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October 15, 2018

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Subject: Topock IM-3 Third Quarter 2018 Monitoring Report

PG&E Topock Compressor Station, Needles, California Interim Measure No. 3 Groundwater Treatment System

(Document ID: PGE20181015A)

Dear Ms. Innis and Mr. Stormo:

Enclosed is the Third Quarter 2018 Monitoring Report for the Pacific Gas and Electric Company (PG&E) Topock Compressor Station, Interim Measure No. 3 (IM-3) Groundwater Treatment System.

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

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

The IM-3 groundwater extraction and treatment system has extracted and treated approximately 875,573,176 gallons of water and removed approximately 7,500 pounds of total chromium from August 1, 2005 through September 30, 2018.

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

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

Sincerely,

Curt Russell

Topock Site Manager

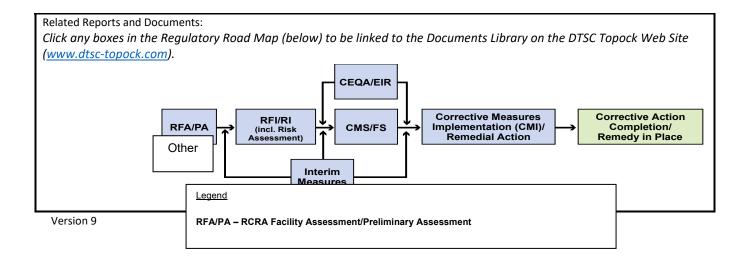
Enclosures:

Topock IM-3 Third Quarter 2018 Monitoring Report

cc: Aaron Yue, California Department of Toxic Substances Control

Topock Project Executive Abstract				
Document Title:	Date of Document: October 15, 2018			
Topock IM-3 Third Quarter 2018 Monitoring Report	Who Created this Document?: (i.e. PG&E, DTSC, DOI, Other)			
Submitting Agency/Authored by: U.S. Department of the Interior and Regional Water Quality Control Board	PG&E			
Final Document? X Yes No	Document ID Number:			
	PGE20181015A			
Priority Status: HIGH MED LOW Is this time critical? Yes No Type of Document: Draft Report Letter Memo Other / Explain:	Action Required: Information Only Review & Comment Return to: By Date: Other / Explain:			
What does this information pertain to? Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA)/Preliminary Assessment (PA) RCRA Facility Investigation (RFI)/Remedial Investigation (RI) (including Risk Assessment) Corrective Measures Study (CMS)/Feasibility Study (FS) Corrective Measures Implementation (CMI)/Remedial Action California Environmental Quality Act (CEQA)/Environmental Impact Report (EIR) Interim Measures Other / Explain:	Is this a Regulatory Requirement? Yes No If no, why is the document needed?			
What is the consequence of NOT doing this item? What is the consequence of DOING this item?	Other Justification/s: Permit Other / Explain:			
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.				
Brief Summary of attached document:				
Quarter 2018 period. The groundwater monitoring results fo CW-2M/D, CW-3M/D, and CW-4M/D will be submitted under Program.				
Written by: PG&E Recommendations:				
This report is for your information only.				
How is this information related to the Final Remedy or Regulatory R	Requirements?			
IM-3 groundwater treatment system as authorized by the U.S Applicable or Relevant and Appropriate Requirements (ARAR issued July 26, 2011 from the Colorado River Basin Regional V and the subsequent Letter of Concurrence issued August 18,	Rs) as documented in Attachment A to the Letter Agreement Water Quality Control Board (Regional Water Board) to DOI,			
Other requirements of this information? None.				
None.				

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Third Quarter 2018 Monitoring Report Interim Measure No. 3 Groundwater Treatment System

PG&E Topock Compressor Station Needles, California

Document ID: PGE20181015A

October 15, 2018

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





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Third Quarter 2018 Monitoring Report Interim Measure No. 3 Groundwater Treatment System

PG&E Topock Compressor Station Needles, California

Prepared for

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

on behalf of

Pacific Gas and Electric Company

October 15, 2018

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

Dennis Fink, P.E. Project Engineer

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Acronyms and Abbreviations

ARARs Applicable or Relevant and Appropriate Requirements

ASSET Laboratories

DOI United States Department of the Interior

gpm gallons per minute

HMI human-machine interface

IM Interim Measure

IW injection well

MRP Monitoring and Reporting Program

PG&E Pacific Gas and Electric Company

PLC programmable logic controller

PST Pacific Standard Time

Regional Water Board Colorado River Basin Regional Water Quality Control Board

RO reverse osmosis

Truesdail Laboratories, Inc.

WDR Waste Discharge Requirements

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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 Third Quarter 2018. 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.

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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.

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3. Description of Activities

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

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

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

During the Third Quarter 2018, extraction wells TW-3D operated at a target pumping rate of 135 gallons per minute (gpm), excluding periods of planned and unplanned downtime. Extraction well PE-01 was only operated to collect a sample, and extraction wells TW-2D and TW-2S were not operated during 3Q 2018. The recorded operational run time for the IM-3 groundwater extraction system (combined or individual pumping), by month, was approximately:

- 87.9 percent during July 2018
- 79.8 percent during August 2018
- 99.1 percent during September 2018

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

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

Activities during the Third Quarter 2018 are detailed in Section 4.

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4. Groundwater Treatment System Flow Rates

The Third Quarter 2018 treatment system monthly average flow rates (influent, effluent, and RO concentrate) are presented in Table 2.

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

The IM-3 facility treated approximately 15,926,867 gallons of extracted groundwater during the Third Quarter 2018. Two containers of solids (sludge) were transported offsite from the IM-3 facility during Third Quarter 2018.

Periods of planned and unplanned extraction system downtime (that together resulted in approximately 11.1 percent downtime during Third Quarter 2018) are summarized below. The times shown are in Pacific Standard Time (PST) to be consistent with other data collected (e.g., water level data) at the site.

4.1 July 2018

During July 2018, extraction well TW-3D operated at a target pump rate of 135 gpm excluding periods of planned and unplanned downtime. Extraction wells TW-2D and TW-2S were not operated during July 2018. Extraction well PE-01 was only operated to collect a sample. The operational run time for the IM-3 groundwater extraction system (combined or individual pumping) was 87.9 percent during the July 2018 reporting period.

The IM-3 facility treated approximately 5,314,668 gallons of extracted groundwater during July 2018. The IM-3 facility did not treat purge water during July 2018. No containers of solids from the IM-3 facility were transported offsite during July 2018.

Periods of planned and unplanned extraction system downtime (that together resulted an approximately 12.1 percent downtime during July 2018) are summarized below.

- **July 1 2, 2018 (unplanned):** The extraction well system was offline from 11:56 p.m. July 1, 2018 to 8:10 a.m. July 2, 2018 because the starter failed to the Raw Water Feed Pump (P-200). Extraction system downtime was 8 hours 14 minutes.
- **July 3, 2018 (unplanned):** The extraction well system was offline from 10:38 a.m. to 12:02 p.m. to change out the microfilter modules in the east bank. Extraction system downtime was 1 hour 24 minutes.
- **July 5, 2018 (unplanned):** The extraction well system was offline from 12:16 p.m. to 1:06 p.m. to lower levels at Iron Oxidation Reactor #3 (T-301C) and Raw Water Storage Tank (T-100). Extraction system downtime was 50 minutes.
- **July 9, 2018 (unplanned):** The extraction well system was offline from 9:12 p.m. to 9:20 p.m. The plant operator switched from Needles Power to the generator power because there was a thunderstorm. Extraction system downtime was 8 minutes.
- **July 10, 2018 (unplanned):** The extraction well system was offline from 2:42 p.m. to 2:48 p.m. The plant operator switched back to Needles Power from generator power because the thunderstorm ended. Extraction system downtime was 6 minutes.
- **July 11, 2018 (planned):** The extraction well system was offline from 9:38 a.m. to 11:36 a.m. due to testing of the pipeline critical alarms and leak detection system. Extraction system downtime was 1 hour 58 minutes.

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- July 13, 2018 (unplanned): The extraction well system was offline from 7:30 a.m. to 8:22 a.m. to maintain appropriate water levels in T-100. There was a high level in T-100 because of the heavy rinse needed to clean the extremely dirty modules. The rinse water went from Process Drain Tank (T-900), which is the normal process. Extraction system downtime was 52 minutes.
- **July 14, 2018 (unplanned):** The extraction well system was offline from 4:56 a.m. to 7:24 a.m. to change out the microfilter modules. Extraction system downtime was 2 hours 28 minutes.
- **July 16, 2018 (unplanned):** The extraction well system was offline from 5:40 a.m. to 7:42 a.m. to maintain appropriate water levels in T-100. Extraction system downtime was 2 hours 2 minutes.
- **July 16-17, 2018 (unplanned):** The extraction well system was offline from 12:32 p.m. July 16, 2018 to 6:46 p.m. July 17, 2018 because one of the airline ports on the header of the microfilter cracked. The microfilter cannot run without the airline functioning properly so the operators had to drive to Riverside, California for the repair. Extraction system downtime was 1 day 6 hours 14 minutes.
- **July 18, 2018 (planned):** The extraction well system was offline from 6:56 a.m. to 1:10 p.m. to replace the pre-treated Water Transfer Pump (P-500) and valve #5 (valve that controls flow on the microfilter). Extraction system downtime was 6 hours 14 minutes.
- **July 19, 2018 (unplanned):** The extraction well system was offline from 11:22 a.m. to 2:50 p.m. to clean the hand operated valve on the discharge of P-500. Extraction system downtime was 3 hours 28 minutes.
- **July 20-21, 2018 (unplanned):** The extraction well system was offline from 7:04 a.m. to 8:32 a.m. on July 20, 2018, and from 5:24 a.m. to 7:06 a.m. and from 6:12 p.m. to 7:46 p.m. on July 21, 2018 to maintain appropriate water levels in T-100. Extraction system downtime was 4 hours 44 minutes.
- **July 21, 2018 (unplanned):** The extraction well system was offline from 8:18 a.m. to 8:30 a.m., from 9:02 a.m. 9:10 a.m., and from 2:12 p.m. to 2:30 p.m. due to Needles Power loss, switching to generator power, and switching back to Needles Power. Extraction system downtime was 38 minutes.
- **July 22-23, 2018 (unplanned):** The extraction well system was offline from 3:30 p.m. to 4:22 p.m. on July 22, 2018 and from 4:28 a.m. to 5:30 a.m. on July 23, 2018 to maintain appropriate water levels in T-100. Extraction system downtime was 1 hour 54 minutes.
- **July 23, 2018 (unplanned):** The extraction well system was offline from 9:50 a.m. to 11:18 a.m. to change out the microfilter modules. Extraction system downtime was 1 hour 28 minutes.
- July 24, 2018 (unplanned): The extraction well system was offline from 3:18 a.m. to 3:36 a.m. due to a programmable logic controller (PLC) and human machine interface (HMI) connectivity issue. Extraction system downtime was 18 minutes.
- **July 24, 2018 (unplanned):** The extraction well system was offline from 4:24 a.m. to 5:56 a.m. to maintain appropriate water levels in T-100. Extraction system downtime was 1 hour 32 minutes.
- **July 25, 2018 (unplanned):** The extraction well system was offline from 11:30 a.m. to 12:52 p.m. due to a pipe blockage at the top of the chemical loop. Plant was shut down to clean the blockage. Extraction system downtime was 1 hour 22 minutes.
- **July 25, 2018 (unplanned):** The extraction well system was offline from 4:06 p.m. to 5:26 p.m. due to a blockage in the pipeline on the discharge of P-500, which feeds the microfilter. This was causing flow problems throughout the plant. Operators had to drain Pretreated Water Tank (T-500), which filled Process Drain Tank (T-900) and T-100. Plant was shut down to clean the blockage. Extraction system downtime was 1 hour 20 minutes.
- **July 26, 2018 (unplanned):** The extraction well system was offline from 10:36 p.m. to 10:54 p.m. due to extraction well TW-3D shutting off automatically because of high levels at T-100. Extraction system downtime was 18 minutes.
- **July 27, 2018 (unplanned):** The extraction well system was offline from 4:48 a.m. to 5:08 a.m. and from 10:20 a.m. to 10:46 a.m. due to a PLC and HMI connectivity issue. Extraction system downtime was 46 minutes.



- July 27-28, 2018 (unplanned): The extraction well system was offline from 10:48 a.m. to 11:50 a.m. on July 27, 2018 and from 4:58 a.m. to 5:54 a.m. on July 28, 2018 to maintain appropriate water levels in T-100. Extraction system downtime was 1 hour 58 minutes.
- **July 28-29, 2018 (unplanned):** The extraction well system was offline from 9:26 p.m. to 9:38 p.m. on July 28, 2018 and from 0:16 a.m. to 0:30 a.m. on July 29, 2018 due to a PLC and HMI connectivity issue. Extraction system downtime was 26 minutes.
- July 29, 2018 (unplanned): The extraction well system was offline from 5:58 a.m. to 9:12 a.m., from 9:50 a.m. to 10:14 a.m., and from 10:20 a.m. to 10:46 a.m. due a microfilter air valve not working. An air controller on the microfilter faulted and need to be reset and reprogrammed. Extraction system downtime was 4 hour 4 minutes.
- **July 29-31, 2018 (unplanned):** The extraction well system was offline from 1:14 a.m. to 2:38 a.m. and from 7:44 p.m. to 9:34 p.m. on July 29, 2018, and from 1:48 a.m. to 2:58 a.m. on July 31, 2018 to maintain appropriate water levels in T-100. Extraction system downtime was 4 hours 24 minutes.
- July 31, 2018 (unplanned): The extraction well system was offline from 8:08 a.m. to 9:50 a.m. and from 10:02 a.m. to 3:04 p.m. due to the Clarifier Feed Pump (P-400) shutting down which caused high levels in all the oxidation tanks at the front of the plant. Extraction system downtime was 6 hours 44 minutes.

4.2 August 2018

During August 2018, extraction well TW-3D operated at a target pump rate of 135 gpm excluding periods of planned and unplanned downtime. Extraction wells TW-2D and TW-2S were not operated during August 2018. Extraction well PE-01 was only operated to collect a sample. The operational run time for the IM-3 groundwater extraction system (combined or individual pumping) was 79.8 percent during the August 2018 reporting period.

The IM-3 facility treated approximately 4,840,351 gallons of extracted groundwater during August 2018. The IM-3 facility did not treat purge water during August 2018. Two containers of solids from the IM-3 facility were transported offsite during August 2018.

Periods of planned and unplanned extraction system downtime (that together resulted an approximately 20.2 percent downtime during August 2018) are summarized below

- August 1 2, 2018 (unplanned): The extraction well system was offline from 12:08 p.m. to 1:02 p.m. and from 7:46 p.m. to 9:06 p.m. on August 1, 2018, and from 11:30 a.m. to 12:16 p.m. on August 2, 2018 to maintain appropriate water levels in Raw Water Storage Tank (T-100). There was a blockage in the microfilters that caused the water levels to be high in T-100. Plant was shut down to clean the blockage. Extraction system downtime was 3 hours.
- August 3 4, 2018 (unplanned): The extraction well system was offline from 3:26 a.m. to 5:46 a.m. on August 3, 2018, and from 1:26 a.m. to 2:24 a.m. and from 2:40 a.m. to 5:30 a.m. on August 4, 2018 to maintain appropriate water levels in T-100. A high level in Raw Water Storage Tank (T-500) caused the Clarifier Feed Pump (P-400) to shut down, which caused the high level in T-100. Extraction system downtime was 6 hours 8 minutes.
- August 4, 2018 (unplanned): The extraction well system was offline from 11:38 p.m. to 11:50 p.m. due to a PLC and HMI connectivity issue. Extraction system downtime was 12 minutes.
- August 5, 2018 (unplanned): The extraction well system was offline from 4:58 a.m. to 6:30 a.m. to maintain appropriate water levels in Raw Water Storage Tank (T-100). There was a blockage in the microfilters that cause the water levels to be high in T-100. The plant was shut down to clean the blockage. Extraction system downtime was 1 hour 32 minutes.
- August 5, 2018 (unplanned): The extraction well system was offline from 2:44 p.m. to 3:58 p.m. because the air compressor overheated and shut down due to extreme weather temperatures. Extraction system downtime was 1 hour 14 minutes.



- August 6, 2018 (planned): The extraction well system was offline from 2:54 a.m. to 4:06 a.m. to lower the level in T-100 in preparation for the semiannual scheduled maintenance. Extraction system downtime was 1 hour 12 minutes.
- August 6-10, 2018 (planned): The extraction well system was offline from 6:18 a.m. August 6, 2018 to 6:52 a.m. August 10, 2018 for the semiannual scheduled maintenance. Extraction system downtime was 4 days 34 minutes.
- August 10, 2018 (planned): The extraction well system was offline from 9:32 a.m. to 11:26 a.m., from 12:04 p.m. to 4:18 p.m., from 4:40 p.m. to 5:48 p.m., from 6:06 p.m. to 10:32 p.m., and from 10:44 p.m. to 11:52 p.m. as part of the semiannual scheduled maintenance. Plant operators were filling tanks and testing the water before moving on to the next step. Extraction system downtime was 12 hours 50 minutes.
- August 11 13, 2018 (unplanned): The extraction well system was offline from 11:32 p.m. August 11, 2018 to 1:18 a.m. August 12, 2018 and from 10:54 p.m. August 12, 2018 to 12:26 a.m. August 13, 2018 to maintain appropriate water levels in T-100. There was a blockage in the microfilters that caused the water levels to be high in T-100. The plant was shut down to clean the blockage. Extraction system downtime was 3 hours 18 minutes.
- August 14, 2018 (unplanned): The extraction well system was offline from 12:02 p.m. to 1:04 p.m. to change out the microfilter modules. Extraction system downtime was 1 hour 2 minutes.
- August 14, 2018 (unplanned): The extraction well system was offline from 5:48 p.m. to 6:10 p.m. due to a PLC and HMI connectivity issue. Extraction system downtime was 22 minutes.
- August 14, 2018 (unplanned): The extraction well system was offline from 7:00 p.m. to 8:20 p.m. to
 maintain appropriate water levels in T-100. There was a blockage in the microfilters that caused the
 water levels to be high in T-100. Plant was shut down to clean the blockage. Extraction system
 downtime was 1 hour 20 minutes.
- August 15, 2018 (unplanned): The extraction well system was offline from 12:06 a.m. to 3:24 a.m. because the plant was put in recirculation. Extraction system downtime was 3 hours 18 minutes.
- August 16, 2018 (unplanned): The extraction well system was offline from 5:42 p.m. to 6:00 p.m. to
 maintain appropriate water levels in T-100. There was a blockage in the microfilters that caused the
 water levels to be high in T-100. Plant was shut down to clean the blockage. Extraction system
 downtime was 18 minutes.
- August 17, 2018 (unplanned): The extraction well system was offline from 12:08 a.m. to 12:20 a.m. and from 5:06 a.m. to 6:08 a.m. to maintain appropriate water levels in T-100. There was a blockage in the microfilters that caused the water levels to be high in T-100. The plant was shut down to clean the blockage. Extraction system downtime was 1 hour 14 minutes.
- August 18, 2018 (unplanned): The extraction well system was offline from 8:16 a.m. to 9:00 a.m. to
 maintain appropriate water levels in T-100. There was a blockage in the microfilters that caused the
 water levels to be high in T-100. Plant was shut down to clean the blockage. Extraction system
 downtime was 44 minutes.
- August 19, 2018 (unplanned): The extraction well system was offline from 12:02 a.m. to 12:22 a.m. and from 4:56 a.m. to 6:16 a.m. to maintain appropriate water levels in T-100. There was a blockage in the microfilters that caused the water levels to be high in T-100. Plant was shut down to clean the blockage. Extraction system downtime was 1 hour 40 minutes.
- August 20, 2018 (unplanned): The extraction well system was offline from 12:08 p.m. to 1:38 p.m. because the pH probes in Iron Oxidation Reactor No. 2 (T-301B) were not reading properly. The plant was shut down to repair the probes. Extraction system downtime was 1 hour 30 minutes.
- August 21 22, 2018 (unplanned): The extraction well system was offline from 4:06 p.m. August 21, 2018 to 5:34 p.m. August 21, 2018 and from 10:02 p.m. August 22, 2018 to 11:32 p.m. August 22, 2018 to maintain appropriate water levels in T-100. There was a blockage in the microfilters that



caused the water levels to be high in T-100. Plant was shut down to clean the blockage. Extraction system downtime was 2 hours 58 minutes.

- August 23, 2018 (unplanned): The extraction well system was offline from 8:48 p.m. to 9:24 p.m. to maintain appropriate water levels in T-100. The Raw Water Feed Pump (P-200) shut down for an unknown reason and caused a high level in T-100. Extraction system downtime was 36 minutes.
- August 23, 2018 (unplanned): The extraction well system was offline from 10:42 p.m. to 10:54 p.m. due to a PLC and HMI connectivity issue. Extraction system downtime was 12 minutes.
- August 24, 2018 (unplanned): The extraction well system was offline from 10:12 a.m. to 12:00 p.m. to maintain appropriate water levels in T-100. There was a blockage in the microfilters that caused the water levels to be high in T-100. Plant was shut down to clean the blockage. Extraction system downtime was 1 hour 48 minutes.
- August 31, 2018 (unplanned): The extraction well system was offline from 5:26 a.m. to 12:20 p.m. because the air blower failed and needed to be replaced. Extraction system downtime was 6 hours 54 minutes.

4.3 **September 2018**

During September 2018, extraction well TW-3D operated at a target pump rate of 135 gpm excluding periods of planned and unplanned downtime. Extraction wells TW-2D and TW-2S were not operated during September 2018. Extraction well PE-01 was only operated to collect a sample. The operational run time for the IM-3 groundwater extraction system (combined or individual pumping) was 99.1 percent during the September 2018 reporting period.

The IM-3 facility treated approximately 5,771,849 gallons of extracted groundwater during September 2018. The IM-3 facility did not treat purge water during September 2018. No containers of solids from the IM-3 facility were transported offsite during September 2018.

Periods of planned and unplanned extraction system downtime (that together resulted an approximately 0.9 percent downtime during September 2018) are summarized below.

- **September 6, 2018 (unplanned):** The extraction well system was offline from 6:56 a.m. to 6:58 a.m., from 9:46 a.m. to 10:16 a.m., and from 10:20 a.m. to 10:22 a.m. due to a PLC and HMI connectivity issue. Extraction system downtime was 2 minutes.
- **September 15, 2018 (unplanned):** The extraction well system was offline from 8:40 a.m. to 10:04 a.m. to change out the microfilter modules. Extraction system downtime was 1 hour 24 minutes.
- September 22, 2018 (unplanned): The extraction well system was offline from 5:40 a.m. to 7:50 a.m. because the supplier ran out of hydrochloric acid, which caused a late acid delivery. The plant was shut down while the acid was in transit. Extraction system downtime was 2 hours 10 minutes.
- **September 23, 2018 (unplanned):** The extraction well system was offline from 3:20 p.m. to 4:24 p.m. to change out the microfilter modules. Extraction system downtime was 1 hour 4 minutes.
- **September 29, 2018 (unplanned):** The extraction well system was offline from 5:26 a.m. to 6:24 a.m. to change out the microfilter modules. Extraction system downtime was 58 minutes.

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5. Sampling and Analytical Procedures

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

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

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

During the Third Quarter 2018, analysis of pH was conducted by field method pursuant to the Regional Water Board letter dated October 16, 2007 (subject: Clarification of Monitoring and Reporting Program Requirements), authorizing pH measurements to be conducted in the field. The field method pH samples were collected at the designated sampling locations and field tested within 15 minutes of sampling.

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

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

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

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6. Analytical Results

Laboratory reports for samples collected in the Third Quarter 2018 were prepared by certified analytical laboratories, and are presented in Appendix A.

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

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

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

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

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7. Conclusions

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

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

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8. Certification

Certification Statement:

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

Signature:	behume
Name:	Curt Russell
Company:	Pacific Gas and Electric Company
Title:	Topock Site Manager
Date:	October 15, 2018

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T	a	bl	es
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Table 1. Sampling Station Descriptions

Third Quarter 2018 Monitoring Report for Interim Measure No. 3 Groundwater Treatment System

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

Note:

= Sequential sample identification number at each sample station.

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^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

Third Quarter 2018 Monitoring Report for Interim Measure No. 3 Groundwater Treatment System

Parameter	System Influent ^{a,b} (gpm)	System Effluent ^b (gpm)	Reverse Osmosis Concentrate ^b (gpm)
July 2018 Average Monthly Flowrate	5,314,668	5,250,583	19,253
August 2018 Average Monthly Flowrate	4,840,351	4,861,644	30,452
September 2018 Average Monthly Flowrate	5,771,849	5,771,849	28,521

Notes:

gpm: gallons per minute

- ^a Extraction well TW-3D was operated during the Third Quarter 2018. PE-01 was only operated to collect a sample. Extraction wells TW-2D and TW2S were not operated during Third Quarter 2018.
- ^b The difference between influent flow rate and the sum of the effluent and reverse osmosis concentrate flow rates during the Third Quarter 2018 is approximately 0.9 percent.

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Table 3. Sample Collection Dates

Third Quarter 2018 Monitoring Report for Interim Measure No. 3 Groundwater Treatment System

Parameter	Sample Collection Dates	Results
Influent	July 3, 2018 August 1, 2018	See Table 4
	September 4, 2018	
Effluent	July 3, 2018 August 1, 2018 August 10, 2018 September 4, 2018	See Table 5
Reverse Osmosis Concentrate	July 3, 2018	See Table 6
Sludge ^a	July 3, 2018	See Table 7

Notes:

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

TABLE 4 Topock IM-3 Waste Discharge Applicable or Relevant and Appropriate Requirements (ARARs) Influent Monitoring Results a Third Quarter 2018 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

Sampling Frequency			М	onthly										(Quarterly							
Analytes Units ^b	TDS mg/L	Turbidity NTU	Specific Conductance µmhos/cm	Field ^c pH pH units	Chromium μg/L	Hexavalent Chromium μg/L	Aluminium μg/L	Ammonia (as N) mg/L	Antimony μg/L	Arsenic μg/L	Barium μg/L	Boron mg/L	Copper μg/L	Fluorid mg/L	e Lead μg/L	Manganese μg/L	Molybdenum μg/L	Nickel μg/L	Nitrate/Nitrite (as N) mg/L	Sulfate mg/L	lron μg/L	Zinc μg/L
Sample ID Date	50.0	0.100	0.100		0.650	3.30	40.0	0.0780	0.160	0.0810	0.150	0.0740	0.550	0.0320	0.130	0.260	0.210	0.260	0.160	1.10	18.0	2.30
SC-100B-WDR-575 7/3/2018	4200	0.350	7000	7.4	480	490	ND (50.0)	ND (0.200)	ND (0.500)	3.10	28.0	1.00	ND (1.00)	2.70	ND (1.00)	6.90	21.0	ND (1.00)	2.80	500	ND (20.0)	ND (10.0)
RL	50.0	0.100	0.100		5.00	20.0	50.0	0.200	0.500	0.100	1.00	0.100	1.00	0.500	1.00	0.500	0.500	1.00	0.250	25.0	20.0	10.0
SC-100B-WDR-576 8/1/2018	4300	0.260	7100	7.4	490	480										11.0						
RL	50.0	0.100	0.100		5.00	20.0										0.500						
SC-100B-WDR-578 9/4/2018	4300	0.240	6800	7.5	530	490										7.50						
RL	50.0	0.100	0.100		5.00	20.0										0.500						

NOTES:

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

MDL = method detection limit

mg/L = milligrams per liter

N = nitrogen

ND = parameter not detected at the listed value

NTU = nephelometric turbidity units

RL = project reporting limit μg/L = micrograms per liter μmhos/cm = micromhos per centimeter

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^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.

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

TABLE 5
Topock IM-3 Waste Discharge Applicable or Relevant and Appropriate Requirements (ARARs)
Effluent Monitoring Results ^a
Third Quarter 2018 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

Effluent	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
Limits ^b	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
Sampl	oling Frequency											Monthly	1											
	Analytes	TDS	Turbidity	Specific Conductance	Field ^e pH	Chromium	Hexavalent Chromium	Aluminium	Ammonia (as N)	Antimony	Arsenic	Barium	Boron	Copper	Fluoride	Lead	Manganese	Molybdenum	Nickel	Nitrate/ (as		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
	MDLd	50.0	0.100	0.100		0.130	0.170	40.0	0.0500	0.160	0.0810	0.150	0.0740	0.550	0.0130	0.130	0.260	0.210	0.260	0.1	60	1.10	18.0	2.30
Sample ID	Date																							
SC-700B-WDR-5	575 7/3/2018	4200	0.280	7000	7.0	ND (1.00)	ND (1.00)	ND (50.0)	0.440	ND (0.500)	0.120	15.0	1.00	ND (1.00)) 2.40	ND (1.00)) 5.80	22.0	ND (1.00)	2.9	90	490	ND (20.0) ND (10.0)
RL		50.0	0.100	0.100		1.00	1.00	50.0	0.200	0.500	0.100	1.00	0.100	1.00	0.200	1.00	0.500	0.500	1.00	0.2	250	25.0	20.0	10.0
SC-700B-WDR-5	576 8/1/2018	4200	0.220	7000	7.5	ND (1.00)	ND (1.00)	ND (50.0)	ND (0.200)	ND (0.500)	0.170	14.0	0.970	ND (1.00)	J 2.30	ND (1.00)	3.50	21.0	ND (1.00)	2.6	60	470	23.0	ND (10.0)
RL		50.0	0.100	0.100		1.00	1.00	50.0	0.200	0.500	0.100	1.00	0.100	1.00	0.500	1.00	0.500	0.500	1.00	0.2	250	25.0	20.0	10.0
SC-700B-WDR-5	577 8/10/2018	4200	0.460 J	7300	7.7	ND (1.00)	ND (1.00)	ND (50.0)	ND (0.200)	ND (0.500)	0.120	15.0	0.970	ND (1.00)) 2.50	ND (1.00)) 14.0	26.0	ND (1.00)	2.6	60	470	33.0	ND (10.0)
RL		50.0	0.100	0.100		1.00	1.00	50.0	0.200	0.500	0.100	1.00	0.100	1.00	0.500	1.00	0.500	0.500	1.00	0.2	250	25.0	20.0	10.0
SC-700B-WDR-5	578 9/4/2018	4000	0.220	6800	7.3	ND (1.00)	ND (1.00)	ND (50.0)	ND (0.200)	ND (0.500)	ND (0.100)	19.0	1.10 J	ND (1.00)	J 2.30	ND (1.00)	5.50	22.0	3.10	2.7	70	460	ND (20.0	ND (10.0)
RL		50.0	0.100	0.100		1.00	1.00	50.0	0.200	0.500	0.100	1.00	0.100	1.00	0.500	1.00	0.500	0.500	1.00	0.2	250	25.0	20.0	10.0

NOTES:

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

J = concentration or reporting limits estimated by laboratory or validation

MDL = method detection limit

mg/L = milligrams per liter

N = nitrogen

NA = not applicable

ND = parameter not detected at the listed value

NTU = nephelometric turbidity units

RL = project reporting limit

μg/L = micrograms per liter

µmhos/cm = micromhos per centimeter

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^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.

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

TABLE 6

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

Reverse Osmosis Concentrate Monitoring Results ^a

Third Quarter 2018 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

Samplir	ng Frequency											Quarterl	у										
Sample ID	Analytes Units b MDL Date	TDS mg/L 500	Specific Conductance µmhos/cm 0.100	Field ^c pH pH units 	Chromium mg/L 0.00065	Hexavalent Chromium mg/L 0.00083	Antimony mg/L 0.00078	Arsenic mg/L 0.00041	Barium mg/L 0.00075	Beryllium mg/L 0.0011	Cadmium mg/L 0.00026	Cobalt mg/L 0.00021	Copper mg/L 0.0027	Fluoride mg/L 0.130	Lead mg/L 0.0032	Molybdenum mg/L 0.0054	mg/L 0.00013	Nickel mg/L 0.0013	Selenium mg/L 0.0018	Silver mg/L 0.0012	Thallium mg/L 0.0048	Vanadium mg/L 0.0014	Zinc mg/L 0.0110
SC-701-WDR-57	75 7/3/2018	44000 500	52000 0.100	8.1	0.00890 0.0050	ND (0.0050) N	ID (0.0025) 0.0025	0.00220 0.00050	0.180 0.0050	ND (0.0120) 0.0120	ND (0.0025)	ND (0.0025)) ND (0.005 0	0) 26.0 2.00	ND (0.025	0) 0.250 N	ND (0.00020) 0.00020	JND (0.0050 0.0050) 0.0480 0.0025	ND (0.002 9	5) ND (0.012 0.0120	0.0050) ND (0.0500) 0.0500

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

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

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

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

TABLE 7 Topock IM-3 Waste Discharge Applicable or Relevant and Appropriate Requirements (ARARs) Sludge Monitoring Results^a Third Quarter 2018 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

Sampling Frequency									Q	uarterly										Annually
Analytes Units b MDL Sample ID Date	Chromium mg/kg 0.790	Hexavalent Chromium mg/kg 0.710	Antimony mg/kg 0.800	Arsenic mg/kg 1.30	Barium mg/kg 0.760	Beryllium mg/kg 0.530	Cadmium mg/kg 0.650	Cobalt mg/kg 0.700	Copper mg/kg 2.20	Fluoride mg/kg 0.340	Lead mg/kg 0.720	Molybdenum mg/kg 0.730	Mercury mg/kg 0.0660	Nickel mg/kg 0.830	Selenium mg/kg 1.50	Silver mg/kg 1.50	Thallium mg/kg 0.860	Vanadium mg/kg 0.540	Zinc mg/kg 0.730	Bioassay % Survival at 750 mg/L ^c
Phase Separator-575-Sludge 7/3/2018	2900 J	90.0	20.0	16.0	53.0 J	ND (2.40)	3.30 J	3.30	110	43.0	ND (2.40)	3.40	ND (0.240)	23.0 J	ND (2.40)J	ND (2.40)J	6.10	31.0 J	48.0 J	100 100
RL	2.40	2.40	4.90	2.40	2.40	2.40	2.40	2.40	4.90	4.90	2.40	2.40	0.240	2.40	2.40	2.40	4.90	2.40	2.40	100

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

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^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
Topock IM-3 Waste Discharge Applicable or Relevant and Appropriate Requirements (ARARs)
Monitoring Information
Third Quarter 2018 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-575	Ryan Phelps	7/3/2018	9:51:00 AM	ASSET	EPA 120.1	SC	7/5/2018	Lilia Ramit
					ASSET	EPA 200.7	AL	7/16/2018	Claire Ignacio
					ASSET	EPA 200.7	В	7/16/2018	Claire Ignacio
					ASSET	EPA 200.7	FE	7/16/2018	Claire Ignacio
					ASSET	EPA 200.8	AS	7/12/2018	Claire Ignacio
					ASSET	EPA 200.8	BA	7/12/2018	Claire Ignacio
					ASSET	EPA 200.8	CR	7/12/2018	Claire Ignacio
					ASSET	EPA 200.8	CU	7/20/2018	Claire Ignacio
					ASSET	EPA 200.8	MN	7/12/2018	Claire Ignacio
					ASSET	EPA 200.8	MO	7/12/2018	Claire Ignacio
					ASSET	EPA 200.8	NI	7/20/2018	Claire Ignacio
					ASSET	EPA 200.8	PB	7/12/2018	Claire Ignacio
					ASSET	EPA 200.8	SB	7/12/2018	Claire Ignacio
					ASSET	EPA 200.8	ZN	7/12/2018	Claire Ignacio
					ASSET	EPA 218.6	CR6	7/5/2018	Ria Abes
					ASSET	EPA 300.0	FL	7/5/2018	Ria Abes
					ASSET	EPA 300.0	SO4	7/5/2018	Ria Abes
					Field	HACH	PH	7/3/2018	Ryan Phelps
					ASSET	SM 2540C	TDS	7/5/2018	Lilia Ramit
					ASSET	SM 4500-NO3F	NO3NO2N	7/6/2018	Quennie Manimtim
					ASSET	SM2130B	TRB	7/5/2018	Lilia Ramit
					BCLabs	SM4500NH3G	NH3N	7/10/2018	Quennie Manimtim
SC-100B	SC-100B-WDR-576	Ron Phelps	8/1/2018	12:30:00 PM	ASSET	EPA 120.1	SC	8/2/2018	Lilia Ramit
					ASSET	EPA 200.8	CR	8/8/2018	Claire Ignacio
					ASSET	EPA 200.8	MN	8/8/2018	Claire Ignacio
					ASSET	EPA 218.6	CR6	8/3/2018	Ria Abes
		Ryan Phelps			Field	HACH	PH	8/1/2018	Ryan Phelps
		Ron Phelps			ASSET	SM 2540C	TDS	8/2/2018	Lilia Ramit
					ASSET	SM2130B	TRB	8/2/2018	Lilia Ramit
SC-100B	SC-100B-WDR-578	Ron Phelps	9/4/2018	10:00:00 AM	Field	HACH	PH	9/4/2018	Ron Phelps
				10:10:00 AM	ASSET	EPA 120.1	SC	9/5/2018	Lilia Ramit
					ASSET	EPA 200.8	CR	9/6/2018	Claire Ignacio
					ASSET	EPA 200.8	MN	9/10/2018	Claire Ignacio
					ASSET	EPA 218.6	CR6	9/6/2018	Ria Abes
					ASSET	SM 2540C	TDS	9/5/2018	Lilia Ramit

TABLE 8
Topock IM-3 Waste Discharge Applicable or Relevant and Appropriate Requirements (ARARs)
Monitoring Information
Third Quarter 2018 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-578	Ron Phelps	9/4/2018	10:10:00 AM	ASSET	SM2130B	TRB	9/5/2018	Lilia Ramit
SC-700B	SC-700B-WDR-575	Ryan Phelps	7/3/2018	9:44:00 AM	ASSET	EPA 120.1	SC	7/5/2018	Lilia Ramit
					ASSET	EPA 200.7	AL	7/16/2018	Claire Ignacio
					ASSET	EPA 200.7	В	7/16/2018	Claire Ignacio
					ASSET	EPA 200.7	FE	7/16/2018	Claire Ignacio
					ASSET	EPA 200.8	AS	7/12/2018	Claire Ignacio
					ASSET	EPA 200.8	BA	7/12/2018	Claire Ignacio
					ASSET	EPA 200.8	CR	7/12/2018	Claire Ignacio
					ASSET	EPA 200.8	CU	7/20/2018	Claire Ignacio
					ASSET	EPA 200.8	MN	7/12/2018	Claire Ignacio
					ASSET	EPA 200.8	MO	7/12/2018	Claire Ignacio
					ASSET	EPA 200.8	NI	7/20/2018	Claire Ignacio
					ASSET	EPA 200.8	PB	7/12/2018	Claire Ignacio
					ASSET	EPA 200.8	SB	7/12/2018	Claire Ignacio
					ASSET	EPA 200.8	ZN	7/12/2018	Claire Ignacio
					ASSET	EPA 218.6	CR6	7/5/2018	Ria Abes
					ASSET	EPA 300.0	FL	7/5/2018	Ria Abes
					ASSET	EPA 300.0	SO4	7/5/2018	Ria Abes
					Field	HACH	PH	7/3/2018	Ryan Phelps
					ASSET	SM 2540C	TDS	7/5/2018	Lilia Ramit
					ASSET	SM 4500-NO3F	NO3NO2N	7/6/2018	Quennie Manimtim
					ASSET	SM2130B	TRB	7/5/2018	Lilia Ramit
					BCLabs	SM4500NH3G	NH3N	7/10/2018	Quennie Manimtim
SC-700B	SC-700B-WDR-576	Ron Phelps	8/1/2018	12:40:00 PM	ASSET	EPA 120.1	SC	8/2/2018	Lilia Ramit
					ASSET	EPA 200.7	AL	8/14/2018	Claire Ignacio
					ASSET	EPA 200.7	В	8/15/2018	Claire Ignacio
					ASSET	EPA 200.7	FE	8/14/2018	Claire Ignacio
					ASSET	EPA 200.8	AS	8/13/2018	Claire Ignacio
					ASSET	EPA 200.8	BA	8/8/2018	Claire Ignacio
					ASSET	EPA 200.8	CR	8/8/2018	Claire Ignacio
					ASSET	EPA 200.8	CU	8/13/2018	Claire Ignacio
					ASSET	EPA 200.8	MN	8/8/2018	Claire Ignacio
					ASSET	EPA 200.8	MO	8/8/2018	Claire Ignacio
					ASSET	EPA 200.8	NI	8/8/2018	Claire Ignacio
					ASSET	EPA 200.8	PB	8/8/2018	Claire Ignacio

TABLE 8
Topock IM-3 Waste Discharge Applicable or Relevant and Appropriate Requirements (ARARs)
Monitoring Information
Third Quarter 2018 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-576	Ron Phelps	8/1/2018	12:40:00 PM	ASSET	EPA 200.8	SB	8/8/2018	Claire Ignacio
					ASSET	EPA 200.8	ZN	8/8/2018	Claire Ignacio
					ASSET	EPA 218.6	CR6	8/3/2018	Ria Abes
					ASSET	EPA 300.0	FL	8/2/2018	Ria Abes
					ASSET	EPA 300.0	SO4	8/2/2018	Ria Abes
		Ryan Phelps			Field	HACH	PH	8/1/2018	Ryan Phelps
		Ron Phelps			ASSET	SM 2540C	TDS	8/2/2018	Lilia Ramit
					ASSET	SM 4500-NO3F	NO3NO2N	8/15/2018	Quennie Manimtim
					ASSET	SM2130B	TRB	8/2/2018	Lilia Ramit
					BCLabs	SM4500NH3G	NH3N	8/15/2018	Quennie Manimtim
SC-700B	SC-700B-WDR-577	Ryan Phelps	8/10/2018	11:50:00 PM	ASSET	EPA 120.1	SC	8/14/2018	Lilia Ramit
					ASSET	EPA 200.7	AL	8/20/2018	Claire Ignacio
					ASSET	EPA 200.7	В	8/20/2018	Claire Ignacio
					ASSET	EPA 200.7	FE	8/20/2018	Claire Ignacio
					ASSET	EPA 200.8	AS	8/20/2018	Claire Ignacio
					ASSET	EPA 200.8	BA	8/20/2018	Claire Ignacio
					ASSET	EPA 200.8	CR	8/20/2018	Claire Ignacio
					ASSET	EPA 200.8	CU	8/21/2018	Claire Ignacio
					ASSET	EPA 200.8	MN	8/20/2018	Claire Ignacio
					ASSET	EPA 200.8	MO	8/20/2018	Claire Ignacio
					ASSET	EPA 200.8	NI	8/20/2018	Claire Ignacio
					ASSET	EPA 200.8	РВ	8/20/2018	Claire Ignacio
					ASSET	EPA 200.8	SB	8/20/2018	Claire Ignacio
					ASSET	EPA 200.8	ZN	8/20/2018	Claire Ignacio
					ASSET	EPA 218.6	CR6	8/14/2018	Ria Abes
					ASSET	EPA 300.0	FL	8/14/2018	Ria Abes
					ASSET	EPA 300.0	SO4	8/14/2018	Ria Abes
		Brian Terhune			Field	HACH	PH	8/10/2018	Brian Terhune
		Ryan Phelps			ASSET	SM 2540C	TDS	8/14/2018	Lilia Ramit
					ASSET	SM 4500-NO3F	NO3NO2N	8/17/2018	Quennie Manimtim
					ASSET	SM2130B	TRB	8/14/2018	Lilia Ramit
					BCLabs	SM4500NH3G	NH3N	8/21/2018	Quennie Manimtim
SC-700B	SC-700B-WDR-578	Ron Phelps	9/4/2018	10:05:00 AM	ASSET	EPA 120.1	SC	9/5/2018	Lilia Ramit
					ASSET	EPA 200.7	AL	9/19/2018	Claire Ignacio
					ASSET	EPA 200.7	В	9/19/2018	Claire Ignacio

TABLE 8
Topock IM-3 Waste Discharge Applicable or Relevant and Appropriate Requirements (ARARs)
Monitoring Information
Third Quarter 2018 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-578	Ron Phelps	9/4/2018	10:05:00 AM	ASSET	EPA 200.7	FE	9/19/2018	Claire Ignacio
					ASSET	EPA 200.8	AS	9/6/2018	Claire Ignacio
					ASSET	EPA 200.8	BA	9/6/2018	Claire Ignacio
					ASSET	EPA 200.8	CR	9/6/2018	Claire Ignacio
					ASSET	EPA 200.8	CU	9/6/2018	Claire Ignacio
					ASSET	EPA 200.8	MN	9/10/2018	Claire Ignacio
					ASSET	EPA 200.8	MO	9/6/2018	Claire Ignacio
					ASSET	EPA 200.8	NI	9/6/2018	Claire Ignacio
					ASSET	EPA 200.8	РВ	9/6/2018	Claire Ignacio
					ASSET	EPA 200.8	SB	9/6/2018	Claire Ignacio
					ASSET	EPA 200.8	ZN	9/6/2018	Claire Ignacio
					ASSET	EPA 218.6	CR6	9/6/2018	Ria Abes
					ASSET	EPA 300.0	FL	9/5/2018	Ria Abes
					ASSET	EPA 300.0	SO4	9/6/2018	Ria Abes
					Field	HACH	PH	9/4/2018	Ron Phelps
					ASSET	SM 2540C	TDS	9/5/2018	Lilia Ramit
					ASSET	SM 4500-NO3F	NO3NO2N	9/12/2018	Quennie Manimtim
					ASSET	SM2130B	TRB	9/5/2018	Lilia Ramit
					BCLabs	SM4500NH3G	NH3N	9/13/2018	Quennie Manimtim
SC-701	SC-701-WDR-575	Ryan Phelps	7/3/2018	9:35:00 AM	ASSET	EPA 120.1	SC	7/5/2018	Lilia Ramit
					ASSET	EPA 200.8	AG	7/12/2018	Claire Ignacio
					ASSET	EPA 200.8	AS	7/12/2018	Claire Ignacio
					ASSET	EPA 200.8	BA	7/12/2018	Claire Ignacio
					ASSET	EPA 200.8	BE	7/17/2018	Claire Ignacio
					ASSET	EPA 200.8	CD	7/12/2018	Claire Ignacio
					ASSET	EPA 200.8	CO	7/12/2018	Claire Ignacio
					ASSET	EPA 200.8	CR	7/12/2018	Claire Ignacio
					ASSET	EPA 200.8	CU	7/20/2018	Claire Ignacio
					ASSET	EPA 200.8	MN	7/12/2018	Claire Ignacio
					ASSET	EPA 200.8	MO	7/12/2018	Claire Ignacio
					ASSET	EPA 200.8	NI	7/20/2018	Claire Ignacio
					ASSET	EPA 200.8	PB	7/12/2018	Claire Ignacio
					ASSET	EPA 200.8	SB	7/12/2018	Claire Ignacio
					ASSET	EPA 200.8	SE	7/17/2018	Claire Ignacio
					ASSET	EPA 200.8	TL	7/12/2018	Claire Ignacio
					ASSET	EPA 200.8	V	7/20/2018	Claire Ignacio

\\\BAOFPP01\\\proj\\PacificGasElectricCo\\TopockProgram\\Database\\\Tuesdai\\\IM3\\\\DR_\\\Qtr\\y.mdb\\rpt_qtr\\ySummary_Parame\\\text{ters}\\\ Pkumar2\\\ 10/08/2018\\ 11:27:06\\\

Page 4 of 6

Date Printed 10/8/2018

TABLE 8
Topock IM-3 Waste Discharge Applicable or Relevant and Appropriate Requirements (ARARs)
Monitoring Information
Third Quarter 2018 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-575	Ryan Phelps	7/3/2018	9:35:00 AM	ASSET	EPA 200.8	ZN	7/12/2018	Claire Ignacio
					ASSET	EPA 218.6	CR6	7/5/2018	Ria Abes
					ASSET	EPA 245.1	HG	7/10/2018	Claire Ignacio
					ASSET	EPA 300.0	FL	7/5/2018	Ria Abes
					Field	HACH	PH	7/3/2018	Ryan Phelps
					ASSET	SM 2540C	TDS	7/5/2018	Lilia Ramit
Phase Separator I	Phase Separator-575-Sludg	ge George Gloria	7/3/2018	10:30:00 AM	ASSET	EPA 300.0	FL	7/6/2018	Ria Abes
					ASSET	EPA 6010B	AG	7/9/2018	Claire Ignacio
					ASSET	EPA 6010B	AS	7/9/2018	Claire Ignacio
					ASSET	EPA 6010B	BA	7/9/2018	Claire Ignacio
					ASSET	EPA 6010B	BE	7/9/2018	Claire Ignacio
					ASSET	EPA 6010B	CD	7/9/2018	Claire Ignacio
					ASSET	EPA 6010B	CO	7/9/2018	Claire Ignacio
					ASSET	EPA 6010B	CR	7/9/2018	Claire Ignacio
					ASSET	EPA 6010B	CU	7/9/2018	Claire Ignacio
					ASSET	EPA 6010B	MN	7/9/2018	Claire Ignacio
					ASSET	EPA 6010B	MO	7/9/2018	Claire Ignacio
					ASSET	EPA 6010B	NI	7/9/2018	Claire Ignacio
					ASSET	EPA 6010B	PB	7/9/2018	Claire Ignacio
					ASSET	EPA 6010B	SB	7/9/2018	Claire Ignacio
					ASSET	EPA 6010B	SE	7/9/2018	Claire Ignacio
					ASSET	EPA 6010B	TL	7/9/2018	Claire Ignacio
					ASSET	EPA 6010B	V	7/9/2018	Claire Ignacio
					ASSET	EPA 6010B	ZN	7/9/2018	Claire Ignacio
					ASSET	EPA 7471A	HG	7/6/2018	Claire Ignacio
					ASSET	SW 7199	CR6	7/9/2018	Ria Abes

TABLE 8

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

Third Quarter 2018 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).

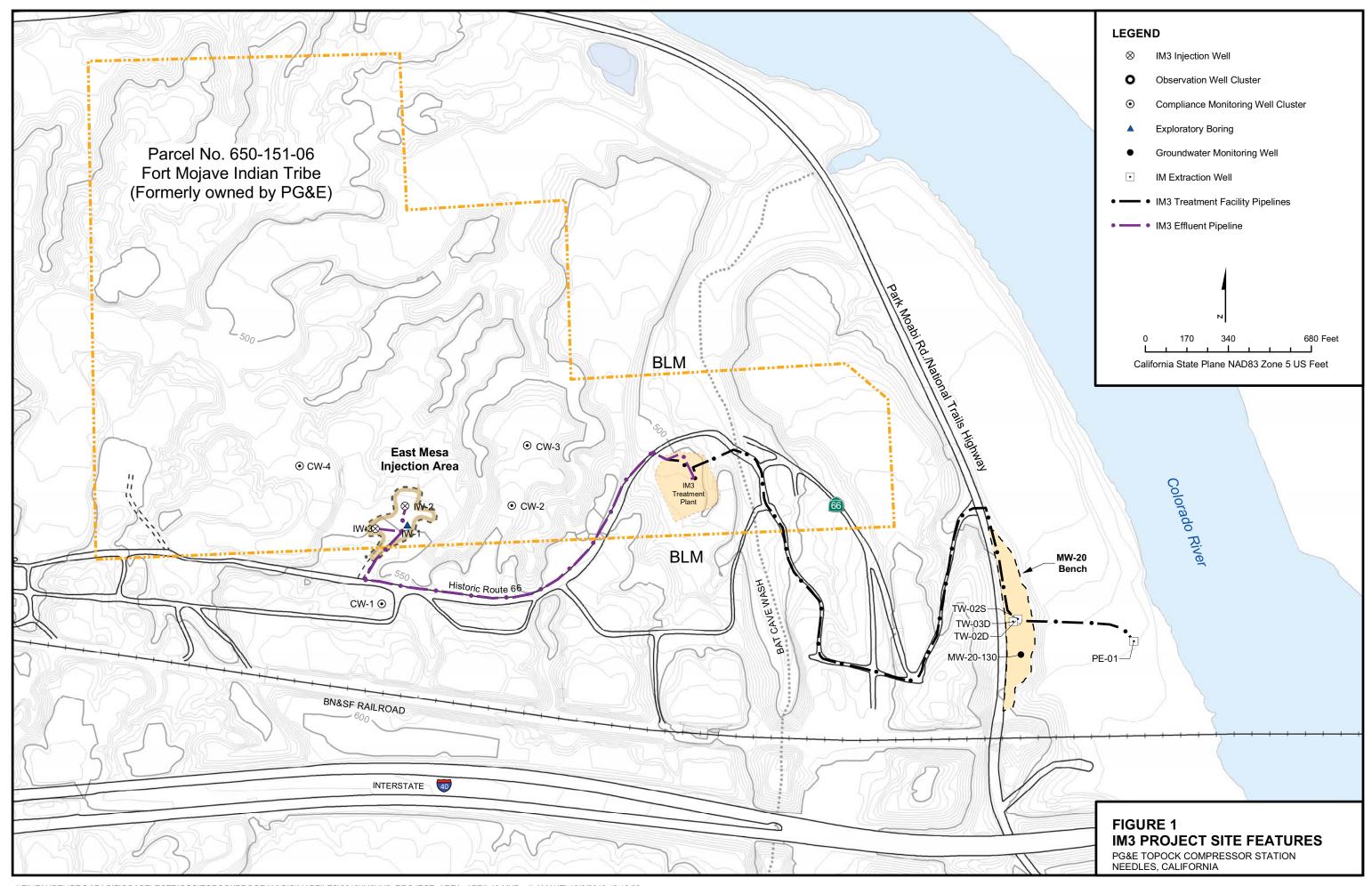
SC-100B = Sampling location for all influent samples is tap on pipe from extraction wells into tank T-100 (see attached P&ID TP-PR-10-10-04).

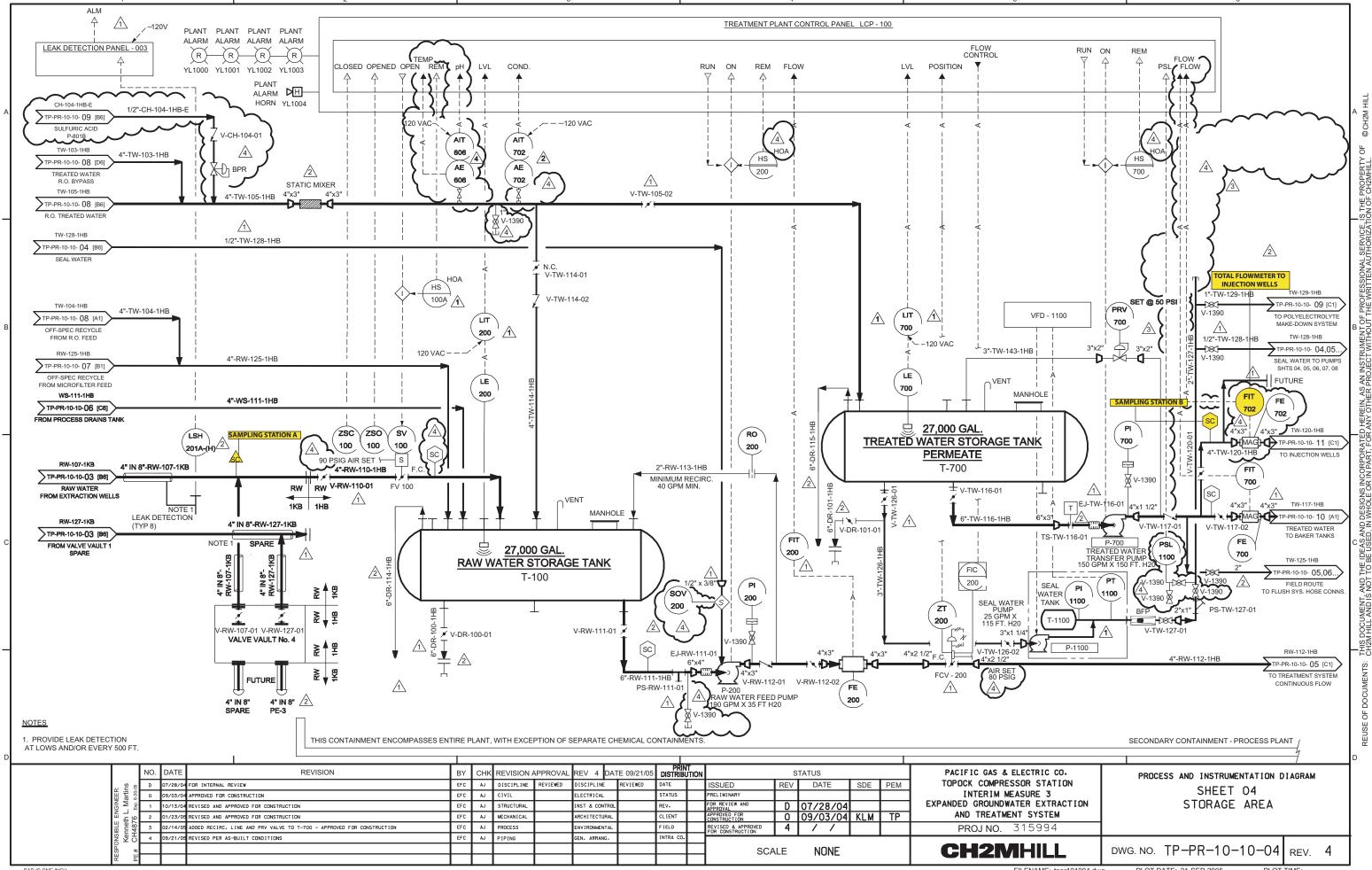
SC-701 = Sampling location for all reverse osmosis samples is tap on pipe T-701 (see attached P&ID PR-10-04).

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 =	рН
BE =	beryllium	SB =	antimony
CD =	cadmium	SC =	specific conductance
CO =	cobalt	SE =	selenium
CR =	chromium	SO4 =	sulfate
CR6 =	hexavalent chromium	TDS =	total dissolved solids
CU =	copper	TL =	thallium
FE =	iron	TLI =	Truesdail Laboratories, Inc.
FETD =	iron, dissolved	TRB =	turbidity
FL =	fluoride	V =	vanadium
HG =	mercury	ZN =	zinc
MN =	manganese		
MND =	manganese, dissolved		

Figures





FILENAME: PR-10-03.dgn PLOT DATE: 11/19/2009

PLOT TIME: 10:27:54 AM

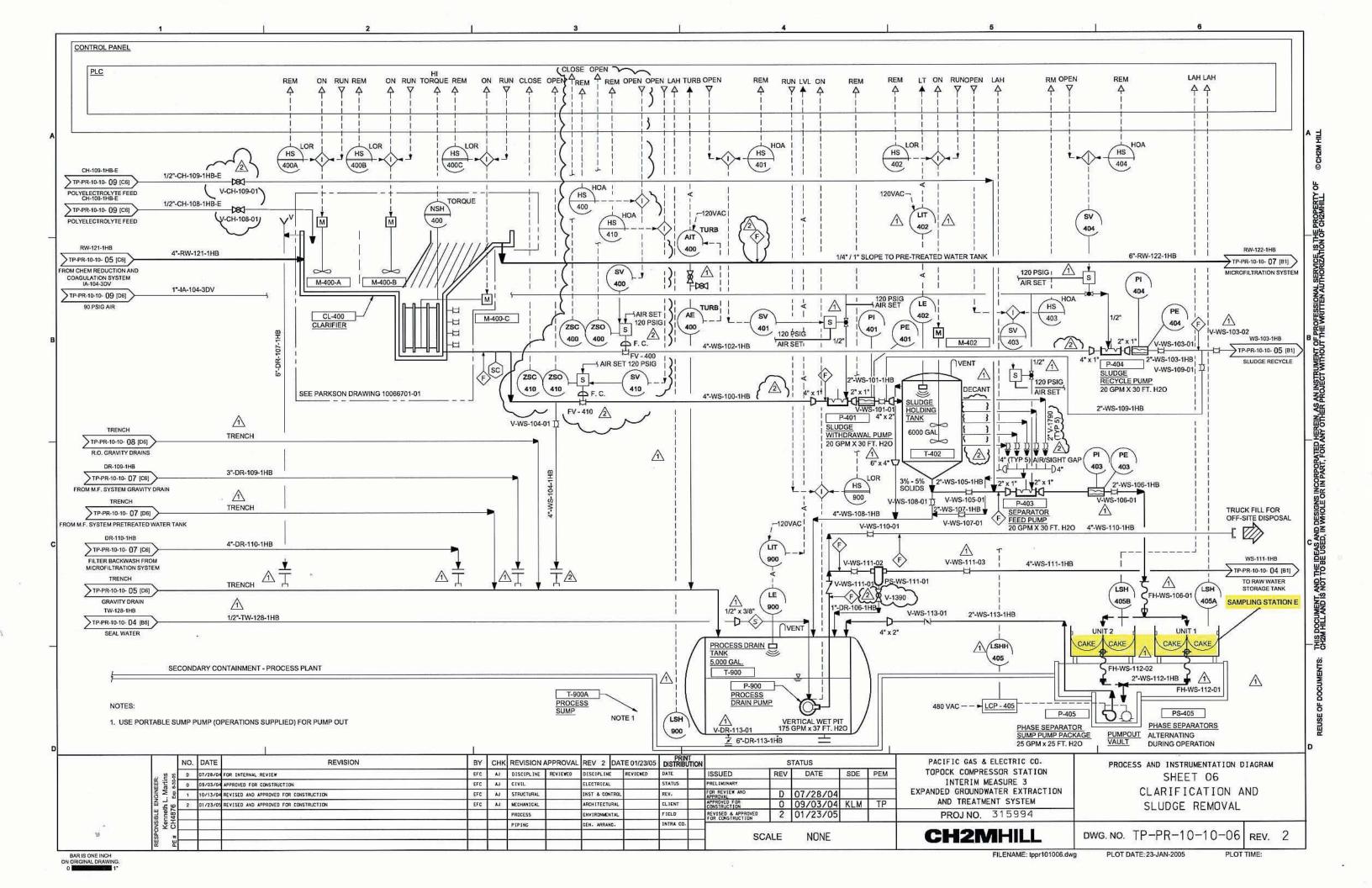
BAR IS ONE INCH ON ORIGINAL DRAWING.

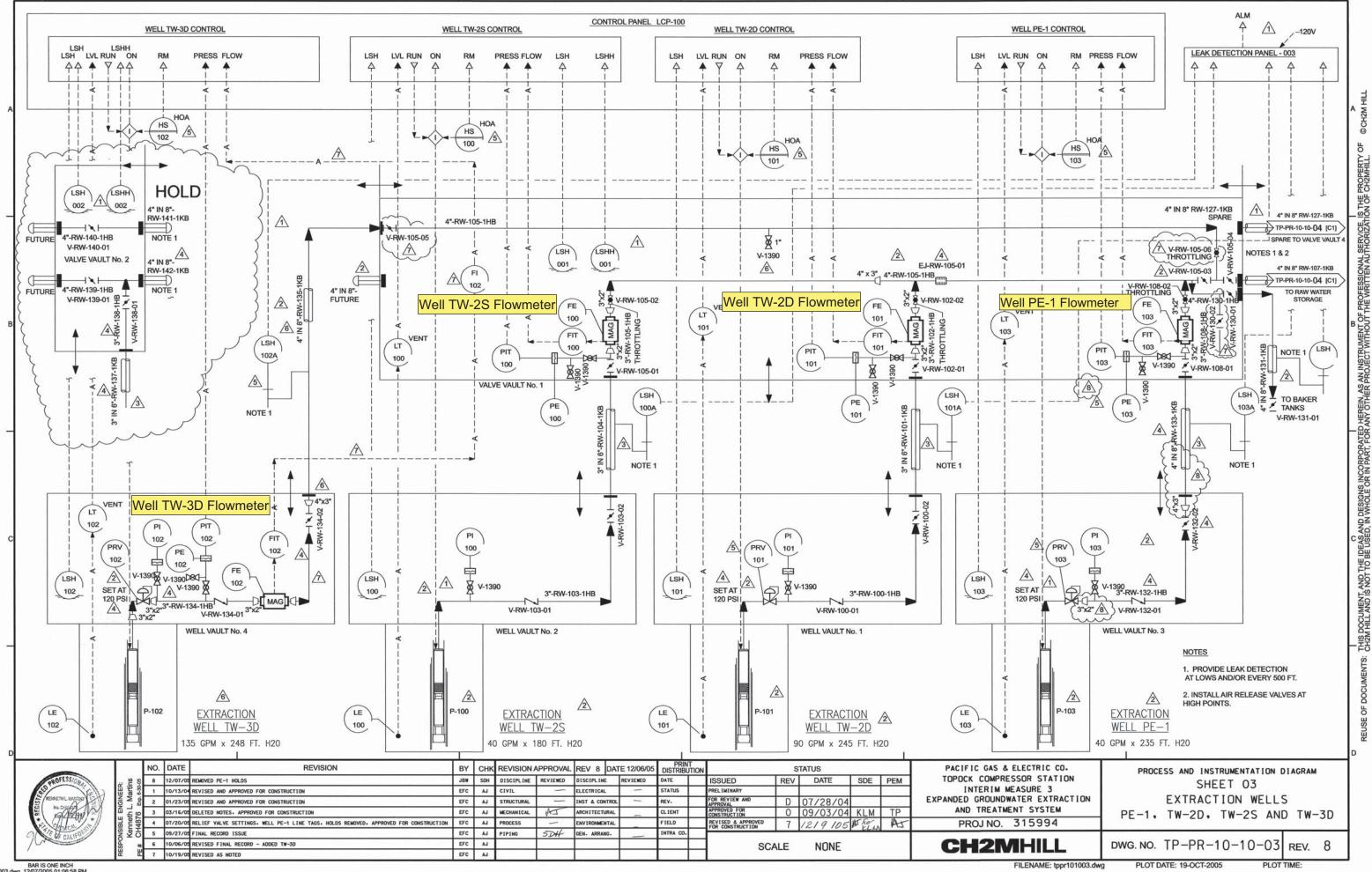
TO SEAL WATER TRUNK LINE PR-10-03 (HS 701 1 1/2" TW-154-1HB LOCATED IN CHEMICAL STORAGE AREA LOCATED NEAR EXISTING RO PR-10-03 -1/2" CH-112-1HB TO PRIMARY RO FROM P-2301 HCI ACID PUMP /-1/2" CH-114-1HB HYDRO-CHLORIC ACID (HCI) HCI ACID TOTE PUMP SKID SEE CROWN ANTISCALANT FEED PUMP SKID SEE CROWN SECONDARY RO PRIMARY RO ANTI-SCALANT CHEMICAL DRUM ANTI-SCALANT CHEMICAL DRUM 1A-102-3DV 1"-1A-108-3DV TP-PR-10-10-09(06) 90 PSIG AIR 1/4" CH-115-1HB FROM P-2402 120VAC 1 1/2" TW-152-1HB TO PRIMARY RO FROM P-2401 ANTI-SCALANT FEED PUMP RECYCLE COND COND 701 701 ST STAGE RO CONCENTATE V-1390 1 1/2"-TW-148-1HB PR-10-03 2"x1 1/2" NO SECONDARY REVERSE OSMOSIS SKID SEE CROWN SOLUTION DWG: PS-0689-08 1 1/2" TW-149-1HB T-2601 SECONDARY 1" TW-146-1HB SECONDAR RO FEED TANK SEE CROWN RO FEED PUMP SEE _x 701 (NOTE 3) TO T-603 TANK (LE) CROWN DWG PS-0689-07 V-1390 1 1/2" TW-151-1HB SAMPI ING 701 <u></u> ∩ VENT STATION D PR-10-03 O CONCENTRATE 701 CLOSE FROM PRIMARY RO FLOWMETER Oběv 5 T-701 FE 8000 GAL. 701 SEAL WATER TS-TW-111-01 5 र T 6"x1 1/2" ▼ 3"x1" 3"x1" V-TW-112-01 V-TW-112-03 **RECORD DRAWINGS** SOV V-TW-112-03 701 J PORCELLA 6"-TW-111-1HB P-107 THESE RECORD DRAWINGS HAVE BEEN PREPARED, IN PART, ON THE BASIS OF INFORMATION COMPILED BY OTHERS, THEY ARE △ 1/2"x3/8" SEAL WATER RO CONCENTRATE TP-PR-10-10-08 [B6] NOT INTENDED TO REPRESENT IN DETAIL THE EXACT LOCATION, TRANSFER PUMP 80 GPM X 85 FT H20 TYPE OF COMPONENT NOR MANNER OF CONSTRUCTION. THE ENGINEER WILL NOT BE RESPONSIBLE FOR ANY ERRORS OR 1" TW-147-1HB OMISSIONS WHICH HAVE BEEN INCORPORATED INTO THE RECORD DRAWINGS. TW-112-1RB TP-PR-10-10 [C1] TO TRENCH DRAIN RO CONCENTRATE REVISION BY CHK PRINT DISTRIBUTION DATE REVISION APPROVAL REV 0 DATE 10/02/09 STATUS PACIFIC GAS & ELECTRIC CO. PROCESS AND INSTRUMENTATION DIAGRAM REV DATE TOPOCK COMPRESSOR STATION A 2/12/09 INTERNAL REVIEW DISCIPLINE REVIEWED DISCIPLINE REVIEWED ISSUED SDE PEM REVERSE OSMOSIS SYSTEM 2/12/09 JP INTERIM MEASURE 3 ORIGINALLY STAMPED /12/09 CLIENT REVIEW ELECTRICAL STATUS PREL [M] NARY R REVIEW AND SHEET TWO OF TWO 4/01/09 FOR REVIEW AND APPROVA PLANT PERFORMANCE IMPROVEMENTS 4/01/09 AND SIGNED BY: PPROVED FOR ONSTRUCTION JOHN PORCELLA 1/17/09 FINAL RECORD ISSUE JR MECHAN1CAL ARCH | TECTURAL LIENT CALIFORNIA PE NO. C70145 PROCESS FIELD **PROJ NO.** 362032 0 10/02/09 ON 04-01-2009 INTRA CO PIPING SJ GEN. ARRANG. **CH2M**HILL DWG. NO. PR-10-04 SCALE NONE REV. 0 BAR IS ONE INCH ON ORIGINAL DRAWING. FILENAME: PR-10-04.dgn PLOT DATE: 11/19/2009 PLOT TIME: 10:28:26 AM

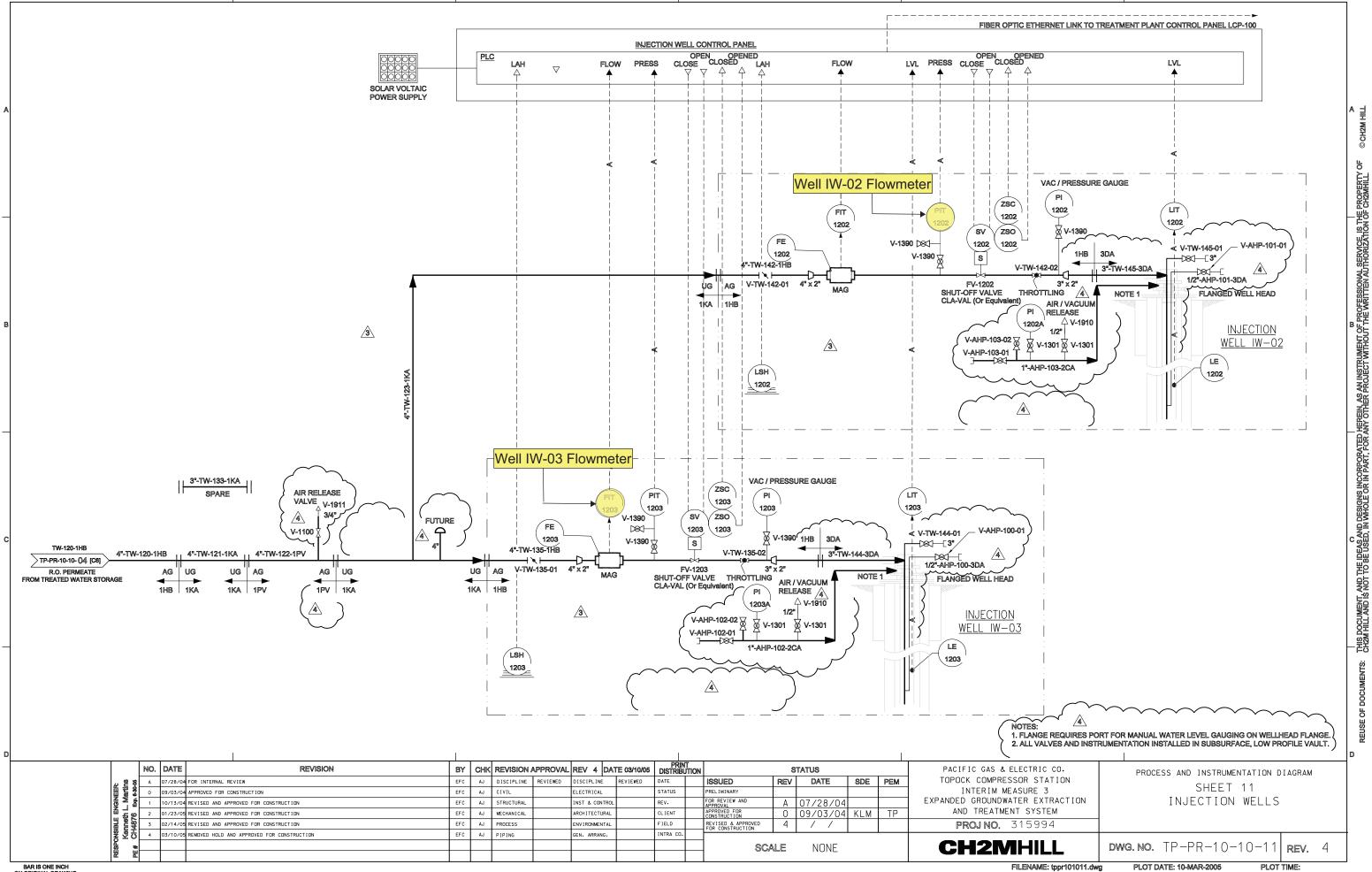
COND

RUN ON FLOW

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







BAR IS ONE INCH ON ORIGINAL DRAWING

Appendix A
Third Quarter 2018 Laboratory Analytical
Reports

Analytical Bench Log Book

WDR pH Results

Sample Name	Date of sampling	Time of sampling	Date of analysis	Time of analysis	pH Meter #1, #2, or #3 etc.	Date pH meter Calibrated	Time pH meter Calibrated	Slope of the Curve	ut down until the proble Analyst Name (for the pH result)	pH Result
1 SC- 100 B WAR Notes: 574	06-05-19	1444	ob-05-14	1450	404400	01-05-19	11:30	56.37	G. GLORIA	7.36
Notes: 574 2 SC-700B-WOR-574	06-05-18	1500	ob-05-18	1504	1 H24400	lob-05-19	11:30	56.37	G.GWP1A	7.17
3 SC- 100B-WDR-5	15 7-3-18	9:51	7-3-18	10:04	HG440D	7-3-18	00:15	-55.15	Byan Phelps	7.47
4 x-700B-WDR. 575 otes:	7-3-18	9:44	7-3-18	10:03	HQ440D	7-3-18	00:15	-55.15	hyan Phelps	7.00
5 5c-701-WPR - 575	7-3-18	9:44	7-3-18	10:03	H&440D H&446D	7-3-18		-55.15	Ryan Phelps	7.00
otes: 5 5c-701-ωρε - 575 otes:	1 1	9:35		10:0]	H&446D		00:15			

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-700 B - 577	8-10-18	23:50	8-10-18	23: 58	H6440D	8-10-18	22:06	-53.49	Brian Terhune	7.74
lotes:									-	
2		· ·								
lotes:								t		
3					-					,
lotes:										
4										
lotes:							W			
5										
lotes:										
6					13.7 1-4 - 15				•	
lotes:										
7								i		
lotes:										
		Remi	nder: WDF	Required	pH Range for the	Effluent (SC	700R) ic: 6.5	9.1		

Analytical Bench Log Book

WDR pH Results

		The article proble	1		-	1		1				If the on site labora
Notes: 574 2 3C-7006-1NOR-574 06-05-18 1500 06-05-18 1504 HQ4400 06-05-18 11-30 56-37 Q. GWP14 Notes: 3 5C-1008-1008-1008-575 7-3-18 9:51 7-3-18 10:04 HQ440D 7-3-18 00:15 -55.15 Pyan Philps Notes: 4 5C-7008-1008-575 7-3-18 9:44 7-3-18 10:03 HQ440D 7-3-18 00:15 -55.15 Pyan Philps Notes: 5 5C-701-1008-575 7-3-18 9:35 7-3-18 10:01 HQ440D 7-3-18 00:15 -55.15 Pyan Philps Notes: 6 5C-1008-576 8-1-18 12:30 8-1-18 12:48 HQ440D 8-1-18 10:5 53.69 for Philps		Analyst Name for the pH result)	of the	pH meter	1	pH mete	#1, #2, or #3 etc. See cover Sheet	of	of	of	of	Sample Name
Notes: 574 2 SC-7006-WOR-574 06-05-18 1500 06-05-18 1504 HOLLY DID 06-05-18 16-37 G.GWP1A Notes: 3 5C-1008-WDR-575 7-3-18 9:51 7-3-18 10:04 HOLLY DID 7-3-18 00:15 -55.15 Byan Philps Notes: 4 x-7008-WDR-575 7-3-18 9:44 7-3-18 10:03 HOLLY DID 7-3-18 00:15 -55.15 Byan Philps Notes: 5 3C-701-WDR-575 7-3-18 9:35 7-3-18 10:01 HOLLY DID 7-3-18 00:15 -55.15 Byan Philps Notes: 6 X-1008-576 8-1-18 12:30 8-1-18 12:48 HOLLY DID 7-3-18 00:15 -53-69 for Third	172	GLORIA	156.37 1	11:30	8	01-05-19	HQ44010	1450	06-05-19	1444	06-05-19	
Notes: 3 56-1008-402-515 7-3-18 9:51 7-3-18 10:04 Ha440D 7-3-18 00:15 -55.15 Byan Phelps 10tes: 4 4-7008-4002-575 7-3-18 9:44 7-3-18 10:03 Ha440D 7-3-18 00:15 -55.15 Byan Phelps 10tes: 5 20-701-4008-575 7-3-18 9:35 7-3-18 10:01 Ha440D 7-3-18 00:15 -55.15 Byan Phelps 10tes: 6 4-1008-576 8-1-18 12:30 8-1-18 12:48 Ha440D 8-1-18 10:5 -53.69 for the left of the	17.3	Clooking	1 1									lotes: 574
Notes: 3 56-1008-4002-515 7-3-18 9:51 7-3-18 10:04 Ha440D 7-3-18 00:15 -55.15 Byan Philps 4 56-7008-4002-575 7-3-18 9:44 7-3-18 10:03 Ha440D 7-3-18 00:15 -55.15 Byan Philps 10 50-701-4002-575 7-3-18 9:35 7-3-18 10:01 Ha440D 7-3-18 00:15 -55.15 Byan Philps 10 50-701-4002-575 7-3-18 9:35 7-3-18 10:01 Ha440D 7-3-18 00:15 -55.15 Byan Philps 10 56-7003-576 8-1-18 12:30 8-1-18 12:48 Ha4400 8-1-18 10:05 -53.69 16-18 14:48	1717	CIORIA	LSL3710	11:30		10h-05-14	Hayyon	1504	06-05-18	1500	06.05-18	2 SC-700B-MOR-574
Hotes: 4 & 700B - WDR - 575 7-3-18 9:44 7-3-18 10:03 HQ440D 7-3-18 00:15 -55.15 Pryan Phelps 15 5c-701 WDR - 575 7-3-18 9:35 7-3-18 10:01 HQ440D 7-3-18 00:15 -55.15 Pryan Phelps otes: 6 & -100B - 576 8-1-18 12:48 HQ440D 8-1-18 10:5 -53.69 for flat	7.17	JUPIA	130-2116	11-)0		100 0 17						lotes:
Hotes: 4 & 700B - WDR - 575 7-3-18 9:44 7-3-18 10:03 HQ440D 7-3-18 00:15 -55.15 Pryan Phelps 15 5c-701 WDR - 575 7-3-18 9:35 7-3-18 10:01 HQ440D 7-3-18 00:15 -55.15 Pryan Phelps otes: 6 & -100B - 576 8-1-18 12:48 HQ440D 8-1-18 10:5 -53.69 for flat			1 1		!	!					1	3 54 4 5
4 & 700B-WDR-575 7-3-18 9:44 7-3-18 10:03 HQ440D 7-3-18 00:15 -55.15 Ryan Phelps 5 5c-701-WDR-575 7-3-18 9:35 7-3-18 10:01 HQ446D 7-3-18 00:15 -55.15 Ryan Phelps otes: 6 & C-100B-576 8-1-18 12:30 8-1-18 12:48 HQ440D 8-1-18 10:5 -53.69 for the second s	7.47	yan Phelps	-55.15	00:15		7-3-18	HQ440D	10:04	7-3-18	9:51	5 7-3-18	
otes: 5 5c-701-WDR-575 7-3-18 9:35 7-3-18 10:01 H&446D 7-3-18 00:15 -55-15 Ryan Phelps otes: 6 5C-1003-576 8-1-18 12:30 8-1-18 12:48 Ha4400 8-1-18 10:05 -53-69 for That												otes.
Notes: 5 SC-701-WDR-575 7-3-18 9:35 7-3-18 10:01 H&446D 7-3-18 00:15 -55.15 Ryan Phelps Notes: 6 SC-1003-576 8-1-18 12:30 9-1-18 12:48 Ha4400 8-1-18 1015 -53.69 for That	5 7.00	01 / 1	-55.15	00:15	T	7-3-18	HQ440D	10:03	7-3-18	9:44	7-3-18	4 X-700B-WDR-575
otes: 6 5C-1003-576 8-1-18 12:30 8-1-18 12:48 HQ4400 8-1-18 0015 -53.69 for 1 hal	7.00	jan Phelps	· ·									otes:
otes: 6 5C-1003-576 8-1-18 12:30 8-1-18 12:48 HQ4400 8-1-18 0015 -53.69 for 1 hal	- !	01 1	-55.15	00:15	T	7-3-18	H&446D	10:01	7-3-18	9:35	7-3-18	5 SC-701-WDR - 575
10 10 11 11 110 10 10 15 -53.69 Per 1 hall	8.11	an Phelps	33.13	00.75		1						
10 10 10 10 10 10 10 15 -53.69 Per 1 hall		111							- al		0 0	10 1000 401
otes;	12 7.42	- Thatha	-53.69	0015	10	8-1-13	HQ4400	12:48	8-1-18	12:30	5-1-18	
												nes;
15-2003-576 8-1-18 12:40 8-1-18 12:50 HO440D 8-1-18 0015 53-69 tha 1/1/10	00	A Color	-53-69 1	7015	10	8-1-18	H0.440D	12:50	3-1-18	12:40	2-1-18/	52-7003-574
otes:	7.55	F MARK	1170		1							ites:



July

18, 2018

Mr. Marlon Cartin Asset Laboratories 3151 W Post Rd. Las Vegas, NV 89118

Dear Mr. Cartin:

We are pleased to present the enclosed acute bioassay report. The test was conducted under the guidelines prescribed in "Static Acute Bioassay Procedures for Hazardous Waste Samples" California Department of Fish and Game, 1988. The results were as follows:

CLIENT: SAMPLE I.D.: DATE RECEIVED: ABC LAB, NO.: Asset Laboratories N031079-001D 07/06/18 AST0718.028

DOHS (TITLE 22) HAZARDOUS WASTE BIOASSAY USING FATHEAD MINNOWS

96 HOUR LC50 =

>750

mg/1

STATUS =

Pass

Respectful

Scott Johnson

Laboratory Director

AQUATIC BIOASSAY AND CONSULTING LABORATORIES, INC. 29 North Olive Street Ventura, CA 93001 (805) 643-5621

DOHS Bioassay for Hazardous Waste (Title 22)

SAMPLE INFORMATION

CLIENT:	Asset Laboratories	Date: 07/06/18
SAMPLE I.D.:	N031079-001D	LAB # AST0718.028

WATER QUALITY

DILU	TON WATT	Reconst.	Fresh		V: Single		
	CONTROL	IARDNI	ESS	C	ONTROL A	LKALIN	ITY
Beg:	43 mg/l	End:	46 mg/l	Beg:	31 mg/l	End:	33 mg/l
SAMPLE HARDNESS				S	AMPLE AL	KALINIT	Y Y
Beg:	43 mg/l	End;	79 mg/l	Beg:	30 mg/l	End:	62 mg/l

ORGANISM INFORMATION

SPECIES:	Pimephales promelas	DATE REC'D:	07/10/18
COMMON NAM	ME Fathead Minnow	AVERAGE LNTH:	39 mm
SOURCE:	Thomas Fish Co.	AVERAGE WT:	0.80 gm
CARRIER:	California Overnight	NO. FISH / TANK:	10

TEST DATA

										1.1	DOI DIA	H LA							
		INITIAI	L	24	HOUR	S.			48 HOURS	3		72	2 HOUR	S		96	HOUF	SS.	
TIME:		07/13/1 1453	8		07/14/1: 1510	8			07/15/18 1420		2007/2002		07/16/18 1450	3			07/17/1 1310	8	
	Dis.	Temp.	pH	Dis.	Temp.	pH	#Fish	Dis.	Temp.	pН	#Fish	Dis.	Temp.	pН	#Fish	Dis.	Temp.	pН	#F1sh
CONC.	Oxy.	dg.C		Oxy.	dg.C		Dead	Oxy.	dg,C		Dead	Oxy.	dg.C		Dead	Oxy.	dg.C		Dead
0 (Con.)	8.9	19.8	7.6	8.1	18.9	7.5	0	8.0	19.0	7.4	0	7.3	18.8	7.0	0	7.6	18.1	7.3	0
400 mg/l	8.8	20.0	7.6	8.2	18.4	7.2	0	7.7	18.8	6.9	0	7.2	18.7	7.1	0	7.8	18.6	7.2	0
400 mg/l	8.8	20.0	7.6	8.1	18.4	7.1	0	7.7	18.8	6.9	0	7.6	18.5	7.2	1	7.9	18.5	7.2	0
750 mg/l	8.8	20.0	7.6	8.0	18.5	7.1	0	7.8	18.7	6.9	0	7.5	18.5	7.2	0	8.1	18.5	7.2	0
750 mg/l	8.8	20.0	7.5	8.0	18.5	7.1	0	7.9	18.8	7.0	0	7.5	18.4	7.2	0	7.8	18.5	7.2	0

FINAL DATA

TOTAL MO	KIALIIES		
0 (Con.)	0		
400 mg/l	0	FINAL RE	SULTS
400 mg/l	1 1	96 HOUR LC50 =	>750 mg/l
750 mg/l	0	STATUS ≈	Pass
750 mg/l	0	CALCULATION METHOD =	Binomial Test

Joe Freas, Senior Toxicologist

Date

_

Page 1 of 1

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:

29 N Olive

Aquatic Bioassay & Consulting

TEL: FAX:

Acct #:

(805) 643-5621

Field Sampler: SIGNED

Ventura, CA 93001

05-Jul-18

					Requested Tests	,
Sample ID	Matrix	Date Collected	Bottle Type	Bioassay		
N031079-001D / Phase Separator-575-Sludge	Soil	7/3/2018 10:30:00 AM	40ZG	1		

028

75mp =5.8°C

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

General Comments:

Please email sample receipt acknowledgement to the PM.

Please use PO#.N31079A Please email Invoices and Account Receivable Statements to elvira@assetlaboratories.com. For questions, call

Marlon at (702)-307-2659. Please e-mail results to reports.lv@assetlaboratories.com by: Normal TAT.

Please analyze for Bioassay, 96 hr Acute. EDD Requirement Labspec7 edata.

GSO#:

			Date/Time			Date/Time
Relinquished by:	YT	7/5/2018	17:00	Received by:	Magno	7-6-18 000
Relinquished by:				Received by:		

July 18, 2018

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

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

Workorder No.: N031079

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

Attention: Doug Scott

Enclosed are the results for sample(s) received on July 03, 2018 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,

Manay libucar For

Quennie Manimtim

Laboratory Director

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



ASSET Laboratories

CLIENT: CH2M HILL

Project: PG&E Topock, 680375.03.IM.OP.00 CASE NARRATIVE

Date: 18-Jul-18

Lab Order: N031079

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:

Bioassay was subcontracted to Aquatic Bioassay and Consulting- Ventura, CA.

Analytical Comments for EPA 6010B:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for some analytes in QC samples N031079-001B-MS and N031079-001B-MSD possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Chromium in QC samples N031079-001B-MS and N031079-001B-MSD since the analyte concentration in the sample is disproportionate to the spike level. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Analytical Comments for EPA 7199:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria in QC samples N031079-001C-MS and N031079-001C-MSD possibly due to matrix interference. Post Spike and Matrix Spike Insoluble met acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was also acceptable.



ASSET Laboratories

CLIENT: CH2M HILL

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

Lab Order: N031079

Contract No: IM3PLANT-AR

Work Order S	Sample	Summary

Date: 18-Jul-18

Lab Sample ID Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N031079-001A Phase Separator-575-Sludge	Soil	7/3/2018 10:30:00 AM	7/3/2018	7/18/2018
N031079-001B Phase Separator-575-Sludge	Soil	7/3/2018 10:30:00 AM	7/3/2018	7/18/2018
N031079-001C Phase Separator-575-Sludge	Soil	7/3/2018 10:30:00 AM	7/3/2018	7/18/2018
N031079-001D Phase Separator-575-Sludge	Soil	7/3/2018 10:30:00 AM	7/3/2018	7/18/2018



ANALYTICAL RESULTS

Date Analyzed

ASSET Laboratories Print Date: 18-Jul-18

Client Sample ID: Phase Separator-575-Sludge **CLIENT:** CH2M HILL

Lab Order: N031079 **Collection Date:** 7/3/2018 10:30:00 AM

Project: PG&E Topock, 680375.03.IM.OP.00 Matrix: SOIL

Result MDL

Lab ID: N031079-001 **PQL** DF

Qual

Units

ANIONS BY ION CHROMATOGRAPHY **EPA 300.0**

RunID: NV00922-IC8_180706A QC Batch: R126085 PrepDate Analyst: RAB

Fluoride 43 4.9 mg/Kg-dry 7/6/2018 12:00 PM 0.34 2

Qualifiers: В

Analyses

Analyte detected in the associated Method Blank

Η Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

Surrogate Diluted Out

Value above quantitation range Е

Not Detected at the Reporting Limit Results are wet unless otherwise specified



Date: 18-Jul-18 **ASSET Laboratories**

CLIENT: CH2M HILL Work Order:

N031079

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

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_S

Sample ID Client ID:	MB-R126085_F PBS	SampType: Batch ID:	MBLK R126085		le: 300_S lo: EPA 300.0	Units: mg/Kg		Prep Da Analysis Da		18	RunNo: 12		
Analyte			Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride			ND	1.0									
Sample ID	LCS-R126085_F	SampType:	LCS	TestCod	le: 300_S	Units: mg/Kg		Prep Da	te:		RunNo: 12	6085	
Client ID:	LCSS	Batch ID:	R126085	TestN	lo: EPA 300.0)		Analysis Da	te: 7/6/20 1	18	SeqNo: 30	73610	
Analyte			Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride			12.686	1.0	12.50	0	101	90	110				
Sample ID	N031079-001ADUP	SampType:	DUP	TestCod	le: 300_S	Units: mg/Kg	dry	Prep Da	te:		RunNo: 12	6085	
Client ID:	ZZZZZZ	Batch ID:	R126085	TestN	lo: EPA 300.0)		Analysis Da	te: 7/6/20 1	18	SeqNo: 30	73612	
Analyte			Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride			43.117	4.9						42.54	1.36	20	
Sample ID	N031079-001AMS	SampType:	MS	TestCod	le: 300_S	Units: mg/Kg	dry	Prep Da	te:		RunNo: 12	6085	
Client ID:	ZZZZZZ	Batch ID:	R126085	TestN	lo: EPA 300.0)		Analysis Da	te: 7/6/20 1	18	SeqNo: 30	73613	
Analyte			Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride			67.445	4.9	30.52	42.54	81.6	80	120				
Sample ID	N031079-001AMSD	SampType:	MSD	TestCod	le: 300_S	Units: mg/Kg	dry	Prep Da	te:		RunNo: 12	6085	
Client ID:	ZZZZZZ	Batch ID:	R126085	TestN	lo: EPA 300.0)		Analysis Da	te: 7/6/20 1	18	SeqNo: 30	73614	
Analyte			Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride			67.543	4.9	30.52	42.54	81.9	80	120	67.44	0.145	20	

Qualifiers:

- Analyte detected in the associated Method Blank В
- ND Not Detected at the Reporting Limit Calculations are based on raw values

- Value above quantitation range
- RPD outside accepted recovery limits

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



ANALYTICAL RESULTS

Print Date: 18-Jul-18

ASSET Laboratories

CLIENT: CH2M HILL Client Sample ID: Phase Separator-575-Sludge

Lab Order: N031079 **Collection Date:** 7/3/2018 10:30:00 AM

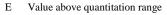
Project: PG&E Topock, 680375.03.IM.OP.00 Matrix: SOIL

Lab ID: N031079-001

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL METALS BY ICP							
	EPA 3050B		EP.	A 6010B			
RunID: NV00922-ICP2_180709C	QC Batch: 68	719		PrepDa	ate	7/6/2018	Analyst: CEI
Antimony	20	0.80	4.9		mg/Kg-dry	1	7/9/2018 09:45 AM
Arsenic	16	1.3	2.4		mg/Kg-dry	1	7/9/2018 02:37 PM
Barium	53	0.76	2.4		mg/Kg-dry	1	7/9/2018 09:45 AM
Beryllium	ND	0.53	2.4		mg/Kg-dry	1	7/9/2018 09:45 AM
Cadmium	3.3	0.65	2.4		mg/Kg-dry	1	7/9/2018 09:45 AM
Chromium	2900	0.79	2.4		mg/Kg-dry	1	7/9/2018 09:45 AM
Cobalt	3.3	0.70	2.4		mg/Kg-dry	1	7/9/2018 09:45 AM
Copper	110	2.2	4.9		mg/Kg-dry	1	7/9/2018 09:45 AM
Lead	ND	0.72	2.4		mg/Kg-dry	1	7/9/2018 09:45 AM
Manganese	300	1.2	2.4		mg/Kg-dry	1	7/9/2018 09:45 AM
Molybdenum	3.4	0.73	2.4		mg/Kg-dry	1	7/9/2018 09:45 AM
Nickel	23	0.83	2.4		mg/Kg-dry	1	7/9/2018 09:45 AM
Selenium	ND	1.5	2.4		mg/Kg-dry	1	7/9/2018 09:45 AM
Silver	ND	1.5	2.4		mg/Kg-dry	1	7/9/2018 09:45 AM
Thallium	6.1	0.86	4.9		mg/Kg-dry	1	7/9/2018 02:37 PM
Vanadium	31	0.54	2.4		mg/Kg-dry	1	7/9/2018 09:45 AM
Zinc	48	0.73	2.4		mg/Kg-dry	1	7/9/2018 09:45 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



ND Not Detected at the Reporting Limit

Results are wet unless otherwise specified



ASSET Laboratories

Date: 18-Jul-18

CLIENT: CH2M HILL Work Order: N031079

ANALYTICAL QC SUMMARY REPORT

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

TestCode: 6010_SPGE

Sample ID MB-68719	SampType: MBLK	TestCode: 60'	0_SPGE	Units: mg/Kg		Prep Da	te: 7/6/20 1	18	RunNo: 12 0	6094	
Client ID: PBS	Batch ID: 68719	TestNo: EP	A 6010B	EPA 3050B		Analysis Da	te: 7/9/20 1	18	SeqNo: 307	73813	
Analyte	Result	PQL SPK	value S	PK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	ND	2.0									
Barium	ND	1.0									
Beryllium	ND	1.0									
Cadmium	ND	1.0									
Chromium	ND	1.0									
Cobalt	ND	1.0									
Copper	ND	2.0									
Lead	ND	1.0									
Manganese	ND	1.0									
Molybdenum	ND	1.0									
Nickel	ND	1.0									
Selenium	ND	1.0									
Silver	ND	1.0									
Vanadium	ND	1.0									
Zinc	ND	1.0									
Sample ID LCS-68719	SampType: LCS	TestCode: 60°	0_SPGE	Units: mg/Kg		Prep Da	te: 7/6/20 1	18	RunNo: 12 6	6094	
Client ID: LCSS	Batch ID: 68719	TestNo: EP	A 6010B	EPA 3050B		Analysis Da	te: 7/9/20 1	18	SeqNo: 30	73814	
Analyte	Result	PQL SPK	value S	PK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	26.946	2.0	25.00	0	108	85	115				
Barium	26.411	1.0	25.00	0	106	85	115				
Beryllium	26.403	1.0	25.00	0	106	85	115				
Cadmium	25.533	1.0	25.00	0	102	85	115				
Chromium	26.081	1.0	25.00	0	104	85	115				
Cobalt	25.753	1.0	25.00	0	103	85	115				
Copper	26.491	2.0	25.00	0	106	85	115				

Qualifiers:

B Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit

Calculations are based on raw values

- E Value above quantitation range
- R RPD outside accepted recovery limits

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



CLIENT: CH2M HILL

N031079 Work Order:

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

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_SPGE

Sample ID LCS-68719	SampType: LCS		de: 6010_SPGE			•	e: 7/6/201		RunNo: 126		
Client ID: LCSS	Batch ID: 68719	TestN	lo: EPA 6010B	EPA 3050B		Analysis Date	e: 7/9/201	8	SeqNo: 307	73814	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	51.636	1.0	50.00	0	103	85	115				
Molybdenum	25.977	1.0	25.00	0	104	85	115				
Nickel	26.099	1.0	25.00	0	104	85	115				
Selenium	26.327	1.0	25.00	0	105	85	115				
Silver	25.825	1.0	25.00	0	103	85	115				
Vanadium	24.702	1.0	25.00	0	98.8	85	115				
Zinc	25.877	1.0	25.00	0	104	85	115				
Sample ID N031079-001B-MS	SampType: MS	TestCoo	de: 6010_SPGE	Units: mg/Kg-	dry	Prep Date	: 7/6/201	8	RunNo: 126	6094	
Client ID: ZZZZZZ	Batch ID: 68719	TestN	lo: EPA 6010B	EPA 3050B		Analysis Date	e: 7/9/201	8	SeqNo: 307	73818	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	86.071	4.9	60.95	20.44	108	75	125				
Barium	97.442	2.4	60.95	53.30	72.4	75	125				S
Beryllium	57.292	2.4	60.95	0	94.0	75	125				
Cadmium	50.542	2.4	60.95	3.275	77.6	75	125				
Chromium	2668.258	2.4	60.95	2895	-372	75	125				S
Cobalt	54.293	2.4	60.95	3.272	83.7	75	125				
Copper	169.481	4.9	60.95	114.6	90.0	75	125				
Lead	45.936	2.4	60.95	0	75.4	75	125				
Manganese	388.190	2.4	121.9	303.4	69.6	75	125				S
Molybdenum	58.305	2.4	60.95	3.359	90.2	75	125				
Nickel	71.069	2.4	60.95	23.23	78.5	75	125				
Selenium	36.703	2.4	60.95	0	60.2	75	125				S
Silver	42.023	2.4	60.95	0	68.9	75	125				S
Vanadium	76.893	2.4	60.95	30.77	75.7	75	125				
Zinc	84.734	2.4	60.95	48.02	60.2	75	125				S

Qualifiers:

- Analyte detected in the associated Method Blank В
- ND Not Detected at the Reporting Limit Calculations are based on raw values

- Value above quantitation range
- RPD outside accepted recovery limits

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



CLIENT: CH2M HILL

Work Order: N031079

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

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_SPGE

Sample ID N031079-001B-MSD	SampType: MSD	TestCod	e: 6010_SPGE	Units: mg/Kg-	dry	Prep Date	7/6/201	8	RunNo: 12 6	6094	
Client ID: ZZZZZZ	Batch ID: 68719	TestN	o: EPA 6010B	EPA 3050B		Analysis Date	7/9/201	8	SeqNo: 307	73819	
Analyte	Result	PQL	SPK value S	PK Ref Val	%REC	LowLimit I	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	85.844	4.9	61.01	20.44	107	75	125	86.07	0.264	20	
Barium	96.935	2.4	61.01	53.30	71.5	75	125	97.44	0.522	20	S
Beryllium	56.855	2.4	61.01	0	93.2	75	125	57.29	0.766	20	
Cadmium	49.846	2.4	61.01	3.275	76.3	75	125	50.54	1.39	20	
Chromium	2651.677	2.4	61.01	2895	-399	75	125	2668	0.623	20	S
Cobalt	53.693	2.4	61.01	3.272	82.6	75	125	54.29	1.11	20	
Copper	170.555	4.9	61.01	114.6	91.7	75	125	169.5	0.632	20	
Lead	45.313	2.4	61.01	0	74.3	75	125	45.94	1.37	20	S
Manganese	385.538	2.4	122.0	303.4	67.3	75	125	388.2	0.686	20	S
Molybdenum	57.823	2.4	61.01	3.359	89.3	75	125	58.31	0.831	20	
Nickel	70.335	2.4	61.01	23.23	77.2	75	125	71.07	1.04	20	
Selenium	36.313	2.4	61.01	0	59.5	75	125	36.70	1.07	20	S
Silver	42.162	2.4	61.01	0	69.1	75	125	42.02	0.331	20	S
Vanadium	76.713	2.4	61.01	30.77	75.3	75	125	76.89	0.234	20	
Zinc	83.410	2.4	61.01	48.02	58.0	75	125	84.73	1.58	20	S
Sample ID MB-68719	SampType: MBLK	TestCod	e: 6010_SPGE	Units: mg/Kg		Prep Date	7/6/201	8	RunNo: 12 6	6100	
Client ID: PBS	Batch ID: 68719	TestN	o: EPA 6010B	EPA 3050B		Analysis Date	7/9/201	8	SeqNo: 307	74195	
Analyte	Result	PQL	SPK value S	PK Ref Val	%REC	LowLimit I	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	1.0									
Thallium	ND	2.0									
Sample ID N031079-001B-MS	SampType: MS	TestCod	e: 6010_SPGE	Units: mg/Kg-	dry	Prep Date	: 7/6/201	8	RunNo: 12 6	6100	
Client ID: ZZZZZZ	Batch ID: 68719	TestN	o: EPA 6010B	EPA 3050B		Analysis Date	: 7/9/201	8	SeqNo: 307	74200	
Analyte	Result	PQL	SPK value S	PK Ref Val	%REC	LowLimit I	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	67.812	2.4	60.95	16.09	84.9	75	125				
Thallium	51.740	4.9	60.95	6.055	75.0	75	125				S

Qualifiers:

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

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



CLIENT: CH2M HILL

Work Order: N031079

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

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_SPGE

Sample ID	N031079-001B-MSD	SampType: MSD	TestCod	de: 6010_SPG	E Units: mg/Kg-	dry	Prep Dat	e: 7/6/201	8	RunNo: 126	6100	
Client ID:	ZZZZZZ	Batch ID: 68719	TestN	lo: EPA 6010E	B EPA 3050B		Analysis Dat	e: 7/9/201	8	SeqNo: 307	74201	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic		67.287	2.4	61.01	16.09	83.9	75	125	67.81	0.776	20	
Thallium		52.552	4.9	61.01	6.055	76.2	75	125	51.74	1.56	20	
Sample ID	LCS-68719	SampType: LCS	TestCoo	de: 6010_SPG	E Units: mg/Kg		Prep Dat	e: 7/6/201	8	RunNo: 12 6	6100	
	LCS-68719 LCSS	SampType: LCS Batch ID: 68719		de: 6010_SPG do: EPA 6010E	0 0		Prep Dat Analysis Dat			RunNo: 126 SeqNo: 307		
· ·				lo: EPA 6010E	0 0	%REC	Analysis Dat	e: 7/9/201				Qual
Client ID:		Batch ID: 68719	TestN	lo: EPA 6010E	B EPA 3050B		Analysis Dat	e: 7/9/201	8	SeqNo: 307	74211	Qual

Qualifiers:

B Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit
Calculations are based on raw values

- E Value above quantitation range
- R RPD outside accepted recovery limits

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



ANALYTICAL RESULTS

ASSET Laboratories Print Date: 18-Jul-18

Client Sample ID: Phase Separator-575-Sludge **CLIENT:** CH2M HILL

Lab Order: N031079 **Collection Date:** 7/3/2018 10:30:00 AM

Project: PG&E Topock, 680375.03.IM.OP.00 Matrix: SOIL

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

HEXAVALENT CHROMIUM BY IC

N031079-001

Lab ID:

EPA 3060A EPA 7199

RunID: NV00922-IC6_180709A QC Batch: 68742 PrepDate 7/9/2018 Analyst: RAB

Hexavalent Chromium 90 0.71 2.4 mg/Kg-dry 7/9/2018 04:02 PM 5

Qualifiers: В

Analyte detected in the associated Method Blank

Η Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

Surrogate Diluted Out

Value above quantitation range Е

Not Detected at the Reporting Limit

Results are wet unless otherwise specified



ASSET Laboratories

Date: 18-Jul-18

CLIENT: CH2M HILL Work Order: N031079

ANALYTICAL QC SUMMARY REPORT

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

'	LCS-68742	SampType:				GE Units: mg/Kg			e: 7/9/201		RunNo: 120		
Client ID:	LCSS	Batch ID:	68742	TestNo	o: EPA 7199	EPA 3060A		Analysis Date	e: 7/9/201	8	SeqNo: 30	74154	
Analyte			Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent	Chromium		3.831	0.20	4.000	0	95.8	80	120				
Sample ID	MB-68742	SampType:	MBLK	TestCode	e: 7199_S_P (GE Units: mg/Kg		Prep Date	: 7/9/201	8	RunNo: 12 0	6114	
Client ID:	PBS	Batch ID:	68742	TestNo	o: EPA 7199	EPA 3060A		Analysis Date	e: 7/9/201	8	SeqNo: 30	74155	
Analyte			Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent	Chromium		ND	0.20									
Sample ID	N031079-001C-REP	SampType:	DUP	TestCode	e: 7199_S_P (GE Units: mg/Kg	-dry	Prep Date	e: 7/9/201	8	RunNo: 12 0	6114	
Client ID:	ZZZZZZ	Batch ID:	68742	TestNo	o: EPA 7199	EPA 3060A		Analysis Date	e: 7/9/201	8	SeqNo: 30	74157	
Analyte			Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent	Chromium		90.062	2.4						89.52	0.605	20	
Sample ID	N031079-001C-DUP	SampType:	DUP	TestCode	e: 7199_S_P (GE Units: mg/Kg	-dry	Prep Date	: 7/9/201	8	RunNo: 12 0	6114	
Client ID:	ZZZZZZ	Batch ID:	68742	TestNo	o: EPA 7199	EPA 3060A		Analysis Date	e: 7/9/201	8	SeqNo: 30	74158	
Analyte			Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent	Chromium		92.760	2.4						89.52	3.56	20	
Sample ID	N031079-001C-MS	SampType:	MS	TestCode	e: 7199_S_P (GE Units: mg/Kg-	-dry	Prep Date	e: 7/9/201	8	RunNo: 12 0	6114	
Client ID:	ZZZZZZ	Batch ID:	68742	TestNo	o: EPA 7199	EPA 3060A		Analysis Date	e: 7/9/201	8	SeqNo: 30	74159	
Analyte			Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent	Chromium		90.967	2.4	9.743	89.52	14.9	75	125				S

Qualifiers:

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

H Holding times for preparation or analysis exceeded

TestCode: 7199_S_PGE

S Spike/Surrogate outside of limits due to matrix interference



CLIENT: CH2M HILL

Work Order: N031079

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

ANALYTICAL QC SUMMARY REPORT

TestCode: 7199_S_PGE

Sample ID N031079-001C-MSD Client ID: ZZZZZZ	SampType: MSD Batch ID: 68742	TestCode: 7199_S_PGE Units: mg/Kg-dry TestNo: EPA 7199 EPA 3060A	Prep Date: 7/9/2018 Analysis Date: 7/9/2018	RunNo: 126114 SeqNo: 3074160
Analyte	Result	PQL SPK value SPK Ref Val %RI	C LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Hexavalent Chromium	101.968	2.4 9.758 89.52 12	3 75 125 90.97	11.4 20 S
Sample ID N031079-001C-MS I Client ID: ZZZZZZ	SampType: MS Batch ID: 68742	TestCode: 7199_S_PGE Units: mg/Kg-dry TestNo: EPA 7199 EPA 3060A	Prep Date: 7/9/2018 Analysis Date: 7/9/2018	RunNo: 126114 SeqNo: 3074161
Analyte	Result	PQL SPK value SPK Ref Val %RE	C LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Hexavalent Chromium	1461.698	24 1581 89.52 86	3 75 125	
Sample ID N031079-001C-PS Client ID: ZZZZZZ	SampType: MS Batch ID: 68742	TestCode: 7199_S_PGE Units: mg/Kg-dry TestNo: EPA 7199 EPA 3060A	Prep Date: Analysis Date: 7/9/2018	RunNo: 126114 SeqNo: 3074162
Analyte	Result	PQL SPK value SPK Ref Val %RE	C LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Hexavalent Chromium	138.192	2.4 48.69 89.52 10	75 125	

Qualifiers:

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 Calculations are based on raw values

- E Value above quantitation range
- R RPD outside accepted recovery limits

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



ANALYTICAL RESULTS

ASSET Laboratories Print Date: 18-Jul-18

Client Sample ID: Phase Separator-575-Sludge **CLIENT:** CH2M HILL

Lab Order: N031079 **Collection Date:** 7/3/2018 10:30:00 AM

Project: PG&E Topock, 680375.03.IM.OP.00 Matrix: SOIL Lab ID: N031079-001

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

TOTAL MERCURY BY COLD VAPOR TECHNIQUE

EPA 7471A

QC Batch: 68720 RunID: NV00922-AA1_180706A PrepDate 7/6/2018 Analyst: CEI

ND 0.066 0.24 7/6/2018 09:51 AM Mercury mg/Kg-dry 1

Qualifiers: Analyte detected in the associated Method Blank В

Η

Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

Surrogate Diluted Out

Value above quantitation range Е

Not Detected at the Reporting Limit

Results are wet unless otherwise specified



Date: 18-Jul-18 **ASSET Laboratories**

CLIENT: CH2M HILL Work Order:

N031079

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

ANALYTICAL QC SUMMARY REPORT

TestCode: 7471_S_PGE

Sample ID	MB-68720	SampType: MBLK	TestCode: 7471_S_PGE Units: mg/Kg	Prep Date: 7/6/2018	RunNo: 126058
Client ID:	PBS	Batch ID: 68720	TestNo: EPA 7471A	Analysis Date: 7/6/2018	SeqNo: 3072732
Analyte		Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Mercury		ND	0.10		
Sample ID	LCS-68720	SampType: LCS	TestCode: 7471_S_PGE Units: mg/Kg	Prep Date: 7/6/2018	RunNo: 126058
Client ID:	LCSS	Batch ID: 68720	TestNo: EPA 7471A	Analysis Date: 7/6/2018	SeqNo: 3072733
Analyte		Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Mercury		0.405	0.10 0.4167 0	97.1 75 125	
Sample ID	N031079-001B-MS	SampType: MS	TestCode: 7471_S_PGE Units: mg/Kg-	-dry Prep Date: 7/6/2018	RunNo: 126058
Sample ID Client ID:		SampType: MS Batch ID: 68720	TestCode: 7471_S_PGE Units: mg/Kg-	-dry Prep Date: 7/6/2018 Analysis Date: 7/6/2018	RunNo: 126058 SeqNo: 3072734
· ·			0		
Client ID:		Batch ID: 68720	TestNo: EPA 7471A	Analysis Date: 7/6/2018	SeqNo: 3072734
Client ID: Analyte Mercury		Batch ID: 68720 Result 1.128	TestNo: EPA 7471A PQL SPK value SPK Ref Val	Analysis Date: 7/6/2018 %REC LowLimit HighLimit RPD Ref Val 97.3 75 125	SeqNo: 3072734
Client ID: Analyte Mercury	777777	Batch ID: 68720 Result 1.128	TestNo: EPA 7471A PQL SPK value SPK Ref Val 0.24 1.017 0.1381	Analysis Date: 7/6/2018 %REC LowLimit HighLimit RPD Ref Val 97.3 75 125	SeqNo: 3072734 %RPD RPDLimit Qual
Client ID: Analyte Mercury Sample ID	N031079-001B-MSD	Batch ID: 68720 Result 1.128 SampType: MSD	TestNo: EPA 7471A PQL SPK value SPK Ref Val 0.24 1.017 0.1381 TestCode: 7471_S_PGE Units: mg/Kg-	Analysis Date: 7/6/2018 REC LowLimit HighLimit RPD Ref Val 97.3 75 125 Order Prep Date: 7/6/2018	SeqNo: 3072734 %RPD RPDLimit Qual RunNo: 126058

Qualifiers:

- Analyte detected in the associated Method Blank В
- ND Not Detected at the Reporting Limit Calculations are based on raw values

- Value above quantitation range
- RPD outside accepted recovery limits

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



ANALYTICAL RESULTS

ASSET Laboratories Print Date: 18-Jul-18

CLIENT: CH2M HILL Client Sample ID: Phase Separator-575-Sludge

Project: PG&E Topock, 680375.03.IM.OP.00 Matrix: SOIL

Analyses Result MDL PQL Qual Units DF Date Analyzed

PERCENT MOISTURE
D2216

N031079-001

RunlD: NV00922-WC_180705F QC Batch: R126037 PrepDate Analyst: LR

Percent Moisture 59.04 0.1000 0.1000 wt% 1 7/5/2018 11:50 AM

Qualifiers:

Lab ID:

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

OO Surrogate Diluted Out

E Value above quantitation range

ND Not Detected at the Reporting Limit

Results are wet unless otherwise specified



ASSET Laboratories Date: 18-Jul-18

CLIENT: CH2M HILL Work Order:

N031079

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

ANALYTICAL QC SUMMARY REPORT

TestCode: PMOIST

Sample ID MB-R126037	SampType: MBLK	TestCode: PMOIST	Units: wt%	Prep Date:	RunNo: 126037
Client ID: PBS	Batch ID: R126037	TestNo: D2216		Analysis Date: 7/5/2018	SeqNo: 3072039
Analyte	Result	PQL SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Percent Moisture	ND	0.1000			_
Sample ID N031079-001BDUP	SampType: DUP	TestCode: PMOIST	Units: wt%	Prep Date:	RunNo: 126037
Sample ID N031079-001BDUP Client ID: ZZZZZZ	SampType: DUP Batch ID: R126037	TestCode: PMOIST TestNo: D2216	Units: wt%	Prep Date: Analysis Date: 7/5/2018	RunNo: 126037 SeqNo: 3072041
			Units: wt%	•	

Qualifiers:

- Analyte detected in the associated Method Blank В
- ND Not Detected at the Reporting Limit Calculations are based on raw values

- Value above quantitation range
- RPD outside accepted recovery limits

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



CH2MHILL

CHAIN OF CUSTODY RECORD

Page	1	OF	
- 3	•	A1550	

Project Name PG&E Topock	Contai	ner: Glass Jar(8 oz)	250ml Glass	Glass Jar(8 oz)	4 oz jar		Π	
Location PG&E Topock Project Number 680375.03.IM.C		none	4'C	none	4°C			
Project Manager Scott O'Donne	l Filter	ed: NA	NA	NA	NA		ı	
Sample Manager Shawn Duffy	Holding Ti	me: NA	14	NA	180		1	
Task Order Project IM3PLANT-ARAR-WDR-5 Turnaround Time 10 Days Shipping Date: COC Number: 575-s	75-SLUDGE DATE TIME Matr	Anions (E300_Soil) FI	Bioassay (Bioassay, 96hr Acute)	Metals (60108_Soil) Title 22, Mercury. Mn	Metals (7199)		Number of Containers	COMMENTS
Phase Separator-575-Sludge	3-18 10:30 Soi	I x		X	X	N031079-01	8	3
Phase Separator-575-Sludge	-3-18 10:30 Soi		X			-02	8	
	42.0					TOTAL NUMBER OF CONTAINERS	12	6

Date/Time Shipping Details		Special Instructions:
7-3-18 7:00	ATTN:	60 1
7-3-18 7:00 Method of Shipment: FedEx		
7-3-18 15:44 On Ice: (yes I) no (CE)	Sample Custody	
17/3/18 @1544 Airbill No: 1.8°C	and	
Lab Name: ASSET Laboratories		Report Copy to
Lab Phone: (702) 307-2659	Marion Cartin	Doug Scott (970) 731-0636
	7-3-18 7:00 7-3-18 7:00 7-3-18 15:44 On Ice: yes) no C= 7/3/18 0/544 Airbill No: 1,8°C Lab Name: ASSET Laboratories	Method of Shipment: FedEx 7-3-18 15:44 On Ice: (yes) no CE R#1 Sample Custody 1-3/18 2/845 ATTN: Sample Custody and Lab Name: ASSET Laboratories Marlon Cartin

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 of	or further in	nstruction, pleas	se contact our	Project Cool	rdinator at (70	2) 307-2659.		
Cooler Received/Opened On:	7/3/2018				Workorder:	N031079		
Rep sample Temp (Deg C):	1.8				IR Gun ID:	2		
Temp Blank:	✓ Yes	☐ No						
Carrier name:	ASSET							
Last 4 digits of Tracking No.:	NA			Packing	g Material Used:	None		
Cooling process:	✓ Ice	☐ Ice Pack	Dry Ice	Other	☐ None			
		<u>Sa</u>	ample Receip	ot Checklis	<u>t</u>			
1. Shipping container/cooler in g	good conditio	n?			Yes 🗹	No 🗆	Not Present	
2. Custody seals intact, signed,	dated on shi	ppping container/o	cooler?		Yes	No 🗆	Not Present	✓
3. Custody seals intact on samp	ole bottles?				Yes	No 🗆	Not Present	✓
4. Chain of custody present?					Yes 🗸	No 🗆		
5. Sampler's name present in C	OC?				Yes 🗹	No 🗌		
6. Chain of custody signed whe	n relinquishe	d and received?			Yes 🗹	No 🗆		
7. Chain of custody agrees with	sample labe	ls?			Yes 🗸	No 🗌		
8. Samples in proper container/l	oottle?				Yes 🗹	No 🗌		
9. Sample containers intact?					Yes 🗸	No 🗆		
10. Sufficient sample volume fo	r indicated te	est?			Yes 🗹	No 🗆		
11. All samples received within	holding time	?			Yes 🗹	No 🗌		_
12. Temperature of rep sample	or Temp Bla	nk within acceptab	ole limit?		Yes 🗹	No 🗌	NA	
13. Water - VOA vials have zero	o headspace	?			Yes _	No 🗌	NA	✓
14. Water - pH acceptable upor Example: pH > 12 for (CN	•	or Metals			Yes	No 🗌	NA	✓
15. Did the bottle labels indicate	correct pres	ervatives used?			Yes	No \square	NA	✓
16. Were there Non-Conforman W	ce issues at as Client no				Yes ☐ Yes ☐	No 🗌 No 🔲	NA NA	
Comments:								
Checklist Completed By:	For:	<i>K</i> 7/5/201	8		1	Reviewed By:	# LG	071618

Page 1 of 1

05-Jul-18

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:

29 N Olive

Aquatic Bioassay & Consulting TEL: (805) 643-5621

FAX:

Ventura, CA 93001 Acct #:

Field Sampler: SIGNED

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

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

Please use PO#:N31079A Please email Invoices and Account Receivable Statements to elvira@assetlaboratories.com. For questions, call

Marlon at (702)-307-2659. Please e-mail results to reports.lv@assetlaboratories.com by: Normal TAT.

Please analyze for Bioassay, 96 hr Acute. EDD Requirement Labspec7 edata.

GSO #: 541201303

			Date/Time		Date/Time
	YET	7/5/2018	17:00		
Relinquished by:	9re			Received by:	_
Relinquished by:				Received by:	

List of Analysts

ASSET Laboratories Work Order: N031079

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





July

18, 2018

Mr. Marlon Cartin Asset Laboratories 3151 W Post Rd. Las Vegas, NV 89118

Dear Mr. Cartin:

We are pleased to present the enclosed acute bioassay report. The test was conducted under the guidelines prescribed in "Static Acute Bioassay Procedures for Hazardous Waste Samples" California Department of Fish and Game, 1988. The results were as follows:

CLIENT: SAMPLE I.D.: DATE RECEIVED: ABC LAB, NO.: Asset Laboratories N031079-001D 07/06/18 AST0718.028

DOHS (TITLE 22) HAZARDOUS WASTE BIOASSAY USING FATHEAD MINNOWS

96 HOUR LC50 =

>750

mg/1

STATUS =

Pass

Respectful

Scott Johnson

Laboratory Director

AQUATIC BIOASSAY AND CONSULTING LABORATORIES, INC. 29 North Olive Street Ventura, CA 93001 (805) 643-5621

DOHS Bioassay for Hazardous Waste (Title 22)

SAMPLE INFORMATION

CLIENT:	Asset Laboratories	Date: 07/06/18
SAMPLE I.D.:	N031079-001D	LAB # AST0718.028

WATER QUALITY

			TILL DIE	CONTRACT A N			
DILUI	TON WATT	Reconst.	Fresh	AERATIO			
(CONTROL	JARDN	ESS	C	ONTROL A	LKALIN	ITY
Beg:	43 mg/l	End:	46 mg/l	Beg:	31 mg/l	End:	33 mg/l
5	SAMPLE HA	ARDNES	S	S	AMPLE AL	KALINIT	Y
Beg:	43 mg/l	End;	79 mg/l	Beg:	30 mg/l	End:	62 mg/l

ORGANISM INFORMATION

1	SPECIES:	Pimephales promelas	DATE REC'D:	07/10/18
ı	COMMON NAME	Fathead Minnow	AVERAGE LNTH:	39 mm
ı	SOURCE:	Thomas Fish Co.	AVERAGE WT:	0.80 gm
ı	CARRIER:	California Overnight	NO. FISH / TANK:	10

TEST DATA

										1.1	DI DA	I PA							
		INITIAI	L	24	HOUR	S.		4	48 HOUR!	S		72	2 HOUR	S		96	HOUR	tS	
		07/13/1	8		37/14/1	8			07/15/18				07/16/18	}			07/17/13	8	
TIME:		1453			1510				1420				1450				1310		
	Dis.	Temp.	pH	Dis.	Temp.	pH	#Fish	Dis.	Temp.	pH	#Fish	Dis.	Temp.	pH	#Fish	Dis.	Temp.	pН	#Fish
CONC.	Oxy.	dg.Ċ		Oxy.	dg.Ċ		Dead	Oxy.	dg,C		Dead	Oxy.	dg.Ć		Dead	Oxy.	dg.C		Dead
0 (Con.)	8.9	19.8	7.6	8.1	18.9	7.5	0	8.0	19.0	7.4	0	7.3	18.8	7.0	0	7.6	18.1	7.3	0
400 mg/l	8.8	20.0	7.6	8.2	18.4	7.2	0	7.7	18.8	6.9	0	7.2	18.7	7.1	0	7.8	18.6	7.2	0
400 mg/l	8.8	20.0	7.6	8.1	18.4	7.1	0	7.7	18.8	6.9	0	7.6	18.5	7.2	1	7.9	18,5	7.2	0
750 mg/l	8.8	20.0	7.6	8.0	18.5	7.1	0	7.8	18.7	6.9	0	7.5	18.5	7.2	0	8.1	18.5	7.2	0
750 mg/l	8.8	20.0	7.5	8.0	18.5	7.1	0	7.9	18.8	7.0	0	7.5	18.4	7.2	0	7.8	18.5	7.2	0

FINAL DATA

FINAL RI	ESULTS
96 HOUR LC50 =	>750 mg/l
STATUS =	Pass
CALCULATION METHOD =	Binomial Test
	96 HOUR LC50 = STATUS =

Joe Freas, Senior Toxicologist

Date

7/18/18

CHAIN-OF-CUSTODY RECORD

QC Level: Level IV

Subcontractor:

Ventura, CA 93001 29 N Olive Aquatic Bioassay & Consulting

> FAX: (805) 643-5621

Acct #:

Field Sampler: SIGNED

05-Jul-18

	_	4OZG	7/3/2018 10:30:00 AM	Soil	/ Phase Separator-575-Sludge	N031079-001D
	Bioassay	Bottle Type	Date Collected	Matrix	Sample ID	
Requested Tests						

TEMP IS 8'C

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

General Comments:

Please email sample receipt acknowledgement to the PM.

Please use PO#.N31079A Please email Invoices and Account Receivable Statements to elvira@assetlaboratories.com. For questions, call Marlon at (702)-307-2659. Please e-mail results to reports.lv@assetlaboratories.com by: Normal TAT.

Please analyze for Bioassay, 96 hr Acute. EDD Requirement Labspec7 edata.

		a7		GSO #:		
			Date/Time			Date/Time
	an	7/5/2018 17:00	17:00	35	,) > _ /	7014
Relinquished by:				Received by:	CITACUL	CR 81- 91
Relinquished by:				Received by:		
				,		



Date of Report: 07/11/2018

Marlon Cartin

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

Client Project: N031080 Level IV **BCL Project: BCL Work Order:** 1820954 B309374 Invoice ID:

Enclosed are the results of analyses for samples received by the laboratory on 7/6/2018. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Contact Person: Vanessa Sandoval

Client Service Rep

Stuart Buttram **Technical Director**

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

Report ID: 1000767394

Page 1 of 11



Page 1 of 1		05-Jul-18				Date/Time
CHAIN-OF-CUSTODY RECORD	Level IV	SIGNED	Requested Tests			
F-CUSTO	QC Level: Level IV	Field Sampler:		SM4500-NH3D		AT. AT.
HAIN-0				Bottle Type	4Z091	tories.com be Statements to etvira@assetlabo atories.com by: Normal TAT. c 7 edata. GSO #: 541202428 Received by: Received by:
	15602-81	(661) 327-4911 (661) 327-1918		Date Collected	7/3/2018 9:51:00 AM 7/3/2018 9:44:00 AM	assetlabora
ries 1988: NV 89118 FAX: 7023072691	84	TEL: (661) FAX: (661): Acct#:		Matrix	Water	o Lucille Golosinda at Iucille.golosinda@ Please email sample receipt acknowledgement to the PM. Please use PO#:N31080A. Please email Invoices and Amarlon at (702)-307-2859. Please e-mail results to report Please analyze for Ammonia by SM4500NH3D. EDD Rec
ASSET Laboratories 3161-3163 W Post Rd., Las Vegas, NV 89118 www.ablates.com TEL: 7023072659		t 93308	O change	Sample ID	/ SC-100B-WDR-575 / SC-700B-WDR-575	#
A E SE	Cubecontractor	BC Labs 4100 Atlas Court Bakersfield, CA 93308		- 1 1	N031080-001A /	Please cc repo General Comments: Relinquished by:

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety. All results listed in this report are for the exclusive use of the submitting party. BC Laboratories, Inc. assumes no responsibility for report alteration, separation, detachment or third party interpretation.

4100 Atlas Court Bakersfield, CA 93308 (661) 327-4911 FAX (661) 327-1918 www.bclabs.com

Report ID: 1000767394



Chain of Custody and Cooler Receipt Form for 1820954 Page 2 of 2

BC LABORATORIES INC. Submission #: \8-76954				RECEIPT						
	ATION			CI.	IIDDING (CONTAIN	JER	T	REE LIO	UID
SHIPPING INFORM		i Delivery		Ice Che		None 🗆	Box □		ES C I	
	Specify) [~~ ST	Othe	☐ (Spec	ify)			W /	s
bo East Held dollars			Cisc	<u> </u>						
Refrigerant: Ice Ø Blue Ice □	None		Other 🗆	Comm	ents:					
	Containe		None	€ Comr	nents:					
Custody Seals Introduced August August International	fact/ Yes	S No. 21								
All samples received? Yes	II samples	containers	intact? Y	05/R 160	0		ion(s) match	COC? Y	es No	- (
COC Received Emis	sivity: _(17 C	Container	SHPC.	Thermon	eter ID:	1800	Date/Tim	100 1.C	18
- A	nperature:	. •	.()	١.	(C)	2.1		Analyst	nit (I)	08:4
1 161	nperature.	(A) C				AUMADEDE				
SAMPLE CONTAINERS			_			NUMBERS	T - T	8	1	10
	1	2	3	4	5	6	7		8	1 10
OT PE UNPRES	<u> </u>									
40x/E0x/160x PE UNPRES	 	-								
20x Cr ⁴⁶	 	-								
OT INORGANIC CHEMICAL METALS		-		 						
INORGANIC CHEMICAL METALS 40z / 80z / 160z		-		 						
PT CYANIDE . PT NITROGEN FORMS I 24	A	A								
		1-	-	 			i			
PT TOTAL SULFIDE	 	1	1				-			
200. NITRATE / NITRITE	<u> </u>	1								
PT TOTAL ORGANIC CARBON PT CHEMICAL OXYGEN DEMAND	l	1	-							
PIA PHENOLICS	l —		1							
40ml VOA VIAL TRAVEL BLANK										
40ml VOA VIAL	1									
OT EPA 1664										
PT ODOR				1					ļ	
RADIOLOGICAL							-			
BACTERIOLOGICAL									-	-
40 ml VOA VIAL- 504										
OT RPA 508/608/8080							-			-
OT EPA 515.1/8150							-			
OT EPA 525						ļ				
OT EPA 525 TRAVEL BLANK			1			1			-	
40ml EPA 547			-1	1						
40ml EPA 531.1						Α	-			
80x EPA 548										
OT EPA 549		,							-	
OT EPA 8015M										
OT RPA 8270									-	
80x/1602/320x AMBER						l				
80z / 160z / 320z JAR										
SOIL SLEEVE		1								
PCB YIAL		1				,				
PLASTIC BAG	1									
TEDLAR BAG										
PERROUS IRON	1									
ENCORB	1				1				1	
	1		+	-						
TART KIT	-		-	-					+	
MA CANISTER		1	1			1				

Report ID: 1000767394



Reported: 07/11/2018 10:57

Project: Level IV Project Number: N031080 Project Manager: Marlon Cartin

Laboratory / Client Sample Cross Reference

Laboratory	Client Sample Informati	on			
1820954-01	COC Number:		Receive Date:	07/06/2018 08:40	
	Project Number:		Sampling Date:	07/03/2018 09:51	
	Sampling Location:		Sample Depth:		
	Sampling Point:	N031080-001A / SC-100B-WDR-575	Lab Matrix:	Water	
	Sampled By:		Sample Type:	Water	
1820954-02	COC Number:		Receive Date:	07/06/2018 08:40	
	Project Number:		Sampling Date:	07/03/2018 09:44	
	Sampling Location:		Sample Depth:		
	Sampling Point:	N031080-002A / SC-700B-WDR-575	Lab Matrix:	Water	
	Sampled By:		Sample Type:	Water	

Page 5 of 11 Report ID: 1000767394



Reported: 07/11/2018 10:57

Project: Level IV Project Number: N031080 Project Manager: Marlon Cartin

Water Analysis (General Chemistry)

BCL Sample ID:	1820954-01	Client Sampl	e Name:	N031080-	001A / SC-	-100B-WDR-575,	7/3/2018 9:	51:00AM	
Constituent		Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run#
Ammonia as N (Distille	d)	ND	mg/L	0.20		SM-4500-NH3G	ND		1

			Run					
Run#	Method	Prep Date	Date/Time	Analyst	Instrument	Dilution	Batch ID	
1	SM-4500-NH3G	07/09/18 09:03	07/10/18 13:24	JMH	SC-1	1	B018398	

Page 6 of 11 Report ID: 1000767394



Reported: 07/11/2018 10:57

Project: Level IV Project Number: N031080 Project Manager: Marlon Cartin

Water Analysis (General Chemistry)

BCL Sample ID:	1820954-02	Client Sample	e Name:	N031080-	002A / SC-	-700B-WDR-575,	7/3/2018 9:4	9:44:00AM		
Constituent		Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #	
Ammonia as N (Distille	ed)	0.44	mg/L	0.20		SM-4500-NH3G	ND		1	

			Run					
Run#	Method	Prep Date	Date/Time	Analyst	Instrument	Dilution	Batch ID	
1	SM-4500-NH3G	07/09/18 09:03	07/10/18 13:36	JMH	SC-1	1	B018398	

Page 7 of 11 Report ID: 1000767394



Reported: 07/11/2018 10:57

Project: Level IV
Project Number: N031080
Project Manager: Marlon Cartin

Water Analysis (General Chemistry)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B018398						
Ammonia as N (Distilled)	B018398-BLK1	ND	mg/L	0.20		

Report ID: 1000767394 4100 Atlas Court Bakersfield, CA 93308 (661) 327-4911 FAX (661) 327-1918 www.bclabs.com Page 8 of 11



Reported: 07/11/2018 10:57

Project: Level IV
Project Number: N031080
Project Manager: Marlon Cartin

Water Analysis (General Chemistry)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Туре	Result	Spike Level	Units	Percent Recovery	RPD	Control Li Percent Recovery	imits RPD	Lab Quals
QC Batch ID: B018398										
Ammonia as N (Distilled)	B018398-BS1	LCS	0.98150	1.0000	mg/L	98.2		85 - 115		

Report ID: 1000767394 4100 Atlas Court Bakersfield, CA 93308 (661) 327-4911 FAX (661) 327-1918 www.bclabs.com Page 9 of 11



Reported: 07/11/2018 10:57

Project: Level IV
Project Number: N031080
Project Manager: Marlon Cartin

Water Analysis (General Chemistry)

Quality Control Report - Precision & Accuracy

							Control Limits				
		Source	Source		Spike			Percent		Percent	Lab
Constituent	Туре	Sample ID	Result	Result	Added	Units	RPD	Recovery	RPD	Recovery	Quals
QC Batch ID: B018398	Use	Used client sample: Y - Description: N031080-001A / SC-100B-WDR-575, 07/03/2018 09:51									
Ammonia as N (Distilled)	DUP	1820954-01	0.12250	ND		mg/L			20		
	MS	1820954-01	0.12250	1.0889	1.0000	mg/L		96.6		80 - 120	
	MSD	1820954-01	0.12250	1.1382	1.0000	mg/L	4.4	102	20	80 - 120	

Report ID: 1000767394 4100 Atlas Court Bakersfield, CA 93308 (661) 327-4911 FAX (661) 327-1918 www.bclabs.com Page 10 of 11



Reported: 07/11/2018 10:57

Project: Level IV Project Number: N031080 Project Manager: Marlon Cartin

Notes And Definitions

PQL

MDL Method Detection Limit ND Analyte Not Detected

Practical Quantitation Limit

Page 11 of 11 Report ID: 1000767394

July 20, 2018

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

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

FAX: (510) 622-9129 Workorder No.: N031080

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

Attention: Doug Scott

Enclosed are the results for sample(s) received on July 03, 2018 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 library for

Quennie Manimtim

Laboratory Director

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

ASSET Laboratories

CLIENT: CH2M HILL

Project: PG&E Topock, 680375.03.IM.OP.00 CASE NARRATIVE

Lab Order: N031080

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.

Date: 20-Jul-18

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 200.8:

Dilution was necessary for sample N031080-003 due to associated internal standard not meeting method criteria possibly due to matrix interference. Sample was analyzed with dilution and internal standard met method criteria. Affected analytes for this failed internal standard were reported at dilution that meet internal standard recovery limit.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Beryllium in QC samples N031080-001E-MS and N031080-001E-MSD possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Chromium in QC samples N031080-001E-MS and N031080-001E-MSD since the analyte concentration in the sample is disproportionate to the spike level. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Analytical Comments for EPA 218.6:

Dilution was necessary for samples N031080-002 and -003 due to matrix interference. Samples were analyzed at lower dilution however matrix spike recovery and/or retention time criteria were not met indicating possible matrix interference. Samples were reported at dilution that meet matrix spike recovery limit and the detected peak within retention time window.



ASSET Laboratories

CLIENT: CH2M HILL

Project: PG&E Topock, 680375.03.IM.OP.00 Work Order Sample Summary

Date: 20-Jul-18

Lab Order: N031080

Contract No: IM3PLANT-AR

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N031080-001A	SC-100B-WDR-575	Water	7/3/2018 9:51:00 AM	7/3/2018	7/20/2018
N031080-001B	SC-100B-WDR-575	Water	7/3/2018 9:51:00 AM	7/3/2018	7/20/2018
N031080-001C	SC-100B-WDR-575	Water	7/3/2018 9:51:00 AM	7/3/2018	7/20/2018
N031080-001D	SC-100B-WDR-575	Water	7/3/2018 9:51:00 AM	7/3/2018	7/20/2018
N031080-001E	SC-100B-WDR-575	Water	7/3/2018 9:51:00 AM	7/3/2018	7/20/2018
N031080-001F	SC-100B-WDR-575	Water	7/3/2018 9:51:00 AM	7/3/2018	7/20/2018
N031080-002A	SC-700B-WDR-575	Water	7/3/2018 9:44:00 AM	7/3/2018	7/20/2018
N031080-002B	SC-700B-WDR-575	Water	7/3/2018 9:44:00 AM	7/3/2018	7/20/2018
N031080-002C	SC-700B-WDR-575	Water	7/3/2018 9:44:00 AM	7/3/2018	7/20/2018
N031080-002D	SC-700B-WDR-575	Water	7/3/2018 9:44:00 AM	7/3/2018	7/20/2018
N031080-002E	SC-700B-WDR-575	Water	7/3/2018 9:44:00 AM	7/3/2018	7/20/2018
N031080-002F	SC-700B-WDR-575	Water	7/3/2018 9:44:00 AM	7/3/2018	7/20/2018
N031080-003A	SC-701-WDR-575	Water	7/3/2018 9:35:00 AM	7/3/2018	7/20/2018
N031080-003B	SC-701-WDR-575	Water	7/3/2018 9:35:00 AM	7/3/2018	7/20/2018
N031080-003C	SC-701-WDR-575	Water	7/3/2018 9:35:00 AM	7/3/2018	7/20/2018
N031080-003D	SC-701-WDR-575	Water	7/3/2018 9:35:00 AM	7/3/2018	7/20/2018

ASSET Laboratories Print Date: 20-Jul-18

 CLIENT:
 CH2M HILL
 Client Sample ID:
 SC-100B-WDR-575

 Lab Order:
 N031080
 Collection Date:
 7/3/2018 9:51:00 AM

Project: PG&E Topock, 680375.03.IM.OP.00 Matrix: WATER

Lab ID: N031080-001

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 NV00922-WC_180705A
 QC Batch:
 R126032
 PrepDate
 Analyst:
 LR

 Specific Conductance
 7000
 0.10
 0.10
 umhos/cm
 1
 7/5/2018 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



Analyst: LR

ASSET Laboratories Print Date: 20-Jul-18

 CLIENT:
 CH2M HILL
 Client Sample ID:
 SC-700B-WDR-575

 Lab Order:
 N031080
 Collection Date:
 7/3/2018 9:44:00 AM

Project: PG&E Topock, 680375.03.IM.OP.00 Matrix: WATER

Lab ID: N031080-002

NV00922-WC_180705A

RunID:

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1 C_180705A QC Batch: R126032 Pr

Specific Conductance 7000 0.10 0.10 umhos/cm 1 7/5/2018 11:00 AM

PrepDate

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



ASSET Laboratories Print Date: 20-Jul-18

 CLIENT:
 CH2M HILL
 Client Sample ID:
 SC-701-WDR-575

 Lab Order:
 N031080
 Collection Date:
 7/3/2018 9:35:00 AM

Project: PG&E Topock, 680375.03.IM.OP.00 Matrix: WATER

Lab ID: N031080-003

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 NV00922-WC_180705A
 QC Batch:
 R126032
 PrepDate
 Analyst:
 LR

 Specific Conductance
 52000
 0.10
 0.10
 umhos/cm
 1
 7/5/2018 11:00 AM

Qualifiers: B Analyte detected in the associated Method Blank

ASSET LABORATORIES

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



CLIENT: CH2M HILL

ANALYTICAL QC SUMMARY REPORT

Work Order: N031080

Project: PG&E Topock, 680375.03.IM.OP.00 TestCode: 120.1_WPGE

Sample ID N031080-003ADL	JP SampType: DUP	TestCode: 120.1_WPGE	Units: umhos/cm Prep Date:	RunNo: 126032
Client ID: ZZZZZZ	Batch ID: R126032	TestNo: EPA 120.1	Analysis Date: 7/5/2018	SeqNo: 3071935
Analyte	Result	PQL SPK value SPK	Ref Val %REC LowLimit HighLimit	RPD Ref Val %RPD RPDLimit Qual
Specific Conductance	52600 000	0.10		52500 0.190 2

Qualifiers:

B Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit
Calculations are based on raw values

- E Value above quantitation range
- R RPD outside accepted recovery limits

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



ASSET Laboratories

CH2M HILL **CLIENT:** Lab Order: N031080

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

Lab ID: N031080-001

Filterable)

Client Sample ID: SC-100B-WDR-575

Collection Date: 7/3/2018 9:51:00 AM

Print Date: 20-Jul-18

Matrix: WATER

Analyses Result MDL **PQL** Qual Units DF **Date Analyzed TOTAL FILTERABLE RESIDUE** SM2540C NV00922-WC_180705G QC Batch: 68710 PrepDate RunID: 7/5/2018 Analyst: LR Total Dissolved Solids (Residue, 4200 50 7/5/2018 01:15 PM 50 mg/L 1

Qualifiers: В Analyte detected in the associated Method Blank

> Η Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

Value above quantitation range

ND Not Detected at the Reporting Limit Results are wet unless otherwise specified

DO Surrogate Diluted Out



Print Date: 20-Jul-18

ASSET Laboratories

CLIENT: CH2M HILL Client Sample ID: SC-700B-WDR-575

Lab Order: N031080 **Collection Date:** 7/3/2018 9:44:00 AM

Project: PG&E Topock, 680375.03.IM.OP.00 Matrix: WATER

Lab ID: N031080-002

Analyses Result MDL PQL Qual Units DF Date Analyzed

TOTAL FILTERABLE RESIDUE SM2540C

 RunlD:
 NV00922-WC_180705G
 QC Batch:
 68710
 PrepDate
 7/5/2018
 Analyst:
 LR

 Total Dissolved Solids (Residue,
 4200
 50
 50
 mg/L
 1
 7/5/2018 01:15 PM

Filterable)

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



Print Date: 20-Jul-18

ASSET Laboratories

CH2M HILL **CLIENT:**

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

N031080

Lab ID: N031080-003 Client Sample ID: SC-701-WDR-575

Collection Date: 7/3/2018 9:35:00 AM

Matrix: WATER

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

TOTAL FILTERABLE RESIDUE

SM2540C

NV00922-WC_180705G QC Batch: 68710 PrepDate RunID: 7/5/2018 Analyst: LR Total Dissolved Solids (Residue, 44000 500 500 7/5/2018 01:15 PM mg/L 1

Filterable)

Lab Order:

Qualifiers: В Analyte detected in the associated Method Blank

ASSET LABORATORIES

Η Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out Value above quantitation range

ND Not Detected at the Reporting Limit Results are wet unless otherwise specified

CALIFORNIA | P:562.219.7435 F:562.219.7436 11110 Artesia Blvd., Ste B, Cerritos, CA 90703 ELAP Cert 2921

CLIENT: CH2M HILL

Total Dissolved Solids (Residue, Filtera

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

ND

10

ANALYTICAL QC SUMMARY REPORT

Work Order: N031080

Project:

TestCode: 160.1_2540C_W

Sample ID LCS-68710 Client ID: LCSW	SampType: LCS Batch ID: 68710		de: 160.1_254 No: SM2540C	OC Units: mg/L		·	te: 7/5/2018 te: 7/5/2018	RunNo: 126038 SeqNo: 3072690	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit RPD Ref Val	%RPD RPDLimit	Qual
Total Dissolved Solids (Residu	ue, Filtera 961.000	10	1000	0	96.1	80	120		
Sample ID MB-68710	SampType: MBLK	TestCo	de: 160.1_254	0C Units: mg/L		Prep Da	te: 7/5/2018	RunNo: 126038	

Sample ID MB-68710	SampType: MBLK	TestCode: 160.1_2540C Units: mg/L	Prep Date: 7/5/2018	RunNo: 126038
Client ID: PBW	Batch ID: 68710	TestNo: SM2540C	Analysis Date: 7/5/2018	SeqNo: 3072691
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual

Sample ID N031080-003ADUP	SampType: DUP	TestCode: 160.1_2540C Units: mg/L	Prep Date: 7/5/2018	RunNo: 126038
Client ID: ZZZZZZ	Batch ID: 68710	TestNo: SM2540C	Analysis Date: 7/5/2018	SeqNo: 3072697
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual

Total Dissolved Solids (Residue, Filtera 45750.000 500 43900 4.13 5

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
 Calculations are based on raw values

- E Value above quantitation range
- R RPD outside accepted recovery limits

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



Print Date: 20-Jul-18

ASSET Laboratories

 CLIENT:
 CH2M HILL
 Client Sample ID:
 SC-100B-WDR-575

 Lab Order:
 N031080
 Collection Date:
 7/3/2018 9:51:00 AM

Project: PG&E Topock, 680375.03.IM.OP.00 Matrix: WATER

Lab ID: N031080-001

Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
TOTAL METALS BY ICP						
			EPA	A 200.7		
RunID: NV00922-ICP2_180716D	QC Batch: 687	21		PrepDate	7/6/2018	Analyst: CEI
Aluminum	ND	40	50	μg/L	1	7/16/2018 04:41 PM
Boron	1000	74	100	μg/L	1	7/16/2018 04:41 PM
Iron	ND	18	20	μg/L	1	7/16/2018 04:41 PM

Qualifiers: B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 20-Jul-18

ASSET Laboratories

 CLIENT:
 CH2M HILL
 Client Sample ID:
 SC-700B-WDR-575

 Lab Order:
 N031080
 Collection Date:
 7/3/2018 9:44:00 AM

Project: PG&E Topock, 680375.03.IM.OP.00 Matrix: WATER

Lab ID: N031080-002

Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
TOTAL METALS BY ICP						
			EPA	A 200.7		
RunID: NV00922-ICP2_180716D	QC Batch: 687	21		PrepDate	7/6/2018	Analyst: CEI
Aluminum	ND	40	50	μg/L	1	7/16/2018 05:25 PM
Boron	1000	74	100	μg/L	1	7/16/2018 05:25 PM
Iron	ND	18	20	μg/L	1	7/16/2018 05:25 PM

Qualifiers: B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



CLIENT: CH2M HILL

Work Order:

ANALYTICAL QC SUMMARY REPORT

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

N031080

TestCode: 200.7_WPGEPPB

Sample ID	MB-68721	SampType: MBLK	TestCo	de: 200.7_WF	PGE Units: μg/L		Prep Dat	te: 7/6/20	18	RunNo: 12 0	3268	
Client ID:	PBW	Batch ID: 68721	TestN	lo: EPA 200.	7		Analysis Dat	te: 7/16/2 0)18	SeqNo: 308	30745	
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	LCS1-68721	SampType: LCS	TestCod	de: 200.7_WF	PGE Units: µg/L		Prep Dat	te: 7/6/20	18	RunNo: 12 0	6268	
Client ID:	LCSW	Batch ID: 68721	TestN	No: EPA 200. 7	7		Analysis Dat	te: 7/16/2 0)18	SeqNo: 308	30746	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum		10376.092	50	10000	0	104	85	115	_			
Boron		4941.542	100	5000	0	98.8	85	115				
Iron		108.225	20	100.0	0	108	85	115				
Sample ID	N031080-001E-MS1	SampType: MS	TestCo	de: 200.7_W F	GE Units: µg/L		Prep Dat	te: 7/6/20	18	RunNo: 12 0	6268	
Client ID:	ZZZZZZ	Batch ID: 68721	TestN	lo: EPA 200.	7		Analysis Dat	te: 7/16/2 0)18	SeqNo: 308	30750	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum		10381.889	50	10000	0	104	75	125				
Boron		5912.513	100	5000	1019	97.9	75	125				
Iron		103.423	20	100.0	0	103	75	125				
Sample ID	N031080-001E-MSD	SampType: MSD	TestCod	de: 200.7_W F	PGE Units: µg/L		Prep Dat	te: 7/6/20	18	RunNo: 12 0	6268	
Client ID:	ZZZZZZ	Batch ID: 68721	TestN	lo: EPA 200.	7		Analysis Dat	te: 7/16/2 0)18	SeqNo: 308	30751	
ı		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Analyte												
Analyte Aluminum		10403.421	50	10000	0	104	75	125	10380	0.207	20	
*			50 100	10000 5000	0 1019	104 97.9	75 75	125 125	10380 5913	0.207 0.0196	20 20	

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit

- $E \quad \ \ Value \ above \ quantitation \ range$
- R RPD outside accepted recovery limits

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



ASSET Laboratories

CLIENT: CH2M HILL
Lab Order: N031080

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

Lab ID: N031080-001

Client Sample ID: SC-100B-WDR-575

Collection Date: 7/3/2018 9:51:00 AM

Print Date: 20-Jul-18

Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL METALS BY ICPMS							
			EP	A 200.8			
RunID: NV00922-ICP7_180712C	QC Batch: 687	723		PrepDa	ate	7/6/2018	Analyst: CEI
Antimony	ND	0.16	0.50		μg/L	1	7/12/2018 12:50 PM
Arsenic	3.1	0.081	0.10		μg/L	1	7/12/2018 12:50 PM
Barium	28	0.15	1.0		μg/L	1	7/12/2018 12:50 PM
Copper	ND	0.55	1.0		μg/L	1	7/20/2018 11:45 AM
Lead	ND	0.13	1.0		μg/L	1	7/12/2018 12:50 PM
Manganese	6.9	0.26	0.50		μg/L	1	7/12/2018 12:50 PM
Molybdenum	21	0.21	0.50		μg/L	1	7/12/2018 12:50 PM
Nickel	ND	0.26	1.0		μg/L	1	7/20/2018 11:45 AM
Zinc	ND	2.3	10		μg/L	1	7/12/2018 12:50 PM

Qualifiers: B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 20-Jul-18

ASSET Laboratories

 CLIENT:
 CH2M HILL
 Client Sample ID:
 SC-700B-WDR-575

 Lab Order:
 N031080
 Collection Date:
 7/3/2018 9:44:00 AM

Project: PG&E Topock, 680375.03.IM.OP.00 Matrix: WATER

Lab ID: N031080-002

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL METALS BY ICPMS							
			EP.	A 200.8			
RunID: NV00922-ICP7_180712C	QC Batch: 687	723		PrepDat	te	7/6/2018	Analyst: CEI
Antimony	ND	0.16	0.50	ı	µg/L	1	7/12/2018 02:32 PM
Arsenic	0.12	0.081	0.10	ı	µg/L	1	7/12/2018 02:32 PM
Barium	15	0.15	1.0	I	µg/L	1	7/12/2018 02:32 PM
Copper	ND	0.55	1.0	I	µg/L	1	7/20/2018 12:13 PM
Lead	ND	0.13	1.0	I	µg/L	1	7/12/2018 02:32 PM
Manganese	5.8	0.26	0.50	I	µg/L	1	7/12/2018 02:32 PM
Molybdenum	22	0.21	0.50	1	µg/L	1	7/12/2018 02:32 PM
Nickel	ND	0.26	1.0	Ī	μg/L	1	7/20/2018 12:13 PM
Zinc	ND	2.3	10	i	µg/L	1	7/12/2018 02:32 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



Print Date: 20-Jul-18

ASSET Laboratories

 CLIENT:
 CH2M HILL
 Client Sample ID:
 SC-701-WDR-575

 Lab Order:
 N031080
 Collection Date:
 7/3/2018 9:35:00 AM

Project: PG&E Topock, 680375.03.IM.OP.00 Matrix: WATER

Lab ID: N031080-003

Analyses	Result	MDL	PQL	Qual Un	its DF	Date Analyzed
TOTAL METALS BY ICPMS						
			EP	A 200.8		
RunID: NV00922-ICP7_180712C	QC Batch: 68	723		PrepDate	7/6/2018	Analyst: CEI
Antimony	ND	0.78	2.5	μg/L	5	7/12/2018 02:44 PM
Arsenic	2.2	0.41	0.50	μg/L	5	7/12/2018 02:44 PM
Barium	180	0.75	5.0	μg/L	5	7/12/2018 02:44 PM
Beryllium	ND	1.1	12	μg/L	25	7/17/2018 03:59 PM
Cadmium	ND	0.26	2.5	μg/L	5	7/12/2018 02:44 PM
Cobalt	ND	0.21	2.5	μg/L	5	7/12/2018 02:44 PM
Copper	ND	2.7	5.0	μg/L	5	7/20/2018 12:19 PM
Lead	ND	3.2	25	μg/L	25	7/12/2018 02:49 PM
Manganese	130	1.3	2.5	μg/L	5	7/12/2018 02:44 PM
Molybdenum	250	5.4	12	μg/L	25	7/12/2018 02:49 PM
Nickel	ND	1.3	5.0	μg/L	5	7/20/2018 12:19 PM
Selenium	48	1.8	2.5	μg/L	5	7/17/2018 05:11 PM
Silver	ND	1.2	2.5	μg/L	5	7/12/2018 02:44 PM
Thallium	ND	4.8	12	μg/L	25	7/12/2018 02:49 PM
Vanadium	ND	1.4	5.0	μg/L	5	7/20/2018 12:19 PM
Zinc	ND	11	50	ua/L	5	7/12/2018 02:44 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

ANALYTICAL QC SUMMARY REPORT

Work Order: N031080

TestCode: 200.8_W

Project: PG&E Topock, 6803	75.03.IM.OP.00
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Sample ID MB-68723	SampType: MBLK	TestCode: 200.8_W	Units: µg/L		Prep Da	ite: 7/6/20	18	RunNo: 12	6185	
Client ID: PBW	Batch ID: 68723	TestNo: EPA 200.8			Analysis Da	ite: 7/12/2	018	SeqNo: 30	77142	
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								
Cadmium	ND	0.50								
Cobalt	ND	0.50								
Lead	ND	1.0								
Manganese	ND	0.50								
Molybdenum	ND	0.50								
Silver	ND	0.50								
Thallium	ND	0.50								
Zinc	ND	10								

Sample ID LCS-68723	SampType: LCS	TestCo	de: 200.8_W	Units: µg/L		Prep Da	te: 7/6/201	8	RunNo: 12 6	6185	
Client ID: LCSW	Batch ID: 68723	Test	No: EPA 200. 8	3	Analysis Date: 7/12/2018			18	SeqNo: 3077143		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	10.073	0.50	10.00	0	101	85	115				
Arsenic	10.501	0.10	10.00	0	105	85	115				
Barium	10.615	1.0	10.00	0	106	85	115				
Cadmium	10.714	0.50	10.00	0	107	85	115				
Cobalt	10.087	0.50	10.00	0	101	85	115				
Lead	10.314	1.0	10.00	0	103	85	115				
Manganese	104.811	0.50	100.0	0	105	85	115				
Molybdenum	10.418	0.50	10.00	0	104	85	115				
Silver	10.343	0.50	10.00	0	103	85	115				
Thallium	9.139	0.50	10.00	0	91.4	85	115				
Zinc	87.850	10	100.0	0	87.8	85	115				

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
 Calculations are based on raw values

- E Value above quantitation range
- R RPD outside accepted recovery limits

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



CLIENT: CH2M HILL

Work Order: N031080

ANALYTICAL QC SUMMARY REPORT

200.8_W

Project:	PG&E Topock, 680375.03.IM.OP.00	TestCode: 20	0
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Sample ID N031080-001E-MS	SampType: MS	TestCod	de: 200.8_W	Units: µg/L		Prep Da	te: 7/6/201	8	RunNo: 12	6185	
Client ID: ZZZZZZ	Batch ID: 68723	TestN	lo: EPA 200. 8	3		Analysis Da	te: 7/12/20	18	SeqNo: 30	77152	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	10.122	0.50	10.00	0.1758	99.5	75	125				
Arsenic	13.582	0.10	10.00	3.075	105	75	125				
Barium	37.763	1.0	10.00	28.35	94.1	75	125				
Cadmium	10.066	0.50	10.00	0	101	75	125				
Cobalt	8.790	0.50	10.00	0	87.9	75	125				
Lead	10.242	1.0	10.00	0	102	75	125				
Manganese	105.329	0.50	100.0	6.871	98.5	75	125				
Molybdenum	32.112	0.50	10.00	21.43	107	75	125				
Silver	9.577	0.50	10.00	0	95.8	75	125				
Thallium	9.751	0.50	10.00	0	97.5	75	125				
Zinc	114.777	10	100.0	0	115	75	125				

Sample ID N031080-001E-MSD	SampType: MSD	TestCo	de: 200.8_W	Units: µg/L		Prep Da	te: 7/6/20 1	18	RunNo: 12 6	6185	
Client ID: ZZZZZZ	Batch ID: 68723	Test	No: EPA 200.8	3		Analysis Da	te: 7/12/2 0)18	SeqNo: 307	77154	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	10.186	0.50	10.00	0.1758	100	75	125	10.12	0.637	20	
Arsenic	13.403	0.10	10.00	3.075	103	75	125	13.58	1.32	20	
Barium	37.773	1.0	10.00	28.35	94.2	75	125	37.76	0.0268	20	
Cadmium	10.043	0.50	10.00	0	100	75	125	10.07	0.227	20	
Cobalt	8.779	0.50	10.00	0	87.8	75	125	8.790	0.126	20	
Lead	10.132	1.0	10.00	0	101	75	125	10.24	1.08	20	
Manganese	105.608	0.50	100.0	6.871	98.7	75	125	105.3	0.265	20	
Molybdenum	31.624	0.50	10.00	21.43	102	75	125	32.11	1.53	20	
Silver	9.449	0.50	10.00	0	94.5	75	125	9.577	1.35	20	
Thallium	9.552	0.50	10.00	0	95.5	75	125	9.751	2.06	20	
Zinc	113.570	10	100.0	0	114	75	125	114.8	1.06	20	

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit Calculations are based on raw values

- E Value above quantitation range
- RPD outside accepted recovery limits

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



CLIENT: CH2M HILL

Work Order: N031080

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

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID Client ID:	MB-68723 PBW	SampType: Batch ID:			e: 200.8_W o: EPA 200.8	Units: µg/L		Prep Date Analysis Date	e: 7/6/2018 e: 7/17/201		RunNo: 12 0 SeqNo: 30 3		
Analyte			Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Beryllium Selenium			ND ND	0.50 0.50									
Sample ID	LCS-68723	SampType:	LCS	TestCod	e: 200.8_W	Units: µg/L		Prep Date	: 7/6/2018	l	RunNo: 12	6341	
Client ID:	LCSW	Batch ID:	68723	TestN	o: EPA 200.8	3		Analysis Date	e: 7/17/201	8	SeqNo: 30	33760	
Analyte			Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Beryllium			10.253	0.50	10.00	0	103	85	115				
Selenium			9.827	0.50	10.00	0	98.3	85	115				
Sample ID	N031080-001E-MS	SampType:	мѕ	TestCod	e: 200.8_W	Units: µg/L		Prep Date	e: 7/6/2018	}	RunNo: 12	341	
Client ID:	ZZZZZZ	Batch ID:	68723	TestN	o: EPA 200.8	3		Analysis Date	e: 7/17/201	8	SeqNo: 30	33774	
Analyte			Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Beryllium			12.560	0.50	10.00	0	126	75	125				S
Selenium			13.967	0.50	10.00	3.855	101	75	125				
Sample ID	N031080-001E-MSD	SampType:	MSD	TestCod	e: 200.8_W	Units: µg/L		Prep Date	: 7/6/2018	1	RunNo: 12	341	
Client ID:	ZZZZZZ	Batch ID:	68723	TestN	o: EPA 200.8	3		Analysis Date	e: 7/17/201	8	SeqNo: 30	33776	
Analyte			Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Beryllium			12.581	0.50	10.00	0	126	75	125	12.56	0.164	20	S
Selenium			13.426	0.50	10.00	3.855	95.7	75	125	13.97	3.95	20	
Sample ID	MB-68723	SampType:	MBLK	TestCod	e: 200.8_W	Units: µg/L		Prep Date	e: 7/6/2018		RunNo: 12	6393	<u> </u>
Client ID:	PBW	Batch ID:	68723	TestN	o: EPA 200.8	3		Analysis Date	e: 7/20/201	8	SeqNo: 30	35719	
Analyte			Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper			ND	1.0			_		_				_

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
 Calculations are based on raw values

- E Value above quantitation range
- R RPD outside accepted recovery limits

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



CLIENT: CH2M HILL

Work Order: N031080

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

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID	MB-68723	SampType: MBLK	TestCod	le: 200.8_W	Units: µg/L		Prep Dat	e: 7/6/20	18	RunNo: 12	6393	
Client ID:	PBW	Batch ID: 68723	TestN	lo: EPA 200. 8	3		Analysis Dat	e: 7/20/2	018	SeqNo: 30	85719	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nickel		ND	1.0									
Vanadium		ND	1.0									
Sample ID	LCS-68723	SampType: LCS	TestCod	le: 200.8_W	Units: µg/L		Prep Dat	e: 7/6/20	18	RunNo: 12	6393	
Client ID:	LCSW	Batch ID: 68723	TestN	lo: EPA 200. 8	3		Analysis Dat	te: 7/20/2	018	SeqNo: 30	85720	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper		10.474	1.0	10.00	0	105	85	115				
Nickel		9.859	1.0	10.00	0	98.6	85	115				
Vanadium		10.268	1.0	10.00	0	103	85	115				
Sample ID	N031080-001E-MS	SampType: MS	TestCod	le: 200.8_W	Units: µg/L		Prep Dat	e: 7/6/20	18	RunNo: 12 0	6393	
Sample ID Client ID:		SampType: MS Batch ID: 68723		le: 200.8_W lo: EPA 200.8			Prep Dat Analysis Dat			RunNo: 126 SeqNo: 30		
				lo: EPA 200. 8		%REC	Analysis Dat	e: 7/20/2 0				Qual
Client ID:		Batch ID: 68723	TestN	lo: EPA 200. 8	3		Analysis Dat	e: 7/20/2 0	018	SeqNo: 30	85724	Qual
Client ID:		Batch ID: 68723	TestN PQL	lo: EPA 200.8 SPK value	SPK Ref Val	%REC	Analysis Dat	te: 7/20/2 0	018	SeqNo: 30	85724	Qual
Client ID: Analyte Copper		Batch ID: 68723 Result 9.655	TestN PQL 1.0	SPK value	SPK Ref Val	%REC 96.6	Analysis Dat	HighLimit	018	SeqNo: 30	85724	Qual
Client ID: Analyte Copper Nickel Vanadium		Batch ID: 68723 Result 9.655 10.613 18.252	TestN PQL 1.0 1.0 1.0	SPK value 10.00 10.00	SPK Ref Val 0 0	%REC 96.6 106	Analysis Date LowLimit 75 75 75	HighLimit 125 125	018 RPD Ref Val	SeqNo: 30	RPDLimit	Qual
Client ID: Analyte Copper Nickel Vanadium	ZZZZZZ N031080-001E-MSD	Batch ID: 68723 Result 9.655 10.613 18.252	TestN PQL 1.0 1.0 1.0	SPK value 10.00 10.00 10.00	SPK Ref Val 0 0 6.947 Units: μg/L	%REC 96.6 106 113	Analysis Date LowLimit 75 75 75	HighLimit 125 125 125 126 127 127	RPD Ref Val	SeqNo: 30:	RPDLimit	Qual
Client ID: Analyte Copper Nickel Vanadium Sample ID	ZZZZZZ N031080-001E-MSD	Batch ID: 68723 Result 9.655 10.613 18.252 SampType: MSD	TestN PQL 1.0 1.0 1.0	SPK value 10.00 10.00 10.00 10.00 10.00 10: EPA 200.8	SPK Ref Val 0 0 6.947 Units: μg/L	%REC 96.6 106 113	Analysis Date LowLimit 75 75 75 Prep Date Analysis Date	HighLimit 125 125 125 126 127/6/20	RPD Ref Val	SeqNo: 30: %RPD	RPDLimit	Qual
Client ID: Analyte Copper Nickel Vanadium Sample ID Client ID:	ZZZZZZ N031080-001E-MSD	Batch ID: 68723 Result 9.655 10.613 18.252 SampType: MSD Batch ID: 68723	PQL 1.0 1.0 1.0 TestCoc	SPK value 10.00 10.00 10.00 10.00 10.00 10: EPA 200.8	SPK Ref Val 0 0 6.947 Units: μg/L	%REC 96.6 106 113	Analysis Date LowLimit 75 75 75 Prep Date Analysis Date	HighLimit 125 125 125 126 127/6/20	RPD Ref Val	SeqNo: 30: %RPD RunNo: 12: SeqNo: 30:	RPDLimit 6393 85725	
Client ID: Analyte Copper Nickel Vanadium Sample ID Client ID: Analyte	ZZZZZZ N031080-001E-MSD	Batch ID: 68723 Result 9.655 10.613 18.252 SampType: MSD Batch ID: 68723 Result	PQL 1.0 1.0 1.0 TestCoc TestN PQL	SPK value 10.00 10.00 10.00 10.00 10: 200.8_W 10: EPA 200.8 SPK value	SPK Ref Val 0 0 6.947 Units: μg/L SPK Ref Val	%REC 96.6 106 113	Analysis Date LowLimit 75 75 75 Prep Date Analysis Date LowLimit	HighLimit 125 125 125 125 125 High Limit HighLimit	RPD Ref Val 18 018 RPD Ref Val	SeqNo: 30 8 %RPD RunNo: 12 8 SeqNo: 30 8 %RPD	85724 RPDLimit 6393 85725 RPDLimit	

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
 Calculations are based on raw values

- $E \quad \ \ Value \ above \ quantitation \ range$
- R RPD outside accepted recovery limits

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



Print Date: 20-Jul-18

ASSET Laboratories

 CLIENT:
 CH2M HILL
 Client Sample ID:
 SC-100B-WDR-575

 Lab Order:
 N031080
 Collection Date:
 7/3/2018 9:51:00 AM

Project: PG&E Topock, 680375.03.IM.OP.00 Matrix: WATER

Lab ID: N031080-001

Analyses	Result MDL	PQL	Qual Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC	;				
		EPA	218.6		
RunID: NV00922-IC7_180705A	QC Batch: R126039		PrepDate		Analyst: RAB
Hexavalent Chromium	490 3.3	20	μg/L	100	7/5/2018 10:51 AM
TOTAL METALS BY ICPMS					
		EPA	200.8		
RunID: NV00922-ICP7_180712C	QC Batch: 68723		PrepDate	7/6/2018	Analyst: CEI
Chromium	480 0.65	5.0	μg/L	5	7/12/2018 12:56 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



Print Date: 20-Jul-18

ASSET Laboratories

 CLIENT:
 CH2M HILL
 Client Sample ID:
 SC-700B-WDR-575

 Lab Order:
 N031080
 Collection Date:
 7/3/2018 9:44:00 AM

Project: PG&E Topock, 680375.03.IM.OP.00 Matrix: WATER

Lab ID: N031080-002

Analyses	Result MDL	PQL	Qual Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC	;				
		EPA	218.6		
RunID: NV00922-IC7_180705A	QC Batch: R126039		PrepDate		Analyst: RAB
Hexavalent Chromium	ND 0.17	1.0	μg/L	5	7/5/2018 01:05 PM
TOTAL METALS BY ICPMS					
		EPA	200.8		
RunID: NV00922-ICP7_180712C	QC Batch: 68723		PrepDate	7/6/2018	Analyst: CEI
Chromium	ND 0.13	1.0	μg/L	1	7/12/2018 02:32 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



Print Date: 20-Jul-18

ASSET Laboratories

CLIENT: CH2M HILL Lab Order: N031080

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

Lab ID: N031080-003

Client Sample ID: SC-701-WDR-575

Matrix: WATER

Collection Date: 7/3/2018 9:35:00 AM

Analyses	Result MDL	PQL	Qual Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC					
		EPA	218.6		
RunID: NV00922-IC7_180705A	QC Batch: R126039		PrepDate		Analyst: RAB
Hexavalent Chromium	ND 0.83	5.0	μg/L	25	7/5/2018 01:24 PM
TOTAL METALS BY ICPMS					
		EPA	200.8		
RunID: NV00922-ICP7_180712C	QC Batch: 68723		PrepDate	7/6/2018	Analyst: CEI
Chromium	8.9 0.65	5.0	μg/L	5	7/12/2018 02:44 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



CLIENT: CH2M HILL

ANALYTICAL QC SUMMARY REPORT

 Work Order:
 N031080

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

TestCode: 200.8_W_CRPGE

Sample ID	MB-68723	SampType: M	IBLK	TestCod	de: 200.8_W _	CR Units: µg/L		Prep Date	7/6/201	8	RunNo: 12	6185	
Client ID:	PBW	Batch ID: 6	8723	TestN	lo: EPA 200.	8		Analysis Date	: 7/12/20	18	SeqNo: 30	77989	
Analyte		F	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit I	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium			ND	1.0									
Sample ID	LCS-68723	SampType: L	.cs	TestCod	de: 200.8_W _	CR Units: µg/L		Prep Date	: 7/6/201	8	RunNo: 12	6185	
Client ID:	LCSW	Batch ID: 6	8723	TestN	lo: EPA 200.	8		Analysis Date	: 7/12/20	18	SeqNo: 30	77990	
Analyte		F	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit I	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium		1	0.817	1.0	10.00	0	108	85	115				
Sample ID	N031080-001E-MS	SampType: M	//S	TestCod	de: 200.8_W _	CR Units: µg/L		Prep Date	: 7/6/201	8	RunNo: 12	6185	
Sample ID Client ID:		SampType: M Batch ID: 6			de: 200.8_W_ lo: EPA 200.			Prep Date Analysis Date			RunNo: 12 SeqNo: 30		
·		Batch ID: 6			lo: EPA 200.		%REC	Analysis Date	: 7/12/20				Qual
Client ID:		Batch ID: 6	8723	TestN	lo: EPA 200.	8		Analysis Date	: 7/12/20	18	SeqNo: 30	78000	Qual S
Client ID: Analyte Chromium		Batch ID: 6	8 723 Result	TestN PQL 5.0	SPK value	8 SPK Ref Val 475.5	%REC	Analysis Date LowLimit I	: 7/12/20 HighLimit	18 RPD Ref Val	SeqNo: 30	78000 RPDLimit	
Client ID: Analyte Chromium	ZZZZZZ N031080-001E-MSD	Batch ID: 6	Result 44.643	PQL 5.0 TestCod	SPK value	SPK Ref Val 475.5 CR Units: µg/L	%REC -108	Analysis Date LowLimit I	HighLimit 125 17/6/201	RPD Ref Val	SeqNo: 30 %RPD	78000 RPDLimit	
Client ID: Analyte Chromium Sample ID	ZZZZZZ N031080-001E-MSD	Batch ID: 66 F 46 SampType: M Batch ID: 66	Result 44.643	PQL 5.0 TestCod	SPK value 10.00 de: 200.8_W_do: EPA 200.	SPK Ref Val 475.5 CR Units: µg/L	%REC -108	Analysis Date LowLimit I 75 Prep Date Analysis Date	: 7/12/20 HighLimit 125 : 7/6/201:	RPD Ref Val	SeqNo: 30 %RPD RunNo: 12	78000 RPDLimit	

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
 Calculations are based on raw values

- E Value above quantitation range
- R RPD outside accepted recovery limits

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



CLIENT: CH2M HILL

Work Order: N031080

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

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WU_PGE

Sample ID	MB-R126039	SampType: MBLK	TestCode: 218.6_WU_P Units: μg/L	Prep Date:	RunNo: 126039
Client ID:	PBW	Batch ID: R126039	TestNo: EPA 218.6	Analysis Date: 7/5/2018	SeqNo: 3071995
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-R126039	SampType: LCS	TestCode: 218.6_WU_P Units: μg/L	Prep Date:	RunNo: 126039
Client ID:	LCSW	Batch ID: R126039	TestNo: EPA 218.6	Analysis Date: 7/5/2018	SeqNo: 3071996
Analyte		Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Hexavalent	Chromium	4.963	0.20 5.000 0	99.3 90 110	
Sample ID	N031080-001CMS	SampType: MS	TestCode: 218.6_WU_P Units: μg/L	Prep Date:	RunNo: 126039
Client ID:	ZZZZZZ	Batch ID: R12603 9	TestNo: EPA 218.6	Analysis Date: 7/5/2018	SeqNo: 3071999
Analyte		Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Hexavalent	Chromium	981.140	20 500.0 488.3	98.6 90 110	
Sample ID	N031080-001CMSD	SampType: MSD	TestCode: 218.6_WU_P Units: μg/L	Prep Date:	RunNo: 126039
Client ID:	ZZZZZZ	Batch ID: R12603 9	TestNo: EPA 218.6	Analysis Date: 7/5/2018	SeqNo: 3072000
Analyte		Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Hexavalent	Chromium	981.600	20 500.0 488.3	98.7 90 110 981.1	0.0469 20
Sample ID	N031081-002ADUP	SampType: DUP	TestCode: 218.6_WU_P Units: μg/L	Prep Date:	RunNo: 126039
Client ID:	ZZZZZZ	Batch ID: R126039	TestNo: EPA 218.6	Analysis Date: 7/5/2018	SeqNo: 3072006
Analyte		Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Hexavalent	Chromium	485.110	20	484.3	0.175 20

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
 Calculations are based on raw values

- $E \quad \ \ Value \ above \ quantitation \ range$
- R RPD outside accepted recovery limits

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



CLIENT: CH2M HILL

Work Order:

N031080

ANALYTICAL QC SUMMARY REPORT

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

TestCode:	218.6	WII	PGE	

Sample ID N031080-002CMS	SampType: MS	TestCode	: 218.6_WU	J_P Units: μg/L		Prep Da	te:	RunNo: 126039	
Client ID: ZZZZZZ	Batch ID: R126039	TestNo	EPA 218.6	3		Analysis Da	te: 7/5/2018	SeqNo: 3072009	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit RPD Ref Val	%RPD RPDLimit	Qual
Hexavalent Chromium	4.852	1.0	5.000	0	97.0	90	110		
Sample ID N031080-003BMS	SampType: MS	TestCode	: 218.6_WU	J_P Units: μg/L		Prep Da	te:	RunNo: 126039	
Client ID: ZZZZZZ	Batch ID: R126039	TestNo	EPA 218.6	3		Analysis Da	te: 7/5/2018	SeqNo: 3072011	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit RPD Ref Val	%RPD RPDLimit	Qual
Hexavalent Chromium	29.993	5.0	25.00	4.572	102	90	110		

Qualifiers:

B Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit
Calculations are based on raw values

E Value above quantitation range

R RPD outside accepted recovery limits

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference



ASSET Laboratories Print Date: 20-Jul-18

 CLIENT:
 CH2M HILL
 Client Sample ID:
 SC-100B-WDR-575

 Lab Order:
 N031080
 Collection Date:
 7/3/2018 9:51:00 AM

Project: PG&E Topock, 680375.03.IM.OP.00 Matrix: WATER

Lab ID: N031080-001

Analyses Result MDL **PQL** Qual Units DF **Date Analyzed TURBIDITY SM 2130B** RunID: NV00922-WC_180705C QC Batch: R126034 PrepDate Analyst: LR Turbidity 0.35 0.10 0.10 NTU 7/5/2018 09:00 AM

Qualifiers: B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



ASSET Laboratories Print Date: 20-Jul-18

 CLIENT:
 CH2M HILL
 Client Sample ID:
 SC-700B-WDR-575

 Lab Order:
 N031080
 Collection Date:
 7/3/2018 9:44:00 AM

Project: PG&E Topock, 680375.03.IM.OP.00 Matrix: WATER

Lab ID: N031080-002

Analyses Result MDL **PQL** Qual Units DF **Date Analyzed TURBIDITY SM 2130B** RunID: NV00922-WC_180705C QC Batch: R126034 PrepDate Analyst: LR Turbidity 0.28 0.10 0.10 NTU 7/5/2018 09:00 AM

Qualifiers: B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



CLIENT: CH2M HILL

ANALYTICAL QC SUMMARY REPORT

Work Order: N031080

TestCode: 2130_W

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

Sample ID MB-R126034	SampType: MBLK	TestCode: 2130_W Units: NTU		Prep Date:	RunNo: 126034		
Client ID: PBW	Batch ID: R126034	TestNo: SM 2130B		Analysis Date: 7/5/2018	SeqNo: 3071942		
Analyte	Result	PQL SPK value S	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual		
Turbidity	ND	0.10					

Sample ID N031080-001BDUP	. 21	TestCode: 2130_W	Units: NTU		Prep Da			RunNo: 126	6034	
Client ID: ZZZZZZ	Batch ID: R126034	TestNo: SM 2130B			Analysis Da	ite: 7/5/201	8	SeqNo: 307	71944	
Analyte	Result	PQL SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Turbidity	0.340	0.10					0.3500	2.90	30	

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
 Calculations are based on raw values

- E Value above quantitation range
- R RPD outside accepted recovery limits

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



ASSET Laboratories

Print Date: 20-Jul-18

 CLIENT:
 CH2M HILL
 Client Sample ID:
 SC-701-WDR-575

 Lab Order:
 N031080
 Collection Date:
 7/3/2018 9:35:00 AM

Project: PG&E Topock, 680375.03.IM.OP.00 Matrix: WATER

Lab ID: N031080-003

Analyses Result MDL PQL Qual Units DF Date Analyzed

TOTAL MERCURY BY COLD VAPOR TECHNIQUE

EPA 245.1

RunlD: NV00922-AA1_180710B QC Batch: 68754 PrepDate 7/10/2018 Analyst: CEI

Mercury ND 0.13 0.20 μg/L 1 7/10/2018 12:15 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



CLIENT: CH2M HILL

Work Order:

ANALYTICAL QC SUMMARY REPORT

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

N031080

TestCode: 245.1_W

Sample ID	MB-68754	SampType:	MBLK	TestCod	e: 245.1_W	Units: µg/L		Prep Date	7/10/2018	RunNo: 12611	16	
Client ID:	PBW	Batch ID:	68754	TestN	o: EPA 245.	1		Analysis Date	: 7/10/2018	SeqNo: 30742	218	
Analyte			Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit H	HighLimit RPD Ref Val	%RPD R	RPDLimit	Qual
Mercury			ND	0.20								
Sample ID	LCS-68754	SampType:	LCS	TestCod	e: 245.1_W	Units: µg/L		Prep Date	: 7/10/2018	RunNo: 12611	16	
Client ID:	LCSW	Batch ID:	68754	TestN	o: EPA 245.	1		Analysis Date	7/10/2018	SeqNo: 30742	220	
Analyte			Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit I	HighLimit RPD Ref Val	%RPD R	RPDLimit	Qual
Mercury			4.697	0.20	5.000	0	93.9	85	115			
Sample ID	N031080-003C-MS	SampType:	MS	TestCod	e: 245.1_W	Units: µg/L		Prep Date	: 7/10/2018	RunNo: 12611	16	
'	N031080-003C-MS	SampType: Batch ID:			e: 245.1_W o: EPA 245.	. 0		Prep Date Analysis Date		RunNo: 12611 SeqNo: 30742		
'					o: EPA 245.	. 0	%REC	Analysis Date		SeqNo: 30742		Qual
Client ID:			68754	TestN	o: EPA 245.	1		Analysis Date	: 7/10/2018	SeqNo: 30742	221	Qual
Client ID: Analyte Mercury		Batch ID:	68754 Result 4.551	PQL 0.20	o: EPA 245. SPK value	SPK Ref Val	%REC	Analysis Date LowLimit H	: 7/10/2018 HighLimit RPD Ref Val	SeqNo: 30742	221 RPDLimit	Qual
Client ID: Analyte Mercury Sample ID	zzzzzz	Batch ID:	68754 Result 4.551	PQL 0.20	o: EPA 245. SPK value 5.000	SPK Ref Val 0 Units: µg/L	%REC 91.0	Analysis Date LowLimit H	: 7/10/2018 HighLimit RPD Ref Val 125 : 7/10/2018	SeqNo: 30742 %RPD R	221 RPDLimit	Qual
Client ID: Analyte Mercury Sample ID	N031080-003C-MSD	Batch ID: SampType:	68754 Result 4.551	PQL 0.20	5.000 e: 245.1_W o: EPA 245.	SPK Ref Val 0 Units: µg/L	%REC 91.0	Analysis Date LowLimit F 75 Prep Date Analysis Date	: 7/10/2018 HighLimit RPD Ref Val 125 : 7/10/2018	SeqNo: 30742 %RPD R RunNo: 12611 SeqNo: 30742	221 RPDLimit	Qual

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
 Calculations are based on raw values

- E Value above quantitation range
- R RPD outside accepted recovery limits

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



ASSET Laboratories Print Date: 20-Jul-18

 CLIENT:
 CH2M HILL
 Client Sample ID:
 SC-100B-WDR-575

 Lab Order:
 N031080
 Collection Date:
 7/3/2018 9:51:00 AM

Project: PG&E Topock, 680375.03.IM.OP.00 Matrix: WATER

Lab ID: N031080-001

Analyses	Result MDL	PQL Qual Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGE	RAPHY			
		EPA 300.0		
RunID: NV00922-IC8_180705A	QC Batch: R126053	PrepDate		Analyst: RAB
Fluoride	2.7 0.032	0.50 mg/L	5	7/5/2018 11:04 AM
ANIONS BY ION CHROMATOGE	RAPHY			
		EPA 300.0		
RunID: NV00922-IC8_180705A	QC Batch: R126053	PrepDate		Analyst: RAB
Sulfate	500 1.1	25 mg/L	50	7/5/2018 12:36 PM

Qualifiers: B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



ASSET Laboratories Print Date: 20-Jul-18

 CLIENT:
 CH2M HILL
 Client Sample ID:
 SC-700B-WDR-575

 Lab Order:
 N031080
 Collection Date:
 7/3/2018 9:44:00 AM

Project: PG&E Topock, 680375.03.IM.OP.00 Matrix: WATER

Lab ID: N031080-002

Analyses	Result MDL	PQL Qual Units	DF Date	Analyzed
ANIONS BY ION CHROMATOGE	RAPHY			
		EPA 300.0		
RunID: NV00922-IC8_180705A	QC Batch: R126053	PrepDate	An	alyst: RAB
Fluoride	2.4 0.013	0.20 mg/L	2 7/5/20	18 11:20 AM
ANIONS BY ION CHROMATOGR	RAPHY			
		EPA 300.0		
RunID: NV00922-IC8_180705A	QC Batch: R126053	PrepDate	An	alyst: RAB
Sulfate	490 1.1	25 mg/L	50 7/5/20	18 12:51 PM

Qualifiers: B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



20

7/5/2018 11:35 AM

ASSET Laboratories Print Date: 20-Jul-18

 CLIENT:
 CH2M HILL
 Client Sample ID:
 SC-701-WDR-575

 Lab Order:
 N031080
 Collection Date:
 7/3/2018 9:35:00 AM

0.13

Project: PG&E Topock, 680375.03.IM.OP.00 Matrix: WATER

26

Lab ID: N031080-003

Fluoride

Analyses Result MDL PQL Qual Units DF Date Analyzed

ANIONS BY ION CHROMATOGRAPHY

EPA 300.0

RunID: NV00922-IC8_180705A QC Batch: R126053 PrepDate Analyst: RAB

2.0

mg/L

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



CLIENT: CH2M HILL

ANALYTICAL QC SUMMARY REPORT

Work Order: N031080 Project: PG&E Topock, 680375.03.IM.OP.00

TestCode: 300_W_FPGE

	MB-R126053_F	SampType:			le: 300_W_FI	_		Prep Dat			RunNo: 12		
Client ID:	PBW	Batch ID:	R126053	TestN	o: EPA 300. 0)		Analysis Da	te: 7/5/20 1	18	SeqNo: 30	72469	
Analyte			Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride			ND	0.10									
Sample ID	LCS-R126053_F	SampType:	LCS	TestCod	le: 300_W_FI	PG Units: mg/L		Prep Dat	te:		RunNo: 12	6053	
Client ID:	LCSW	Batch ID:	R126053	TestN	o: EPA 300. 0)		Analysis Da	te: 7/5/20 1	18	SeqNo: 30	72470	
Analyte			Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride			1.261	0.10	1.250	0	101	90	110				
Sample ID	N031080-001BMS	SampType:	MS	TestCod	le: 300_W_FI	PG Units: mg/L		Prep Dat	te:		RunNo: 12	6053	
Client ID:	ZZZZZZ	Batch ID:	R126053	TestN	o: EPA 300. 0)		Analysis Da	te: 7/5/20 1	18	SeqNo: 30	72474	
Analyte			Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride			8.889	0.50	6.250	2.716	98.8	80	120				
Sample ID	N031080-001BMSD	SampType:	MSD	TestCod	le: 300_W_F I	PG Units: mg/L		Prep Dat	te:		RunNo: 12	6053	
Client ID:	ZZZZZZ	Batch ID:	R126053	TestN	o: EPA 300.0)		Analysis Da	te: 7/5/20 1	18	SeqNo: 30	72475	
Analyte			Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride			8.937	0.50	6.250	2.716	99.5	80	120	8.889	0.539	20	
Sample ID	N031080-003ADUP	SampType:	DUP	TestCod	le: 300_W_FI	PG Units: mg/L		Prep Dat	te:		RunNo: 12	6053	
Client ID:	ZZZZZZ	Batch ID:	R126053	TestN	o: EPA 300. 0)		Analysis Da	te: 7/5/20 1	18	SeqNo: 30	72476	
Analyte			Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride			25.644	2.0						25.77	0.475	20	

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit Calculations are based on raw values

- E Value above quantitation range
- RPD outside accepted recovery limits

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



CLIENT: CH2M HILL

Work Order: N031080

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

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID MB-R126053_S Client ID: PBW	SO4 SampType: MBLK Batch ID: R126053	TestCode: 300_W_SO4P Units: mg/L TestNo: EPA 300.0	Prep Date: Analysis Date: 7/5/2018	RunNo: 126053 SeqNo: 3072500
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Sulfate	ND	0.50		
Sample ID LCS-R126053_	SO4 SampType: LCS	TestCode: 300_W_SO4P Units: mg/L	Prep Date:	RunNo: 126053
Client ID: LCSW	Batch ID: R126053	TestNo: EPA 300.0	Analysis Date: 7/5/2018	SeqNo: 3072501
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Sulfate	3.961	0.50 4.000 0	99.0 90 110	
Sample ID N031081-001B	DUP SampType: DUP	TestCode: 300_W_SO4P Units: mg/L	Prep Date:	RunNo: 126053
Client ID: ZZZZZZ	Batch ID: R126053	TestNo: EPA 300.0	Analysis Date: 7/5/2018	SeqNo: 3072508
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Sulfate	293.070	25	289.3	1.28 20
Sample ID N031081-001B	MS SampType: MS	TestCode: 300_W_SO4P Units: mg/L	Prep Date:	RunNo: 126053
Client ID: ZZZZZZ	Batch ID: R126053	TestNo: EPA 300.0	Analysis Date: 7/5/2018	SeqNo: 3072509
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Sulfate	490.120	25 200.0 289.3	100 80 120	
Sample ID N031081-001B	MSD SampType: MSD	TestCode: 300_W_SO4P Units: mg/L	Prep Date:	RunNo: 126053
Client ID: ZZZZZZ	Batch ID: R126053	TestNo: EPA 300.0	Analysis Date: 7/5/2018	SeqNo: 3072510
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Sulfate	486.265	25 200.0 289.3	98.5 80 120 490.1	0.790 20

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
 Calculations are based on raw values

- E Value above quantitation range
- R RPD outside accepted recovery limits

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



ANALYTICAL RESULTS

ASSET Laboratories Print Date: 20-Jul-18

CH2M HILL **CLIENT:** Client Sample ID: SC-100B-WDR-575 Lab Order: N031080 Collection Date: 7/3/2018 9:51:00 AM

PG&E Topock, 680375.03.IM.OP.00 Project: Matrix: WATER

Lab ID: N031080-001

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

SM4500-NO3F

RunID: NV00922-WC_180706B QC Batch: R126072 PrepDate Analyst: QBM Nitrate/Nitrite as N 2.8 0.25 5 7/6/2018 0.16 mg/L

Qualifiers: В Analyte detected in the associated Method Blank

ASSET LABORATORIES

Η Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out Value above quantitation range

ND Not Detected at the Reporting Limit Results are wet unless otherwise specified

CALIFORNIA | P:562.219.7435 F:562.219.7436

ANALYTICAL RESULTS

ASSET Laboratories Print Date: 20-Jul-18

 CLIENT:
 CH2M HILL
 Client Sample ID:
 SC-700B-WDR-575

 Lab Order:
 N031080
 Collection Date:
 7/3/2018 9:44:00 AM

Project: PG&E Topock, 680375.03.IM.OP.00 Matrix: WATER

Lab ID: N031080-002

Analyses Result MDL PQL Qual Units DF Date Analyzed

NITRATE/NITRITE-N BY CADMIUM REDUCTION

SM4500-NO3F

 RunID:
 NV00922-WC_180706B
 QC Batch:
 R126072
 PrepDate
 Analyst:
 QBM

 Nitrate/Nitrite as N
 2.9
 0.16
 0.25
 mg/L
 5
 7/6/2018

Qualifiers: B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range

ND Not Detected at the Reporting Limit
Results are wet unless otherwise specified



ASSET Laboratories

Date: 20-Jul-18

CLIENT: CH2M HILL Work Order: N031080

ANALYTICAL QC SUMMARY REPORT

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

TestCode: 4500N03F_W

Sample ID MB-R1260	72 SampType	: MBLK	TestCod	e: 4500N03F	_W Units: mg/L		Prep Dat	e:		RunNo: 12 0	6072	
Client ID: PBW	Batch ID:	R126072	TestN	o: SM4500-N	103		Analysis Dat	e: 7/6/201	18	SeqNo: 30	73149	
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-R126	072 SampType	: LCS	TestCod	e: 4500N03F	_W Units: mg/L		Prep Dat	e:		RunNo: 12 0	6072	
Client ID: LCSW	Batch ID:	R126072	TestN	o: SM4500-N	103		Analysis Dat	e: 7/6/201	18	SeqNo: 30	73150	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N		0.534	0.050	0.5000	0	107	85	115				
Sample ID N031080-	001DDUP SampType	: DUP	TestCod	e: 4500N03F	_W Units: mg/L		Prep Dat	e:		RunNo: 12 0	6072	
Client ID: ZZZZZZ	Batch ID:	R126072	TestN	o: SM4500-N	103		Analysis Dat	e: 7/6/201	18	SeqNo: 30	73153	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N		2.423	0.25						2.756	12.8	20	
Sample ID N031080 -	002DMS SampType	: MS	TestCod	e: 4500N03F	_W Units: mg/L		Prep Dat	e:		RunNo: 12 0	6072	
Client ID: ZZZZZZ	Batch ID:	R126072	TestN	o: SM4500-N	103		Analysis Dat	e: 7/6/201	18	SeqNo: 30	73155	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N		4.853	0.25	2.500	2.935	76.7	75	125				
Sample ID N031080-	002DMSD SampType	: MSD	TestCod	e: 4500N03F	_W Units: mg/L		Prep Dat	e:		RunNo: 12 0	6072	
Client ID: ZZZZZZ	Batch ID:	R126072	TestN	o: SM4500-N	103		Analysis Dat	e: 7/6/201	18	SeqNo: 30	73156	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N		5.317	0.25	2.500	2.935	95.3	75	125	4.853	9.12	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
 Calculations are based on raw values

- $E \quad \ \ Value \ above \ quantitation \ range$
- R RPD outside accepted recovery limits

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



C	u	2	m	A	ш	11	1
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Task Order

Shipping Date: COC Number: 575

SC-100B-WDR-575

SC-700B-WDR-575

SC-701-WDR-575

Project Name PG&E Topock

Sample Manager Shawn Duffy

Turnaround Time 10 Days

Project IM3PLANT-ARAR-WDR-575

Project Number 680375.03.IM.OP.00 Project Manager Scott O'Donnell

Location PG&E Topock

CHAIN OF CUSTODY RECORD 1 Liter

Poly

4°C Lab

H2SO4

NA

28

Nitrate/Nitrite (SM4500NO3-E)

X

X

1 Liter

Poly

4°C

NA

TDS (SM2540C)

X

X

X

500 ml 500 ml

Poly

4°C

NA

Total Metals(E200.7 and E200.8)

X

X

Poly

4°C

NA

180

Total Metals (E200.8 Mn)

X

500 ml

Poly

4°C

NA

180

Total Title22Metals

X

1 Liter

Poly

4°C

NA

7

Turbidity (SM2130)

X

N031080-01

-02

-03

TOTAL NUMBER OF CONTAINERS

1 Liter

Poly

4°C Lab

H2SO4

NA

AMMONIA (SM4500NH3D

X

Container

Filtered:

Preservatives:

Holding Time:

TIME Matrix

9:51

9:44

9:35

Water

Water

Water

DATE

7-3-18

7-3-18

7-3-18

1 Liter

Poly

4°C

NA

7

Anions (E300.0) FI & SO4

X

X

1 Liter

Poly

4°C

NA

7

Anions (E300.0) Flouride

X

1 Liter

Poly

4°C

NA

7

CONDUCTIVITY (E120.

X

X

X

250 ml

Poly

4°C

NA

E218.6 Lab Filtered

X

X

X

	Page	1	OF	1
*				
				1
				1
	Nun			1
	Number of Containers			
	of Co			
	ontair			
	ners	co	MMEN	TS

Signatures	Date/Time Shipping Details		Special Instructions:
impled by	7-3-/8 7:00 7-3-/8 9:30 Method of Shipment: FedEx	ATTN:	The SC-100B & SC-700B Total metals List:
elinquished by	7-3-18 15:44 On Ice: ves Dno CE 1242	Sample Custody	Cr,Al,Sb,As,Ba,B,Cu,Pb,Mn,Mo,Ni,Fe,Zn
ceived by	7/3/18 C/54 Airbill No: 1.80C	and	
elinquished by	Lab Name: ASSET Laboratories	Marlon Cartin	Report Copy to Doug Scott
100,100 0	Lab Phone: (702) 307-2659		(970) 731-0636

ASSET Laboratories

MBC

Checklist Completed By:

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 i	nstruction, plea	se contact our	Project Coo	rdinator at (70	2) 307-2659.		
Cooler Received/Opened On:	7/3/2018				Workorder:	N031080		
Rep sample Temp (Deg C):	1.8				IR Gun ID:	2		
Temp Blank:	✓ Yes	☐ No						
Carrier name:	ASSET							
Last 4 digits of Tracking No.:	NA			Packin	g Material Used:	None		
Cooling process:	✓ Ice	☐ Ice Pack	☐ Dry Ice	Other	☐ None			
		S	ample Recei	ot Checklis	<u>st</u>			
1. Shipping container/cooler in	good condition				Yes 🗹	No \square	Not Present	
2. Custody seals intact, signed,	, dated on sh	ippping container/	cooler?		Yes	No \square	Not Present	✓
Custody seals intact on sample.	ple bottles?				Yes	No 🗆	Not Present	✓
4. Chain of custody present?					Yes 🗹	No 🗆		
5. Sampler's name present in C	OC?				Yes 🗸	No 🗌		
6. Chain of custody signed whe	en relinquishe	ed and received?			Yes 🗹	No 🗆		
7. Chain of custody agrees with	n sample labe	els?			Yes 🗸	No \square		
8. Samples in proper container/	/bottle?				Yes 🗹	No \square		
9. Sample containers intact?					Yes 🔽	No 🗆		
10. Sufficient sample volume for	or indicated to	est?			Yes 🗹	No 🗆		
11. All samples received within	holding time	?			Yes 🗹	No 🗆		
12. Temperature of rep sample	or Temp Bla	ank within acceptal	ole limit?		Yes 🗹	No \square	NA	
13. Water - VOA vials have zer	o headspace	9?			Yes	No \square	NA	✓
14. Water - pH acceptable upon	•				Yes	No 🗹	NA	
Example: pH > 12 for (C								
15. Did the bottle labels indicate					Yes 🗌	No 🗌	NA	✓
Were there Non-Conformar	nce issues at /as Client no	•			Yes ✓ Yes □	No 🗌 No 🔲	NA NA	
		filtered and prese preserved with HN			rite with H2SO4.			
	For:							

45

LG 070518

Reviewed By:

Page 1 of 1

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

Field Sampler: SIGNED

Subcontractor:

BC Labs TEL: (661) 327-4911 4100 Atlas Court FAX: (661) 327-1918

Bakersfield, CA 93308 Acct #: **05-Jul-18**

					Requested Tests	
Sample ID	Matrix	Date Collected	Bottle Type	SM4500-NH3D		
N031080-001A / SC-100B-WDR-575	Water	7/3/2018 9:51:00 AM	16OZP	1		
N031080-002A / SC-700B-WDR-575	Water	7/3/2018 9:44:00 AM	16OZP	1		

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

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

Please use PO#:N31080A Please email Invoices and Account Receivable Statements to elvira@assetlaboratories.com. For questions, call

Marlon at (702)-307-2659. Please e-mail results to reports.lv@assetlaboratories.com by: Normal TAT.

Please analyze for Ammonia by SM4500NH3D. EDD Requirement Labspec 7 edata.

GSO #: 541202428

	1101		Date/Time		Date/Time
Relinquished by:	30	7/5/2018 17:00	Received by:		
Relinquished by:				Received by:	

List of Analysts

ASSET Laboratories Work Order: N031080

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





Date of Report: 07/11/2018

Marlon Cartin

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

Client Project: N031080 Level IV **BCL Project: BCL Work Order:** 1820954 B309374 Invoice ID:

Enclosed are the results of analyses for samples received by the laboratory on 7/6/2018. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Contact Person: Vanessa Sandoval

Client Service Rep

Stuart Buttram **Technical Director**

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

Report ID: 1000767394

Page 1 of 11



Page 1 of 1		05-Jul-18				Date/Time
CHAIN-OF-CUSTODY RECORD	Level IV	SIGNED	Requested Tests			
F-CUSTO	QC Level: Level IV	Field Sampler:		SM4500-NH3D		AT. AT.
HAIN-0				Bottle Type	4Z091	tories.com be Statements to etvira@assetlabo atories.com by: Normal TAT. c 7 edata. GSO #: 541202428 Received by: Received by:
	15602-81	(661) 327-4911 (661) 327-1918		Date Collected	7/3/2018 9:51:00 AM 7/3/2018 9:44:00 AM	assetlabora
ries 1988: NV 89118 FAX: 7023072691	84	TEL: (661) FAX: (661): Acct#:		Matrix	Water	o Lucille Golosinda at Iucille.golosinda@ Please email sample receipt acknowledgement to the PM. Please use PO#:N31080A. Please email Invoices and Amarlon at (702)-307-2859. Please e-mail results to report Please analyze for Ammonia by SM4500NH3D. EDD Rec
ASSET Laboratories 3161-3163 W Post Rd., Las Vegas, NV 89118 www.ablates.com TEL: 7023072659		t 93308	O change	Sample ID	/ SC-100B-WDR-575 / SC-700B-WDR-575	#
A E SE	Cubecontractor	BC Labs 4100 Atlas Court Bakersfield, CA 93308		- 1 1	N031080-001A /	Please cc repo General Comments: Relinquished by:

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety. All results listed in this report are for the exclusive use of the submitting party. BC Laboratories, Inc. assumes no responsibility for report alteration, separation, detachment or third party interpretation.

4100 Atlas Court Bakersfield, CA 93308 (661) 327-4911 FAX (661) 327-1918 www.bclabs.com

Report ID: 1000767394



Chain of Custody and Cooler Receipt Form for 1820954 Page 2 of 2

BC LABORATORIES INC. Submission #: \8-76954				RECEIPT						
	ATION			CI.	IIDDING (CONTAIN	JER	T	REE LIO	UID
SHIPPING INFORM		i Delivery		Ice Che		None 🗆	Box 🗆		ES C I	
	Specify) [~~ ST	Othe	☐ (Spec	ify)			W /	s
bo East Held dollars			Cisc	<u> </u>						
Refrigerant: Ice Ø Blue Ice □	None		Other 🗆	Comm	ents:					
	Containe		None	€ Comr	nents:					
Custody Seals Introduced August August International	fact/ Yes	S No. 21								
All samples received? Yes	II samples	containers	intact? Y	05/R 160	0		ion(s) match	COC? Y	es No	- (
COC Received Emis	sivity: _(17 C	Container	SHPC.	Thermon	eter ID:	1800	Date/Tim	100 1.C	18
- A	nperature:	. •	.()	١.	(C)	2.1		Analyst	nit (I)	08:4
1 101	nperature.	(A) C				AUMADEDE				
SAMPLE CONTAINERS			_			NUMBERS	T - T	8	1	10
	1	2	3	4	5	6	7		8	1 10
OT PE UNPRES	<u> </u>									
40x/E0x/160x PE UNPRES	 	-								
20x Cr ⁴⁶	 	-								
OT INORGANIC CHEMICAL METALS		-		 						
INORGANIC CHEMICAL METALS 40z / 80z / 160z		-		 						
PT CYANIDE . PT NITROGEN FORMS I 24	A	A								
		1-	-	 			i			
PT TOTAL SULFIDE	 	1	1				-			
200. NITRATE / NITRITE	<u> </u>	1								
PT TOTAL ORGANIC CARBON PT CHEMICAL OXYGEN DEMAND	l	1	-							
PIA PHENOLICS	l —		1							
40ml VOA VIAL TRAVEL BLANK										
40ml VOA VIAL	1									
OT EPA 1664										
PT ODOR				1					ļ	
RADIOLOGICAL							-			
BACTERIOLOGICAL									-	-
40 ml VOA VIAL- 504										
OT RPA 508/608/8080							-			-
OT EPA 515.1/8150							-			
OT EPA 525						ļ				
OT EPA 525 TRAVEL BLANK			1			1			-	
40ml EPA 547			-1	1						
40ml EPA 531.1						Α	-			
80x EPA 548										
OT EPA 549									-	
OT EPA 8015M										
OT RPA 8270									-	
80x/1602/320x AMBER						l				
80z / 160z / 320z JAR										
SOIL SLEEVE		1								
PCB YIAL		1				,				
PLASTIC BAG	1									
TEDLAR BAG										
PERROUS IRON	1									
ENCORB	1				1				1	
	1		+	-						
TART KIT	-		-	-					+	
MA CANISTER		1	1			1				

Report ID: 1000767394



Reported: 07/11/2018 10:57

Project: Level IV Project Number: N031080 Project Manager: Marlon Cartin

Laboratory / Client Sample Cross Reference

Laboratory	Client Sample Information										
1820954-01	COC Number:		Receive Date:	07/06/2018 08:40							
	Project Number:		Sampling Date:	07/03/2018 09:51							
	Sampling Location:		Sample Depth:								
	Sampling Point:	N031080-001A / SC-100B-WDR-575	Lab Matrix:	Water							
	Sampled By:		Sample Type:	Water							
1820954-02	COC Number:		Receive Date:	07/06/2018 08:40							
	Project Number:		Sampling Date:	07/03/2018 09:44							
	Sampling Location:		Sample Depth:								
	Sampling Point:	N031080-002A / SC-700B-WDR-575	Lab Matrix:	Water							
	Sampled By:		Sample Type:	Water							

Page 5 of 11 Report ID: 1000767394



Reported: 07/11/2018 10:57

Project: Level IV Project Number: N031080 Project Manager: Marlon Cartin

Water Analysis (General Chemistry)

BCL Sample ID:	1820954-01	Client Sampl	e Name:	N031080-	001A / SC-	7/3/2018 9:	51:00AM		
Constituent		Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run#
Ammonia as N (Distille	d)	ND	mg/L	0.20		SM-4500-NH3G	ND		1

			Run				QC	
Run#	Method	Prep Date	Date/Time	Analyst	Instrument	Dilution	Batch ID	
1	SM-4500-NH3G	07/09/18 09:03	07/10/18 13:24	JMH	SC-1	1	B018398	

Page 6 of 11 Report ID: 1000767394



Reported: 07/11/2018 10:57

Project: Level IV Project Number: N031080 Project Manager: Marlon Cartin

Water Analysis (General Chemistry)

BCL Sample ID:	1820954-02	Client Sample	e Name:	7/3/2018 9:4	14:00AM				
Constituent		Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Ammonia as N (Distille	ed)	0.44	mg/L	0.20		SM-4500-NH3G	ND		1

			Run			QC		
Run#	Method	Prep Date	Date/Time	Analyst	Instrument	Dilution	Batch ID	
1	SM-4500-NH3G	07/09/18 09:03	07/10/18 13:36	JMH	SC-1	1	B018398	

Page 7 of 11 Report ID: 1000767394



Reported: 07/11/2018 10:57

Project: Level IV
Project Number: N031080
Project Manager: Marlon Cartin

Water Analysis (General Chemistry)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B018398						
Ammonia as N (Distilled)	B018398-BLK1	ND	mg/L	0.20		

Report ID: 1000767394 4100 Atlas Court Bakersfield, CA 93308 (661) 327-4911 FAX (661) 327-1918 www.bclabs.com Page 8 of 11



Reported: 07/11/2018 10:57

Project: Level IV
Project Number: N031080
Project Manager: Marlon Cartin

Water Analysis (General Chemistry)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Туре	Result	Spike Level	Units	Percent Recovery	RPD	Control Li Percent Recovery	imits RPD	Lab Quals
QC Batch ID: B018398										
Ammonia as N (Distilled)	B018398-BS1	LCS	0.98150	1.0000	mg/L	98.2		85 - 115		

Report ID: 1000767394 4100 Atlas Court Bakersfield, CA 93308 (661) 327-4911 FAX (661) 327-1918 www.bclabs.com Page 9 of 11



Reported: 07/11/2018 10:57

Project: Level IV
Project Number: N031080
Project Manager: Marlon Cartin

Water Analysis (General Chemistry)

Quality Control Report - Precision & Accuracy

							Control Limits				
		Source	Source		Spike			Percent		Percent	Lab
Constituent	Туре	Sample ID	Result	Result	Added	Units	RPD	Recovery	RPD	Recovery	Quals
QC Batch ID: B018398	Use	d client samp	ole: Y - Des	cription: N0	31080-001A	/ SC-100E	3-WDR	-575, 07/03	3/2018	09:51	
Ammonia as N (Distilled)	DUP	1820954-01	0.12250	ND		mg/L			20		
	MS	1820954-01	0.12250	1.0889	1.0000	mg/L		96.6		80 - 120	
	MSD	1820954-01	0.12250	1.1382	1.0000	mg/L	4.4	102	20	80 - 120	

Report ID: 1000767394 4100 Atlas Court Bakersfield, CA 93308 (661) 327-4911 FAX (661) 327-1918 www.bclabs.com Page 10 of 11



Reported: 07/11/2018 10:57

Project: Level IV Project Number: N031080 Project Manager: Marlon Cartin

Notes And Definitions

PQL

MDL Method Detection Limit ND Analyte Not Detected

Practical Quantitation Limit

Page 11 of 11 Report ID: 1000767394



Date of Report: 08/21/2018

Marlon Cartin

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

Client Project: N031502
BCL Project: Level IV
BCL Work Order: 1824026
Invoice ID: B312917

Enclosed are the results of analyses for samples received by the laboratory on 8/3/2018. If you have any questions concerning this report, please feel free to contact me.

Revised Report: This report supercedes Report ID 1000780808

Sincerely,

Contact Person: Vanessa Sandoval

Client Service Rep

Stuart Buttram
Technical Director

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



Chain of Custody and Cooler Receipt Form for 1824026 Page 1 of 2 02-Aug-18 Date/Time 08.30 CHAIN-OF-CUSTODY RECORD Requested Tests Please use PO#N31502A Please email Invoices and Account Receivable Statements to elvira@assettaboratories.com. For questions, call Marion at (702)-307-2669. Please e-mail results to reports.lv@assetlaboratories.com by: Normal TAT. QC Level: Level IV Field Sampler: SIGNED SM4500-NH3D GSO #: 541545914 Bottle Type 320ZP Please CC Report to Lucille Golosinda at lucille golosinda@assetlaboratories.com Received by: Received by: Please analyze for Ammonia by SM4500NH3D. EDD Requirement Labspec7 edata 8/1/2018 12:30:00 PM Date Collected Date/Time (661) 327-4911 (661) 327-1918 17:00 Please email sample receipt acknowledgement to the PM. 8/2/2018 Matrix Water DISTRIBUTION THE SHA TEL: FAX: Acct#: 3151-3153 W Post Rd., Las Vegas, NV 89118 FAX: 7023072691 SUB OUT ASSET Laboratories / SC-700B-WDR-576 TEL: 7023072659 Sample ID Bakersfield, CA 93308 4100 Atlas Court General Comments: Relinquished by: Relinquished by: N031502-002A Subconfractor: BC Labs

Report ID: 1000782166



Chain of Custody and Cooler Receipt Form for 1824026 Page 2 of 2

· ·										1
BC LABORATORIES INC.		C	OOLER	RECEIPT	FORM			Pag	e(04
Submission #: 18-2408	26									
SHIPPING INFO Fed Ex D UPS D Ontra BC Lab Field Service D Othe		Deliver	5"	lce Che	HIPPING	None 🗆	NER Box 🗆		FREE LIO YES D N	100
Refrigerant: Ice D Blue Ice	□ None		Other 🗆	Comn	nents:					
Custody Seals Toe Chest 🖾	Containe Intant? Yes	2022 55327 371	None	⊯ Com	ments:					
All samples received? Yes 🗹 No 🗅	All samples			\sim				th COC?	Yes No	
000110001100	missivity:	<u> 97</u>	Container:	- "	Thermon	eter ID: _	274	Date/Tir	110 8-3	
✓ZYES □ NO	Temperature:	IAB.	0	*c 1	1013		°C	Analyst	Init X	08:36
					SAMPLE	NUMBERS				
SAMPLE CONTAINERS	1	2	3	4	5	6	. 7	8	9	10
QT PE UNPRES										
40z/80z/160z PE UNPRES									-	
202 Cr** J)	1									
OT INORGANIC CHEMICAL METALS 8-3	-							·	-	1
INORGANIC CHEMICAL METALS 40z / 80z / 16	az							ļ		-
PT CYANIDE	1/-									
PT NITROGEN FORMS Q +	. /T									
PT TOTAL SULFIDE			-							
202. NITRATE/NITRITE									-	
PT TOTAL ORGANIC CARBON										
PT CHEMICAL OXYGEN DEMAND										-
PIA PHENOLICS	_								-	
40ml VOA VIAL TRAVEL BLANK									-	-
40ml VOA VIAL QT EPA 1664									1	1
OT BPA 1664 PT ODOR										
RADIOLOGICAL										
BACTERIOLOGICAL	-								İ	
40 ml VOA VIAL- 504		*****								
QT EPA 508/608/8080										
QT KPA 515.1/8150										
QT EPA 525										
QT EPA 525 TRAVEL BLANK										
l0ml EPA 547										
0ml EPA 53LI										
oz EPA 548										
OT EPA 549										
OT EPA 8015M			i							
OT EPA 8270										-
02/1602/3202 AMBER										
0z/160z/320z JAR										
OIL SLEEVE										
CB VIAL										
LASTIC BAG										
EDLAR BAG										
ERROUS IRON					-	- /				
NCORE .							- 5			
MARTKIT		-								
UMMA CANISTER										
	/ A					54.0	-10	0 ~ 1		
mments: mple Numbering Completed By: Actual I C = Corrected	()			Date/Tim	e:	8-3		900	Rev 21 0	



3151-3153 W. Post Rd Las Vegas, NV 89118 Reported: 08/21/2018 8:29

Project: Level IV
Project Number: N031502
Project Manager: Marlon Cartin

Laboratory / Client Sample Cross Reference

Laboratory **Client Sample Information** 1824026-01 08/03/2018 08:30 **COC Number:** Receive Date: **Project Number:** Sampling Date: 08/01/2018 12:30 Sample Depth: **Sampling Location:** Sampling Point: N031502-002A / SC-700B-WDR-576 Lab Matrix: Water Sampled By: Client Sample Type: Water

Report ID: 1000782166 4100 Atlas Court Bakersfield, CA 93308 (661) 327-4911 FAX (661) 327-1918 www.bclabs.com Page 5 of 10

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

Reported: 08/21/2018 8:29

Project: Level IV Project Number: N031502 Project Manager: Marlon Cartin

Water Analysis (General Chemistry)

BCL Sample ID:	1824026-01	Client Sampl	e Name:	N031502-					
Constituent		Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Ammonia as N (Distille	d)	ND	mg/L	0.20		SM-4500-NH3G	ND		1

			Run			QC		
Run #	Method	Prep Date	Date/Time	Analyst	Instrument	Dilution	Batch ID	
1	SM-4500-NH3G	08/14/18 12:56	08/15/18 13:56	JMH	SC-1	1	B021541	

Page 6 of 10 Report ID: 1000782166



3151-3153 W. Post Rd Las Vegas, NV 89118 Reported: 08/21/2018 8:29

Project: Level IV
Project Number: N031502

Project Number: N031502
Project Manager: Marlon Cartin

Water Analysis (General Chemistry)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B021541						
Ammonia as N (Distilled)	B021541-BLK1	ND	mg/L	0.20		

Report ID: 1000782166 4100 Atlas Court Bakersfield, CA 93308 (661) 327-4911 FAX (661) 327-1918 www.bclabs.com Page 7 of 10



3151-3153 W. Post Rd Las Vegas, NV 89118 Reported: 08/21/2018 8:29

Project: Level IV

Project Number: N031502 Project Manager: Marlon Cartin

Water Analysis (General Chemistry)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Туре	Result	Spike Level	Units	Percent Recovery	RPD	Control Li Percent Recovery	imits RPD	Lab Quals
QC Batch ID: B021541										
Ammonia as N (Distilled)	B021541-BS1	LCS	0.94210	1.0000	mg/L	94.2		85 - 115		

Report ID: 1000782166 4100 Atlas Court Bakersfield, CA 93308 (661) 327-4911 FAX (661) 327-1918 www.bclabs.com Page 8 of 10



3151-3153 W. Post Rd Las Vegas, NV 89118 Reported: 08/21/2018 8:29

Project: Level IV

Project Number: N031502
Project Manager: Marlon Cartin

Water Analysis (General Chemistry)

Quality Control Report - Precision & Accuracy

							Control Limits				
		Source	Source		Spike			Percent		Percent	Lab
Constituent	Type	Sample ID	Result	Result	Added	Units	RPD	Recovery	RPD	Recovery	Quals
QC Batch ID: B021541 Used client sample: Y - Description: N031502-002A / SC-700B-WDR-576, 08/01/2018 12:30											
Ammonia as N (Distilled)	DUP	1824026-01	0.099300	ND		mg/L			20		
	MS	1824026-01	0.099300	1.0933	1.1111	mg/L		89.5		80 - 120	
	MSD	1824026-01	0.099300	1.1030	1.1111	mg/L	0.9	90.3	20	80 - 120	

Report ID: 1000782166 4100 Atlas Court Bakersfield, CA 93308 (661) 327-4911 FAX (661) 327-1918 www.bclabs.com Page 9 of 10



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

Reported: 08/21/2018 8:29

Project: Level IV Project Number: N031502

Project Manager: Marlon Cartin

Notes And Definitions

MDL Method Detection Limit ND Analyte Not Detected PQL Practical Quantitation Limit

Page 10 of 10 Report ID: 1000782166

August 16, 2018

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

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

FAX: (510) 622-9129 Workorder No.: N031502

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

Attention: Doug Scott

Enclosed are the results for sample(s) received on August 01, 2018 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 library for

Quennie Manimtim

Laboratory Director

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

ASSET Laboratories

CLIENT: CH2M HILL

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

Lab Order: N031502

CASE NARRATIVE

Date: 16-Aug-18

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 200.8:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Copper in QC samples N031512-001H-MS and N031512-001H-MSD possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Analytical Comments for EPA 218.6:

Dilution was necessary for sample N031502-002 due to matrix interference. Sample was analyzed at lower dilution however matrix spike recovery and retention time criteria were not met indicating possible matrix interference. Sample was reported at dilution that meet matrix spike recovery limit and the detected peak within retention time window.

Analytical Comments for EPA 300.0:

Dilution was necessary for sample N031502-002 due to precipitation upon the addition of eluent.

Analytical Comments for SM 4500-NO3F:

Matrix Spike Duplicate (MSD) is outside recovery criteria in QC sample N031503-002CMSD possibly



CLIENT: CH2M HILL

Project: PG&E Topock, 680375.03.IM.OP.00 CASE NARRATIVE

Lab Order: N031502

due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

ASSET Laboratories

CLIENT: CH2M HILL

Work Order Sample Summary Project: PG&E Topock, 680375.03.IM.OP.00

Lab Order: N031502

IM3PLANT-AR Contract No:

Lab Sample ID Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N031502-001A SC-100B-WDR-576	Water	8/1/2018 12:40:00 PM	8/1/2018	8/16/2018
N031502-001B SC-100B-WDR-576	Water	8/1/2018 12:40:00 PM	8/1/2018	8/16/2018
N031502-001C SC-100B-WDR-576	Water	8/1/2018 12:40:00 PM	8/1/2018	8/16/2018
N031502-001D SC-100B-WDR-576	Water	8/1/2018 12:40:00 PM	8/1/2018	8/16/2018
N031502-002A SC-700B-WDR-576	Water	8/1/2018 12:30:00 PM	8/1/2018	8/16/2018
N031502-002B SC-700B-WDR-576	Water	8/1/2018 12:30:00 PM	8/1/2018	8/16/2018
N031502-002C SC-700B-WDR-576	Water	8/1/2018 12:30:00 PM	8/1/2018	8/16/2018
N031502-002D SC-700B-WDR-576	Water	8/1/2018 12:30:00 PM	8/1/2018	8/16/2018
N031502-002E SC-700B-WDR-576	Water	8/1/2018 12:30:00 PM	8/1/2018	8/16/2018
N031502-002F SC-700B-WDR-576	Water	8/1/2018 12:30:00 PM	8/1/2018	8/16/2018

Date: 16-Aug-18

ANALYTICAL RESULTS

ASSET Laboratories Print Date: 16-Aug-18

 CLIENT:
 CH2M HILL
 Client Sample ID:
 SC-100B-WDR-576

 Lab Order:
 N031502
 Collection Date:
 8/1/2018 12:40:00 PM

Project: PG&E Topock, 680375.03.IM.OP.00 Matrix: WATER

Lab ID: N031502-001

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 NV00922-WC_180802B
 QC Batch:
 R126660
 PrepDate
 Analyst:
 LR

 Specific Conductance
 7100
 0.10
 umhos/cm
 1
 8/2/2018 10:35 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



ANALYTICAL RESULTS

ASSET Laboratories Print Date: 16-Aug-18

 CLIENT:
 CH2M HILL
 Client Sample ID:
 SC-700B-WDR-576

 Lab Order:
 N031502
 Collection Date:
 8/1/2018 12:30:00 PM

Project: PG&E Topock, 680375.03.IM.OP.00 Matrix: WATER

Lab ID: N031502-002

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 NV00922-WC_180802B
 QC Batch:
 R126660
 PrepDate
 Analyst:
 LR

 Specific Conductance
 7000
 0.10
 0.10
 umhos/cm
 1
 8/2/2018 10:35 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



ASSET Laboratories

Date: 16-Aug-18

CLIENT: CH2M HILL

ANALYTICAL QC SUMMARY REPORT

Work Order: N031502

Project: PG&E Topock, 680375.03.IM.OP.00 TestCode: 120.1_WPGE

Sample ID N031502-001ADL	JP SampType: DUP	TestCode: 120.1_WPGE Units:	umhos/cm Prep Date:	RunNo: 126660
Client ID: ZZZZZZ	Batch ID: R126660	TestNo: EPA 120.1	Analysis Date: 8/2/2018	SeqNo: 3097774
Analyte	Result	PQL SPK value SPK Ref Va	al %REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Specific Conductance	7090 000	0.10	7120	0.422 2

Qualifiers:

B Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit
Calculations are based on raw values

- E Value above quantitation range
- R RPD outside accepted recovery limits

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



ANALYTICAL RESULTS

Client Sample ID: SC-100B-WDR-576

ASSET Laboratories

CLIENT:

Laboratories Print Date: 16-Aug-18

Lab Order: N031502 **Collection Date:** 8/1/2018 12:40:00 PM

Project: PG&E Topock, 680375.03.IM.OP.00 Matrix: WATER

Lab ID: N031502-001

CH2M HILL

Analyses Result MDL PQL Qual Units DF Date Analyzed

TOTAL FILTERABLE RESIDUE SM2540C

 RunID:
 NV00922-WC_180802G
 QC Batch:
 70088
 PrepDate
 8/2/2018
 Analyst:
 LR

 Total Dissolved Solids (Residue,
 4300
 50
 50
 mg/L
 1
 8/2/2018
 12:51 PM

Filterable)

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



ANALYTICAL RESULTS

Print Date: 16-Aug-18

ASSET Laboratories

CLIENT: CH2M HILL Client Sample ID: SC-700B-WDR-576

Lab Order: N031502 **Collection Date:** 8/1/2018 12:30:00 PM

Project: PG&E Topock, 680375.03.IM.OP.00 Matrix: WATER

Lab ID: N031502-002

Analyses Result MDL PQL Qual Units DF Date Analyzed

TOTAL FILTERABLE RESIDUE SM2540C

 RunID:
 NV00922-WC_180802G
 QC Batch:
 70088
 PrepDate
 8/2/2018
 Analyst:
 LR

 Total Dissolved Solids (Residue,
 4200
 50
 50
 mg/L
 1
 8/2/2018
 12:51 PM

Filterable)

Qualifiers: B Analyte detected in the associated Method Blank

ASSET LABORATORIES

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

50 Surrogate Diluted Out

CALIFORNIA | P:562.219.7435 F:562.219.7436 11110 Artesia Blvd., Ste B, Cerritos, CA 90703 ELAP Cert 2921 EPA ID CA01638 ASSET Laboratories

Date: 16-Aug-18

CLIENT: CH2M HILL

ANALYTICAL QC SUMMARY REPORT

 Work Order:
 N031502

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

TestCode: 160.1_2540C_W

Sample ID LCS-70088	SampType: LCS	TestCode: 160.1_2540C Units: mg/L	Prep Date: 8/2/2018	RunNo: 126702
Client ID: LCSW	Batch ID: 70088	TestNo: SM2540C	Analysis Date: 8/2/2018	SeqNo: 3099339
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Total Dissolved Solids (Resid	lue, Filtera 974.000	10 1000 0	97.4 80 120	
Sample ID MB-70088	SampType: MBLK	TestCode: 160.1_2540C Units: mg/L	Prep Date: 8/2/2018	RunNo: 126702
Client ID: PBW	Batch ID: 70088	TestNo: SM2540C	Analysis Date: 8/2/2018	SeqNo: 3099340
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Total Dissolved Solids (Resid	lue, Filtera ND	10		
Sample ID N031503-002BD	UP SampType: DUP	TestCode: 160.1 2540C Units: ma/L	Prep Date: 8/2/2018	RunNo: 126702

Sample ID N031503-002BDUP	SampType: DUP	TestCod	de: 160.1_2540C Units: mg/L		Prep Date: 8/2/2018	RunNo: 12 0	6702
Client ID: ZZZZZZ	Batch ID: 70088	TestN	lo: SM2540C		Analysis Date: 8/2/2018	SeqNo: 309	99348
Analyte	Result	PQL	SPK value SPK Ref Val	%REC	LowLimit HighLimit RPD Ref Val	%RPD	RPDLimit Qual
Total Dissalved Colida (Besidus E	iltoro 4420.000	F.0			4295	2 22	F

Total Dissolved Solids (Residue, Filtera 4430.000 50 4285 3.33 5

Qualifiers:

B Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit
Calculations are based on raw values

- E Value above quantitation range
- R RPD outside accepted recovery limits

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



Print Date: 16-Aug-18

ASSET Laboratories

 CLIENT:
 CH2M HILL
 Client Sample ID:
 SC-700B-WDR-576

 Lab Order:
 N031502
 Collection Date:
 8/1/2018 12:30:00 PM

Project: PG&E Topock, 680375.03.IM.OP.00 Matrix: WATER

Lab ID: N031502-002

Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed
TOTAL METALS BY ICP						
			EPA	A 200.7		
RunID: NV00922-ICP2_180814B	QC Batch: 701	71		PrepDate	8/9/2018	Analyst: CEI
Aluminum	ND	40	50	μg/L	1	8/14/2018 11:01 AM
Boron	970	74	100	μg/L	1	8/15/2018 10:51 AM
Iron	23	18	20	μg/L	1	8/14/2018 11:01 AM

Qualifiers: B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Date: 16-Aug-18 **ASSET Laboratories**

CLIENT: CH2M HILL Work Order: N031502

ANALYTICAL QC SUMMARY REPORT

Project: PG&E Topock, 680375.03.IM.OP.00 TestCode: 200.7_WPGEPPB

Sample ID	MB-70171	SampType: MBLK	TestCode	e: 200.7_W F	PGE Units: μg/L		Prep Dat	e: 8/9/201	8	RunNo: 12	6913	
Client ID:	PBW	Batch ID: 70171	TestNo	o: EPA 200.	7		Analysis Dat	te: 8/14/20	18	SeqNo: 31	08018	
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	LCS1-70171	SampType: LCS	TestCode	e: 200.7_W F	PGE Units: µg/L		Prep Dat	:e: 8/9/201	8	RunNo: 12	6913	
Client ID:	LCSW	Batch ID: 70171	TestNo	o: EPA 200.	7		Analysis Dat	te: 8/14/20	18	SeqNo: 31	08019	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum		5037.240	50	5000	0	101	85	115				
Iron		107.917	20	100.0	0	108	85	115				
Sample ID	N031502-002E-MS1	SampType: MS	TestCode	e: 200.7_W F	PGE Units: μg/L		Prep Dat	e: 8/9/201	8	RunNo: 12 0	6913	
Sample ID Client ID:		SampType: MS Batch ID: 70171		e: 200.7_WF o: EPA 200.7			Prep Dat Analysis Dat			RunNo: 12		
· ·				o: EPA 200.		%REC	Analysis Dat	e: 8/14/2 0				Qual
Client ID:		Batch ID: 70171	TestNo	o: EPA 200.	7		Analysis Dat	e: 8/14/2 0	18	SeqNo: 31	08023	Qual
Client ID:		Batch ID: 70171 Result	TestNo	SPK value	7 SPK Ref Val	%REC	Analysis Dat	te: 8/14/20 HighLimit	18	SeqNo: 31	08023	Qual
Client ID: Analyte Aluminum Iron		Batch ID: 70171 Result 5242.967 119.627	PQL 50 20	SPK value	7 SPK Ref Val 0 22.59	%REC	Analysis Dat LowLimit 75 75	e: 8/14/20 HighLimit	18 RPD Ref Val	SeqNo: 31	08023 RPDLimit	Qual
Client ID: Analyte Aluminum Iron	ZZZZZZ N031502-002E-MSD	Batch ID: 70171 Result 5242.967 119.627	PQL 50 20 TestCode	SPK value 5000 100.0	SPK Ref Val 0 22.59 PGE Units: µg/L	%REC 105 97.0	Analysis Dat LowLimit 75 75	HighLimit 125 125 re: 8/9/201	RPD Ref Val	SeqNo: 31	RPDLimit	Qual
Client ID: Analyte Aluminum Iron Sample ID	ZZZZZZ N031502-002E-MSD	Batch ID: 70171 Result 5242.967 119.627 SampType: MSD	PQL 50 20 TestCode	SPK value 5000 100.0 e: 200.7_WF	SPK Ref Val 0 22.59 PGE Units: µg/L	%REC 105 97.0	Analysis Dat LowLimit 75 75 Prep Dat Analysis Dat	HighLimit 125 125 2e: 8/9/201 2e: 8/14/20	RPD Ref Val	SeqNo: 310 %RPD	RPDLimit	Qual
Client ID: Analyte Aluminum Iron Sample ID Client ID:	ZZZZZZ N031502-002E-MSD	Batch ID: 70171 Result 5242.967 119.627 SampType: MSD Batch ID: 70171	PQL 50 20 TestCode	SPK value 5000 100.0 e: 200.7_WF	SPK Ref Val 0 22.59 PGE Units: µg/L	%REC 105 97.0	Analysis Dat LowLimit 75 75 Prep Dat Analysis Dat	HighLimit 125 125 2e: 8/9/201 2e: 8/14/20	RPD Ref Val	SeqNo: 310 %RPD RunNo: 120 SeqNo: 310	08023 RPDLimit 6913 08024	

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit Calculations are based on raw values

- E Value above quantitation range
- RPD outside accepted recovery limits

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



CLIENT: CH2M HILL

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

Work Order:

Project:

ANALYTICAL QC SUMMARY REPORT N031502 TestCode: 200.7_WPGEPPB

Sample ID	MB-70228	SampType: MBLK	TestCode: 200.7_WPGE Units: μg/L	Prep Date: 8/14/2018	RunNo: 126943
Client ID:	PBW	Batch ID: 70228	TestNo: EPA 200.7	Analysis Date: 8/15/2018	SeqNo: 3109317
Analyte		Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Boron		ND	100		
Sample ID	LCS-70228	SampType: LCS	TestCode: 200.7_WPGE Units: μg/L	Prep Date: 8/14/2018	RunNo: 126943
Client ID:	LCSW	Batch ID: 70228	TestNo: EPA 200.7	Analysis Date: 8/15/2018	SeqNo: 3109318
Analyte		Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Boron		1092.745	100 1000 0	109 85 115	
Sample ID	N031502-002E-MS	SampType: MS	TestCode: 200.7_WPGE Units: μg/L	Prep Date: 8/14/2018	RunNo: 126943
Sample ID Client ID:		SampType: MS Batch ID: 70228	TestCode: 200.7_WPGE Units: µg/L TestNo: EPA 200.7	Prep Date: 8/14/2018 Analysis Date: 8/15/2018	RunNo: 126943 SeqNo: 3109322
•				•	
Client ID:		Batch ID: 70228	TestNo: EPA 200.7	Analysis Date: 8/15/2018	SeqNo: 3109322
Client ID: Analyte Boron		Batch ID: 70228 Result 2013.879	TestNo: EPA 200.7 PQL SPK value SPK Ref Val	Analysis Date: 8/15/2018 %REC LowLimit HighLimit RPD Ref Val	SeqNo: 3109322
Client ID: Analyte Boron	ZZZZZZ	Batch ID: 70228 Result 2013.879	TestNo: EPA 200.7 PQL SPK value SPK Ref Val 100 1000 972.2	Analysis Date: 8/15/2018 %REC LowLimit HighLimit RPD Ref Val 104 75 125	SeqNo: 3109322 %RPD RPDLimit Qual
Client ID: Analyte Boron Sample ID	ZZZZZZ N031502-002E-MSD	Batch ID: 70228 Result 2013.879 SampType: MSD	TestNo: EPA 200.7 PQL SPK value SPK Ref Val 100 1000 972.2 TestCode: 200.7_WPGE Units: μg/L	Analysis Date: 8/15/2018 ***REC LowLimit HighLimit RPD Ref Val 104 75 125 Prep Date: 8/14/2018	SeqNo: 3109322 %RPD RPDLimit Qual RunNo: 126943

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit Calculations are based on raw values

- E Value above quantitation range
- RPD outside accepted recovery limits

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



Print Date: 16-Aug-18

ASSET Laboratories

CLIENT: CH2M HILL Client Sample ID: SC-100B-WDR-576

Lab Order: N031502 **Collection Date:** 8/1/2018 12:40:00 PM

Project: PG&E Topock, 680375.03.IM.OP.00 Matrix: WATER

Lab ID: N031502-001

Analyses Result MDL PQL Qual Units DF Date Analyzed

TOTAL METALS BY ICPMS

RunID: NV00922-ICP7_180807H QC Batch: 70123 PrepDate 8/6/2018

unID: NV00922-ICP7_180807H QC Batch: 70123 PrepDate 8/6/2018 Analyst: CEI

Manganese 11 0.26 0.50 μg/L 1 8/8/2018 12:23 AM

Qualifiers: B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 16-Aug-18

ASSET Laboratories

 CLIENT:
 CH2M HILL
 Client Sample ID:
 SC-700B-WDR-576

 Lab Order:
 N031502
 Collection Date:
 8/1/2018 12:30:00 PM

Project: PG&E Topock, 680375.03.IM.OP.00 Matrix: WATER

Lab ID: N031502-002

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL METALS BY ICPMS							
			EP.	A 200.8			
RunID: NV00922-ICP7_180807H	QC Batch: 70	123		PrepD	ate	8/6/2018	Analyst: CEI
Antimony	ND	0.16	0.50		μg/L	1	8/8/2018 12:40 AM
Arsenic	0.17	0.081	0.10		μg/L	1	8/13/2018 12:45 PM
Barium	14	0.15	1.0		μg/L	1	8/8/2018 12:40 AM
Copper	ND	0.55	1.0		μg/L	1	8/13/2018 12:45 PM
Lead	ND	0.13	1.0		μg/L	1	8/8/2018 12:40 AM
Manganese	3.5	0.26	0.50		μg/L	1	8/8/2018 12:40 AM
Molybdenum	21	0.21	0.50		μg/L	1	8/8/2018 12:40 AM
Nickel	ND	0.26	1.0		μg/L	1	8/8/2018 12:40 AM
Zinc	ND	2.3	10		μg/L	1	8/8/2018 12:40 AM

Qualifiers: B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



ASSET Laboratories

Date: 16-Aug-18

CLIENT: CH2M HILL Work Order: N031502

ANALYTICAL QC SUMMARY REPORT

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

TestCode: 200.8_W

Commission ID MD T0400	OTimes MDI **	T40	l 000 0 ***	Haita. "		D D.	0/0/55		D No 12	0704	
Sample ID MB-70123	SampType: MBLK		le: 200.8_W	Units: µg/L			te: 8/6/201		RunNo: 12 0		
Client ID: PBW	Batch ID: 70123	TestN	lo: EPA 200. 8	3		Analysis Da	te: 8/8/201	8	SeqNo: 310	04078	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	ND	0.50									
Barium	ND	1.0									
Lead	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Nickel	ND	1.0									
Zinc	ND	10									
Sample ID LCS-70123	SampType: LCS	TestCod	le: 200.8_W	Units: µg/L		Prep Dat	te: 8/6/201	8	RunNo: 12 0	6791	
Client ID: LCSW	Batch ID: 70123	TestN	lo: EPA 200. 8	3		Analysis Da	te: 8/8/201	8	SeqNo: 310	04079	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	9.548	0.50	10.00	0	95.5	85	115				
Barium	10.312	1.0	10.00	0	103	85	115				
Lead	9.684	1.0	10.00	0	96.8	85	115				
Manganese	98.643	0.50	100.0	0	98.6	85	115				
Molybdenum	10.249	0.50	10.00	0	102	85	115				
Nickel	9.743	1.0	10.00	0	97.4	85	115				
Zinc	196.590	10	200.0	0	98.3	85	115				
Sample ID N031512-001H-MS	SampType: MS	TestCod	le: 200.8_W	Units: µg/L		Prep Dat	te: 8/6/201	8	RunNo: 12 0	6791	
Client ID: ZZZZZZ	Batch ID: 70123	TestN	lo: EPA 200. 8	3		Analysis Da	te: 8/8/201	8	SeqNo: 310	04097	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	10.059	0.50	10.00	0.3206	97.4	75	125				
Barium	17.721	1.0	10.00	7.321	104	75	125				
Lead	9.383	1.0	10.00	0	93.8	75	125				

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit

- E Value above quantitation range
- R RPD outside accepted recovery limits

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



CLIENT: CH2M HILL

Work Order: N031502

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

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID N031512-001H-MS	SampType: MS	TestCoo	le: 200.8_W	Units: µg/L		Prep Dat	e: 8/6/201	18	RunNo: 12 0	6791	
Client ID: ZZZZZZ	Batch ID: 70123	TestN	lo: EPA 200. 8	3		Analysis Dat	te: 8/8/201	18	SeqNo: 310	04097	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	17.696	0.50	10.00	6.116	116	75	125				
Nickel	9.697	1.0	10.00	0.5254	91.7	75	125				
Zinc	168.814	10	200.0	0	84.4	75	125				
Sample ID N031512-001H-MSD	SampType: MSD	TestCoo	le: 200.8_W	Units: µg/L		Prep Dat	e: 8/6/201	18	RunNo: 12 0	6791	
Client ID: ZZZZZZ	Batch ID: 70123	TestN	lo: EPA 200. 8	3		Analysis Dat	te: 8/8/201	18	SeqNo: 310	04099	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	10.151	0.50	10.00	0.3206	98.3	75	125	10.06	0.915	20	
Barium	17.704	1.0	10.00	7.321	104	75	125	17.72	0.0948	20	
Lead	9.363	1.0	10.00	0	93.6	75	125	9.383	0.212	20	
Manganese	156.659	0.50	100.0	66.37	90.3	75	125	160.9	2.65	20	
Molybdenum	17.791	0.50	10.00	6.116	117	75	125	17.70	0.533	20	
Nickel	9.710	1.0	10.00	0.5254	91.8	75	125	9.697	0.131	20	
Zinc	169.917	10	200.0	0	85.0	75	125	168.8	0.651	20	
Sample ID MB-70123	SampType: MBLK	TestCoo	le: 200.8_W	Units: µg/L		Prep Dat	e: 8/6/201	18	RunNo: 12 0	6895	
Client ID: PBW	Batch ID: 70123	TestN	lo: EPA 200. 8	3		Analysis Dat	te: 8/13/2 0)18	SeqNo: 310	07364	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic Copper	ND ND	0.10 1.0									
Sample ID LCS-70123	SampType: LCS	TestCoo	le: 200.8_W	Units: µg/L		Prep Dat	e: 8/6/201	18	RunNo: 12 0	6895	
Client ID: LCSW	Batch ID: 70123	TestN	lo: EPA 200. 8	3		Analysis Dat	te: 8/13/2 0)18	SeqNo: 310	07365	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	9.915	0.10	10.00	0	99.1	85	115				
Copper	9.655	1.0	10.00	0	96.5	85	115				

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
 Calculations are based on raw values

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



CLIENT: CH2M HILL

Work Order:

N031502

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

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID I	N031512-001H-MS	SampType: MS	TestCo	de: 200.8_W	Units: µg/L		Prep Dat	e: 8/6/201	8	RunNo: 126	6895	
Client ID: 2	ZZZZZZ	Batch ID: 70123	Test	lo: EPA 200. 8	3		Analysis Dat	te: 8/13/20	118	SeqNo: 310	7371	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic		20.413	0.10	10.00	10.41	100	75	125				
Copper		4.808	1.0	10.00	0	48.1	75	125				S
Sample ID I	N031512-001H-MSD	SampType: MSD	TestCo	de: 200.8_W	Units: µg/L		Prep Dat	e: 8/6/201	8	RunNo: 126	8895	
Client ID: 2	ZZZZZZ	Batch ID: 70123	Test	No: EPA 200.8	3		Analysis Dat	te: 8/13/20	18	SeqNo: 310	7372	
Client ID: 2	ZZZZZZ	Batch ID: 70123 Result	Testi PQL		SPK Ref Val	%REC	•		RPD Ref Val	SeqNo: 310 %RPD	07372 RPDLimit	Qual
	ZZZZZZ						•			•		Qual

Qualifiers:

B Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit
Calculations are based on raw values

- E Value above quantitation range
- R RPD outside accepted recovery limits

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



Print Date: 16-Aug-18

ASSET Laboratories

 CLIENT:
 CH2M HILL
 Client Sample ID:
 SC-100B-WDR-576

 Lab Order:
 N031502
 Collection Date:
 8/1/2018 12:40:00 PM

Project: PG&E Topock, 680375.03.IM.OP.00 Matrix: WATER

Lab ID: N031502-001

Analyses	Result MDL	PQL	Qual Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY I	C				
		EP/	A 218.6		
RunID: NV00922-IC7_180803A	QC Batch: R126742		PrepDate		Analyst: RAB
Hexavalent Chromium	480 3.3	20	μg/L	100	8/3/2018 10:43 AM
TOTAL METALS BY ICPMS					
		EP#	A 200.8		
RunID: NV00922-ICP7_180807H	QC Batch: 70123		PrepDate	8/6/2018	Analyst: CEI
Chromium	490 0.65	5.0	μg/L	5	8/8/2018 12:29 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



Print Date: 16-Aug-18

ASSET Laboratories

CLIENT: CH2M HILL Client Sample ID: SC-700B-WDR-576

 Lab Order:
 N031502
 Collection Date:
 8/1/2018 12:30:00 PM

 Project:
 PG&E Topock, 680375.03.IM.OP.00
 Matrix:
 WATER

Lab ID: N031502-002

Analyses	Result MDL	PQL	Qual Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY I					
		EPA 2	18.6		
RunID: NV00922-IC7_180803A	QC Batch: R126742		PrepDate		Analyst: RAB
Hexavalent Chromium	ND 0.17	1.0	μg/L	5	8/3/2018 12:38 PM
TOTAL METALS BY ICPMS					
		EPA 20	8.00		
RunID: NV00922-ICP7_180807H	QC Batch: 70123		PrepDate	8/6/2018	Analyst: CEI
Chromium	ND 0.13	1.0	μg/L	1	8/8/2018 12:40 AM

Qualifiers: B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



ASSET Laboratories

Date: 16-Aug-18

CLIENT: CH2M HILL

Project:

ANALYTICAL QC SUMMARY REPORT

Work Order: N031502

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

TestCode: 200.8_W_CRPGE

Sample ID	MB-70123	SampType:	MBLK	TestCod	le: 200.8_W _	CR Units: µg/L		Prep Date	e: 8/6/2018	RunNo: 1	26791	
Client ID:	PBW	Batch ID:	70123	TestN	o: EPA 200.	В		Analysis Date	e: 8/8/2018	SeqNo: 3	104031	
Analyte			Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit RPD Ref	Val %RPD	RPDLimit	Qual
Chromium			ND	1.0								
Sample ID	LCS-70123	SampType:	LCS	TestCod	le: 200.8_W _	CR Units: µg/L		Prep Date	e: 8/6/2018	RunNo: 1	26791	
Client ID:	LCSW	Batch ID:	70123	TestN	o: EPA 200.	В		Analysis Date	e: 8/8/2018	SeqNo: 3	104032	
Analyte			Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit RPD Ref	Val %RPD	RPDLimit	Qual
Chromium			9.712	1.0	10.00	0	97.1	85	115			
Sample ID	N031512-001H-MS	SampType:	MS	TestCod	le: 200.8_W _	CR Units: µg/L		Prep Date	e: 8/6/2018	RunNo: 1	26791	
Client ID:	ZZZZZZ	Batch ID:	70123	TestN	o: EPA 200.	В		Analysis Date	e: 8/8/2018	SeqNo: 3	104050	
Analyte			Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit RPD Ref	Val %RPD	RPDLimit	Qual
Chromium			9.966	1.0	10.00	0.5677	94.0	75	125			
Sample ID	N031512-001H-MSD	SampType:	MSD	TestCoo	le: 200.8_W _	CR Units: µg/L		Prep Date	e: 8/6/2018	RunNo: 1	26791	
Client ID:	ZZZZZZ	Batch ID:	70123	TestN	o: EPA 200.	В		Analysis Date	e: 8/8/2018	SeqNo: 3	104052	
Analyte			Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit RPD Ref	Val %RPD	RPDLimit	Qual

0.5677

95.2

75

125

Qualifiers:

Chromium

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
 Calculations are based on raw values

E Value above quantitation range

10.00

R RPD outside accepted recovery limits

H Holding times for preparation or analysis exceeded

9.966

1.20

20

S Spike/Surrogate outside of limits due to matrix interference



1.0

10.086

CLIENT: CH2M HILL

Work Order: N031502

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

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WU_PGE

Sample ID	MB-R126742	SampType: MBLK	TestCode: 218.6_WU_P Units: μg/L	Prep Date:	RunNo: 126742
Client ID:	PBW	Batch ID: R126742	TestNo: EPA 218.6	Analysis Date: 8/3/2018	SeqNo: 3101420
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-R126742	SampType: LCS	TestCode: 218.6_WU_P Units: μg/L	Prep Date:	RunNo: 126742
Client ID:	LCSW	Batch ID: R126742	TestNo: EPA 218.6	Analysis Date: 8/3/2018	SeqNo: 3101421
Analyte		Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Hexavalent	Chromium	5.129	0.20 5.000 0	103 90 110	
Sample ID	N031502-001BMS	SampType: MS	TestCode: 218.6_WU_P Units: μg/L	Prep Date:	RunNo: 126742
Client ID:	ZZZZZZ	Batch ID: R126742	TestNo: EPA 218.6	Analysis Date: 8/3/2018	SeqNo: 3101423
Analyte		Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Hexavalent	Chromium	965.770	20 500.0 480.1	97.1 90 110	
Sample ID	N031502-001BMSD	SampType: MSD	TestCode: 218.6_WU_P Units: μg/L	Prep Date:	RunNo: 126742
Client ID:	ZZZZZZ	Batch ID: R126742	TestNo: EPA 218.6	Analysis Date: 8/3/2018	SeqNo: 3101424
Analyte		Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Hexavalent	Chromium	978.020	20 500.0 480.1	99.6 90 110 965.8	1.26 20
Sample ID	N031503-002ADUP	SampType: DUP	TestCode: 218.6_WU_P Units: μg/L	Prep Date:	RunNo: 126742
Client ID:	ZZZZZZ	Batch ID: R126742	TestNo: EPA 218.6	Analysis Date: 8/3/2018	SeqNo: 3101431
Analyte		Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Hexavalent	Chromium	483.490	20	476.2	1.53 20

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
 Calculations are based on raw values

- E Value above quantitation range
- R RPD outside accepted recovery limits

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



CLIENT: CH2M HILL

Work Order:

N031502

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

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WU_PGE

Sample ID N031502-002CM	S SampType: MS	TestCod	de: 218.6_W L	J_P Units: μg/L		Prep Da	te:	RunNo: 12	6742	
Client ID: ZZZZZZ	Batch ID: R126742	TestN	No: EPA 218. 6	3	Analysis Date: 8/3/2018			SeqNo: 31	01433	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4 934	1.0	5 000	0	98.7	90	110			

Qualifiers:

B Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit Calculations are based on raw values

- E Value above quantitation range
- RPD outside accepted recovery limits

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



8/2/2018 10:55 AM

ASSET Laboratories Print Date: 16-Aug-18

 CLIENT:
 CH2M HILL
 Client Sample ID:
 SC-100B-WDR-576

 Lab Order:
 N031502
 Collection Date:
 8/1/2018 12:40:00 PM

0.10

Project: PG&E Topock, 680375.03.IM.OP.00 Matrix: WATER

0.26

Lab ID: N031502-001

Turbidity

 Analyses
 Result MDL
 PQL
 Qual Units
 DF Date Analyzed

 TURBIDITY

 SM 2130B

 RunID: NV00922-WC_180802E
 QC Batch: R126663
 PrepDate
 Analyst: LR

0.10

NTU

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



8/2/2018 10:55 AM

ASSET Laboratories Print Date: 16-Aug-18

 CLIENT:
 CH2M HILL
 Client Sample ID:
 SC-700B-WDR-576

 Lab Order:
 N031502
 Collection Date:
 8/1/2018 12:30:00 PM

0.10

Project: PG&E Topock, 680375.03.IM.OP.00 Matrix: WATER

0.22

Lab ID: N031502-002

Turbidity

 Analyses
 Result MDL
 PQL
 Qual Units
 DF Date Analyzed

 TURBIDITY

 SM 2130B

 RunID: NV00922-WC_180802E
 QC Batch: R126663
 PrepDate
 Analyst: LR

0.10

NTU

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



ASSET Laboratories

Date: 16-Aug-18

CLIENT: CH2M HILL

ANALYTICAL QC SUMMARY REPORT

Work Order: N031502

Project: PG&E Topock, 680375.03.IM.OP.00 TestCode: 2130_W

Sample ID MB-R126663	SampType: MBLK	TestCode: 2130_W	Units: NTU	Prep Date:	RunNo: 126663
Client ID: PBW	Batch ID: R126663	TestNo: SM 2130B		Analysis Date: 8/2/2018	SeqNo: 3097785
Analyte	Result	PQL SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Va	8 % RPD RPDLimit Qual
Turbidity	ND	0.10			
Sample ID N031502-001ADIIP	SampType: DIIP	TestCode: 2130 W	Unite: NTII	Pron Date:	PupNo: 126663

Sample ID N031502-001ADUP	SampType: DUP	TestCode: 2130_W	Units: NTU	Prep Date:				RunNo: 12 6		
Client ID: ZZZZZZ	Batch ID: R126663	TestNo: SM 2130B		Analysis Date: 8/2/2018 %REC LowLimit HighLimit RPD Ref Val		SeqNo: 309		Ougl		
Analyte Turbidity	0.250	PQL SPK value 0.10	SPK Ref Val	%REC	LOWLIMIL	HighLimit	0.2600	%RPD 3.92	RPDLimit 30	Qual

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
 Calculations are based on raw values

- E Value above quantitation range
- R RPD outside accepted recovery limits

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



Print Date: 16-Aug-18

ASSET Laboratories

CLIENT: CH2M HILL
Lab Order: N031502

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

Lab ID: N031502-002

Client Sample ID: SC-700B-WDR-576

Matrix: WATER

Collection Date: 8/1/2018 12:30:00 PM

Analyses Result MDL **PQL** Oual Units DF **Date Analyzed** ANIONS BY ION CHROMATOGRAPHY **EPA 300.0** RunID: NV00922-IC8_180802A QC Batch: R126714 PrepDate Analyst: RAB Fluoride 2.3 0.032 0.50 8/2/2018 10:35 AM mg/L 5 ANIONS BY ION CHROMATOGRAPHY **EPA 300.0** RunID: NV00922-IC8_180802B QC Batch: R126715 PrepDate Analyst: RAB Sulfate 470 25 50 8/2/2018 10:10 PM 1.1 mg/L

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



Date: 16-Aug-18 **ASSET Laboratories**

CLIENT: CH2M HILL Work Order: N031502

ANALYTICAL QC SUMMARY REPORT

Project: PG&E Topock, 680375.03.IM.OP.00 TestCode: 300_W_FPGE

·	MB-R126714_F	SampType:			le: 300_W_FI	•		Prep Dat			RunNo: 12	6714	
Client ID:	PBW	Batch ID:	R126714	TestN	o: EPA 300. 0)		Analysis Dat	te: 8/2/201	18	SeqNo: 31	00224	
Analyte			Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride			ND	0.10									
Sample ID	LCS-R126714_F	SampType:	LCS	TestCod	le: 300_W_FI	PG Units: mg/L		Prep Dat	e:		RunNo: 12	6714	
Client ID:	LCSW	Batch ID:	R126714	TestN	o: EPA 300. 0)		Analysis Dat	te: 8/2/201	18	SeqNo: 31	00225	
Analyte			Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride			1.238	0.10	1.250	0	99.1	90	110				
Sample ID	N031406-011ADUP	SampType:	DUP	TestCod	le: 300_W_FI	PG Units: mg/L		Prep Dat	e:		RunNo: 12	6714	
Client ID:	ZZZZZZ	Batch ID:	R126714	TestN	o: EPA 300. 0)		Analysis Dat	te: 8/2/201	18	SeqNo: 31	00235	
Analyte			Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride			7.196	2.0						7.206	0.139	20	
Sample ID	N031406-014AMS	SampType:	MS	TestCod	le: 300_W_F I	PG Units: mg/L		Prep Dat	e:		RunNo: 12	6714	
Client ID:	ZZZZZZ	Batch ID:	R126714	TestN	o: EPA 300.0)		Analysis Dat	te: 8/2/201	18	SeqNo: 31	00241	
Analyte			Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride			7.051	0.50	6.250	1.083	95.5	80	120				
Sample ID	N031406-014AMSD	SampType:	MSD	TestCod	le: 300_W_FI	PG Units: mg/L		Prep Dat	e:		RunNo: 12	6714	
Client ID:	ZZZZZZ	Batch ID:	R126714	TestN	o: EPA 300. 0)		Analysis Dat	te: 8/2/201	18	SeqNo: 31	00242	
Analyte			Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride		•	6.959	0.50	6.250	1.083	94.0	80	120	7.050	1.31	20	•

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit Calculations are based on raw values

- E Value above quantitation range
- RPD outside accepted recovery limits

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



CLIENT: CH2M HILL

ANALYTICAL QC SUMMARY REPORT

Work Order: N031502

TestCode: 300_W_FPGE **Project:** PG&E Topock, 680375.03.IM.OP.00

Sample ID N031502-00	2BMS SampType: MS	TestCo	TestCode: 300_W_FPG Units: mg/L			Prep Da	te:		RunNo: 12 0	6714	
Client ID: ZZZZZZ	Batch ID: R126714	Test	No: EPA 300.0)		Analysis Da	te: 8/2/201	8	SeqNo: 310		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	8.390	0.50	6.250	2.262	98.0	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit Calculations are based on raw values

- E Value above quantitation range
- RPD outside accepted recovery limits

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



CLIENT: CH2M HILL

Work Order: N031502

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

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID L	LCS-R126715_SO4	SampType: LCS	TestCode: 300_W_SO4P Units: mg/L	Prep Date:	RunNo: 126715
Client ID: L	LCSW	Batch ID: R126715	TestNo: EPA 300.0	Analysis Date: 8/2/2018	SeqNo: 3100269
Analyte		Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Sulfate		3.894	0.50 4.000 0	97.3 90 110	
Sample ID N	MB-R126715_SO4	SampType: MBLK	TestCode: 300_W_SO4P Units: mg/L	Prep Date:	RunNo: 126715
Client ID: P	PBW	Batch ID: R126715	TestNo: EPA 300.0	Analysis Date: 8/2/2018	SeqNo: 3100270
Analyte		Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Sulfate		ND	0.50		
Sample ID N	N031433-009CMS	SampType: MS	TestCode: 300_W_SO4P Units: mg/L	Prep Date:	RunNo: 126715
Client ID: Z	ZZZZZZ	Batch ID: R126715	TestNo: EPA 300.0	Analysis Date: 8/2/2018	SeqNo: 3100274
Analyte		Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Sulfate		127.944	5.0 40.00 87.36	101 80 120	
Sample ID N	N031433-009CMSD	SampType: MSD	TestCode: 300_W_SO4P Units: mg/L	Prep Date:	RunNo: 126715
Client ID: Z	ZZZZZZ	Batch ID: R126715	TestNo: EPA 300.0	Analysis Date: 8/2/2018	SeqNo: 3100275
Analyte		Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Sulfate		127.364	5.0 40.00 87.36	100 80 120 127.9	0.454 20
Sample ID N	N031444-005CMS	SampType: MS	TestCode: 300_W_SO4P Units: mg/L	Prep Date:	RunNo: 126715
Client ID: Z	ZZZZZZ	Batch ID: R126715	TestNo: EPA 300.0	Analysis Date: 8/2/2018	SeqNo: 3100276
Analyte		Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Sulfate		68.735	2.5 20.00 48.54	101 80 120	

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
 Calculations are based on raw values

- E Value above quantitation range
- R RPD outside accepted recovery limits

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



CLIENT: CH2M HILL

ANALYTICAL QC SUMMARY REPORT

Work Order: N031502 **Project:** PG&E Topock, 680375.03.IM.OP.00

TestCode: 300_W_SO4PGE

Sample ID N031433-002CDUP	SampType: DUP	TestCode: 300_W_S	O4P Units: mg/L		Prep Da	ite:		RunNo: 12 6	6715	
Client ID: ZZZZZZ	Batch ID: R126715	TestNo: EPA 300.0	0	Analysis Date: 8/2/2018			SeqNo: 310			
Analyte	Result	PQL SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	64.067	2.5					64.19	0.194	20	

Qualifiers:

B Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit Calculations are based on raw values

- E Value above quantitation range
- RPD outside accepted recovery limits

H Holding times for preparation or analysis exceeded

Spike/Surrogate outside of limits due to matrix interference





ASSET Laboratories Print Date: 16-Aug-18

 CLIENT:
 CH2M HILL
 Client Sample ID:
 SC-700B-WDR-576

 Lab Order:
 N031502
 Collection Date:
 8/1/2018 12:30:00 PM

Project: PG&E Topock, 680375.03.IM.OP.00 Matrix: WATER

Lab ID: N031502-002

Analyses Result MDL PQL Qual Units DF Date Analyzed

NITRATE/NITRITE-N BY CADMIUM REDUCTION

SM4500-NO3F

 RunID:
 NV00922-WC_180815A
 QC Batch:
 R126959
 PrepDate
 Analyst:
 QBM

 Nitrate/Nitrite as N
 2.6
 0.16
 0.25
 mg/L
 5
 8/15/2018

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



ASSET Laboratories

Date: 16-Aug-18

CLIENT: CH2M HILL Work Order: N031502

ANALYTICAL QC SUMMARY REPORT

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

TestCode: 4500N03F_W

Sample ID	MB-R126959	SampType:	MBLK	TestCod	e: 4500N03F	_W Units: mg/L		Prep Dat	e:		RunNo: 12	6959	
Client ID:	PBW	Batch ID:	R126959	TestN	o: SM4500-N	103		Analysis Dat	e: 8/15/20	118	SeqNo: 31	9937	
Analyte			Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitri	te as N		ND	0.050									
Sample ID	LCS-R126959	SampType:	LCS	TestCod	e: 4500N03F	_W Units: mg/L		Prep Dat	e:		RunNo: 12	6959	
Client ID:	LCSW	Batch ID:	R126959	TestN	o: SM4500-N	103		Analysis Dat	te: 8/15/20	118	SeqNo: 31	9938	
Analyte			Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitri	te as N		0.523	0.050	0.5000	0	105	85	115				
Sample ID Client ID:	N031502-002DDUP	SampType: Batch ID:	DUP R126959		e: 4500N03F o: SM4500-N	_W Units: mg/L		Prep Dat Analysis Dat		18	RunNo: 12 0 SeqNo: 31 0		
Analyte			Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitri	te as N		2.905	0.25						2.624	10.2	20	
Sample ID Client ID:	N031503-002CMS ZZZZZZ	SampType: Batch ID:	MS R126959		e: 4500N03F o: SM4500-N	_W Units: mg/L		Prep Dat Analysis Dat		118	RunNo: 120 SeqNo: 310		
Analyte			Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitri	te as N		4.829	0.25	2.500	2.702	85.1	75	125				
Sample ID Client ID:	N031503-002CMSD ZZZZZZ	SampType: Batch ID:	MSD R126959		e: 4500N03F o: SM4500-N	_W Units: mg/L		Prep Dat Analysis Dat		018	RunNo: 12		
Analyte			Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitri	te as N		5.900	0.25	2.500	2.702	128	75	125	4.829	20.0	20	S

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
 Calculations are based on raw values

- E Value above quantitation range
- R RPD outside accepted recovery limits

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



CH2MHILL

CHAIN OF CUSTODY RECORD

Page 1 OF 1

Project Name PG&E Topock	Container	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			
Location PG&E Topock Project Number 680375.03.IM.OP.00	Preservatives:	4°C Lab H2SO4	4°C	4°C	4°C	4°C Lab H2SO4	4°C	4°C	4°C	4°C			
Project Manager Scott O'Donnell	Filtered:	NA	NA	NA	NA	NA	NA	NA	NA	NA			
Sample Manager Shawn Duffy	Holding Time:	28	7	7	1	28	7	180	180	7			
Task Order Project IM3PLANT-ARAR-WDR-576 Turnaround Time 10 Days Shipping Date: COC Number: 576	TIME Matrix	AMMONIA (SM4500NH3D)	Anions (E300,0) Ft, 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	Turbidity (SM2130)		Number of Containers	COMMENTS
SC-100B-WDR-576 <i>G-1-18</i>	パタ Water			×	X		х		x	Х	N031502-01	3	
SC-700B-WDR-576 3-1-18	12:40 Water	х	Х	х	Х	Х	х	Х		х	-02	4	
											TOTAL NUMBER OF CONTAINERS	7	

Approved by
Sampled by
Received by

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

Doug Scott
(970) 731-0636

ASSET Laboratories

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

ed/Opened On: emp (Deg C):	8/1/2018							
emp (Dea C):					Workorder:	N031502		
omp (Bog O).	2.9				IR Gun ID:	2		
	✓ Yes	☐ No						
	ASSET							
f Tracking No.:	NA			Packing	Material Used:	None		
SS:	✓ Ice	☐ Ice Pack	☐ Dry Ice	Other	☐ None			
		<u>Sa</u>	ımple Receip	t Checklis	<u>t</u>			
ntainer/cooler in go	ood conditio	n?			Yes 🗹	No 🗆	Not Present	
als intact, signed, o	dated on shi	ppping container/c	cooler?		Yes	No 🗆	Not Present	✓
als intact on sample	e bottles?				Yes	No 🗆	Not Present	✓
stody present?					Yes 🗸	No 🗆		
ame present in CC	C?				Yes 🗸	No 🗌		
stody signed when	relinquishe	d and received?			Yes 🗹	No 🗆		
stody agrees with s	sample labe	ls?			Yes	No 🗹		
proper container/b	ottle?				Yes 🗸	No 🗌		
tainers intact?					Yes 🗸	No 🗆		
sample volume for	indicated te	st?			Yes 🗸	No 🗆		
s received within h	olding time?)			Yes 🗹	No 🗌		
ire of rep sample o	r Temp Bla	nk within acceptab	le limit?		Yes 🗹	No 🗌	NA	
OA vials have zero	headspace	?			Yes	No 🗆	NA	✓
	•	or Metals			Yes	No 🗹	NA	
ttle labels indicate	correct pres	ervatives used?			Yes	No 🗌	NA	✓
					Yes 🗸	No 🗌 No 🗆		
Samples for Hex C	Or were lab				ite with H2SO4.			
	als intact, signed, or als intact on sample stody present? name present in CC stody signed when stody agrees with surpoper container/butainers intact? sample volume for surpoper sample or container within hure of rep sample or container acceptable upon the container acceptable indicate the Non-Conformance was see Corresponder Samples for Hex C	ASSET f Tracking No.: NA ss:	ASSET f Tracking No.: NA ss:	ASSET f Tracking No.: NA ss:	ASSET f Tracking No.: NA	ASSET f Tracking No.: NA	ASSET f Tracking No.: NA	ASSET If Tracking No.: NA

Checklist Completed By:

Reviewed By:

LG 080718

Sample Control Officer Asset Laboratories

From: "Scott, Doug/DEN" <Doug.Scott@jacobs.com>

Date: 8/2/2018 11:32 AM To: Yoandra Rodriguez < yoandra@assetlaboratories.com > CC: "maryann.balilu@assetlaboratoriesph.com" <maryann.balilu@assetlaboratoriesph.com>, "'Andreafe. Gallardo'" <andrea.gallardo@assetlaboratories.com>, "'Sonny. Lorenzo'" <sonny.lorenzo@assetlaboratories.com> Hi Yoandra, I would suggest using the times on the labels. Thanks Doug Doug Scott Project Chemist Jacobs D 1 970 731 0636 M 1 720 445 2278 Doug.scott@Jacobs.com 59 Lilac Ct. Pagosa Springs, Co 81147 www.jacobs.com ----Original Message----From: Yoandra Rodriguez <yoandra@assetlaboratories.com> Sent: Thursday, August 02, 2018 12:23 PM To: Scott, Doug/DEN <Doug.Scott@CH2M.com> Cc: maryann.balilu@assetlaboratoriesph.com; 'Andreafe. Gallardo' <andrea.gallardo@assetlaboratories.com>; 'Sonny. Lorenzo' <sonny.lorenzo@assetlaboratories.com> Subject: [EXTERNAL] PG&E Topock, 680375.03.IM.OP.00 (Asset Labs No. N031502) Hello Doug, Please kindly advise on the following discrepancies for the attached COC: - Sample 1 (SC-100B-WDR-576): Collection time is 12:30 on COC and 12:40 on sample labels. - Sample 2 (SC-700B-WDR-576): Collection time is 12:40 on COC and 12:30 on sample labels. Thanks, Yoandra Rodriguez

Subject: RE: [EXTERNAL] PG&E Topock, 680375.03.IM.OP.00 (Asset Labs No. N031502)

NOTICE - This communication may contain confidential and privileged information that is for the sole use of the intended recipient. Any viewing, copying or distribution of, or reliance on this message by unintended recipients is strictly prohibited. If you have received this message in error, please notify us immediately by replying to the message and deleting it from your computer.

1 of 1 8/2/2018 12:10 PM

Page 1 of 1

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

Field Sampler: SIGNED

Subcontractor:

BC Labs TEL: (661) 327-4911 4100 Atlas Court FAX: (661) 327-1918

Bakersfield, CA 93308 Acct #: **02-Aug-18**

					Requested Tests	
Sample ID	Matrix	Date Collected	Bottle Type	SM4500-NH3D		
N031502-002A / SC-700B-WDR-576	Water	8/1/2018 12:30:00 PM	320ZP	1		

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

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

Please use PO#:N31502A Please email Invoices and Account Receivable Statements to elvira@assetlaboratories.com. For questions, call

Marlon at (702)-307-2659. Please e-mail results to reports.lv@assetlaboratories.com by: Normal TAT.

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

GSO #: 541545914

			Date/Time		Date/Time
	SIT	8/2/2018	17:00		
Relinquished by:	<u></u>			Received by:	
Relinquished by:				Received by:	

List of Analysts

ASSET Laboratories Work Order: N031502

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





Date of Report: 08/21/2018

Marlon Cartin

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

Client Project: N031502
BCL Project: Level IV
BCL Work Order: 1824026
Invoice ID: B312917

Enclosed are the results of analyses for samples received by the laboratory on 8/3/2018. If you have any questions concerning this report, please feel free to contact me.

Revised Report: This report supercedes Report ID 1000780808

Sincerely,

Contact Person: Vanessa Sandoval

Client Service Rep

Stuart Buttram
Technical Director

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



Chain of Custody and Cooler Receipt Form for 1824026 Page 1 of 2 02-Aug-18 Date/Time 08.30 **CHAIN-OF-CUSTODY RECORD** Requested Tests Please use PO#N31502A Please email Invoices and Account Receivable Statements to elvira@assettaboratories.com. For questions, call Marion at (702)-307-2669. Please e-mail results to reports.lv@assetlaboratories.com by: Normal TAT. QC Level: Level IV Field Sampler: SIGNED SM4500-NH3D GSO #: 541545914 Bottle Type 320ZP Please CC Report to Lucille Golosinda at lucille golosinda@assetlaboratories.com Received by: Received by: Please analyze for Ammonia by SM4500NH3D. EDD Requirement Labspec7 edata 8/1/2018 12:30:00 PM Date Collected Date/Time (661) 327-4911 (661) 327-1918 17:00 Please email sample receipt acknowledgement to the PM. 8/2/2018 Matrix Water DISTRIBUTION THE SHA TEL: FAX: Acct#: 3151-3153 W Post Rd., Las Vegas, NV 89118 FAX: 7023072691 SUB OUT ASSET Laboratories / SC-700B-WDR-576 TEL: 7023072659 Sample ID Bakersfield, CA 93308 4100 Atlas Court General Comments: Relinquished by: Relinquished by: N031502-002A Subconfractor: BC Labs

Report ID: 1000782166



Chain of Custody and Cooler Receipt Form for 1824026 Page 2 of 2

··											
BC LABORATORIES INC.			OOLER	RECEIPT	FORM			Pag	je <u> </u>	04 1	
Submission #: 18-2402	(Q										
SHIPPING INFORI Fed Ex D UPS D Ontract BC Lab Field Service D Other		d Deliver	5	lce Che	HIPPING	None	NER Box □		FREE LI YES 🗆 W /	NO D	
Refrigerant: Ice 🗭 Blue Ice 🗆	None		Other 🗆	Comn	nents:						
Custody Seals Ide Chest II Containers II None Comments:											
All samples received? Yes No D	All samples			\sim			tion(s) mat	ch COC?	Yes O No		
COC Received Emi	ssivîty:	<u> 470</u>	Container:	ADO	Thermon	neter ID: _	274	Date/Ti	me <u>X-3</u>	18	
✓ØYES □ NO Te	mperature:	LAFS.	0	·c /	1013	.0.	*c	Analyst	loit X	108:3	
	I					NUMBERS		-			
SAMPLE CONTAINERS	1	7 2	3	4	5	6	7	8	Τ,	10	
QT PE UNPRES		1	1		1				1		
40z/80z/160z PE UNPRES		1									
202 Cr ^{et}	1										
OT INORGANIC CHEMICAL METALS (7-3)	A										
NORGANIC CHRMICAL METALS 40z / 80z / 160z											
PT CYANIDE											
PT NITROGEN FORMS Q+	1/1										
PT TOTAL SULPIDE											
ROZ. NITRATE / NITRITE									-		
PT TOTAL ORGANIC CARBON	ļ										
PT CHEMICAL OXYGEN DEMAND									-		
PLA PHENOLICS	-										
IDml VOA VIAL TRAVEL BLANK								1	-	-	
Deni VOA VIAL								-	-	-	
YT EPA 1664											
TODOR	<u>-</u>								 		
RADIOLOGICAL									 		
ACTERIOLOGICAL									-		
0 ml VOA VIAL- 504									-	_	
YT EPA 508/608/8080											
YT KPA 515.1/8150	-										
PT EPA 525										+	
T EPA 525 TRAVEL BLANK									-	-	
0ml EPA 547 0ml EPA 531.1		-							—	-	
								-		+	
72 PPA 548									1		
T EPA 549									-	-	
T EPA 8015M									1		
TEPA 8270										-	
12/160z/32oz AMBER									-		
z/16oz/32oz JAR DIL SLEEVE									 	-	
CB VIAL									1	-	
										1	
ASTIC BAG EDLAR BAG									-	1	
ERROUS IRON							- 1				
NCORE .											
MART KIT									-		
		- 1		- 1					1	1 8	
MMA CANISTER Diments:						8-3		900	1		



3151-3153 W. Post Rd Las Vegas, NV 89118 Reported: 08/21/2018 8:29

Project: Level IV
Project Number: N031502
Project Manager: Marlon Cartin

Laboratory / Client Sample Cross Reference

Laboratory **Client Sample Information** 1824026-01 08/03/2018 08:30 **COC Number:** Receive Date: **Project Number:** Sampling Date: 08/01/2018 12:30 Sample Depth: **Sampling Location:** Sampling Point: N031502-002A / SC-700B-WDR-576 Lab Matrix: Water Sampled By: Client Sample Type: Water

Report ID: 1000782166 4100 Atlas Court Bakersfield, CA 93308 (661) 327-4911 FAX (661) 327-1918 www.bclabs.com Page 5 of 10

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

Reported: 08/21/2018 8:29

Project: Level IV Project Number: N031502 Project Manager: Marlon Cartin

Water Analysis (General Chemistry)

BCL Sample ID:	1824026-01	Client Sampl	e Name:	N031502-	002A / SC-	-700B-WDR-576,	8/1/2018 12:	12:30:00PM, Client		
Constituent		Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #	
Ammonia as N (Distille	d)	ND	mg/L	0.20		SM-4500-NH3G	ND		1	

			Run				QC	
Run #	Method	Prep Date	Date/Time	Analyst	Instrument	Dilution	Batch ID	
1	SM-4500-NH3G	08/14/18 12:56	08/15/18 13:56	JMH	SC-1	1	B021541	

Page 6 of 10 Report ID: 1000782166



3151-3153 W. Post Rd Las Vegas, NV 89118 Reported: 08/21/2018 8:29

Project: Level IV
Project Number: N031502

Project Number: N031502
Project Manager: Marlon Cartin

Water Analysis (General Chemistry)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B021541						
Ammonia as N (Distilled)	B021541-BLK1	ND	mg/L	0.20		

Report ID: 1000782166 4100 Atlas Court Bakersfield, CA 93308 (661) 327-4911 FAX (661) 327-1918 www.bclabs.com Page 7 of 10



3151-3153 W. Post Rd Las Vegas, NV 89118 Reported: 08/21/2018 8:29

Project: Level IV

Project Number: N031502 Project Manager: Marlon Cartin

Water Analysis (General Chemistry)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Туре	Result	Spike Level	Units	Percent Recovery	RPD	Control I Percent Recovery	Lab Quals	
QC Batch ID: B021541										
Ammonia as N (Distilled)	B021541-BS1	LCS	0.94210	1.0000	mg/L	94.2		85 - 115		

Report ID: 1000782166 4100 Atlas Court Bakersfield, CA 93308 (661) 327-4911 FAX (661) 327-1918 www.bclabs.com Page 8 of 10



3151-3153 W. Post Rd Las Vegas, NV 89118 Reported: 08/21/2018 8:29

Project: Level IV

Project Number: N031502
Project Manager: Marlon Cartin

Water Analysis (General Chemistry)

Quality Control Report - Precision & Accuracy

							Control Limits				
		Source	Source		Spike			Percent		Percent	Lab
Constituent	Type	Sample ID	Result	Result	Added	Units	RPD	Recovery	RPD	Recovery	Quals
QC Batch ID: B021541	Use	d client samp	ole: Y - Des	cription: N0	31502-002A	/ SC-700E	3-WDR	-576, 08/01	/2018	12:30	
Ammonia as N (Distilled)	DUP	1824026-01	0.099300	ND		mg/L			20		
	MS	1824026-01	0.099300	1.0933	1.1111	mg/L		89.5		80 - 120	
	MSD	1824026-01	0.099300	1.1030	1.1111	mg/L	0.9	90.3	20	80 - 120	

Report ID: 1000782166 4100 Atlas Court Bakersfield, CA 93308 (661) 327-4911 FAX (661) 327-1918 www.bclabs.com Page 9 of 10



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

Reported: 08/21/2018 8:29

Project: Level IV Project Number: N031502

Project Manager: Marlon Cartin

Notes And Definitions

MDL Method Detection Limit ND Analyte Not Detected PQL Practical Quantitation Limit

Page 10 of 10 Report ID: 1000782166



Date of Report: 08/23/2018

Marlon Cartin

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

Client Project: N031652 Level IV **BCL Project:** 1825194 **BCL Work Order:** B313716 Invoice ID:

Enclosed are the results of analyses for samples received by the laboratory on 8/14/2018. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Contact Person: Vanessa Sandoval

Client Service Rep

Stuart Buttram **Technical Director**

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

Report ID: 1000783849



Chain of Custody a	nd Cooler Rece	ipt Form for 1825194	Page 1 of 2		
Page I of I	13-Aug-18				Date/Time
CHAIN-OF-CUSTODY RECORD	QC Level IV Field Sampler: SIGNED	B/10/2018 11:50:00 PM 16OZP 1	SUB-OUT	Please email sample receipt acknowledgement to the PM. Please use PO#:N31652A 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: 5 Day TAT	GSO # 54/67/769 Received by: Received by:
A ASSET Laboratories 3151-3153 W Post Rd., Las Vegas, NV 89118 TEL: 7023072659 FAX: 7023072691	Subcontractor: BC Labs 4100 Alias Court Baikersfield, CA 93308 13 - 25101 U Acd #:	N031652-001A / SC-700B-WDR-577 Water 8/10/2		General Comments: Please email sample receipt acknowledgement to the PM. Please use POWN31652A Please email Invoices and Acc Marlon at (702)-307-2659, Please e-mail results to report. Please analyze for NH3 by SM 4500NH3C.	Relinquished by: Relinquished by:

Report ID: 1000783849



Chain of Custody and Cooler Receipt Form for 1825194 Page 2 of 2

BC LABORATORIES INC.			OOLER	RECEIPT	FORM			Pag	e(of
Submission #: 13 - 2 5 194										
SHIPPING INFORM				S	HIPPING	CONTAIL	VER		FREE LIO	UID
		Deliyen	y <u>D</u>	Ice Ch	est 🗷	None 🗆	Box 🗆		YES 🗆 N	
BC Lab Field Service Other	∠		30	Oth	cr 🗆 (Spe	cify)			W /	
Refrigerant: Ice Ø Blue Ice □	None	D (Other 🗆	Comr	nents:					
Custody Seals Ide Chest 🗆	Containe	rs 🗇		Com						
All samples received? Yes ☐ No ☐ A	ll samples (containers		(es El No			ion(s) match	COC? Y	ca D No	
COC Received Emis	sivity: (XY	Container:	DAN	Phermon	neter ID:	774	Date/Tin	1.85 m	4.18
- CO/20 110				1.1	_	-10			AL	7 6188
) is les	nperature:	(A)	1.CC	*E /	(C) C	2.4	°C I	Analyst	nit /	00:0
CAMBLE CONTAINEDS					SAMPLE	NUMBERS			/	
SAMPLE CONTAINERS	1	2	3	4	5	6	7	n	9	10
OT PE UNPRES										
40x/80x/160x PE UNPRES										
Zoz Cr ⁴⁶										
QT INORGANIC CHEMICAL METALS										
NORGANIC CHRMICAL METALS 40z / 80z / 160z										
PT CYANIDE										
PT NITROGEN FORMS	A									
PT TOTAL SULFIDE									-	
oz. NITRATE / NITRITE										
T TOTAL ORGANIC CARBON										
T CHEMICAL OXYGEN DEMAND										
PLA PHENOLICS										
Omi VOA VIAL TRAVEL BLANK				-						
0ml VOA VIAL										
T EPA 1664										
TODOR										
ADIOLOGICAL										
ACTERIOLOGICAL										
0 ml VOA VIAL- 504										
T EPA 508/608/8080							-			
T EPA 515.1/8150										
T EPA 525										
T EPA 525 TRAVEL BLANK										
ml EPA 547										
ml KPA 531-1										
12 EPA 548										
T EPA 549										
T EPA 8015M										
T RPA 8270										-
z/160z/320z AMBER										
z/160z/320z JAR										
OIL SLREVE										
CB VIAL										
ASTIC BAG										
DLAR BAG										
RROUS JRON										
CORE .										
ARTKIT	-						-			
MMA CANISTER										
nments:									-	

Report ID: 1000783849



3151-3153 W. Post Rd Las Vegas, NV 89118 Reported: 08/23/2018 17:18

Project: Level IV
Project Number: N031652
Project Manager: Marlon Cartin

Laboratory / Client Sample Cross Reference

Laboratory **Client Sample Information** 1825194-01 08/14/2018 08:38 **COC Number: Receive Date: Project Number:** Sampling Date: 08/10/2018 11:50 Sample Depth: **Sampling Location:** Sampling Point: N031652-001A / SC-700B-WDR-577 Lab Matrix: Water Sampled By: Sample Type: Water

Report ID: 1000783849 4100 Atlas Court Bakersfield, CA 93308 (661) 327-4911 FAX (661) 327-1918 www.bclabs.com Page 5 of 10

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

08/23/2018 17:18 Reported:

Project: Level IV Project Number: N031652 Project Manager: Marlon Cartin

Water Analysis (General Chemistry)

BCL Sample ID:	1825194-01	Client Sample Name: N031652-001A / SC-700B-WDR-577, 8/10/2018 11:5					1:50:00AM		
Constituent		Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run#
Ammonia as N (Distille	d)	ND	mg/L	0.20		SM-4500-NH3G	ND		1

			Run			QC			
Run#	Method	Prep Date	Date/Time	Analyst	Instrument	Dilution	Batch ID		
1	SM-4500-NH3G	08/20/18 17:01	08/21/18 10:46	JMH	SC-1	1	B022537		

Page 6 of 10 Report ID: 1000783849



3151-3153 W. Post Rd Las Vegas, NV 89118 Reported: 08/23/2018 17:18

Project: Level IV
Project Number: N031652
Project Manager: Marlon Cartin

Water Analysis (General Chemistry)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B022537						
Ammonia as N (Distilled)	B022537-BLK1	ND	mg/L	0.20		

Report ID: 1000783849 4100 Atlas Court Bakersfield, CA 93308 (661) 327-4911 FAX (661) 327-1918 www.bclabs.com Page 7 of 10



3151-3153 W. Post Rd Las Vegas, NV 89118 Reported: 08/23/2018 17:18

Project: Level IV
Project Number: N031652
Project Manager: Marlon Cartin

Water Analysis (General Chemistry)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control I Percent Recovery	Lab Quals	
QC Batch ID: B022537										
Ammonia as N (Distilled)	B022537-BS1	LCS	1.0237	1.0000	mg/L	102		85 - 115		

Report ID: 1000783849 4100 Atlas Court Bakersfield, CA 93308 (661) 327-4911 FAX (661) 327-1918 www.bclabs.com Page 8 of 10



3151-3153 W. Post Rd Las Vegas, NV 89118 Reported: 08/23/2018 17:18

Project: Level IV

Project Number: N031652
Project Manager: Marlon Cartin

Water Analysis (General Chemistry)

Quality Control Report - Precision & Accuracy

								Control Limits			
		Source	Source		Spike			Percent		Percent	Lab
Constituent	Type	Sample ID	Result	Result	Added	Units	RPD	Recovery	RPD	Recovery	Quals
QC Batch ID: B022537	Use	d client samp	le: N								
Ammonia as N (Distilled)	DUP	1824694-05	0.10590	ND		mg/L			20		
	MS	1824694-05	0.10590	1.1644	1.1111	mg/L		95.3		80 - 120	
	MSD	1824694-05	0.10590	1.1906	1.1111	mg/L	2.2	97.6	20	80 - 120	

Report ID: 1000783849 4100 Atlas Court Bakersfield, CA 93308 (661) 327-4911 FAX (661) 327-1918 www.bclabs.com Page 9 of 10



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

Reported: 08/23/2018 17:18

Project: Level IV Project Number: N031652 Project Manager: Marlon Cartin

Notes And Definitions

MDL Method Detection Limit ND Analyte Not Detected PQL Practical Quantitation Limit

Page 10 of 10 Report ID: 1000783849

August 22, 2018

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

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

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

Attention: Doug Scott

Enclosed are the results for sample(s) received on August 13, 2018 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.

Workorder No.: N031652

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

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

Sincerely,

Quennie Manimtim

Manay libucar for

Laboratory Director

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

ASSET Laboratories

CLIENT: CH2M HILL

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

Lab Order: N031652

CASE NARRATIVE

Date: 22-Aug-18

SAMPLE RECEIVING/GENERAL COMMENTS:

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

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

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

Samples were analyzed within method holding time except for Turbidity as it was received past holding time.

Subcontracted Analyses:

Ammonia was subcontracted to BC Labs- Bakersfield, CA.

Analytical Comments for EPA 218.6:

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

ASSET Laboratories

CLIENT: CH2M HILL

Project: PG&E Topock, 680375.03.IM.OP.00 Work Order Sample Summary

Date: 22-Aug-18

Lab Order: N031652

Contract No: IM3PLANT-AR

Lab Sample ID Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N031652-001A SC-700B-WDR-577	Water	8/10/2018 11:50:00 PM	8/13/2018	8/22/2018
N031652-001B SC-700B-WDR-577	Water	8/10/2018 11:50:00 PM	8/13/2018	8/22/2018
N031652-001C SC-700B-WDR-577	Water	8/10/2018 11:50:00 PM	8/13/2018	8/22/2018
N031652-001D SC-700B-WDR-577	Water	8/10/2018 11:50:00 PM	8/13/2018	8/22/2018
N031652-001E SC-700B-WDR-577	Water	8/10/2018 11:50:00 PM	8/13/2018	8/22/2018

ASSET Laboratories Print Date: 22-Aug-18

 CLIENT:
 CH2M HILL
 Client Sample ID:
 SC-700B-WDR-577

 Lab Order:
 N031652
 Collection Date:
 8/10/2018 11:50:00 PM

Project: PG&E Topock, 680375.03.IM.OP.00 Matrix: WATER

Lab ID: N031652-001

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 NV00922-WC_180814B
 QC Batch:
 R126939
 PrepDate
 Analyst:
 LR

 Specific Conductance
 7300
 0.10
 0.10
 umhos/cm
 1
 8/14/2018 11:25 AM

Qualifiers: B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range

ND Not Detected at the Reporting Limit

Results are wet unless otherwise specified



ASSET Laboratories

Date: 22-Aug-18

CLIENT: CH2M HILL

ANALYTICAL QC SUMMARY REPORT

Work Order: N031652

Project: PG&E Topock, 680375.03.IM.OP.00 TestCode: 120.1_WPGE

Sample ID N031662-001BDL	JP SampType: DUP	TestCode: 120.1_W	/PGE Units: umhos/cr	m	Prep Da	te:		RunNo: 126	939	
Client ID: ZZZZZZ	Batch ID: R126939	TestNo: EPA 120	0.1		Analysis Da	te: 8/14/20	18	SeqNo: 310	9258	
Analyte	Result	PQL SPK value	e SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	1 490	0.10					1 520	1 99	2	

Qualifiers:

B Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit
Calculations are based on raw values

- E Value above quantitation range
- R RPD outside accepted recovery limits

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



ASSET Laboratories

Print Date: 22-Aug-18

CLIENT: CH2M HILL
Lab Order: N031652

Client Sample ID: SC-700B-WDR-577
Collection Date: 8/10/2018 11:50:00 PM

Matrix: WATER

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

Lab ID: N031652-001

Analyses Result MDL PQL Qual Units DF Date Analyzed

TOTAL FILTERABLE RESIDUE

SM2540C

RunlD: NV00922-WC_180814H QC Batch: 70243 PrepDate 8/14/2018 Analyst: LR

Total Dissolved Solids (Residue, 4200 50 50 mg/L 1 8/14/2018 01:33 PM

Filterable)

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

EPA ID CA01638

ND Not Detected at the Reporting Limit

Results are wet unless otherwise specified

ASSET LABORATORIES

ASSET LABORATORIES

ACCELIFORNIA | P:562.219.7435 F:562.219.7436 11110 Artesia Blvd., Ste B, Cerritos, CA 90703 ELAP Cert 2921

ASSET Laboratories

Date: 22-Aug-18

CLIENT: CH2M HILL

ANALYTICAL QC SUMMARY REPORT

Work Order: N031652

Project: PG&E Topock, 680375.03.IM.OP.00 TestCode: 160.1_2540C_W

Sample ID LCS-70243 Client ID: LCSW	SampType: I Batch ID:		TestCode: 160.1_2540C Units: mg/L TestNo: SM2540C	Prep Date: 8/14/2018 Analysis Date: 8/14/2018	RunNo: 126994 SeqNo: 3111583
Analyte		Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Total Dissolved Solids (Residue,	Filtera 99	91.000	10 1000 0	99.1 80 120	
Sample ID MB-70243 Client ID: PBW	SampType: I Batch ID: 7		TestCode: 160.1_2540C Units: mg/L TestNo: SM2540C	Prep Date: 8/14/2018 Analysis Date: 8/14/2018	RunNo: 126994 SeqNo: 3111584
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 N031664-001BDUP Client ID: ZZZZZZ	SampType: I		TestCode: 160.1_2540C Units: mg/L TestNo: SM2540C	Prep Date: 8/14/2018 Analysis Date: 8/14/2018	RunNo: 126994 SeqNo: 3111587
Analyte		Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Total Dissolved Solids (Residue,	Filtera 23570	00.000	1000	227900	3.36 5

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
 Calculations are based on raw values

- E Value above quantitation range
- R RPD outside accepted recovery limits

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



ASSET Laboratories

CLIENT: CH2M HILL
Lab Order: N031652

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

Lab ID: N031652-001

Client Sample ID: SC-700B-WDR-577

Collection Date: 8/10/2018 11:50:00 PM

Print Date: 22-Aug-18

Matrix: WATER

Analyses	Result	MDL	PQL	Qual U	nits DF	Date Analyzed
TOTAL METALS BY ICP						
			EP	A 200.7		
RunID: NV00922-ICP2_180820A	QC Batch: 7027	70		PrepDate	8/16/2018	Analyst: CEI
Aluminum	ND	40	50	μg/L	_ 1	8/20/2018 11:18 AM
Boron	970	74	100	μg/L	_ 1	8/20/2018 11:18 AM
Iron	33	18	20	μg/L	. 1	8/20/2018 11:18 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



Date: 22-Aug-18 **ASSET Laboratories**

CLIENT: CH2M HILL Work Order: N031652

ANALYTICAL QC SUMMARY REPORT

Project: PG&E Topock, 680375.03.IM.OP.00 TestCode: 200.7_WPGEPPB

Sample ID	MB-70270	SampType: MBLK	TestCod	de: 200.7_WF	PGE Units: μg/L		Prep Da	te: 8/16/2 0)18	RunNo: 12	7048	
Client ID:	PBW	Batch ID: 70270	TestN	lo: EPA 200.	7		Analysis Da	te: 8/20/20)18	SeqNo: 31	14500	
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	N031652-001E-MS1	SampType: MS	TestCod	de: 200.7_W F	PGE Units: μg/L		Prep Da	te: 8/16/2 0)18	RunNo: 12	7048	
Client ID:	ZZZZZZ	Batch ID: 70270	TestN	lo: EPA 200.	7		Analysis Da	te: 8/20/20)18	SeqNo: 31	14505	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum		4665.504	50	5000	0	93.3	75	125				
Boron		2197.722	100	1000	974.3	122	75	125				
Iron		119.531	20	100.0	33.20	86.3	75	125				
Sample ID	N031652-001E-MSD	SampType: MSD	TestCo	de: 200.7_W F	PGE Units: μg/L		Prep Da	te: 8/16/2 0)18	RunNo: 12	7048	
Client ID:	ZZZZZZ	Batch ID: 70270	TestN	lo: EPA 200. 7	7		Analysis Da	te: 8/20/2 0)18	SeqNo: 31	14506	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum		4711.220	50	5000	0	94.2	75	125	4666	0.975	20	
Boron		2223.126	100	1000	974.3	125	75	125	2198	1.15	20	
Iron		119.466	20	100.0	33.20	86.3	75	125	119.5	0.0538	20	
Sample ID	LCS1-70270	SampType: LCS	TestCod	de: 200.7_W F	PGE Units: μg/L		Prep Da	te: 8/16/2 0)18	RunNo: 12	7048	
Client ID:	LCSW	Batch ID: 70270	TestN	lo: EPA 200. 7	7		Analysis Da	te: 8/20/2 0)18	SeqNo: 31	14508	
			PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Analyte		Result	FQL	0								
Analyte Aluminum		5325.206	50	5000	0	107	85	115				
					0	107 112	85 85	115 115				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit

- E Value above quantitation range
- RPD outside accepted recovery limits

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



Print Date: 22-Aug-18

ASSET Laboratories

CLIENT: CH2M HILL
Lab Order: N031652

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

Lab ID: N031652-001

Client Sample ID: SC-700B-WDR-577

Collection Date: 8/10/2018 11:50:00 PM

Matrix: WATER

Analyses	Result	MDL	PQL	Qual Uni	ts DF	Date Analyzed
TOTAL METALS BY ICPMS						
			EP	A 200.8		
RunID: NV00922-ICP7_180820A	QC Batch: 702	276		PrepDate	8/16/2018	Analyst: CEI
Antimony	ND	0.16	0.50	μg/L	1	8/20/2018 04:10 PM
Arsenic	0.12	0.081	0.10	μg/L	1	8/20/2018 04:10 PM
Barium	15	0.15	1.0	μg/L	1	8/20/2018 04:10 PM
Copper	ND	0.55	1.0	μg/L	1	8/21/2018 01:04 PM
Lead	ND	0.13	1.0	μg/L	1	8/20/2018 04:10 PM
Manganese	14	0.26	0.50	μg/L	1	8/20/2018 04:10 PM
Molybdenum	26	0.21	0.50	μg/L	1	8/20/2018 04:10 PM
Nickel	ND	0.26	1.0	μg/L	1	8/20/2018 04:10 PM
Zinc	ND	2.3	10	μg/L	1	8/20/2018 04:10 PM

Qualifiers: B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range

ND Not Detected at the Reporting Limit

Results are wet unless otherwise specified



ASSET Laboratories Date: 22-Aug-18

CLIENT: CH2M HILL

ANALYTICAL QC SUMMARY REPORT

Work Order: N031652

Project: PG&E	Topock, 680375.03.IM.OP.00						7	TestCode: 2	00.8_W		
Sample ID MB-70276 Client ID: PBW	SampType: MBLK Batch ID: 70276		de: 200.8_W No: EPA 200 .8	Units: µg/L		Prep Date Analysis Date	e: 8/16/2 e: 8/20/2		RunNo: 12: SeqNo: 31:		
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									
Nickel	ND	1.0									
Zinc	ND	10									
Sample ID LCS-70276	SampType: LCS	TestCo	de: 200.8_W	Units: µg/L		Prep Date	e: 8/16/2	018	RunNo: 12	7066	
Client ID: LCSW	Batch ID: 70276	Testl	No: EPA 200. 8	8		Analysis Date	e: 8/20/2	018	SeqNo: 31	15209	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	10.711	0.50	10.00	0	107	85	115				
Arsenic	10.859	0.10	10.00	0	109	85	115				
Barium	10.887	1.0	10.00	0	109	85	115				
Lead	10.740	1.0	10.00	0	107	85	115				
Manganese	112.758	0.50	100.0	0	113	85	115				

Sample ID N031652-001E-MS Client ID: ZZZZZZ	SampType: MS Batch ID: 70276		de: 200.8_W do: EPA 200.8	Units: µg/L		•	te: 8/16/20 te: 8/20/20		RunNo: 127 SeqNo: 317		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony Arsenic	10.558 10.558	0.50 0.10	10.00 10.00	0 0.1221	106 104	75 75	125 125				

0

109

108

85

85

115

115

Qualifiers:

Nickel

Zinc

B Analyte detected in the associated Method Blank

Calculations are based on raw values

ND Not Detected at the Reporting Limit

10.866

215.116

RPD outside accepted recovery limits

E Value above quantitation range

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



1.0

10

10.00

200.0

CLIENT: CH2M HILL

Work Order: N031652

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

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID N031652-001E-MS	SampType: MS	TestCoo	de: 200.8_W	Units: µg/L		Pren Date	e: 8/16/20	18	RunNo: 12	7066	
			_			•					
Client ID: ZZZZZZ	Batch ID: 70276	Testr	lo: EPA 200. 8	3		Analysis Date	: 8/20/20	18	SeqNo: 31	15215	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	25.795	1.0	10.00	15.16	106	75	125				
Lead	10.466	1.0	10.00	0	105	75	125				
Manganese	113.578	0.50	100.0	13.90	99.7	75	125				
Molybdenum	37.723	0.50	10.00	25.80	119	75	125				
Nickel	9.986	1.0	10.00	0.4797	95.1	75	125				
Zinc	179.784	10	200.0	0	89.9	75	125				
Sample ID N031652-001E-MSD	SampType: MSD	TestCo	de: 200.8_W	Units: µg/L		Prep Date	e: 8/16/20	18	RunNo: 12	7066	
Client ID: ZZZZZZ	Batch ID: 70276	TestN	lo: EPA 200. 8	3		Analysis Date	e: 8/20/20	18	SeqNo: 31	15217	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	10.506	0.50	10.00	0	105	75	125	10.56	0.496	20	
Arsenic	10.660	0.10	10.00	0.1221	105	75	125	10.56	0.963	20	
Barium	25.775	1.0	10.00	15.16	106	75	125	25.79	0.0760	20	
Lead	10.426	1.0	10.00	0	104	75	125	10.47	0.387	20	
Manganese	113.103	0.50	100.0	13.90	99.2	75	125	113.6	0.419	20	
Molybdenum	38.018	0.50	10.00	25.80	122	75	125	37.72	0.780	20	
Nickel	9.950	1.0	10.00	0.4797	94.7	75	125	9.986	0.362	20	
Zinc	179.706	10	200.0	0	89.9	75	125	179.8	0.0435	20	
Sample ID MB-70276	SampType: MBLK	TestCo	de: 200.8_W	Units: µg/L		Prep Date	e: 8/16/20	18	RunNo: 12	7101	
Client ID: PBW	Batch ID: 70276	TestN	lo: EPA 200. 8	3		Analysis Date	e: 8/21/20	18	SeqNo: 31	17149	
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
Calculations are based on raw values

- E Value above quantitation range
- R RPD outside accepted recovery limits

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



CLIENT: CH2M HILL

ANALYTICAL QC SUMMARY REPORT

Work Order: N031652

TestCode: 200.8_W **Project:** PG&E Topock, 680375.03.IM.OP.00

Sample ID LCS-70276	SampType: LCS	TestCode: 200.8_W Units: μg/L	Prep Date: 8/16/2018	RunNo: 127101
Client ID: LCSW	Batch ID: 70276	TestNo: EPA 200.8	Analysis Date: 8/21/2018	SeqNo: 3117150
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Copper	9.911	1.0 10.00 0	99.1 85 115	
Sample ID N031652-001E-MS	SampType: MS	TestCode: 200.8_W Units: µg/L	Prep Date: 8/16/2018	RunNo: 127101
Client ID: ZZZZZZ	Batch ID: 70276	TestNo: EPA 200.8	Analysis Date: 8/21/2018	SeqNo: 3117154
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Copper	10.898	1.0 10.00 0	109 75 125	
Sample ID N031652-001E-MSD	SampType: MSD	TestCode: 200.8_W Units: μg/L	Prep Date: 8/16/2018	RunNo: 127101
Client ID: ZZZZZZ	Batch ID: 70276	TestNo: EPA 200.8	Analysis Date: 8/21/2018	SeqNo: 3117155
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Copper	11.363	1.0 10.00 0	114 75 125 10.90	4.18 20

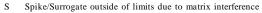
Qualifiers:

B Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit Calculations are based on raw values

- E Value above quantitation range
- RPD outside accepted recovery limits

H Holding times for preparation or analysis exceeded





Print Date: 22-Aug-18

ASSET Laboratories

 CLIENT:
 CH2M HILL
 Client Sample ID:
 SC-700B-WDR-577

 Lab Order:
 N031652
 Collection Date:
 8/10/2018 11:50:00 PM

Project: PG&E Topock, 680375.03.IM.OP.00 Matrix: WATER

Lab ID: N031652-001

Analyses	Result MDL	PQL	Qual Units	DF.	Date Analyzed
HEXAVALENT CHROMIUM BY IC					
		EP#	A 218.6		
RunID: NV00922-IC7_180814A	QC Batch: R127019		PrepDate		Analyst: RAB
Hexavalent Chromium	ND 0.17	1.0	μg/L	5	8/14/2018 01:51 PM
TOTAL METALS BY ICPMS					
		EP#	A 200.8		
RunID: NV00922-ICP7_180820A	QC Batch: 70276		PrepDate	8/16/2018	Analyst: CEI
Chromium	ND 0.13	1.0	μg/L	1	8/20/2018 04:10 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



Date: 22-Aug-18 **ASSET Laboratories**

CLIENT: CH2M HILL Work Order: N031652

ANALYTICAL QC SUMMARY REPORT

Project: PG&E Topock, 680375.03.IM.OP.00 TestCode: 200.8_W_CRPGE

Sample ID Client ID:	MB-70276 PBW	SampType: Batch ID:			e: 200.8_W _ o: EPA 200 .8	CR Units: µg/L		Prep Date Analysis Date	e: 8/16/2018 e: 8/20/2018		RunNo: 12 SeqNo: 31		
Analyte			Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit RI	PD Ref Val	%RPD	RPDLimit	Qual
Chromium			ND	1.0									
Client ID:	LCS-70276 LCSW	SampType: Batch ID:	70276	TestN	e: 200.8_W _ o: EPA 200 .	8		Analysis Date			RunNo: 12 SeqNo: 31	15286	
Analyte			Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit RI	PD Ref Val	%RPD	RPDLimit	Qual
Chromium			10.737	1.0	10.00	0	107	85	115				
Sample ID	N031652-001E-MS	SampType:	MS	TestCod	e: 200.8_W _	CR Units: µg/L		Prep Date	e: 8/16/2018		RunNo: 12	7066	
Sample ID Client ID:		SampType: Batch ID:			e: 200.8_W _ o: EPA 200 .			Prep Date Analysis Date			RunNo: 12 SeqNo: 31		
·					o: EPA 200 .		%REC	Analysis Date					Qual
Client ID:			70276	TestN	o: EPA 200 .	8		Analysis Date	e: 8/20/2018		SeqNo: 31	15292	Qual
Client ID: Analyte Chromium		Batch ID:	70276 Result 9.751	TestN PQL 1.0	o: EPA 200. SPK value	8 SPK Ref Val	%REC	Analysis Date LowLimit 75	e: 8/20/2018 HighLimit RI	PD Ref Val	SeqNo: 31	15292 RPDLimit	Qual
Client ID: Analyte Chromium	N031652-001E-MSD	Batch ID:	70276 Result 9.751 MSD	TestN PQL 1.0 TestCod	o: EPA 200. SPK value	SPK Ref Val 0 CR Units: µg/L	%REC 97.5	Analysis Date LowLimit 75	e: 8/20/2018 HighLimit RI 125 e: 8/16/2018	PD Ref Val	SeqNo: 31 %RPD	15292 RPDLimit 7066	Qual
Client ID: Analyte Chromium Sample ID	N031652-001E-MSD	Batch ID: SampType:	70276 Result 9.751 MSD	TestN PQL 1.0 TestCod	o: EPA 200. SPK value 10.00 e: 200.8_W_ o: EPA 200.	SPK Ref Val 0 CR Units: µg/L	%REC 97.5	Analysis Date LowLimit 75 Prep Date Analysis Date	e: 8/20/2018 HighLimit RI 125 e: 8/16/2018	PD Ref Val	SeqNo: 31 %RPD RunNo: 12	15292 RPDLimit 7066	Qual

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit Calculations are based on raw values

- E Value above quantitation range
- RPD outside accepted recovery limits

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



CLIENT: CH2M HILL

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

Work Order:

Project:

ANALYTICAL QC SUMMARY REPORT N031652

Sample ID MB-R127019	SampType: MBLK	TestCode: 218.6_WPGE Units: µg/L	Prep Date:	RunNo: 127019
Client ID: PBW	Batch ID: R127019	TestNo: EPA 218.6	Analysis Date: 8/14/2018	SeqNo: 3113372
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-R127019	SampType: LCS	TestCode: 218.6_WPGE Units: µg/L	Prep Date:	RunNo: 127019
Client ID: LCSW	Batch ID: R127019	TestNo: EPA 218.6	Analysis Date: 8/14/2018	SeqNo: 3113373
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Hexavalent Chromium	5.182	0.20 5.000 0	104 90 110	
Sample ID N031652-001CMS	SampType: MS	TestCode: 218.6_WPGE Units: µg/L	Prep Date:	RunNo: 127019
Client ID: ZZZZZZ	Batch ID: R127019	TestNo: EPA 218.6	Analysis Date: 8/14/2018	SeqNo: 3113375
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Hexavalent Chromium	4.972	1.0 5.000 0.3710	92.0 90 110	
Sample ID N031652-001CMSD	SampType: MSD	TestCode: 218.6_WPGE Units: µg/L	Prep Date:	RunNo: 127019
Client ID: ZZZZZZ	Batch ID: R127019	TestNo: EPA 218.6	Analysis Date: 8/14/2018	SeqNo: 3113376
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Hexavalent Chromium	4.967	1.0 5.000 0.3710	91.9 90 110 4.972	0.0906 20
Sample ID N031652-001CDUP	SampType: DUP	TestCode: 218.6_WPGE Units: µg/L	Prep Date:	RunNo: 127019
Client ID: ZZZZZZ	Batch ID: R127019	TestNo: EPA 218.6	Analysis Date: 8/14/2018	SeqNo: 3113377
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Hexavalent Chromium	0.365	1.0	0.3710	0 20

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit Calculations are based on raw values

- E Value above quantitation range
- RPD outside accepted recovery limits

H Holding times for preparation or analysis exceeded

TestCode: 218.6_WPGE

Spike/Surrogate outside of limits due to matrix interference



ASSET Laboratories

Project:

CLIENT: CH2M HILL Lab Order: N031652

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

Lab ID: N031652-001

Print Date: 22-Aug-18

Client Sample ID: SC-700B-WDR-577
Collection Date: 8/10/2018 11:50:00 PM

Matrix: WATER

Analyses Result MDL **PQL** Qual Units DF **Date Analyzed TURBIDITY SM 2130B** RunID: NV00922-WC_180814C QC Batch: R126940 PrepDate Analyst: LR Turbidity 0.46 0.10 0.10 Н NTU 8/14/2018 11:15 AM

Qualifiers: B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range

ND Not Detected at the Reporting Limit

Results are wet unless otherwise specified



ASSET Laboratories

Date: 22-Aug-18

CLIENT: CH2M HILL

ANALYTICAL QC SUMMARY REPORT

Work Order: N031652

TestCode: 2130_W

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

Sample ID MB-R126940	SampType: MBLK	TestCode: 2130_W Units: NTU	Prep Date:	RunNo: 126940
Client ID: PBW	Batch ID: R126940	TestNo: SM 2130B	Analysis Date: 8/14/2018	SeqNo: 3109279
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Turbidity	ND	0.10		
Sample ID N031652-001BDUP	SampType: DUP	TestCode: 2130_W Units: NTU	Prep Date:	RunNo: 126940
Sample ID N031652-001BDUP Client ID: ZZZZZZ	SampType: DUP Batch ID: R126940	TestCode: 2130_W Units: NTU TestNo: SM 2130B	Prep Date: Analysis Date: 8/14/2018	RunNo: 126940 SeqNo: 3109281
·		· · · · · · · · · · · · · · · · · · ·	· · · · · ·	

Qualifiers:

B Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit
Calculations are based on raw values

- E Value above quantitation range
- R RPD outside accepted recovery limits

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



Print Date: 22-Aug-18

ASSET Laboratories

CLIENT: CH2M HILL Client Sample ID: SC-700B-WDR-577

Lab Order: N031652 Collection Date: 8/10/2018 11:50:00 PM

PG&E Topock, 680375.03.IM.OP.00 **Project:** Matrix: WATER

Lab ID: N031652-001

1.1

Analyses Result MDL **PQL** Oual Units DF **Date Analyzed** ANIONS BY ION CHROMATOGRAPHY **EPA 300.0** RunID: NV00922-IC8_180814B QC Batch: R126962 PrepDate Analyst: RAB Fluoride 2.5 0.032 0.50 8/14/2018 03:03 PM mg/L ANIONS BY ION CHROMATOGRAPHY **EPA 300.0** RunID: NV00922-IC8_180814B QC Batch: R126962 PrepDate Analyst: RAB Sulfate 470 25 50 8/14/2018 04:21 PM

Qualifiers: В Analyte detected in the associated Method Blank

> Η Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out Value above quantitation range

ND Not Detected at the Reporting Limit Results are wet unless otherwise specified

mg/L



ASSET Laboratories

Date: 22-Aug-18

CLIENT: CH2M HILL

ANALYTICAL QC SUMMARY REPORT

Work Order: N031652

TestCode: 300_W_FPGE

Project:	PG&E Topock, 680375.03.IM.OP.00	TestCode: 300_W_FP

Sample ID MB-R126962 Client ID: PBW	F SampType: MBLK Batch ID: R126962	TestCode: 300_W_FPG Units: mg/L TestNo: EPA 300.0	Prep Date: Analysis Date: 8/14/2018	RunNo: 126962 SeqNo: 3114220
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Fluoride	ND	0.10		
Sample ID LCS-R12696	2_F SampType: LCS	TestCode: 300_W_FPG Units: mg/L	Prep Date:	RunNo: 126962
Client ID: LCSW	Batch ID: R126962	TestNo: EPA 300.0	Analysis Date: 8/14/2018	SeqNo: 3114221
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Fluoride	1.243	0.10 1.250 0	99.5 90 110	
Sample ID N031652-001	BDUP SampType: DUP	TestCode: 300_W_FPG Units: mg/L	Prep Date:	RunNo: 126962
Client ID: ZZZZZZ	Batch ID: R126962	TestNo: EPA 300.0	Analysis Date: 8/14/2018	SeqNo: 3114223
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Fluoride	2.457	0.50	2.505	1.93 20
Sample ID N031652-001	BMS SampType: MS	TestCode: 300_W_FPG Units: mg/L	Prep Date:	RunNo: 126962
Client ID: ZZZZZZ	Batch ID: R126962	TestNo: EPA 300.0	Analysis Date: 8/14/2018	SeqNo: 3114224
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Fluoride	8.455	0.50 6.250 2.505	95.2 80 120	
Sample ID N031652-001	BMSD SampType: MSD	TestCode: 300_W_FPG Units: mg/L	Prep Date:	RunNo: 126962
Client ID: ZZZZZZ	Batch ID: R126962	TestNo: EPA 300.0	Analysis Date: 8/14/2018	SeqNo: 3114225
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Fluoride	8.497	0.50 6.250 2.505	95.9 80 120 8.454	0.496 20

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
 Calculations are based on raw values

- $E \quad \ \ Value \ above \ quantitation \ range$
- R RPD outside accepted recovery limits

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



CLIENT: CH2M HILL

Work Order: N031652

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

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID MB-R126962_SO4 Client ID: PBW	SampType: MBLK Batch ID: R126962	TestCode: 300_W_SO4P Units: mg/L TestNo: EPA 300.0	Prep Date: Analysis Date: 8/14/2018	RunNo: 126962 SeqNo: 3114234		
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual		
Sulfate	0.204	0.50				
Sample ID LCS-R126962_SO	4 SampType: LCS	TestCode: 300_W_SO4P Units: mg/L	Prep Date:	RunNo: 126962		
Client ID: LCSW	Batch ID: R126962	TestNo: EPA 300.0	Analysis Date: 8/14/2018	SeqNo: 3114235		
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual		
Sulfate	4.056	0.50 4.000 0	101 90 110			
Sample ID N031652-001BDU	P SampType: DUP	TestCode: 300_W_SO4P Units: mg/L	Prep Date:	RunNo: 126962		
Client ID: ZZZZZZ	Batch ID: R126962	TestNo: EPA 300.0	Analysis Date: 8/14/2018	SeqNo: 3114237		
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual		
Sulfate	461.645	25	469.4	1.66 20		
Sample ID N031652-001BMS	SampType: MS	TestCode: 300_W_SO4P Units: mg/L	Prep Date:	RunNo: 126962		
Client ID: ZZZZZZ	Batch ID: R126962	TestNo: EPA 300.0	Analysis Date: 8/14/2018	SeqNo: 3114238		
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual		
Sulfate	666.685	25 200.0 469.4	98.7 80 120			
Sample ID N031652-001BMS	D SampType: MSD	TestCode: 300_W_SO4P Units: mg/L	Prep Date:	RunNo: 126962		
Client ID: ZZZZZZ	Batch ID: R126962	TestNo: EPA 300.0	Analysis Date: 8/14/2018	SeqNo: 3114239		
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual		
Sulfate	671.920	25 200.0 469.4	101 80 120 666.7	0.782 20		

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
 Calculations are based on raw values

- E Value above quantitation range
- R RPD outside accepted recovery limits

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



Print Date: 22-Aug-18

ASSET Laboratories

CLIENT: CH2M HILL Client Sample ID: SC-700B-WDR-577

Lab Order: N031652 **Collection Date:** 8/10/2018 11:50:00 PM

Project: PG&E Topock, 680375.03.IM.OP.00 Matrix: WATER

Lab ID: N031652-001

Analyses Result MDL PQL Qual Units DF Date Analyzed

NITRATE/NITRITE-N BY CADMIUM REDUCTION

SM4500-NO3F

 RunID:
 NV00922-WC_180817D
 QC Batch:
 R127029
 PrepDate
 Analyst:
 QBM

 Nitrate/Nitrite as N
 2.6
 0.16
 0.25
 mg/L
 5
 8/17/2018

Qualifiers: B Analyte detected in the associated Method Blank

ASSET LABORATORIES

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

CALIFORNIA | P:562.219.7435 F:562.219.7436 11110 Artesia Blvd., Ste B, Cerritos, CA 90703 ELAP Cert 2921 EPA ID CA01638 ASSET Laboratories

Date: 22-Aug-18

CLIENT: CH2M HILL

Work Order:

ANALYTICAL QC SUMMARY REPORT

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

N031652

TestCode: 4500N03F_W

Sample ID MB-R127029	SampType: MBLK	TestCode: 4500N03F_W Units: mg/L	Prep Date:	RunNo: 127029			
Client ID: PBW	Batch ID: R127029	TestNo: SM4500-NO3	Analysis Date: 8/17/2018	SeqNo: 3113832			
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-R127029	SampType: LCS	TestCode: 4500N03F_W Units: mg/L	Prep Date:	RunNo: 127029			
Client ID: LCSW	Batch ID: R127029	TestNo: SM4500-NO3	Analysis Date: 8/17/2018	SeqNo: 3113833			
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual			
Nitrate/Nitrite as N	0.552	0.050 0.5000 0	110 85 115				
Sample ID N031630-001DDUP	SampType: DUP	TestCode: 4500N03F_W Units: mg/L	Prep Date:	RunNo: 127029			
Client ID: ZZZZZZ	Batch ID: R127029	TestNo: SM4500-NO3	Analysis Date: 8/17/2018	SeqNo: 3113837			
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual			
Nitrate/Nitrite as N	0.236	0.050	0.2355	0.297 20			
Sample ID N031652-001DMS	SampType: MS	TestCode: 4500N03F_W Units: mg/L	Prep Date:	RunNo: 127029			
Client ID: ZZZZZZ	Batch ID: R127029	TestNo: SM4500-NO3	Analysis Date: 8/17/2018	SeqNo: 3113839			
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual			
Nitrate/Nitrite as N	4.850	0.25 2.500 2.586	90.6 75 125				
Sample ID N031652-001DMSD	SampType: MSD	TestCode: 4500N03F_W Units: mg/L	Prep Date:	RunNo: 127029			
Client ID: ZZZZZZ	Batch ID: R127029	TestNo: SM4500-NO3	Analysis Date: 8/17/2018	SeqNo: 3113840			
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual			
Nitrate/Nitrite as N	5.398	0.25 2.500 2.586	112 75 125 4.850	10.7 20			

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
 Calculations are based on raw values

- E Value above quantitation range
- R RPD outside accepted recovery limits

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



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CHAIN OF CHETODY DECORD

CH2MHILL				(CHAIN	OFC	USTE	DYR	ECOR	<u> </u>	Page	1 OF
Project Name PG&E Topock	Container	1 Liter Poly	1 Liter Poly	1 Liter Poly	250 ml Poly	1 Liter Poly	1 Liter Poly	500 ml Poly	1 Liter Poly			
Location PG&E Topock Project Number 680375.03.IM.OP.00	Preservatives:	4°C Lab H2SO4	4°C	4°C	4°C	4°C Leb H28O4	4°C	4°C	4°C			
Project Manager Scott O'Donnell	Filtered:	NA	NA	NA	NA	NA	NA NA	NA	NA			
Sample Manager Shawn Duffy	Holding Time:	28	7	7	. 1	28	7	180	7			
Task Order Project 1M3PLANT-ARAR-WDR-577 Turnaround Time 5 Days Shipping Date: COC Number: 577		AMMONIA (SM4500NH3D)	Anions (E300.0) FI, SO4	CONDUCTIVITY (E120.1)	E218.6 Lab Filtered	Nitrate/Nitrite (SM4500NO3-E)	TDS (SM2540C)	Total Metals(E200.7 and E200.8) See list below	Turbidity (SM2130)		Number of Containers	EA COMMENT
	ATE TIME Matrix									77001.670.01	15	_
SC-700B-WDR-577 8-/	0-/8 23:50 Water	X	Х	Х	Х	Х	Х	X	×	N031652-01	_4-	
										TOTAL NUMBER OF CONTAINERS	•	

Special Instructions: **Shipping Details** Date/Time 8-10-18 23:50
8-10-18 23:50
8-10-18 23:50
8-13-18 1155
On Ice: (yels 1 no) L # 2 4-1°C

X (15)(8 1130 Airbill No:

8 13 18 1407 Lab Name: ASSET Laboratories

X 13 18 1412 Lab Phone: (702) 307-2659 ATTN: Approved by SC-700B Total metals List: Cr,Al,Sb,As,Ba,B,Cu,Pb,Mn,Mo,Ni,Fe,Zn Sampled by Sample Custody Relinquished by and Received by Report Copy to **Doug Scott** Relinquished by **Marlon Cartin** (970) 731-0636 Received by

Page 1 OF 1

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 of	or further in	struction, pleas	e contact our F	Project Coor	dinator at (702) 307-2659.		
Cooler Received/Opened On:	8/13/2018	3			Workorder:	N031652		
Rep sample Temp (Deg C):	4.1				IR Gun ID:	2		
Temp Blank:	✓ Yes	☐ No						
Carrier name:	ASSET							
Last 4 digits of Tracking No.:	NA			Packing	Material Used:	None		
Cooling process:	✓ Ice	☐ Ice Pack	Dry Ice	Other	None			
		<u>s</u>	ample Receir	ot Checklis	<u>t</u>			
1. Shipping container/cooler in	good condi	tion?			Yes 🗸	No 🗌	Not Present	
2. Custody seals intact, signed	l, dated on s	shippping containe	er/cooler?		Yes	No 🗌	Not Present	✓
3. Custody seals intact on sam	ple bottles?	•			Yes	No 🗌	Not Present	✓
4. Chain of custody present?					Yes 🗸	No 🗌		
5. Sampler's name present in 0	COC?				Yes 🗸	No 🗌		
6. Chain of custody signed who	en relinquist	ned and received	?		Yes 🗹	No 🗌		
7. Chain of custody agrees with	h sample lal	bels?			Yes 🗹	No 🗌		
8. Samples in proper container	/bottle?				Yes 🗸	No 🗌		
9. Sample containers intact?					Yes 🗸	No 🗌		
10. Sufficient sample volume for	or indicated	test?			Yes 🗸	No 🗌		
11. All samples received within	holding tim	ne?			Yes	No 🗹		
12. Temperature of rep sample	e or Temp B	lank within accep	table limit?		Yes 🗸	No 🗌	NA	
13. Water - VOA vials have zer	ro headspa	ce?			Yes	No 🗌	NA	✓
14. Water - pH acceptable upo					Yes 🗹	No 🗌	NA	
Example: pH > 12 for (Cl								
15. Did the bottle labels indicat	te correct pr	eservatives used	?		Yes 🗸	No 🗌	NA	
16. Were there Non-Conformal W:	nce issues a as Client no				Yes ✓ Yes ✓	No □ No □	NA NA	
Comments: Turbidity is out o	f holding tin	ne upon receipt.						

Checklist Completed By MBC MBC 8/13/2018

Reviewed By: LG 081718

Marlon B. Cartin

From: Marlon B. Cartin [marlon@assetlaboratories.com]

Sent: Monday, August 13, 2018 9:23 PM

To: 'Shawn Duffy' Subject: IM3 Sample

Attachments: N031652_COC.pdf; image001.jpg

Hi Shawn,

FYI, the sample we got today from IM3 is past holding time for Turbidity. Please see attached COC.

Thanks,

Marlon Cartin

Project Manager

California: 11110 Artesia Blvd., Ste. B, Cerritos, CA 90703 | P: 562.219.7435 | F: 562.219.7436

Nevada: 3151 W. Post Road, Las Vegas, NV 89118 | P: 702.307.2659 Ext. 410 | F: 702.307.2691 | M: 702.439.0421

www.assetlaboratories.com



ASSET LABORATORIES - Serving Clients with Passion and Professionalism

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

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

www.atl-labs.com TEL: 7023072659

FAX: 7023072691

QC Level: Level IV

Subcontractor:

BC Labs

4100 Atlas Court

Bakersfield, CA 93308

TEL: FAX: (661) 327-4911

(661) 327-1918

Acct #:

Field Sampler: SIGNED

13-Aug-18

2 1 15					Requested Tests
Sample ID	Matrix	Date Collected	Bottle Type	SM4500-NH3D	
N031652-001A / SC-700B-WDR-577	Water	8/10/2018 11:50:00 PM	160ZP	1	

General Comments:

Please email sample receipt acknowledgement to the PM.

Please use PO#:N31652A 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: 5 Day TAT

Please analyze for NH3 by SM 4500NH3C.

110	Doto/Time	GSU# 541671769	
	Date/Time		Date/Time
Relinquished by:	8/13/18@1700	Received by:	
Relinquished by:	,	Received by:	

List of Analysts

ASSET Laboratories Work Order: N031652

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





Date of Report: 08/23/2018

Marlon Cartin

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

Client Project: N031652 Level IV **BCL Project:** 1825194 **BCL Work Order:** B313716 Invoice ID:

Enclosed are the results of analyses for samples received by the laboratory on 8/14/2018. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Contact Person: Vanessa Sandoval

Client Service Rep

Stuart Buttram **Technical Director**

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

Report ID: 1000783849



Chain of Custody a	nd Cooler Rece	ipt Form for 1825194	Page 1 of 2		
Page I of I	13-Aug-18				Date/Time
CHAIN-OF-CUSTODY RECORD	QC Level IV Field Sampler: SIGNED	B/10/2018 11:50:00 PM 16OZP 1	SUB-OUT	Please email sample receipt acknowledgement to the PM. Please use PO#:N31652A 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: 5 Day TAT	GSO # 54/67/769 Received by: Received by:
A ASSET Laboratories 3151-3153 W Post Rd., Las Vegas, NV 89118 TEL: 7023072659 FAX: 7023072691	Subcontractor: BC Labs 4100 Alias Court Baikersfield, CA 93308 13 - 25101 U Acd #:	N031652-001A / SC-700B-WDR-577 Water 8/10/2		General Comments: Please email sample receipt acknowledgement to the PM. Please use POWN31652A Please email Invoices and Acc Marlon at (702)-307-2659, Please e-mail results to report. Please analyze for NH3 by SM 4500NH3C.	Relinquished by: Relinquished by:

Report ID: 1000783849



Chain of Custody and Cooler Receipt Form for 1825194 Page 2 of 2

BC LABORATORIES INC.			OOLER	RECEIPT	FORM			Pag	e(of
Submission #: 13 - 2 5 194										
SHIPPING INFORM				S	HIPPING	CONTAIL	VER		FREE LIO	UID
		Deliyen	y <u>D</u>	Ice Ch	est 🗷	None 🗆	Box 🗆		YES 🗆 N	
BC Lab Field Service Other	∠		30	Oth	cr 🗆 (Spe	cify)			W /	
Refrigerant: Ice Ø Blue Ice □	None	D (Other 🗆	Comr	nents:					
Custody Seals Ice Chest □	Containe	rs 🗇		Com						
All samples received? Yes ☐ No ☐ A	ll samples (containers		(es El No			ion(s) match	COC? Y	es D No	
COC Received Emis	sivity: (XY	Container:	DAN	Phermon	neter ID:	774	Date/Tin	1.85 m	4.18
- CO/20 110				1.1	_	-10			AL	7 6188
) is less	nperature:	(A)	1.CC	*E /	(C) C	2.4	°C I	Analyst	nit /	00:0
CAMBLE CONTAINEDS					SAMPLE	NUMBERS			/	
SAMPLE CONTAINERS	1	2	3	4	5	6	7	n	9	10
OT PE UNPRES										
40x/80x/160x PE UNPRES										
Zoz Cr ⁴⁶										
QT INORGANIC CHEMICAL METALS										
NORGANIC CHRMICAL METALS 40z / 80z / 160z										
PT CYANIDE										
PT NITROGEN FORMS	A									
PT TOTAL SULFIDE									-	
oz. NITRATE / NITRITE										
T TOTAL ORGANIC CARBON										
T CHEMICAL OXYGEN DEMAND										
PLA PHENOLICS										
Omi VOA VIAL TRAVEL BLANK				-						
0ml VOA VIAL										
T EPA 1664										
TODOR										
ADIOLOGICAL										
ACTERIOLOGICAL										
0 ml VOA VIAL- 504										
T EPA 508/608/8080							-			
T EPA 515.1/8150										
T EPA 525										
T EPA 525 TRAVEL BLANK										
ml EPA 547										
ml KPA 531-1										
12 EPA 548										
T EPA 549										
T EPA 8015M										
T RPA 8270										-
z/160z/320z AMBER										
z/160z/320z JAR										
OIL SLREVE										
CB VIAL										
ASTIC BAG										
DLAR BAG										
RROUS JRON										
CORE .										
ARTKIT	-						-			
MMA CANISTER										
nments:									-	

Report ID: 1000783849



3151-3153 W. Post Rd Las Vegas, NV 89118 Reported: 08/23/2018 17:18

Project: Level IV
Project Number: N031652
Project Manager: Marlon Cartin

Laboratory / Client Sample Cross Reference

Laboratory **Client Sample Information** 1825194-01 08/14/2018 08:38 **COC Number: Receive Date: Project Number:** Sampling Date: 08/10/2018 11:50 Sample Depth: **Sampling Location:** Sampling Point: N031652-001A / SC-700B-WDR-577 Lab Matrix: Water Sampled By: Sample Type: Water

Report ID: 1000783849 4100 Atlas Court Bakersfield, CA 93308 (661) 327-4911 FAX (661) 327-1918 www.bclabs.com Page 5 of 10

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

08/23/2018 17:18 Reported:

Project: Level IV Project Number: N031652 Project Manager: Marlon Cartin

Water Analysis (General Chemistry)

BCL Sample ID:	1825194-01	Client Sampl	e Name:	N031652-	-001A / SC	-700B-WDR-577,	8/10/2018 1	1:50:00AM	
Constituent		Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run#
Ammonia as N (Distille	d)	ND	mg/L	0.20		SM-4500-NH3G	ND	_	1

			Run				QC	
Run#	Method	Prep Date	Date/Time	Analyst	Instrument	Dilution	Batch ID	
1	SM-4500-NH3G	08/20/18 17:01	08/21/18 10:46	JMH	SC-1	1	B022537	

Page 6 of 10 Report ID: 1000783849



3151-3153 W. Post Rd Las Vegas, NV 89118 Reported: 08/23/2018 17:18

Project: Level IV
Project Number: N031652
Project Manager: Marlon Cartin

Water Analysis (General Chemistry)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B022537						
Ammonia as N (Distilled)	B022537-BLK1	ND	mg/L	0.20		

Report ID: 1000783849 4100 Atlas Court Bakersfield, CA 93308 (661) 327-4911 FAX (661) 327-1918 www.bclabs.com Page 7 of 10



3151-3153 W. Post Rd Las Vegas, NV 89118 Reported: 08/23/2018 17:18

Project: Level IV
Project Number: N031652
Project Manager: Marlon Cartin

Water Analysis (General Chemistry)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control I Percent Recovery	Lab Quals	
QC Batch ID: B022537										
Ammonia as N (Distilled)	B022537-BS1	LCS	1.0237	1.0000	mg/L	102		85 - 115		

Report ID: 1000783849 4100 Atlas Court Bakersfield, CA 93308 (661) 327-4911 FAX (661) 327-1918 www.bclabs.com Page 8 of 10



3151-3153 W. Post Rd Las Vegas, NV 89118 Reported: 08/23/2018 17:18

Project: Level IV

Project Number: N031652
Project Manager: Marlon Cartin

Water Analysis (General Chemistry)

Quality Control Report - Precision & Accuracy

									Cont	rol Limits	
		Source	Source		Spike			Percent		Percent	Lab
Constituent	Type	Sample ID	Result	Result	Added	Units	RPD	Recovery	RPD	Recovery	Quals
QC Batch ID: B022537	Use	d client samp	le: N								
Ammonia as N (Distilled)	DUP	1824694-05	0.10590	ND		mg/L			20		
	MS	1824694-05	0.10590	1.1644	1.1111	mg/L		95.3		80 - 120	
	MSD	1824694-05	0.10590	1.1906	1.1111	mg/L	2.2	97.6	20	80 - 120	

Report ID: 1000783849 4100 Atlas Court Bakersfield, CA 93308 (661) 327-4911 FAX (661) 327-1918 www.bclabs.com Page 9 of 10



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

Reported: 08/23/2018 17:18

Project: Level IV Project Number: N031652 Project Manager: Marlon Cartin

Notes And Definitions

MDL Method Detection Limit ND Analyte Not Detected PQL Practical Quantitation Limit

Page 10 of 10 Report ID: 1000783849



All pages have been paginated and results listed in this report are for the exclusive use of the submitting party. BC Laboratories, Inc. assumes no responsibility for report alteration, separation, detachment or third party interpretation.



Case Narrative

Sample Receipt

Work Order: 1827752

COC Number:

Default Cooler was received at 2.7 °C

Samples were checked for preservation. Where applicable, sample preservation was adjusted in the laboratory.

Requested Analysis

Method Instrument

SM-4500-NH3G SC-

Sample Qualifier Summary

There were no qualifiers for the samples.

Holding Times

All holding time requirements were met.

Method Blanks

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

Calibration

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

Matrix Spikes

Source Samples Used For QC

Batch Method Source Lab Number Client Sample Name

B024377 SM-4500-NH3G 1827752-01 N031947-002A / SC-700B-WDR-578

Precision and accuracy requirements were within QC limits.

LCS

The LCS recoveries were within QC limits.



The state of the s	com	www.afi/labs.com						
TEL: 7023072659	92	FAX: 7023072691	estte-81		acı	QC Level: Level IV	vel IV	
Subcontractor: BC Labs 4100 Atlas Court Bakersfield, CA 93308		TEL: (661) FAX: (661) Acot#:	(681) 327-4911 (681) 327-1918		Piese Di	Field Sampler: SIG	SIGNED	05-Sep-18
Clahamas		Mateix	Date Collected	Domit Tuna	Ш	OMACOO MUSO	Requested Tests	
N031947-002A / SC-700B	/ SC-7008-WDR-578 -/	Water	9/4/2018 10:05:00 AM	+	1	7		
Please cc Report to Lucille Golosinda at	.ucille Golosinda		lucille.golosinda@assetlaboratories.com	ories.com				
General Comments: Pies Pies Mari	Please email sample receipt acknowledgement to the PM. Please use PO#N31347A Please email Invoices and A. Marlon at (702)-307-2659. Please e-mail results to report Please analyze for Ammonia by SM4500NH3D. EDD Rec	nt acknowledgement to Please email Involo Please e-mail results: la by SM4500NH3D. E	Please email sample receipt acknowledgement to the PM. Please use PO#N31947A Please email Invoices and Account Receivable Statements to elvira@assetlaboratories.com. For questions, call Marion at (702)-307-2659. Please e-mail recults to reports.lv@assetlaboratories.com by: Normal TAT. Please analyze for Ammonia by SMA500NH3D. EDD Requirement Lasspec7 edata.	le Statements to elvi fories.com by: Norm c7 edata.	ira@assetlabo valTAT.	ratories.com.	For questions, call	
Relinquished by:	SK.	9/5/201	9/5/2018 17:00 R	GSO #: 541943272	43272 Jegg		16	9.S./K 0830



Chain of Custody and Cooler Receipt Form for 1827752 Page 2 of 2

BC LABORATORIES INC.			OOLER	RECEIPT	FORM			Pag	e	Of _/
Submission #:19-27752									4	
		d Deliver	0	Ice Che		CONTAIN None □		-	FREE LIC YES D	NO 🗆
Refrigerant: Ice Blue Ice 🗆	None		Other 🗆	Comn	ents:			,		
Custody Seals Ice Chest ☐	Containe	2010/03/04/27/10/06	None	Com	ments:					
All samples received? Yes No A	II samples	containers	intact? V	es No		Descript	tion(s) matc	t cocs	V	
COC Received Emis	sivity: 0.	97	Container:	PE		neter ID:			ne 9. 6.1	
SAMPLE CONTAINERS					SAMPLE	NUMBERS				-
	1	2	3	4	5	6	7	a	9	10
QT PE UNPRES 4oz / 8oz / 16oz PE UNPRES		-	-			-	·			-
202 Cr ⁴		-	-						-	-
OT INORGANIC CHEMICAL METALS						·			-	-
INORGANIC CHEMICAL METALS 402 / 802 / 1602						-			<u> </u>	t
PT CYANIDE										
PT NITROGEN FORMS	R									
PT TOTAL SULFIDE										
202. NITRATE / NITRITE									:	
PT TOTAL ORGANIC CARBON										
PT CHEMICAL OXYGEN DEMAND										
PLA PHENOLICS		ļ		-						
10ml VOA VIAL TRAVEL BLANK										
40ml VOA VIAL										
QT EPA 1664 PT ODOR										-
RADIOLOGICAL										_
BACTERIOLOGICAL										-
10 ml VOA VIAL- 504										l
T EPA 508/608/8080										
YT KPA 515.1/8150										
YT RPA 525										
OT EPA 525 TRAVEL BLANK										
0ml EPA 547										
0ml EPA 531.1										
0x EPA 548										
PT EPA 549										
T EPA 8015M										
T EPA 8270 0z / 160z / 320z AMBER										
02 / 1602 / 3202 AMBER 02 / 1602 / 3202 JAR										
OIL SLEEVE										
CB VIAL										
LASTIC BAG							-			
EDLAR BAG										
ERROUS IRON										,
NCORE										
MART KIT										
JMMA CANISTER										
mments:			The second second	and the same of th						

ASSET Laboratories- Las Vegas 3151-3153 W. Post Rd

Las Vegas, NV 89118

Reported: 9/19/2018 10:33:20AM

Project: Level IV
Project Number: N031947
Project Manager: Marlon Cartin

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

SDG: 1827752

Class: WET

Method: SM-4500-NH3G

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

Reported: 9/19/2018 10:33:20AM

Project: Level IV
Project Number: N031947
Project Manager: Marlon Cartin

ANALYSES DATA PACKAGE COVER PAGE SM-4500-NH3G

Laboratory:	BC Laboratories	SDG:	1827752
Client:	ASSET Laboratories- Las Vegas \$ADNV	Project:	Level IV

 Client Sample Id:
 Lab Sample Id:

 N031947-002A / SC-700B-WDR-578
 1827752-01

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

Signature:	Dara Gurn	Name:	Sara Guron
-			
Date:	09-19-2018	Title:	QA/QC Manager

3151-3153 W. Post Rd Las Vegas, NV 89118 Reported: 9/19/2018 10:33:20AM

Project: Level IV
Project Number: N031947
Project Manager: Marlon Cartin

METHOD DETECTION AND REPORTING LIMITS SM-4500-NH3G

Laboratory: BC Laboratories SDG: 1827752

Client: ASSET Laboratories- Las Vegas \$ADNV Project: Level IV

Matrix: Water Instrument: SC-1

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

3151-3153 W. Post Rd Las Vegas, NV 89118 Reported: 9/19/2018 10:33:20AM

Project: Level IV
Project Number: N031947
Project Manager: Marlon Cartin

INORGANIC ANALYSIS DATA SHEET SM-4500-NH3G

1031947-002A / SC-700B-WDR-57

Laboratory: BC Laboratories SDG: 1827752

Client: ASSET Laboratories- Las Vegas \$ADNV Project: Level IV

Matrix: Water Laboratory ID: 1827752-01 File ID: 20180913001-NH3-075

Sampled: <u>09/04/18 10:05</u> Prepared: <u>09/11/18 11:15</u> Analyzed: <u>09/13/18 10:06</u>

Solids: 0.00 Preparation: No Prep Initial/Final: 6 ml / 6 ml

Batch: B024377 Sequence: 1818510 Calibration: UNASSIGNED Instrument: SC-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7664-41-7	Ammonia as N (Distilled)	0.085	1	J	SM-4500-NH3G

3151-3153 W. Post Rd Las Vegas, NV 89118 Reported: 9/19/2018 10:33:20AM

Project: Level IV
Project Number: N031947
Project Manager: Marlon Cartin

METHOD BLANK DATA SHEET SM-4500-NH3G

Laboratory: BC Laboratories SDG: 1827752

Client: ASSET Laboratories- Las Vegas \$ADNV Project: Level IV

Matrix: <u>Water</u> Laboratory ID: <u>B024377-BLK1</u> File ID: <u>20180913001-NH3-074</u>

Prepared: 09/11/18 11:15 Preparation: No Prep Initial/Final: 6 ml / 6 ml

Analyzed: <u>09/13/18 10:04</u> Instrument: <u>SC-1</u>

Batch: B024377 Sequence: 1818510 Calibration: UNASSIGNED

CAS NO.	COMPOUND	CONC. (mg/L)	Q
7664-41-7	Ammonia as N (Distilled)	0.050	U

3151-3153 W. Post Rd Las Vegas, NV 89118 Reported: 9/19/2018 10:33:20AM

Project: Level IV
Project Number: N031947
Project Manager: Marlon Cartin

DUPLICATES SM-4500-NH3G

47-002A / SC-700B-WD

Laboratory: BC Laboratories SDG: 1827752

Client: ASSET Laboratories- Las Vegas \$ADNV Project: Level IV

Matrix: Water Laboratory ID: B024377-DUP1

Batch: <u>B024377</u> Lab Source ID: <u>1827752-01</u>

Preparation: No Prep Initial/Final: 6 ml / 6 ml

Source Sample Name: <u>N031947-002A / SC-700B-WDR-578</u> % Solids:

ANALYTE	CONTROL LIMIT	SAMPLE CONCENTRATION (mg/L)	С	DUPLICATE CONCENTRATION (mg/L)	С	RPD %	Q	METHOD
Ammonia as N (Distilled)	20	0.085100		0.082600		2.98		SM-4500-NH3G

^{*} Values outside of QC limits

3151-3153 W. Post Rd Las Vegas, NV 89118 Reported: 9/19/2018 10:33:20AM

Project: Level IV
Project Number: N031947
Project Manager: Marlon Cartin

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY SM-4500-NH3G

031947-002A / SC-700B-WDR-57

Laboratory: BC Laboratories SDG: 1827752

Client: <u>ASSET Laboratories- Las Vegas \$ADNV</u> Project: <u>Level IV</u>

Matrix: <u>Water</u>

Batch: <u>B024377</u> Laboratory ID: <u>B024377-MS1</u>

Preparation: No Prep Initial/Final: 5.4 ml / 6 ml

Source Sample Number: 1827752-01

	SPIKE	SAMPLE	MS	MS	QC
	ADDED	CONCENTRATION	CONCENTRATION	%	LIMITS
COMPOUND	(mg/L)	(mg/L)	(mg/L)	REC. #	REC.
Ammonia as N (Distilled)	1.1111	0.085100	1.2396	104	80 - 120

	SPIKE	MSD	MSD		QC	LIMITS
	ADDED	CONCENTRATION	%	%		
COMPOUND	(mg/L)	(mg/L)	REC. #	RPD#	RPD	REC.
Ammonia as N (Distilled)	1.1111	1.2858	108	3.66	20	80 - 120

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

^{*} Values outside of QC limits

3151-3153 W. Post Rd Las Vegas, NV 89118 Reported: 9/19/2018 10:33:20AM

Project: Level IV
Project Number: N031947
Project Manager: Marlon Cartin

LCS RECOVERY SM-4500-NH3G

Laboratory: BC Laboratories SDG: 1827752

Client: <u>ASSET Laboratories- Las Vegas \$ADNV</u> Project: <u>Level IV</u>

Matrix: <u>Water</u>

Batch: <u>B024377</u> Laboratory ID: <u>B024377-BS1</u>

Preparation: No Prep Initial/Final: 6 ml / 6 ml

	SPIKE ADDED	LCS CONCENTRATION	LCS %	QC LIMITS
COMPOUND	(mg/L)	(mg/L)	REC.#	REC.
Ammonia as N (Distilled)	1.0000	0.98510	98.5	85 - 115

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

^{*} Values outside of QC limits

ASSET Laboratories- Las Vegas 3151-3153 W. Post Rd Las Vegas, NV 89118 Reported: 9/19/2018 10:33:20AM

Project: Level IV
Project Number: N031947
Project Manager: Marlon Cartin

HOLDING TIME SUMMARY SM-4500-NH3G

 Laboratory:
 BC Laboratories
 SDG:
 1827752

 Client:
 ASSET Laboratories- Las Vegas \$ADNV
 Project:
 Level IV

				Days	Max		Days	Max	
	Date	Date	Date	to	Days to	Date	to	Days to	
Sample Name	Collected	Received	Prepared	Prep	Prep	Analyzed	Analysis	Analysis	Q
N031947-002A / SC-700B-WDR-578	09/04/18	09/06/18	09/11/18	9.00	28.00	09/13/18	9.00	28.00	
	10:05	08:30	11:15			10:06			

^{*} Holding time not met

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

September 20, 2018

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

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

FAX: (510) 622-9129 Workorder No.: N031947

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

Attention: Doug Scott

Enclosed are the results for sample(s) received on September 04, 2018 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,

Manay litucar for

Quennie Manimtim

Laboratory Director

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

ASSET Laboratories

CLIENT: CH2M HILL

Project: PG&E Topock, 680375.03.IM.OP.00 CASE NARRATIVE

Date: 20-Sep-18

Lab Order: N031947

SAMPLE RECEIVING/GENERAL COMMENTS:

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

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

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

Samples were analyzed within method holding time.

Subcontracted Analyses:

Ammonia was subcontracted to BC Labs- Bakersfield, CA.

Analytical Comments for EPA 200.7:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Boron in QC samples N031947-002E-MS1 and N031947-002E-MSD1 possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Analytical Comments for EPA 200.8:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Copper in QC samples N031947-001C-MS and N031947-001C-MSD possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Chromium in QC samples N031947-001C-MS and N031947-001C-MSD since the analyte concentration in the sample is disproportionate to the spike level. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Analytical Comments for EPA 218.6:

Dilution was necessary for sample N031947-002 due to matrix interference. Sample was analyzed at lower dilution however matrix spike recovery was not met indicating possible matrix interference.



CLIENT: CH2M HILL

Project: PG&E Topock, 680375.03.IM.OP.00 CASE NARRATIVE

Lab Order: N031947

Sample was reported at dilution that meet matrix spike recovery limit and the detected peak within retention time window.

ASSET Laboratories

CLIENT: CH2M HILL

Work Order Sample Summary Project: PG&E Topock, 680375.03.IM.OP.00

Lab Order: N031947

IM3PLANT-AR Contract No:

Lab Sample ID Cl	lient Sample ID	Matrix	Collection Date	Date Received	Date Reported
N031947-001A SC-	100B-WDR-578	Water	9/4/2018 10:00:00 AM	9/4/2018	9/20/2018
N031947-001B SC-	100B-WDR-578	Water	9/4/2018 10:00:00 AM	9/4/2018	9/20/2018
N031947-001C SC-	100B-WDR-578	Water	9/4/2018 10:00:00 AM	9/4/2018	9/20/2018
N031947-001D SC-	100B-WDR-578	Water	9/4/2018 10:00:00 AM	9/4/2018	9/20/2018
N031947-002A SC-	700B-WDR-578	Water	9/4/2018 10:05:00 AM	9/4/2018	9/20/2018
N031947-002B SC-	700B-WDR-578	Water	9/4/2018 10:05:00 AM	9/4/2018	9/20/2018
N031947-002C SC-	700B-WDR-578	Water	9/4/2018 10:05:00 AM	9/4/2018	9/20/2018
N031947-002D SC-	700B-WDR-578	Water	9/4/2018 10:05:00 AM	9/4/2018	9/20/2018
N031947-002E SC-	700B-WDR-578	Water	9/4/2018 10:05:00 AM	9/4/2018	9/20/2018
N031947-002F SC-	700B-WDR-578	Water	9/4/2018 10:05:00 AM	9/4/2018	9/20/2018

Date: 20-Sep-18

ANALYTICAL RESULTS

ASSET Laboratories Print Date: 20-Sep-18

 CLIENT:
 CH2M HILL
 Client Sample ID:
 SC-100B-WDR-578

 Lab Order:
 N031947
 Collection Date:
 9/4/2018 10:00:00 AM

Project: PG&E Topock, 680375.03.IM.OP.00 Matrix: WATER

Lab ID: N031947-001

Analyses Result MDL PQL Qual Units DF Date Analyzed SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 NV00922-WC_180905B
 QC Batch:
 R127406
 PrepDate
 Analyst:
 LR

 Specific Conductance
 6800
 0.10
 0.10
 umhos/cm
 1
 9/5/2018 09:00 AM

Qualifiers: B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range

ND Not Detected at the Reporting Limit

Results are wet unless otherwise specified



ANALYTICAL RESULTS

ASSET Laboratories Print Date: 20-Sep-18

 CLIENT:
 CH2M HILL
 Client Sample ID:
 SC-700B-WDR-578

 Lab Order:
 N031947
 Collection Date:
 9/4/2018 10:05:00 AM

Project: PG&E Topock, 680375.03.IM.OP.00 Matrix: WATER

Lab ID: N031947-002

Analyses Result MDL PQL Qual Units DF Date Analyzed

SPECIFIC CONDUCTANCE

EPA 120.1

 RunID:
 NV00922-WC_180905B
 QC Batch:
 R127406
 PrepDate
 Analyst:
 LR

 Specific Conductance
 6800
 0.10
 0.10
 umhos/cm
 1
 9/5/2018 09:00 AM

Qualifiers: B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range

ND Not Detected at the Reporting Limit

Results are wet unless otherwise specified



ASSET Laboratories

Date: 20-Sep-18

CLIENT: CH2M HILL

ANALYTICAL QC SUMMARY REPORT

Work Order: N031947

Project: PG&E Topock, 680375.03.IM.OP.00 TestCode: 120.1_WPGE

Sample ID N031947-001ADL	JP SampType: DUP	TestCo	de: 120.1_WF	GE Units: um l	nos/cm	Prep Da	te:		RunNo: 12	7406	
Client ID: ZZZZZZ	Batch ID: R127406	TestN	No: EPA 120.			Analysis Da	te: 9/5/201	8	SeqNo: 313	30200	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	6850 000	0.10						6830	0 292	2	

Qualifiers:

B Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit
Calculations are based on raw values

- E Value above quantitation range
- R RPD outside accepted recovery limits

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



ANALYTICAL RESULTS

ASSET Laboratories

CLIENT: CH2M HILL Lab Order: N031947

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

Lab ID: N031947-001

Client Sample ID: SC-100B-WDR-578

Collection Date: 9/4/2018 10:00:00 AM

Print Date: 20-Sep-18

Matrix: WATER

Analyses Result MDL PQL Qual Units DF Date Analyzed

TOTAL FILTERABLE RESIDUE

SM2540C

RunID: NV00922-WC_180905H QC Batch: 70515 PrepDate 9/5/2018 Analyst: LR

Total Dissolved Solids (Residue, 4300 50 50 mg/L 1 9/5/2018 01:14 PM

Filterable)

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



ANALYTICAL RESULTS

Print Date: 20-Sep-18

ASSET Laboratories

CLIENT: CH2M HILL Client Sample ID: SC-700B-WDR-578

Lab Order: N031947 **Collection Date:** 9/4/2018 10:05:00 AM

Project: PG&E Topock, 680375.03.IM.OP.00 Matrix: WATER

Lab ID: N031947-002

Analyses Result MDL PQL Qual Units DF Date Analyzed

TOTAL FILTERABLE RESIDUE

 RunID:
 NV00922-WC_180905H
 QC Batch:
 70515
 PrepDate
 9/5/2018
 Analyst:
 LR

 Total Dissolved Solids (Residue,
 4000
 50
 50
 mg/L
 1
 9/5/2018
 01:14 PM

SM2540C

Filterable)

Qualifiers: B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range

ND Not Detected at the Reporting Limit

Results are wet unless otherwise specified

ASSET LABORATORIES CALIFORNIA | P:562.219.7435 F:562.219.7436 11110 Artesia Blvd., Ste B, Cerritos, CA 90703

11110 Artesia Blvd., Ste B, Cerritos, CA 90703 ELAP Cert 2921 EPA ID CA01638 ASSET Laboratories

Date: 20-Sep-18

CLIENT: CH2M HILL

ANALYTICAL QC SUMMARY REPORT

Work Order: N031947

Project: PG&E Topock, 680375.03.IM.OP.00 TestCode: 160.1_2540C_W

Sample ID LCS-70515	SampType: LCS	TestCode: 160.1_2540C Units: mg/L	Prep Date: 9/5/2018	RunNo: 127442	
Client ID: LCSW	Batch ID: 70515	TestNo: SM2540C	Analysis Date: 9/5/2018	SeqNo: 3131565	
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual	
Total Dissolved Solids (Residu	ie, Filtera 950.000	10 1000 0	95.0 80 120		
Sample ID MB-70515	SampType: MBLK	TestCode: 160.1_2540C Units: mg/L	Prep Date: 9/5/2018	RunNo: 127442	
Client ID: PBW	Batch ID: 70515	TestNo: SM2540C	Analysis Date: 9/5/2018	SeqNo: 3131566	
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual	
Total Dissolved Solids (Residu	ie, Filtera ND	10			
Sample ID N031947-001ADU	P SampType: DUP	TestCode: 160.1_2540C Units: mg/L	Prep Date: 9/5/2018	RunNo: 127442	
Client ID: ZZZZZZ	Batch ID: 70515	TestNo: SM2540C	Analysis Date: 9/5/2018	SeqNo: 3131568	
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual	
Total Dissolved Solids (Residu	ie, Filtera 4205.000	50	4260	1.30 5	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
 Calculations are based on raw values

- E Value above quantitation range
- R RPD outside accepted recovery limits

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



ANALYTICAL RESULTS

Print Date: 20-Sep-18

ASSET Laboratories

Project:

CLIENT: CH2M HILL Lab Order: N031947

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

Lab ID: N031947-002

Client Sample ID: SC-700B-WDR-578

Collection Date: 9/4/2018 10:05:00 AM

Matrix: WATER

Analyses	Result	MDL	PQL	Qual Units	DF	Date Analyzed		
TOTAL METALS BY ICP								
	EPA 200.7							
RunID: NV00922-ICP2_180918D	QC Batch: 70588			PrepDate	9/11/2018	Analyst: CEI		
Aluminum	ND	40	50	μg/L	1	9/19/2018 06:13 AM		
Boron	1100	74	100	μg/L	1	9/19/2018 06:13 AM		
Iron	ND	18	20	μg/L	1	9/19/2018 06:13 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



Date: 20-Sep-18 **ASSET Laboratories**

CLIENT: CH2M HILL Work Order: N031947

ANALYTICAL QC SUMMARY REPORT

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

TestCode: 200.7_WPGEPPB

01- 15	MD =0=00	0T MB: ::	T		OF United "		D D.			D Mar. 15		
	MB-70588	SampType: MBLK		_	PGE Units: µg/L		•	te: 9/11/2 0		RunNo: 12		
Client ID:	PBW	Batch ID: 70588	Test	No: EPA 200.	7		Analysis Da	te: 9/19/20)18	SeqNo: 31	42772	
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	N031947-002E-MS1	SampType: MS	TestCo	de: 200.7_W F	PGE Units: µg/L		Prep Da	te: 9/11/2 ()18	RunNo: 12 '	7688	
Client ID:	ZZZZZZ	Batch ID: 70588	Test	No: EPA 200.	7		Analysis Da	te: 9/19/2 0)18	SeqNo: 31	42779	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum		5321.024	50	5000	0	106	75	125				
Boron		2502.803	100	1000	1115	139	75	125				S
Sample ID	N031947-002E-MSD	SampType: MSD	TestCo	de: 200.7_W F	PGE Units: µg/L		Prep Da	te: 9/11/2 0)18	RunNo: 12	7688	
Client ID:	ZZZZZZ	Batch ID: 70588	Test	No: EPA 200.	7		Analysis Da	te: 9/19/2 0)18	SeqNo: 31	42780	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum		5313.665	50	5000	0	106	75	125	5321	0.138	20	
Boron		2497.358	100	1000	1115	138	75	125	2503	0.218	20	S
Sample ID	LCS1-70588	SampType: LCS	TestCo	de: 200.7_W F	PGE Units: µg/L		Prep Da	te: 9/11/2 0)18	RunNo: 12	7688	
Sample ID Client ID:		SampType: LCS Batch ID: 70588		de: 200.7_W F No: EPA 200.			Prep Da Analysis Da			RunNo: 12		
				No: EPA 200.		%REC	Analysis Da	te: 9/19/2 0				Qual
Client ID:		Batch ID: 70588	Test	No: EPA 200.	7		Analysis Da	te: 9/19/2 0)18	SeqNo: 31	42783	Qual
Client ID:		Batch ID: 70588 Result	Testl PQL	No: EPA 200. SPK value	7 SPK Ref Val	%REC	Analysis Da	te: 9/19/20)18	SeqNo: 31	42783	Qual

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit

- E Value above quantitation range
- RPD outside accepted recovery limits

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



ANALYTICAL QC SUMMARY REPORT

Work Order: N031947

TestCode: 200.7_WPGEPPB **Project:** PG&E Topock, 680375.03.IM.OP.00

Sample ID N031947-002E-MSD Client ID: ZZZZZZ	SampType: MSD Batch ID: 70588	TestCode: 200.7_WPGE Units: µg/L TestNo: EPA 200.7	Prep Date: 9/11/2018 Analysis Date: 9/19/2018	RunNo: 127688 SeqNo: 3143242
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Iron	114.951	20 100.0 0	115 75 125 112.3	2.31 20
Sample ID N031947-002E-MS1	SampType: MS	TestCode: 200.7_WPGE Units: μg/L	Prep Date: 9/11/2018	RunNo: 127717
Sample ID N031947-002E-MS1 Client ID: ZZZZZZ	SampType: MS Batch ID: 70588	TestCode: 200.7_WPGE Units: μg/L TestNo: EPA 200.7	Prep Date: 9/11/2018 Analysis Date: 9/19/2018	RunNo: 127717 SeqNo: 3143757

Qualifiers:

B Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit Calculations are based on raw values

- E Value above quantitation range
- RPD outside accepted recovery limits

H Holding times for preparation or analysis exceeded

Spike/Surrogate outside of limits due to matrix interference



Analyst: CEI

9/10/2018 07:09 PM

ASSET Laboratories

Project:

Manganese

CH2M HILL **CLIENT:** Lab Order: N031947

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

QC Batch: 70528

7.5

0.26

Lab ID: N031947-001

RunID: NV00922-ICP7_180910C

Client Sample ID: SC-100B-WDR-578

Collection Date: 9/4/2018 10:00:00 AM

Print Date: 20-Sep-18

9/6/2018

1

Matrix: WATER

PrepDate

μg/L

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

0.50

Qualifiers: В Analyte detected in the associated Method Blank

> Η Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out Value above quantitation range

ND Not Detected at the Reporting Limit Results are wet unless otherwise specified

ASSET LABORATORIES

CALIFORNIA | P:562.219.7435 F:562.219.7436 11110 Artesia Blvd., Ste B, Cerritos, CA 90703 ELAP Cert 2921 **EPA ID CA01638**

Print Date: 20-Sep-18

ASSET Laboratories

CLIENT: CH2M HILL Lab Order: N031947

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

Lab ID: N031947-002

Client Sample ID: SC-700B-WDR-578

Collection Date: 9/4/2018 10:05:00 AM

Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL METALS BY ICPMS							
			EP	A 200.8			
RunID: NV00922-ICP7_180906B	QC Batch: 70	528		PrepDa	ite	9/6/2018	Analyst: CEI
Antimony	ND	0.16	0.50		μg/L	1	9/6/2018 04:33 PM
Arsenic	ND	0.081	0.10		μg/L	1	9/6/2018 04:33 PM
Barium	19	0.15	1.0		μg/L	1	9/6/2018 04:33 PM
Copper	ND	0.55	1.0		μg/L	1	9/6/2018 04:33 PM
Lead	ND	0.13	1.0		μg/L	1	9/6/2018 04:33 PM
Manganese	5.5	0.26	0.50		μg/L	1	9/10/2018 07:37 PM
Molybdenum	22	0.21	0.50		μg/L	1	9/6/2018 04:33 PM
Nickel	3.1	0.26	1.0		μg/L	1	9/6/2018 04:33 PM
Zinc	ND	2.3	10		μg/L	1	9/6/2018 04:33 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



ASSET Laboratories

Date: 20-Sep-18

CLIENT: CH2M HILL Work Order: N031947

ANALYTICAL QC SUMMARY REPORT

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

TestCode: 200.8_W

Sample ID MB-70528	SampType: MBLK	TestCod	e: 200.8_W	Units: µg/L		Prep Dat	e: 9/6/201	8	RunNo: 12	7490	
Client ID: PBW	Batch ID: 70528	TestN	o: EPA 200.8	•		Analysis Dat	e: 9/6/201	8	SeqNo: 31	34426	
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									
Molybdenum	ND	0.50									
Nickel	ND	1.0									
Zinc	ND	10									
Sample ID LCS-70528	SampType: LCS	TestCod	e: 200.8_W	Units: µg/L		Prep Dat	e: 9/6/201	8	RunNo: 12	7490	
Client ID: LCSW	Batch ID: 70528	TestN	o: EPA 200.8	:		Analysis Dat	e: 9/6/201	8	SeqNo: 31	34427	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	10.126	0.50	10.00	0	101	85	115				
Arsenic	10.041	0.10	10.00	0	100	85	115				
Barium	10.561	1.0	10.00	0	106	85	115				
Copper	9.603	1.0	10.00	0	96.0	85	115				
Lead	10.017	1.0	10.00	0	100	85	115				
Molybdenum	10.091	0.50	10.00	0	101	85	115				
Nickel	9.771	1.0	10.00	0	97.7	85	115				
Zinc	194.970	10	200.0	0	97.5	85	115				
Sample ID N031947-001C-M	SD SampType: MSD	TestCod	e: 200.8_W	Units: µg/L		Prep Dat	e: 9/6/201	8	RunNo: 12	7490	
Client ID: ZZZZZZ	Batch ID: 70528	TestN	o: EPA 200.8	ŀ		Analysis Dat	e: 9/6/201	8	SeqNo: 31	34441	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	10.104	0.50	10.00	0	101	75	125	10.10	0.0647	20	

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit

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



Work Order: N031947

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

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID N031947-001C-MSD	SampType: MSD	TestCo	de: 200.8_W	Units: µg/L		Prep Date	e: 9/6/201	8	RunNo: 12	7490	
Client ID: ZZZZZZ	Batch ID: 70528	Test	lo: EPA 200. 8	В		Analysis Date	e: 9/6/201	8	SeqNo: 31	34441	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	38.824	1.0	10.00	29.73	90.9	75	125	38.67	0.395	20	
Copper	2.657	1.0	10.00	0	26.6	75	125	2.714	2.12	20	S
Lead	9.655	1.0	10.00	0	96.6	75	125	9.736	0.835	20	
Molybdenum	31.947	0.50	10.00	21.63	103	75	125	32.02	0.242	20	
Nickel	9.273	1.0	10.00	0	92.7	75	125	8.920	3.88	20	
Zinc	171.539	10	200.0	0	85.8	75	125	172.3	0.470	20	
Sample ID N031947-001C-MS	SampType: MS	TestCo	de: 200.8_W	Units: µg/L		Prep Date	e: 9/6/201	8	RunNo: 12	7490	
Client ID: ZZZZZZ	Batch ID: 70528	TestN	lo: EPA 200. 8	В		Analysis Date	e: 9/6/201	8	SeqNo: 31	34449	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	10.097	0.50	10.00	0	101	75	125				
Arsenic	13.176	0.10	10.00	3.162	100	75	125				
Barium	38.671	1.0	10.00	29.73	89.4	75	125				
Copper	2.714	1.0	10.00	0	27.1	75	125				S
Lead	9.736	1.0	10.00	0	97.4	75	125				
Molybdenum	32.025	0.50	10.00	21.63	104	75	125				
Nickel	8.920	1.0	10.00	0	89.2	75	125				
Zinc	172.348	10	200.0	0	86.2	75	125				
Sample ID MB-70528	SampType: MBLK	TestCo	de: 200.8_W	Units: µg/L		Prep Date	e: 9/6/201	8	RunNo: 12	7522	
Client ID: PBW	Batch ID: 70528	Test	lo: EPA 200. 8	8		Analysis Date	e: 9/10/20	118	SeqNo: 31	36054	
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

- E Value above quantitation range
- R RPD outside accepted recovery limits

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



Work Order:

N031947

75

125

104.7

0.906

20

98.2

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

ANALYTICAL QC S	UMMARY	REPORT
TestCode:	200.8_W	

Sample ID LCS-70528	SampType: LCS	TestCode: 200.8_W Units: μg/L	Prep Date: 9/6/2018	RunNo: 127522
Client ID: LCSW	Batch ID: 70528	TestNo: EPA 200.8	Analysis Date: 9/10/2018	SeqNo: 3136055
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Manganese	107.874	0.50 100.0 0	108 85 115	
Sample ID N031947-001C-MS	SampType: MS	TestCode: 200.8_W Units: μg/L	Prep Date: 9/6/2018	RunNo: 127522
Client ID: ZZZZZZ	Batch ID: 70528	TestNo: EPA 200.8	Analysis Date: 9/10/2018	SeqNo: 3136062
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Manganese	104.659	0.50 100.0 7.451	97.2 75 125	
Sample ID N031947-001C-MSD	SampType: MSD	TestCode: 200.8_W Units: μg/L	Prep Date: 9/6/2018	RunNo: 127522
Client ID: ZZZZZZ	Batch ID: 70528	TestNo: EPA 200.8	Analysis Date: 9/10/2018	SeqNo: 3136063
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual

7.451

Qualifiers:

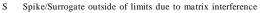
Manganese

B Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit

- E Value above quantitation range
- RPD outside accepted recovery limits

H Holding times for preparation or analysis exceeded





105.612

0.50

100.0

Print Date: 20-Sep-18

ASSET Laboratories

CLIENT: CH2M HILL Client Sample ID: SC-100B-WDR-578

 Lab Order:
 N031947
 Collection Date:
 9/4/2018 10:00:00 AM

 Project:
 PG&E Topock, 680375.03.IM.OP.00
 Matrix:
 WATER

Lab ID: N031947-001

Analyses	Result MDL	PQL	Qual Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC					
		EPA	218.6		
RunID: NV00922-IC7_180906A	QC Batch: R127471		PrepDate		Analyst: RAB
Hexavalent Chromium	490 3.3	20	μg/L	100	9/6/2018 12:55 PM
TOTAL METALS BY ICPMS					
		EPA	200.8		
RunID: NV00922-ICP7_180906B	QC Batch: 70528		PrepDate	9/6/2018	Analyst: CEI
Chromium	530 0.65	5.0	μg/L	5	9/6/2018 05:02 PM

Qualifiers: B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range



Print Date: 20-Sep-18

ASSET Laboratories

Project:

CLIENT: CH2M HILL Lab Order: N031947

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

Lab ID: N031947-002

Client Sample ID: SC-700B-WDR-578
Collection Date: 9/4/2018 10:05:00 AM

Matrix: WATER

Analyses	Result MDL	PQL	Qual Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY I	C				
		EPA	218.6		
RunID: NV00922-IC7_180906A	QC Batch: R127471		PrepDate		Analyst: RAB
Hexavalent Chromium	ND 0.17	1.0	μg/L	5	9/6/2018 01:14 PM
TOTAL METALS BY ICPMS					
		EPA	200.8		
RunID: NV00922-ICP7_180906B	QC Batch: 70528		PrepDate	9/6/2018	Analyst: CEI
Chromium	ND 0.13	1.0	μg/L	1	9/6/2018 04:33 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



ASSET Laboratories

Date: 20-Sep-18

CLIENT: CH2M HILL Work Order: N031947

ANALYTICAL QC SUMMARY REPORT

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

TestCode: 200.8_W_CRPGE

Sample ID	MB-70528	SampType:	MBLK	TestCod	le: 200.8_W _	CR Units: µg/L		Prep Date	9/6/201	8	RunNo: 12	7490	
Client ID:	PBW	Batch ID:	70528	TestN	o: EPA 200.	8		Analysis Date	9/6/201	8	SeqNo: 31	34584	
Analyte			Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit I	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium			ND	1.0									
Sample ID	LCS-70528	SampType:	LCS	TestCod	le: 200.8_W _	CR Units: µg/L		Prep Date	9/6/201	8	RunNo: 12	7490	
Client ID:	LCSW	Batch ID:	70528	TestN	o: EPA 200.	8		Analysis Date	9/6/201	8	SeqNo: 31	34585	
Analyte			Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit H	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium			10.303	1.0	10.00	0	103	85	115				
					10.00								
Sample ID	N031947-001C-MSD	SampType:			le: 200.8_W _			Prep Date		8	RunNo: 12	7490	
·	N031947-001C-MSD ZZZZZZ	SampType: Batch ID:	MSD	TestCod		CR Units: µg/L			: 9/6/201		RunNo: 12 SeqNo: 31		
·			MSD	TestCod	le: 200.8_W_ lo: EPA 200.	CR Units: µg/L		Prep Date Analysis Date	9/6/201 : 9/6/201				Qual
Client ID:		Batch ID:	MSD 70528	TestCod TestN	le: 200.8_W_ lo: EPA 200.	CR Units: µg/L		Prep Date Analysis Date	9/6/201 : 9/6/201	8	SeqNo: 31	34600	Qual S
Client ID: Analyte Chromium		Batch ID:	MSD 70528 Result	TestCod TestN PQL 5.0	le: 200.8_W_ o: EPA 200. SPK value	CR Units: µg/L 8 SPK Ref Val 533.9	%REC	Prep Date Analysis Date LowLimit H	: 9/6/201 : 9/6/201 HighLimit	8 RPD Ref Val 537.2	SeqNo: 31 %RPD	RPDLimit	
Client ID: Analyte Chromium	N031947-001C-MS	Batch ID:	MSD 70528 Result 531.701	TestCod TestN PQL 5.0 TestCod	le: 200.8_W_ o: EPA 200. SPK value 10.00	CR Units: µg/L 8 SPK Ref Val 533.9 CR Units: µg/L	%REC -22.3	Prep Date Analysis Date LowLimit H	: 9/6/201 : 9/6/201 HighLimit 125 : 9/6/201	8 RPD Ref Val 537.2	SeqNo: 31 %RPD 1.02	34600 RPDLimit 20 7490	
Client ID: Analyte Chromium Sample ID	N031947-001C-MS	Batch ID:	MSD 70528 Result 531.701	TestCod TestN PQL 5.0 TestCod	le: 200.8_W_ lo: EPA 200. SPK value 10.00 le: 200.8_W_ lo: EPA 200.	CR Units: µg/L 8 SPK Ref Val 533.9 CR Units: µg/L	%REC -22.3	Prep Date Analysis Date LowLimit I 75 Prep Date Analysis Date	: 9/6/201 : 9/6/201 HighLimit 125 : 9/6/201 : 9/6/201	8 RPD Ref Val 537.2	SeqNo: 31 %RPD 1.02 RunNo: 12	34600 RPDLimit 20 7490	

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
 Calculations are based on raw values

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



Work Order: N031947

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

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WU_PGE

Sample ID MB-R127471	SampType: MBLK	TestCode: 218.6_WU_P Units: µg/L	Prep Date:	RunNo: 127471
Client ID: PBW	Batch ID: R127471	TestNo: EPA 218.6	Analysis Date: 9/6/2018	SeqNo: 3133036
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-R127471	SampType: LCS	TestCode: 218.6_WU_P Units: μg/L	Prep Date:	RunNo: 127471
Client ID: LCSW	Batch ID: R127471	TestNo: EPA 218.6	Analysis Date: 9/6/2018	SeqNo: 3133037
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Hexavalent Chromium	5.227	0.20 5.000 0	105 90 110	
Sample ID N031957-001ADUP	SampType: DUP	TestCode: 218.6_WU_P Units: µg/L	Prep Date:	RunNo: 127471
Client ID: ZZZZZZ	Batch ID: R127471	TestNo: EPA 218.6	Analysis Date: 9/6/2018	SeqNo: 3133041
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Hexavalent Chromium	5.818	0.20	5.802	0.277 20
Sample ID N031947-001BMS	SampType: MS	TestCode: 218.6_WU_P Units: µg/L	Prep Date:	RunNo: 127471
Client ID: ZZZZZZ	Batch ID: R127471	TestNo: EPA 218.6	Analysis Date: 9/6/2018	SeqNo: 3133045
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Hexavalent Chromium	1000.490	20 500.0 489.4	102 90 110	
Sample ID N031947-002CMS	SampType: MS	TestCode: 218.6_WU_P Units: µg/L	Prep Date:	RunNo: 127471
Client ID: ZZZZZZ	Batch ID: R127471	TestNo: EPA 218.6	Analysis Date: 9/6/2018	SeqNo: 3133047
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Hexavalent Chromium	4.990	1.0 5.000 0.4010	91.8 90 110	

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit Calculations are based on raw values

- E Value above quantitation range
- RPD outside accepted recovery limits

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



ANALYTICAL QC SUMMARY REPORT

Work Order: N031947

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

ate:	RunNo: 127471

TestCode: 218.6_WU_PGE

Sample ID N031956-001AMS	SampType: MS	TestCode: 218.6_WU_P Units: µg/L	Prep Date:	RunNo: 127471			
Client ID: ZZZZZZ	Batch ID: R127471	TestNo: EPA 218.6	Analysis Date: 9/6/2018	SeqNo: 3133048			
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual			
Hexavalent Chromium	3.405	0.20 1.000 2.380	103 90 110				
Sample ID N031956-001AMSD	SampType: MSD	TestCode: 218.6_WU_P Units: µg/L	Prep Date:	RunNo: 127471			
Sample ID N031956-001AMSD Client ID: ZZZZZZ	SampType: MSD Batch ID: R127471	TestCode: 218.6_WU_P Units: µg/L TestNo: EPA 218.6	Prep Date: Analysis Date: 9/6/2018	RunNo: 127471 SeqNo: 3133049			
	1 21		•				

Qualifiers:

B Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit
Calculations are based on raw values

- E Value above quantitation range
- R RPD outside accepted recovery limits

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



ASSET Laboratories

CLIENT: CH2M HILL Lab Order: N031947

Project:

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

Lab ID: N031947-001

Client Sample ID: SC-100B-WDR-578

Collection Date: 9/4/2018 10:00:00 AM

Print Date: 20-Sep-18

Matrix: WATER

Analyses Result MDL **PQL** Qual Units DF **Date Analyzed TURBIDITY SM 2130B** RunID: NV00922-WC_180905C QC Batch: R127407 PrepDate Analyst: LR Turbidity 0.24 0.10 NTU 9/5/2018 08:40 AM 0.10

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



9/5/2018 08:40 AM

ASSET Laboratories Print Date: 20-Sep-18

 CLIENT:
 CH2M HILL
 Client Sample ID:
 SC-700B-WDR-578

 Lab Order:
 N031947
 Collection Date:
 9/4/2018 10:05:00 AM

0.10

Project: PG&E Topock, 680375.03.IM.OP.00 Matrix: WATER

0.22

Lab ID: N031947-002

Turbidity

 Analyses
 Result MDL
 PQL
 Qual Units
 DF Date Analyzed

 TURBIDITY

 SM 2130B

 RunID: NV00922-WC_180905C
 QC Batch: R127407
 PrepDate
 Analyst: LR

0.10

NTU

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



ASSET Laboratories

Date: 20-Sep-18

CLIENT: CH2M HILL

ANALYTICAL QC SUMMARY REPORT

Work Order: N031947

Project: PG&E Topock, 680375.03.IM.OP.00 TestCode: 2130_W

Sample ID MB-R127407 Client ID: PBW	SampType: MBLK Batch ID: R127407	TestCode: 2130_W TestNo: SM 2130B	Units: NTU	Prep Date: Analysis Date: 9/5/2018	RunNo: 127407 SeqNo: 3130202
Analyte	Result	PQL SPK value S	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Turbidity	ND	0.10			
Sample ID N031947-001ADUP	SampType: DUP	TestCode: 2130 W	Units: NTU	Prep Date:	RunNo: 127407

Sample ID N031947-001ADUP	SampType: DUP	TestCode: 2130_W	Units: NTU		Prep Da	ite:	RunNo: 127	7407	
Client ID: ZZZZZZ	Batch ID: R127407	TestNo: SM 2130B			Analysis Da	te: 9/5/2018	SeqNo: 313	30204	
Analyte	Result	PQL SPK value	SPK Ref Val	%REC	LowLimit	HighLimit RPD Ref Val	%RPD	RPDLimit	Qual
Turbidity	0.230	0.10				0.2400	4 26	30	

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
 Calculations are based on raw values

- E Value above quantitation range
- R RPD outside accepted recovery limits

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



Print Date: 20-Sep-18

ASSET Laboratories

CLIENT: CH2M HILL Lab Order: N031947

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

Lab ID: N031947-002

Client Sample ID: SC-700B-WDR-578
Collection Date: 9/4/2018 10:05:00 AM

Matrix: WATER

Analyses	Result MDL	PQL Qual Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGR	RAPHY			
		EPA 300.0		
RunID: NV00922-IC8_180905B	QC Batch: R127429	PrepDate		Analyst: RAB
Fluoride	2.3 0.032	0.50 mg/L	5	9/5/2018 05:49 PM
ANIONS BY ION CHROMATOGR	RAPHY			
		EPA 300.0		
RunID: NV00922-IC8_180906A	QC Batch: R127453	PrepDate		Analyst: RAB
Sulfate	460 1.1	25 mg/L	50	9/6/2018 05:24 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



ASSET Laboratories

Date: 20-Sep-18

CLIENT: CH2M HILL

Project:

ANALYTICAL QC SUMMARY REPORT

Work Order: N031947

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

TestCode: 300_W_FPGE

Sample ID MB-R127429_F	SampType: MBLK	TestCode: 300_W_FPG Units: mg/L	Prep Date:	RunNo: 127429
Client ID: PBW	Batch ID: R127429	TestNo: EPA 300.0	Analysis Date: 9/5/2018	SeqNo: 3132012
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Fluoride	ND	0.10		
Sample ID LCS-R127429_F	SampType: LCS	TestCode: 300_W_FPG Units: mg/L	Prep Date:	RunNo: 127429
Client ID: LCSW	Batch ID: R127429	TestNo: EPA 300.0	Analysis Date: 9/5/2018	SeqNo: 3132013
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Fluoride	1.227	0.10 1.250 0	98.1 90 110	
Sample ID N031905-004BDUP	SampType: DUP	TestCode: 300_W_FPG Units: mg/L	Prep Date:	RunNo: 127429
Client ID: ZZZZZZ	Batch ID: R127429	TestNo: EPA 300.0	Analysis Date: 9/5/2018	SeqNo: 3132025
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Fluoride	7.391	1.0	7.550	2.13 20
Sample ID N031905-006BMS	SampType: MS	TestCode: 300_W_FPG Units: mg/L	Prep Date:	RunNo: 127429
Client ID: ZZZZZZ	Batch ID: R127429	TestNo: EPA 300.0	Analysis Date: 9/5/2018	SeqNo: 3132026
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Fluoride	27.080	2.0 25.00 4.248	91.3 80 120	
Sample ID N031905-006BMSD	SampType: MSD	TestCode: 300_W_FPG Units: mg/L	Prep Date:	RunNo: 127429
Client ID: ZZZZZZ	Batch ID: R127429	TestNo: EPA 300.0	Analysis Date: 9/5/2018	SeqNo: 3132027
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Fluoride	26.992	2.0 25.00 4.248	91.0 80 120 27.08	0.325 20

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
 Calculations are based on raw values

- E Value above quantitation range
- R RPD outside accepted recovery limits

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



ANALYTICAL QC SUMMARY REPORT

Work Order: N031947

Project: PG&E Topock, 680375.03.IM.OP.00 TestCode: 300_W_FPGE

Sample ID N031947-002BMS	SampType: MS	TestCod	de: 300_W_F I	PG Units: mg/L		Prep Da	te:		RunNo: 12	7429	
Client ID: ZZZZZZ	Batch ID: R127429	TestN	lo: EPA 300.0)	Analysis Date: 9/5/2018			SeqNo: 3132031			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	8.250	0.50	6.250	2.268	95.7	80	120	_			

Qualifiers:

B Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit
Calculations are based on raw values

- E Value above quantitation range
- R RPD outside accepted recovery limits

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



Work Order: N031947

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

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID MB-R127453_SO4 Client ID: PBW	SampType: MBLK Batch ID: R127453	TestCode: 300_W_SO4P Units: mg/L TestNo: EPA 300.0	Prep Date: Analysis Date: 9/6/2018	RunNo: 127453 SeqNo: 3131912
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Sulfate	0.227	0.50		
Sample ID LCS-R127453_SO4	SampType: LCS	TestCode: 300_W_SO4P Units: mg/L	Prep Date:	RunNo: 127453
Client ID: LCSW	Batch ID: R127453	TestNo: EPA 300.0	Analysis Date: 9/6/2018	SeqNo: 3131913
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Sulfate	3.897	0.50 4.000 0	97.4 90 110	
Sample ID N031905-006BDUP	SampType: DUP	TestCode: 300_W_SO4P Units: mg/L	Prep Date:	RunNo: 127453
Client ID: ZZZZZZ	Batch ID: R127453	TestNo: EPA 300.0	Analysis Date: 9/6/2018	SeqNo: 3131928
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Sulfate	5706.900	500	5654	0.937 20
Sample ID N031905-001BMS	SampType: MS	TestCode: 300_W_SO4P Units: mg/L	Prep Date:	RunNo: 127453
Client ID: ZZZZZZ	Batch ID: R127453	TestNo: EPA 300.0	Analysis Date: 9/6/2018	SeqNo: 3131929
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Sulfate	22206.600	1000 8000 14380	97.8 80 120	
Sample ID N031905-001BMSD	SampType: MSD	TestCode: 300_W_SO4P Units: mg/L	Prep Date:	RunNo: 127453
Client ID: ZZZZZZ	Batch ID: R127453	TestNo: EPA 300.0	Analysis Date: 9/6/2018	SeqNo: 3131930
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Sulfate	22319.200	1000 8000 14380	99.2 80 120 22210	0.506 20

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
 Calculations are based on raw values

- E Value above quantitation range
- R RPD outside accepted recovery limits

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



Work Order:

N031947

ANALYTICAL QC SUMMARY REPORT

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

TestCode: 300_W_SO4PGE

Sample ID N031947-002BMS	SampType: MS	TestCod	de: 300_W_S	O4P Units: mg/L		Prep Da	te:		RunNo: 12	7453	
Client ID: ZZZZZZ	Batch ID: R127453	TestNo: EPA 300.0			Analysis Date: 9/6/2018				SeqNo: 3131932		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	665.865	25	200.0	462.8	102	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit
Calculations are based on raw values

E Value above quantitation range

R RPD outside accepted recovery limits

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference



ASSET Laboratories

CLIENT: CH2M HILL Lab Order: N031947

Project:

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

Lab ID: N031947-002

Client Sample ID: SC-700B-WDR-578

Print Date: 20-Sep-18

Collection Date: 9/4/2018 10:05:00 AM

Matrix: WATER

Analyses Result MDL PQL Qual Units DF Date Analyzed

NITRATE/NITRITE-N BY CADMIUM REDUCTION

SM4500-NO3F

 RunID:
 NV00922-WC_180912B
 QC Batch:
 R127567
 PrepDate
 Analyst:
 QBM

 Nitrate/Nitrite as N
 2.7 0.16
 0.25
 mg/L
 5
 9/12/2018

Qualifiers: B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out

E Value above quantitation range

ND Not Detected at the Reporting Limit

Results are wet unless otherwise specified

ASSET LABORATORIES
AMUNICAL SEPORIS FOR EPVINGANACIAL TECHNOLOGICS

Date: 20-Sep-18 **ASSET Laboratories**

CLIENT: CH2M HILL Work Order: N031947

ANALYTICAL QC SUMMARY REPORT

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

TestCode: 4500N03F_W

Sample ID MB-R127567	SampType: MBLK	TestCode: 4500N03F_W Units: mg/L	Prep Date:	RunNo: 127567
Client ID: PBW	Batch ID: R127567	TestNo: SM4500-NO3	Analysis Date: 9/12/2018	SeqNo: 3138747
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-R127567	SampType: LCS	TestCode: 4500N03F_W Units: mg/L	Prep Date:	RunNo: 127567
Client ID: LCSW	Batch ID: R127567	TestNo: SM4500-NO3	Analysis Date: 9/12/2018	SeqNo: 3138748
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Nitrate/Nitrite as N	0.476	0.050 0.5000 0	95.2 85 115	
Sample ID N031976-002CDUP	SampType: DUP	TestCode: 4500N03F_W Units: mg/L	Prep Date:	RunNo: 127567
Client ID: ZZZZZZ	Batch ID: R127567	TestNo: SM4500-NO3	Analysis Date: 9/12/2018	SeqNo: 3138752
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Nitrate/Nitrite as N	2.668	0.25	2.719	1.89 20
Sample ID N031947-002DMS	SampType: MS	TestCode: 4500N03F_W Units: mg/L	Prep Date:	RunNo: 127567
Client ID: ZZZZZZ	Batch ID: R127567	TestNo: SM4500-NO3	Analysis Date: 9/12/2018	SeqNo: 3138754
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Nitrate/Nitrite as N	4.851	0.25 2.500 2.705	85.8 75 125	
Sample ID N031947-002DMSD	SampType: MSD	TestCode: 4500N03F_W Units: mg/L	Prep Date:	RunNo: 127567
Client ID: ZZZZZZ	Batch ID: R127567	TestNo: SM4500-NO3	Analysis Date: 9/12/2018	SeqNo: 3138755
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Nitrate/Nitrite as N	5.233	0.25 2.500 2.705	101 75 125 4.851	7.58 20

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit Calculations are based on raw values

- E Value above quantitation range
- RPD outside accepted recovery limits

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



CH2MHILL

CHAIN OF CUSTODY RECORD

Pane	4	OF	4
Page		UF	- 1

Project Name PG&E Topock	Container	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			
Location PG&E Topock Project Number 680375.03.IM.OP.00	Preservatives:	4°C Lab H2SO4	4°C	4°C	4°C	4"C Leb H2SO4	4°C	4°C	4°C	4°C			
Project Manager Scott O'Donnell	Filtered:	NA	NA	NA	NA	NA	NA	NA	NA	NA			l
Sample Manager Shawn Duffy	Holding Time:	28	7	7	1	28	7	180	180	7			
Task Order Project IM3PLANT-ARAR-WDR-578 Turnaround Time 10 Days Shipping Date: COC Number: 578 DATE	TIME Matrix	AMMONIA (SM4500NH3D)	Anions (E300.0) FI, 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	Turbidity (SM2130)		Number of Containers	COMMENTS
SC-100B-WDR-578 9-4-19	10:00 Water			х	x		х		х	х	N031947-01	3	
	10;'05 Water	х	х	ж	х	Х	х	х		х	-02	4	

Approved by Signatures Date/Time Shipping Details

9-4-18 4:41

Relinquished by Received b

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

Doug Scott
(970) 731-0636

ASSET Laboratories

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

If you have any questions	or further ins	struction, pleas	se contact our	Project Coo	rdinator at (702	2) 307-2659.	
Cooler Received/Opened On:	9/4/2018				Workorder:	N031947	
Rep sample Temp (Deg C):	4.8				IR Gun ID:	2	
Temp Blank:	✓ Yes	☐ No					
Carrier name:	ASSET						
Last 4 digits of Tracking No.:	NA			Packin	g Material Used:	None	
Cooling process:	✓ Ice	☐ Ice Pack	Dry Ice	Other	☐ None		
		<u>Sa</u>	ımple Receip	ot Checklis	<u>t</u>		
1. Shipping container/cooler in g	good condition	?			Yes 🗸	No 🗆	Not Present
2. Custody seals intact, signed,	dated on ship	pping container/o	cooler?		Yes	No 🗆	Not Present
3. Custody seals intact on samp	ole bottles?			Yes	No 🗆	Not Present	
4. Chain of custody present?					Yes 🗸	No \square	
5. Sampler's name present in C	OC?				Yes 🗸	No 🗌	
6. Chain of custody signed whe	n relinquished	and received?			Yes 🗸	No 🗆	
7. Chain of custody agrees with	sample labels	s?			Yes 🗸	No 🗌	
8. Samples in proper container/	bottle?				Yes 🗸	No 🗌	
9. Sample containers intact?					Yes 🗸	No 🗆	
10. Sufficient sample volume fo	r indicated tes	t?			Yes 🗸	No 🗆	
11. All samples received within	holding time?				Yes 🗸	No \square	
12. Temperature of rep sample	or Temp Blank	k within acceptab	le limit?		Yes 🗸	No \square	NA \square
13. Water - VOA vials have zero	o headspace?				Yes	No \square	NA 🗹
14. Water - pH acceptable upor Example: pH > 12 for (CI	•	Metals			Yes	No 🗹	NA 🗌
15. Did the bottle labels indicate	correct prese	ervatives used?			Yes	No \square	NA 🗹
16. Were there Non-Conformar W	nce issues at lo as Client notif	-			Yes ✓ Yes □	No 🗌 No 🗌	NA ☐ NA ✔
Comments: Samples for Hex Samples for T. N					rite with H2SO4.		
	For						

MBC /// 9/5/2018

Checklist Completed By:

38

Page 1 of 1

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

Field Sampler: SIGNED

Subcontractor:

BC Labs TEL: (661) 327-4911 4100 Atlas Court FAX: (661) 327-1918

Bakersfield, CA 93308 Acct #:

					Requested Tests	
Sample ID	Matrix	Date Collected	Bottle Type	SM4500-NH3D		
N031947-002A / SC-700B-WDR-578	Water	9/4/2018 10:05:00 AM	320ZP	1		

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

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

Please use PO#:N31947A Please email Invoices and Account Receivable Statements to elvira@assetlaboratories.com. For questions, call

Marlon at (702)-307-2659. Please e-mail results to reports.lv@assetlaboratories.com by: Normal TAT.

Please analyze for Ammonia by SM4500NH3D. EDD Requirement Lasspec7 edata.

	410	Date/Time	GSO #: 541943272	Date/Time
Relinquished by:	YET	9/5/2018 17:00	Received by:	
Relinquished by:			Received by:	

List of Analysts

ASSET Laboratories Work Order: N031947

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



Date	Pump Stop Time	Pump Start Time	Wel	II Effected		Detailed Reason for Downtime	Initials
	W5#2	465#2	PE-1			BLAINE TECH	14
9-6-18	1637-10	6:37	TW-3D	IW-2		3maperala	4
	1011.10	6171	TW-2D	IW-3		Jan 1	
_		W5#2	PE-1			Blaine TECH	11
9-6-18	0649	0637	TW-3D	IW-2			4
	0.0	UG JV	TW-2D	IW-3		SAMPLING	
0 1-10	10 -1		PE-1			100 to Co 101 110	Th
9-6-18	1906	1907	TW-3D	IW-2		power Blip	TP
	WS #1	WS#1	TW-2D	(IW-3)		*	0
aliela	8:38	#/	PE-1	_		CANG M/P MOUS	
9/15/18	8:38	9:55	TW-3D	IW-2			u
		1,2	TW-2D	(W-3)		10 EAST	
0/1	#1		PE-1			ACID MT.	Ec
1/22/18	5:38	7:48	TW-3D	IW-2		4 50	
1 1			TW-2D	(W-3)			
	HM1#2	HM Z	PE-1	2000000		Change Merofilter	
9-23-18	15:10	16:16	TW-3D	IW-2		modules	PAP
, ,			TW-2D	(IW-3)			
0//	HMI #1		PE-1			CHANGE MICROPHER MORS,	0.
9/29/18	5:22	620	TW-3D	IW-2			a
. , , ,	2,66	020	TW-2D	(IW-3)			
			PE-1				
			TW-3D	IW-2			
			TW-2D	IW-3			
			PE-1	IVV 2			
			TW-3D TW-2D	IW-2 IW-3			
			PE-1	100-3			
			TW-3D	IW-2			
			TW-2D	IW-3			
			PE-1	9			
			TW-3D	IW-2			
			TW-2D	IW-3			
			PE-1		To Y	Š.	
			TW-3D	IW-2	210		1
			TW-2D	IW-3			
			PE-1	- Capara			
			TW-3D	IW-2			
			TW-2D	IW-3			
			PE-1				
			TW-3D	IW-2			
			TW-2D	IW-3			
			PE-1				
			TW-3D	IW-2		* -	
			TW-2D	IW-3			

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WDR pH Results

Analytical Bench Log Book

Sample Name	Date of sampling	Date Time Date Time of of of sampling sampling analysis	Date of analysis	Time of analysis	pH Meter #1, #2, or #3 etc. See cover Sheet for Serial Number	Date pH meter Calibrated	Date Time pH meter pH meter Calibrated Calibrated	Slope of the Curve	Analyst Name (for the pH result)	pH Result
1 Sc. 700 B - 577 8.10-18 23:50 8-10-18 23:58	8-10-18	23:50	8-10-18	23: 58	HOYHOD	8-10-8	22:06	-53.49	22:06 -53.49 Brian Terhune	21.76

Notes:

15-178 tes:	80:01 8-4-18 10:00	80:01 8-2-6	Hawas	9-4-18 00:15 \$-83	8	Bar 146414	2512
80	35-200 8-4-18 10:05 9-4-18 10:05	9-4-18 10:10	Hayyou	9-4-18 CO:15	53.88	1:00 1 HELPS	136

Notes:

0 11	Thor THELDE 7.5-1
	-53/61
	0000
	81-2-18
	Ha4400
	8060 81-2-01
	0060 81501
	4 50-1008-579

Notes:

w Meyes 2.19	
-52.66 /	
0000	
102-18	
HRY40D	
0160 81-8-01	
10-4-18 0902	
5 65-1008-579	

Notes:

-		
-		
	38:	
0	Note	7

Notes:

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

Purge Water Accumulation Log

Date	Time	Gallons	Operator	Notes
5/2/18	13:30	100	CHRIS	BLANE TECH.
5-7-18	17:00	350	CSENO	Blain E Tex H
5-2-18	17:10	100	65/040	Waino Tech
5/3/18	1200	100	CH21S	BLAINE TECH
5/3/18	13:30	200	CAPPES	BLAME TECH
5-3-18	16:30	300	6 stone	Regine Ter H
5/4/16	10 W	30	CHRIS	BLANK- TECH
06-04-19	1600	140	G.GLARIA	BLAINTECH.
06-05-19	1130	220	G. GLOPLA	BLAINE TECH
9-25-18	15:30	200	hyan P	Blain Tech
9-26-18	11:00	150	RyanP	Blain Tech
9-27-18	16:30	350	Ryant	BlainTech
				7.3
			B.	
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	ALC: NOTE:			
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