due to a City of Needles power outage. Also, the backup generator would not start due to needing new batteries. Batteries were replaced. Extraction system downtime was 4 hours 30 minutes.
- **September 23, 2020 (unplanned):** The extraction system was offline from 4:46 p.m. to 4:52 p.m. due to a PLC and HMI connectivity issue. Extraction system downtime was 6 minutes.
- **September 23, 2020 (unplanned):** The extraction well system was offline from 4:56 p.m. to 6:40 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 44 minutes.
- **September 26, 2020 (planned):** The extraction well system was offline from 10:48 a.m. to 11:26 a.m. due to testing of the pipeline critical alarms and leak detection system. Extraction system downtime was 38 minutes.
- **September 29, 2020 (unplanned):** The extraction well system was offline from 1:32 a.m. to 4:04 a.m. due to replacing microfilter modules and 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 32 minutes.
- **September 29, 2020 (planned):** The extraction well system was offline from 8:34 a.m. to 9:04 a.m. to process wastewater (8,000 gallons) generated from remedy well construction activities. Extraction system downtime was 30 minutes.
- **September 29, 2020 (unplanned):** The extraction system was offline from 2:20 p.m. to 2:30 p.m. due to an update of the onsite computers. Extraction system downtime was 10 minutes.
- **September 30, 2020 (planned):** The extraction well system was offline from 7:54 a.m. to 9:36 a.m. to process wastewater (8,000 gallons) generated from remedy well construction activities. Extraction system downtime was 1 hour 42 minutes.

## October 2020

During October 2020, extraction well TW-3D operated at a target pump rate of 135 gpm excluding periods of planned and unplanned downtime. Extraction wells TW-2S, TW-2D, and PE-01 were not operated during October 2020. A portion of the piping/conduit for PE-01 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-01 piping/conduit. The operational run time for the IM-3 groundwater extraction system (combined or individual pumping) was 96.6 percent during the October 2020 reporting period.

The IM-3 facility treated approximately 5,759,883 gallons of extracted groundwater during October 2020. The IM-3 facility also treated 36,000 gallons of Final Groundwater Remedy wastewater, 890 gallons of sampling purge water and zero gallons of groundwater from injection well backwashing/re-development during October 2020. Zero containers of solids from the IM-3 facility were transported offsite during October 2020.

Periods of planned and unplanned extraction system down time (that together resulted in approximately 3.4 percent downtime during October 2020) are summarized below. The times shown are in PST to be consistent with other data collected (e.g., water level data) at the site.

- **October 1-8, 2020 (unplanned):** The extraction well system was offline from 12:42 a.m. to 1:26 a.m. on October 1, 2020; from 10:00 a.m. to 10:26 a.m. on October 3, 2020; from 10:30 p.m. to 11:18 p.m.

on October 4, 2020; and from 2:04 p.m. to 3:32 p.m. on October 8, 2020 due to a high-water level in the 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 3 hours 26 minutes.

- **October 12, 2020 (planned):** The extraction well system was offline from 10:36 a.m. to 11:04 a.m. to process wastewater (3,000 gallons) generated from remedy well construction activities. Extraction system downtime was 28 minutes.
- **October 13, 2020 (planned):** The extraction well system was offline from 7:12 a.m. to 7:50 a.m. to process wastewater (33,000 gallons) generated from remedy well construction activities. Transfers occurred over the entire day and into the next. Extraction system downtime was 38 minutes.
- **October 14-15, 2020 (unplanned):** The extraction well system was offline from 8:44 p.m. to 9:56 p.m. on October 14, 2020, and from 3:18 p.m. to 4:30 p.m. on October 15, 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 24 minutes.
- **October 16, 2020 (unplanned):** The extraction well system was offline from 11:30 a.m. to 12:34 p.m. due to replacing microfilter modules. Extraction system downtime was 1 hour 4 minutes.
- **October 17-20, 2020 (unplanned):** The extraction well system was offline from 1:42 p.m. to 2:50 p.m. on October 17, 2020; from 1:28 p.m. to 2:42 p.m. on October 18, 2020; from 6:42 p.m. to 7:56 p.m. on October 19, 2020; and from 3:32 p.m. to 4:40 p.m. on October 20, 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 hours 44 minutes.
- **October 21, 2020 (unplanned):** The extraction well system was offline from 1:14 p.m. to 2:14 p.m.; and from 2:38 p.m. to 4:06 p.m. due to testing the sensor in Iron Oxidation Reactor 3 (T-301C). Extraction system downtime was 2 hours 28 minutes.
- **October 22, 2020 (unplanned):** The extraction well system was offline from 9:40 a.m. to 1:20 p.m. to remove a blockage (solids buildup) in the piping at the Chromium Reduction Reactor (T-300). Extraction system downtime was 3 hours 40 minutes.
- **October 23, 2020 (unplanned):** The extraction well system was offline from 1:48 p.m. to 3:54 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 2 hours 6 minutes.
- **October 26, 2020 (unplanned):** The extraction well system was offline from 8:32 a.m. to 8:54 a.m. due to a City of Needles power outage. Extraction system downtime was 22 minutes.
- **October 26, 2020 (unplanned):** The extraction well system was offline from 9:14 a.m. to 10:48 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 34 minutes.
- **October 26, 2020 (unplanned):** The extraction well system was offline from 12:18 p.m. to 1:22 p.m. due to replacing microfilter modules. Extraction system downtime was 1 hour 4 minutes.
- **October 26-27, 2020 (unplanned):** The extraction well system was offline from 11:56 p.m. on October 26, 2020 to 12:30 a.m. on October 27, 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 34 minutes.
- **October 27, 2020 (unplanned):** The extraction well system was offline from 11:22 a.m. to 12:12 p.m. due to an alarm for low ferrous injection shutting down the facility. The problem was investigated and corrected. Extraction system downtime was 50 minutes.

## November 2020

During November 2020, extraction wells TW-3D and TW-2D were operated at a target pump rate of 135 gpm excluding periods of planned and unplanned downtime. Extraction wells TW-2S and PE-01 were not operated during November 2020. A portion of the piping/conduit for PE-01 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-01 piping/conduit. The operational run time for the IM-3 groundwater extraction system (combined or individual pumping) was 93.0 percent during the November 2020 reporting period.

The IM-3 facility treated approximately 5,395,246 gallons of extracted groundwater during November 2020. The IM-3 facility also treated zero gallons of Final Groundwater Remedy wastewater, zero gallons of sampling purge water and 16,000 gallons of groundwater from injection well backwashing/re-development during November 2020. Two containers of solids from the IM-3 facility were transported offsite during November 2020.

Periods of planned and unplanned extraction system down time (that together resulted in approximately 7.0 percent downtime during November 2020) are summarized below. The times shown are in PST to be consistent with other data collected (e.g., water level data) at the site.

- **November 2, 2020 (planned):** The extraction well system was offline from 6:18 a.m. to 4:10 p.m. due to plant maintenance to install a new clarifier rake drive. Extraction system downtime was 9 hours 52 minutes.
- **November 8, 2020 (unplanned):** The extraction well system was offline from 7:54 p.m. to 8:48 p.m. due to a high-water level in the 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 54 minutes.
- **November 9, 2020 (unplanned):** The extraction well system was offline from 11:32 a.m. to 12:52 p.m. due to replacing microfilter modules. Extraction system downtime was 1 hour 20 minutes.
- **November 10-15, 2020 (unplanned):** The extraction well system was offline from 6:36 p.m. to 7:36 p.m. on November 10, 2020; from 10:46 p.m. to 11:56 p.m. on November 12, 2020; and from 10:58 p.m. on November 14, 2020 to 12:06 a.m. on November 15, 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 3 hours 18 minutes.
- **November 16, 2020 (unplanned):** The extraction well system was offline from 7:46 p.m. to 10:14 p.m. due to replacing microfilter modules. Extraction system downtime was 2 hours 28 minutes.
- **November 17-19, 2020 (unplanned):** The extraction well system was offline from 7:14 p.m. to 10:18 p.m. on November 17, 2020; and from 10:42 p.m. to 11:56 p.m. on November 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 2 hours 18 minutes.
- **November 20, 2020 (unplanned):** The extraction well system was offline from 4:02 p.m. to 9:34 p.m. due to a City of Needles power outage that caused the motor to fail at TW-3D. Extraction was switched to TW-2D. Extraction system downtime was 5 hours 32 minutes.
- **November 20-21, 2020 (unplanned):** The extraction well system was offline from 10:28 p.m. on November 20, 2020 to 7:00 p.m. on November 21, 2020; and from 7:06 p.m. to 8:16 p.m.; from 8:18 p.m. to 8:32 p.m.; from 8:36 p.m. to 8:48 p.m.; and from 9:08 p.m. to 9:20 p.m. on November 21, 2020 due to TW-2D shutting down. Operators investigated the cause and troubleshooted. TW-2D continued to fail. The motor at TW-3D was replaced and it was eventually brought back online. Extraction system downtime was 22 hours 20 minutes.

- **November 22-24, 2020 (unplanned):** The extraction well system was offline from 4:54 p.m. to 5:42 p.m. on November 22, 2020; and from 12:44 a.m. to 1:36 a.m. on November 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 1 hours 40 minutes.
- **November 25, 2020 (planned):** The extraction well system was offline from 5:36 a.m. to 6:36 a.m. to replace a level sensor in the Microfilter Feed Tank (T-500). Extraction system downtime was 1 hour.

## December 2020

During December 2020, extraction well TW-3D operated at a target pump rate of 135 gpm excluding periods of planned and unplanned downtime. Extraction wells TW-2S, TW-2D, and PE-01 were not operated during December 2020. A portion of the piping/conduit for PE-01 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-01 piping/conduit. The operational run time for the IM-3 groundwater extraction system (combined or individual pumping) was 93.9 percent during the December 2020 reporting period.

The IM-3 facility treated approximately 5,603,591 gallons of extracted groundwater during December 2020. The IM-3 facility also treated 38,000 gallons of Final Groundwater Remedy wastewater, 2,200 gallons of sampling purge water and 16,000 gallons of groundwater from injection well backwashing/re-development during December 2020. Two containers of solids from the IM-3 facility were transported offsite during December 2020.

Periods of planned and unplanned extraction system down time (that together resulted in approximately 6.1 percent downtime during December 2020) are summarized below. The times shown are in PST to be consistent with other data collected (e.g., water level data) at the site.

- **December 1, 2020 (unplanned):** The extraction well system was offline from 11:16 a.m. to 11:44 a.m.; from 11:46 a.m. to 11:52 a.m.; from 11:54 a.m. to 11:58 a.m.; from 12:28 p.m. to 12:32 p.m.; and from 12:42 p.m. to 12:44 p.m. due to TW-3D failing due to electrical components in the MCC enclosure (bucket) for TW-3D. Extraction system downtime was 44 minutes.
- **December 1, 2020 (unplanned):** The extraction well system was offline from 7:14 p.m. to 8:48 p.m. due to replacing microfilter modules. Extraction system downtime was 1 hour 34 minutes.
- **December 1, 2020 (unplanned):** The extraction well system was offline from 9:40 p.m. to 9:44 p.m.; from 10:06 p.m. to 10:12 p.m.; and from 11:48 p.m. to 11:58 p.m. due to TW-3D failing due to electrical components in the MCC bucket for TW-3D. Extraction system downtime was 20 minutes.
- **December 2, 2020 (unplanned):** The extraction well system was offline from 12:58 a.m. to 2:00 a.m. and from 2:06 a.m. to 2:30 a.m. due to a high-water level in the Raw Water Storage Tank (T-100) and due to TW-3D failing due to electrical components in the MCC bucket for TW-3D. The operator shut down extraction so the tank could drain below the high-level alarm setpoint. Extraction system downtime was 1 hour 26 minutes.
- **December 6, 2020 (planned):** The extraction well system was offline from 11:32 a.m. to 11:42 a.m. and from 11:46 a.m. to 2:46 p.m. to process wastewater (22,000 gallons between December 6 and December 7) generated from remedy well construction activities. Extraction system downtime was 3 hours 10 minutes.
- **December 6-7, 2020 (unplanned):** The extraction well system was offline from 7:54 p.m. to 9:12 p.m. on December 6 and from 5:16 a.m. to 6:46 a.m. on December 7 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.

- **December 7, 2020 (unplanned):** The extraction well system was offline from 3:36 p.m. to 6:14 p.m. due to replacing microfilter modules. Extraction system downtime was 2 hours 38 minutes.
- **December 8-9, 2020 (unplanned):** The extraction well system was offline from 6:40 p.m. to 8:20 p.m. on December 8; and from 8:34 p.m. to 9:22 p.m. on December 9 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 28 minutes.
- **December 10, 2020 (unplanned):** The extraction well system was offline from 11:24 a.m. to 12:26 p.m. due to the Raw Water Feed Pump (P-200) failing. Pump was replaced and extraction system downtime was 1 hour 2 minutes.
- **December 11, 2020 (unplanned):** The extraction well system was offline from 11:56 a.m. to 12:40 p.m. due to replacing the check valve of P-200. Extraction system downtime was 44 minutes.
- **December 11, 2020 (unplanned):** The extraction well system was offline from 2:36 p.m. to 3:46 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 10 minutes.
- **December 14, 2020 (planned):** The extraction well system was offline from 12:02 p.m. to 12:36 p.m. due testing of the pipeline critical alarms and leak detection system. Extraction system downtime was 34 minutes.
- **December 15, 2020 (unplanned):** The extraction well system was offline from 1:36 p.m. to 2:44 p.m. to change the belts on the blower and due to working on the electrical components in the MCC bucket for TW-3D. Extraction system downtime was 1 hour 8 minutes.
- **December 16, 2020 (unplanned):** The extraction well system was offline from 2:36 p.m. to 4:38 p.m. to check the tension on the belts on the blower and 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 2 minutes.
- **December 16, 2020 (unplanned):** The extraction well system was offline from 4:40 p.m. to 5:02 p.m. because the FV 100 valve of the T-100 tank was stuck in the closed position. The valve was reset and opened. Extraction system downtime was 22 minutes.
- **December 17, 2020 (unplanned):** The extraction well system was offline from 2:34 p.m. to 3:52 p.m. because a leak was found at clarifier feed pump, P-400. The P-400 discharge piping flange failed and was replaced; the leak was contained in secondary containment. Extraction system downtime was 1 hour 18 minutes.
- **December 18, 2020 (unplanned):** The extraction well system was offline from 11:04 a.m. to 2:28 p.m. due to replacing microfilter modules. Extraction system downtime was 3 hours 24 minutes.
- **December 18, 2020 (unplanned):** The extraction system was offline from 4:26 p.m. to 4:30 p.m. because the power supply to the HMI failed and shutdown extraction. Power was restored and extraction restarted. Extraction system downtime was 4 minutes.
- **December 20-22, 2020 (unplanned):** The extraction well system was offline from 8:58 p.m. to 9:46 p.m. on December 20, 2020; and from 2:18 a.m. to 3:08 a.m. on December 22, 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 1 hour 38 minutes.
- **December 22, 2020 (unplanned):** The extraction well system was offline from 8:00 a.m. to 1:50 p.m. because of an acid feed problem that caused a blockage. The plant was kept in recirculation until the blockage was cleared and extraction restarted. Extraction system downtime was 5 hours 50 minutes.
- **December 22-23, 2020 (unplanned):** The extraction well system was offline from 11:54 p.m. on December 22, 2020 to 12:44 a.m. on December 23, 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 50 minutes.

- **December 23, 2020 (unplanned):** The extraction well system was offline from 11:54 a.m. to 1:12 p.m. due to replacing microfilter modules. Extraction system downtime was 1 hour 18 minutes.
- **December 23, 2020 (unplanned):** The extraction well system was offline from 7:38 p.m. to 7:46 p.m. due to a City of Needles power outage. Extraction system downtime was 8 minutes.
- **December 25-28, 2020 (unplanned):** The extraction well system was offline from 3:22 p.m. to 4:22 p.m. on December 25, 2020; from 12:22 a.m. to 1:10 a.m. on December 27, 2020; and from 2:26 a.m. to 3:18 a.m. on December 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 40 minutes.
- **December 29, 2020 (unplanned):** The extraction well system was offline from 4:34 a.m. to 9:22 a.m. because there was a high pH at the reverse osmosis unit. The plant was kept in recirculation while the pH was fixed by adjusting the pumping rate of the acid. Extraction system downtime was 4 hours 48 minutes.
- **December 30, 2020 (unplanned):** The extraction well system was offline from 9:58 p.m. to 11:06 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 8 minutes.
- **December 31, 2020 (unplanned):** The extraction system was offline from 1:44 a.m. to 1:46 a.m. due to a PLC and HMI connectivity issue. Extraction system downtime was 2 minutes.

# Appendix B
# Daily Volumes of Groundwater Treated

**July 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) |
| July | 1 | 2020 | -- | -- | 174,175 | 0 | 174,175 | 179,640 | 0 | 179,640 | 0 |
| July | 2 | 2020 | -- | -- | 183,320 | 0 | 183,320 | 180,045 | 0 | 180,045 | 0 |
| July | 3 | 2020 | -- | -- | 175,257 | 0 | 175,257 | 186,586 | 0 | 186,586 | 0 |
| July | 4 | 2020 | -- | -- | 181,853 | 0 | 181,853 | 182,588 | 0 | 182,588 | 0 |
| July | 5 | 2020 | -- | -- | 182,771 | 0 | 182,771 | 179,773 | 0 | 179,773 | 0 |
| July | 6 | 2020 | -- | -- | 145,606 | 0 | 145,606 | 150,816 | 0 | 150,816 | 0 |
| July | 7 | 2020 | -- | -- | 186,233 | 0 | 186,233 | 188,112 | 0 | 188,112 | 5,000 |
| July | 8 | 2020 | -- | -- | 193,303 | 0 | 193,303 | 189,799 | 0 | 189,799 | 0 |
| July | 9 | 2020 | -- | -- | 184,177 | 0 | 184,177 | 192,890 | 0 | 192,890 | 0 |
| July | 10 | 2020 | -- | -- | 192,913 | 0 | 192,913 | 193,002 | 0 | 193,002 | 0 |
| July | 11 | 2020 | -- | -- | 177,385 | 0 | 177,385 | 180,668 | 0 | 180,668 | 0 |
| July | 12 | 2020 | -- | -- | 191,359 | 0 | 191,359 | 190,214 | 0 | 190,214 | 0 |
| July | 13 | 2020 | -- | -- | 191,852 | 0 | 191,852 | 193,366 | 0 | 193,366 | 5,000 |
| July | 14 | 2020 | -- | -- | 191,881 | 0 | 191,881 | 196,679 | 0 | 196,679 | 0 |
| July | 15 | 2020 | -- | -- | 191,872 | 0 | 191,872 | 197,461 | 0 | 197,461 | 0 |
| July | 16 | 2020 | -- | -- | 191,669 | 0 | 191,669 | 197,019 | 0 | 197,019 | 0 |
| July | 17 | 2020 | -- | -- | 191,413 | 0 | 191,413 | 196,868 | 0 | 196,868 | 3,500 |
| July | 18 | 2020 | -- | -- | 172,170 | 0 | 172,170 | 171,393 | 0 | 171,393 | 0 |
| July | 19 | 2020 | -- | -- | 185,189 | 0 | 185,189 | 191,127 | 0 | 191,127 | 0 |
| July | 20 | 2020 | -- | -- | 174,591 | 0 | 174,591 | 176,162 | 0 | 176,162 | 0 |
| July | 21 | 2020 | -- | -- | 190,732 | 0 | 190,732 | 188,869 | 0 | 188,869 | 0 |
| July | 22 | 2020 | -- | -- | 174,400 | 0 | 174,400 | 190,398 | 0 | 190,398 | 0 |
| July | 23 | 2020 | -- | -- | 180,972 | 0 | 180,972 | 191,602 | 0 | 191,602 | 0 |
| July | 24 | 2020 | -- | -- | 190,963 | 0 | 190,963 | 192,580 | 0 | 192,580 | 4,500 |
| July | 25 | 2020 | -- | -- | 163,562 | 0 | 163,562 | 164,164 | 0 | 164,164 | 0 |
| July | 26 | 2020 | -- | -- | 172,836 | 0 | 172,836 | 171,202 | 0 | 171,202 | 0 |
| July | 27 | 2020 | -- | -- | 190,621 | 0 | 190,621 | 194,683 | 0 | 194,683 | 0 |
| July | 28 | 2020 | -- | -- | 190,418 | 0 | 190,418 | 195,716 | 0 | 195,716 | 0 |
| July | 29 | 2020 | -- | -- | 190,367 | 0 | 190,367 | 195,312 | 0 | 195,312 | 0 |
| July | 30 | 2020 | -- | -- | 190,137 | 0 | 190,137 | 194,368 | 0 | 194,368 | 0 |
| July | 31 | 2020 | -- | -- | 186,462 | 0 | 186,462 | 193,066 | 0 | 193,066 | 5,000 |
| **Total Monthly Volumes (gallons)** | | | **0** | **0** | **5,680,458** | **0** | **5,680,458** | **5,786,166** | **0** | **5,786,166** | **23,000** |
| **Average Pump/Injection Rates (gpm)** | | | **0.0** | **0.0** | **127.3** | **0.0** | **127.3** | **129.6** | **0.0** | **129.6** | **0.5** |

NOTES: gpm: gallons per minute RO: Reverse Osmosis

a. Extraction well TW-3D was operated during July 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 July 2020.

b. Effluent was discharged into injection well IW-02.

c. The difference between influent flow rate and the sum of the effluent and reverse osmosis concentrate flow rates during July 2020 is approximately 1.93 percent and includes 18,800 gallons of groundwater remedy construction water. 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.

**August 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) |
| August | 1 | 2020 | -- | -- | 166,838 | 0 | 166,838 | 0 | 172,237 | 172,237 | 0 |
| August | 2 | 2020 | -- | -- | 189,662 | 0 | 189,662 | 0 | 188,022 | 188,022 | 0 |
| August | 3 | 2020 | -- | -- | 189,661 | 0 | 189,661 | 0 | 192,046 | 192,046 | 0 |
| August | 4 | 2020 | -- | -- | 189,579 | 0 | 189,579 | 0 | 193,859 | 193,859 | 0 |
| August | 5 | 2020 | -- | -- | 189,792 | 0 | 189,792 | 0 | 194,507 | 194,507 | 0 |
| August | 6 | 2020 | -- | -- | 177,678 | 0 | 177,678 | 0 | 188,371 | 188,371 | 0 |
| August | 7 | 2020 | -- | -- | 188,717 | 0 | 188,717 | 0 | 188,422 | 188,422 | 5,000 |
| August | 8 | 2020 | -- | -- | 165,424 | 0 | 165,424 | 0 | 182,240 | 182,240 | 0 |
| August | 9 | 2020 | -- | -- | 33,917 | 0 | 33,917 | 0 | 53,902 | 53,902 | 0 |
| August | 10 | 2020 | -- | -- | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| August | 11 | 2020 | -- | -- | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| August | 12 | 2020 | -- | -- | 85,983 | 0 | 85,983 | 0 | 72,910 | 72,910 | 0 |
| August | 13 | 2020 | -- | -- | 198,806 | 0 | 198,806 | 0 | 191,372 | 191,372 | 0 |
| August | 14 | 2020 | -- | -- | 184,429 | 0 | 184,429 | 0 | 191,003 | 191,003 | 0 |
| August | 15 | 2020 | -- | -- | 156,568 | 0 | 156,568 | 0 | 156,022 | 156,022 | 0 |
| August | 16 | 2020 | -- | -- | 190,534 | 0 | 190,534 | 0 | 189,244 | 189,244 | 0 |
| August | 17 | 2020 | -- | -- | 180,840 | 0 | 180,840 | 0 | 187,424 | 187,424 | 5,000 |
| August | 18 | 2020 | -- | -- | 181,126 | 0 | 181,126 | 0 | 184,949 | 184,949 | 0 |
| August | 19 | 2020 | -- | -- | 179,399 | 0 | 179,399 | 0 | 185,846 | 185,846 | 0 |
| August | 20 | 2020 | -- | -- | 193,741 | 0 | 193,741 | 0 | 190,366 | 190,366 | 4,900 |
| August | 21 | 2020 | -- | -- | 164,025 | 0 | 164,025 | 0 | 159,886 | 159,886 | 0 |
| August | 22 | 2020 | -- | -- | 180,729 | 0 | 180,729 | 0 | 187,616 | 187,616 | 0 |
| August | 23 | 2020 | -- | -- | 186,992 | 0 | 186,992 | 0 | 185,144 | 185,144 | 0 |
| August | 24 | 2020 | -- | -- | 180,414 | 0 | 180,414 | 0 | 178,612 | 178,612 | 0 |
| August | 25 | 2020 | -- | -- | 95,555 | 0 | 95,555 | 0 | 93,221 | 93,221 | 0 |
| August | 26 | 2020 | -- | -- | 111,684 | 0 | 111,684 | 0 | 115,825 | 115,825 | 5,500 |
| August | 27 | 2020 | -- | -- | 188,637 | 0 | 188,637 | 0 | 185,807 | 185,807 | 0 |
| August | 28 | 2020 | -- | -- | 179,645 | 0 | 179,645 | 0 | 176,744 | 176,744 | 0 |
| August | 29 | 2020 | -- | 302 | 145,915 | 0 | 146,217 | 0 | 151,365 | 151,365 | 0 |
| August | 30 | 2020 | -- | -- | 190,267 | 0 | 190,267 | 0 | 187,763 | 187,763 | 0 |
| August | 31 | 2020 | -- | -- | 188,658 | 0 | 188,658 | 0 | 189,213 | 189,213 | 5,500 |
| **Total Monthly Volumes (gallons)** | | | **0** | **302** | **4,855,216** | **0** | **4,855,518** | **0** | **4,913,938** | **4,913,938** | **25,900** |
| **Average Pump/Injection Rates (gpm)** | | | **0.0** | **0.0** | **108.8** | **0.0** | **108.8** | **0.0** | **110.1** | **110.1** | **0.6** |

NOTES: gpm: gallons per minute RO: Reverse Osmosis

a. Extraction well TW-3D was operated during August 2020 at a target pump rate of 135 gpm excluding periods of planned and unplanned downtime. Extraction wells TW-2S and PE-01 were not operated during August 2020.

b. Effluent was discharged into injection well IW-03

c. The difference between influent flow rate and the sum of the effluent and reverse osmosis concentrate flow rates during August 2020 is approximately 0.55 percent and includes 57,147 gallons of groundwater remedy construction water.

d. In general, a well is considered to be offline if the daily reported flow is 140 gallons per day or less. However, TW-2D is considered to not have been running during August 2020 since the well would not stay on and was in need of repairs.

**September 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) |
| September | 1 | 2020 | -- | -- | 186,028 | 0 | 186,028 | 0 | 183,158 | 183,158 | 0 |
| September | 2 | 2020 | -- | -- | 174,935 | 0 | 174,935 | 0 | 173,126 | 173,126 | 0 |
| September | 3 | 2020 | -- | -- | 178,245 | 0 | 178,245 | 0 | 173,821 | 173,821 | 0 |
| September | 4 | 2020 | -- | -- | 162,009 | 0 | 162,009 | 0 | 162,114 | 162,114 | 5,200 |
| September | 5 | 2020 | -- | -- | 181,964 | 0 | 181,964 | 0 | 178,344 | 178,344 | 0 |
| September | 6 | 2020 | -- | -- | 179,130 | 0 | 179,130 | 0 | 183,397 | 183,397 | 0 |
| September | 7 | 2020 | -- | -- | 148,426 | 0 | 148,426 | 0 | 148,840 | 148,840 | 0 |
| September | 8 | 2020 | -- | -- | 60,707 | 0 | 60,707 | 0 | 59,812 | 59,812 | 0 |
| September | 9 | 2020 | -- | -- | 192,978 | 0 | 192,978 | 0 | 183,168 | 183,168 | 0 |
| September | 10 | 2020 | -- | -- | 185,708 | 0 | 185,708 | 0 | 188,336 | 188,336 | 0 |
| September | 11 | 2020 | -- | -- | 182,940 | 0 | 182,940 | 93,442 | 94,620 | 188,061 | 5,500 |
| September | 12 | 2020 | -- | -- | 183,214 | 0 | 183,214 | 181,160 | 0 | 181,160 | 0 |
| September | 13 | 2020 | -- | -- | 156,193 | 0 | 156,193 | 157,812 | 0 | 157,812 | 0 |
| September | 14 | 2020 | -- | -- | 173,105 | 0 | 173,105 | 173,581 | 0 | 173,581 | 0 |
| September | 15 | 2020 | -- | -- | 187,532 | 0 | 187,532 | 190,870 | 0 | 190,870 | 0 |
| September | 16 | 2020 | -- | -- | 190,178 | 0 | 190,178 | 183,752 | 0 | 183,752 | 4,800 |
| September | 17 | 2020 | -- | -- | 192,241 | 0 | 192,241 | 190,023 | 0 | 190,023 | 0 |
| September | 18 | 2020 | -- | -- | 184,144 | 0 | 184,144 | 183,742 | 0 | 183,742 | 0 |
| September | 19 | 2020 | -- | -- | 181,424 | 0 | 181,424 | 185,953 | 0 | 185,953 | 0 |
| September | 20 | 2020 | -- | -- | 184,941 | 0 | 184,941 | 184,823 | 0 | 184,823 | 0 |
| September | 21 | 2020 | -- | -- | 182,941 | 0 | 182,941 | 184,169 | 0 | 184,169 | 0 |
| September | 22 | 2020 | -- | -- | 142,583 | 0 | 142,583 | 141,167 | 0 | 141,167 | 0 |
| September | 23 | 2020 | -- | -- | 175,847 | 0 | 175,847 | 181,948 | 0 | 181,948 | 0 |
| September | 24 | 2020 | -- | -- | 190,077 | 0 | 190,077 | 186,202 | 0 | 186,202 | 0 |
| September | 25 | 2020 | -- | -- | 189,762 | 0 | 189,762 | 186,683 | 0 | 186,683 | 0 |
| September | 26 | 2020 | -- | -- | 184,477 | 0 | 184,477 | 192,675 | 0 | 192,675 | 0 |
| September | 27 | 2020 | -- | -- | 189,629 | 0 | 189,629 | 193,569 | 0 | 193,569 | 0 |
| September | 28 | 2020 | -- | -- | 189,697 | 0 | 189,697 | 193,600 | 0 | 193,600 | 0 |
| September | 29 | 2020 | -- | -- | 163,174 | 0 | 163,174 | 177,195 | 0 | 177,195 | 0 |
| September | 30 | 2020 | -- | -- | 177,036 | 0 | 177,036 | 191,301 | 0 | 191,301 | 0 |
| **Total Monthly Volumes (gallons)** | | | **0** | **0** | **5,251,265** | **0** | **5,251,265** | **3,553,667** | **1,728,736** | **5,282,403** | **15,500** |
| **Average Pump/Injection Rates (gpm)** | | | **0.0** | **0.0** | **121.6** | **0.0** | **121.6** | **82.3** | **40.0** | **122.3** | **0.4** |

NOTES: gpm: gallons per minute RO: Reverse Osmosis

a. Extraction well TW-3D was operated during September 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 September 2020.

b. Effluent was discharged into injection wells IW-02 and IW-03.

c. The difference between influent flow rate and the sum of the effluent and reverse osmosis concentrate flow rates during September 2020 is approximately 0.04 percent and includes 16,000 gallons of groundwater remedy construction water and 28,600 gallons of backwashing/re-development water. A well is considered to be offline if the daily reported flow is 140 gallons per day or less.

**October 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) |
| October | 1 | 2020 | -- | -- | 185,690 | 0 | 185,690 | 189,486 | 0 | 189,486 | 0 |
| October | 2 | 2020 | -- | -- | 191,299 | 0 | 191,299 | 187,622 | 0 | 187,622 | 4,650 |
| October | 3 | 2020 | -- | -- | 187,720 | 0 | 187,720 | 190,254 | 0 | 190,254 | 0 |
| October | 4 | 2020 | -- | -- | 184,936 | 0 | 184,936 | 190,165 | 0 | 190,165 | 0 |
| October | 5 | 2020 | -- | -- | 191,360 | 0 | 191,360 | 186,097 | 0 | 186,097 | 0 |
| October | 6 | 2020 | -- | -- | 191,332 | 0 | 191,332 | 188,869 | 0 | 188,869 | 0 |
| October | 7 | 2020 | -- | -- | 191,160 | 0 | 191,160 | 192,978 | 0 | 192,978 | 0 |
| October | 8 | 2020 | -- | -- | 179,412 | 0 | 179,412 | 185,570 | 0 | 185,570 | 0 |
| October | 9 | 2020 | -- | -- | 190,926 | 0 | 190,926 | 188,079 | 0 | 188,079 | 0 |
| October | 10 | 2020 | -- | -- | 190,727 | 0 | 190,727 | 190,619 | 0 | 190,619 | 0 |
| October | 11 | 2020 | -- | -- | 190,782 | 0 | 190,782 | 188,917 | 0 | 188,917 | 0 |
| October | 12 | 2020 | -- | -- | 185,657 | 0 | 185,657 | 190,008 | 0 | 190,008 | 0 |
| October | 13 | 2020 | -- | -- | 185,434 | 0 | 185,434 | 187,933 | 0 | 187,933 | 0 |
| October | 14 | 2020 | -- | -- | 175,983 | 0 | 175,983 | 188,418 | 0 | 188,418 | 0 |
| October | 15 | 2020 | -- | -- | 181,363 | 0 | 181,363 | 188,082 | 0 | 188,082 | 0 |
| October | 16 | 2020 | -- | -- | 186,461 | 0 | 186,461 | 179,674 | 0 | 179,674 | 0 |
| October | 17 | 2020 | -- | -- | 185,946 | 0 | 185,946 | 188,501 | 0 | 188,501 | 0 |
| October | 18 | 2020 | -- | -- | 185,231 | 0 | 185,231 | 188,214 | 0 | 188,214 | 0 |
| October | 19 | 2020 | -- | -- | 185,209 | 0 | 185,209 | 188,152 | 0 | 188,152 | 0 |
| October | 20 | 2020 | -- | -- | 185,953 | 0 | 185,953 | 181,086 | 0 | 181,086 | 0 |
| October | 21 | 2020 | -- | -- | 175,067 | 0 | 175,067 | 176,297 | 0 | 176,297 | 0 |
| October | 22 | 2020 | -- | -- | 164,434 | 0 | 164,434 | 153,423 | 0 | 153,423 | 0 |
| October | 23 | 2020 | -- | -- | 176,212 | 0 | 176,212 | 186,725 | 0 | 186,725 | 0 |
| October | 24 | 2020 | -- | -- | 193,048 | 0 | 193,048 | 185,161 | 0 | 185,161 | 0 |
| October | 25 | 2020 | -- | -- | 193,072 | 0 | 193,072 | 191,937 | 0 | 191,937 | 0 |
| October | 26 | 2020 | -- | -- | 171,875 | 0 | 171,875 | 168,760 | 0 | 168,760 | 0 |
| October | 27 | 2020 | -- | -- | 185,954 | 0 | 185,954 | 181,062 | 0 | 181,062 | 0 |
| October | 28 | 2020 | -- | -- | 192,698 | 0 | 192,698 | 192,312 | 0 | 192,312 | 0 |
| October | 29 | 2020 | -- | -- | 191,767 | 0 | 191,767 | 191,872 | 0 | 191,872 | 0 |
| October | 30 | 2020 | -- | -- | 191,658 | 0 | 191,658 | 192,033 | 0 | 192,033 | 0 |
| October | 31 | 2020 | -- | -- | 191,519 | 0 | 191,519 | 191,465 | 0 | 191,465 | 0 |
| **Total Monthly Volumes (gallons)** | | | **0** | **0** | **5,759,883** | **0** | **5,759,883** | **5,769,771** | **0** | **5,769,771** | **4,650** |
| **Average Pump/Injection Rates (gpm)** | | | **0.0** | **0.0** | **129.0** | **0.0** | **129.0** | **129.3** | **0.0** | **129.3** | **0.1** |

NOTES: gpm: gallons per minute RO: Reverse Osmosis

a. Extraction well TW-3D was operated during October 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 October 2020.

b. Effluent was discharged into injection well IW-02.

c. The difference between influent flow rate and the sum of the effluent and reverse osmosis concentrate flow rates during October 2020 is approximately 0.37 percent and includes 36,000 gallons of groundwater remedy construction water. A well is considered to be offline if the daily reported flow is 140 gallons per day or less.

**November 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) |
| November | 1 | 2020 | -- | -- | 191,461 | 0 | 191,461 | 186,436 | 0 | 186,436 | 0 |
| November | 2 | 2020 | -- | -- | 112,779 | 0 | 112,779 | 113,941 | 0 | 113,941 | 0 |
| November | 3 | 2020 | -- | -- | 193,280 | 0 | 193,280 | 193,190 | 0 | 193,190 | 0 |
| November | 4 | 2020 | -- | -- | 194,558 | 0 | 194,558 | 192,258 | 0 | 192,258 | 0 |
| November | 5 | 2020 | -- | -- | 194,481 | 0 | 194,481 | 192,163 | 0 | 192,163 | 0 |
| November | 6 | 2020 | -- | -- | 194,301 | 0 | 194,301 | 186,738 | 0 | 186,738 | 0 |
| November | 7 | 2020 | -- | -- | 194,061 | 0 | 194,061 | 192,989 | 0 | 192,989 | 0 |
| November | 8 | 2020 | -- | -- | 186,504 | 0 | 186,504 | 193,012 | 0 | 193,012 | 0 |
| November | 9 | 2020 | -- | -- | 182,777 | 0 | 182,777 | 178,459 | 0 | 178,459 | 0 |
| November | 10 | 2020 | -- | -- | 185,226 | 0 | 185,226 | 186,416 | 0 | 186,416 | 0 |
| November | 11 | 2020 | -- | -- | 193,240 | 0 | 193,240 | 183,799 | 0 | 183,799 | 0 |
| November | 12 | 2020 | -- | -- | 183,664 | 0 | 183,664 | 188,440 | 0 | 188,440 | 0 |
| November | 13 | 2020 | -- | -- | 193,120 | 0 | 193,120 | 187,687 | 0 | 187,687 | 0 |
| November | 14 | 2020 | -- | -- | 184,924 | 0 | 184,924 | 188,176 | 0 | 188,176 | 0 |
| November | 15 | 2020 | -- | -- | 192,348 | 0 | 192,348 | 188,398 | 0 | 188,398 | 0 |
| November | 16 | 2020 | -- | -- | 173,302 | 0 | 173,302 | 173,065 | 0 | 173,065 | 0 |
| November | 17 | 2020 | -- | -- | 184,459 | 0 | 184,459 | 186,581 | 0 | 186,581 | 0 |
| November | 18 | 2020 | -- | -- | 192,940 | 0 | 192,940 | 184,186 | 1,959 | 186,145 | 0 |
| November | 19 | 2020 | -- | -- | 182,895 | 0 | 182,895 | 184,558 | 0 | 184,558 | 0 |
| November | 20 | 2020 | -- | 6,464 | 128,537 | 0 | 135,001 | 129,424 | 0 | 129,424 | 0 |
| November | 21 | 2020 | -- | -- | 26,358 | 0 | 26,358 | 33,249 | 0 | 33,249 | 0 |
| November | 22 | 2020 | -- | -- | 189,354 | 0 | 189,354 | 188,887 | 0 | 188,887 | 0 |
| November | 23 | 2020 | -- | -- | 194,097 | 0 | 194,097 | 58,016 | 131,699 | 189,715 | 0 |
| November | 24 | 2020 | -- | -- | 186,772 | 0 | 186,772 | 86,511 | 103,387 | 189,897 | 0 |
| November | 25 | 2020 | -- | -- | 185,683 | 0 | 185,683 | 181,674 | 0 | 181,674 | 0 |
| November | 26 | 2020 | -- | -- | 193,711 | 0 | 193,711 | 189,329 | 0 | 189,329 | 0 |
| November | 27 | 2020 | -- | -- | 193,521 | 0 | 193,521 | 189,731 | 0 | 189,731 | 0 |
| November | 28 | 2020 | -- | -- | 193,448 | 0 | 193,448 | 190,703 | 0 | 190,703 | 0 |
| November | 29 | 2020 | -- | -- | 193,522 | 0 | 193,522 | 191,812 | 0 | 191,812 | 0 |
| November | 30 | 2020 | -- | -- | 193,458 | 0 | 193,458 | 189,449 | 0 | 189,449 | 0 |
| **Total Monthly Volumes (gallons)** | | | **0** | **6,464** | **5,388,781** | **0** | **5,395,246** | **5,109,279** | **237,045** | **5,346,325** | **0** |
| **Average Pump/Injection Rates (gpm)** | | | **0.0** | **0.1** | **124.7** | **0.0** | **124.9** | **118.3** | **5.5** | **123.8** | **0.0** |

NOTES: gpm: gallons per minute RO: Reverse Osmosis

a. Extraction well TW-3D was operated during November 2020 at a target pump rate of 135 gpm excluding periods of planned and unplanned downtime. Extraction well TW-2S were not operated during November 2020.

b. Effluent was discharged into injection wells IW-02 and IW-03. Due to a communications failure between the plant and the injection wells, the injection flow rate shown

c. The difference between influent flow rate and the sum of the effluent and reverse osmosis concentrate flow rates during November 2020 is approximately 1.2 percent and includes 16,000 gallons of injection well backwash water. A well is considered to be offline if the daily reported flow is 140 gallons per day or less.

**December 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) |
| December | 1 | 2020 | -- | -- | 172,062 | 0 | 172,062 | 178,754 | 0 | 178,754 | 0 |
| December | 2 | 2020 | -- | -- | 182,217 | 0 | 182,217 | 177,481 | 0 | 177,481 | 0 |
| December | 3 | 2020 | -- | -- | 193,744 | 0 | 193,744 | 185,665 | 0 | 185,665 | 0 |
| December | 4 | 2020 | -- | -- | 193,675 | 0 | 193,675 | 190,596 | 0 | 190,596 | 0 |
| December | 5 | 2020 | -- | -- | 193,507 | 0 | 193,507 | 190,134 | 0 | 190,134 | 0 |
| December | 6 | 2020 | -- | -- | 153,206 | 0 | 153,206 | 175,463 | 0 | 175,463 | 0 |
| December | 7 | 2020 | -- | -- | 153,248 | 0 | 153,248 | 166,923 | 0 | 166,923 | 0 |
| December | 8 | 2020 | -- | -- | 180,221 | 0 | 180,221 | 183,018 | 0 | 183,018 | 5,000 |
| December | 9 | 2020 | -- | -- | 187,178 | 0 | 187,178 | 181,582 | 0 | 181,582 | 0 |
| December | 10 | 2020 | -- | -- | 185,261 | 0 | 185,261 | 175,342 | 0 | 175,342 | 0 |
| December | 11 | 2020 | -- | -- | 178,072 | 0 | 178,072 | 183,754 | 0 | 183,754 | 0 |
| December | 12 | 2020 | -- | -- | 193,412 | 0 | 193,412 | 189,256 | 0 | 189,256 | 0 |
| December | 13 | 2020 | -- | -- | 193,206 | 0 | 193,206 | 188,481 | 0 | 188,481 | 0 |
| December | 14 | 2020 | -- | -- | 188,583 | 0 | 188,583 | 186,187 | 0 | 186,187 | 0 |
| December | 15 | 2020 | -- | -- | 183,916 | 0 | 183,916 | 177,435 | 0 | 177,435 | 0 |
| December | 16 | 2020 | -- | -- | 173,683 | 0 | 173,683 | 182,013 | 0 | 182,013 | 0 |
| December | 17 | 2020 | -- | -- | 182,719 | 0 | 182,719 | 175,047 | 0 | 175,047 | 0 |
| December | 18 | 2020 | -- | -- | 165,081 | 0 | 165,081 | 167,161 | 0 | 167,161 | 0 |
| December | 19 | 2020 | -- | -- | 192,783 | 0 | 192,783 | 178,848 | 0 | 178,848 | 0 |
| December | 20 | 2020 | -- | -- | 186,004 | 0 | 186,004 | 188,578 | 0 | 188,578 | 0 |
| December | 21 | 2020 | -- | -- | 192,355 | 0 | 192,355 | 188,095 | 0 | 188,095 | 0 |
| December | 22 | 2020 | -- | -- | 137,818 | 0 | 137,818 | 138,594 | 0 | 138,594 | 0 |
| December | 23 | 2020 | -- | -- | 175,254 | 0 | 175,254 | 172,361 | 0 | 172,361 | 0 |
| December | 24 | 2020 | -- | -- | 192,111 | 0 | 192,111 | 186,115 | 0 | 186,115 | 0 |
| December | 25 | 2020 | -- | -- | 184,116 | 0 | 184,116 | 188,664 | 0 | 188,664 | 0 |
| December | 26 | 2020 | -- | -- | 192,425 | 0 | 192,425 | 187,760 | 0 | 187,760 | 0 |
| December | 27 | 2020 | -- | -- | 185,757 | 0 | 185,757 | 185,262 | 0 | 185,262 | 0 |
| December | 28 | 2020 | -- | -- | 184,974 | 0 | 184,974 | 62,586 | 122,588 | 185,173 | 0 |
| December | 29 | 2020 | -- | -- | 153,487 | 0 | 153,487 | 83,355 | 68,633 | 151,987 | 0 |
| December | 30 | 2020 | -- | -- | 182,516 | 0 | 182,516 | 187,889 | 0 | 187,889 | 0 |
| December | 31 | 2020 | -- | -- | 191,001 | 0 | 191,001 | 183,046 | 0 | 183,046 | 0 |
| **Total Monthly Volumes (gallons)** | | | **0** | **0** | **5,603,591** | **0** | **5,603,591** | **5,385,445** | **191,220** | **5,576,665** | **5,000** |
| **Average Pump/Injection Rates (gpm)** | | | **0.0** | **0.0** | **125.5** | **0.0** | **125.5** | **120.6** | **4.3** | **124.9** | **0.1** |

NOTES: gpm: gallons per minute RO: Reverse Osmosis

a. Extraction well TW-3D was operated during December 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 December 2020.

b. Effluent was discharged into injection wells IW-02 and IW-03. Due to a communications failure between the plant and the injection wells, the injection flow rate shown

c. The difference between influent flow rate and the sum of the effluent and reverse osmosis concentrate flow rates during December 2020 is approximately 1.34 percent and includes 38,000 gallons of groundwater remedy construction water and 16,000 gallons of injection well backwash water. 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 ( ≙ 100%)
Calibrated full scale

Current 4 - 20 mA
Calibrated output

0.9164
Calibration factor

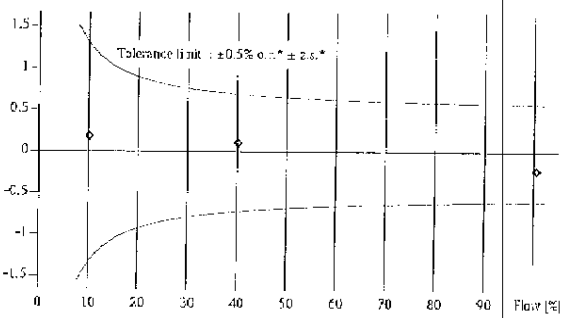
5
Zero point

77 °F
Water temperature

| Flow [%] | Flow [us.gal/min] | Duration [sec] | V target us.gal | V meas. [us.gal] | Δ o.r.* [%] | 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.r.: of rate
**Calculated value (4 - 20 mA)

Measured error % o.r.




*z.s.: Zero stability

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

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

09-17-2015
Date of calibration

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

Calvin Williams
Operator

Endress+Hauser
People for Process Automation

# Flow Calibration with Adjustment

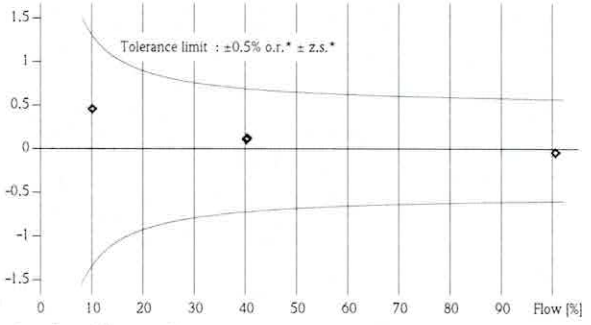
92020932-1304705

| | |
|---|---|
| WWRA12397 | FCP-8.2 US |
| Purchase order number | Calibration rig |
| US-3601548887-200 / Endress+Hauser Inc. | 156 us.gal/min ( ≙ 100%) |
| Order N°/Manufacturer | Calibrated full scale |
| 23P50-AL1A1AA022AW | Current 4 - 20 mA |
| Order code | Calibrated output |
| PROMAG 23 P 2" | 0.9146 |
| Transmitter/Sensor | Calibration factor |
| 6C036F16000 | -34 |
| Serial N° | Zero point |
| FIT-1201 | 73.2 °F |
| Tag N° | Water temperature |

| Flow [%] | Flow [us.gal/min] | Duration [sec] | V target [us.gal] | V meas. [us.gal] | Δ o.r.* [%] | Outp.** [mA] |
|---|---|---|---|---|---|---|
| 10.0 | 15.520 | 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.




*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).

02-07-2020
Date of calibration

J. Reasoner
Operator

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

Endress+Hauser

People for Process Automation

# Flow Calibration with Adjustment

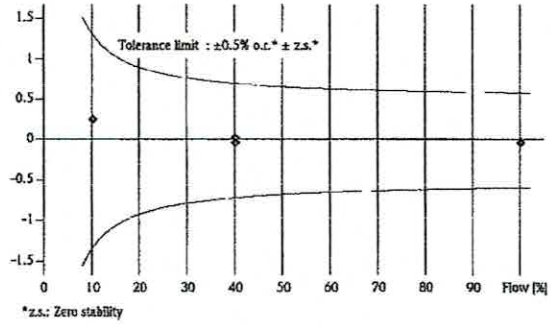
92018013-1275191

| | |
|---|---|
| WWRA7737<br>Purchase order number | FCP-7.1.6 US<br>Calibration rig |
| US-3601544787-200 / Endress+Hauser Inc.<br>Order N°/Manufacturer | 155.6102 us.gal/min ( ≙ 100%)<br>Calibrated full scale |
| 23P50-AL1A1RA022AW<br>Order code | Current 4 - 20 mA<br>Calibrated output |
| PROMAG 23 P 2"<br>Transmitter/Sensor | 0.9176<br>Calibration factor |
| 6A022016000<br>Serial N° | 0<br>Zero point |
| FIT-~~101~~ TW2S<br>Tag N° | 70.4 °F<br>Water temperature |

| Flow [%] | Flow [us.gal/min] | Duration [sec] | V target [us.gal] | V meas. [us.gal] | Δ o.r.* [%] | Outp.** [mA] |
|---|---|---|---|---|---|---|
| 10.0 | 15.602 | 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.




*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

12-05-2018
Date of calibration

John Davis
Operator

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

Endress+Hauser

People for Process Automation

# Flow Calibration with Adjustment

92018011-1275190

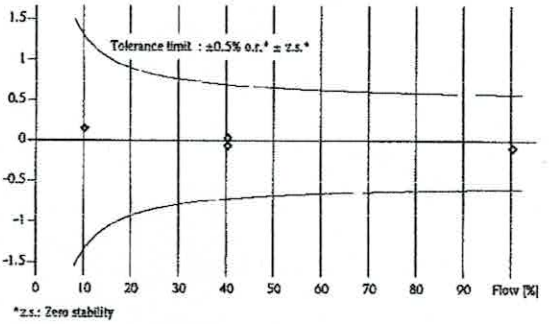
| | |
|---|---|
| WWRA7737 | FCP-7.1.6 US |
| Purchase order number | Calibration rig |
| US-3601544787-100 / Endress+Hauser Inc. | 155 us.gal/min ( ≙ 100%) |
| Order N°/Manufacturer | Calibrated full scale |
| 23P50-AL1A1RA022AW | Current 4 - 20 mA |
| Order code | Calibrated output |
| PROMAG 23 P 2" | 0.9035 |
| Transmitter/Sensor | Calibration factor |
| 6A021F16000 | -17 |
| Serial N° | Zero point |
| FIT ~~100~~ TW 2D | 70.6 °F |
| Tag N° | Water temperature |

| Flow [%] | Flow [us.gal/min] | Duration [sec] | V target [us.gal] | V meas. [us.gal] | Δ o.r.* [%] | Outp.** [mA] |
|---|---|---|---|---|---|---|
| 10.0 | 15.541 | 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

12-05-2018
Date of calibration

John Davis
Operator

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

Endress+Hauser

People for Process Automation

# Flow Calibration with Adjustment

30437052-4458240

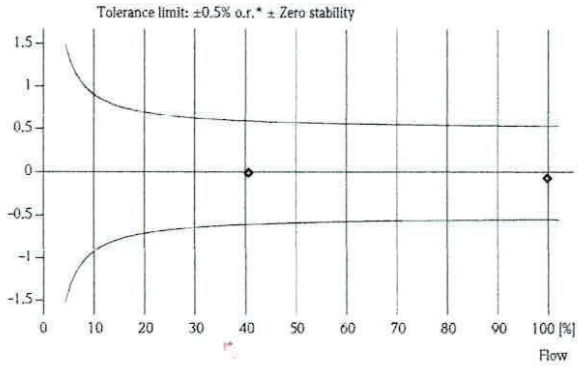
| | |
|---|---|
| 3800382048 | FCP-8.B |
| Purchase order number | Calibration rig |
| US-3005992023-10 / Endress+Hauser Flowtec | 155.6102 us.gal/min ( ≙ 100%) |
| Order N°/Manufacturer | Calibrated full scale |
| 5P2B50-79W4/0 | Service interface |
| Order code | Calibrated output |
| Promag P 200 2" | 0.92223 |
| Sensor/Transmitter | Calibration factor |
| N6004E16000 | 3 |
| Serial N° | Zero point |
| - | 75.9 °F |
| Tag N° | Water temperature |

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

*o.r.: of reading

**Calculated value (4 - 20 mA)

Measured error % o.r.




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

Joe Kizzee

Operator

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

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

Endress+Hauser
People for Process Automation

# 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 ( ≙ 100%)
Calibrated full scale

Current 4 - 20 mA
Calibrated output

0.9189
Calibration factor

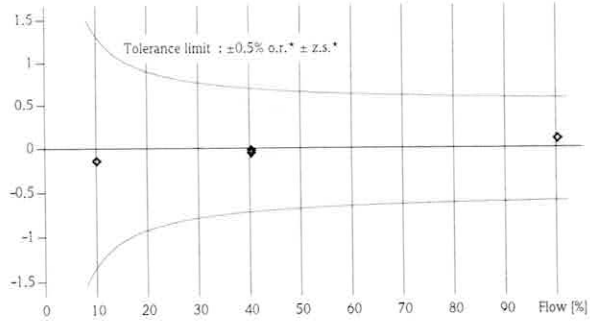
0
Zero point

73.2 °F
Water temperature

| Flow [%] | Flow [us.gal/min] | Duration [sec] | V target [us.gal] | V meas. [us.gal] | Δ 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.




*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).

02-07-2020
Date of calibration

J. Reasoner
Operator

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

Endress+Hauser

People for Process Automation

# Flow Calibration without Adjustment

92019262-3757980

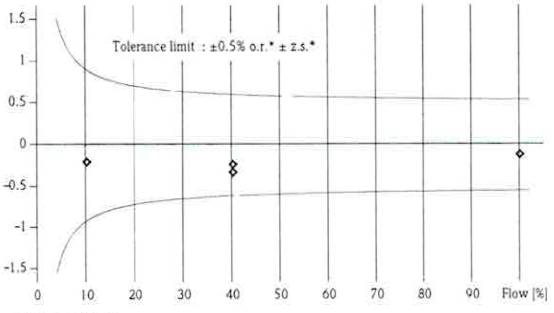
| | |
|---|---|
| WWRA9505 | FCP-7.1.6 US |
| Purchase order number | Calibration rig |
| US-3601546580-100 / Endress+Hauser Inc. | 398.3621 us.gal/min ( ≙ 100%) |
| Order N°/Manufacturer | Calibrated full scale |
| 5P2B80-1CX9/0 | Current 4 - 20 mA |
| Order code | Calibrated output |
| Promag P 200 3" | 1.1823 |
| Sensor/Transmitter | Calibration factor |
| L200E016000 | 1.0 |
| Serial N° | Zero point |
| FIT_700 | 72.6 °F |
| Tag N° | Water temperature |

| Flow [%] | Flow [us.gal/min] | Duration [sec] | V target [us.gal] | V meas. [us.gal] | Δ 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).

05-28-2019
Date of calibration

A. Geminden
Operator

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

Endress+Hauser

People for Process Automation

# Flow Calibration with Adjustment

30437059-4458241

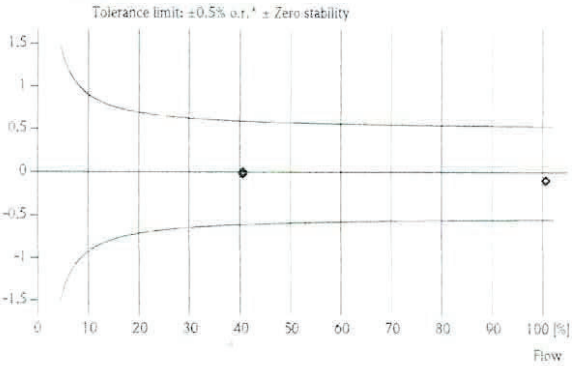
| | |
|---|---|
| 3800382048<br>Purchase order number | FCP-8.B<br>Calibration rig |
| US-3005992023-10 / Endress+Hauser Flowtec<br>Order N°/Manufacturer | 155.6102 us.gal/min ( ≙ 100%)<br>Calibrated full scale |
| 5P2B50-79W4/0<br>Order code | Service interface<br>Calibrated output |
| Promag P 200 2"<br>Sensor/Transmitter | 0.92113<br>Calibration factor |
| N6004F16000<br>Serial N° | -4<br>Zero point |
| -<br>Tag N° | 76 °F<br>Water temperature |

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

*o.r.: of reading

**Calculated value (4 - 20 mA)

Measured error % o.r.




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

Joe Kizzee

Operator

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

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 5477

## NON-HAZARDOUS WASTE MANIFEST

| Profile Number |
|---|
| 15713 |

| | | | |
|---|---|---|---|
| **Generator Name** | PG&E Topock Groundwater Extraction Site<br>Phone: (760) 326-3326<br>Emergency: (800) 833-7602 | **Generator Address** | 15 Mi Southwest of Needles<br>Hwy I40 & Park Moabi Rd.<br>Needles, CA 92363<br>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 pusuant 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** | |
| **Transporter Name** | MP Environmental Services | **Transporter Address** | 3045 S. 51st Ave.<br>Phoenix, AZ 85043 |

### Vehicle Information

| | | | | | |
|---|---|---|---|---|---|
| **Truck #** | 782 | **Tank#** | 3346 | **Inspection Paperwork Verified By:** | |
| **Waste Removed (Gallons)** | 4650 | **Totalizer Readings (Gallons)** | **Start** / **Finish** | **Date** | **Time** |
| | | | | 10/21/20 | |

**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 Avena | **Driver Signature** | |

| | | | | |
|---|---|---|---|---|
| **Disposal Facility** | Liquid Environmental Solutions of Arizona | **Address** | 5159 West Van Buren Street<br>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

# LIQUID ENVIRONMENTAL SOLUTIONS

P 5478

## NON-HAZARDOUS WASTE MANIFEST

| Profile Number |
|---|
| 15713 |

| | | | |
|---|---|---|---|
| **Generator Name** | PG&E Topock Groundwater Extraction Site<br>Phone: (760) 326-3326<br>Emergency: (800) 833-7602 | **Generator Address** | 15 Mi Southwest of Needles<br>Hwy I40 & Park Moabi Rd.<br>Needles, CA 92363<br>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 pusuant 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 DiDomenico | **Generator Rep. Signature** | Scott DiDomenico |
| **Transporter Name** | MP Environmental Services | **Transporter Address** | 3045 S. 51st Ave.<br>Phoenix, AZ 85043 |

### Vehicle Information

| | | | | | |
|---|---|---|---|---|---|
| **Truck #** | 782 | **Tank#** | 3346 | **Inspection Paperwork Verified By:** | Electronic |
| **Waste Removed (Gallons)** | 5000 | **Totalizer Readings (Gallons)** | **Start** / **Finish** | **Date** | **Time** |
| | | | | 12-8-20 | 0830 |

**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<br>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

# Appendix E
# Fourth Quarter 2020
# Laboratory Analytical Reports

October 21, 2020

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

TEL: (530) 229-3273
FAX: (510) 622-9129

Workorder No.: N042506

RE: PG&E Topock, D31084A1.EV.05-OM-TS

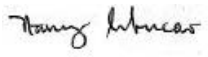
Attention: Mark Fesler/RDD

Enclosed are the results for sample(s) received on October 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 Sibucao
Laboratory Director

**CLIENT:** CH2M HILL
**Project:** PG&E Topock, D31084A1.EV.05-OM-TS
**Lab Order:** N042506

# CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

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

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

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

Samples were analyzed within method holding time.

Analytical Comments for EPA 6010B:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Selenium in QC samples N042506-001B-MS and N042506-001B-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.

Matrix Spike Duplicate (MSD) is outside recovery criteria for Chromium in QC sample N042506-001B-MSD since the analyte concentration in the sample is disproportionate to the spike level. Post Spike (PS) and Dilution Test (DT) were performed however, PS failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Analytical Comments for EPA 7199:

Matrix Spike (MS), Matrix Spike Duplicate (MSD) and Matrix Spike Insoluble are outside recovery criteria in QC samples N042421-001A-MS, N042421-001A-MSD and N042421-001A-MS_Insoluble possibly due to matrix interference. Post Spike was performed and met acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was also acceptable.

**CLIENT:** CH2M HILL
**Project:** PG&E Topock, D31084A1.EV.05-OM-TS
**Lab Order:** N042506
**Contract No:** IM3PLANT-AR

## Work Order Sample Summary

| Lab Sample ID | Client Sample ID | Matrix | Collection Date | Date Received | Date Reported |
|---|---|---|---|---|---|
| N042506-001A | Phase Separator-608-Sludge | Soil | 10/7/2020 3:15:00 PM | 10/7/2020 | 10/21/2020 |
| N042506-001B | Phase Separator-608-Sludge | Soil | 10/7/2020 3:15:00 PM | 10/7/2020 | 10/21/2020 |

| | | | |
|---|---|---|---|
| **CLIENT:** | CH2M HILL | **Client Sample ID:** | Phase Separator-608-Sludge |
| **Lab Order:** | N042506 | **Collection Date:** | 10/7/2020 3:15:00 PM |
| **Project:** | PG&E Topock, D31084A1.EV.05-OM-TS | **Matrix:** | SOIL |
| **Lab ID:** | N042506-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **ANIONS BY ION CHROMATOGRAPHY** | | | | | | | |
| | | | **EPA 300.0** | | | | |
| RunID: **NV00922-IC8_201015B** | QC Batch: **R148028** | | | PrepDate: | | | Analyst: **RAB** |
| Fluoride | 36 | 0.64 | 6.7 | | mg/Kg-dry | 2 | 10/15/2020 01:30 PM |

**Qualifiers:**

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

**CLIENT:** CH2M HILL
**Work Order:** N042506
**Project:** PG&E Topock, D31084A1.EV.05-OM-TS

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 300_S**

| Sample ID: **MB-R148028_F** | SampType: **MBLK** | TestCode: **300_S** | Units: **mg/Kg** | Prep Date: | RunNo: **148028** |
|---|---|---|---|---|---|
| Client ID: **PBS** | Batch ID: **R148028** | TestNo: **EPA 300.0** | | Analysis Date: **10/15/2020** | SeqNo: **3968689** |

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

| Sample ID: **LCS-R148028_F** | SampType: **LCS** | TestCode: **300_S** | Units: **mg/Kg** | Prep Date: | RunNo: **148028** |
|---|---|---|---|---|---|
| Client ID: **LCSS** | Batch ID: **R148028** | TestNo: **EPA 300.0** | | Analysis Date: **10/15/2020** | SeqNo: **3968690** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Fluoride | 13.208 | 1.0 | 12.50 | 0 | 106 | 90 | 110 | | | | |

| Sample ID: **N042506-001ADUP** | SampType: **DUP** | TestCode: **300_S** | Units: **mg/Kg-dry** | Prep Date: | RunNo: **148028** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R148028** | TestNo: **EPA 300.0** | | Analysis Date: **10/15/2020** | SeqNo: **3968692** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Fluoride | 36.214 | 6.7 | | | | | | 35.81 | 1.13 | 20 | |

| Sample ID: **N042506-001AMS** | SampType: **MS** | TestCode: **300_S** | Units: **mg/Kg-dry** | Prep Date: | RunNo: **148028** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R148028** | TestNo: **EPA 300.0** | | Analysis Date: **10/15/2020** | SeqNo: **3968693** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Fluoride | 69.846 | 6.7 | 41.72 | 35.81 | 81.6 | 80 | 120 | | | | |

| Sample ID: **N042506-001AMSD** | SampType: **MSD** | TestCode: **300_S** | Units: **mg/Kg-dry** | Prep Date: | RunNo: **148028** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R148028** | TestNo: **EPA 300.0** | | Analysis Date: **10/15/2020** | SeqNo: **3968694** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Fluoride | 69.879 | 6.7 | 41.72 | 35.81 | 81.7 | 80 | 120 | 69.85 | 0.0478 | 20 | |

**Qualifiers:**

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

Calculations are based on raw values

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

**CLIENT:** CH2M HILL
**Work Order:** N042506
**Project:** PG&E Topock, D31084A1.EV.05-OM-TS

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 300_S**

| Sample ID: **N042506-001APS** | SampType: **MS** | TestCode: **300_S** | Units: **mg/Kg-dry** | Prep Date: | RunNo: **148028** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R148028** | TestNo: **EPA 300.0** | | Analysis Date: **10/15/2020** | SeqNo: **3968695** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Fluoride | 120.372 | 6.7 | 83.44 | 35.81 | 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 | | |

**CLIENT:** CH2M HILL
**Lab Order:** N042506
**Project:** PG&E Topock, D31084A1.EV.05-OM-TS
**Lab ID:** N042506-001

**Client Sample ID:** Phase Separator-608-Sludge
**Collection Date:** 10/7/2020 3:15:00 PM
**Matrix:** SOIL

## TOTAL METALS BY ICP

**EPA 3050B** **EPA 6010B**

RunID: **NV00922-ICP2_201021B** QC Batch: **82505** PrepDate: **10/9/2020** Analyst: **DJ**

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| Antimony | 35 | 1.1 | 6.7 | | mg/Kg-dry | 1 | 10/21/2020 01:36 PM |
| Barium | 99 | 1.0 | 3.3 | | mg/Kg-dry | 1 | 10/10/2020 08:33 PM |
| Beryllium | ND | 0.72 | 3.3 | | mg/Kg-dry | 1 | 10/10/2020 08:33 PM |
| Cadmium | ND | 0.89 | 3.3 | | mg/Kg-dry | 1 | 10/10/2020 08:33 PM |
| Chromium | 4900 | 1.1 | 3.3 | | mg/Kg-dry | 1 | 10/10/2020 08:33 PM |
| Cobalt | 9.3 | 0.95 | 3.3 | | mg/Kg-dry | 1 | 10/10/2020 08:33 PM |
| Copper | 150 | 3.0 | 6.7 | | mg/Kg-dry | 1 | 10/10/2020 08:33 PM |
| Lead | ND | 0.98 | 3.3 | | mg/Kg-dry | 1 | 10/10/2020 08:33 PM |
| Manganese | 570 | 1.7 | 3.3 | | mg/Kg-dry | 1 | 10/10/2020 08:33 PM |
| Molybdenum | 21 | 0.99 | 3.3 | | mg/Kg-dry | 1 | 10/10/2020 08:33 PM |
| Nickel | 36 | 1.1 | 3.3 | | mg/Kg-dry | 1 | 10/15/2020 08:50 PM |
| Selenium | ND | 2.0 | 3.3 | | mg/Kg-dry | 1 | 10/10/2020 08:33 PM |
| Silver | ND | 2.1 | 3.3 | | mg/Kg-dry | 1 | 10/10/2020 08:33 PM |
| Thallium | 25 | 1.2 | 6.7 | | mg/Kg-dry | 1 | 10/16/2020 08:06 AM |
| Vanadium | 110 | 0.74 | 3.3 | | mg/Kg-dry | 1 | 10/10/2020 08:33 PM |
| Zinc | 75 | 1.0 | 3.3 | | mg/Kg-dry | 1 | 10/10/2020 08:33 PM |

**Qualifiers:**

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

**CLIENT:** CH2M HILL
**Work Order:** N042506
**Project:** PG&E Topock, D31084A1.EV.05-OM-TS

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_SPGE**

| Sample ID: **MB-82505** | SampType: **MBLK** | TestCode: **6010_SPGE** | Units: **mg/Kg** | Prep Date: **10/9/2020** | RunNo: **147922** |
|---|---|---|---|---|---|
| Client ID: **PBS** | Batch ID: **82505** | TestNo: **EPA 6010B** | **EPA 3050B** | Analysis Date: **10/10/2020** | SeqNo: **3962361** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Barium | ND | 1.0 | | | | | | | | | |
| Beryllium | ND | 1.0 | | | | | | | | | |
| Cadmium | ND | 1.0 | | | | | | | | | |
| Chromium | ND | 1.0 | | | | | | | | | |
| Cobalt | ND | 1.0 | | | | | | | | | |
| Copper | ND | 2.0 | | | | | | | | | |
| Lead | ND | 1.0 | | | | | | | | | |
| Manganese | ND | 1.0 | | | | | | | | | |
| Molybdenum | ND | 1.0 | | | | | | | | | |
| Nickel | ND | 1.0 | | | | | | | | | |
| Selenium | ND | 1.0 | | | | | | | | | |
| Silver | ND | 1.0 | | | | | | | | | |
| Thallium | ND | 2.0 | | | | | | | | | |
| Vanadium | ND | 1.0 | | | | | | | | | |
| Zinc | ND | 1.0 | | | | | | | | | |

| Sample ID: **LCS-82505** | SampType: **LCS** | TestCode: **6010_SPGE** | Units: **mg/Kg** | Prep Date: **10/9/2020** | RunNo: **147922** |
|---|---|---|---|---|---|
| Client ID: **LCSS** | Batch ID: **82505** | TestNo: **EPA 6010B** | **EPA 3050B** | Analysis Date: **10/10/2020** | SeqNo: **3962362** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Barium | 25.879 | 1.0 | 25.00 | 0 | 104 | 85 | 115 | | | | |
| Beryllium | 25.138 | 1.0 | 25.00 | 0 | 101 | 85 | 115 | | | | |
| Cadmium | 24.421 | 1.0 | 25.00 | 0 | 97.7 | 85 | 115 | | | | |
| Chromium | 25.111 | 1.0 | 25.00 | 0 | 100 | 85 | 115 | | | | |
| Cobalt | 26.277 | 1.0 | 25.00 | 0 | 105 | 85 | 115 | | | | |
| Copper | 25.330 | 2.0 | 25.00 | 0 | 101 | 85 | 115 | | | | |
| Lead | 25.109 | 1.0 | 25.00 | 0 | 100 | 85 | 115 | | | | |
| Manganese | 51.468 | 1.0 | 50.00 | 0 | 103 | 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

Calculations are based on raw values

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

**CLIENT:** CH2M HILL
**Work Order:** N042506
**Project:** PG&E Topock, D31084A1.EV.05-OM-TS

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_SPGE**

| Sample ID: **LCS-82505** | SampType: **LCS** | TestCode: **6010_SPGE** | Units: **mg/Kg** | Prep Date: **10/9/2020** | RunNo: **147922** |
|---|---|---|---|---|---|
| Client ID: **LCSS** | Batch ID: **82505** | TestNo: **EPA 6010B** | **EPA 3050B** | Analysis Date: **10/10/2020** | SeqNo: **3962362** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Molybdenum | 24.357 | 1.0 | 25.00 | 0 | 97.4 | 85 | 115 | | | | |
| Nickel | 24.920 | 1.0 | 25.00 | 0 | 99.7 | 85 | 115 | | | | |
| Selenium | 24.650 | 1.0 | 25.00 | 0 | 98.6 | 85 | 115 | | | | |
| Silver | 26.857 | 1.0 | 25.00 | 0 | 107 | 85 | 115 | | | | |
| Thallium | 24.181 | 2.0 | 25.00 | 0 | 96.7 | 85 | 115 | | | | |
| Vanadium | 25.043 | 1.0 | 25.00 | 0 | 100 | 85 | 115 | | | | |
| Zinc | 25.186 | 1.0 | 25.00 | 0 | 101 | 85 | 115 | | | | |

| Sample ID: **N042506-001B-MS** | SampType: **MS** | TestCode: **6010_SPGE** | Units: **mg/Kg-dry** | Prep Date: **10/9/2020** | RunNo: **147922** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **82505** | TestNo: **EPA 6010B** | **EPA 3050B** | Analysis Date: **10/10/2020** | SeqNo: **3962366** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Barium | 183.645 | 3.3 | 83.36 | 99.09 | 101 | 75 | 125 | | | | |
| Beryllium | 87.096 | 3.3 | 83.36 | 0 | 104 | 75 | 125 | | | | |
| Cadmium | 84.976 | 3.3 | 83.36 | 2.404 | 99.1 | 75 | 125 | | | | |
| Chromium | 4941.379 | 3.3 | 83.36 | 4875 | 79.9 | 75 | 125 | | | | |
| Cobalt | 95.105 | 3.3 | 83.36 | 9.258 | 103 | 75 | 125 | | | | |
| Copper | 245.187 | 6.7 | 83.36 | 152.5 | 111 | 75 | 125 | | | | |
| Lead | 82.252 | 3.3 | 83.36 | 0 | 98.7 | 75 | 125 | | | | |
| Manganese | 742.010 | 3.3 | 166.7 | 568.8 | 104 | 75 | 125 | | | | |
| Molybdenum | 101.317 | 3.3 | 83.36 | 20.61 | 96.8 | 75 | 125 | | | | |
| Selenium | 57.409 | 3.3 | 83.36 | 0 | 68.9 | 75 | 125 | | | | S |
| Silver | 96.923 | 3.3 | 83.36 | 0 | 116 | 75 | 125 | | | | |
| Vanadium | 194.840 | 3.3 | 83.36 | 106.5 | 106 | 75 | 125 | | | | |
| Zinc | 148.402 | 3.3 | 83.36 | 74.88 | 88.2 | 75 | 125 | | | | |

| Sample ID: **N042506-001B-MSD** | SampType: **MSD** | TestCode: **6010_SPGE** | Units: **mg/Kg-dry** | Prep Date: **10/9/2020** | RunNo: **147922** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **82505** | TestNo: **EPA 6010B** | **EPA 3050B** | Analysis Date: **10/10/2020** | SeqNo: **3962367** |

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

**CLIENT:** CH2M HILL
**Work Order:** N042506
**Project:** PG&E Topock, D31084A1.EV.05-OM-TS

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_SPGE**

| Sample ID: **N042506-001B-MSD** | SampType: **MSD** | TestCode: **6010_SPGE** | Units: **mg/Kg-dry** | Prep Date: **10/9/2020** | RunNo: **147922** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **82505** | TestNo: **EPA 6010B** | **EPA 3050B** | Analysis Date: **10/10/2020** | SeqNo: **3962367** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Barium | 180.613 | 3.3 | 83.28 | 99.09 | 97.9 | 75 | 125 | 183.6 | 1.66 | 20 | |
| Beryllium | 85.591 | 3.3 | 83.28 | 0 | 103 | 75 | 125 | 87.10 | 1.74 | 20 | |
| Cadmium | 82.895 | 3.3 | 83.28 | 2.404 | 96.7 | 75 | 125 | 84.98 | 2.48 | 20 | |
| Chromium | 4831.474 | 3.3 | 83.28 | 4875 | -52.0 | 75 | 125 | 4941 | 2.25 | 20 | S |
| Cobalt | 93.328 | 3.3 | 83.28 | 9.258 | 101 | 75 | 125 | 95.10 | 1.89 | 20 | |
| Copper | 239.510 | 6.7 | 83.28 | 152.5 | 104 | 75 | 125 | 245.2 | 2.34 | 20 | |
| Lead | 80.679 | 3.3 | 83.28 | 0 | 96.9 | 75 | 125 | 82.25 | 1.93 | 20 | |
| Manganese | 733.171 | 3.3 | 166.6 | 568.8 | 98.7 | 75 | 125 | 742.0 | 1.20 | 20 | |
| Molybdenum | 99.033 | 3.3 | 83.28 | 20.61 | 94.2 | 75 | 125 | 101.3 | 2.28 | 20 | |
| Selenium | 55.601 | 3.3 | 83.28 | 0 | 66.8 | 75 | 125 | 57.41 | 3.20 | 20 | S |
| Silver | 94.021 | 3.3 | 83.28 | 0 | 113 | 75 | 125 | 96.92 | 3.04 | 20 | |
| Vanadium | 191.161 | 3.3 | 83.28 | 106.5 | 102 | 75 | 125 | 194.8 | 1.91 | 20 | |
| Zinc | 144.922 | 3.3 | 83.28 | 74.88 | 84.1 | 75 | 125 | 148.4 | 2.37 | 20 | |

| Sample ID: **N042506-001B-MS** | SampType: **MS** | TestCode: **6010_SPGE** | Units: **mg/Kg-dry** | Prep Date: **10/9/2020** | RunNo: **148039** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **82505** | TestNo: **EPA 6010B** | **EPA 3050B** | Analysis Date: **10/15/2020** | SeqNo: **3969243** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nickel | 109.797 | 3.3 | 83.36 | 35.62 | 89.0 | 75 | 125 | | | | |

| Sample ID: **N042506-001B-MSD** | SampType: **MSD** | TestCode: **6010_SPGE** | Units: **mg/Kg-dry** | Prep Date: **10/9/2020** | RunNo: **148039** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **82505** | TestNo: **EPA 6010B** | **EPA 3050B** | Analysis Date: **10/15/2020** | SeqNo: **3969244** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nickel | 117.183 | 3.3 | 83.28 | 35.62 | 97.9 | 75 | 125 | 109.8 | 6.51 | 20 | |

**Qualifiers:**

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

**CLIENT:** CH2M HILL
**Work Order:** N042506
**Project:** PG&E Topock, D31084A1.EV.05-OM-TS

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_SPGE**

| Sample ID: **N042506-001B-MS** | SampType: **MS** | TestCode: **6010_SPGE** | Units: **mg/Kg-dry** | Prep Date: **10/9/2020** | RunNo: **148048** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **82505** | TestNo: **EPA 6010B** | **EPA 3050B** | Analysis Date: **10/16/2020** | SeqNo: **3969685** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Thallium | 98.740 | 6.7 | 83.36 | 24.80 | 88.7 | 75 | 125 | | | | |

| Sample ID: **N042506-001B-MSD** | SampType: **MSD** | TestCode: **6010_SPGE** | Units: **mg/Kg-dry** | Prep Date: **10/9/2020** | RunNo: **148048** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **82505** | TestNo: **EPA 6010B** | **EPA 3050B** | Analysis Date: **10/16/2020** | SeqNo: **3969686** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Thallium | 95.378 | 6.7 | 83.28 | 24.80 | 84.8 | 75 | 125 | 98.74 | 3.46 | 20 | |

| Sample ID: **MB-82505** | SampType: **MBLK** | TestCode: **6010_SPGE** | Units: **mg/Kg** | Prep Date: **10/9/2020** | RunNo: **148163** |
|---|---|---|---|---|---|
| Client ID: **PBS** | Batch ID: **82505** | TestNo: **EPA 6010B** | **EPA 3050B** | Analysis Date: **10/21/2020** | SeqNo: **3975837** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | ND | 2.0 | | | | | | | | | |

| Sample ID: **LCS-82505** | SampType: **LCS** | TestCode: **6010_SPGE** | Units: **mg/Kg** | Prep Date: **10/9/2020** | RunNo: **148163** |
|---|---|---|---|---|---|
| Client ID: **LCSS** | Batch ID: **82505** | TestNo: **EPA 6010B** | **EPA 3050B** | Analysis Date: **10/21/2020** | SeqNo: **3975838** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | 26.026 | 2.0 | 25.00 | 0 | 104 | 85 | 115 | | | | |

| Sample ID: **N042506-001B-MS** | SampType: **MS** | TestCode: **6010_SPGE** | Units: **mg/Kg-dry** | Prep Date: **10/9/2020** | RunNo: **148163** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **82505** | TestNo: **EPA 6010B** | **EPA 3050B** | Analysis Date: **10/21/2020** | SeqNo: **3975842** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | 115.212 | 6.7 | 83.36 | 34.56 | 96.7 | 75 | 125 | | | | |

**Qualifiers:**

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

Calculations are based on raw values

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

**CLIENT:** CH2M HILL
**Work Order:** N042506
**Project:** PG&E Topock, D31084A1.EV.05-OM-TS

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_SPGE**

| Sample ID: **N042506-001B-MSD** | SampType: **MSD** | TestCode: **6010_SPGE** | Units: **mg/Kg-dry** | Prep Date: **10/9/2020** | RunNo: **148163** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **82505** | TestNo: **EPA 6010B** | **EPA 3050B** | Analysis Date: **10/21/2020** | SeqNo: **3975843** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | 112.559 | 6.7 | 83.28 | 34.56 | 93.7 | 75 | 125 | 115.2 | 2.33 | 20 | |

**Qualifiers:**

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

**CLIENT:** CH2M HILL
**Work Order:** N042506
**Project:** PG&E Topock, D31084A1.EV.05-OM-TS

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_SPGE**

Sample ID: **N042506-001B-PS** SampType: **PS** TestCode: **6010_SPGE** Units: **mg/Kg-dry** Prep Date: RunNo: **147922**
Client ID: **ZZZZZZ** Batch ID: **82505** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **10/10/2020** SeqNo: **3962365**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Barium | 189.768 | 3.3 | 83.28 | 99.09 | 109 | 80 | 120 | | | | |
| Beryllium | 92.780 | 3.3 | 83.28 | 0 | 111 | 80 | 120 | | | | |
| Cadmium | 89.580 | 3.3 | 83.28 | 2.404 | 105 | 80 | 120 | | | | |
| Chromium | 4979.330 | 3.3 | 83.28 | 4875 | 126 | 80 | 120 | | | | S |
| Cobalt | 100.132 | 3.3 | 83.28 | 9.258 | 109 | 80 | 120 | | | | |
| Copper | 249.753 | 6.7 | 83.28 | 152.5 | 117 | 80 | 120 | | | | |
| Lead | 86.934 | 3.3 | 83.28 | 0 | 104 | 80 | 120 | | | | |
| Manganese | 745.584 | 3.3 | 166.6 | 568.8 | 106 | 80 | 120 | | | | |
| Molybdenum | 106.336 | 3.3 | 83.28 | 20.61 | 103 | 80 | 120 | | | | |
| Selenium | 62.039 | 3.3 | 83.28 | 0 | 74.5 | 80 | 120 | | | | S |
| Silver | 103.532 | 3.3 | 83.28 | 0 | 124 | 80 | 120 | | | | S |
| Vanadium | 201.244 | 3.3 | 83.28 | 106.5 | 114 | 80 | 120 | | | | |
| Zinc | 152.657 | 3.3 | 83.28 | 74.88 | 93.4 | 80 | 120 | | | | |

Sample ID: **N042506-001B-PS** SampType: **PS** TestCode: **6010_SPGE** Units: **mg/Kg-dry** Prep Date: RunNo: **148039**
Client ID: **ZZZZZZ** Batch ID: **82505** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **10/15/2020** SeqNo: **3969242**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nickel | 109.345 | 3.3 | 83.28 | 35.62 | 88.5 | 80 | 120 | | | | |

Sample ID: **N042506-001B-PS** SampType: **PS** TestCode: **6010_SPGE** Units: **mg/Kg-dry** Prep Date: RunNo: **148048**
Client ID: **ZZZZZZ** Batch ID: **82505** TestNo: **EPA 6010B** **EPA 3050B** Analysis Date: **10/16/2020** SeqNo: **3969684**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Thallium | 98.503 | 6.7 | 83.28 | 24.80 | 88.5 | 80 | 120 | | | | |

**Qualifiers:**

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

**CLIENT:** CH2M HILL
**Work Order:** N042506
**Project:** PG&E Topock, D31084A1.EV.05-OM-TS

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010_SPGE**

| Sample ID: **N042506-001B-PS** | SampType: **PS** | TestCode: **6010_SPGE** | Units: **mg/Kg-dry** | Prep Date: | RunNo: **148163** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **82505** | TestNo: **EPA 6010B** | **EPA 3050B** | Analysis Date: **10/21/2020** | SeqNo: **3975841** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | 117.655 | 6.7 | 83.28 | 34.56 | 99.8 | 80 | 120 | | | | |

**Qualifiers:**

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

**CLIENT:** CH2M HILL
**Lab Order:** N042506
**Project:** PG&E Topock, D31084A1.EV.05-OM-TS
**Lab ID:** N042506-001

**Client Sample ID:** Phase Separator-608-Sludge
**Collection Date:** 10/7/2020 3:15:00 PM
**Matrix:** SOIL

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL METALS BY ICPMS** | | | | | | | |
| **EPA 3050B** | | | **EPA 6020** | | | | |
| RunID: **NV00922-ICP8_201010A** | QC Batch: **82507** | | | PrepDate: **10/9/2020** | | | Analyst: **CEI** |
| Arsenic | 30 | 0.27 | 0.83 | | mg/Kg-dry | 1 | 10/10/2020 08:33 PM |

**Qualifiers:**

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

**CLIENT:** CH2M HILL
**Work Order:** N042506
**Project:** PG&E Topock, D31084A1.EV.05-OM-TS

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 6020_S_PGE**

| Sample ID: **MB-82507** | SampType: **MBLK** | TestCode: **6020_S_PGE** | Units: **mg/Kg** | Prep Date: **10/9/2020** | RunNo: **147943** |
|---|---|---|---|---|---|
| Client ID: **PBS** | Batch ID: **82507** | TestNo: **EPA 6020** | **EPA 3050B** | Analysis Date: **10/10/2020** | SeqNo: **3967139** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.25 | | | | | | | | | |

| Sample ID: **LCS-82507** | SampType: **LCS** | TestCode: **6020_S_PGE** | Units: **mg/Kg** | Prep Date: **10/9/2020** | RunNo: **147943** |
|---|---|---|---|---|---|
| Client ID: **LCSS** | Batch ID: **82507** | TestNo: **EPA 6020** | **EPA 3050B** | Analysis Date: **10/10/2020** | SeqNo: **3967140** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 4.932 | 0.25 | 5.000 | 0 | 98.6 | 85 | 115 | | | | |

| Sample ID: **N042506-001B-MS** | SampType: **MS** | TestCode: **6020_S_PGE** | Units: **mg/Kg-dry** | Prep Date: **10/9/2020** | RunNo: **147943** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **82507** | TestNo: **EPA 6020** | **EPA 3050B** | Analysis Date: **10/10/2020** | SeqNo: **3967144** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 48.068 | 0.83 | 16.68 | 30.06 | 108 | 75 | 125 | | | | |

| Sample ID: **N042506-001B-MSD** | SampType: **MSD** | TestCode: **6020_S_PGE** | Units: **mg/Kg-dry** | Prep Date: **10/9/2020** | RunNo: **147943** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **82507** | TestNo: **EPA 6020** | **EPA 3050B** | Analysis Date: **10/10/2020** | SeqNo: **3967145** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 46.750 | 0.83 | 16.67 | 30.06 | 100 | 75 | 125 | 48.07 | 2.78 | 20 | |

**Qualifiers:**

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

| | | | |
|---|---|---|---|
| **CLIENT:** | CH2M HILL | **Client Sample ID:** | Phase Separator-608-Sludge |
| **Lab Order:** | N042506 | **Collection Date:** | 10/7/2020 3:15:00 PM |
| **Project:** | PG&E Topock, D31084A1.EV.05-OM-TS | **Matrix:** | SOIL |
| **Lab ID:** | N042506-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| **EPA 3060A** | | | **EPA 7199** | | | | |
| RunID: **NV00922-IC6_201012A** | QC Batch: **82508** | | | PrepDate: **10/9/2020** | | | Analyst: **RAB** |
| Hexavalent Chromium | 100 | 0.97 | 3.3 | | mg/Kg-dry | 5 | 10/12/2020 01:15 PM |

**Qualifiers:**

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

**CLIENT:** CH2M HILL
**Work Order:** N042506
**Project:** PG&E Topock, D31084A1.EV.05-OM-TS

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 7199_S_PGE**

| Sample ID: **MB-82508** | SampType: **MBLK** | TestCode: **7199_S_PGE** | Units: **mg/Kg** | Prep Date: **10/9/2020** | RunNo: **147954** |
|---|---|---|---|---|---|
| Client ID: **PBS** | Batch ID: **82508** | TestNo: **EPA 7199** | **EPA 3060A** | Analysis Date: **10/12/2020** | SeqNo: **3965587** |

| 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-82508** | SampType: **LCS** | TestCode: **7199_S_PGE** | Units: **mg/Kg** | Prep Date: **10/9/2020** | RunNo: **147954** |
|---|---|---|---|---|---|
| Client ID: **LCSS** | Batch ID: **82508** | TestNo: **EPA 7199** | **EPA 3060A** | Analysis Date: **10/12/2020** | SeqNo: **3965588** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 3.764 | 0.20 | 4.000 | 0 | 94.1 | 80 | 120 | | | | |

| Sample ID: **N042421-001A-REP** | SampType: **DUP** | TestCode: **7199_S_PGE** | Units: **mg/Kg-dry** | Prep Date: **10/9/2020** | RunNo: **147954** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **82508** | TestNo: **EPA 7199** | **EPA 3060A** | Analysis Date: **10/12/2020** | SeqNo: **3965590** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 0.134 | 0.27 | | | | | | 0.1412 | 0 | 20 | |

| Sample ID: **N042421-001A-DUP** | SampType: **DUP** | TestCode: **7199_S_PGE** | Units: **mg/Kg-dry** | Prep Date: **10/9/2020** | RunNo: **147954** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **82508** | TestNo: **EPA 7199** | **EPA 3060A** | Analysis Date: **10/12/2020** | SeqNo: **3965591** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 0.105 | 0.27 | | | | | | 0.1412 | 0 | 20 | |

| Sample ID: **N042506-001A-REP** | SampType: **DUP** | TestCode: **7199_S_PGE** | Units: **mg/Kg-dry** | Prep Date: **10/9/2020** | RunNo: **147954** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **82508** | TestNo: **EPA 7199** | **EPA 3060A** | Analysis Date: **10/12/2020** | SeqNo: **3965593** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 100.273 | 3.3 | | | | | | 99.77 | 0.500 | 20 | |

**Qualifiers:**

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

Calculations are based on raw values

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

**CLIENT:** CH2M HILL
**Work Order:** N042506
**Project:** PG&E Topock, D31084A1.EV.05-OM-TS

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 7199_S_PGE**

| Sample ID: **N042421-001A-PS** | SampType: **MS** | TestCode: **7199_S_PGE** | Units: **mg/Kg-dry** | Prep Date: | | RunNo: **147954** |
|---|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **82508** | TestNo: **EPA 7199** | **EPA 3060A** | Analysis Date: **10/12/2020** | | SeqNo: **3965596** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 5.341 | 0.27 | 5.453 | 0.1412 | 95.3 | 75 | 125 | | | | |

| Sample ID: **N042421-001A-MS** | SampType: **MS** | TestCode: **7199_S_PGE** | Units: **mg/Kg-dry** | Prep Date: **10/9/2020** | | RunNo: **147954** |
|---|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **82508** | TestNo: **EPA 7199** | **EPA 3060A** | Analysis Date: **10/12/2020** | | SeqNo: **3965597** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 2.489 | 0.27 | 5.460 | 0.1412 | 43.0 | 75 | 125 | | | | S |

| Sample ID: **N042421-001A-MSD** | SampType: **MSD** | TestCode: **7199_S_PGE** | Units: **mg/Kg-dry** | Prep Date: **10/9/2020** | | RunNo: **147954** |
|---|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **82508** | TestNo: **EPA 7199** | **EPA 3060A** | Analysis Date: **10/12/2020** | | SeqNo: **3965598** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 2.272 | 0.27 | 5.455 | 0.1412 | 39.1 | 75 | 125 | 2.489 | 9.11 | 20 | S |

| Sample ID: **N042421-001A-MS I** | SampType: **MS** | TestCode: **7199_S_PGE** | Units: **mg/Kg-dry** | Prep Date: **10/9/2020** | | RunNo: **147954** |
|---|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **82508** | TestNo: **EPA 7199** | **EPA 3060A** | Analysis Date: **10/12/2020** | | SeqNo: **3965599** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 746.159 | 14 | 50430 | 0.1412 | 1.48 | 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

| | | | |
|---|---|---|---|
| **CLIENT:** | CH2M HILL | **Client Sample ID:** | Phase Separator-608-Sludge |
| **Lab Order:** | N042506 | **Collection Date:** | 10/7/2020 3:15:00 PM |
| **Project:** | PG&E Topock, D31084A1.EV.05-OM-TS | **Matrix:** | SOIL |
| **Lab ID:** | N042506-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL MERCURY BY COLD VAPOR TECHNIQUE** | | | | | | | |
| **EPA 7471A** | | | | | | | |
| RunID: **NV00922-AA2_201010A** QC Batch: **82506** PrepDate: **10/9/2020** Analyst: **DJ** | | | | | | | |
| Mercury | 0.47 | 0.089 | 0.33 | | mg/Kg-dry | 1 | 10/10/2020 09:37 AM |

**Qualifiers:**

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

**CLIENT:** CH2M HILL
**Work Order:** N042506
**Project:** PG&E Topock, D31084A1.EV.05-OM-TS

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 7471_S_PGE**

| Sample ID: **MB-82506** | SampType: **MBLK** | TestCode: **7471_S_PGE** | Units: **mg/Kg** | Prep Date: **10/9/2020** | RunNo: **147908** |
|---|---|---|---|---|---|
| Client ID: **PBS** | Batch ID: **82506** | TestNo: **EPA 7471A** | | Analysis Date: **10/10/2020** | SeqNo: **3961688** |

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

| Sample ID: **LCS-82506** | SampType: **LCS** | TestCode: **7471_S_PGE** | Units: **mg/Kg** | Prep Date: **10/9/2020** | RunNo: **147908** |
|---|---|---|---|---|---|
| Client ID: **LCSS** | Batch ID: **82506** | TestNo: **EPA 7471A** | | Analysis Date: **10/10/2020** | SeqNo: **3961689** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Mercury | 0.411 | 0.10 | 0.4167 | 0 | 98.6 | 75 | 125 | | | | |

| Sample ID: **N042514-001A-MS** | SampType: **MS** | TestCode: **7471_S_PGE** | Units: **mg/Kg** | Prep Date: **10/9/2020** | RunNo: **147908** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **82506** | TestNo: **EPA 7471A** | | Analysis Date: **10/10/2020** | SeqNo: **3961718** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Mercury | 0.574 | 0.10 | 0.4153 | 0.1202 | 109 | 75 | 125 | | | | |

| Sample ID: **N042514-001A-MSD** | SampType: **MSD** | TestCode: **7471_S_PGE** | Units: **mg/Kg** | Prep Date: **10/9/2020** | RunNo: **147908** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **82506** | TestNo: **EPA 7471A** | | Analysis Date: **10/10/2020** | SeqNo: **3961719** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Mercury | 0.583 | 0.10 | 0.4160 | 0.1202 | 111 | 75 | 125 | 0.5739 | 1.60 | 20 | |

**Qualifiers:**

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

Calculations are based on raw values

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

| | | | |
|---|---|---|---|
| **CLIENT:** | CH2M HILL | **Client Sample ID:** | Phase Separator-608-Sludge |
| **Lab Order:** | N042506 | **Collection Date:** | 10/7/2020 3:15:00 PM |
| **Project:** | PG&E Topock, D31084A1.EV.05-OM-TS | **Matrix:** | SOIL |
| **Lab ID:** | N042506-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **PERCENT MOISTURE** | | | | | | | |
| | | | **D2216** | | | | |
| RunID: **NV00922-WC_201013C** | QC Batch: **R147994** | | | PrepDate: | | | Analyst: **CEI** |
| Percent Moisture | 70.04 | 0.1000 | 0.1000 | | wt% | 1 | 10/13/2020 |

**Qualifiers:**

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

**CLIENT:** CH2M HILL
**Work Order:** N042506
**Project:** PG&E Topock, D31084A1.EV.05-OM-TS

# ANALYTICAL QC SUMMARY REPORT

**TestCode: PMOIST**

| Sample ID: **MB-R147994** | SampType: **MBLK** | TestCode: **PMOIST** | Units: **wt%** | Prep Date: | RunNo: **147994** |
|---|---|---|---|---|---|
| Client ID: **PBS** | Batch ID: **R147994** | TestNo: **D2216** | | Analysis Date: **10/13/2020** | SeqNo: **3967748** |

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

| Sample ID: **N042506-001B-DUP** | SampType: **DUP** | TestCode: **PMOIST** | Units: **wt%** | Prep Date: | RunNo: **147994** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R147994** | TestNo: **D2216** | | Analysis Date: **10/13/2020** | SeqNo: **3967750** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Percent Moisture | 70.179 | 0.1000 | | | | | | 70.04 | 0.199 | 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 | | |

**JACOBS**

# CHAIN OF CUSTODY RECORD



**PROJECT INFORMATION**

COC Number 608-IM3-SLUDGE
Project Manager Scott O'Donnell
Sample Manager Shawn Duffy

Name PG&E Topock
Project IM3PLANT-ARAR-WDR-608-SLUDGE
Location PG&E Topock
Project Number D31084A1.EV.05-OM-TS
Task Order
Turnaround Time 10 Days
Shipping Date: 10/7/2020

| | DATE | TIME | Matrix | Container: | Glass Jar(8 oz) | 250ml Glass | Glass Jar(8 oz) | 4 oz jar | | Number of Containers | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Preservatives: | none | 4°C | none | 4°C | | | |
| | | | | Filtered: | NA | NA | NA | NA | | | |
| | | | | Holding Time: | NA | 14 | NA | 180 | | | |
| | | | | | Anions (E300_Soil) F only | Bioassay (Bioassay, 96hr Acute) | Metals (6010B_Soil) Title 22, Mercury, Mn | Metals (7199) | | | |
| Phase Separator-608-Sludge | | | Soil | | X | X | X | X | N042506-01 | 3 | |
| | | | | | | | | | TOTAL NUMBER OF CONTAINERS | 3 | |

SDS

IR#2 4.9°C

| | Signatures | Date/Time |
|---|---|---|
| Approved by | Scott O'Donnell | 10-7-20 1515 |
| Sampled by | Scott O'Donnell | 10-7-20 1515 |
| Relinquished by | Scott O'Donnell | 10-7-20 1520 |
| Received by | FEDEX | 10/7/20 1520 |
| Relinquished by | FEDEX | 10/7/20 1917 |
| Received by | FEDEX | 10/7/20 1917 |

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

ATTN:
Sample Custody
and
Marion Cartin

**Special Instructions:**
~~Sub-to-Aquatic Bioassay and Consult~~ SDS

Report Copy to
Mark Fesler
(530) 229-3273

## 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: | 10/7/2020 | Workorder: | N042506 |
| Rep sample Temp (Deg C): | 4.9 | IR Gun ID: | 2 |
| Temp Blank: | ☑ Yes ☐ No | | |
| Carrier name: | ASSET | | |
| Last 4 digits of Tracking No.: | NA | Packing Material Used: | Bubble Wrap |
| Cooling process: | ☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None | | |

### Sample Receipt Checklist

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

Comments: Collection date/time taken from labels YRJ 10/22/2020

For:

Checklist Completed By: FR BHdez 10/8/2020

Reviewed By: MBC 10/08/2020

## ASSET Laboratories

# WORK ORDER Summary

*08-Oct-20*

**WorkOrder:** N042506

**Client ID:** CH2HI01

**Project:** PG&E Topock, D31084A1.EV.05-OM-TS **QC Level:** Level IV **Date Received:** 10/7/2020

**Comments:** Report Copy to

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N042506-001A | Phase Separator-608-Sludge | 10/7/2020 3:15:00 PM | 10/21/2020 | Soil | EPA 300.0 | ANIONS BY ION CHROMATOGRAPHY | ☐ | ☐ | ☐ | WS |
| | | | 10/21/2020 | | EPA 3060A | Prep for Hexavalend Chromium | ☐ | ☐ | ☐ | WS |
| | | | 10/21/2020 | | EPA 7199 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WS |
| N042506-001B | | | 10/21/2020 | | EPA 3050B | SOPREP TOTAL METALS | ☐ | ☐ | ☐ | WS |
| | | | 10/21/2020 | | EPA 3050B | SOPREP TOTAL METALS | ☐ | ☐ | ☐ | WS |
| | | | 10/21/2020 | | EPA 6010B | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WS |
| | | | 10/21/2020 | | EPA 6020 | TOTAL METALS BY ICPMS | ☐ | ☐ | ☐ | WS |
| | | | 10/21/2020 | | | MERCURY PREP | ☐ | ☐ | ☐ | WS |
| | | | 10/21/2020 | | EPA 7471A | TOTAL MERCURY BY COLD VAPOR TECHNIQUE | ☐ | ☐ | ☐ | WS |
| | | | 10/21/2020 | | D2216 | PERCENT MOISTURE | ☐ | ☐ | ☐ | WS |
| N042506-002A | FOLDER | 10/21/2020 | 10/21/2020 | | Folder | Folder | ☐ | ☐ | ☐ | LAB |
| | | | 10/21/2020 | | Folder | Level IV Report | ☐ | ☐ | ☐ | LAB |
| | | | 10/21/2020 | | Folder | Folder | ☐ | ☐ | ☐ | LAB |

# List of Analysts

## ASSET Laboratories Work Order: N042506

| NAME | TEST METHOD |
|---|---|
| Claire Ignacio | EPA 6020, ASTM D2216 |
| Ria Abes | EPA 300.0, EPA 7199 |
| Diane Jetajobe | EPA 6010B, EPA 7471A |

October 30, 2020

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

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

Workorder No.: N042507

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

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on October 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 Sibucao
Laboratory Director

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:

Dilution was necessary as QC samples N042507-001E-MS1 and N042507-001E-MSD1 failed internal standard criteria. Thus, sample reference N042507-001 was also diluted.

Matrix Spike Duplicate (MSD) is outside recovery criteria for Iron in QC sample N042513-008B-MS1 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 Boron ; however, the associated Laboratory Control Sample (LCS) recovery was acceptable.

Analytical Comments for EPA 200.8:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Chromium in QC samples N042507-001E-MS and N042507-001E-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 N042507-001E-MS and N042507-001E-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.

Dilution was necessary on some analytes for sample N042507-003 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.

## ASSET Laboratories

**Date:** *30-Oct-20*

**CLIENT:** CH2M HILL
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS
**Lab Order:** N042507
**Contract No:** IM3PLANT-AR

# Work Order Sample Summary

| Lab Sample ID | Client Sample ID | Matrix | Collection Date | Date Received | Date Reported |
|---|---|---|---|---|---|
| N042507-001A | SC-100B-WDR-608 | Water | 10/7/2020 12:22:00 PM | 10/7/2020 | 10/30/2020 |
| N042507-001B | SC-100B-WDR-608 | Water | 10/7/2020 12:22:00 PM | 10/7/2020 | 10/30/2020 |
| N042507-001C | SC-100B-WDR-608 | Water | 10/7/2020 12:22:00 PM | 10/7/2020 | 10/30/2020 |
| N042507-001D | SC-100B-WDR-608 | Water | 10/7/2020 12:22:00 PM | 10/7/2020 | 10/30/2020 |
| N042507-001E | SC-100B-WDR-608 | Water | 10/7/2020 12:22:00 PM | 10/7/2020 | 10/30/2020 |
| N042507-001F | SC-100B-WDR-608 | Water | 10/7/2020 12:22:00 PM | 10/7/2020 | 10/30/2020 |
| N042507-002A | SC-700B-WDR-608 | Water | 10/7/2020 12:20:00 PM | 10/7/2020 | 10/30/2020 |
| N042507-002B | SC-700B-WDR-608 | Water | 10/7/2020 12:20:00 PM | 10/7/2020 | 10/30/2020 |
| N042507-002C | SC-700B-WDR-608 | Water | 10/7/2020 12:20:00 PM | 10/7/2020 | 10/30/2020 |
| N042507-002D | SC-700B-WDR-608 | Water | 10/7/2020 12:20:00 PM | 10/7/2020 | 10/30/2020 |
| N042507-002E | SC-700B-WDR-608 | Water | 10/7/2020 12:20:00 PM | 10/7/2020 | 10/30/2020 |
| N042507-002F | SC-700B-WDR-608 | Water | 10/7/2020 12:20:00 PM | 10/7/2020 | 10/30/2020 |
| N042507-003A | SC-701-WDR-608 | Water | 10/7/2020 12:30:00 PM | 10/7/2020 | 10/30/2020 |
| N042507-003B | SC-701-WDR-608 | Water | 10/7/2020 12:30:00 PM | 10/7/2020 | 10/30/2020 |
| N042507-003C | SC-701-WDR-608 | Water | 10/7/2020 12:30:00 PM | 10/7/2020 | 10/30/2020 |
| N042507-003D | SC-701-WDR-608 | Water | 10/7/2020 12:30:00 PM | 10/7/2020 | 10/30/2020 |

| | | | |
|---|---|---|---|
| **CLIENT:** | CH2M HILL | **Client Sample ID:** | SC-100B-WDR-608 |
| **Lab Order:** | N042507 | **Collection Date:** | 10/7/2020 12:22:00 PM |
| **Project:** | PG&E Topock, D3184A1.EV.05-OM-TS | **Matrix:** | WATER |
| **Lab ID:** | N042507-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_201008C** | QC Batch: **R147874** | | | PrepDate: | | | Analyst: **QBM** |
| Specific Conductance | 7000 | 0.10 | 0.10 | | umhos/cm | 1 | 10/8/2020 11:50 AM |

**Qualifiers:**

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

| | | | |
|---|---|---|---|
| **CLIENT:** | CH2M HILL | **Client Sample ID:** | SC-700B-WDR-608 |
| **Lab Order:** | N042507 | **Collection Date:** | 10/7/2020 12:20:00 PM |
| **Project:** | PG&E Topock, D3184A1.EV.05-OM-TS | **Matrix:** | WATER |
| **Lab ID:** | N042507-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_201008C** | QC Batch: **R147874** | | | PrepDate: | | | Analyst: **QBM** |
| Specific Conductance | 7100 | 0.10 | 0.10 | | umhos/cm | 1 | 10/8/2020 11:50 AM |

**Qualifiers:**

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

**CLIENT:** CH2M HILL
**Lab Order:** N042507
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS
**Lab ID:** N042507-003

**Client Sample ID:** SC-701-WDR-608
**Collection Date:** 10/7/2020 12:30:00 PM
**Matrix:** WATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_201008C** | QC Batch: **R147874** | | | PrepDate: | | | Analyst: **QBM** |
| Specific Conductance | 40000 | 0.10 | 0.10 | | umhos/cm | 1 | 10/8/2020 11:50 AM |

**Qualifiers:**

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

**CLIENT:** CH2M HILL
**Work Order:** N042507
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 120.1_WPGE**

Sample ID: **N042507-003ADUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **147874**
Client ID: **ZZZZZZ** Batch ID: **R147874** TestNo: **EPA 120.1** Analysis Date: **10/8/2020** SeqNo: **3960536**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Specific Conductance | 40200.000 | 0.10 | | | | | | 40300 | 0.248 | 2 | |

**Qualifiers:**

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

| | | | |
|---|---|---|---|
| **CLIENT:** | CH2M HILL | **Client Sample ID:** | SC-100B-WDR-608 |
| **Lab Order:** | N042507 | **Collection Date:** | 10/7/2020 12:22:00 PM |
| **Project:** | PG&E Topock, D3184A1.EV.05-OM-TS | **Matrix:** | WATER |
| **Lab ID:** | N042507-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL FILTERABLE RESIDUE** | | | | | | | |
| | | | **SM2540C** | | | | |
| RunID: **NV00922-WC_201009D** | QC Batch: **82509** | | | | PrepDate: | **10/9/2020** | Analyst: **QBM** |
| Total Dissolved Solids (Residue, Filterable) | 4600 | 50 | 50 | | mg/L | 1 | 10/9/2020 08:04 AM |

**Qualifiers:**

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

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|---|---|---|---|
| **CLIENT:** | CH2M HILL | **Client Sample ID:** | SC-700B-WDR-608 |
| **Lab Order:** | N042507 | **Collection Date:** | 10/7/2020 12:20:00 PM |
| **Project:** | PG&E Topock, D3184A1.EV.05-OM-TS | **Matrix:** | WATER |
| **Lab ID:** | N042507-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL FILTERABLE RESIDUE** | | | | | | | |
| | | | **SM2540C** | | | | |
| RunID: **NV00922-WC_201009D** | QC Batch: **82509** | | | PrepDate: | **10/9/2020** | | Analyst: **QBM** |
| Total Dissolved Solids (Residue, Filterable) | 4500 | 50 | 50 | | mg/L | 1 | 10/9/2020 08:04 AM |

**Qualifiers:**

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

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|---|---|---|---|
| **CLIENT:** | CH2M HILL | **Client Sample ID:** | SC-701-WDR-608 |
| **Lab Order:** | N042507 | **Collection Date:** | 10/7/2020 12:30:00 PM |
| **Project:** | PG&E Topock, D3184A1.EV.05-OM-TS | **Matrix:** | WATER |
| **Lab ID:** | N042507-003 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL FILTERABLE RESIDUE** | | | | | | | |
| | | | **SM2540C** | | | | |
| RunID: **NV00922-WC_201009D** | QC Batch: **82509** | | | PrepDate: | **10/9/2020** | | Analyst: **QBM** |
| Total Dissolved Solids (Residue, Filterable) | 31000 | 500 | 500 | | mg/L | 1 | 10/9/2020 08:04 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 | | |

**CLIENT:** CH2M HILL
**Work Order:** N042507
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 160.1_2540C_W**

| Sample ID: **LCS-82509** | SampType: **LCS** | TestCode: **160.1_2540C** | Units: **mg/L** | Prep Date: **10/9/2020** | RunNo: **147910** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **82509** | TestNo: **SM2540C** | | Analysis Date: **10/9/2020** | SeqNo: **3961875** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Dissolved Solids (Residue, Filtera | 1011.000 | 10 | 1000 | 0 | 101 | 80 | 120 | | | | |

| Sample ID: **MB-82509** | SampType: **MBLK** | TestCode: **160.1_2540C** | Units: **mg/L** | Prep Date: **10/9/2020** | RunNo: **147910** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **82509** | TestNo: **SM2540C** | | Analysis Date: **10/9/2020** | SeqNo: **3961876** |

| 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: **N042507-003A-DUP** | SampType: **DUP** | TestCode: **160.1_2540C** | Units: **mg/L** | Prep Date: **10/9/2020** | RunNo: **147910** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **82509** | TestNo: **SM2540C** | | Analysis Date: **10/9/2020** | SeqNo: **3961880** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Dissolved Solids (Residue, Filtera | 31500.000 | 500 | | | | | | 31400 | 0.318 | 5 | |

**Qualifiers:**

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

| | | | |
|---|---|---|---|
| **CLIENT:** | CH2M HILL | **Client Sample ID:** | SC-100B-WDR-608 |
| **Lab Order:** | N042507 | **Collection Date:** | 10/7/2020 12:22:00 PM |
| **Project:** | PG&E Topock, D3184A1.EV.05-OM-TS | **Matrix:** | WATER |
| **Lab ID:** | N042507-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL METALS BY ICP** | | | | | | | |
| | | | **EPA 200.7** | | | | |
| RunID: **NV00922-ICP2_201014A** | QC Batch: **82532** | | | | PrepDate: | **10/12/2020** | Analyst: **DJ** |
| Aluminum | ND | 200 | 250 | | µg/L | 5 | 10/14/2020 08:47 AM |
| Boron | 3100 | 370 | 500 | | µg/L | 5 | 10/14/2020 08:47 AM |
| Iron | ND | 89 | 100 | | µg/L | 5 | 10/14/2020 08:47 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 | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | CH2M HILL | **Client Sample ID:** | SC-700B-WDR-608 |
| **Lab Order:** | N042507 | **Collection Date:** | 10/7/2020 12:20:00 PM |
| **Project:** | PG&E Topock, D3184A1.EV.05-OM-TS | **Matrix:** | WATER |
| **Lab ID:** | N042507-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL METALS BY ICP** | | | | | | | |
| | | | **EPA 200.7** | | | | |
| RunID: **NV00922-ICP2_201014A** | QC Batch: **82532** | | | | PrepDate: | **10/12/2020** | Analyst: **DJ** |
| Aluminum | ND | 40 | 50 | | µg/L | 1 | 10/14/2020 09:08 AM |
| Boron | 1700 | 74 | 100 | | µg/L | 1 | 10/14/2020 09:08 AM |
| Iron | 150 | 18 | 20 | | µg/L | 1 | 10/14/2020 09:08 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 | | |

**CLIENT:** CH2M HILL
**Work Order:** N042507
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.7_WPGEPPB**

Sample ID: **LCS1-82532** SampType: **LCS** TestCode: **200.7_WPGE** Units: **µg/L** Prep Date: **10/12/2020** RunNo: **148004**
Client ID: **LCSW** Batch ID: **82532** TestNo: **EPA 200.7** Analysis Date: **10/14/2020** SeqNo: **3967970**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 10365.422 | 50 | 10000 | 0 | 104 | 85 | 115 | | | | |
| Boron | 5022.771 | 100 | 5000 | 0 | 100 | 85 | 115 | | | | |
| Iron | 93.531 | 20 | 100.0 | 0 | 93.5 | 85 | 115 | | | | |

Sample ID: **N042507-001E-MS1** SampType: **MS** TestCode: **200.7_WPGE** Units: **µg/L** Prep Date: **10/12/2020** RunNo: **148004**
Client ID: **ZZZZZZ** Batch ID: **82532** TestNo: **EPA 200.7** Analysis Date: **10/14/2020** SeqNo: **3967973**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 8562.032 | 250 | 10000 | 0 | 85.6 | 75 | 125 | | | | |
| Boron | 6867.876 | 500 | 5000 | 3063 | 76.1 | 75 | 125 | | | | |
| Iron | 98.859 | 100 | 100.0 | 0 | 98.9 | 75 | 125 | | | | |

Sample ID: **N042507-001E-MSD** SampType: **MSD** TestCode: **200.7_WPGE** Units: **µg/L** Prep Date: **10/12/2020** RunNo: **148004**
Client ID: **ZZZZZZ** Batch ID: **82532** TestNo: **EPA 200.7** Analysis Date: **10/14/2020** SeqNo: **3967974**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 8796.866 | 250 | 10000 | 0 | 88.0 | 75 | 125 | 8015 | 9.30 | 20 | |
| Boron | 7315.163 | 500 | 5000 | 3063 | 85.0 | 75 | 125 | 9203 | 22.9 | 20 | R |
| Iron | 114.393 | 100 | 100.0 | 0 | 114 | 75 | 125 | 128.6 | 11.7 | 20 | |

Sample ID: **N042513-008B-MS1** SampType: **MS** TestCode: **200.7_WPGE** Units: **µg/L** Prep Date: **10/12/2020** RunNo: **148004**
Client ID: **ZZZZZZ** Batch ID: **82532** TestNo: **EPA 200.7** Analysis Date: **10/14/2020** SeqNo: **3967984**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 9649.019 | 250 | 10000 | 0 | 96.5 | 75 | 125 | | | | |
| Boron | 8007.786 | 500 | 5000 | 1947 | 121 | 75 | 125 | | | | |
| Iron | 174.652 | 100 | 100.0 | 0 | 175 | 75 | 125 | | | | S |

**Qualifiers:**

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

**CLIENT:** CH2M HILL
**Work Order:** N042507
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.7_WPGEPPB**

| Sample ID: **MB-82532** | SampType: **MBLK** | TestCode: **200.7_WPGE** | Units: **µg/L** | Prep Date: **10/12/2020** | RunNo: **148037** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **82532** | TestNo: **EPA 200.7** | | Analysis Date: **10/15/2020** | SeqNo: **3969085** |

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

**Qualifiers:**

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

**CLIENT:** CH2M HILL
**Work Order:** N042507
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.7_WPGEPPB**

| Sample ID: **N042507-001E-PS** | SampType: **PS** | TestCode: **200.7_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **148004** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **82532** | TestNo: **EPA 200.7** | | Analysis Date: **10/14/2020** | SeqNo: **3967972** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 9448.285 | 250 | 10000 | 0 | 94.5 | 80 | 120 | | | | |
| Boron | 7193.986 | 500 | 5000 | 3063 | 82.6 | 80 | 120 | | | | |
| Iron | 130.259 | 100 | 100.0 | 0 | 130 | 80 | 120 | | | | S |

| Sample ID: **N042513-008B-PS** | SampType: **PS** | TestCode: **200.7_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **148037** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **82532** | TestNo: **EPA 200.7** | | Analysis Date: **10/15/2020** | SeqNo: **3969087** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 9013.840 | 250 | 10000 | 0 | 90.1 | 80 | 120 | | | | |
| Boron | 5966.523 | 500 | 5000 | 1947 | 80.4 | 80 | 120 | | | | |
| Iron | 210.094 | 100 | 100.0 | 0 | 210 | 80 | 120 | | | | S |

**Qualifiers:**

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

| | | | |
|---|---|---|---|
| **CLIENT:** | CH2M HILL | **Client Sample ID:** | SC-100B-WDR-608 |
| **Lab Order:** | N042507 | **Collection Date:** | 10/7/2020 12:22:00 PM |
| **Project:** | PG&E Topock, D3184A1.EV.05-OM-TS | **Matrix:** | WATER |
| **Lab ID:** | N042507-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_201008A** | QC Batch: **R147882** | | | PrepDate: | | | Analyst: **RAB** |
| Hexavalent Chromium | 420 | 1.7 | 10 | | µg/L | 50 | 10/8/2020 01:46 PM |
| **TOTAL METALS BY ICPMS** | | | | | | | |
| | | | **EPA 200.8** | | | | |
| RunID: **NV00922-ICP8_201016B** | QC Batch: **82531** | | | PrepDate: | **10/15/2020** | | Analyst: **CEI** |
| Chromium | 420 | 0.65 | 5.0 | | µg/L | 5 | 10/16/2020 08:36 AM |

**Qualifiers:**

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

| | | | |
|---|---|---|---|
| **CLIENT:** | CH2M HILL | **Client Sample ID:** | SC-700B-WDR-608 |
| **Lab Order:** | N042507 | **Collection Date:** | 10/7/2020 12:20:00 PM |
| **Project:** | PG&E Topock, D3184A1.EV.05-OM-TS | **Matrix:** | WATER |
| **Lab ID:** | N042507-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_201008A** | QC Batch: **R147882** | | | PrepDate: | | | Analyst: **RAB** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 10/8/2020 01:08 PM |
| **TOTAL METALS BY ICPMS** | | | | | | | |
| | | | **EPA 200.8** | | | | |
| RunID: **NV00922-ICP8_201016B** | QC Batch: **82531** | | | PrepDate: | **10/15/2020** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 10/16/2020 09:22 AM |

**Qualifiers:**

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

**CLIENT:** CH2M HILL
**Lab Order:** N042507
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS
**Lab ID:** N042507-003

**Client Sample ID:** SC-701-WDR-608
**Collection Date:** 10/7/2020 12:30:00 PM
**Matrix:** WATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_201008A** QC Batch: **R147882** | | | | PrepDate: | | | Analyst: **RAB** |
| Hexavalent Chromium | 1.2 | 0.17 | 1.0 | | µg/L | 5 | 10/8/2020 12:49 PM |
| **TOTAL METALS BY ICPMS** | | | | | | | |
| | | | **EPA 200.8** | | | | |
| RunID: **NV00922-ICP8_201016B** QC Batch: **82531** | | | | PrepDate: | **10/15/2020** | | Analyst: **CEI** |
| Chromium | 3.2 | 0.13 | 1.0 | | µg/L | 1 | 10/16/2020 09:31 AM |

**Qualifiers:**

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

**CLIENT:** CH2M HILL
**Work Order:** N042507
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.8_W_CRPGE_TPK**

| Sample ID: **MB-82531** | SampType: **MBLK** | TestCode: **200.8_W_CR** | Units: **µg/L** | Prep Date: **10/15/2020** | RunNo: **148066** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **82531** | TestNo: **EPA 200.8** | | Analysis Date: **10/16/2020** | SeqNo: **3970239** |

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

| Sample ID: **LCS-82531** | SampType: **LCS** | TestCode: **200.8_W_CR** | Units: **µg/L** | Prep Date: **10/15/2020** | RunNo: **148066** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **82531** | TestNo: **EPA 200.8** | | Analysis Date: **10/16/2020** | SeqNo: **3970240** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 9.627 | 1.0 | 10.00 | 0 | 96.3 | 85 | 115 | | | | |

| Sample ID: **N042507-001E-MS** | SampType: **MS** | TestCode: **200.8_W_CR** | Units: **µg/L** | Prep Date: **10/15/2020** | RunNo: **148066** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **82531** | TestNo: **EPA 200.8** | | Analysis Date: **10/16/2020** | SeqNo: **3970249** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 435.948 | 5.0 | 10.00 | 419.8 | 161 | 75 | 125 | | | | S |

| Sample ID: **N042507-001E-MSD** | SampType: **MSD** | TestCode: **200.8_W_CR** | Units: **µg/L** | Prep Date: **10/15/2020** | RunNo: **148066** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **82531** | TestNo: **EPA 200.8** | | Analysis Date: **10/16/2020** | SeqNo: **3970251** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 435.517 | 5.0 | 10.00 | 419.8 | 157 | 75 | 125 | 435.9 | 0.0989 | 20 | S |

**Qualifiers:**

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

Calculations are based on raw values

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

**CLIENT:** CH2M HILL
**Work Order:** N042507
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WU_PGE**

| Sample ID: **MB-R147882** | SampType: **MBLK** | TestCode: **218.6_WU_P** | Units: **µg/L** | Prep Date: | RunNo: **147882** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **R147882** | TestNo: **EPA 218.6** | | Analysis Date: **10/8/2020** | SeqNo: **3960911** |

| 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-R147882** | SampType: **LCS** | TestCode: **218.6_WU_P** | Units: **µg/L** | Prep Date: | RunNo: **147882** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **R147882** | TestNo: **EPA 218.6** | | Analysis Date: **10/8/2020** | SeqNo: **3960912** |

| 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: **N042511-004AMS** | SampType: **MS** | TestCode: **218.6_WU_P** | Units: **µg/L** | Prep Date: | RunNo: **147882** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R147882** | TestNo: **EPA 218.6** | | Analysis Date: **10/8/2020** | SeqNo: **3960919** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.721 | 0.20 | 1.000 | 0.7064 | 101 | 90 | 110 | | | | |

| Sample ID: **N042511-004AMSD** | SampType: **MSD** | TestCode: **218.6_WU_P** | Units: **µg/L** | Prep Date: | RunNo: **147882** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R147882** | TestNo: **EPA 218.6** | | Analysis Date: **10/8/2020** | SeqNo: **3960926** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.687 | 0.20 | 1.000 | 0.7064 | 98.1 | 90 | 110 | 1.721 | 2.00 | 20 | |

| Sample ID: **N042512-001ADUP** | SampType: **DUP** | TestCode: **218.6_WU_P** | Units: **µg/L** | Prep Date: | RunNo: **147882** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R147882** | TestNo: **EPA 218.6** | | Analysis Date: **10/8/2020** | SeqNo: **3960927** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 3.907 | 0.20 | | | | | | 3.888 | 0.480 | 20 | |

**Qualifiers:**

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

Calculations are based on raw values

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

**CLIENT:** CH2M HILL
**Work Order:** N042507
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WU_PGE**

| Sample ID: **N042507-003BMS** | SampType: **MS** | TestCode: **218.6_WU_P** | Units: **µg/L** | Prep Date: | RunNo: **147882** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R147882** | TestNo: **EPA 218.6** | | Analysis Date: **10/8/2020** | SeqNo: **3960942** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 6.117 | 1.0 | 5.000 | 1.227 | 97.8 | 90 | 110 | | | | |

| Sample ID: **N042507-002CMS** | SampType: **MS** | TestCode: **218.6_WU_P** | Units: **µg/L** | Prep Date: | RunNo: **147882** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R147882** | TestNo: **EPA 218.6** | | Analysis Date: **10/8/2020** | SeqNo: **3960946** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.151 | 0.20 | 1.000 | 0.1526 | 99.8 | 90 | 110 | | | | |

| Sample ID: **N042507-001CMS** | SampType: **MS** | TestCode: **218.6_WU_P** | Units: **µg/L** | Prep Date: | RunNo: **147882** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R147882** | TestNo: **EPA 218.6** | | Analysis Date: **10/8/2020** | SeqNo: **3960948** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 665.045 | 10 | 250.0 | 420.5 | 97.8 | 90 | 110 | | | | |

**Qualifiers:**

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

Calculations are based on raw values

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

**CLIENT:** CH2M HILL
**Work Order:** N042507
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.8_W_CRPGE_TPK**

| Sample ID: **N042507-001E-PS** | SampType: **PS** | TestCode: **200.8_W_CR** | Units: **µg/L** | Prep Date: | RunNo: **148066** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **82531** | TestNo: **EPA 200.8** | | Analysis Date: **10/16/2020** | SeqNo: **3970247** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 425.803 | 5.0 | 10.00 | 419.8 | 59.6 | 80 | 120 | | | | S |

**Qualifiers:**

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

**CLIENT:** CH2M HILL
**Lab Order:** N042507
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS
**Lab ID:** N042507-001

**Client Sample ID:** SC-100B-WDR-608
**Collection Date:** 10/7/2020 12:22:00 PM
**Matrix:** WATER

## TOTAL METALS BY ICPMS

**EPA 200.8**

RunID: **NV00922-ICP8_201016B** QC Batch: **82531** PrepDate: **10/15/2020** Analyst: **CEI**

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| Antimony | ND | 0.16 | 0.50 | | µg/L | 1 | 10/16/2020 08:31 AM |
| Arsenic | 3.1 | 0.081 | 0.10 | | µg/L | 1 | 10/30/2020 04:32 AM |
| Barium | 33 | 0.15 | 1.0 | | µg/L | 1 | 10/16/2020 08:31 AM |
| Copper | ND | 0.55 | 1.0 | | µg/L | 1 | 10/30/2020 04:32 AM |
| Lead | ND | 0.13 | 1.0 | | µg/L | 1 | 10/16/2020 08:31 AM |
| Manganese | 7.6 | 0.26 | 0.50 | | µg/L | 1 | 10/16/2020 08:31 AM |
| Molybdenum | 22 | 0.21 | 0.50 | | µg/L | 1 | 10/16/2020 08:31 AM |
| Nickel | ND | 0.26 | 1.0 | | µg/L | 1 | 10/16/2020 08:31 AM |
| Zinc | ND | 2.3 | 10 | | µg/L | 1 | 10/16/2020 08:31 AM |

**Qualifiers:**

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

**CLIENT:** CH2M HILL
**Lab Order:** N042507
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS
**Lab ID:** N042507-002

**Client Sample ID:** SC-700B-WDR-608
**Collection Date:** 10/7/2020 12:20:00 PM
**Matrix:** WATER

## TOTAL METALS BY ICPMS

**EPA 200.8**

RunID: **NV00922-ICP8_201016B** QC Batch: **82531** PrepDate: **10/15/2020** Analyst: **CEI**

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| Antimony | ND | 0.16 | 0.50 | | µg/L | 1 | 10/16/2020 09:22 AM |
| Arsenic | ND | 0.081 | 0.10 | | µg/L | 1 | 10/17/2020 08:02 PM |
| Barium | 20 | 0.15 | 1.0 | | µg/L | 1 | 10/16/2020 09:22 AM |
| Copper | ND | 0.55 | 1.0 | | µg/L | 1 | 10/30/2020 04:56 AM |
| Lead | ND | 0.13 | 1.0 | | µg/L | 1 | 10/16/2020 09:22 AM |
| Manganese | 4.6 | 0.26 | 0.50 | | µg/L | 1 | 10/16/2020 09:22 AM |
| Molybdenum | 21 | 0.21 | 0.50 | | µg/L | 1 | 10/16/2020 09:22 AM |
| Nickel | ND | 0.26 | 1.0 | | µg/L | 1 | 10/16/2020 09:22 AM |
| Zinc | ND | 2.3 | 10 | | µg/L | 1 | 10/16/2020 09:22 AM |

**Qualifiers:**

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

| | | | |
|---|---|---|---|
| **CLIENT:** | CH2M HILL | **Client Sample ID:** | SC-701-WDR-608 |
| **Lab Order:** | N042507 | **Collection Date:** | 10/7/2020 12:30:00 PM |
| **Project:** | PG&E Topock, D3184A1.EV.05-OM-TS | **Matrix:** | WATER |
| **Lab ID:** | N042507-003 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL METALS BY ICPMS** | | | | | | | |
| | | | **EPA 200.8** | | | | |
| RunID: **NV00922-ICP7_201030A** | QC Batch: **82531** | | | | PrepDate: | **10/15/2020** | Analyst: **CEI** |
| Antimony | ND | 0.16 | 0.50 | | µg/L | 1 | 10/30/2020 05:00 AM |
| Arsenic | 3.8 | 0.081 | 0.10 | | µg/L | 1 | 10/17/2020 08:15 PM |
| Barium | 120 | 0.15 | 1.0 | | µg/L | 1 | 10/16/2020 09:31 AM |
| Beryllium | ND | 0.21 | 2.5 | | µg/L | 5 | 10/16/2020 09:45 AM |
| Cadmium | ND | 0.053 | 0.50 | | µg/L | 1 | 10/16/2020 09:31 AM |
| Cobalt | 0.54 | 0.042 | 0.50 | | µg/L | 1 | 10/16/2020 09:31 AM |
| Copper | 7.9 | 0.55 | 1.0 | | µg/L | 1 | 10/30/2020 05:00 AM |
| Lead | ND | 0.13 | 1.0 | | µg/L | 1 | 10/16/2020 09:31 AM |
| Molybdenum | 150 | 0.21 | 0.50 | | µg/L | 1 | 10/16/2020 09:31 AM |
| Nickel | 9.6 | 0.26 | 1.0 | | µg/L | 1 | 10/16/2020 09:31 AM |
| Selenium | 34 | 0.36 | 0.50 | | µg/L | 1 | 10/17/2020 08:15 PM |
| Silver | ND | 0.23 | 0.50 | | µg/L | 1 | 10/16/2020 09:31 AM |
| Thallium | ND | 0.19 | 0.50 | | µg/L | 1 | 10/16/2020 09:31 AM |
| Vanadium | 4.9 | 0.28 | 1.0 | | µg/L | 1 | 10/16/2020 09:31 AM |
| Zinc | ND | 2.3 | 10 | | µg/L | 1 | 10/16/2020 09:31 AM |

**Qualifiers:**

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

**CLIENT:** CH2M HILL
**Work Order:** N042507
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.8_W_TPK**

Sample ID: **MB-82531** SampType: **MBLK** TestCode: **200.8_W_TP** Units: **µg/L** Prep Date: **10/15/2020** RunNo: **148066**
Client ID: **PBW** Batch ID: **82531** TestNo: **EPA 200.8** Analysis Date: **10/16/2020** SeqNo: **3970278**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | ND | 0.50 | | | | | | | | | |
| Barium | ND | 1.0 | | | | | | | | | |
| Beryllium | ND | 0.50 | | | | | | | | | |
| Cadmium | ND | 0.50 | | | | | | | | | |
| Cobalt | ND | 0.50 | | | | | | | | | |
| Lead | ND | 1.0 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Nickel | ND | 1.0 | | | | | | | | | |
| Silver | ND | 0.50 | | | | | | | | | |
| Thallium | ND | 0.50 | | | | | | | | | |
| Vanadium | ND | 1.0 | | | | | | | | | |
| Zinc | ND | 10 | | | | | | | | | |

Sample ID: **LCS-82531** SampType: **LCS** TestCode: **200.8_W_TP** Units: **µg/L** Prep Date: **10/15/2020** RunNo: **148066**
Client ID: **LCSW** Batch ID: **82531** TestNo: **EPA 200.8** Analysis Date: **10/16/2020** SeqNo: **3970279**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | 10.700 | 0.50 | 10.00 | 0 | 107 | 85 | 115 | | | | |
| Barium | 10.098 | 1.0 | 10.00 | 0 | 101 | 85 | 115 | | | | |
| Beryllium | 10.132 | 0.50 | 10.00 | 0 | 101 | 85 | 115 | | | | |
| Cadmium | 10.182 | 0.50 | 10.00 | 0 | 102 | 85 | 115 | | | | |
| Cobalt | 9.608 | 0.50 | 10.00 | 0 | 96.1 | 85 | 115 | | | | |
| Lead | 10.016 | 1.0 | 10.00 | 0 | 100 | 85 | 115 | | | | |
| Manganese | 95.952 | 0.50 | 100.0 | 0 | 96.0 | 85 | 115 | | | | |
| Molybdenum | 9.728 | 0.50 | 10.00 | 0 | 97.3 | 85 | 115 | | | | |
| Nickel | 10.210 | 1.0 | 10.00 | 0 | 102 | 85 | 115 | | | | |
| Silver | 10.585 | 0.50 | 10.00 | 0 | 106 | 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
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** CH2M HILL
**Work Order:** N042507
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.8_W_TPK**

| Sample ID: **LCS-82531** | SampType: **LCS** | TestCode: **200.8_W_TP** | Units: **µg/L** | Prep Date: **10/15/2020** | RunNo: **148066** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **82531** | TestNo: **EPA 200.8** | | Analysis Date: **10/16/2020** | SeqNo: **3970279** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Thallium | 9.874 | 0.50 | 10.00 | 0 | 98.7 | 85 | 115 | | | | |
| Vanadium | 9.812 | 1.0 | 10.00 | 0 | 98.1 | 85 | 115 | | | | |
| Zinc | 10.105 | 10 | 10.00 | 0 | 101 | 85 | 115 | | | | |

| Sample ID: **N042507-001E-MS** | SampType: **MS** | TestCode: **200.8_W_TP** | Units: **µg/L** | Prep Date: **10/15/2020** | RunNo: **148066** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **82531** | TestNo: **EPA 200.8** | | Analysis Date: **10/16/2020** | SeqNo: **3970287** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | 11.184 | 0.50 | 10.00 | 0 | 112 | 75 | 125 | | | | |
| Barium | 43.161 | 1.0 | 10.00 | 32.65 | 105 | 75 | 125 | | | | |
| Beryllium | 7.598 | 0.50 | 10.00 | 0 | 76.0 | 75 | 125 | | | | |
| Cadmium | 10.502 | 0.50 | 10.00 | 0 | 105 | 75 | 125 | | | | |
| Cobalt | 9.025 | 0.50 | 10.00 | 0.05915 | 89.7 | 75 | 125 | | | | |
| Lead | 10.291 | 1.0 | 10.00 | 0 | 103 | 75 | 125 | | | | |
| Manganese | 99.633 | 0.50 | 100.0 | 7.550 | 92.1 | 75 | 125 | | | | |
| Molybdenum | 33.361 | 0.50 | 10.00 | 22.29 | 111 | 75 | 125 | | | | |
| Nickel | ND | 1.0 | 10.00 | 0 | 0 | 75 | 125 | | | | S |
| Silver | 10.696 | 0.50 | 10.00 | 0 | 107 | 75 | 125 | | | | |
| Thallium | 8.234 | 0.50 | 10.00 | 0 | 82.3 | 75 | 125 | | | | |
| Vanadium | 18.253 | 1.0 | 10.00 | 8.075 | 102 | 75 | 125 | | | | |
| Zinc | 3.763 | 10 | 10.00 | 0 | 37.6 | 75 | 125 | | | | S |

| Sample ID: **N042507-001E-MSD** | SampType: **MSD** | TestCode: **200.8_W_TP** | Units: **µg/L** | Prep Date: **10/15/2020** | RunNo: **148066** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **82531** | TestNo: **EPA 200.8** | | Analysis Date: **10/16/2020** | SeqNo: **3970289** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | 10.955 | 0.50 | 10.00 | 0 | 110 | 75 | 125 | 11.18 | 2.07 | 20 | |
| Barium | 41.350 | 1.0 | 10.00 | 32.65 | 87.0 | 75 | 125 | 43.16 | 4.29 | 20 | |
| Beryllium | 7.509 | 0.50 | 10.00 | 0 | 75.1 | 75 | 125 | 7.598 | 1.17 | 20 | |
| Cadmium | 10.152 | 0.50 | 10.00 | 0 | 102 | 75 | 125 | 10.50 | 3.39 | 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:** N042507
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.8_W_TPK**

| Sample ID: **N042507-001E-MSD** | SampType: **MSD** | TestCode: **200.8_W_TP** | Units: **µg/L** | Prep Date: **10/15/2020** | RunNo: **148066** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **82531** | TestNo: **EPA 200.8** | | Analysis Date: **10/16/2020** | SeqNo: **3970289** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Cobalt | 8.970 | 0.50 | 10.00 | 0.05915 | 89.1 | 75 | 125 | 9.025 | 0.615 | 20 | |
| Lead | 10.290 | 1.0 | 10.00 | 0 | 103 | 75 | 125 | 10.29 | 0.00727 | 20 | |
| Manganese | 99.551 | 0.50 | 100.0 | 7.550 | 92.0 | 75 | 125 | 99.63 | 0.0823 | 20 | |
| Molybdenum | 33.144 | 0.50 | 10.00 | 22.29 | 109 | 75 | 125 | 33.36 | 0.655 | 20 | |
| Nickel | ND | 1.0 | 10.00 | 0 | 0 | 75 | 125 | 0 | 0 | 20 | S |
| Silver | 10.384 | 0.50 | 10.00 | 0 | 104 | 75 | 125 | 10.70 | 2.96 | 20 | |
| Thallium | 8.216 | 0.50 | 10.00 | 0 | 82.2 | 75 | 125 | 8.234 | 0.219 | 20 | |
| Vanadium | 18.420 | 1.0 | 10.00 | 8.075 | 103 | 75 | 125 | 18.25 | 0.911 | 20 | |
| Zinc | 3.755 | 10 | 10.00 | 0 | 37.6 | 75 | 125 | 3.763 | 0 | 20 | S |

| Sample ID: **MB-82531** | SampType: **MBLK** | TestCode: **200.8_W_TP** | Units: **µg/L** | Prep Date: **10/15/2020** | RunNo: **148091** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **82531** | TestNo: **EPA 200.8** | | Analysis Date: **10/17/2020** | SeqNo: **3974713** |

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

| Sample ID: **LCS-82531** | SampType: **LCS** | TestCode: **200.8_W_TP** | Units: **µg/L** | Prep Date: **10/15/2020** | RunNo: **148091** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **82531** | TestNo: **EPA 200.8** | | Analysis Date: **10/17/2020** | SeqNo: **3974714** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 9.250 | 0.10 | 10.00 | 0 | 92.5 | 85 | 115 | | | | |
| Selenium | 9.409 | 0.50 | 10.00 | 0 | 94.1 | 85 | 115 | | | | |

| Sample ID: **N042507-001E-MS** | SampType: **MS** | TestCode: **200.8_W_TP** | Units: **µg/L** | Prep Date: **10/15/2020** | RunNo: **148091** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **82531** | TestNo: **EPA 200.8** | | Analysis Date: **10/17/2020** | SeqNo: **3974720** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | 14.315 | 0.50 | 10.00 | 4.171 | 101 | 75 | 125 | | | | |

**Qualifiers:**

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

**CLIENT:** CH2M HILL
**Work Order:** N042507
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.8_W_TPK**

| Sample ID: **N042507-001E-MSD** | SampType: **MSD** | TestCode: **200.8_W_TP** | Units: **µg/L** | Prep Date: **10/15/2020** | RunNo: **148091** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **82531** | TestNo: **EPA 200.8** | | Analysis Date: **10/17/2020** | SeqNo: **3974726** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | 15.343 | 0.50 | 10.00 | 4.171 | 112 | 75 | 125 | 14.31 | 6.93 | 20 | |

| Sample ID: **MB-82531** | SampType: **MBLK** | TestCode: **200.8_W_TP** | Units: **µg/L** | Prep Date: **10/15/2020** | RunNo: **148363** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **82531** | TestNo: **EPA 200.8** | | Analysis Date: **10/30/2020** | SeqNo: **3985726** |

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

| Sample ID: **LCS-82531** | SampType: **LCS** | TestCode: **200.8_W_TP** | Units: **µg/L** | Prep Date: **10/15/2020** | RunNo: **148363** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **82531** | TestNo: **EPA 200.8** | | Analysis Date: **10/30/2020** | SeqNo: **3985727** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Copper | 10.071 | 1.0 | 10.00 | 0 | 101 | 85 | 115 | | | | |

| Sample ID: **N042507-001E-MS** | SampType: **MS** | TestCode: **200.8_W_TP** | Units: **µg/L** | Prep Date: **10/15/2020** | RunNo: **148363** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **82531** | TestNo: **EPA 200.8** | | Analysis Date: **10/30/2020** | SeqNo: **3985733** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 14.255 | 0.10 | 10.00 | 3.094 | 112 | 75 | 125 | | | | |
| Copper | 9.353 | 1.0 | 10.00 | 0 | 93.5 | 75 | 125 | | | | |

| Sample ID: **N042507-001E-MSD** | SampType: **MSD** | TestCode: **200.8_W_TP** | Units: **µg/L** | Prep Date: **10/15/2020** | RunNo: **148363** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **82531** | TestNo: **EPA 200.8** | | Analysis Date: **10/30/2020** | SeqNo: **3985734** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 14.084 | 0.10 | 10.00 | 3.094 | 110 | 75 | 125 | 14.25 | 1.21 | 20 | |
| Copper | 9.302 | 1.0 | 10.00 | 0 | 93.0 | 75 | 125 | 9.353 | 0.550 | 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:** N042507
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.8_W_TPK**

| Sample ID: **N042507-001E-PS** | SampType: **PS** | TestCode: **200.8_W_TP** | Units: **µg/L** | Prep Date: | RunNo: **148066** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **82531** | TestNo: **EPA 200.8** | | Analysis Date: **10/16/2020** | SeqNo: **3970285** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | 11.296 | 0.50 | 10.00 | 0 | 113 | 80 | 120 | | | | |
| Barium | 42.782 | 1.0 | 10.00 | 32.65 | 101 | 80 | 120 | | | | |
| Beryllium | 7.503 | 0.50 | 10.00 | 0 | 75.0 | 80 | 120 | | | | S |
| Cadmium | 10.361 | 0.50 | 10.00 | 0 | 104 | 80 | 120 | | | | |
| Cobalt | 9.052 | 0.50 | 10.00 | 0.05915 | 89.9 | 80 | 120 | | | | |
| Lead | 10.502 | 1.0 | 10.00 | 0 | 105 | 80 | 120 | | | | |
| Manganese | 100.923 | 0.50 | 100.0 | 7.550 | 93.4 | 80 | 120 | | | | |
| Molybdenum | 33.337 | 0.50 | 10.00 | 22.29 | 110 | 80 | 120 | | | | |
| Nickel | ND | 1.0 | 10.00 | 0 | 0 | 80 | 120 | | | | S |
| Silver | 10.360 | 0.50 | 10.00 | 0 | 104 | 80 | 120 | | | | |
| Thallium | 8.458 | 0.50 | 10.00 | 0 | 84.6 | 80 | 120 | | | | |
| Vanadium | 18.407 | 1.0 | 10.00 | 8.075 | 103 | 80 | 120 | | | | |
| Zinc | 5.158 | 10 | 10.00 | 0 | 51.6 | 80 | 120 | | | | S |

| Sample ID: **N042507-001E-PS** | SampType: **PS** | TestCode: **200.8_W_TP** | Units: **µg/L** | Prep Date: | RunNo: **148091** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **82531** | TestNo: **EPA 200.8** | | Analysis Date: **10/17/2020** | SeqNo: **3974718** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | 14.176 | 0.50 | 10.00 | 4.171 | 100 | 80 | 120 | | | | |

| Sample ID: **N042507-001E-PS** | SampType: **PS** | TestCode: **200.8_W_TP** | Units: **µg/L** | Prep Date: | RunNo: **148363** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **82531** | TestNo: **EPA 200.8** | | Analysis Date: **10/30/2020** | SeqNo: **3985732** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 14.214 | 0.10 | 10.00 | 3.094 | 111 | 80 | 120 | | | | |
| Copper | 9.390 | 1.0 | 10.00 | 0 | 93.9 | 80 | 120 | | | | |

**Qualifiers:**

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

| | | | |
|---|---|---|---|
| **CLIENT:** | CH2M HILL | **Client Sample ID:** | SC-100B-WDR-608 |
| **Lab Order:** | N042507 | **Collection Date:** | 10/7/2020 12:22:00 PM |
| **Project:** | PG&E Topock, D3184A1.EV.05-OM-TS | **Matrix:** | WATER |
| **Lab ID:** | N042507-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TURBIDITY** | | | | | | | |
| | | | **SM 2130B** | | | | |
| RunID: **NV00922-WC_201008E** | QC Batch: **R147876** | | | PrepDate: | | | Analyst: **QBM** |
| Turbidity | 0.22 | 0.10 | 0.10 | | NTU | 1 | 10/8/2020 11:00 AM |

**Qualifiers:**

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

| | | | |
|---|---|---|---|
| **CLIENT:** | CH2M HILL | **Client Sample ID:** | SC-700B-WDR-608 |
| **Lab Order:** | N042507 | **Collection Date:** | 10/7/2020 12:20:00 PM |
| **Project:** | PG&E Topock, D3184A1.EV.05-OM-TS | **Matrix:** | WATER |
| **Lab ID:** | N042507-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TURBIDITY** | | | | | | | |
| | | | **SM 2130B** | | | | |
| RunID: **NV00922-WC_201008E** | QC Batch: **R147876** | | | PrepDate: | | | Analyst: **QBM** |
| Turbidity | ND | 0.10 | 0.10 | | NTU | 1 | 10/8/2020 11:00 AM |

**Qualifiers:**

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

**CLIENT:** CH2M HILL
**Work Order:** N042507
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 2130_W**

| Sample ID: **MB-R147876** | SampType: **MBLK** | TestCode: **2130_W** | Units: **NTU** | Prep Date: | RunNo: **147876** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **R147876** | TestNo: **SM 2130B** | | Analysis Date: **10/8/2020** | SeqNo: **3960548** |

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

| Sample ID: **N042507-001BDUP** | SampType: **DUP** | TestCode: **2130_W** | Units: **NTU** | Prep Date: | RunNo: **147876** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R147876** | TestNo: **SM 2130B** | | Analysis Date: **10/8/2020** | SeqNo: **3960551** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Turbidity | 0.210 | 0.10 | | | | | | 0.2200 | 4.65 | 30 | |

**Qualifiers:**

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

| | | | |
|---|---|---|---|
| **CLIENT:** | CH2M HILL | **Client Sample ID:** | SC-701-WDR-608 |
| **Lab Order:** | N042507 | **Collection Date:** | 10/7/2020 12:30:00 PM |
| **Project:** | PG&E Topock, D3184A1.EV.05-OM-TS | **Matrix:** | WATER |
| **Lab ID:** | N042507-003 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL MERCURY BY COLD VAPOR TECHNIQUE** | | | | | | | |
| **EPA 245.1** | | | | | | | |
| RunID: **NV00922-AA2_201010B** QC Batch: **82522** | | | | PrepDate: | **10/10/2020** | | Analyst: **DJ** |
| Mercury | ND | 0.13 | 0.20 | | µg/L | 1 | 10/10/2020 12:24 PM |

**Qualifiers:**

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

**CLIENT:** CH2M HILL
**Work Order:** N042507
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 245.1_W**

| Sample ID: **MB-82522** | SampType: **MBLK** | TestCode: **245.1_W** | Units: **µg/L** | Prep Date: **10/10/2020** | RunNo: **147909** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **82522** | TestNo: **EPA 245.1** | | Analysis Date: **10/10/2020** | SeqNo: **3961816** |

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

| Sample ID: **LCS-82522** | SampType: **LCS** | TestCode: **245.1_W** | Units: **µg/L** | Prep Date: **10/10/2020** | RunNo: **147909** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **82522** | TestNo: **EPA 245.1** | | Analysis Date: **10/10/2020** | SeqNo: **3961818** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Mercury | 4.530 | 0.20 | 5.000 | 0 | 90.6 | 85 | 115 | | | | |

| Sample ID: **N042507-003C-MS** | SampType: **MS** | TestCode: **245.1_W** | Units: **µg/L** | Prep Date: **10/10/2020** | RunNo: **147909** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **82522** | TestNo: **EPA 245.1** | | Analysis Date: **10/10/2020** | SeqNo: **3961822** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Mercury | 4.130 | 0.20 | 5.000 | 0 | 82.6 | 75 | 125 | | | | |

| Sample ID: **N042507-003C-MSD** | SampType: **MSD** | TestCode: **245.1_W** | Units: **µg/L** | Prep Date: **10/10/2020** | RunNo: **147909** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **82522** | TestNo: **EPA 245.1** | | Analysis Date: **10/10/2020** | SeqNo: **3961823** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Mercury | 4.130 | 0.20 | 5.000 | 0 | 82.6 | 75 | 125 | 4.130 | 0 | 20 | |

| Sample ID: **N042513-001C-MS** | SampType: **MS** | TestCode: **245.1_W** | Units: **µg/L** | Prep Date: **10/10/2020** | RunNo: **147909** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **82522** | TestNo: **EPA 245.1** | | Analysis Date: **10/10/2020** | SeqNo: **3961827** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Mercury | 4.530 | 0.20 | 5.000 | 0 | 90.6 | 75 | 125 | | | | |

**Qualifiers:**

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

Calculations are based on raw values

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

| | | | |
|---|---|---|---|
| **CLIENT:** | CH2M HILL | **Client Sample ID:** | SC-100B-WDR-608 |
| **Lab Order:** | N042507 | **Collection Date:** | 10/7/2020 12:22:00 PM |
| **Project:** | PG&E Topock, D3184A1.EV.05-OM-TS | **Matrix:** | WATER |
| **Lab ID:** | N042507-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **ANIONS BY ION CHROMATOGRAPHY** | | | | | | | |
| | | | **EPA 300.0** | | | | |
| RunID: **NV00922-IC8_201008A** | QC Batch: **R147894** | | | PrepDate: | | | Analyst: **RAB** |
| Fluoride | 2.4 | 0.048 | 0.50 | | mg/L | 5 | 10/8/2020 12:48 PM |
| **ANIONS BY ION CHROMATOGRAPHY** | | | | | | | |
| | | | **EPA 300.0** | | | | |
| RunID: **NV00922-IC8_201008A** | QC Batch: **R147894** | | | PrepDate: | | | Analyst: **RAB** |
| Sulfate | 490 | 2.0 | 25 | | mg/L | 50 | 10/8/2020 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 |

| | | | |
|---|---|---|---|
| **CLIENT:** | CH2M HILL | **Client Sample ID:** | SC-700B-WDR-608 |
| **Lab Order:** | N042507 | **Collection Date:** | 10/7/2020 12:20:00 PM |
| **Project:** | PG&E Topock, D3184A1.EV.05-OM-TS | **Matrix:** | WATER |
| **Lab ID:** | N042507-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **ANIONS BY ION CHROMATOGRAPHY** | | | | | | | |
| | | | **EPA 300.0** | | | | |
| RunID: **NV00922-IC8_201008A** | QC Batch: **R147894** | | | PrepDate: | | | Analyst: **RAB** |
| Fluoride | 2.3 | 0.048 | 0.50 | | mg/L | 5 | 10/8/2020 01:03 PM |
| **ANIONS BY ION CHROMATOGRAPHY** | | | | | | | |
| | | | **EPA 300.0** | | | | |
| RunID: **NV00922-IC8_201008A** | QC Batch: **R147894** | | | PrepDate: | | | Analyst: **RAB** |
| Sulfate | 490 | 2.0 | 25 | | mg/L | 50 | 10/8/2020 06:46 PM |

**Qualifiers:**

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

| | | | |
|---|---|---|---|
| **CLIENT:** | CH2M HILL | **Client Sample ID:** | SC-701-WDR-608 |
| **Lab Order:** | N042507 | **Collection Date:** | 10/7/2020 12:30:00 PM |
| **Project:** | PG&E Topock, D3184A1.EV.05-OM-TS | **Matrix:** | WATER |
| **Lab ID:** | N042507-003 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **ANIONS BY ION CHROMATOGRAPHY** | | | | | | | |
| | | | **EPA 300.0** | | | | |
| RunID: **NV00922-IC8_201008A** | QC Batch: **R147894** | | | PrepDate: | | | Analyst: **RAB** |
| Fluoride | 18 | 0.19 | 2.0 | | mg/L | 20 | 10/8/2020 02:43 PM |

**Qualifiers:**

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

**CLIENT:** CH2M HILL
**Work Order:** N042507
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 300_W_FPGE**

| Sample ID: **MB-R147894_F** | SampType: **MBLK** | TestCode: **300_W_FPGE** | Units: **mg/L** | Prep Date: | RunNo: **147894** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **R147894** | TestNo: **EPA 300.0** | | Analysis Date: **10/8/2020** | SeqNo: **3961279** |

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

| Sample ID: **LCS-R147894_F** | SampType: **LCS** | TestCode: **300_W_FPGE** | Units: **mg/L** | Prep Date: | RunNo: **147894** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **R147894** | TestNo: **EPA 300.0** | | Analysis Date: **10/8/2020** | SeqNo: **3961280** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Fluoride | 1.289 | 0.10 | 1.250 | 0 | 103 | 90 | 110 | | | | |

| Sample ID: **N042507-002BDUP** | SampType: **DUP** | TestCode: **300_W_FPGE** | Units: **mg/L** | Prep Date: | RunNo: **147894** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R147894** | TestNo: **EPA 300.0** | | Analysis Date: **10/8/2020** | SeqNo: **3961294** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Fluoride | 2.317 | 0.50 | | | | | | 2.300 | 0.715 | 20 | |

| Sample ID: **N042513-008CMS** | SampType: **MS** | TestCode: **300_W_FPGE** | Units: **mg/L** | Prep Date: | RunNo: **147894** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R147894** | TestNo: **EPA 300.0** | | Analysis Date: **10/8/2020** | SeqNo: **3961297** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Fluoride | 8.188 | 0.50 | 6.250 | 2.180 | 96.1 | 80 | 120 | | | | |

| Sample ID: **N042513-004DMS** | SampType: **MS** | TestCode: **300_W_FPGE** | Units: **mg/L** | Prep Date: | RunNo: **147894** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R147894** | TestNo: **EPA 300.0** | | Analysis Date: **10/8/2020** | SeqNo: **3961298** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Fluoride | 8.090 | 0.50 | 6.250 | 2.020 | 97.1 | 80 | 120 | | | | |

**Qualifiers:**

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

Calculations are based on raw values

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

**CLIENT:** CH2M HILL
**Work Order:** N042507
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 300_W_FPGE**

| Sample ID: **N042513-004DMSD** | SampType: **MSD** | TestCode: **300_W_FPGE** | Units: **mg/L** | Prep Date: | RunNo: **147894** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R147894** | TestNo: **EPA 300.0** | | Analysis Date: **10/8/2020** | SeqNo: **3961299** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Fluoride | 7.927 | 0.50 | 6.250 | 2.020 | 94.5 | 80 | 120 | 8.090 | 2.04 | 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:** N042507
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 300_W_SO4PGE**

| Sample ID: MB-R147894_SO4 | SampType: MBLK | TestCode: 300_W_SO4P | Units: mg/L | Prep Date: | RunNo: 147894 |
|---|---|---|---|---|---|
| Client ID: PBW | Batch ID: R147894 | TestNo: EPA 300.0 | | Analysis Date: 10/8/2020 | SeqNo: 3961369 |

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

| Sample ID: LCS-R147894_SO4 | SampType: LCS | TestCode: 300_W_SO4P | Units: mg/L | Prep Date: | RunNo: 147894 |
|---|---|---|---|---|---|
| Client ID: LCSW | Batch ID: R147894 | TestNo: EPA 300.0 | | Analysis Date: 10/8/2020 | SeqNo: 3961370 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 4.094 | 0.50 | 4.000 | 0 | 102 | 90 | 110 | | | | |

| Sample ID: N042513-003DMS | SampType: MS | TestCode: 300_W_SO4P | Units: mg/L | Prep Date: | RunNo: 147894 |
|---|---|---|---|---|---|
| Client ID: ZZZZZZ | Batch ID: R147894 | TestNo: EPA 300.0 | | Analysis Date: 10/8/2020 | SeqNo: 3961376 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 716.700 | 25 | 200.0 | 506.1 | 105 | 80 | 120 | | | | |

| Sample ID: N042513-003DMSD | SampType: MSD | TestCode: 300_W_SO4P | Units: mg/L | Prep Date: | RunNo: 147894 |
|---|---|---|---|---|---|
| Client ID: ZZZZZZ | Batch ID: R147894 | TestNo: EPA 300.0 | | Analysis Date: 10/8/2020 | SeqNo: 3961377 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 708.930 | 25 | 200.0 | 506.1 | 101 | 80 | 120 | 716.7 | 1.09 | 20 | |

| Sample ID: N042507-001BMS | SampType: MS | TestCode: 300_W_SO4P | Units: mg/L | Prep Date: | RunNo: 147894 |
|---|---|---|---|---|---|
| Client ID: ZZZZZZ | Batch ID: R147894 | TestNo: EPA 300.0 | | Analysis Date: 10/8/2020 | SeqNo: 3961379 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 695.125 | 25 | 200.0 | 488.2 | 103 | 80 | 120 | | | | |

**Qualifiers:**

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

Calculations are based on raw values

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

**CLIENT:** CH2M HILL
**Work Order:** N042507
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 300_W_SO4PGE**

| Sample ID: **N042513-009CDUP** | SampType: **DUP** | TestCode: **300_W_SO4P** | Units: **mg/L** | Prep Date: | RunNo: **147894** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R147894** | TestNo: **EPA 300.0** | | Analysis Date: **10/8/2020** | SeqNo: **3961383** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 467.170 | 25 | | | | | | 470.9 | 0.792 | 20 | |

**Qualifiers:**

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

| | | | |
|---|---|---|---|
| **CLIENT:** | CH2M HILL | **Client Sample ID:** | SC-100B-WDR-608 |
| **Lab Order:** | N042507 | **Collection Date:** | 10/7/2020 12:22:00 PM |
| **Project:** | PG&E Topock, D3184A1.EV.05-OM-TS | **Matrix:** | WATER |
| **Lab ID:** | N042507-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_201013A** | QC Batch: **R147971** | | | PrepDate: | | | Analyst: **JBB** |
| Nitrate/Nitrite as N | 2.6 | 0.16 | 0.25 | | mg/L | 5 | 10/13/2020 12:58 PM |

**Qualifiers:**

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

| | | | |
|---|---|---|---|
| **CLIENT:** | CH2M HILL | **Client Sample ID:** | SC-700B-WDR-608 |
| **Lab Order:** | N042507 | **Collection Date:** | 10/7/2020 12:20:00 PM |
| **Project:** | PG&E Topock, D3184A1.EV.05-OM-TS | **Matrix:** | WATER |
| **Lab ID:** | N042507-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_201013A** | QC Batch: **R147971** | | | PrepDate: | | | Analyst: **JBB** |
| Nitrate/Nitrite as N | 2.5 | 0.16 | 0.25 | | mg/L | 5 | 10/13/2020 01:05 PM |

**Qualifiers:**

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

**CLIENT:** CH2M HILL
**Work Order:** N042507
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 4500N03F_W_PGE**

| Sample ID: **MB-R147971** | SampType: **MBLK** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | | | RunNo: **147971** | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **R147971** | TestNo: **SM4500-NO3** | | Analysis Date: **10/13/2020** | | | SeqNo: **3966671** | | | |
| 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-R147971** | SampType: **LCS** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | | | RunNo: **147971** | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **R147971** | TestNo: **SM4500-NO3** | | Analysis Date: **10/13/2020** | | | SeqNo: **3966672** | | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| Nitrate/Nitrite as N | 0.487 | 0.050 | 0.5000 | 0 | 97.3 | 85 | 115 | | | | |

| Sample ID: **N042507-001DDUP** | SampType: **DUP** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | | | RunNo: **147971** | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R147971** | TestNo: **SM4500-NO3** | | Analysis Date: **10/13/2020** | | | SeqNo: **3966674** | | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| Nitrate/Nitrite as N | 2.720 | 0.25 | | | | | | 2.645 | 2.80 | 20 | |

| Sample ID: **N042507-001DMS** | SampType: **MS** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | | | RunNo: **147971** | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R147971** | TestNo: **SM4500-NO3** | | Analysis Date: **10/13/2020** | | | SeqNo: **3966675** | | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| Nitrate/Nitrite as N | 5.369 | 0.25 | 2.500 | 2.645 | 109 | 75 | 125 | | | | |

| Sample ID: **N042507-001DMSD** | SampType: **MSD** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | | | RunNo: **147971** | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R147971** | TestNo: **SM4500-NO3** | | Analysis Date: **10/13/2020** | | | SeqNo: **3966676** | | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| Nitrate/Nitrite as N | 5.266 | 0.25 | 2.500 | 2.645 | 105 | 75 | 125 | 5.369 | 1.94 | 20 | |

**Qualifiers:**

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

**JACOBS**

# CHAIN OF CUSTODY RECORD



**PROJECT INFORMATION**

**COC Number** 608-IM3

**Project Manager** Scott O'Donnell

**Sample Manager** Shawn Duffy

**Name** PG&E Topock

**Project** IM3PLANT-ARAR-WDR-608

**Location** PG&E Topock

**Project Number** D3184A1.EV.05-OM-TS

**Task Order**

**Turnaround Time** 10 Days

**Shipping Date:** 10/6/2020

| | DATE | TIME | Matrix | AMMONIA (SM4500NH3D) | Anions (E300.0) F & SO4 | Anions (E300.0) Fluoride | CONDUCTIVITY (E120.1) | E218.6 Lab Filtered | Nitrate/Nitrite (SM4500NO3-E) | TDS (SM2540C) | Total Metals(E200.7 and E200.8) | Total Metals(E200.8) | Total Title22Metals | Turbidity (SM2130) | | Number of Containers | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Container: | | | | 1 Liter Poly | 1 Liter Poly | 1 Liter Poly | 1 Liter Poly | 250 ml Poly | 1 Liter Poly | 1 Liter Poly | 500 ml Poly | 500 ml Poly | 500 ml Poly | 1 Liter Poly | | | |
| Preservatives: | | | | 4°C Lab H2SO4 | 4°C | 4°C | 4°C | 4°C | 4°C Lab H2SO4 | 4°C | 4°C | 4°C | 4°C | 4°C | | | |
| Filtered: | | | | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | | | |
| Holding Time: | | | | 28 | 7 | 7 | 7 | 1 | 28 | 7 | 180 | 180 | 180 | 7 | | | |
| SC-100B-WDR-608 | 10-7-20 | 12:32 | Water | X | X | | X | X | X | X | X | | | X | N042507-01 | 4 | |
| SC-700B-WDR-608 | 10-7-20 | 12:20 | Water | X | X | | X | X | X | X | X | | | X | -02 | 4 | |
| SC-701-WDR-608 | 10-7-20 | 12:30 | Water | | | X | X | X | | X | | X | X | | -03 | 3 | |
| | | | | | | | | | | | | | | | TOTAL NUMBER OF CONTAINERS | 11 | |

IM#2 4-9°C

| | Signatures | Date/Time |
|---|---|---|
| **Approved by** | Scott RODonnell | 10-7-20 1219 |
| **Sampled by** | | 12:20 10-7-20 |
| **Relinquished by** | Scott RODonnell | 10-7-20 1520 |
| **Received by** | FER | 10/7/20 1520 |
| **Relinquished by** | FER | 10/7/20 1917 |
| **Received by** | FER | 10/7/20 1917 |

**Shipping Details**

**Method of Shipment:** FedEx

**On Ice:** yes / no

**Airbill No:**

**Lab Name:** ASSET Laboratories

**Lab Phone:** (702) 307-2659

**ATTN:**

Sample Custody

and

Marlon Cartin

**Special Instructions:**

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

**Report Copy to**

Mark Fesler

530-229-3273

## 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: | 10/7/2020 | Workorder: | N042507 |
| Rep sample Temp (Deg C): | 4.9 | IR Gun ID: | 2 |
| Temp Blank: | ☑ Yes ☐ No | | |
| Carrier name: | ASSET | | |
| Last 4 digits of Tracking No.: | NA | Packing Material Used: | None |
| Cooling process: | ☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None | | |

### Sample Receipt Checklist

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

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

For:

Checklist Completed By: FR BHdez 10/8/2020

Reviewed By: MBC 10/08/2020

# ASSET Laboratories

## WORK ORDER Summary

*08-Oct-20*

**WorkOrder:** N042507

**Client ID:** CH2HI01

**Project:** PG&E Topock, D3184A1.EV.05-OM-TS **QC Level:** Level IV **Date Received:** 10/7/2020

**Comments:** The 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 |
|---|---|---|---|---|---|---|---|---|---|---|
| N042507-001A | SC-100B-WDR-608 | 10/7/2020 12:22:00 PM | 10/21/2020 | Water | SM4500-NH3D | AMMONIA-N BY ION SELECTIVE ELECTRODE | ☐ | ☐ | ☑ | SUB |
| N042507-001B | | | 10/21/2020 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 10/21/2020 | | SM2540C | TOTAL FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 10/21/2020 | | | Total Dissolved Solids Prep | ☐ | ☐ | ☐ | WW |
| | | | 10/21/2020 | | SM 2130B | TURBIDITY | ☐ | ☐ | ☐ | WW |
| | | | 10/21/2020 | | EPA 300.0 | ANIONS BY ION CHROMATOGRAPHY | ☐ | ☐ | ☐ | WW |
| | | | 10/21/2020 | | EPA 300.0 | ANIONS BY ION CHROMATOGRAPHY | ☐ | ☐ | ☐ | WW |
| N042507-001C | | | 10/21/2020 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N042507-001D | | | 10/21/2020 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N042507-001E | | | 10/21/2020 | | | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 10/21/2020 | | EPA 200.7 | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 10/21/2020 | | | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 10/21/2020 | | EPA 200.8 | TOTAL METALS BY ICPMS | ☐ | ☐ | ☐ | WW |
| | | | 10/21/2020 | | EPA 200.8 | TOTAL METALS BY ICPMS | ☐ | ☐ | ☐ | WW |
| N042507-001F | | | | | | | ☐ | ☐ | ☐ | WW |
| N042507-002A | SC-700B-WDR-608 | 10/7/2020 12:20:00 PM | 10/21/2020 | | SM4500-NH3D | AMMONIA-N BY ION SELECTIVE ELECTRODE | ☐ | ☐ | ☑ | SUB |
| N042507-002B | | | 10/21/2020 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 10/21/2020 | | SM2540C | TOTAL FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 10/21/2020 | | | Total Dissolved Solids Prep | ☐ | ☐ | ☐ | WW |
| | | | 10/21/2020 | | SM 2130B | TURBIDITY | ☐ | ☐ | ☐ | WW |
| | | | 10/21/2020 | | EPA 300.0 | ANIONS BY ION CHROMATOGRAPHY | ☐ | ☐ | ☐ | WW |

# WORK ORDER Summary

*08-Oct-20*

**WorkOrder:** N042507

**Client ID:** CH2HI01

**Project:** PG&E Topock, D3184A1.EV.05-OM-TS **QC Level:** Level IV **Date Received:** 10/7/2020

**Comments:** The 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 |
|---|---|---|---|---|---|---|---|---|---|---|
| N042507-002B | SC-700B-WDR-608 | 10/7/2020 12:20:00 PM | 10/21/2020 | Water | EPA 300.0 | ANIONS BY ION CHROMATOGRAPHY | ☐ | ☐ | ☐ | WW |
| N042507-002C | | | 10/21/2020 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N042507-002D | | | 10/21/2020 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N042507-002E | | | 10/21/2020 | | | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 10/21/2020 | | EPA 200.7 | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 10/21/2020 | | | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 10/21/2020 | | EPA 200.8 | TOTAL METALS BY ICPMS | ☐ | ☐ | ☐ | WW |
| | | | 10/21/2020 | | EPA 200.8 | TOTAL METALS BY ICPMS | ☐ | ☐ | ☐ | WW |
| N042507-002F | | | | | | | ☐ | ☐ | ☐ | WW |
| N042507-003A | SC-701-WDR-608 | 10/7/2020 12:30:00 PM | 10/21/2020 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 10/21/2020 | | SM2540C | TOTAL FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 10/21/2020 | | | Total Dissolved Solids Prep | ☐ | ☐ | ☐ | WW |
| | | | 10/21/2020 | | EPA 300.0 | ANIONS BY ION CHROMATOGRAPHY | ☐ | ☐ | ☐ | WW |
| N042507-003B | | | 10/21/2020 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N042507-003C | | | 10/21/2020 | | | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 10/21/2020 | | EPA 200.8 | TOTAL METALS BY ICPMS | ☐ | ☐ | ☐ | WW |
| | | | 10/21/2020 | | EPA 200.8 | TOTAL METALS BY ICPMS | ☐ | ☐ | ☐ | WW |
| | | | 10/21/2020 | | EPA 245.1 | TOTAL MERCURY BY COLD VAPOR TECHNIQUE | ☐ | ☐ | ☐ | WW |
| | | | 10/21/2020 | | | MERCURY PREP | ☐ | ☐ | ☐ | WW |
| N042507-003D | | | | | | | ☐ | ☐ | ☐ | WW |
| N042507-004A | FOLDER | 10/21/2020 | 10/21/2020 | | Folder | Folder | ☐ | ☐ | ☐ | LAB |

# WORK ORDER Summary

*08-Oct-20*

**WorkOrder:** N042507

**Client ID:** CH2HI01

**Project:** PG&E Topock, D3184A1.EV.05-OM-TS **QC Level:** Level IV **Date Received:** 10/7/2020

**Comments:** The 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 |
|---|---|---|---|---|---|---|---|---|---|---|
| N042507-004A | FOLDER | 10/21/2020 | 10/21/2020 | | Folder | Level IV Report | ☐ | ☐ | ☐ | LAB |
| | | | 10/21/2020 | | Folder | Folder | ☐ | ☐ | ☐ | LAB |

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

# CHAIN-OF-CUSTODY RECORD



**QC Level: Level IV**

**Subcontractor:**

BC Labs
4100 Atlas Court
Bakersfield, CA 93308

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

Field Sampler: SIGNED

**08-Oct-20**

| | | | | Requested Tests | | |
|---|---|---|---|---|---|---|
| **Sample ID** | **Matrix** | **Date Collected** | **Bottle Type** | **SM4500-NH3D** | | |
| N042507-001A / SC-100B-WDR-608 | Water | 10/7/2020 12:22:00 PM | 32OZP | 1 | | |
| N042507-002A / SC-700B-WDR-608 | Water | 10/7/2020 12:20:00 PM | 32OZP | 1 | | |

General Comments: PLEASE EMAIL SAMPLE RECEIPT ACKNOWLEDGEMENT TO THE PM. ALWAYS CC: sonny.lorenzo@assetlaboratories.com

Please use PO#:N42507A 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 #: 550724275

| | | Date/Time | | | Date/Time |
|---|---|---|---|---|---|
| **Relinquished by:** | YRJ | 10/8/2020 1630 | **Received by:** | | |
| **Relinquished by:** | | | **Received by:** | | |

# List of Analysts

## ASSET Laboratories Work Order: N042507

| 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, EPA 245.1 |
| Julia Bundalian | SM 4500-NO3F |

Date of Report: 10/14/2020

Marlon B. Cartin

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

| | |
|---|---|
| Client Project: | N042507 |
| BCL Project: | Level IV + labSpec7 |
| BCL Work Order: | 2029638 |
| Invoice ID: | B394742 |

Enclosed are the results of analyses for samples received by the laboratory on 10/9/2020. 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

**ASSET Laboratories**
3151-3153 W Post Rd., Las Vegas, NV 89118
www.a6-labs.com
TEL: 7023072659 FAX: 7023072691

# CHAIN-OF-CUSTODY RECORD

Page 1 of 1

20-29638

**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

**08-Oct-20**

| Sample ID | Matrix | Date Collected | Bottle Type | Requested Tests | | |
|---|---|---|---|---|---|---|
| | | | | SM4500-NH3D | | |
| N042507-001A / SC-100B-WDR-608 | Water | 10/7/2020 12:22:00 PM | 32OZP | 1 | | |
| N042507-002A / SC-700B-WDR-608 | Water | 10/7/2020 12:20:00 PM | 32OZP | 1 | | |

-1
-2

CHK BY
DISTRIBUTION
SUB OUT

General Comments: PLEASE EMAIL SAMPLE RECEIPT ACKNOWLEDGEMENT TO THE PM. ALWAYS CC: sonny.lorenzo@assetlaboratories.com

Please use PO#:N42507A 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 #: 550724275

| | Date/Time | | Date/Time |
|---|---|---|---|
| Relinquished by: YRJ | 10/8/2020 1630 | Received by: | |
| Relinquished by: | | Received by: | 10-9-20 1020 |

**Chain of Custody and Cooler Receipt Form for 2029638 Page 2 of 2**

BC LABORATORIES INC. COOLER RECEIPT FORM Page ___ Of ___

Submission #: 20-29638

**SHIPPING INFORMATION**
Fed Ex ☐ UPS ☐ Ontrac ☐ Hand Delivery ☐
BC Lab Field Service ☐ Other ☒ (Specify) GLS

**SHIPPING CONTAINER**
Ice Chest ☒ None ☐ Box ☐
Other ☐ (Specify)

**FREE LIQUID**
YES ☐ NO ☐
W / S

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

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

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

COC Received ☑ YES ☐ NO

Emissivity: 97 Container: PE Thermometer ID: 274 Date/Time 10-9-20 1020

Temperature: (A) 3.4 °C / (C) 3.2 °C Analyst Init TKS

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

Comments:
Sample Numbering Completed By: GLS Date/Time: 10/9 1857
A = Actual / C = Corrected

Rev 21 05/23/2016
(S:\WPDocs\WordPerfect\LAB_DOCS\FORMS\SAMREC rev 20)

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

**Reported:** 10/14/2020 16:20
Project: Level IV + labSpec7
Project Number: N042507
Project Manager: Marlon B. Cartin

# Laboratory / Client Sample Cross Reference

| Laboratory | Client Sample Information | | | |
|---|---|---|---|---|
| **2029638-01** | **COC Number:** | --- | **Receive Date:** | 10/09/2020 10:20 |
| | **Project Number:** | --- | **Sampling Date:** | 10/07/2020 12:22 |
| | **Sampling Location:** | --- | **Sample Depth:** | --- |
| | **Sampling Point:** | N042507-001A / SC-100B-WDR-608 | **Lab Matrix:** | Water |
| | **Sampled By:** | --- | **Sample Type:** | Water |
| **2029638-02** | **COC Number:** | --- | **Receive Date:** | 10/09/2020 10:20 |
| | **Project Number:** | --- | **Sampling Date:** | 10/07/2020 12:20 |
| | **Sampling Location:** | --- | **Sample Depth:** | --- |
| | **Sampling Point:** | N042507-002A / SC-700B-WDR-608 | **Lab Matrix:** | Water |
| | **Sampled By:** | --- | **Sample Type:** | Water |

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

**Reported:** 10/14/2020 16:20
Project: Level IV + labSpec7
Project Number: N042507
Project Manager: Marlon B. Cartin

# Water Analysis (General Chemistry)

**BCL Sample ID:** 2029638-01 | **Client Sample Name:** N042507-001A / SC-100B-WDR-608, 10/7/2020 12:22:00PM

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

| Run # | Method | Prep Date | Run Date/Time | Analyst | Instrument | Dilution | QC Batch ID | Prep Method |
|---|---|---|---|---|---|---|---|---|
| 1 | SM-4500-NH3G | 10/12/20 15:30 | 10/14/20 10:55 | JMH2 | SC-2 | 1.033 | B089622 | SM 4500-NH3G |

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

**Reported:** 10/14/2020 16:20
Project: Level IV + labSpec7
Project Number: N042507
Project Manager: Marlon B. Cartin

# Water Analysis (General Chemistry)

**BCL Sample ID:** 2029638-02 | **Client Sample Name:** N042507-002A / SC-700B-WDR-608, 10/7/2020 12:20:00PM

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

| Run # | Method | Prep Date | Run Date/Time | Analyst | Instrument | Dilution | QC Batch ID | Prep Method |
|---|---|---|---|---|---|---|---|---|
| 1 | SM-4500-NH3G | 10/12/20 15:30 | 10/14/20 10:57 | JMH2 | SC-2 | 1.033 | B089622 | SM 4500-NH3G |

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

**Reported:** 10/14/2020 16:20
Project: Level IV + labSpec7
Project Number: N042507
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 |
|---|---|---|---|---|---|
| **QC Batch ID: B089622** | | | | | |
| Ammonia as N (Distilled) | B089622-BLK1 | ND | mg/L | 0.20 | |

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

**Reported:** 10/14/2020 16:20
Project: Level IV + labSpec7
Project Number: N042507
Project Manager: Marlon B. Cartin

# Water Analysis (General Chemistry)

## Quality Control Report - Laboratory Control Sample

| Constituent | QC Sample ID | Type | Result | Spike Level | Units | Percent Recovery | RPD | Control Limits Percent Recovery | Control Limits RPD | Lab Quals |
|---|---|---|---|---|---|---|---|---|---|---|
| **QC Batch ID: B089622** | | | | | | | | | | |
| Ammonia as N (Distilled) | B089622-BS1 | LCS | 1.9944 | 2.0000 | mg/L | 99.7 | | 85 - 115 | | |

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

**Reported:** 10/14/2020 16:20
Project: Level IV + labSpec7
Project Number: N042507
Project Manager: Marlon B. Cartin

# Water Analysis (General Chemistry)

## Quality Control Report - Precision & Accuracy

| Constituent | Type | Source Sample ID | Source Result | Result | Spike Added | Units | RPD | Percent Recovery | Control Limits RPD | Control Limits Percent Recovery | Lab Quals |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **QC Batch ID: B089622** | Used client sample: N | | | | | | | | | | |
| Ammonia as N (Distilled) | DUP | 2028434-12 | 0.073759 | ND | | mg/L | | | 20 | | A02 |
| | MS | 2028434-12 | 0.073759 | 2.4678 | 2.2989 | mg/L | | 104 | | 80 - 120 | |
| | MSD | 2028434-12 | 0.073759 | 2.4693 | 2.2989 | mg/L | 0.1 | 104 | 20 | 80 - 120 | |

November 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.: N042865

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

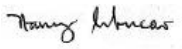
Attention: Mark Fesler/RDD

Enclosed are the results for sample(s) received on November 03, 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 Sibucao
Laboratory Director

**CLIENT:** CH2M HILL
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS
**Lab Order:** N042865

# 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 N042865-001C-MS and N042865-001C-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 EPA 200.8:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Chromium in QC samples N042865-001C-MS and N042865-001C-MSD since the analyte concentration in the sample is disproportionate to the spike level. Post Spike (PS) passed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Analytical Comments for EPA 300.0:

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

**CLIENT:** CH2M HILL
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS
**Lab Order:** N042865
**Contract No:** IM3PLANT-AR

## Work Order Sample Summary

| Lab Sample ID | Client Sample ID | Matrix | Collection Date | Date Received | Date Reported |
|---|---|---|---|---|---|
| N042865-001A | SC-100B-WDR-609 | Water | 11/3/2020 12:20:00 PM | 11/3/2020 | 11/19/2020 |
| N042865-001B | SC-100B-WDR-609 | Water | 11/3/2020 12:20:00 PM | 11/3/2020 | 11/19/2020 |
| N042865-001C | SC-100B-WDR-609 | Water | 11/3/2020 12:20:00 PM | 11/3/2020 | 11/19/2020 |
| N042865-001D | SC-100B-WDR-609 | Water | 11/3/2020 12:20:00 PM | 11/3/2020 | 11/19/2020 |
| N042865-002A | SC-700B-WDR-609 | Water | 11/3/2020 12:25:00 PM | 11/3/2020 | 11/19/2020 |
| N042865-002B | SC-700B-WDR-609 | Water | 11/3/2020 12:25:00 PM | 11/3/2020 | 11/19/2020 |
| N042865-002C | SC-700B-WDR-609 | Water | 11/3/2020 12:25:00 PM | 11/3/2020 | 11/19/2020 |
| N042865-002D | SC-700B-WDR-609 | Water | 11/3/2020 12:25:00 PM | 11/3/2020 | 11/19/2020 |
| N042865-002E | SC-700B-WDR-609 | Water | 11/3/2020 12:25:00 PM | 11/3/2020 | 11/19/2020 |
| N042865-002F | SC-700B-WDR-609 | Water | 11/3/2020 12:25:00 PM | 11/3/2020 | 11/19/2020 |

| | | | |
|---|---|---|---|
| **CLIENT:** | CH2M HILL | **Client Sample ID:** | SC-100B-WDR-609 |
| **Lab Order:** | N042865 | **Collection Date:** | 11/3/2020 12:20:00 PM |
| **Project:** | PG&E Topock, D3184A1.EV.05-OM-TS | **Matrix:** | WATER |
| **Lab ID:** | N042865-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_201104D** | QC Batch: **R148490** | | | PrepDate: | | | Analyst: **LR** |
| Specific Conductance | 6600 | 0.10 | 0.10 | | umhos/cm | 1 | 11/4/2020 10:35 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 | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | CH2M HILL | **Client Sample ID:** | SC-700B-WDR-609 |
| **Lab Order:** | N042865 | **Collection Date:** | 11/3/2020 12:25:00 PM |
| **Project:** | PG&E Topock, D3184A1.EV.05-OM-TS | **Matrix:** | WATER |
| **Lab ID:** | N042865-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_201104D** | QC Batch: **R148490** | | | PrepDate: | | | Analyst: **LR** |
| Specific Conductance | 6900 | 0.10 | 0.10 | | umhos/cm | 1 | 11/4/2020 10:35 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 | | |

**CLIENT:** CH2M HILL
**Work Order:** N042865
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 120.1_WPGE**

| Sample ID | N042866-001CDUP | SampType: | DUP | TestCode: | 120.1_WPGE | Units: | umhos/cm | Prep Date: | | RunNo: | 148490 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R148490 | TestNo: | EPA 120.1 | | | Analysis Date: | 11/4/2020 | SeqNo: | 3993296 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Specific Conductance | 7250.000 | 0.10 | | | | | | 7230 | 0.276 | 2 | |

**Qualifiers:**

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

| | | | |
|---|---|---|---|
| **CLIENT:** | CH2M HILL | **Client Sample ID:** | SC-100B-WDR-609 |
| **Lab Order:** | N042865 | **Collection Date:** | 11/3/2020 12:20:00 PM |
| **Project:** | PG&E Topock, D3184A1.EV.05-OM-TS | **Matrix:** | WATER |
| **Lab ID:** | N042865-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL FILTERABLE RESIDUE** | | | | | | | |
| | | | **SM2540C** | | | | |
| RunID: **NV00922-WC_201104I** | QC Batch: **82897** | | | | PrepDate: | **11/4/2020** | Analyst: **LR** |
| Total Dissolved Solids (Residue, Filterable) | 4400 | 50 | 50 | | mg/L | 1 | 11/4/2020 01:05 PM |

**Qualifiers:**

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

| | | | |
|---|---|---|---|
| **CLIENT:** | CH2M HILL | **Client Sample ID:** | SC-700B-WDR-609 |
| **Lab Order:** | N042865 | **Collection Date:** | 11/3/2020 12:25:00 PM |
| **Project:** | PG&E Topock, D3184A1.EV.05-OM-TS | **Matrix:** | WATER |
| **Lab ID:** | N042865-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL FILTERABLE RESIDUE** | | | | | | | |
| | | | **SM2540C** | | | | |
| RunID: **NV00922-WC_201104I** | QC Batch: **82897** | | | | PrepDate: | **11/4/2020** | Analyst: **LR** |
| Total Dissolved Solids (Residue, Filterable) | 4200 | 50 | 50 | | mg/L | 1 | 11/4/2020 01:05 PM |

**Qualifiers:**

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

**CLIENT:** CH2M HILL
**Work Order:** N042865
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 160.1_2540C_W**

| Sample ID | LCS-82897 | SampType: | LCS | TestCode: | 160.1_2540C | Units: | mg/L | Prep Date: | 11/4/2020 | RunNo: | 148525 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | 82897 | TestNo: | SM2540C | | | Analysis Date: | 11/4/2020 | SeqNo: | 3995516 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Dissolved Solids (Residue, Filtera | 959.000 | 10 | 1000 | 0 | 95.9 | 80 | 120 | | | | |

| Sample ID | MB-82897 | SampType: | MBLK | TestCode: | 160.1_2540C | Units: | mg/L | Prep Date: | 11/4/2020 | RunNo: | 148525 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | 82897 | TestNo: | SM2540C | | | Analysis Date: | 11/4/2020 | SeqNo: | 3995517 |

| 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 | N042866-001CDUP | SampType: | DUP | TestCode: | 160.1_2540C | Units: | mg/L | Prep Date: | 11/4/2020 | RunNo: | 148525 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 82897 | TestNo: | SM2540C | | | Analysis Date: | 11/4/2020 | SeqNo: | 3995527 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Dissolved Solids (Residue, Filtera | 4385.000 | 50 | | | | | | 4275 | 2.54 | 5 | |

**Qualifiers:**

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

Calculations are based on raw values

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

| | | | |
|---|---|---|---|
| **CLIENT:** | CH2M HILL | **Client Sample ID:** | SC-100B-WDR-609 |
| **Lab Order:** | N042865 | **Collection Date:** | 11/3/2020 12:20:00 PM |
| **Project:** | PG&E Topock, D3184A1.EV.05-OM-TS | **Matrix:** | WATER |
| **Lab ID:** | N042865-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL METALS BY ICP** | | | | | | | |
| | | | **EPA 200.7** | | | | |
| RunID: **NV00922-ICP2_201119A** | QC Batch: **82997** | | | | PrepDate: | **11/12/2020** | Analyst: **DJ** |
| Iron | 100 | 18 | 20 | | µg/L | 1 | 11/19/2020 10:46 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 | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | CH2M HILL | **Client Sample ID:** | SC-700B-WDR-609 |
| **Lab Order:** | N042865 | **Collection Date:** | 11/3/2020 12:25:00 PM |
| **Project:** | PG&E Topock, D3184A1.EV.05-OM-TS | **Matrix:** | WATER |
| **Lab ID:** | N042865-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL METALS BY ICP** | | | | | | | |
| | | | **EPA 200.7** | | | | |
| RunID: **NV00922-ICP2_201119A** | QC Batch: **82997** | | | | PrepDate: **11/12/2020** | | Analyst: **DJ** |
| Aluminum | ND | 40 | 50 | | µg/L | 1 | 11/19/2020 11:13 AM |
| Boron | 1200 | 74 | 100 | | µg/L | 1 | 11/19/2020 11:13 AM |
| Iron | 52 | 18 | 20 | | µg/L | 1 | 11/19/2020 11:13 AM |

**Qualifiers:**

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

**CLIENT:** CH2M HILL
**Work Order:** N042865
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.7_WPGEPPB**

| Sample ID **MB-82997** | SampType: **MBLK** | TestCode: **200.7_WPGE** | Units: **µg/L** | Prep Date: **11/12/2020** | RunNo: **148834** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **82997** | TestNo: **EPA 200.7** | | Analysis Date: **11/19/2020** | SeqNo: **4009443** |

| 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 **LCS1-82997** | SampType: **LCS** | TestCode: **200.7_WPGE** | Units: **µg/L** | Prep Date: **11/12/2020** | RunNo: **148834** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **82997** | TestNo: **EPA 200.7** | | Analysis Date: **11/19/2020** | SeqNo: **4009444** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 10552.523 | 50 | 10000 | 0 | 106 | 85 | 115 | | | | |
| Boron | 5048.039 | 100 | 5000 | 0 | 101 | 85 | 115 | | | | |
| Iron | 92.479 | 20 | 100.0 | 0 | 92.5 | 85 | 115 | | | | |

| Sample ID **N042865-001C-MS** | SampType: **MS** | TestCode: **200.7_WPGE** | Units: **µg/L** | Prep Date: **11/12/2020** | RunNo: **148834** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **82997** | TestNo: **EPA 200.7** | | Analysis Date: **11/19/2020** | SeqNo: **4009448** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 9947.495 | 50 | 10000 | 0 | 99.5 | 75 | 125 | | | | |
| Boron | 6369.133 | 100 | 5000 | 1057 | 106 | 75 | 125 | | | | |
| Iron | 117.295 | 20 | 100.0 | 100.7 | 16.6 | 75 | 125 | | | | S |

| Sample ID **N042865-001C-MSD** | SampType: **MSD** | TestCode: **200.7_WPGE** | Units: **µg/L** | Prep Date: **11/12/2020** | RunNo: **148834** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **82997** | TestNo: **EPA 200.7** | | Analysis Date: **11/19/2020** | SeqNo: **4009449** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 9988.759 | 50 | 10000 | 0 | 99.9 | 75 | 125 | 9947 | 0.414 | 20 | |
| Boron | 6291.071 | 100 | 5000 | 1057 | 105 | 75 | 125 | 6369 | 1.23 | 20 | |
| Iron | 119.410 | 20 | 100.0 | 100.7 | 18.7 | 75 | 125 | 117.3 | 1.79 | 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:** N042865
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.7_WPGEPPB**

| Sample ID | **N042865-001C-PS** | SampType: **PS** | TestCode: **200.7_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **148834** |
|---|---|---|---|---|---|---|
| Client ID: | **ZZZZZZ** | Batch ID: **82997** | TestNo: **EPA 200.7** | | Analysis Date: **11/19/2020** | SeqNo: **4009447** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 9972.058 | 50 | 10000 | 0 | 99.7 | 80 | 120 | | | | |
| Boron | 6261.300 | 100 | 5000 | 1057 | 104 | 80 | 120 | | | | |
| Iron | 118.811 | 20 | 100.0 | 100.7 | 18.1 | 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 | | |

**CLIENT:** CH2M HILL
**Lab Order:** N042865
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS
**Lab ID:** N042865-001

**Client Sample ID:** SC-100B-WDR-609
**Collection Date:** 11/3/2020 12:20:00 PM
**Matrix:** WATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_201104A** | QC Batch: **R148534** | | | PrepDate: | | | Analyst: **RAB** |
| Hexavalent Chromium | 440 | 1.7 | 10 | | µg/L | 50 | 11/4/2020 06:50 PM |
| **TOTAL METALS BY ICPMS** | | | | | | | |
| | | | **EPA 200.8** | | | | |
| RunID: **NV00922-ICP7_201104C** | QC Batch: **82878** | | | PrepDate: | **11/4/2020** | | Analyst: **CEI** |
| Chromium | 420 | 0.65 | 5.0 | | µg/L | 5 | 11/4/2020 05:01 PM |

**Qualifiers:**

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

| | | | |
|---|---|---|---|
| **CLIENT:** | CH2M HILL | **Client Sample ID:** | SC-700B-WDR-609 |
| **Lab Order:** | N042865 | **Collection Date:** | 11/3/2020 12:25:00 PM |
| **Project:** | PG&E Topock, D3184A1.EV.05-OM-TS | **Matrix:** | WATER |
| **Lab ID:** | N042865-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_201104A** | QC Batch: **R148534** | | | PrepDate: | | | Analyst: **RAB** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 11/4/2020 07:09 PM |
| **TOTAL METALS BY ICPMS** | | | | | | | |
| | | | **EPA 200.8** | | | | |
| RunID: **NV00922-ICP7_201104C** | QC Batch: **82878** | | | PrepDate: | **11/4/2020** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 11/4/2020 05:48 PM |

**Qualifiers:**

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

**CLIENT:** CH2M HILL
**Work Order:** N042865
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.8_W_CRPGE_TPK**

| Sample ID | MB-82878 | SampType: | MBLK | TestCode: | 200.8_W_CR | Units: | µg/L | Prep Date: | 11/4/2020 | RunNo: | 148557 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | 82878 | TestNo: | EPA 200.8 | | | Analysis Date: | 11/4/2020 | SeqNo: | 3996640 |

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

| Sample ID | LCS-82878 | SampType: | LCS | TestCode: | 200.8_W_CR | Units: | µg/L | Prep Date: | 11/4/2020 | RunNo: | 148557 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | 82878 | TestNo: | EPA 200.8 | | | Analysis Date: | 11/4/2020 | SeqNo: | 3996641 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 10.213 | 1.0 | 10.00 | 0 | 102 | 85 | 115 | | | | |

| Sample ID | N042865-001C-MS | SampType: | MS | TestCode: | 200.8_W_CR | Units: | µg/L | Prep Date: | 11/4/2020 | RunNo: | 148557 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 82878 | TestNo: | EPA 200.8 | | | Analysis Date: | 11/4/2020 | SeqNo: | 3996648 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 425.155 | 5.0 | 10.00 | 421.7 | 34.1 | 75 | 125 | | | | S |

| Sample ID | N042865-001C-MSD | SampType: | MSD | TestCode: | 200.8_W_CR | Units: | µg/L | Prep Date: | 11/4/2020 | RunNo: | 148557 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 82878 | TestNo: | EPA 200.8 | | | Analysis Date: | 11/4/2020 | SeqNo: | 3996652 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 422.780 | 5.0 | 10.00 | 421.7 | 10.4 | 75 | 125 | 425.2 | 0.560 | 20 | S |

**Qualifiers:**

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

Calculations are based on raw values

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

**CLIENT:** CH2M HILL
**Work Order:** N042865
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WU_PGE**

| Sample ID | MB-R148534 | SampType: | MBLK | TestCode: | 218.6_WU_P | Units: | µg/L | Prep Date: | | RunNo: | 148534 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | R148534 | TestNo: | EPA 218.6 | | | Analysis Date: | 11/4/2020 | SeqNo: | 3995729 | | |
| 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-R148534 | SampType: | LCS | TestCode: | 218.6_WU_P | Units: | µg/L | Prep Date: | | RunNo: | 148534 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | R148534 | TestNo: | EPA 218.6 | | | Analysis Date: | 11/4/2020 | SeqNo: | 3995730 | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual | | |
| Hexavalent Chromium | 5.119 | 0.20 | 5.000 | 0 | 102 | 90 | 110 | | | | | | |

| Sample ID | N042665-009AMS | SampType: | MS | TestCode: | 218.6_WU_P | Units: | µg/L | Prep Date: | | RunNo: | 148534 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R148534 | TestNo: | EPA 218.6 | | | Analysis Date: | 11/4/2020 | SeqNo: | 3995732 | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual | | |
| Hexavalent Chromium | 1.022 | 0.20 | 1.000 | 0 | 102 | 90 | 110 | | | | | | |

| Sample ID | N042665-009AMSD | SampType: | MSD | TestCode: | 218.6_WU_P | Units: | µg/L | Prep Date: | | RunNo: | 148534 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R148534 | TestNo: | EPA 218.6 | | | Analysis Date: | 11/4/2020 | SeqNo: | 3995733 | | |
| 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 | 1.022 | 0.993 | 20 | | | |

| Sample ID | N042870-001ADUP | SampType: | DUP | TestCode: | 218.6_WU_P | Units: | µg/L | Prep Date: | | RunNo: | 148534 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R148534 | TestNo: | EPA 218.6 | | | Analysis Date: | 11/4/2020 | SeqNo: | 3995745 | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual | | |
| Hexavalent Chromium | 0.534 | 0.20 | | | | | | 0.5645 | 5.63 | 20 | | | |

**Qualifiers:**

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

**CLIENT:** CH2M HILL
**Work Order:** N042865
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WU_PGE**

| Sample ID **N042865-001BMS** | SampType: **MS** | TestCode: **218.6_WU_P** | Units: **µg/L** | Prep Date: | RunNo: **148534** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R148534** | TestNo: **EPA 218.6** | | Analysis Date: **11/4/2020** | SeqNo: **3995756** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 685.960 | 10 | 250.0 | 435.5 | 100 | 90 | 110 | | | | |

| Sample ID **N042865-002CMS** | SampType: **MS** | TestCode: **218.6_WU_P** | Units: **µg/L** | Prep Date: | RunNo: **148534** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R148534** | TestNo: **EPA 218.6** | | Analysis Date: **11/4/2020** | SeqNo: **3995758** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.165 | 0.20 | 1.000 | 0.1546 | 101 | 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:** N042865
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.8_W_CRPGE_TPK**

| Sample ID | N042865-001C-PS | SampType: | PS | TestCode: | 200.8_W_CR | Units: | µg/L | Prep Date: | | RunNo: | 148557 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 82878 | TestNo: | EPA 200.8 | | | Analysis Date: | 11/4/2020 | SeqNo: | 3996646 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 432.684 | 5.0 | 10.00 | 421.7 | 109 | 80 | 120 | | | | |

**Qualifiers:**

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

| | | | |
|---|---|---|---|
| **CLIENT:** | CH2M HILL | **Client Sample ID:** | SC-100B-WDR-609 |
| **Lab Order:** | N042865 | **Collection Date:** | 11/3/2020 12:20:00 PM |
| **Project:** | PG&E Topock, D3184A1.EV.05-OM-TS | **Matrix:** | WATER |
| **Lab ID:** | N042865-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL METALS BY ICPMS** | | | | | | | |
| | | | **EPA 200.8** | | | | |
| RunID: **NV00922-ICP7_201104C** | QC Batch: **82878** | | | PrepDate: | **11/4/2020** | | Analyst: **CEI** |
| Manganese | 8.4 | 0.26 | 0.50 | | µg/L | 1 | 11/4/2020 04:56 PM |

**Qualifiers:**

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

**CLIENT:** CH2M HILL
**Lab Order:** N042865
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS
**Lab ID:** N042865-002

**Client Sample ID:** SC-700B-WDR-609
**Collection Date:** 11/3/2020 12:25:00 PM
**Matrix:** WATER

## TOTAL METALS BY ICPMS

**EPA 200.8**

RunID: **NV00922-ICP7_201104C** QC Batch: **82878** PrepDate: **11/4/2020** Analyst: **CEI**

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| Antimony | ND | 0.16 | 0.50 | | µg/L | 1 | 11/4/2020 05:48 PM |
| Arsenic | ND | 0.081 | 0.10 | | µg/L | 1 | 11/4/2020 05:48 PM |
| Barium | 16 | 0.15 | 1.0 | | µg/L | 1 | 11/4/2020 05:48 PM |
| Copper | ND | 0.55 | 1.0 | | µg/L | 1 | 11/4/2020 05:48 PM |
| Lead | ND | 0.13 | 1.0 | | µg/L | 1 | 11/4/2020 05:48 PM |
| Manganese | 1.7 | 0.26 | 0.50 | | µg/L | 1 | 11/4/2020 05:48 PM |
| Molybdenum | 20 | 0.21 | 0.50 | | µg/L | 1 | 11/4/2020 05:48 PM |
| Nickel | ND | 0.26 | 1.0 | | µg/L | 1 | 11/4/2020 05:48 PM |
| Zinc | ND | 2.3 | 10 | | µg/L | 1 | 11/4/2020 05:48 PM |

**Qualifiers:**

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

**CLIENT:** CH2M HILL
**Work Order:** N042865
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.8_W_TPK**

| Sample ID **MB-82878** | SampType: **MBLK** | TestCode: **200.8_W_TP** | Units: **µg/L** | Prep Date: **11/4/2020** | RunNo: **148557** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **82878** | TestNo: **EPA 200.8** | | Analysis Date: **11/4/2020** | SeqNo: **3996706** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | ND | 0.50 | | | | | | | | | |
| Arsenic | ND | 0.10 | | | | | | | | | |
| Barium | ND | 1.0 | | | | | | | | | |
| Copper | ND | 1.0 | | | | | | | | | |
| Lead | ND | 1.0 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Nickel | ND | 1.0 | | | | | | | | | |
| Zinc | ND | 10 | | | | | | | | | |

| Sample ID **LCS-82878** | SampType: **LCS** | TestCode: **200.8_W_TP** | Units: **µg/L** | Prep Date: **11/4/2020** | RunNo: **148557** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **82878** | TestNo: **EPA 200.8** | | Analysis Date: **11/4/2020** | SeqNo: **3996707** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | 10.765 | 0.50 | 10.00 | 0 | 108 | 85 | 115 | | | | |
| Arsenic | 10.307 | 0.10 | 10.00 | 0 | 103 | 85 | 115 | | | | |
| Barium | 10.307 | 1.0 | 10.00 | 0 | 103 | 85 | 115 | | | | |
| Copper | 10.298 | 1.0 | 10.00 | 0 | 103 | 85 | 115 | | | | |
| Lead | 10.213 | 1.0 | 10.00 | 0 | 102 | 85 | 115 | | | | |
| Manganese | 103.022 | 0.50 | 100.0 | 0 | 103 | 85 | 115 | | | | |
| Molybdenum | 9.965 | 0.50 | 10.00 | 0 | 99.7 | 85 | 115 | | | | |
| Nickel | 10.119 | 1.0 | 10.00 | 0 | 101 | 85 | 115 | | | | |
| Zinc | 10.007 | 10 | 10.00 | 0 | 100 | 85 | 115 | | | | |

| Sample ID **N042865-001C-MS** | SampType: **MS** | TestCode: **200.8_W_TP** | Units: **µg/L** | Prep Date: **11/4/2020** | RunNo: **148557** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **82878** | TestNo: **EPA 200.8** | | Analysis Date: **11/4/2020** | SeqNo: **3996713** |

| 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

Calculations are based on raw values

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

**CLIENT:** CH2M HILL
**Work Order:** N042865
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.8_W_TPK**

| Sample ID | N042865-001C-MS | SampType: | MS | TestCode: | 200.8_W_TP | Units: | µg/L | Prep Date: | 11/4/2020 | RunNo: | 148557 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 82878 | TestNo: | EPA 200.8 | | | Analysis Date: | 11/4/2020 | SeqNo: | 3996713 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | 11.397 | 0.50 | 10.00 | 0 | 114 | 75 | 125 | | | | |
| Arsenic | 14.567 | 0.10 | 10.00 | 3.053 | 115 | 75 | 125 | | | | |
| Barium | 43.500 | 1.0 | 10.00 | 34.17 | 93.3 | 75 | 125 | | | | |
| Copper | 9.146 | 1.0 | 10.00 | 0 | 91.5 | 75 | 125 | | | | |
| Lead | 10.801 | 1.0 | 10.00 | 0 | 108 | 75 | 125 | | | | |
| Manganese | 104.277 | 0.50 | 100.0 | 8.423 | 95.9 | 75 | 125 | | | | |
| Molybdenum | 33.195 | 0.50 | 10.00 | 22.52 | 107 | 75 | 125 | | | | |
| Nickel | 10.282 | 1.0 | 10.00 | 0.3180 | 99.6 | 75 | 125 | | | | |
| Zinc | 10.084 | 10 | 10.00 | 0 | 101 | 75 | 125 | | | | |

| Sample ID | N042865-001C-MSD | SampType: | MSD | TestCode: | 200.8_W_TP | Units: | µg/L | Prep Date: | 11/4/2020 | RunNo: | 148557 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | 82878 | TestNo: | EPA 200.8 | | | Analysis Date: | 11/4/2020 | SeqNo: | 3996715 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | 11.184 | 0.50 | 10.00 | 0 | 112 | 75 | 125 | 11.40 | 1.89 | 20 | |
| Arsenic | 14.668 | 0.10 | 10.00 | 3.053 | 116 | 75 | 125 | 14.57 | 0.691 | 20 | |
| Barium | 43.549 | 1.0 | 10.00 | 34.17 | 93.8 | 75 | 125 | 43.50 | 0.113 | 20 | |
| Copper | 9.155 | 1.0 | 10.00 | 0 | 91.5 | 75 | 125 | 9.146 | 0.0933 | 20 | |
| Lead | 10.802 | 1.0 | 10.00 | 0 | 108 | 75 | 125 | 10.80 | 0.0116 | 20 | |
| Manganese | 103.461 | 0.50 | 100.0 | 8.423 | 95.0 | 75 | 125 | 104.3 | 0.786 | 20 | |
| Molybdenum | 33.081 | 0.50 | 10.00 | 22.52 | 106 | 75 | 125 | 33.20 | 0.346 | 20 | |
| Nickel | 10.374 | 1.0 | 10.00 | 0.3180 | 101 | 75 | 125 | 10.28 | 0.897 | 20 | |
| Zinc | 10.178 | 10 | 10.00 | 0 | 102 | 75 | 125 | 10.08 | 0.923 | 20 | |

**Qualifiers:**

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

Calculations are based on raw values

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

| | | | |
|---|---|---|---|
| **CLIENT:** | CH2M HILL | **Client Sample ID:** | SC-100B-WDR-609 |
| **Lab Order:** | N042865 | **Collection Date:** | 11/3/2020 12:20:00 PM |
| **Project:** | PG&E Topock, D3184A1.EV.05-OM-TS | **Matrix:** | WATER |
| **Lab ID:** | N042865-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TURBIDITY** | | | | | | | |
| | | | **SM 2130B** | | | | |
| RunID: **NV00922-WC_201104F** | QC Batch: **R148500** | | | PrepDate: | | | Analyst: **LR** |
| Turbidity | 0.11 | 0.10 | 0.10 | | NTU | 1 | 11/4/2020 02:40 PM |

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

| | | | |
|---|---|---|---|
| **CLIENT:** | CH2M HILL | **Client Sample ID:** | SC-700B-WDR-609 |
| **Lab Order:** | N042865 | **Collection Date:** | 11/3/2020 12:25:00 PM |
| **Project:** | PG&E Topock, D3184A1.EV.05-OM-TS | **Matrix:** | WATER |
| **Lab ID:** | N042865-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TURBIDITY** | | | | | | | |
| | | | **SM 2130B** | | | | |
| RunID: **NV00922-WC_201104F** | QC Batch: **R148500** | | | PrepDate: | | | Analyst: **LR** |
| Turbidity | 0.12 | 0.10 | 0.10 | | NTU | 1 | 11/4/2020 02:40 PM |

**Qualifiers:**

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

**CLIENT:** CH2M HILL
**Work Order:** N042865
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 2130_W**

| Sample ID | MB-R148500 | SampType: | MBLK | TestCode: | 2130_W | Units: | NTU | Prep Date: | | RunNo: | 148500 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | R148500 | TestNo: | SM 2130B | | | Analysis Date: | 11/4/2020 | SeqNo: | 3994075 |

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

| Sample ID | N042865-001ADUP | SampType: | DUP | TestCode: | 2130_W | Units: | NTU | Prep Date: | | RunNo: | 148500 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R148500 | TestNo: | SM 2130B | | | Analysis Date: | 11/4/2020 | SeqNo: | 3994077 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Turbidity | 0.120 | 0.10 | | | | | | 0.1100 | 8.70 | 30 | |

**Qualifiers:**

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

| | | | |
|---|---|---|---|
| **CLIENT:** | CH2M HILL | **Client Sample ID:** | SC-700B-WDR-609 |
| **Lab Order:** | N042865 | **Collection Date:** | 11/3/2020 12:25:00 PM |
| **Project:** | PG&E Topock, D3184A1.EV.05-OM-TS | **Matrix:** | WATER |
| **Lab ID:** | N042865-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **ANIONS BY ION CHROMATOGRAPHY** | | | | | | | |
| | | | **EPA 300.0** | | | | |
| RunID: **NV00922-IC8_201105A** | QC Batch: **R148574** | | | PrepDate: | | | Analyst: **RAB** |
| Fluoride | 2.5 | 0.048 | 0.50 | | mg/L | 5 | 11/5/2020 04:01 PM |
| **ANIONS BY ION CHROMATOGRAPHY** | | | | | | | |
| | | | **EPA 300.0** | | | | |
| RunID: **NV00922-IC8_201105A** | QC Batch: **R148574** | | | PrepDate: | | | Analyst: **RAB** |
| Sulfate | 460 | 2.0 | 25 | | mg/L | 50 | 11/5/2020 04:16 PM |

**Qualifiers:**

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

**CLIENT:** CH2M HILL
**Work Order:** N042865
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 300_W_FPGE**

| Sample ID | MB-R148574_F | SampType: | MBLK | TestCode: | 300_W_FPG | Units: | mg/L | Prep Date: | | RunNo: | 148574 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | R148574 | TestNo: | EPA 300.0 | | | Analysis Date: | 11/5/2020 | SeqNo: | 3997998 |

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

| Sample ID | LCS-R148574_F | SampType: | LCS | TestCode: | 300_W_FPG | Units: | mg/L | Prep Date: | | RunNo: | 148574 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | R148574 | TestNo: | EPA 300.0 | | | Analysis Date: | 11/5/2020 | SeqNo: | 3997999 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Fluoride | 1.300 | 0.10 | 1.250 | 0 | 104 | 90 | 110 | | | | |

| Sample ID | N042865-002BMS | SampType: | MS | TestCode: | 300_W_FPG | Units: | mg/L | Prep Date: | | RunNo: | 148574 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R148574 | TestNo: | EPA 300.0 | | | Analysis Date: | 11/5/2020 | SeqNo: | 3998007 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Fluoride | 8.985 | 0.50 | 6.250 | 2.464 | 104 | 80 | 120 | | | | |

| Sample ID | N042865-002BMSD | SampType: | MSD | TestCode: | 300_W_FPG | Units: | mg/L | Prep Date: | | RunNo: | 148574 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R148574 | TestNo: | EPA 300.0 | | | Analysis Date: | 11/5/2020 | SeqNo: | 3998008 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Fluoride | 9.230 | 0.50 | 6.250 | 2.464 | 108 | 80 | 120 | 8.985 | 2.69 | 20 | |

| Sample ID | N042895-001IDUP | SampType: | DUP | TestCode: | 300_W_FPG | Units: | mg/L | Prep Date: | | RunNo: | 148574 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R148574 | TestNo: | EPA 300.0 | | | Analysis Date: | 11/5/2020 | SeqNo: | 3998012 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Fluoride | 2.779 | 0.50 | | | | | | 2.944 | 5.75 | 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:** N042865
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 300_W_SO4PGE**

| Sample ID | MB-R148574_SO4 | SampType: | MBLK | TestCode: | 300_W_SO4P | Units: | mg/L | Prep Date: | | RunNo: | 148574 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | PBW | Batch ID: | R148574 | TestNo: | EPA 300.0 | | | Analysis Date: | 11/5/2020 | SeqNo: | 3998082 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 0.368 | 0.50 | | | | | | | | | |

| Sample ID | LCS-R148574_SO4 | SampType: | LCS | TestCode: | 300_W_SO4P | Units: | mg/L | Prep Date: | | RunNo: | 148574 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | LCSW | Batch ID: | R148574 | TestNo: | EPA 300.0 | | | Analysis Date: | 11/5/2020 | SeqNo: | 3998083 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 3.911 | 0.50 | 4.000 | 0 | 97.8 | 90 | 110 | | | | |

| Sample ID | N042865-002BMS | SampType: | MS | TestCode: | 300_W_SO4P | Units: | mg/L | Prep Date: | | RunNo: | 148574 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R148574 | TestNo: | EPA 300.0 | | | Analysis Date: | 11/5/2020 | SeqNo: | 3998090 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 667.405 | 25 | 200.0 | 460.8 | 103 | 80 | 120 | | | | |

| Sample ID | N042865-002BMSD | SampType: | MSD | TestCode: | 300_W_SO4P | Units: | mg/L | Prep Date: | | RunNo: | 148574 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R148574 | TestNo: | EPA 300.0 | | | Analysis Date: | 11/5/2020 | SeqNo: | 3998091 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 669.915 | 25 | 200.0 | 460.8 | 105 | 80 | 120 | 667.4 | 0.375 | 20 | |

| Sample ID | N042866-001CDUP | SampType: | DUP | TestCode: | 300_W_SO4P | Units: | mg/L | Prep Date: | | RunNo: | 148574 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: | ZZZZZZ | Batch ID: | R148574 | TestNo: | EPA 300.0 | | | Analysis Date: | 11/5/2020 | SeqNo: | 3998092 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 473.755 | 25 | | | | | | 468.5 | 1.13 | 20 | |

**Qualifiers:**

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

Calculations are based on raw values

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

| | | | |
|---|---|---|---|
| **CLIENT:** | CH2M HILL | **Client Sample ID:** | SC-700B-WDR-609 |
| **Lab Order:** | N042865 | **Collection Date:** | 11/3/2020 12:25:00 PM |
| **Project:** | PG&E Topock, D3184A1.EV.05-OM-TS | **Matrix:** | WATER |
| **Lab ID:** | N042865-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **NITRATE/NITRITE-N BY CADMIUM REDUCTION** | | | | | | | |
| | | | **SM4500-NO3F** | | | | |
| RunID: **NV00922-WC_201109B** | QC Batch: **R148607** | | | PrepDate: | | | Analyst: **JBB** |
| Nitrate/Nitrite as N | 2.5 | 0.063 | 0.10 | | mg/L | 2 | 11/9/2020 03:29 PM |

**Qualifiers:**

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

**CLIENT:** CH2M HILL
**Work Order:** N042865
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 4500N03F_W_PGE**

| Sample ID **MB-R148607** | SampType: **MBLK** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | | | RunNo: **148607** | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **R148607** | TestNo: **SM4500-NO3** | | Analysis Date: **11/9/2020** | | | SeqNo: **3999607** | | | |
| 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-R148607** | SampType: **LCS** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | | | RunNo: **148607** | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **R148607** | TestNo: **SM4500-NO3** | | Analysis Date: **11/9/2020** | | | SeqNo: **3999608** | | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| Nitrate/Nitrite as N | 0.483 | 0.050 | 0.5000 | 0 | 96.6 | 85 | 115 | | | | |

| Sample ID **N042866-001DDUP** | SampType: **DUP** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | | | RunNo: **148607** | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R148607** | TestNo: **SM4500-NO3** | | Analysis Date: **11/9/2020** | | | SeqNo: **3999610** | | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| Nitrate/Nitrite as N | 2.785 | 0.25 | | | | | | 2.546 | 8.97 | 20 | |

| Sample ID **N042866-001DMS** | SampType: **MS** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | | | RunNo: **148607** | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R148607** | TestNo: **SM4500-NO3** | | Analysis Date: **11/9/2020** | | | SeqNo: **3999611** | | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| Nitrate/Nitrite as N | 5.308 | 0.25 | 2.500 | 2.546 | 110 | 75 | 125 | | | | |

| Sample ID **N042866-001DMSD** | SampType: **MSD** | TestCode: **4500N03F_W** | Units: **mg/L** | Prep Date: | | | RunNo: **148607** | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R148607** | TestNo: **SM4500-NO3** | | Analysis Date: **11/9/2020** | | | SeqNo: **3999612** | | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| Nitrate/Nitrite as N | 5.310 | 0.25 | 2.500 | 2.546 | 111 | 75 | 125 | 5.308 | 0.0377 | 20 | |

**Qualifiers:**

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

**JACOBS**

# CHAIN OF CUSTODY RECORD



**PROJECT INFORMATION**

COC Number 609-IM3
Project Manager Scott O'Donnell
Sample Manager Shawn Duffy

Name PG&E Topock
Project IM3PLANT-ARAR-WDR-609
Location PG&E Topock
Project Number D3184A1.EV.05-OM-TS
Task Order
Turnaround Time 10 Days
Shipping Date: 11/3/2020

| | Container: | 1 Liter Poly | 1 Liter Poly | 1 Liter Poly | 250 ml Poly | 1 Liter Poly | 1 Liter Poly | 500 ml Poly | 500 ml Poly | 1 Liter Poly | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Preservatives: | 4°C Lab H2SO4 | 4°C | 4°C | 4°C | 4°C Lab H2SO4 | 4°C | 4°C | 4°C | 4°C | | | |
| | Filtered: | NA | NA | NA | NA | NA | NA | NA | NA | NA | | | |
| | Holding Time: | 28 | 7 | 7 | 1 | 28 | 7 | 180 | 180 | 7 | | | |
| | | AMMONIA (SM4500NH3D) | Anions (E300.0) Fl, SO4 | CONDUCTIVITY (E120.1) | E218.6 Lab Filtered | Nitrate/Nitrite (SM4500NO3-E) | TDS (SM2540C) | Total Metals(E200.7 and E200.8) | Total Metals(E200.8) Cr, Mn, Fe | Turbidity (SM2130) | | Number of Containers | COMMENTS |
| SC-100B-WDR-609 | Water | | | X | X | | X | | X | X | N042865-01 | 3 | |
| SC-700B-WDR-609 | Water | X | X | X | X | X | X | X | | X | -02 | 4 | |
| | | | | | | | | | | | TOTAL NUMBER OF CONTAINERS | 7 | |

| Signatures | | Date/Time |
|---|---|---|
| Approved by | Scott R O'Donnell | 11-3-20 1215 |
| Sampled by | Cameron Stano | 11-3-20 1220 |
| Relinquished by | Cameron Stano | 11-3-20 1315 |
| Received by | J Hoe | 11-3-20 1315 |
| Relinquished by | J Hoe | 11-3-20 1915 |
| Received by | J Hoe | 11-3-20 1915 |

**Shipping Details**

Method of Shipment: FedEx
On Ice: yes / no Ice 1.6°C IR#2
Airbill No:
Lab Name: ASSET Laboratories
Lab Phone: (702) 307-2659

**ATTN:**

Sample Custody and Marlon Cartin

**Special Instructions:**

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

**Report Copy to**

Mark Fesler
(530) 229-3273

## 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: | 11/3/2020 | Workorder: | N042865 |
| Rep sample Temp (Deg C): | 1.6 | 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 ☑ | No ☐ | Not Present ☐ |
| 2. Custody seals intact, signed, dated on shippping container/cooler? | Yes ☐ | No ☐ | Not Present ☑ |
| 3. Custody seals intact on sample bottles? | Yes ☐ | No ☐ | Not Present ☑ |
| 4. Chain of custody present? | Yes ☑ | No ☐ | |
| 5. Sampler's name present in COC? | Yes ☑ | No ☐ | |
| 6. Chain of custody signed when relinquished and received? | Yes ☑ | No ☐ | |
| 7. Chain of custody agrees with sample labels? | Yes ☑ | No ☐ | |
| 8. Samples in proper container/bottle? | Yes ☑ | No ☐ | |
| 9. Sample containers intact? | Yes ☑ | No ☐ | |
| 10. Sufficient sample volume for indicated test? | Yes ☑ | No ☐ | |
| 11. All samples received within holding time? | Yes ☑ | No ☐ | |
| 12. Temperature of rep sample or Temp Blank within acceptable limit? | Yes ☑ | No ☐ | NA ☐ |
| 13. Water - VOA vials have zero headspace? | Yes ☐ | No ☐ | NA ☑ |
| 14. Water - pH acceptable upon receipt?<br>Example: pH > 12 for (CN,S); pH<2 for Metals | Yes ☐ | No ☑ | NA ☐ |
| 15. Did the bottle labels indicate correct preservatives used? | Yes ☐ | No ☐ | NA ☑ |
| 16. Were there Non-Conformance issues at login? | Yes ☑ | No ☐ | NA ☐ |
| Was Client notified? | Yes ☐ | No ☐ | NA ☑ |

Comments: Collection date/time taken from labels.
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.

Checklist Completed By: YR YR 11/6/2020

Reviewed By: MBC 11/06/2020

# WORK ORDER Summary

*04-Nov-20*

**WorkOrder:** N042865

**Client ID:** CH2HI01

**Project:** PG&E Topock, D3184A1.EV.05-OM-TS **QC Level:** Level IV **Date Received:** 11/3/2020

**Comments:** The SC-700B Total metals List:

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N042865-001A | SC-100B-WDR-609 | 11/3/2020 12:20:00 PM | 11/17/2020 | Water | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 11/17/2020 | | SM2540C | TOTAL FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 11/17/2020 | | | Total Dissolved Solids Prep | ☐ | ☐ | ☐ | WW |
| | | | 11/17/2020 | | SM 2130B | TURBIDITY | ☐ | ☐ | ☐ | WW |
| N042865-001B | | | 11/17/2020 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N042865-001C | | | 11/17/2020 | | | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 11/17/2020 | | EPA 200.7 | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 11/17/2020 | | | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 11/17/2020 | | EPA 200.8 | TOTAL METALS BY ICPMS | ☐ | ☐ | ☐ | WW |
| | | | 11/17/2020 | | EPA 200.8 | TOTAL METALS BY ICPMS | ☐ | ☐ | ☐ | WW |
| N042865-001D | | | | | | | ☐ | ☐ | ☐ | WW |
| N042865-002A | SC-700B-WDR-609 | 11/3/2020 12:25:00 PM | 11/17/2020 | | SM4500-NH3D | AMMONIA-N BY ION SELECTIVE ELECTRODE | ☐ | ☐ | ☑ | SUB |
| N042865-002B | | | 11/17/2020 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | WW |
| | | | 11/17/2020 | | SM2540C | TOTAL FILTERABLE RESIDUE | ☐ | ☐ | ☐ | WW |
| | | | 11/17/2020 | | | Total Dissolved Solids Prep | ☐ | ☐ | ☐ | WW |
| | | | 11/17/2020 | | SM 2130B | TURBIDITY | ☐ | ☐ | ☐ | WW |
| | | | 11/17/2020 | | EPA 300.0 | ANIONS BY ION CHROMATOGRAPHY | ☐ | ☐ | ☐ | WW |
| | | | 11/17/2020 | | EPA 300.0 | ANIONS BY ION CHROMATOGRAPHY | ☐ | ☐ | ☐ | WW |
| N042865-002C | | | 11/17/2020 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N042865-002D | | | 11/17/2020 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☐ | WW |
| N042865-002E | | | 11/17/2020 | | | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |

# WORK ORDER Summary

*04-Nov-20*

**WorkOrder:** N042865

**Client ID:** CH2HI01

**Project:** PG&E Topock, D3184A1.EV.05-OM-TS **QC Level:** Level IV **Date Received:** 11/3/2020

**Comments:** The SC-700B Total metals List:

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N042865-002E | SC-700B-WDR-609 | 11/3/2020 12:25:00 PM | 11/17/2020 | Water | EPA 200.7 | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 11/17/2020 | | | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 11/17/2020 | | EPA 200.8 | TOTAL METALS BY ICPMS | ☐ | ☐ | ☐ | WW |
| | | | 11/17/2020 | | EPA 200.8 | TOTAL METALS BY ICPMS | ☐ | ☐ | ☐ | WW |
| N042865-002F | | | | | | | ☐ | ☐ | ☐ | WW |
| N042865-003A | FOLDER | 11/17/2020 | 11/17/2020 | | Folder | Folder | ☐ | ☐ | ☐ | LAB |
| | | | 11/17/2020 | | Folder | Level IV Report | ☐ | ☐ | ☐ | LAB |
| | | | 11/17/2020 | | Folder | Folder | ☐ | ☐ | ☐ | LAB |

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

# CHAIN-OF-CUSTODY RECORD



**QC Level: Level IV**

**Subcontractor:**

BC Labs
4100 Atlas Court
Bakersfield, CA 93308

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

Field Sampler: SIGNED

**05-Nov-20**

| | | | | Requested Tests | | |
|---|---|---|---|---|---|---|
| **Sample ID** | **Matrix** | **Date Collected** | **Bottle Type** | **SM4500-NH3D** | | |
| N042865-002A / SC-700B-WDR-609 | Water | 11/3/2020 12:25:00 PM | 32OZP | 1 | | |

General Comments: PLEASE EMAIL SAMPLE RECEIPT ACKNOWLEDGEMENT TO THE PM. ALWAYS CC: sonny.lorenzo@assetlaboratories.com

Please use PO#:N42865A 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 #: 551073247

| | | Date/Time | | | Date/Time |
|---|---|---|---|---|---|
| **Relinquished by:** | YRJ | 11/5/2020 1630 | **Received by:** | | |
| **Relinquished by:** | | | **Received by:** | | |

# List of Analysts

## ASSET Laboratories Work Order: N042865

| 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 |

Date of Report: 11/12/2020

Marlon B. Cartin

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

| | |
|---|---|
| Client Project: | N042865 |
| BCL Project: | Level IV + labSpec7 |
| BCL Work Order: | 2032764 |
| Invoice ID: | B397734 |

Enclosed are the results of analyses for samples received by the laboratory on 11/6/2020. 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

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

# CHAIN-OF-CUSTODY RECORD



20-32764

**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

05-Nov-20

| Sample ID | Matrix | Date Collected | Bottle Type | Requested Tests | | |
|---|---|---|---|---|---|---|
| | | | | SM4500-NH3D | | |
| N042865-002A / SC-700B-WDR-609 | Water | 11/3/2020 12:25:00 PM | 32OZP | 1 | | |

CHK BY GJ
DISTRIBUTION MA NH3JMH
SUB OUT

General Comments: PLEASE EMAIL SAMPLE RECEIPT ACKNOWLEDGEMENT TO THE PM. ALWAYS CC: sonny.lorenzo@assetlaboratories.com

Please use PO#:N42865A 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 #: 551073247

| | | Date/Time | | Date/Time |
|---|---|---|---|---|
| Relinquished by: | YRJ | 11/5/2020 1630 | Received by: | 11-6-20 1050 |
| Relinquished by: | | | Received by: | |

**Chain of Custody and Cooler Receipt Form for 2032764 Page 2 of 2**

BC LABORATORIES INC. COOLER RECEIPT FORM Page 1 Of 1

Submission #: 20-32764

SHIPPING INFORMATION
Fed Ex ☐ UPS ☐ Ontrac ☐ Hand Delivery ☐
BC Lab Field Service ☐ Other ☒ (Specify) GLS

SHIPPING CONTAINER
Ice Chest ☒ None ☐ Box ☐
Other ☐ (Specify)

FREE LIQUID
YES ☐ NO ☐
W / S

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

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

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

COC Received ☒ YES ☐ NO

Emissivity: 97 Container: PE Thermometer ID: 274 Date/Time 11-6-20 1050

Temperature: (A) 3.4 °C / (C) 3.2 °C Analyst Init TKJ

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

Comments:

Sample Numbering Completed By: GTP Date/Time: 11/6 1810

A = Actual / C = Corrected

Rev 21 05/23/2016
(S:\WPDocs\WordPerfect\LAB_DOCS\FORMS\SAMREC rev 20)

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

**Reported:** 11/12/2020 15:42
Project: Level IV + labSpec7
Project Number: N042865
Project Manager: Marlon B. Cartin

# Laboratory / Client Sample Cross Reference

| Laboratory | Client Sample Information | | | |
|---|---|---|---|---|
| **2032764-01** | **COC Number:** | --- | **Receive Date:** | 11/06/2020 10:50 |
| | **Project Number:** | --- | **Sampling Date:** | 11/03/2020 12:25 |
| | **Sampling Location:** | --- | **Sample Depth:** | --- |
| | **Sampling Point:** | N042865-002A / SC-700B-WDR-609 | **Lab Matrix:** | Water |
| | **Sampled By:** | --- | **Sample Type:** | Water |

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

**Reported:** 11/12/2020 15:42
Project: Level IV + labSpec7
Project Number: N042865
Project Manager: Marlon B. Cartin

# Water Analysis (General Chemistry)

**BCL Sample ID:** 2032764-01 | **Client Sample Name:** N042865-002A / SC-700B-WDR-609, 11/3/2020 12:25:00PM

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

| Run # | Method | Prep Date | Run Date/Time | Analyst | Instrument | Dilution | QC Batch ID | Prep Method |
|---|---|---|---|---|---|---|---|---|
| 1 | SM-4500-NH3G | 11/11/20 10:45 | 11/12/20 11:15 | JMH2 | SC-1 | 1.038 | B092363 | SM 4500-NH3G |

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

**Reported:** 11/12/2020 15:42
Project: Level IV + labSpec7
Project Number: N042865
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 |
|---|---|---|---|---|---|
| **QC Batch ID: B092363** | | | | | |
| Ammonia as N (Distilled) | B092363-BLK1 | ND | mg/L | 0.20 | |

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

**Reported:** 11/12/2020 15:42
Project: Level IV + labSpec7
Project Number: N042865
Project Manager: Marlon B. Cartin

# Water Analysis (General Chemistry)

## Quality Control Report - Laboratory Control Sample

| Constituent | QC Sample ID | Type | Result | Spike Level | Units | Percent Recovery | RPD | Control Limits Percent Recovery | Control Limits RPD | Lab Quals |
|---|---|---|---|---|---|---|---|---|---|---|
| **QC Batch ID: B092363** | | | | | | | | | | |
| Ammonia as N (Distilled) | B092363-BS1 | LCS | 1.8728 | 2.0000 | mg/L | 93.6 | | 85 - 115 | | |

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

**Reported:** 11/12/2020 15:42
Project: Level IV + labSpec7
Project Number: N042865
Project Manager: Marlon B. Cartin

# Water Analysis (General Chemistry)

## Quality Control Report - Precision & Accuracy

| Constituent | Type | Source Sample ID | Source Result | Result | Spike Added | Units | RPD | Percent Recovery | Control Limits RPD | Control Limits Percent Recovery | Lab Quals |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **QC Batch ID: B092363** | Used client sample: N | | | | | | | | | | |
| Ammonia as N (Distilled) | DUP | 2031036-01 | ND | ND | | mg/L | | | 20 | | |
| | MS | 2031036-01 | ND | 2.2090 | 2.2599 | mg/L | | 97.7 | | 80 - 120 | |
| | MSD | 2031036-01 | ND | 2.0956 | 2.2599 | mg/L | 5.3 | 92.7 | 20 | 80 - 120 | |

December 16, 2020

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

TEL: (530) 229-3273
FAX: (510) 622-9129

Workorder No.: N043210

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

Attention: Mark Fesler/RDD

Enclosed are the results for sample(s) received on December 01, 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 Sibucao
Laboratory Director

**CLIENT:** CH2M HILL
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS
**Lab Order:** N043210

# 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 and SM 4500-NO3F were subcontracted to BC Labs- Bakersfield,CA.

Analytical Comments for EPA 200.7:

Matrix Spike Duplicate (MSD) is outside recovery and RPD criteria for Iron in QC sample N043210-001C-MSD1 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 N043210-001C-MS and N043210-001C-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 N043210-001C-MS and N043210-001C-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.

## ASSET Laboratories

**Date:** *16-Dec-20*

**CLIENT:** CH2M HILL
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS
**Lab Order:** N043210
**Contract No:** IM3PLANT-AR

# Work Order Sample Summary

| Lab Sample ID | Client Sample ID | Matrix | Collection Date | Date Received | Date Reported |
|---|---|---|---|---|---|
| N043210-001A | SC-100B-WDR-610 | Water | 12/1/2020 12:45:00 PM | 12/1/2020 | 12/16/2020 |
| N043210-001B | SC-100B-WDR-610 | Water | 12/1/2020 12:45:00 PM | 12/1/2020 | 12/16/2020 |
| N043210-001C | SC-100B-WDR-610 | Water | 12/1/2020 12:45:00 PM | 12/1/2020 | 12/16/2020 |
| N043210-001D | SC-100B-WDR-610 | Water | 12/1/2020 12:45:00 PM | 12/1/2020 | 12/16/2020 |
| N043210-002A | SC-700B-WDR-610 | Water | 12/1/2020 12:45:00 PM | 12/1/2020 | 12/16/2020 |
| N043210-002B | SC-700B-WDR-610 | Water | 12/1/2020 12:45:00 PM | 12/1/2020 | 12/16/2020 |
| N043210-002C | SC-700B-WDR-610 | Water | 12/1/2020 12:45:00 PM | 12/1/2020 | 12/16/2020 |
| N043210-002D | SC-700B-WDR-610 | Water | 12/1/2020 12:45:00 PM | 12/1/2020 | 12/16/2020 |
| N043210-002E | SC-700B-WDR-610 | Water | 12/1/2020 12:45:00 PM | 12/1/2020 | 12/16/2020 |
| N043210-002F | SC-700B-WDR-610 | Water | 12/1/2020 12:45:00 PM | 12/1/2020 | 12/16/2020 |

| | | | |
|---|---|---|---|
| **CLIENT:** | CH2M HILL | **Client Sample ID:** | SC-100B-WDR-610 |
| **Lab Order:** | N043210 | **Collection Date:** | 12/1/2020 12:45:00 PM |
| **Project:** | PG&E Topock, D3184A1.EV.05-OM-TS | **Matrix:** | WATER |
| **Lab ID:** | N043210-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_201202A** | QC Batch: **R149062** | | | PrepDate: | | | Analyst: **LR** |
| Specific Conductance | 7800 | 0.10 | 0.10 | | umhos/cm | 1 | 12/2/2020 09:35 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 | | |

| | | | |
|---|---|---|---|
| **CLIENT:** | CH2M HILL | **Client Sample ID:** | SC-700B-WDR-610 |
| **Lab Order:** | N043210 | **Collection Date:** | 12/1/2020 12:45:00 PM |
| **Project:** | PG&E Topock, D3184A1.EV.05-OM-TS | **Matrix:** | WATER |
| **Lab ID:** | N043210-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **SPECIFIC CONDUCTANCE** | | | | | | | |
| | | | **EPA 120.1** | | | | |
| RunID: **NV00922-WC_201202A** | QC Batch: **R149062** | | | PrepDate: | | | Analyst: **LR** |
| Specific Conductance | 8000 | 0.10 | 0.10 | | umhos/cm | 1 | 12/2/2020 09:35 AM |

**Qualifiers:**

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

**CLIENT:** CH2M HILL
**Work Order:** N043210
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 120.1_WPGE**

Sample ID: **N043209-003BDUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **149062**
Client ID: **ZZZZZZ** Batch ID: **R149062** TestNo: **EPA 120.1** Analysis Date: **12/2/2020** SeqNo: **4020623**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Specific Conductance | 20300.000 | 0.10 | | | | | | 20100 | 0.990 | 2 | |

**Qualifiers:**

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

| | | | |
|---|---|---|---|
| **CLIENT:** | CH2M HILL | **Client Sample ID:** | SC-100B-WDR-610 |
| **Lab Order:** | N043210 | **Collection Date:** | 12/1/2020 12:45:00 PM |
| **Project:** | PG&E Topock, D3184A1.EV.05-OM-TS | **Matrix:** | WATER |
| **Lab ID:** | N043210-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL FILTERABLE RESIDUE** | | | | | | | |
| | | | **SM2540C** | | | | |
| RunID: **NV00922-WC_201202F** | QC Batch: **83242** | | | | PrepDate: | **12/2/2020** | Analyst: **LR** |
| Total Dissolved Solids (Residue, Filterable) | 4500 | 50 | 50 | | mg/L | 1 | 12/2/2020 01:32 PM |

**Qualifiers:**

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

| | | | |
|---|---|---|---|
| **CLIENT:** | CH2M HILL | **Client Sample ID:** | SC-700B-WDR-610 |
| **Lab Order:** | N043210 | **Collection Date:** | 12/1/2020 12:45:00 PM |
| **Project:** | PG&E Topock, D3184A1.EV.05-OM-TS | **Matrix:** | WATER |
| **Lab ID:** | N043210-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL FILTERABLE RESIDUE** | | | | | | | |
| | | | **SM2540C** | | | | |
| RunID: **NV00922-WC_201202F** | QC Batch: **83242** | | | | PrepDate: | **12/2/2020** | Analyst: **LR** |
| Total Dissolved Solids (Residue, Filterable) | 4400 | 50 | 50 | | mg/L | 1 | 12/2/2020 01:32 PM |

**Qualifiers:**

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

**CLIENT:** CH2M HILL
**Work Order:** N043210
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 160.1_2540C_W**

| Sample ID: **LCS-83242** | SampType: **LCS** | TestCode: **160.1_2540C_** | Units: **mg/L** | Prep Date: **12/2/2020** | RunNo: **149097** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **83242** | TestNo: **SM2540C** | | Analysis Date: **12/2/2020** | SeqNo: **4022910** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Dissolved Solids (Residue, Filterabl | 981.000 | 10 | 1000 | 0 | 98.1 | 80 | 120 | | | | |

| Sample ID: **MB-83242** | SampType: **MBLK** | TestCode: **160.1_2540C_** | Units: **mg/L** | Prep Date: **12/2/2020** | RunNo: **149097** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **83242** | TestNo: **SM2540C** | | Analysis Date: **12/2/2020** | SeqNo: **4022911** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Dissolved Solids (Residue, Filterabl | ND | 10 | | | | | | | | | |

| Sample ID: **N043203-014ADUP** | SampType: **DUP** | TestCode: **160.1_2540C_** | Units: **mg/L** | Prep Date: **12/2/2020** | RunNo: **149097** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **83242** | TestNo: **SM2540C** | | Analysis Date: **12/2/2020** | SeqNo: **4022916** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Dissolved Solids (Residue, Filterabl | 17900.000 | 500 | | | | | | 17300 | 3.41 | 5 | |

**Qualifiers:**

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

| | | | |
|---|---|---|---|
| **CLIENT:** | CH2M HILL | **Client Sample ID:** | SC-100B-WDR-610 |
| **Lab Order:** | N043210 | **Collection Date:** | 12/1/2020 12:45:00 PM |
| **Project:** | PG&E Topock, D3184A1.EV.05-OM-TS | **Matrix:** | WATER |
| **Lab ID:** | N043210-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL METALS BY ICP** | | | | | | | |
| | | | **EPA 200.7** | | | | |
| RunID: **NV00922-ICP2_201204E** | QC Batch: **83278** | | | PrepDate: | | **12/4/2020** | Analyst: **DJ** |
| Iron | ND | 18 | 20 | | µg/L | 1 | 12/5/2020 04:05 AM |

**CLIENT:** CH2M HILL
**Lab Order:** N043210
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS
**Lab ID:** N043210-002

**Client Sample ID:** SC-700B-WDR-610
**Collection Date:** 12/1/2020 12:45:00 PM
**Matrix:** WATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL METALS BY ICP** | | | | | | | |
| | | | **EPA 200.7** | | | | |
| RunID: **NV00922-ICP2_201204E** | QC Batch: **83278** | | | | PrepDate: | **12/4/2020** | Analyst: **DJ** |
| Aluminum | ND | 40 | 50 | | µg/L | 1 | 12/5/2020 04:31 AM |
| Boron | 1200 | 74 | 100 | | µg/L | 1 | 12/15/2020 06:21 PM |
| Iron | ND | 18 | 20 | | µg/L | 1 | 12/5/2020 04:31 AM |

**Qualifiers:**

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

**CLIENT:** CH2M HILL
**Work Order:** N043210
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.7_WPGEPPB**

| Sample ID: **MB-83278** | SampType: **MBLK** | TestCode: **200.7_WPGE** | Units: **µg/L** | Prep Date: **12/4/2020** | RunNo: **149229** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **83278** | TestNo: **EPA 200.7** | | Analysis Date: **12/5/2020** | SeqNo: **4030745** |

| 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: **LCS1-83278** | SampType: **LCS** | TestCode: **200.7_WPGE** | Units: **µg/L** | Prep Date: **12/4/2020** | RunNo: **149229** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **83278** | TestNo: **EPA 200.7** | | Analysis Date: **12/5/2020** | SeqNo: **4030751** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 9704.545 | 50 | 10000 | 0 | 97.0 | 85 | 115 | | | | |
| Iron | 93.988 | 20 | 100.0 | 0 | 94.0 | 85 | 115 | | | | |

| Sample ID: **N043210-001C-MS1** | SampType: **MS** | TestCode: **200.7_WPGE** | Units: **µg/L** | Prep Date: **12/4/2020** | RunNo: **149229** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **83278** | TestNo: **EPA 200.7** | | Analysis Date: **12/5/2020** | SeqNo: **4030755** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 9417.051 | 50 | 10000 | 0 | 94.2 | 75 | 125 | | | | |
| Iron | 108.308 | 20 | 100.0 | 18.16 | 90.1 | 75 | 125 | | | | |

| Sample ID: **N043210-001C-MSD1** | SampType: **MSD** | TestCode: **200.7_WPGE** | Units: **µg/L** | Prep Date: **12/4/2020** | RunNo: **149229** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **83278** | TestNo: **EPA 200.7** | | Analysis Date: **12/5/2020** | SeqNo: **4030756** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 9352.972 | 50 | 10000 | 0 | 93.5 | 75 | 125 | 9417 | 0.683 | 20 | |
| Iron | 145.084 | 20 | 100.0 | 18.16 | 127 | 75 | 125 | 108.3 | 29.0 | 20 | SR |

| Sample ID: **MB-83278** | SampType: **MBLK** | TestCode: **200.7_WPGE** | Units: **µg/L** | Prep Date: **12/4/2020** | RunNo: **149448** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **83278** | TestNo: **EPA 200.7** | | Analysis Date: **12/15/2020** | SeqNo: **4046381** |

| 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

Calculations are based on raw values

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

**CLIENT:** CH2M HILL
**Work Order:** N043210
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.7_WPGEPPB**

| Sample ID: **MB-83278** | SampType: **MBLK** | TestCode: **200.7_WPGE** | Units: **µg/L** | Prep Date: **12/4/2020** | RunNo: **149448** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **83278** | TestNo: **EPA 200.7** | | Analysis Date: **12/15/2020** | SeqNo: **4046381** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Boron | ND | 200 | | | | | | | | | |

| Sample ID: **LCS1-83278** | SampType: **LCS** | TestCode: **200.7_WPGE** | Units: **µg/L** | Prep Date: **12/4/2020** | RunNo: **149448** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **83278** | TestNo: **EPA 200.7** | | Analysis Date: **12/15/2020** | SeqNo: **4046382** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Boron | 4729.238 | 100 | 5000 | 0 | 94.6 | 85 | 115 | | | | |

| Sample ID: **N043210-001C-MS1** | SampType: **MS** | TestCode: **200.7_WPGE** | Units: **µg/L** | Prep Date: **12/4/2020** | RunNo: **149448** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **83278** | TestNo: **EPA 200.7** | | Analysis Date: **12/15/2020** | SeqNo: **4046386** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Boron | 6055.943 | 100 | 5000 | 1077 | 99.6 | 75 | 125 | | | | |

| Sample ID: **N043210-001C-MSD1** | SampType: **MSD** | TestCode: **200.7_WPGE** | Units: **µg/L** | Prep Date: **12/4/2020** | RunNo: **149448** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **83278** | TestNo: **EPA 200.7** | | Analysis Date: **12/15/2020** | SeqNo: **4046387** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Boron | 5735.592 | 100 | 5000 | 1077 | 93.2 | 75 | 125 | 6056 | 5.43 | 20 | |

**Qualifiers:**

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

Calculations are based on raw values

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

**CLIENT:** CH2M HILL
**Work Order:** N043210
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.7_WPGEPPB**

| Sample ID: **N043210-001C-PS** | SampType: **PS** | TestCode: **200.7_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **149229** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **83278** | TestNo: **EPA 200.7** | | Analysis Date: **12/5/2020** | SeqNo: **4030754** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 9444.132 | 50 | 10000 | 0 | 94.4 | 80 | 120 | | | | |
| Iron | 134.166 | 20 | 100.0 | 18.16 | 116 | 80 | 120 | | | | |

| Sample ID: **N043210-001C-PS** | SampType: **PS** | TestCode: **200.7_WPGE** | Units: **µg/L** | Prep Date: | RunNo: **149448** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **83278** | TestNo: **EPA 200.7** | | Analysis Date: **12/15/2020** | SeqNo: **4046385** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Boron | 6440.563 | 100 | 5000 | 1077 | 107 | 80 | 120 | | | | |

**Qualifiers:**

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

| | | | |
|---|---|---|---|
| **CLIENT:** | CH2M HILL | **Client Sample ID:** | SC-100B-WDR-610 |
| **Lab Order:** | N043210 | **Collection Date:** | 12/1/2020 12:45:00 PM |
| **Project:** | PG&E Topock, D3184A1.EV.05-OM-TS | **Matrix:** | WATER |
| **Lab ID:** | N043210-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_201202B** | QC Batch: **R149099** | | | PrepDate: | | | Analyst: **RAB** |
| Hexavalent Chromium | 430 | 1.7 | 10 | | µg/L | 50 | 12/3/2020 12:25 AM |
| **TOTAL METALS BY ICPMS** | | | | | | | |
| | | | **EPA 200.8** | | | | |
| RunID: **NV00922-ICP8_201208B** | QC Batch: **83277** | | | PrepDate: | **12/4/2020** | | Analyst: **CEI** |
| Chromium | 350 | 0.65 | 5.0 | | µg/L | 5 | 12/8/2020 10:47 AM |

**Qualifiers:**

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

| | | | |
|---|---|---|---|
| **CLIENT:** | CH2M HILL | **Client Sample ID:** | SC-700B-WDR-610 |
| **Lab Order:** | N043210 | **Collection Date:** | 12/1/2020 12:45:00 PM |
| **Project:** | PG&E Topock, D3184A1.EV.05-OM-TS | **Matrix:** | WATER |
| **Lab ID:** | N043210-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **HEXAVALENT CHROMIUM BY IC** | | | | | | | |
| | | | **EPA 218.6** | | | | |
| RunID: **NV00922-IC7_201202B** | QC Batch: **R149099** | | | PrepDate: | | | Analyst: **RAB** |
| Hexavalent Chromium | ND | 0.033 | 0.20 | | µg/L | 1 | 12/3/2020 12:44 AM |
| **TOTAL METALS BY ICPMS** | | | | | | | |
| | | | **EPA 200.8** | | | | |
| RunID: **NV00922-ICP8_201208B** | QC Batch: **83277** | | | PrepDate: | **12/4/2020** | | Analyst: **CEI** |
| Chromium | ND | 0.13 | 1.0 | | µg/L | 1 | 12/8/2020 11:45 AM |

**Qualifiers:**

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

**CLIENT:** CH2M HILL
**Work Order:** N043210
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.8_W_CRPGE_TPK**

| Sample ID: **MB-83277** | SampType: **MBLK** | TestCode: **200.8_W_CRP** | Units: **µg/L** | Prep Date: **12/4/2020** | RunNo: **149354** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **83277** | TestNo: **EPA 200.8** | | Analysis Date: **12/8/2020** | SeqNo: **4039011** |

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

| Sample ID: **LCS-83277** | SampType: **LCS** | TestCode: **200.8_W_CRP** | Units: **µg/L** | Prep Date: **12/4/2020** | RunNo: **149354** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **83277** | TestNo: **EPA 200.8** | | Analysis Date: **12/8/2020** | SeqNo: **4039012** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 9.859 | 1.0 | 10.00 | 0 | 98.6 | 85 | 115 | | | | |

| Sample ID: **N043210-001C-MS** | SampType: **MS** | TestCode: **200.8_W_CRP** | Units: **µg/L** | Prep Date: **12/4/2020** | RunNo: **149354** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **83277** | TestNo: **EPA 200.8** | | Analysis Date: **12/8/2020** | SeqNo: **4039019** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 462.924 | 5.0 | 50.00 | 346.6 | 233 | 75 | 125 | | | | S |

| Sample ID: **N043210-001C-MSD** | SampType: **MSD** | TestCode: **200.8_W_CRP** | Units: **µg/L** | Prep Date: **12/4/2020** | RunNo: **149354** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **83277** | TestNo: **EPA 200.8** | | Analysis Date: **12/8/2020** | SeqNo: **4039023** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 463.799 | 5.0 | 50.00 | 346.6 | 234 | 75 | 125 | 462.9 | 0.189 | 20 | S |

**Qualifiers:**

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

Calculations are based on raw values

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

**CLIENT:** CH2M HILL
**Work Order:** N043210
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WU_PGE**

Sample ID: **LCS-R149099** SampType: **LCS** TestCode: **218.6_WU_PG** Units: **µg/L** Prep Date: RunNo: **149099**
Client ID: **LCSW** Batch ID: **R149099** TestNo: **EPA 218.6** Analysis Date: **12/2/2020** SeqNo: **4024465**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 4.972 | 0.20 | 5.000 | 0 | 99.4 | 90 | 110 | | | | |

Sample ID: **MB-R149099** SampType: **MBLK** TestCode: **218.6_WU_PG** Units: **µg/L** Prep Date: RunNo: **149099**
Client ID: **PBW** Batch ID: **R149099** TestNo: **EPA 218.6** Analysis Date: **12/2/2020** SeqNo: **4024466**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | ND | 0.20 | | | | | | | | | |

Sample ID: **N043202-002AMS** SampType: **MS** TestCode: **218.6_WU_PG** Units: **µg/L** Prep Date: RunNo: **149099**
Client ID: **ZZZZZZ** Batch ID: **R149099** TestNo: **EPA 218.6** Analysis Date: **12/2/2020** SeqNo: **4024468**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.442 | 0.20 | 1.000 | 0.4434 | 99.8 | 90 | 110 | | | | |

Sample ID: **N043202-002AMSD** SampType: **MSD** TestCode: **218.6_WU_PG** Units: **µg/L** Prep Date: RunNo: **149099**
Client ID: **ZZZZZZ** Batch ID: **R149099** TestNo: **EPA 218.6** Analysis Date: **12/2/2020** SeqNo: **4024472**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.479 | 0.20 | 1.000 | 0.4434 | 104 | 90 | 110 | 1.442 | 2.55 | 20 | |

Sample ID: **N043202-009ADUP** SampType: **DUP** TestCode: **218.6_WU_PG** Units: **µg/L** Prep Date: RunNo: **149099**
Client ID: **ZZZZZZ** Batch ID: **R149099** TestNo: **EPA 218.6** Analysis Date: **12/2/2020** SeqNo: **4024474**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 38.690 | 1.0 | | | | | | 38.70 | 0.0375 | 20 | |

**Qualifiers:**

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

**CLIENT:** CH2M HILL
**Work Order:** N043210
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 218.6_WU_PGE**

| Sample ID: **N043210-001BMS** | SampType: **MS** | TestCode: **218.6_WU_PG** | Units: **µg/L** | Prep Date: | RunNo: **149099** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R149099** | TestNo: **EPA 218.6** | | Analysis Date: **12/3/2020** | SeqNo: **4024510** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 685.465 | 10 | 250.0 | 433.7 | 101 | 90 | 110 | | | | |

| Sample ID: **N043210-002CMS** | SampType: **MS** | TestCode: **218.6_WU_PG** | Units: **µg/L** | Prep Date: | RunNo: **149099** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R149099** | TestNo: **EPA 218.6** | | Analysis Date: **12/3/2020** | SeqNo: **4024512** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hexavalent Chromium | 1.129 | 0.20 | 1.000 | 0.08270 | 105 | 90 | 110 | | | | |

**Qualifiers:**

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

**CLIENT:** CH2M HILL
**Work Order:** N043210
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.8_W_CRPGE_TPK**

| Sample ID: **N043210-001C-PS** | SampType: **PS** | TestCode: **200.8_W_CRP** | Units: **µg/L** | Prep Date: | RunNo: **149354** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **83277** | TestNo: **EPA 200.8** | | Analysis Date: **12/8/2020** | SeqNo: **4039017** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chromium | 482.619 | 5.0 | 50.00 | 346.6 | 272 | 80 | 120 | | | | S |

**Qualifiers:**

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

| | | | |
|---|---|---|---|
| **CLIENT:** | CH2M HILL | **Client Sample ID:** | SC-100B-WDR-610 |
| **Lab Order:** | N043210 | **Collection Date:** | 12/1/2020 12:45:00 PM |
| **Project:** | PG&E Topock, D3184A1.EV.05-OM-TS | **Matrix:** | WATER |
| **Lab ID:** | N043210-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TOTAL METALS BY ICPMS** | | | | | | | |
| | | | **EPA 200.8** | | | | |
| RunID: **NV00922-ICP8_201208B** | QC Batch: **83277** | | | PrepDate: | **12/4/2020** | | Analyst: **CEI** |
| Manganese | 570 | 6.4 | 12 | | µg/L | 25 | 12/8/2020 10:52 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 | | |

**CLIENT:** CH2M HILL
**Lab Order:** N043210
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS
**Lab ID:** N043210-002

**Client Sample ID:** SC-700B-WDR-610
**Collection Date:** 12/1/2020 12:45:00 PM
**Matrix:** WATER

## TOTAL METALS BY ICPMS

**EPA 200.8**

RunID: **NV00922-ICP8_201208B** QC Batch: **83277** PrepDate: **12/4/2020** Analyst: **CEI**

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| Antimony | ND | 0.16 | 0.50 | | µg/L | 1 | 12/8/2020 11:45 AM |
| Arsenic | ND | 0.081 | 0.10 | | µg/L | 1 | 12/8/2020 11:45 AM |
| Barium | 16 | 0.15 | 1.0 | | µg/L | 1 | 12/8/2020 11:45 AM |
| Copper | ND | 0.55 | 1.0 | | µg/L | 1 | 12/14/2020 11:18 AM |
| Lead | ND | 0.13 | 1.0 | | µg/L | 1 | 12/8/2020 11:45 AM |
| Manganese | 0.83 | 0.26 | 0.50 | | µg/L | 1 | 12/8/2020 11:45 AM |
| Molybdenum | 20 | 0.21 | 0.50 | | µg/L | 1 | 12/8/2020 11:45 AM |
| Nickel | ND | 0.26 | 1.0 | | µg/L | 1 | 12/14/2020 11:18 AM |
| Zinc | ND | 2.3 | 10 | | µg/L | 1 | 12/8/2020 11:45 AM |

**Qualifiers:**

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

**CLIENT:** CH2M HILL
**Work Order:** N043210
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.8_W_TPK**

Sample ID: **MB-83277** SampType: **MBLK** TestCode: **200.8_W_TPK** Units: **µg/L** Prep Date: **12/4/2020** RunNo: **149354**
Client ID: **PBW** Batch ID: **83277** TestNo: **EPA 200.8** Analysis Date: **12/8/2020** SeqNo: **4039169**

| 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 | | | | | | | | | |
| Lead | ND | 1.0 | | | | | | | | | |
| Manganese | ND | 0.50 | | | | | | | | | |
| Molybdenum | ND | 0.50 | | | | | | | | | |
| Zinc | ND | 10 | | | | | | | | | |

Sample ID: **LCS-83277** SampType: **LCS** TestCode: **200.8_W_TPK** Units: **µg/L** Prep Date: **12/4/2020** RunNo: **149354**
Client ID: **LCSW** Batch ID: **83277** TestNo: **EPA 200.8** Analysis Date: **12/8/2020** SeqNo: **4039170**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | 10.363 | 0.50 | 10.00 | 0 | 104 | 85 | 115 | | | | |
| Arsenic | 10.089 | 0.10 | 10.00 | 0 | 101 | 85 | 115 | | | | |
| Barium | 10.061 | 1.0 | 10.00 | 0 | 101 | 85 | 115 | | | | |
| Lead | 9.972 | 1.0 | 10.00 | 0 | 99.7 | 85 | 115 | | | | |
| Manganese | 100.126 | 0.50 | 100.0 | 0 | 100 | 85 | 115 | | | | |
| Molybdenum | 9.522 | 0.50 | 10.00 | 0 | 95.2 | 85 | 115 | | | | |
| Zinc | 110.516 | 10 | 100.0 | 0 | 111 | 85 | 115 | | | | |

Sample ID: **N043210-001C-MS** SampType: **MS** TestCode: **200.8_W_TPK** Units: **µg/L** Prep Date: **12/4/2020** RunNo: **149354**
Client ID: **ZZZZZZ** Batch ID: **83277** TestNo: **EPA 200.8** Analysis Date: **12/8/2020** SeqNo: **4039176**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | 10.089 | 0.50 | 10.00 | 0 | 101 | 75 | 125 | | | | |
| Arsenic | 10.459 | 0.10 | 10.00 | 0.4644 | 99.9 | 75 | 125 | | | | |
| Barium | 44.265 | 1.0 | 10.00 | 35.77 | 84.9 | 75 | 125 | | | | |
| Lead | 9.937 | 1.0 | 10.00 | 0.1698 | 97.7 | 75 | 125 | | | | |

**Qualifiers:**

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

**CLIENT:** CH2M HILL
**Work Order:** N043210
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.8_W_TPK**

| Sample ID: **N043210-001C-MS** | SampType: **MS** | TestCode: **200.8_W_TPK** | Units: **µg/L** | Prep Date: **12/4/2020** | RunNo: **149354** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **83277** | TestNo: **EPA 200.8** | | Analysis Date: **12/8/2020** | SeqNo: **4039176** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Molybdenum | 29.856 | 0.50 | 10.00 | 18.63 | 112 | 75 | 125 | | | | |
| Zinc | 88.974 | 10 | 100.0 | 0 | 89.0 | 75 | 125 | | | | |

| Sample ID: **N043210-001C-MSD** | SampType: **MSD** | TestCode: **200.8_W_TPK** | Units: **µg/L** | Prep Date: **12/4/2020** | RunNo: **149354** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **83277** | TestNo: **EPA 200.8** | | Analysis Date: **12/8/2020** | SeqNo: **4039178** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | 10.176 | 0.50 | 10.00 | 0 | 102 | 75 | 125 | 10.09 | 0.857 | 20 | |
| Arsenic | 10.507 | 0.10 | 10.00 | 0.4644 | 100 | 75 | 125 | 10.46 | 0.458 | 20 | |
| Barium | 44.801 | 1.0 | 10.00 | 35.77 | 90.3 | 75 | 125 | 44.26 | 1.20 | 20 | |
| Lead | 9.823 | 1.0 | 10.00 | 0.1698 | 96.5 | 75 | 125 | 9.937 | 1.15 | 20 | |
| Molybdenum | 29.344 | 0.50 | 10.00 | 18.63 | 107 | 75 | 125 | 29.86 | 1.73 | 20 | |
| Zinc | 89.825 | 10 | 100.0 | 0 | 89.8 | 75 | 125 | 88.97 | 0.952 | 20 | |

| Sample ID: **MB-83277** | SampType: **MBLK** | TestCode: **200.8_W_TPK** | Units: **µg/L** | Prep Date: **12/4/2020** | RunNo: **149429** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **83277** | TestNo: **EPA 200.8** | | Analysis Date: **12/14/2020** | SeqNo: **4045668** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Copper | ND | 1.0 | | | | | | | | | |
| Nickel | ND | 1.0 | | | | | | | | | |

| Sample ID: **LCS-83277** | SampType: **LCS** | TestCode: **200.8_W_TPK** | Units: **µg/L** | Prep Date: **12/4/2020** | RunNo: **149429** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **83277** | TestNo: **EPA 200.8** | | Analysis Date: **12/14/2020** | SeqNo: **4045669** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Copper | 9.994 | 1.0 | 10.00 | 0 | 99.9 | 85 | 115 | | | | |
| Nickel | 10.094 | 1.0 | 10.00 | 0 | 101 | 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
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

**CLIENT:** CH2M HILL
**Work Order:** N043210
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.8_W_TPK**

| Sample ID: **N043210-001C-MS** | SampType: **MS** | TestCode: **200.8_W_TPK** | Units: **µg/L** | Prep Date: **12/4/2020** | RunNo: **149429** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **83277** | TestNo: **EPA 200.8** | | Analysis Date: **12/14/2020** | SeqNo: **4045675** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Copper | 9.928 | 1.0 | 10.00 | 1.081 | 88.5 | 75 | 125 | | | | |
| Nickel | ND | 1.0 | 10.00 | 0 | 0 | 75 | 125 | | | | S |

| Sample ID: **N043210-001C-MSD** | SampType: **MSD** | TestCode: **200.8_W_TPK** | Units: **µg/L** | Prep Date: **12/4/2020** | RunNo: **149429** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **83277** | TestNo: **EPA 200.8** | | Analysis Date: **12/14/2020** | SeqNo: **4045677** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Copper | 9.831 | 1.0 | 10.00 | 1.081 | 87.5 | 75 | 125 | 9.928 | 0.982 | 20 | |
| Nickel | ND | 1.0 | 10.00 | 0 | 0 | 75 | 125 | 0 | 0 | 20 | S |

| Sample ID: **N043210-001C-MS** | SampType: **MS** | TestCode: **200.8_W_TPK** | Units: **µg/L** | Prep Date: **12/4/2020** | RunNo: **149429** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **83277** | TestNo: **EPA 200.8** | | Analysis Date: **12/14/2020** | SeqNo: **4045695** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 1270.133 | 12 | 100.0 | 574.8 | 695 | 75 | 125 | | | | S |

| Sample ID: **N043210-001C-MSD** | SampType: **MSD** | TestCode: **200.8_W_TPK** | Units: **µg/L** | Prep Date: **12/4/2020** | RunNo: **149429** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **83277** | TestNo: **EPA 200.8** | | Analysis Date: **12/14/2020** | SeqNo: **4045696** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 1278.529 | 12 | 100.0 | 574.8 | 704 | 75 | 125 | 1270 | 0.659 | 20 | S |

**Qualifiers:**

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

Calculations are based on raw values

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

**CLIENT:** CH2M HILL
**Work Order:** N043210
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 200.8_W_TPK**

| Sample ID: **N043210-001C-PS** | SampType: **PS** | TestCode: **200.8_W_TPK** | Units: **µg/L** | Prep Date: | RunNo: **149354** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **83277** | TestNo: **EPA 200.8** | | Analysis Date: **12/8/2020** | SeqNo: **4039174** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Antimony | 10.255 | 0.50 | 10.00 | 0 | 103 | 80 | 120 | | | | |
| Arsenic | 10.549 | 0.10 | 10.00 | 0.4644 | 101 | 80 | 120 | | | | |
| Barium | 45.091 | 1.0 | 10.00 | 35.77 | 93.2 | 80 | 120 | | | | |
| Lead | 10.208 | 1.0 | 10.00 | 0.1698 | 100 | 80 | 120 | | | | |
| Molybdenum | 30.928 | 0.50 | 10.00 | 18.63 | 123 | 80 | 120 | | | | S |
| Zinc | 89.697 | 10 | 100.0 | 0 | 89.7 | 80 | 120 | | | | |

| Sample ID: **N043210-001C-PS** | SampType: **PS** | TestCode: **200.8_W_TPK** | Units: **µg/L** | Prep Date: | RunNo: **149429** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **83277** | TestNo: **EPA 200.8** | | Analysis Date: **12/14/2020** | SeqNo: **4045673** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Copper | 10.123 | 1.0 | 10.00 | 1.081 | 90.4 | 80 | 120 | | | | |
| Nickel | ND | 1.0 | 10.00 | 0 | 0 | 80 | 120 | | | | S |

| Sample ID: **N043210-001C-PS** | SampType: **PS** | TestCode: **200.8_W_TPK** | Units: **µg/L** | Prep Date: | RunNo: **149429** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **83277** | TestNo: **EPA 200.8** | | Analysis Date: **12/14/2020** | SeqNo: **4045694** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Manganese | 1278.457 | 12 | 100.0 | 574.8 | 704 | 80 | 120 | | | | S |

**Qualifiers:**

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

| | | | |
|---|---|---|---|
| **CLIENT:** | CH2M HILL | **Client Sample ID:** | SC-100B-WDR-610 |
| **Lab Order:** | N043210 | **Collection Date:** | 12/1/2020 12:45:00 PM |
| **Project:** | PG&E Topock, D3184A1.EV.05-OM-TS | **Matrix:** | WATER |
| **Lab ID:** | N043210-001 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TURBIDITY** | | | | | | | |
| | | | **SM 2130B** | | | | |
| RunID: **NV00922-WC_201202C** | QC Batch: **R149088** | | | PrepDate: | | | Analyst: **LR** |
| Turbidity | 0.53 | 0.10 | 0.10 | | NTU | 1 | 12/2/2020 05:30 PM |

**Qualifiers:**

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

| | | | |
|---|---|---|---|
| **CLIENT:** | CH2M HILL | **Client Sample ID:** | SC-700B-WDR-610 |
| **Lab Order:** | N043210 | **Collection Date:** | 12/1/2020 12:45:00 PM |
| **Project:** | PG&E Topock, D3184A1.EV.05-OM-TS | **Matrix:** | WATER |
| **Lab ID:** | N043210-002 | | |

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **TURBIDITY** | | | | | | | |
| | | | **SM 2130B** | | | | |
| RunID: **NV00922-WC_201202C** | QC Batch: **R149088** | | | PrepDate: | | | Analyst: **LR** |
| Turbidity | ND | 0.10 | 0.10 | | NTU | 1 | 12/2/2020 05:30 PM |

**Qualifiers:**

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

**CLIENT:** CH2M HILL
**Work Order:** N043210
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 2130_W**

| Sample ID: **MB-R149088** | SampType: **MBLK** | TestCode: **2130_W** | Units: **NTU** | Prep Date: | RunNo: **149088** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **R149088** | TestNo: **SM 2130B** | | Analysis Date: **12/2/2020** | SeqNo: **4022535** |

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

| Sample ID: **N043210-001ADUP** | SampType: **DUP** | TestCode: **2130_W** | Units: **NTU** | Prep Date: | RunNo: **149088** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R149088** | TestNo: **SM 2130B** | | Analysis Date: **12/2/2020** | SeqNo: **4022537** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Turbidity | 0.500 | 0.10 | | | | | | 0.5300 | 5.83 | 30 | |

**Qualifiers:**

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

**CLIENT:** CH2M HILL
**Lab Order:** N043210
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS
**Lab ID:** N043210-002

**Client Sample ID:** SC-700B-WDR-610
**Collection Date:** 12/1/2020 12:45:00 PM
**Matrix:** WATER

| Analyses | Result | MDL | PQL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **ANIONS BY ION CHROMATOGRAPHY** | | | | | | | |
| | | | **EPA 300.0** | | | | |
| RunID: **NV00922-IC8_201203A** QC Batch: **R149119** | | | | PrepDate: | | | Analyst: **RAB** |
| Fluoride | 2.5 | 0.048 | 0.50 | | mg/L | 5 | 12/3/2020 08:48 AM |
| **ANIONS BY ION CHROMATOGRAPHY** | | | | | | | |
| | | | **EPA 300.0** | | | | |
| RunID: **NV00922-IC8_201203A** QC Batch: **R149119** | | | | PrepDate: | | | Analyst: **RAB** |
| Sulfate | 480 | 2.0 | 25 | | mg/L | 50 | 12/3/2020 10:09 PM |

**Qualifiers:**

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

**CLIENT:** CH2M HILL
**Work Order:** N043210
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 300_W_FPGE**

| Sample ID: **MB-R149119_F** | SampType: **MBLK** | TestCode: **300_W_FPGE** | Units: **mg/L** | Prep Date: | RunNo: **149119** |
|---|---|---|---|---|---|
| Client ID: **PBW** | Batch ID: **R149119** | TestNo: **EPA 300.0** | | Analysis Date: **12/3/2020** | SeqNo: **4023654** |

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

| Sample ID: **LCS-R149119_F** | SampType: **LCS** | TestCode: **300_W_FPGE** | Units: **mg/L** | Prep Date: | RunNo: **149119** |
|---|---|---|---|---|---|
| Client ID: **LCSW** | Batch ID: **R149119** | TestNo: **EPA 300.0** | | Analysis Date: **12/3/2020** | SeqNo: **4023655** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Fluoride | 1.374 | 0.10 | 1.250 | 0 | 110 | 90 | 110 | | | | |

| Sample ID: **N043221-006AMS** | SampType: **MS** | TestCode: **300_W_FPGE** | Units: **mg/L** | Prep Date: | RunNo: **149119** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R149119** | TestNo: **EPA 300.0** | | Analysis Date: **12/3/2020** | SeqNo: **4023676** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Fluoride | 10.010 | 0.50 | 6.250 | 3.638 | 102 | 80 | 120 | | | | |

| Sample ID: **N043221-006AMSD** | SampType: **MSD** | TestCode: **300_W_FPGE** | Units: **mg/L** | Prep Date: | RunNo: **149119** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R149119** | TestNo: **EPA 300.0** | | Analysis Date: **12/3/2020** | SeqNo: **4023677** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Fluoride | 10.130 | 0.50 | 6.250 | 3.638 | 104 | 80 | 120 | 10.01 | 1.20 | 20 | |

| Sample ID: **N043223-012BMS** | SampType: **MS** | TestCode: **300_W_FPGE** | Units: **mg/L** | Prep Date: | RunNo: **149119** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R149119** | TestNo: **EPA 300.0** | | Analysis Date: **12/3/2020** | SeqNo: **4023678** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Fluoride | 8.780 | 0.50 | 6.250 | 2.508 | 100 | 80 | 120 | | | | |

**Qualifiers:**

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

Calculations are based on raw values

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

**CLIENT:** CH2M HILL
**Work Order:** N043210
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 300_W_FPGE**

| Sample ID: **N043223-012BMSD** | SampType: **MSD** | TestCode: **300_W_FPGE** | Units: **mg/L** | Prep Date: | | | | RunNo: **149119** | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R149119** | TestNo: **EPA 300.0** | | Analysis Date: **12/3/2020** | | | | SeqNo: **4023679** | | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| Fluoride | 8.637 | 0.50 | 6.250 | 2.508 | 98.1 | 80 | 120 | 8.780 | 1.64 | 20 | |

| Sample ID: **N043221-002ADUP** | SampType: **DUP** | TestCode: **300_W_FPGE** | Units: **mg/L** | Prep Date: | | | | RunNo: **149119** | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R149119** | TestNo: **EPA 300.0** | | Analysis Date: **12/3/2020** | | | | SeqNo: **4023680** | | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| Fluoride | 7.653 | 1.0 | | | | | | 7.424 | 3.04 | 20 | |

| Sample ID: **N043221-002AMS** | SampType: **MS** | TestCode: **300_W_FPGE** | Units: **mg/L** | Prep Date: | | | | RunNo: **149119** | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R149119** | TestNo: **EPA 300.0** | | Analysis Date: **12/3/2020** | | | | SeqNo: **4023681** | | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| Fluoride | 20.894 | 1.0 | 12.50 | 7.424 | 108 | 80 | 120 | | | | |

**Qualifiers:**

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

Calculations are based on raw values

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

**CLIENT:** CH2M HILL
**Work Order:** N043210
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 300_W_SO4PGE**

| Sample ID: MB-R149119_SO4 | SampType: MBLK | TestCode: 300_W_SO4P | Units: mg/L | Prep Date: | RunNo: 149119 |
|---|---|---|---|---|---|
| Client ID: PBW | Batch ID: R149119 | TestNo: EPA 300.0 | | Analysis Date: 12/3/2020 | SeqNo: 4023801 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 0.228 | 0.50 | | | | | | | | | |

| Sample ID: LCS-R149119_SO4 | SampType: LCS | TestCode: 300_W_SO4P | Units: mg/L | Prep Date: | RunNo: 149119 |
|---|---|---|---|---|---|
| Client ID: LCSW | Batch ID: R149119 | TestNo: EPA 300.0 | | Analysis Date: 12/3/2020 | SeqNo: 4023802 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 3.980 | 0.50 | 4.000 | 0 | 99.5 | 90 | 110 | | | | |

| Sample ID: N043221-006AMS | SampType: MS | TestCode: 300_W_SO4P | Units: mg/L | Prep Date: | RunNo: 149119 |
|---|---|---|---|---|---|
| Client ID: ZZZZZZ | Batch ID: R149119 | TestNo: EPA 300.0 | | Analysis Date: 12/3/2020 | SeqNo: 4023812 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 278.040 | 10 | 80.00 | 194.9 | 104 | 80 | 120 | | | | |

| Sample ID: N043221-006AMSD | SampType: MSD | TestCode: 300_W_SO4P | Units: mg/L | Prep Date: | RunNo: 149119 |
|---|---|---|---|---|---|
| Client ID: ZZZZZZ | Batch ID: R149119 | TestNo: EPA 300.0 | | Analysis Date: 12/3/2020 | SeqNo: 4023813 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 276.284 | 10 | 80.00 | 194.9 | 102 | 80 | 120 | 278.0 | 0.634 | 20 | |

| Sample ID: N043223-012BMS | SampType: MS | TestCode: 300_W_SO4P | Units: mg/L | Prep Date: | RunNo: 149119 |
|---|---|---|---|---|---|
| Client ID: ZZZZZZ | Batch ID: R149119 | TestNo: EPA 300.0 | | Analysis Date: 12/3/2020 | SeqNo: 4023815 |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 1069.290 | 50 | 400.0 | 673.7 | 98.9 | 80 | 120 | | | | |

**Qualifiers:**

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

Calculations are based on raw values

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

**CLIENT:** CH2M HILL
**Work Order:** N043210
**Project:** PG&E Topock, D3184A1.EV.05-OM-TS

# ANALYTICAL QC SUMMARY REPORT

**TestCode: 300_W_SO4PGE**

| Sample ID: **N043223-012BMSD** | SampType: **MSD** | TestCode: **300_W_SO4P** | Units: **mg/L** | Prep Date: | RunNo: **149119** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R149119** | TestNo: **EPA 300.0** | | Analysis Date: **12/3/2020** | SeqNo: **4023816** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 1080.340 | 50 | 400.0 | 673.7 | 102 | 80 | 120 | 1069 | 1.03 | 20 | |

| Sample ID: **N043221-011ADUP** | SampType: **DUP** | TestCode: **300_W_SO4P** | Units: **mg/L** | Prep Date: | RunNo: **149119** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R149119** | TestNo: **EPA 300.0** | | Analysis Date: **12/3/2020** | SeqNo: **4023818** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 1340.860 | 100 | | | | | | 1347 | 0.488 | 20 | |

| Sample ID: **N043221-011AMS** | SampType: **MS** | TestCode: **300_W_SO4P** | Units: **mg/L** | Prep Date: | RunNo: **149119** |
|---|---|---|---|---|---|
| Client ID: **ZZZZZZ** | Batch ID: **R149119** | TestNo: **EPA 300.0** | | Analysis Date: **12/3/2020** | SeqNo: **4023819** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfate | 2146.180 | 100 | 800.0 | 1347 | 99.8 | 80 | 120 | | | | |

**Qualifiers:**

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

Calculations are based on raw values

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

N043210

**JACOBS**

# CHAIN OF CUSTODY RECORD



**PROJECT INFORMATION**

**COC Number** 610-IM3
**Project Manager** Scott O'Donnell
**Sample Manager** Shawn Duffy

**Name** PG&E Topock
**Project** IM3PLANT-ARAR-WDR-610
**Location** PG&E Topock
**Project Number** D3184A1.EV.05-OM-TS
**Task Order**
**Turnaround Time** 10 Days
**Shipping Date:** 12/1/2020

| | DATE | TIME | Matrix | AMMONIA (SM4500NH3D) | Anions (E300.0) Fl, SO4 | CONDUCTIVITY (E120.1) | E218.6 Lab Filtered | Nitrate/Nitrite (SM4500NO3-E) | TDS (SM2540C) | Total Metals(E200.7 and E200.8) | Total Metals(E200.8) Cr, Mn, Fe | Turbidity (SM2130) | | Number of Containers | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Container: | | | | 1 Liter Poly | 1 Liter Poly | 1 Liter Poly | 250 ml Poly | 1 Liter Poly | 1 Liter Poly | 500 ml Poly | 500 ml Poly | 1 Liter Poly | | | |
| Preservatives: | | | | 4°C Lab H2SO4 | 4°C | 4°C | 4°C | 4°C Lab H2SO4 | 4°C | 4°C | 4°C | 4°C | | | |
| Filtered: | | | | NA | NA | NA | NA | NA | NA | NA | NA | NA | | | |
| Holding Time: | | | | 28 | 7 | 7 | 1 | 28 | 7 | 180 | 180 | 7 | | | |
| SC-100B-WDR-610 | 12-1-20 | 1540 | Water | | | X | X | | X | | X | X | N043210-01 | 3 | |
| SC-700B-WDR-610 | 12-1-20 | 1540 | Water | X | X | X | X | X | X | X | | X | -02 | 4 | |
| | | | | | | | | | | | | | TOTAL NUMBER OF CONTAINERS | 7 | |

| Signatures | | Date/Time |
|---|---|---|
| Approved by | Scott Rothwell | 12-1-20 1240 |
| Sampled by | Cameron Stone | 12-1-20 1215 |
| Relinquished by | Brian Terhune | 12-1-20 15:40 |
| Received by | | 12-1-20 15:40 |
| Relinquished by | | 12-01-20 801 |
| Received by | | |

**Shipping Details**

**Method of Shipment:** FedEx
**On Ice:** (yes) / no TEMP 2.01 °C
**Airbill No:** 2nd #2
**Lab Name:** ASSET Laboratories
**Lab Phone:** (702) 307-2659

**ATTN:**
Sample Custody
and
Marion Cartin

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

**Report Copy to**
Mark Fesler
(530) 229-3273

## 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: | 12/1/2020 | Workorder: | N043210 |
| Rep sample Temp (Deg C): | 2.9 | IR Gun ID: | 2 |
| Temp Blank: | ☑ Yes ☐ No | | |
| Carrier name: | ASSET | | |
| Last 4 digits of Tracking No.: | NA | Packing Material Used: | None |
| Cooling process: | ☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None | | |

### Sample Receipt Checklist

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

Comments:

See Correspondence..
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.

Checklist Completed By: BHN BHdez 12/2/2020

Reviewed By: MBC 12/03/2020

**Subject:** FW: [EXTERNAL] PG&E Topock, D3184A1.EV.05-OM-TS (ASSET Labs No. N043210)
**From:** "Fesler, Mark/RDD" <Mark.Fesler@jacobs.com>
**Date:** 12/2/2020, 4:45 PM
**To:** Yoandra Rodriguez <yoandra@assetlaboratories.com>

---

**From:** O'Donnell, Scott/TCK <Scott.ODonnell@jacobs.com>
**Sent:** Wednesday, December 2, 2020 4:39 PM
**To:** Fesler, Mark/RDD <Mark.Fesler@jacobs.com>
**Subject:** RE: [EXTERNAL] PG&E Topock, D3184A1.EV.05-OM-TS (ASSET Labs No. N043210)

The correct time for sample collection  is 12 :45

Scott

---

**From:** Fesler, Mark/RDD <Mark.Fesler@jacobs.com>
**Sent:** Wednesday, December 2, 2020 4:17 PM
**To:** O'Donnell, Scott/TCK <Scott.ODonnell@jacobs.com>
**Subject:** FW: [EXTERNAL] PG&E Topock, D3184A1.EV.05-OM-TS (ASSET Labs No. N043210)

Scott:

Can you confirm the COC dates/times versus what was on the sample label (see lab question below)

**Mark Fesler**
Associate Scientist
Ext. 33273
mark.fesler@jacobs.com

---

**From:** Yoandra Rodriguez <yoandra@assetlaboratories.com>
**Sent:** Wednesday, December 2, 2020 4:12 PM
**To:** Fesler, Mark/RDD <Mark.Fesler@jacobs.com>
**Cc:** maryann.balilu@assetlaboratoriesph.com; rustico.aquino@assetlaboratoriesph.com
**Subject:** [EXTERNAL] PG&E Topock, D3184A1.EV.05-OM-TS (ASSET Labs No. N043210)

Hello Mark,

Please kindly confirm the collection time for the samples on the attached COC:

- COC: 15:40

- Label: 12:45

--
**Thanks,**

**Yoandra Rodriguez**
Nevada: 3151 W. Post Road, Las Vegas, NV 89118 | P: 702.307.2659 | F: 702.307.2691

## ASSET Laboratories

# WORK ORDER Summary

*11-Dec-20*

**WorkOrder:** N043210

**Client ID:** CH2HI01

**Project:** PG&E Topock, D3184A1.EV.05-OM-TS **QC Level:** Level IV **Date Received:** 12/1/2020

**Comments:** The SC-700B Total metals List:

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N043210-001A | SC-100B-WDR-610 | 12/1/2020 12:45:00 PM | 12/11/2020 | Water | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | LSR |
| | | | 12/11/2020 | | SM2540C | TOTAL FILTERABLE RESIDUE | ☐ | ☐ | ☐ | LSR |
| | | | 12/11/2020 | | | Total Dissolved Solids Prep | ☐ | ☐ | ☐ | LSR |
| | | | 12/11/2020 | | SM 2130B | TURBIDITY | ☐ | ☐ | ☐ | LSR |
| N043210-001B | | | 12/11/2020 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N043210-001C | | | 12/11/2020 | | | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 12/11/2020 | | EPA 200.7 | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 12/11/2020 | | | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 12/11/2020 | | EPA 200.8 | TOTAL METALS BY ICPMS | ☐ | ☐ | ☐ | WW |
| | | | 12/11/2020 | | EPA 200.8 | TOTAL METALS BY ICPMS | ☐ | ☐ | ☐ | WW |
| N043210-001D | | | | | | | ☐ | ☐ | ☐ | WW |
| N043210-002A | SC-700B-WDR-610 | | 12/11/2020 | | SM4500-NH3D | AMMONIA-N BY ION SELECTIVE ELECTRODE | ☐ | ☐ | ☑ | SUB |
| N043210-002B | | | 12/11/2020 | | EPA 120.1 | SPECIFIC CONDUCTANCE | ☐ | ☐ | ☐ | LSR |
| | | | 12/11/2020 | | SM2540C | TOTAL FILTERABLE RESIDUE | ☐ | ☐ | ☐ | LSR |
| | | | 12/11/2020 | | | Total Dissolved Solids Prep | ☐ | ☐ | ☐ | LSR |
| | | | 12/11/2020 | | SM 2130B | TURBIDITY | ☐ | ☐ | ☐ | LSR |
| | | | 12/11/2020 | | EPA 300.0 | ANIONS BY ION CHROMATOGRAPHY | ☐ | ☐ | ☐ | LSR |
| | | | 12/11/2020 | | EPA 300.0 | ANIONS BY ION CHROMATOGRAPHY | ☐ | ☐ | ☐ | LSR |
| N043210-002C | | | 12/11/2020 | | EPA 218.6 | Hexavalent Chromium by IC | ☐ | ☐ | ☐ | WW |
| N043210-002D | | | 12/11/2020 | | SM4500-NO3F | NITRATE/NITRITE-N BY CADMIUM REDUCTION | ☐ | ☐ | ☑ | WW |
| N043210-002E | | | 12/11/2020 | | | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |

## ASSET Laboratories

# WORK ORDER Summary

*11-Dec-20*

**WorkOrder:** N043210

**Client ID:** CH2HI01

**Project:** PG&E Topock, D3184A1.EV.05-OM-TS **QC Level:** Level IV **Date Received:** 12/1/2020

**Comments:** The SC-700B Total metals List:

| Sample ID | Client Sample ID | Date Collected | Date Due | Matrix | Test No | Test Name | Hld | MS | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|
| N043210-002E | SC-700B-WDR-610 | 12/1/2020 12:45:00 PM | 12/11/2020 | Water | EPA 200.7 | TOTAL METALS BY ICP | ☐ | ☐ | ☐ | WW |
| | | | 12/11/2020 | | | AQPREP TOTAL METALS: ICP, FLAA | ☐ | ☐ | ☐ | WW |
| | | | 12/11/2020 | | EPA 200.8 | TOTAL METALS BY ICPMS | ☐ | ☐ | ☐ | WW |
| | | | 12/11/2020 | | EPA 200.8 | TOTAL METALS BY ICPMS | ☐ | ☐ | ☐ | WW |
| N043210-002F | | | | | | | ☐ | ☐ | ☐ | WW |
| N043210-003A | FOLDER | 12/15/2020 | 12/11/2020 | | Folder | Level IV Report | ☐ | ☐ | ☐ | LAB |
| | | | 12/11/2020 | | Folder | Folder | ☐ | ☐ | ☐ | LAB |
| | | | 12/15/2020 | | Folder | Folder | ☐ | ☐ | ☐ | LAB |

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

# CHAIN-OF-CUSTODY RECORD



**QC Level: Level IV**

**Subcontractor:**

BC Labs
4100 Atlas Court
Bakersfield, CA 93308

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

Field Sampler: SIGNED

**02-Dec-20**

| | | | | Requested Tests | | |
|---|---|---|---|---|---|---|
| **Sample ID** | **Matrix** | **Date Collected** | **Bottle Type** | **SM4500-NH3D** | | |
| N043210-002A / SC-700B-WDR-610 | Water | 12/1/2020 ~~3:40:00 PM~~ | 32OZP | 1 | | |

YRJ 12:45:00 PM

12/2/2020

General Comments: PLEASE EMAIL SAMPLE RECEIPT ACKNOWLEDGEMENT TO THE PM. ALWAYS CC: sonny.lorenzo@assetlaboratories.com

Please use PO#:N432210A 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 #: 551384398

| | Date/Time | | Date/Time |
|---|---|---|---|
| **Relinquished by:** YRJ | 12/2/2020 1630 | **Received by:** | |
| **Relinquished by:** | | **Received by:** | |

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

# CHAIN-OF-CUSTODY RECORD



**QC Level: Level IV**

**Subcontractor:**

BC Labs
4100 Atlas Court
Bakersfield, CA 93308

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

Field Sampler: SIGNED

**08-Dec-20**

| | | | | Requested Tests | | |
|---|---|---|---|---|---|---|
| **Sample ID** | **Matrix** | **Date Collected** | **Bottle Type** | **SM4500-NO3F** | | |
| N043210-002D / SC-700B-WDR-610 | Water | 12/1/2020 12:45:00 PM | 8OZP | 1 | | |

General Comments: PLEASE EMAIL SAMPLE RECEIPT ACKNOWLEDGEMENT TO THE PM. ALWAYS CC: sonny.lorenzo@assetlaboratories.com

Please use PO#:N43210B 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 Nitrate/Nitrite by SM4500NO3F. EDD Requirement Labspec7 edata.

GSO #: 551447082 / 551447083

| | | Date/Time | | Date/Time |
|---|---|---|---|---|
| **Relinquished by:** | YRJ | 12/7/2020 1630 | **Received by:** | |
| **Relinquished by:** | | | **Received by:** | |

# List of Analysts

## ASSET Laboratories Work Order: N043210

| 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 |

Date of Report: 12/11/2020

Marlon B. Cartin

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

| | |
|---|---|
| Client Project: | N043210 |
| BCL Project: | Level IV + labSpec7 |
| BCL Work Order: | 2035332 |
| Invoice ID: | B400754 |

Enclosed are the results of analyses for samples received by the laboratory on 12/3/2020. 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

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

# CHAIN-OF-CUSTODY RECORD

REVISED
12/3/20 VMD
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

**02-Dec-20**

| Sample ID | Matrix | Date Collected | Bottle Type | Requested Tests | | |
|---|---|---|---|---|---|---|
| | | | | SM4500-NH3D | | |
| N043210-002A / SC-700B-WDR-610 | Water | 12/1/2020 3:40:00 PM | 32OZP | 1 | | |

YRJ 12:45:00 PM
12/2/2020

General Comments: PLEASE EMAIL SAMPLE RECEIPT ACKNOWLEDGEMENT TO THE PM. ALWAYS CC: sonny.lorenzo@assetlaboratories.com

Please use PO#:N432210A 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 #: 551384398

| | Date/Time | | Date/Time |
|---|---|---|---|
| Relinquished by: YRJ | 12/2/2020 1630 | Received by: | 12-3-20 1000 |
| Relinquished by: | | Received by: | |

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

# CHAIN-OF-CUSTODY RECORD



20-35332

**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

**02-Dec-20**

| Sample ID | Matrix | Date Collected | Bottle Type | Requested Tests | | |
|---|---|---|---|---|---|---|
| | | | | SM4500-NH3D | | |
| N043210-002A / SC-700B-WDR-610 | Water | 12/1/2020 3:40:00 PM | 32OZP | 1 | | |

CHK BY DISTRIBUTION SUB OUT

General Comments: PLEASE EMAIL SAMPLE RECEIPT ACKNOWLEDGEMENT TO THE PM. ALWAYS CC: sonny.lorenzo@assetlaboratories.com

Please use PO#:N432210A 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 #: 551384398

| | Date/Time | | Date/Time |
|---|---|---|---|
| Relinquished by: YRJ | 12/2/2020 1630 | Received by: | 12-3-20 1000 |
| Relinquished by: | | Received by: | |

**Chain of Custody and Cooler Receipt Form for 2035332 Page 3 of 3**

BC LABORATORIES INC. COOLER RECEIPT FORM Page 1 Of 1

Submission #: 2035332

SHIPPING INFORMATION
Fed Ex ☐ UPS ☐ Ontrac ☐ Hand Delivery ☐
BC Lab Field Service ☐ Other ☒ (Specify) GLS

SHIPPING CONTAINER
Ice Chest ☒ None ☐ Box ☐
Other ☐ (Specify)

FREE LIQUID
YES ☐ NO ☐
W / S

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

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

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

COC Received ☒ YES ☐ NO

Emissivity: .97 Container: PE Thermometer ID: 274 Date/Time 12-3-20 1000

Temperature: (A) 3.2 °C / (C) 3.0 °C Analyst Init TKJ

| SAMPLE CONTAINERS | SAMPLE NUMBERS 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| QT PE UNPRES | | | | | | | | | | |
| 4oz / 8oz / 16oz PE UNPRES | | | | | | | | | | |
| 2oz $Cr^{+6}$ | | | | | | | | | | |
| QT INORGANIC CHEMICAL METALS | | | | | | | | | | |
| INORGANIC CHEMICAL METALS 4oz / 8oz / 16oz | | | | | | | | | | |
| PT CYANIDE | | | | | | | | | | |
| PT NITROGEN FORMS | A | | | | | | | | | |
| PT TOTAL SULFIDE | | | | | | | | | | |
| 2oz. NITRATE / NITRITE | | | | | | | | | | |
| PT TOTAL ORGANIC CARBON | | | | | | | | | | |
| PT CHEMICAL OXYGEN DEMAND | | | | | | | | | | |
| PtA PHENOLICS | | | | | | | | | | |
| 40ml VOA VIAL TRAVEL BLANK | | | | | | | | | | |
| 40ml VOA VIAL | | | | | | | | | | |
| QT EPA 1664 | | | | | | | | | | |
| PT ODOR | | | | | | | | | | |
| RADIOLOGICAL | | | | | | | | | | |
| BACTERIOLOGICAL | | | | | | | | | | |
| 40 ml VOA VIAL- 504 | | | | | | | | | | |
| QT EPA 508/608/8080 | | | | | | | | | | |
| QT EPA 515.1/8150 | | | | | | | | | | |
| QT EPA 525 | | | | | | | | | | |
| QT EPA 525 TRAVEL BLANK | | | | | | | | | | |
| 40ml EPA 547 | | | | | | | | | | |
| 40ml EPA 531.1 | | | | | | | | | | |
| 2oz EPA 548 | | | | | | | | | | |
| QT EPA 549 | | | | | | | | | | |
| PT EPA 8015M | | | | | | | | | | |
| PT EPA 8270 | | | | | | | | | | |
| oz / 16oz / 32oz AMBER | | | | | | | | | | |
| oz / 16oz / 32oz JAR | | | | | | | | | | |
| OIL SLEEVE | | | | | | | | | | |
| CB VIAL | | | | | | | | | | |
| LASTIC BAG | | | | | | | | | | |
| EDLAR BAG | | | | | | | | | | |
| ERROUS IRON | | | | | | | | | | |
| NCORE | | | | | | | | | | |
| MART KIT | | | | | | | | | | |
| JMMA CANISTER | | | | | | | | | | |

mments:
mple Numbering Completed By: RML Date/Time: 12/3/20 1052
= Actual / C = Corrected

Rev 21 05/23/2016
S:\WPDocs\WordPerfect\LAB_DOCS\FORMS\SAMREC.rev 20

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

**Reported:** 12/11/2020 19:02
Project: Level IV + labSpec7
Project Number: N043210
Project Manager: Marlon B. Cartin

# Laboratory / Client Sample Cross Reference

| Laboratory | Client Sample Information | | | |
|---|---|---|---|---|
| **2035332-01** | **COC Number:** | --- | **Receive Date:** | 12/03/2020 10:00 |
| | **Project Number:** | --- | **Sampling Date:** | 12/01/2020 12:45 |
| | **Sampling Location:** | --- | **Sample Depth:** | --- |
| | **Sampling Point:** | N043210-002A / SC-700B-WDR-610 | **Lab Matrix:** | Water |
| | **Sampled By:** | --- | **Sample Type:** | Water |

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

**Reported:** 12/11/2020 19:02
Project: Level IV + labSpec7
Project Number: N043210
Project Manager: Marlon B. Cartin

# Water Analysis (General Chemistry)

**BCL Sample ID:** 2035332-01 | **Client Sample Name:** N043210-002A / SC-700B-WDR-610, 12/1/2020 12:45:00PM

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

| Run # | Method | Prep Date | Run Date/Time | Analyst | Instrument | Dilution | QC Batch ID | Prep Method |
|---|---|---|---|---|---|---|---|---|
| 1 | SM-4500-NH3G | 12/11/20 08:15 | 12/11/20 14:20 | JMH2 | SC-2 | 1.033 | B094828 | SM 4500-NH3G |

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

**Reported:** 12/11/2020 19:02
Project: Level IV + labSpec7
Project Number: N043210
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 |
|---|---|---|---|---|---|
| **QC Batch ID: B094828** | | | | | |
| Ammonia as N (Distilled) | B094828-BLK1 | ND | mg/L | 0.20 | |

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

**Reported:** 12/11/2020 19:02
Project: Level IV + labSpec7
Project Number: N043210
Project Manager: Marlon B. Cartin

# Water Analysis (General Chemistry)

## Quality Control Report - Laboratory Control Sample

| Constituent | QC Sample ID | Type | Result | Spike Level | Units | Percent Recovery | RPD | Control Limits Percent Recovery | Control Limits RPD | Lab Quals |
|---|---|---|---|---|---|---|---|---|---|---|
| **QC Batch ID: B094828** | | | | | | | | | | |
| Ammonia as N (Distilled) | B094828-BS1 | LCS | 1.9620 | 2.0000 | mg/L | 98.1 | | 85 - 115 | | |

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

**Reported:** 12/11/2020 19:02
Project: Level IV + labSpec7
Project Number: N043210
Project Manager: Marlon B. Cartin

# Water Analysis (General Chemistry)

## Quality Control Report - Precision & Accuracy

| Constituent | Type | Source Sample ID | Source Result | Result | Spike Added | Units | RPD | Percent Recovery | Control Limits RPD | Control Limits Percent Recovery | Lab Quals |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **QC Batch ID: B094828** | Used client sample: Y - Description: N043210-002A / SC-700B-WDR-610, 12/01/2020 12:45 | | | | | | | | | | |
| Ammonia as N (Distilled) | DUP | 2035332-01 | ND | ND | | mg/L | | | 20 | | |
| | MS | 2035332-01 | ND | 2.1893 | 2.2945 | mg/L | | 95.4 | | 80 - 120 | |
| | MSD | 2035332-01 | ND | 2.1711 | 2.2945 | mg/L | 0.8 | 94.6 | 20 | 80 - 120 | |

Date of Report: 12/17/2020

Marlon B. Cartin

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

| | |
|---|---|
| Client Project: | N043210 |
| BCL Project: | Level IV + labSpec7 |
| BCL Work Order: | 2036095 |
| Invoice ID: | B401305 |

Enclosed are the results of analyses for samples received by the laboratory on 12/8/2020. 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

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

# CHAIN-OF-CUSTODY RECORD



20-36095

**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

**08-Dec-20**

| Sample ID | Matrix | Date Collected | Bottle Type | Requested Tests | | |
|---|---|---|---|---|---|---|
| | | | | SM4500-NO3F | | |
| N043210-002D / SC-700B-WDR-610 | Water | 12/1/2020 12:45:00 PM | 8OZP | 1 | | |

CHK BY DISTRIBUTION
SUB OUT

General Comments: PLEASE EMAIL SAMPLE RECEIPT ACKNOWLEDGEMENT TO THE PM. ALWAYS CC: sonny.lorenzo@assetlaboratories.com

Please use PO#:N43210B 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 Nitrate/Nitrite by SM4500NO3F. EDD Requirement Labspec7 edata.

GSO #: 551447082 / 551447083

| | | Date/Time | | | Date/Time |
|---|---|---|---|---|---|
| Relinquished by: | YRJ | 12/7/2020 1630 | Received by: | | 12-8-20 925 |
| Relinquished by: | | | Received by: | | |

**Chain of Custody and Cooler Receipt Form for 2036095 Page 2 of 2**

BC LABORATORIES INC. COOLER RECEIPT FORM Page 1 Of 1

Submission #: 20-36095

SHIPPING INFORMATION
Fed Ex ☐ UPS ☐ Ontrac ☐ Hand Delivery ☐
BC Lab Field Service ☐ Other ☒ (Specify) GLS

SHIPPING CONTAINER
Ice Chest ☒ None ☐ Box ☐
Other ☐ (Specify)

FREE LIQUID
YES ☐ NO ☐
W / S

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

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

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

COC Received ☒ YES ☐ NO

Emissivity: .97 Container: PE Thermometer ID: 274 Date/Time 12-8-20 925

Temperature: (A) 2.1 °C / (C) 1.9 °C Analyst Init TKJ

| SAMPLE CONTAINERS | SAMPLE NUMBERS 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| QT PE UNPRES | | | | | | | | | | |
| 4oz / 8oz / 16oz PE UNPRES | | | | | | | | | | |
| 2oz $Cr^{+6}$ | | | | | | | | | | |
| QT INORGANIC CHEMICAL METALS | | | | | | | | | | |
| INORGANIC CHEMICAL METALS 4oz / 8oz / 16oz | | | | | | | | | | |
| PT CYANIDE | | | | | | | | | | |
| PT NITROGEN FORMS | | | | | | | | | | |
| PT TOTAL SULFIDE | | | | | | | | | | |
| 2oz. NITRATE / NITRITE 10H 12B | A | | | | | | | | | |
| PT TOTAL ORGANIC CARBON | | | | | | | | | | |
| PT CHEMICAL OXYGEN DEMAND | | | | | | | | | | |
| PtA PHENOLICS | | | | | | | | | | |
| 40ml VOA VIAL TRAVEL BLANK | | | | | | | | | | |
| 40ml VOA VIAL | | | | | | | | | | |
| QT EPA 1664 | | | | | | | | | | |
| PT ODOR | | | | | | | | | | |
| RADIOLOGICAL | | | | | | | | | | |
| BACTERIOLOGICAL | | | | | | | | | | |
| 40 ml VOA VIAL- 504 | | | | | | | | | | |
| QT EPA 508/608/8080 | | | | | | | | | | |
| QT EPA 515.1/8150 | | | | | | | | | | |
| QT EPA 525 | | | | | | | | | | |
| QT EPA 525 TRAVEL BLANK | | | | | | | | | | |
| 40ml EPA 547 | | | | | | | | | | |
| 40ml EPA 531.1 | | | | | | | | | | |
| 4oz EPA 548 | | | | | | | | | | |
| QT EPA 549 | | | | | | | | | | |
| PT EPA 8015M | | | | | | | | | | |
| PT EPA 8270 | | | | | | | | | | |
| 4oz / 16oz / 32oz AMBER | | | | | | | | | | |
| 4oz / 16oz / 32oz JAR | | | | | | | | | | |
| VOIL SLEEVE | | | | | | | | | | |
| VOB VIAL | | | | | | | | | | |
| PLASTIC BAG | | | | | | | | | | |
| KEDLAR BAG | | | | | | | | | | |
| FERROUS IRON | | | | | | | | | | |
| ENCORE | | | | | | | | | | |
| TEMART KIT | | | | | | | | | | |
| SUMMA CANISTER | | | | | | | | | | |

Comments:

Sample Numbering Completed By: PRE Date/Time: 12/9/20 PRE 12/9 1750

A = Actual / C = Corrected

Rev 21 05/23/2016

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

**Reported:** 12/17/2020 16:17
Project: Level IV + labSpec7
Project Number: N043210
Project Manager: Marlon B. Cartin

# Laboratory / Client Sample Cross Reference

| Laboratory | Client Sample Information | | | |
|---|---|---|---|---|
| **2036095-01** | **COC Number:** | --- | **Receive Date:** | 12/08/2020 09:25 |
| | **Project Number:** | --- | **Sampling Date:** | 12/01/2020 12:45 |
| | **Sampling Location:** | --- | **Sample Depth:** | --- |
| | **Sampling Point:** | N043210-002D / SC-700B-WDR-610 | **Lab Matrix:** | Water |
| | **Sampled By:** | Client | **Sample Type:** | Water |

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# Water Analysis (General Chemistry)

**BCL Sample ID:** 2036095-01 | **Client Sample Name:** N043210-002D / SC-700B-WDR-610, 12/1/2020 12:45:00PM, Client

| Constituent | Result | Units | RL | Method | MB Bias | Lab Quals | Run # |
|---|---|---|---|---|---|---|---|
| **Nitrate/Nitrite as N** | **2.8** | **mg/L** | **0.10** | **EPA-353.2** | ND | | 1 |

| Run # | Method | Prep Date | Run Date/Time | Analyst | Instrument | Dilution | QC Batch ID | Prep Method |
|---|---|---|---|---|---|---|---|---|
| 1 | EPA-353.2 | 12/14/20 06:51 | 12/16/20 14:45 | JMH2 | SC-1 | 1 | B094943 | No Prep |

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# Water Analysis (General Chemistry)

## Quality Control Report - Method Blank Analysis

| Constituent | QC Sample ID | MB Result | Units | RL | Lab Quals |
|---|---|---|---|---|---|
| **QC Batch ID: B094943** | | | | | |
| Nitrate/Nitrite as N | B094943-BLK1 | ND | mg/L | 0.10 | |

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# Water Analysis (General Chemistry)

## Quality Control Report - Laboratory Control Sample

| Constituent | QC Sample ID | Type | Result | Spike Level | Units | Percent Recovery | RPD | Control Limits Percent Recovery | Control Limits RPD | Lab Quals |
|---|---|---|---|---|---|---|---|---|---|---|
| **QC Batch ID: B094943** | | | | | | | | | | |
| Nitrate/Nitrite as N | B094943-BS1 | LCS | 2.0560 | 2.0000 | mg/L | 103 | | 90 - 110 | | |

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# Water Analysis (General Chemistry)

## Quality Control Report - Precision & Accuracy

| Constituent | Type | Source Sample ID | Source Result | Result | Spike Added | Units | RPD | Percent Recovery | Control Limits RPD | Control Limits Percent Recovery | Lab Quals |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **QC Batch ID: B094943** | Used client sample: N | | | | | | | | | | |
| **Nitrate/Nitrite as N** | DUP | **2036295-06** | **11.778** | **11.204** | | **mg/L** | **5.0** | | **10** | | |
| | MS | **2036295-06** | **11.778** | **13.832** | **2.1053** | **mg/L** | | **97.6** | | **90 - 110** | |
| | MSD | **2036295-06** | **11.778** | **14.206** | **2.1053** | **mg/L** | **2.7** | **115** | **10** | **90 - 110** | **A03** |

# 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 | 700B-607 | 9-1-20 | 9:25 | 9-1-20 | 9:31 | HQ440d | 9-1-20 | 0000 | -56.44 | Ryan Phelps | 6.96 |
| | Notes: | | | | | | | | | | |
| 2 | SC-100B-607 | 9-1-20 | 9:35 | 9-1-20 | 9:39 | HQ440d | 9-1-20 | 0000 | -56.44 | Ryan Phelps | 7.03 |
| | Notes: | | | | | | | | | | |
| 3 | SC-700B-608 | 10-7-20 | 12:20 | 10-7-20 | 12:29 | HQ440D | 10-7-20 | 0000 | -57.42 | Brian Terhune | 7.13 |
| | Notes: | | | | | | | | | | |
| 4 | SC-100B-608 | 10-7-20 | 12:22 | 10-7-20 | 12:33 | HQ440D | 10-7-20 | 0000 | -57.42 | Brian Terhune | 7.07 |
| | Notes: | | | | | | | | | | |
| 5 | SC-701-608 | 10-7-20 | 12:30 | 10-7-20 | 12:40 | HQ440D | 10-7-20 | 0000 | -57.42 | Brian Terhune | 7.82 |
| | Notes: | | | | | | | | | | |
| 6 | SC-700B-609 | 11-3-20 | 1225 | 11-3-20 | 1229 | HQ440D | 11-3-20 | ~~0109~~ 0032 CS | ~~-57.96~~ -58.27 CS | Cameron Stone | 7.19 |
| | Notes: | | | | | | | | | | |
| 7 | SC-100B-609 | 11-3-20 | 1230 | 11-3-20 | 1231 | HQ440D | 11-3-20 | 0032 | -58.27 | Cameron Stone | 7.16 |
| | 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-610 | 12-1-20 | 1245 | 12-1-20 | 1254 | HQ 440D | 12-1-20 | 0000 | 10 | Cameron Stone | 6.99 |
| | Notes: | | | | | | | | | | |
| 2 | SC-100C-610 | 12-1-20 | 1245 | 12-1-20 | 1256 | HQ 440D | 12-1-20 | 0000 | 10 | Cameron Stone | 7.12 |
| | Notes: | | | | | | | | | | |
| 3 | | | | | | | | | | | |
| | Notes: | | | | | | | | | | |
| 4 | | | | | | | | | | | |
| | Notes: | | | | | | | | | | |
| 5 | | | | | | | | | | | |
| | Notes: | | | | | | | | | | |
| 6 | | | | | | | | | | | |
| | Notes: | | | | | | | | | | |
| 7 | | | | | | | | | | | |
| | Notes: | | | | | | | | | | |

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