



**Pacific Gas and
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October 13, 2017

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Subject: Topock IM-3 Third Quarter 2017 Monitoring Report
PG&E Topock Compressor Station, Needles, California
Interim Measure No. 3 Groundwater Treatment System
(Document ID: PGE20171013A)

Dear Ms. Innis and Mr. Perdue:

Enclosed is the Third Quarter 2017 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 809,516,494 gallons of water and removed approximately 7,210 pounds of total chromium from August 1, 2005 through September 30, 2017.

Pamela S. Innis

Robert Perdue

October 13, 2017

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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 2017 Monitoring Report

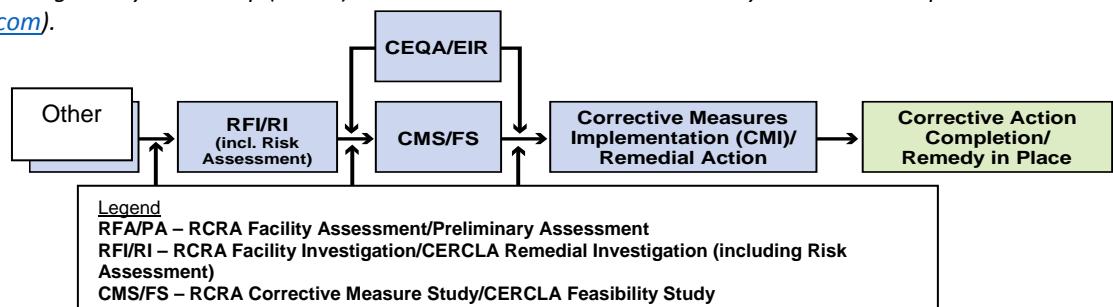
cc: José Cortez, Colorado River Basin Regional Water Board
Thomas Vandenberg, Colorado River Basin Regional Water Board
Aaron Yue, California Department of Toxic Substances Control

Topock Project Executive Abstract

<p>Document Title:</p> <p>Topock IM-3 Third Quarter 2017 Monitoring Report</p> <p>Submitting Agency/Authored by: U.S. Department of the Interior and Regional Water Quality Control Board</p> <p>Final Document? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>Date of Document: October 13, 2017</p> <p>Who Created this Document?: (i.e. PG&E, DTSC, DOI, Other)</p> <p>PG&E</p> <p>Document ID Number:</p> <p>PGE20171013A</p>
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<p>What does this information pertain to?</p> <p><input type="checkbox"/> Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA)/Preliminary Assessment (PA)</p> <p><input type="checkbox"/> RCRA Facility Investigation (RFI)/Remedial Investigation (RI) (including Risk Assessment)</p> <p><input type="checkbox"/> Corrective Measures Study (CMS)/Feasibility Study (FS)</p> <p><input type="checkbox"/> Corrective Measures Implementation (CMI)/Remedial Action</p> <p><input type="checkbox"/> California Environmental Quality Act (CEQA)/Environmental Impact Report (EIR)</p> <p><input checked="" type="checkbox"/> Interim Measures</p> <p><input type="checkbox"/> Other / Explain:</p>	<p>Is this a Regulatory Requirement?</p> <p><input checked="" type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p> <p>If no, why is the document needed?</p>
<p>What is the consequence of NOT doing this item? What is the consequence of DOING this item?</p> <p>Submittal of this report is a compliance requirement of the ARARs for waste discharge as documented in Attachment A to the Letter Agreement issued July 26, 2011.</p>	<p>Other Justification/s:</p> <p><input type="checkbox"/> Permit <input type="checkbox"/> Other / Explain:</p>
<p>Brief Summary of attached document:</p> <p>This report covers the Interim Measures No. 3 (IM-3) groundwater treatment system monitoring activities during the Third Quarter 2017 period. The groundwater monitoring results for wells OW-1S/M/D, OW-2S/M/D, OW-5S/M/D, CW-1M/D, CW-2M/D, CW-3M/D, and CW-4M/D will be submitted under separate cover, as part of the Compliance Monitoring Program.</p>	
<p>Written by: PG&E</p>	
<p>Recommendations:</p> <p>This report is for your information only.</p>	
<p>How is this information related to the Final Remedy or Regulatory Requirements?</p> <p>The Topock IM-3 Third Quarter 2017 Monitoring Report is related to the Interim Measure. PG&E is currently operating the IM-3 groundwater treatment system as authorized by the U.S. Department of the Interior (DOI) Waste Discharge Applicable or Relevant and Appropriate Requirements (ARARs) as documented in Attachment A to the Letter Agreement issued July 26, 2011 from the Colorado River Basin Regional Water Quality Control Board (Regional Water Board) to DOI, and the subsequent Letter of Concurrence issued August 18, 2011 from DOI to the Regional Water Board.</p>	
<p>Other requirements of this information?</p> <p>None.</p>	

Related Reports and Documents:

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



Version 9

Third Quarter 2017 Monitoring Report Interim Measure No. 3 Groundwater Treatment System

Document ID: PGE20171013A

PG&E Topock Compressor Station
Needles, California

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

October 13, 2017

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Third Quarter 2017 Monitoring Report
for 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 13, 2017

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

Dennis Fink



Dennis Fink, P.E.
Project Engineer

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Acronyms and Abbreviations

ARARs	Applicable or Relevant and Appropriate Requirements
ASSET	ASSET Laboratories
DOI	United States Department of the Interior
gpm	gallons per minute
HMI	human-machine interface
IM	Interim Measure
IW	injection well
MRP	Monitoring and Reporting Program
PG&E	Pacific Gas and Electric Company
PLC	programmable logic controller
PST	Pacific Standard Time
Regional Water Board	Colorado River Basin Regional Water Quality Control Board
RO	reverse osmosis
Truesdail	Truesdail Laboratories, Inc.
WDR	Waste Discharge Requirements

SECTION 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 2017. 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.

SECTION 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.

SECTION 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 2017, extraction wells TW-3D and PE-1 operated at a target pumping rate of 135 gallons per minute (gpm), excluding periods of planned and unplanned downtime. Extraction wells TW-2D and TW-2S were not operating during 3Q 2017. The recorded operational run time for the IM-3 groundwater extraction system (combined or individual pumping), by month, was approximately:

- 99.0 percent during July 2017
- 88.0 percent during August 2017
- 97.9 percent during September 2017

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 2017 are detailed in Section 4.

Groundwater Treatment System Flow Rates

The Third Quarter 2017 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 16,865,510 gallons of extracted groundwater during the Third Quarter 2017. Six containers of solids (sludge) were transported offsite from the IM-3 facility during Third Quarter 2017.

Periods of planned and unplanned extraction system downtime (that together resulted in approximately 5.0 percent downtime during Third Quarter 2017) 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 2017

During July 2017, extraction wells TW-3D and PE-1 operated at a target pump rate of 135 gpm excluding periods of planned and unplanned downtime. Extraction wells TW-2S and TW-2D were not operated during July 2017. The operational run time for the IM-3 groundwater extraction system (combined or individual pumping) was 99.0 percent during the July 2017 reporting period.

The IM-3 facility treated approximately 5,932,172 gallons of extracted groundwater during July 2017. Two containers of solids from the IM-3 facility were transported offsite during July 2017.

Periods of planned and unplanned extraction system down time (that together resulted an approximately 1.0 percent downtime during July 2017) are summarized below.

- **July 6, 2017 (planned):** The extraction well system was offline from 6:52 a.m. to 8:14 a.m. due to testing of the pipeline critical alarms and leak detection system and to change out the microfilter modules due to high transmembrane pressure. The plant was shut down to replace the plugged modules with clean ones. Extraction system downtime was 1 hour 22 minutes.
- **July 7, 2017 (unplanned):** The extraction well system was offline from 12:54 p.m. to 1:00 p.m. due to the voltage coming into the plant being too low. The plant power was switched from City of Needles power to the generator. Extraction system downtime was 6 minutes.
- **July 7, 2017 (unplanned):** The extraction well system was offline from 2:26 p.m. to 2:30 p.m. to switch the plant power back to City of Needles power. Extraction system downtime was 4 minutes.
- **July 8, 2017 (unplanned):** The extraction well system was offline from 7:06 p.m. to 7:12 p.m. due to bad weather. There were high winds and lightning. The plant power was switched to the generator. Extraction system downtime was 6 minutes.
- **July 22, 2017 (unplanned):** The extraction well system was offline from 12:26 a.m. to 12:36 a.m. due to loss of power from the City of Needles. Extraction system downtime was 10 minutes.
- **July 21, 2017 (unplanned):** The extraction well system was offline from 12:28 p.m. to 12:42 p.m. due to a high voltage reading on the incoming power from "line C." The plant was shut down to switch to

generator power. The City of Needles Electric Department was called and the plant remained on the generator until the power issue was resolved. Extraction system downtime was 14 minutes.

- **July 24, 2017 (unplanned):** The extraction well system was offline from 8:22 p.m. to 9:38 p.m. due to extraction well TW-3D failing to run or start. The plant was shut down while the issue was investigated and the electric panel reset. Extraction system downtime was 1 hour 16 minutes.
- **July 25, 2017 (unplanned):** The extraction well system was offline from 11:56 a.m. to 11:58 a.m. due to loss of power from the City of Needles. Extraction system downtime was 2 minutes.
- **July 25, 2017 (unplanned):** The extraction well system was offline from 1:26 p.m. to 2:46 p.m. due to a “low flow ferrous” alarm. The plant was shut down while the ferrous chemical pump was cleaned and re-primed. Extraction system downtime was 1 hour 20 minutes.
- **July 26, 2017 (unplanned):** The extraction well system was offline from 5:38 a.m. to 8:10 a.m. to change out the microfilter modules due to high transmembrane pressure. The plant was shut down to replace the plugged modules with clean ones. Extraction system downtime was 2 hours 32 minutes.
- **July 28, 2017 (unplanned):** The extraction well system was offline from 9:56 a.m. to 9:58 a.m., from 10:10 a.m. to 10:40 a.m., and from 12:50 p.m. to 12:52 p.m. due to loss of power from the City of Needles. Extraction system downtime was 34 minutes.

4.2 August 2017

During August 2017, extraction wells TW-3D and PE-1 operated at a target pump rate of 135 gpm excluding periods of planned and unplanned downtime. Extraction wells TW-2S and TW-2D were not operated during August 2017. The operational run time for the IM-3 groundwater extraction system (combined or individual pumping) was 88.0 percent during the August 2017 reporting period.

The IM-3 facility treated approximately 5,274,842 gallons of extracted groundwater during August 2017. The IM-3 facility treated 26,450 gallons of water from injection well backwashing/re-development from Groundwater Partners. Two containers of solids from the IM-3 facility were transported offsite during August 2017.

Periods of planned and unplanned extraction system down time (that together resulted an approximately 12.0 percent downtime during August 2017) are summarized below.

- **August 3, 2017 (unplanned):** The extraction well system was offline from 12:18 a.m. to 12:22 a.m. due to a programmable logic controller (PLC) and human-machine interface (HMI) connectivity issue. Extraction system downtime was 4 minutes.
- **August 3, 2017 (unplanned):** The extraction well system was offline from 10:28 a.m. to 11:56 a.m. to change out the microfilter modules due to high transmembrane pressure. The plant was shut down to replace the fouled modules in the east bank with clean ones. Extraction system downtime was 1 hour 28 minutes.
- **August 7, 2017 (planned):** The extraction well system was offline from 8:40 a.m. to 9:08 a.m. due to testing of the pipeline critical alarms and leak detection system. Extraction system downtime was 28 minutes.
- **August 14, 2017 (unplanned):** The extraction well system was offline from 10:50 a.m. to 12:54 p.m. to change out the microfilter modules due to high transmembrane pressure. The plant was shut down to replace the fouled modules in the west bank with clean ones. Extraction system downtime was 2 hours 4 minutes.

- **August 21 - 24, 2017 (planned):** The extraction well system was offline from 6:14 a.m. on August 21, 2017 to 9:50 a.m. on August 24, 2017 for semiannual scheduled maintenance. Extraction system downtime was 3 days, 1 hour, 22 minutes.
- **August 24, 2017 (unplanned):** The extraction well system was offline from 6:54 p.m. to 7:34 p.m. to change out the microfilter modules due to high transmembrane pressure. The plant was shut down to replace the fouled modules in the west bank with clean ones. Extraction system downtime was 40 minutes.
- **August 24, 2017 (unplanned):** The extraction well system was offline from 7:38 p.m. to 7:46 a.m. due to a PLC and HMI connectivity issue. Extraction system downtime was 8 minutes.
- **August 25, 2017 (unplanned):** The extraction well system was offline from 8:00 a.m. to 8:04 a.m. due to a PLC and HMI connectivity issue. Extraction system downtime was 4 minutes.
- **August 25, 2017 (unplanned):** The extraction well system was offline from 1:32 p.m. to 1:52 p.m. due to loss of power from the City of Needles. Extraction system downtime was 20 minutes.
- **August 25, 2017 (unplanned):** The extraction well system was offline from 3:16 p.m. to 3:28 p.m. due to loss of power from the City of Needles. Extraction system downtime was 12 minutes.
- **August 26, 2017 (unplanned):** The extraction well system was offline from 8:06 a.m. to 8:10 a.m. due to a PLC and HMI connectivity issue. Extraction system downtime was 4 minutes.
- **August 26, 2017 (planned):** The extraction well system was offline from 9:18 a.m. to 10:38 a.m. to maintain appropriate levels in the Raw Water Storage Tank (T-100) due to the large amount of injection well backwashing water produced during the Aquagard cleaning process performed by Groundwater Partners. Extraction system downtime was 1 hour 20 minutes.
- **August 27, 2017 (unplanned):** The extraction well system was offline from 6:50 a.m. to 8:46 a.m. to change out the microfilter modules due to high transmembrane pressure. The plant was shut down to replace the fouled modules in the east bank with clean ones. Extraction system downtime was 1 hour 56 minutes.
- **August 27, 2017 (planned):** The extraction well system was offline from 12:20 p.m. to 12:34 p.m. to maintain appropriate levels in the Raw Water Storage Tank (T-100) due to the large amount of injection well backwashing water produced during the Aquagard cleaning process performed by Groundwater Partners. Extraction system downtime was 14 minutes.
- **August 29, 2017 (unplanned):** The extraction well system was offline from 2:42 p.m. to 2:56 p.m. due to loss of power from the City of Needles. The plant power was switched to the generator. Extraction system downtime was 14 minutes.
- **August 29, 2017 (unplanned):** The extraction well system was offline from 4:02 p.m. to 4:04 p.m. due to a PLC and HMI connectivity issue. Extraction system downtime was 2 minutes.
- **August 29, 2017 (unplanned):** The extraction well system was offline from 4:58 p.m. to 6:58 p.m. due to loss of power from the City of Needles and a failure of the Clarifier Feed Pump VFD (P-400). Extraction system downtime was 2 hours.
- **August 31, 2017 (unplanned):** The extraction well system was offline from 6:54 a.m. to 9:32 a.m. to change out the microfilter modules due to high transmembrane pressure. The plant was shut down to replace the fouled modules with clean ones. The plant was also offline due to a PLC and HMI connectivity issue. Extraction system downtime was 2 hours 38 minutes.

4.3 September 2017

During September 2017, extraction wells TW-3D and PE-1 operated at a target pump rate of 135 gpm excluding periods of planned and unplanned downtime. Extraction wells TW-2S and TW-2D were not operated during September 2017. The operational run time for the IM-3 groundwater extraction system (combined or individual pumping) was 97.9 percent during the September 2017 reporting period.

The IM-3 facility treated approximately 5,658,496 gallons of extracted groundwater during September 2017. The IM-3 facility treated 4,560 gallons of purge water from groundwater well sampling. Two containers of solids from the IM-3 facility were transported offsite during September 2017.

Periods of planned and unplanned extraction system down time (that together resulted in an approximately 2.1 percent downtime during September 2017) are summarized below.

- **September 1, 2017 (unplanned):** The extraction well system was offline from 7:32 a.m. to 8:04 a.m. due to a leaking seal at the Chemical Mixing Pump (P-201). Extraction system downtime was 32 minutes.
- **September 2, 2017 (unplanned):** The extraction well system was offline from 4:06 p.m. to 5:54 p.m. due to a high temperature condition at the air compressor (CMP-1001). Extraction system downtime was 1 hour 48 minutes.
- **September 5, 2017 (unplanned):** The extraction well system was offline from 6:52 p.m. to 9:00 p.m. to change out the microfilter modules due to high transmembrane pressure. The plant was shut down to replace the fouled membranes with clean membranes. Extraction system downtime was 2 hours 8 minutes.
- **September 7, 2017 (unplanned):** The extraction well system was offline from 4:26 a.m. to 4:36 a.m. due to loss of power from the City of Needles. Extraction system downtime was 10 minutes.
- **September 8, 2017 (planned):** The extraction well system was offline from 12:14 p.m. to 12:32 p.m. due to testing of the pipeline critical alarms and leak detection system. Extraction system downtime was 18 minutes.
- **September 13, 2017 (unplanned):** The extraction well system was offline from 8:54 a.m. to 9:32 a.m. to change out the microfilter modules due to high transmembrane pressure. The plant was shut down to replace the fouled membranes with clean ones. Extraction system downtime was 38 minutes.
- **September 13, 2017 (unplanned):** The extraction well system was offline from 10:30 a.m. to 11:02 a.m. to change out the microfilter modules due to high transmembrane pressure. The plant was shut down to replace the fouled membranes with clean ones. Extraction system downtime was 32 minutes.
- **September 13-14, 2017 (unplanned):** The extraction well system was offline during 5 separate periods: on September 13 from 1:48 p.m. to 3:04 p.m., 6:52 p.m. to 7:48 p.m., and 9:14 p.m. to 10:08 p.m.; from 11:26 p.m. on September 13 to 12:32 a.m. on September 14; and from 1:12 a.m. to 1:26 a.m. on September 14. A current monitoring sensor in the Motor Control Center shut down the TW-3D well pump due to high heat caused by failure of the control building air conditioner. After troubleshooting, the set point of the sensor was adjusted so this will not happen in the future. Extraction system downtime was 4 hours 26 minutes.
- **September 19, 2017 (unplanned):** The extraction well system was offline from 11:00 a.m. to 1:02 p.m. to change out the microfilter modules due to high transmembrane pressure. The plant was

shut down to replace the fouled membranes with clean ones. Extraction system downtime was 2 hours 2 minutes.

- **September 26, 2017 (planned):** The extraction well system was offline from 4:50 a.m. to 5:50 a.m. because the Raw Water Storage Tank (T-100) was full and needed to have the water level lowered. Extraction system downtime was 1 hour.
- **September 27, 2017 (unplanned):** The extraction well system was offline from 9:36 a.m. to 11:14 a.m. to change out the microfilter modules due to high transmembrane pressure. The plant was shut down to replace the fouled membranes with clean ones. Extraction system downtime was 1 hour 38 minutes.

SECTION 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 2017, analysis of pH was conducted by field method pursuant to the Regional Water Board letter dated October 16, 2007 (subject: Clarification of Monitoring and Reporting Program Requirements), authorizing pH measurements to be conducted in the field. The field method pH samples were collected at the designated sampling locations and field tested within 15 minutes of sampling.

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

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

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

SECTION 6

Analytical Results

Laboratory reports for samples collected in the Third Quarter 2017 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

SECTION 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.

SECTION 8

Certification

Certification Statement:

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

Signature: 

Name: _____ Curt Russell

Company: _____ Pacific Gas and Electric Company

Title: _____ Topock Site Manager

Date: _____ October 13, 2017

Tables

Table 1. Sampling Station Descriptions*Third Quarter 2017 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.

^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 2017 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 2017 Average Monthly Flowrate	132.9	131.4	1.5
August 2017 Average Monthly Flowrate	118.2	118.8	0.7
September 2017 Average Monthly Flowrate	131.0	128.6	1.4

Notes:

gpm: gallons per minute

^a Extraction wells TW-3D and PE-1 were operated during the Third Quarter 2017.^b The difference between influent flow rate and the sum of the effluent and reverse osmosis concentrate flow rates during the Third Quarter 2017 is approximately 0.65 percent.

Table 3. Sample Collection Dates*Third Quarter 2017 Monitoring Report for Interim Measure No. 3 Groundwater Treatment System*

Parameter	Sample Collection Dates	Results
Influent	July 5, 2017	See Table 4
	August 1, 2017	
	September 5, 2017	
Effluent	July 5, 2017	See Table 5
	August 1, 2017	
	August 24, 2017	
	September 5, 2017	
Reverse Osmosis Concentrate	July 5, 2017	See Table 6
Sludge ^a	July 5, 2017	See Table 7

Notes:

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

TABLE 4

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

Influent Monitoring Results^a

Third Quarter 2017 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

Sampling Frequency		Monthly						Quarterly															
Analytes Units ^b	MDL	TDS mg/L	Turbidity NTU	Specific Conductance μmhos/cm	Field ^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	Fluoride mg/L	Lead μg/L	Manganese μg/L	Molybdenum μg/L	Nickel μg/L	Nitrate/Nitrite (as N) mg/L	Sulfate mg/L	Iron μg/L	Zinc μg/L
		50.0	0.100	0.100	---	0.0960	3.30	2.70	0.0111	0.0310	0.0250	0.0700	0.0380	0.260	0.0170	0.0370	0.0560	0.0390	0.0400	0.110	0.640	1.80	0.270
Sample ID	Date																						
SC-100B-WDR-560	7/5/2017	4600	0.330	7600	7.2	520	550	ND (50.0)	ND (0.0500)	ND (0.500)	2.90	28.0	0.970	ND (1.00)	2.50	ND (1.00)	7.70	21.0	ND (1.00)	3.00	500	ND (20.0)	ND (10.0)
RL		50.0	0.100	0.100	---	5.00	20.0	50.0	0.0500	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-561	8/1/2017	4000	0.240	6700	7.2	440	440	---	---	---	---	---	---	---	---	---	21.0	---	---	---	---	---	---
RL		50.0	0.100	0.100	---	5.00	20.0	---	---	---	---	---	---	---	---	---	0.500	---	---	---	---	---	---
SC-100B-WDR-564	9/5/2017	4300	0.230	7400	7.1	520	550	---	---	---	---	---	---	---	---	---	5.80	---	---	---	---	---	---
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

^a Sampling Location for all influent samples is tap on pipe from extraction wells into tank T-100 (see attached P&ID TP-PR-10-10-04).^b Units reported in this table are those units required in the ARARs.^c Starting 11/20/2007, analysis of pH was switched from California certified laboratory analysis to field method pursuant to the Water Board letter dated October 16, 2007 – Clarification of Monitoring and Reporting Program Requirements, stating that pH measurements may be conducted in the field.

TABLE 5

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

Effluent Monitoring Results^a

Third Quarter 2017 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

Effluent Limits ^b	Ave. Monthly	NA	NA	NA	6.5-8.4	25	8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Max Daily	NA	NA	NA	6.5-8.4	50	16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sampling Frequency		Monthly																						
Analytes Units ^c	TDS mg/L	Turbidity NTU	Specific Conductance $\mu\text{mhos}/\text{cm}$	Field pH	Hexavalent Chromium $\mu\text{g}/\text{L}$	Ammonia (as N) $\mu\text{g}/\text{L}$	Antimony $\mu\text{g}/\text{L}$	Arsenic $\mu\text{g}/\text{L}$	Barium $\mu\text{g}/\text{L}$	Boron $\mu\text{g}/\text{L}$	Copper $\mu\text{g}/\text{L}$	Fluoride $\mu\text{g}/\text{L}$	Lead $\mu\text{g}/\text{L}$	Manganese $\mu\text{g}/\text{L}$	Molybdenum $\mu\text{g}/\text{L}$	Nickel $\mu\text{g}/\text{L}$	Nitrate/Nitrite (as N) $\mu\text{g}/\text{L}$	Sulfate mg/L	Iron $\mu\text{g}/\text{L}$	Zinc $\mu\text{g}/\text{L}$				
MDL ^d	50.0	0.100	0.100	---	0.0190	0.0330	2.70	0.0111	0.0310	0.0250	0.0700	0.0380	0.260	0.0068	0.0370	0.0560	0.0390	0.0400	0.110	0.640	1.80	0.270		
Sample ID	Date																							
SC-700B-WDR-560	7/5/2017	4000	0.220	7000	7.0	ND (1.00)	ND (1.00)	ND (50.0)	ND (0.0500)	ND (0.500)	ND (0.100)	15.0	0.940	ND (1.00)	2.10	ND (1.00)	0.940	21.0	ND (1.00)	2.80	450	33.0	ND (10.0)	
RL		50.0	0.100	0.100	---	1.00	1.00	50.0	0.0500	0.500	0.100	1.00	0.100	1.00	0.200	1.00	0.500	0.500	1.00	0.250	25.0	20.0	10.0	
SC-700B-WDR-561	8/1/2017	3900	0.160	6800	6.8	ND (1.00)	ND (0.200)	ND (50.0)	ND (0.0500)	ND (0.500)	ND (0.100)	12.0	0.980	ND (1.00)	2.30	ND (1.00)	1.20	19.0	ND (1.00)	2.60	470	ND (20.0)	ND (10.0)	
RL		50.0	0.100	0.100	---	1.00	0.200	50.0	0.0500	0.500	0.100	1.00	0.100	1.00	0.500	1.00	0.500	0.500	1.00	0.250	25.0	20.0	10.0	
SC-700B-WDR-563	8/24/2017	3800	0.250	6600	7.1	ND (1.00)	ND (0.200)	ND (50.0)J	0.250	ND (0.500)	0.440	9.60	1.10	14.0 J	2.40	ND (1.00)	31.0	33.0	2.90	2.30	410	72.0	ND (10.0)	
RL		50.0	0.100	0.100	---	1.00	0.200	50.0	0.0500	0.500	0.100	1.00	0.100	1.00	0.500	1.00	0.500	0.500	1.00	0.250	25.0	20.0	10.0	
SC-700B-WDR-564	9/5/2017	3900	0.320	6900	6.8	ND (1.00)	ND (0.200)	ND (50.0)	ND (0.0500)	ND (0.500)	0.170	13.0	1.10	ND (1.00)J	2.40	ND (1.00)	4.50	19.0	1.10	2.70	450	34.0	ND (10.0)	
RL		50.0	0.100	0.100	---	1.00	0.200	50.0	0.0500	0.500	0.100	1.00	0.100	1.00	0.500	1.00	0.500	0.500	1.00	0.250	25.0	20.0	10.0	

NOTES:

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

J = concentration or reporting limits estimated by laboratory or validation

MDL = method detection limit

mg/L = milligrams per liter

N = nitrogen

NA = not applicable

ND = parameter not detected at the listed value

NTU = nephelometric turbidity units

RL = project reporting limit

 $\mu\text{g}/\text{L}$ = micrograms per liter $\mu\text{mhos}/\text{cm}$ = micromhos per centimeter^a Sampling location for all effluent samples is tap on pipe downstream from tank T-700 to injection wells (see attached P&ID TP-PR-10-10-04).^b In addition to the listed effluent limits, the ARARs state that the effluent shall not contain heavy metals, chemicals, pesticides or other constituents in concentrations toxic to human health.^c Units reported in this table are those units required in the ARARs.^d MDL listed is the target MDL by analysis method; however, the MDL may change for each sample analysis due to the dilution required by the matrix to meet the method QC requirements. The target MDL for each method/analyte combination is calculated annually.^e Starting 11/20/2007, analysis of pH was switched from California certified laboratory analysis to field method pursuant to the Water Board letter dated October 16, 2007 – Clarification of Monitoring and Reporting Program Requirements, stating that pH measurements may be conducted in the field.

TABLE 6

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

Reverse Osmosis Concentrate Monitoring Results^a

Third Quarter 2017 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

Sampling Frequency		Quarterly																					
Sample ID	Analytes Units ^b	TDS	Specific Conductance	Field ^c pH	Chromium	Hexavalent Chromium	Antimony	Arsenic	Barium	Beryllium	Cadmium	Cobalt	Copper	Fluoride	Lead	Molybdenum	Mercury	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
		mg/L	µmhos/cm	pH units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	
		500	0.100	---	0.000096	0.0016	0.00079	0.00012	0.00035	0.0011	0.0012	0.00013	0.0013	0.0680	0.00092	0.00097	0.000087	0.00020	0.00014	0.0015	0.00074	0.00011	0.0013
SC-701-WDR-560	7/5/2017	48000	62000	8.6	ND (0.0050)	ND (0.0050)	ND (0.0120)	0.00150	0.190	ND (0.0120)	ND (0.0120)	ND (0.0025)	ND (0.0050)	26.0	ND (0.0250)	0.260	ND (0.00020)	0.0130	0.0420	ND (0.0120)	ND (0.0120)	ND (0.0050)	ND (0.0500)
	RL	500	0.100	---	0.0050	0.0050	0.0120	0.00050	0.0050	0.0120	0.0120	0.0025	0.0050	2.00	0.0250	0.0120	0.00020	0.0050	0.0025	0.0120	0.0120	0.0050	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

^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 2017 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

Sampling Frequency		Quarterly																Annually				
Sample ID	Date	Analytes	Hexavalent Chromium		Antimony	Arsenic	Barium	Beryllium	Cadmium	Cobalt	Copper	Fluoride	Lead	Molybdenum	Mercury	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc	Bioassay
			Chromium	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	% Survival	
		MDL	0.0900	0.230	0.410	0.480	0.0950	0.0850	0.0810	0.0810	0.0890	1.10	0.0890	0.0790	0.0270	0.0940	0.350	0.0910	0.360	0.0820	0.140	at 750 mg/L ^c
Phase Separator-560-Sludge	7/5/2017	3100	75.0 J	ND (4.50)	14.0	60.0	ND (2.20)	ND (2.20)	3.90	130	31.0	ND (2.20)	2.70	ND (0.220)	28.0	ND (2.20)	ND (2.20)	9.90	40.0	36.0	100	
		RL		2.20	2.20	4.50	2.20	2.20	2.20	2.20	4.50	4.50	2.20	2.20	0.220	2.20	2.20	2.20	4.50	2.20	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 kilogram

mg/L = milligrams per liter

MDL = method detection limit

ND = parameter not detected at the listed reporting limit

RL = project reporting limit

^a Sampling location for all sludge samples is the sludge collection bin (see attached P&ID TP-PR-10-10-06).^b Units reported in this table are those units required in the ARARs.^c Sludge samples analysis is required quarterly by composite; sludge samples were collected from each container prior to shipment off-site, and combined for the composite sample of the preceding quarter.

TABLE 8

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

Monitoring Information

Third Quarter 2017 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-560	Josh Rosenberg	7/5/2017	2:06:00 PM	ASSET	EPA 120.1	SC	7/6/2017	Ryan Balilu
					ASSET	EPA 200.7	AL	7/18/2017	Claire Ignacio
					ASSET	EPA 200.7	B	7/18/2017	Claire Ignacio
					ASSET	EPA 200.7	FE	7/18/2017	Claire Ignacio
					ASSET	EPA 200.8	AS	7/24/2017	Claire Ignacio
					ASSET	EPA 200.8	BA	7/25/2017	Claire Ignacio
					ASSET	EPA 200.8	CR	7/24/2017	Claire Ignacio
					ASSET	EPA 200.8	CU	7/24/2017	Claire Ignacio
					ASSET	EPA 200.8	MN	7/24/2017	Claire Ignacio
					ASSET	EPA 200.8	MO	7/24/2017	Claire Ignacio
					ASSET	EPA 200.8	NI	7/24/2017	Claire Ignacio
					ASSET	EPA 200.8	PB	7/24/2017	Claire Ignacio
					ASSET	EPA 200.8	SB	7/24/2017	Claire Ignacio
					ASSET	EPA 200.8	ZN	7/24/2017	Claire Ignacio
					ASSET	EPA 218.6	CR6	7/6/2017	Ria Abes
					ASSET	EPA 300.0	FL	7/6/2017	Ria Abes
					ASSET	EPA 300.0	SO4	7/6/2017	Ria Abes
					ASSET	SM 2540C	TDS	7/6/2017	Quennie Manintim
					ASSET	SM 4500-NO3F	NO3NO2N	7/10/2017	Ryan Balilu
					ASSET	SM2130B	TRB	7/6/2017	Ryan Balilu
				2:27:00 PM	TLI	SM4500NH3D	NH3N	7/15/2017	Ryan Balilu
					Field	HACH	PH	7/5/2017	Josh Rosenberg
SC-100B	SC-100B-WDR-561	Ryan Phelps	8/1/2017	10:35:00 AM	ASSET	EPA 120.1	SC	8/2/2017	Lilia Ramit
					ASSET	EPA 200.8	CR	8/9/2017	Claire Ignacio
					ASSET	EPA 200.8	MN	8/9/2017	Claire Ignacio
					ASSET	EPA 218.6	CR6	8/2/2017	Ria Abes
					Field	HACH	PH	8/1/2017	Ryan Phelps
					ASSET	SM 2540C	TDS	8/2/2017	Lilia Ramit
					ASSET	SM2130B	TRB	8/2/2017	Lilia Ramit
SC-100B	SC-100B-WDR-564	Ronnie Phelps	9/5/2017	10:05:00 AM	ASSET	EPA 120.1	SC	9/6/2017	Lilia Ramit
					ASSET	EPA 200.8	CR	9/18/2017	Claire Ignacio
					ASSET	EPA 200.8	MN	9/11/2017	Claire Ignacio
					ASSET	EPA 218.6	CR6	9/6/2017	Ria Abes
					ASSET	SM 2540C	TDS	9/6/2017	Lilia Ramit
					ASSET	SM2130B	TRB	9/6/2017	Lilia Ramit

TABLE 8

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

Monitoring Information

Third Quarter 2017 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-564	Ronnie Phelps	9/5/2017	11:05:00 AM	Field	HACH	PH	9/5/2017	Ryan Phelps
SC-700B	SC-700B-WDR-560	Josh Rosenberg	7/5/2017	2:10:00 PM	ASSET	EPA 120.1	SC	7/6/2017	Ryan Balilu
					ASSET	EPA 200.7	AL	7/18/2017	Claire Ignacio
					ASSET	EPA 200.7	B	7/18/2017	Claire Ignacio
					ASSET	EPA 200.7	FE	7/18/2017	Claire Ignacio
					ASSET	EPA 200.8	AS	7/24/2017	Claire Ignacio
					ASSET	EPA 200.8	BA	7/25/2017	Claire Ignacio
					ASSET	EPA 200.8	CR	7/24/2017	Claire Ignacio
					ASSET	EPA 200.8	CU	7/24/2017	Claire Ignacio
					ASSET	EPA 200.8	MN	7/24/2017	Claire Ignacio
					ASSET	EPA 200.8	MO	7/24/2017	Claire Ignacio
					ASSET	EPA 200.8	NI	7/24/2017	Claire Ignacio
					ASSET	EPA 200.8	PB	7/24/2017	Claire Ignacio
					ASSET	EPA 200.8	SB	7/24/2017	Claire Ignacio
					ASSET	EPA 200.8	ZN	7/24/2017	Claire Ignacio
					ASSET	EPA 218.6	CR6	7/6/2017	Ria Abes
					ASSET	EPA 300.0	FL	7/6/2017	Ria Abes
					ASSET	EPA 300.0	SO4	7/6/2017	Ria Abes
					Field	HACH	PH	7/5/2017	Josh Rosenberg
					ASSET	SM 2540C	TDS	7/6/2017	Quennie Manintim
					ASSET	SM 4500-NO3F	NO3NO2N	7/10/2017	Ryan Balilu
					ASSET	SM2130B	TRB	7/6/2017	Ryan Balilu
					TLI	SM4500NH3D	NH3N	7/15/2017	Ryan Balilu
SC-700B	SC-700B-WDR-561	Ryan Phelps	8/1/2017	10:30:00 AM	ASSET	EPA 120.1	SC	8/2/2017	Lilia Ramit
					ASSET	EPA 200.7	AL	8/10/2017	Claire Ignacio
					ASSET	EPA 200.7	B	8/10/2017	Claire Ignacio
					ASSET	EPA 200.7	FE	8/10/2017	Claire Ignacio
					ASSET	EPA 200.8	AS	8/9/2017	Claire Ignacio
					ASSET	EPA 200.8	BA	8/9/2017	Claire Ignacio
					ASSET	EPA 200.8	CR	8/9/2017	Claire Ignacio
					ASSET	EPA 200.8	CU	8/9/2017	Claire Ignacio
					ASSET	EPA 200.8	MN	8/9/2017	Claire Ignacio
					ASSET	EPA 200.8	MO	8/9/2017	Claire Ignacio
					ASSET	EPA 200.8	NI	8/9/2017	Claire Ignacio
					ASSET	EPA 200.8	PB	8/9/2017	Claire Ignacio

TABLE 8

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

Monitoring Information

Third Quarter 2017 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-561	Ryan Phelps	8/1/2017	10:30:00 AM	ASSET	EPA 200.8	SB	8/9/2017	Claire Ignacio
					ASSET	EPA 200.8	ZN	8/9/2017	Claire Ignacio
					ASSET	EPA 218.6	CR6	8/2/2017	Ria Abes
					ASSET	EPA 300.0	FL	8/2/2017	Ria Abes
					ASSET	EPA 300.0	SO4	8/2/2017	Ria Abes
					Field	HACH	PH	8/1/2017	Ryan Phelps
					ASSET	SM 2540C	TDS	8/2/2017	Lilia Ramit
					ASSET	SM 4500-NO3F	NO3NO2N	8/15/2017	Ryan Balilu
					ASSET	SM2130B	TRB	8/2/2017	Lilia Ramit
					TLI	SM4500NH3D	NH3N	8/13/2017	Ryan Balilu
SC-700B	SC-700B-WDR-563	Josh Rosenberg	8/24/2017	1:45:00 PM	ASSET	EPA 120.1	SC	8/25/2017	Lilia Ramit
					ASSET	EPA 200.7	AL	9/7/2017	Quennie Manimtim
					ASSET	EPA 200.7	B	9/7/2017	Quennie Manimtim
					ASSET	EPA 200.7	FE	9/7/2017	Quennie Manimtim
					ASSET	EPA 200.8	AS	8/31/2017	Quennie Manimtim
					ASSET	EPA 200.8	BA	8/31/2017	Quennie Manimtim
					ASSET	EPA 200.8	CR	8/31/2017	Quennie Manimtim
					ASSET	EPA 200.8	CU	8/31/2017	Quennie Manimtim
					ASSET	EPA 200.8	MN	8/31/2017	Quennie Manimtim
					ASSET	EPA 200.8	MO	8/31/2017	Quennie Manimtim
					ASSET	EPA 200.8	NI	8/31/2017	Quennie Manimtim
					ASSET	EPA 200.8	PB	8/31/2017	Quennie Manimtim
					ASSET	EPA 200.8	SB	8/31/2017	Quennie Manimtim
					ASSET	EPA 200.8	ZN	8/31/2017	Quennie Manimtim
					ASSET	EPA 218.6	CR6	8/25/2017	Ria Abes
					ASSET	EPA 300.0	FL	8/25/2017	Ria Abes
					ASSET	EPA 300.0	SO4	8/25/2017	Ria Abes
					Field	HACH	PH	8/24/2017	Josh Rosenberg
					ASSET	SM 2540C	TDS	8/28/2017	Lilia Ramit
					ASSET	SM 4500-NO3F	NO3NO2N	9/7/2017	Claire Ignacio
					ASSET	SM2130B	TRB	8/25/2017	Lilia Ramit
					TLI	SM4500NH3D	NH3N	9/3/2017	Claire Ignacio
SC-700B	SC-700B-WDR-564	Ronnie Phelps	9/5/2017	10:00:00 AM	ASSET	EPA 120.1	SC	9/6/2017	Lilia Ramit
					ASSET	EPA 200.7	AL	9/7/2017	Claire Ignacio
					ASSET	EPA 200.7	B	9/7/2017	Claire Ignacio

TABLE 8

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

Monitoring Information

Third Quarter 2017 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-564	Ronnie Phelps	9/5/2017	10:00:00 AM	ASSET	EPA 200.7	FE	9/7/2017	Claire Ignacio
					ASSET	EPA 200.8	AS	9/11/2017	Claire Ignacio
					ASSET	EPA 200.8	BA	9/18/2017	Claire Ignacio
					ASSET	EPA 200.8	CR	9/11/2017	Claire Ignacio
					ASSET	EPA 200.8	CU	9/19/2017	Claire Ignacio
					ASSET	EPA 200.8	MN	9/11/2017	Claire Ignacio
					ASSET	EPA 200.8	MO	9/11/2017	Claire Ignacio
					ASSET	EPA 200.8	NI	9/11/2017	Claire Ignacio
					ASSET	EPA 200.8	PB	9/11/2017	Claire Ignacio
					ASSET	EPA 200.8	SB	9/11/2017	Claire Ignacio
					ASSET	EPA 200.8	ZN	9/11/2017	Claire Ignacio
					ASSET	EPA 218.6	CR6	9/6/2017	Ria Abes
					ASSET	EPA 300.0	FL	9/6/2017	Ria Abes
					ASSET	EPA 300.0	SO4	9/6/2017	Ria Abes
					ASSET	SM 2540C	TDS	9/6/2017	Lilia Ramit
					ASSET	SM 4500-NO3F	NO3NO2N	9/11/2017	Quennie Manimtim
					ASSET	SM2130B	TRB	9/6/2017	Lilia Ramit
				11:00:00 AM	TLI	SM4500NH3D	NH3N	9/14/2017	Quennie Manimtim
					Field	HACH	PH	9/5/2017	Ryan Phelps
SC-701	SC-701-WDR-560	Josh Rosenberg	7/5/2017	2:15:00 PM	ASSET	EPA 120.1	SC	7/6/2017	Ryan Balilu
					ASSET	EPA 200.8	AG	7/24/2017	Claire Ignacio
					ASSET	EPA 200.8	AS	7/24/2017	Claire Ignacio
					ASSET	EPA 200.8	BA	7/25/2017	Claire Ignacio
					ASSET	EPA 200.8	BE	7/24/2017	Claire Ignacio
					ASSET	EPA 200.8	CD	7/24/2017	Claire Ignacio
					ASSET	EPA 200.8	CO	7/24/2017	Claire Ignacio
					ASSET	EPA 200.8	CR	7/24/2017	Claire Ignacio
					ASSET	EPA 200.8	CU	7/24/2017	Claire Ignacio
					ASSET	EPA 200.8	MN	7/24/2017	Claire Ignacio
					ASSET	EPA 200.8	MO	7/24/2017	Claire Ignacio
					ASSET	EPA 200.8	NI	7/24/2017	Claire Ignacio
					ASSET	EPA 200.8	PB	7/25/2017	Claire Ignacio
					ASSET	EPA 200.8	SB	7/24/2017	Claire Ignacio
					ASSET	EPA 200.8	SE	7/24/2017	Claire Ignacio
					ASSET	EPA 200.8	TL	7/25/2017	Claire Ignacio
					ASSET	EPA 200.8	V	7/24/2017	Claire Ignacio

TABLE 8

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

Monitoring Information

Third Quarter 2017 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-560	Josh Rosenberg	7/5/2017	2:15:00 PM	ASSET	EPA 200.8	ZN	7/24/2017	Claire Ignacio
					ASSET	EPA 218.6	CR6	7/6/2017	Ria Abes
					ASSET	EPA 245.1	HG	7/7/2017	Claire Ignacio
					ASSET	EPA 300.0	FL	7/6/2017	Ria Abes
					Field	HACH	PH	7/5/2017	Josh Rosenberg
					ASSET	SM 2540C	TDS	7/6/2017	Quennie Manintim
Phase Separator	Phase Separator-560-Sludge	Josh Rosenberg	7/5/2017	2:45:00 PM	ASSET	EPA 300.0	FL	7/6/2017	Ria Abes
					ASSET	EPA 6010B	AG	7/11/2017	Claire Ignacio
					ASSET	EPA 6010B	AS	7/12/2017	Claire Ignacio
					ASSET	EPA 6010B	BA	7/11/2017	Claire Ignacio
					ASSET	EPA 6010B	BE	7/11/2017	Claire Ignacio
					ASSET	EPA 6010B	CD	7/11/2017	Claire Ignacio
					ASSET	EPA 6010B	CO	7/11/2017	Claire Ignacio
					ASSET	EPA 6010B	CR	7/11/2017	Claire Ignacio
					ASSET	EPA 6010B	CU	7/11/2017	Claire Ignacio
					ASSET	EPA 6010B	MN	7/11/2017	Claire Ignacio
					ASSET	EPA 6010B	MO	7/11/2017	Claire Ignacio
					ASSET	EPA 6010B	NI	7/11/2017	Claire Ignacio
					ASSET	EPA 6010B	PB	7/11/2017	Claire Ignacio
					ASSET	EPA 6010B	SB	7/11/2017	Claire Ignacio
					ASSET	EPA 6010B	SE	7/11/2017	Claire Ignacio
					ASSET	EPA 6010B	TL	7/12/2017	Claire Ignacio
					ASSET	EPA 6010B	V	7/11/2017	Claire Ignacio
					ASSET	EPA 6010B	ZN	7/11/2017	Claire Ignacio
					ASSET	EPA 7471A	HG	7/7/2017	Claire Ignacio
					ASSET	SW 7199	CR6	7/7/2017	Ria Abes

TABLE 8

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

Monitoring Information

*Third Quarter 2017 Monitoring Report for Interim Measure No.3 Groundwater Treatment System***NOTES:**

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

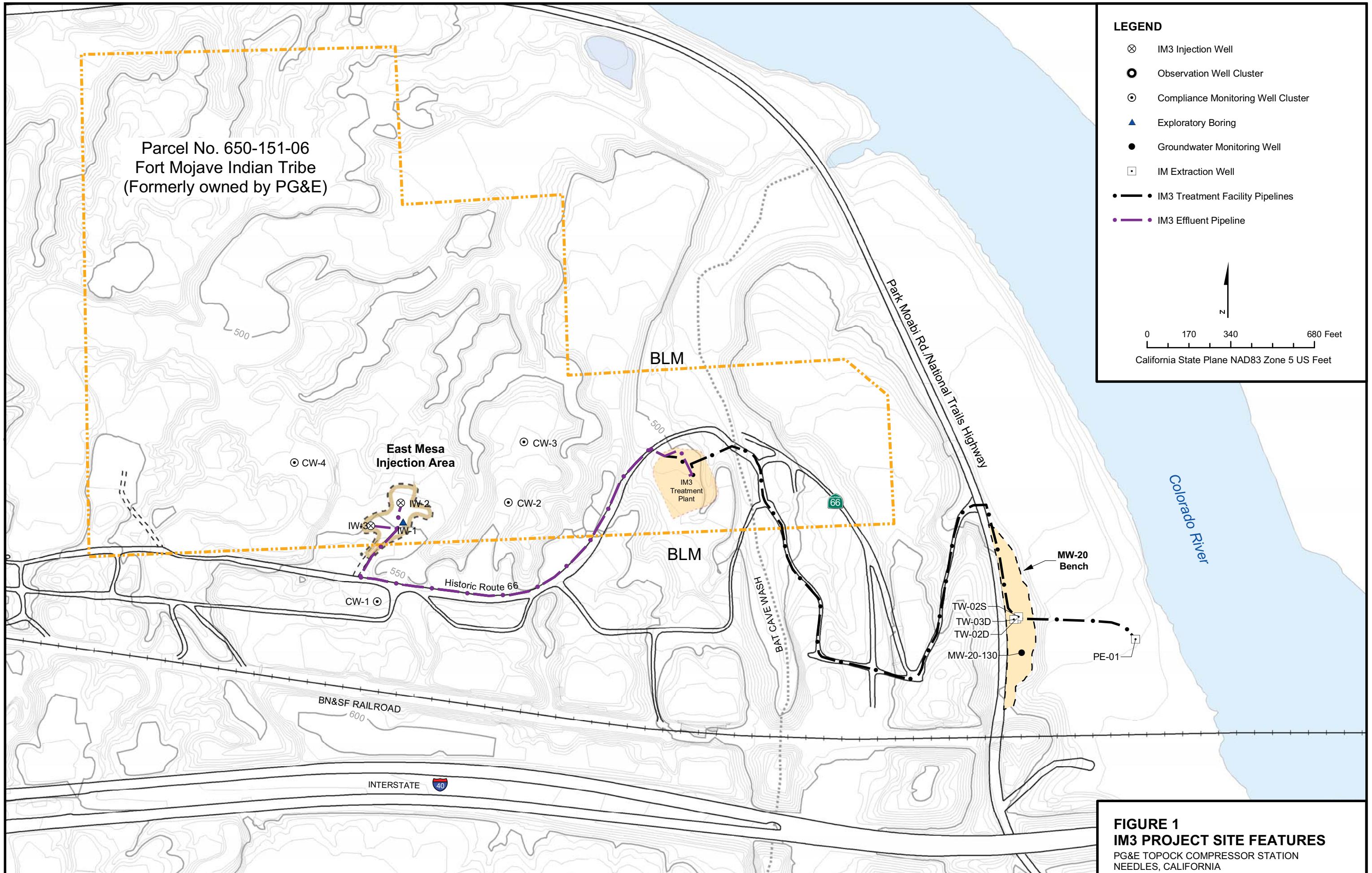
SC-100B = Sampling location for all influent samples is tap on pipe from extraction wells into tank T-100 (see attached P&ID TP-PR-10-10-04).

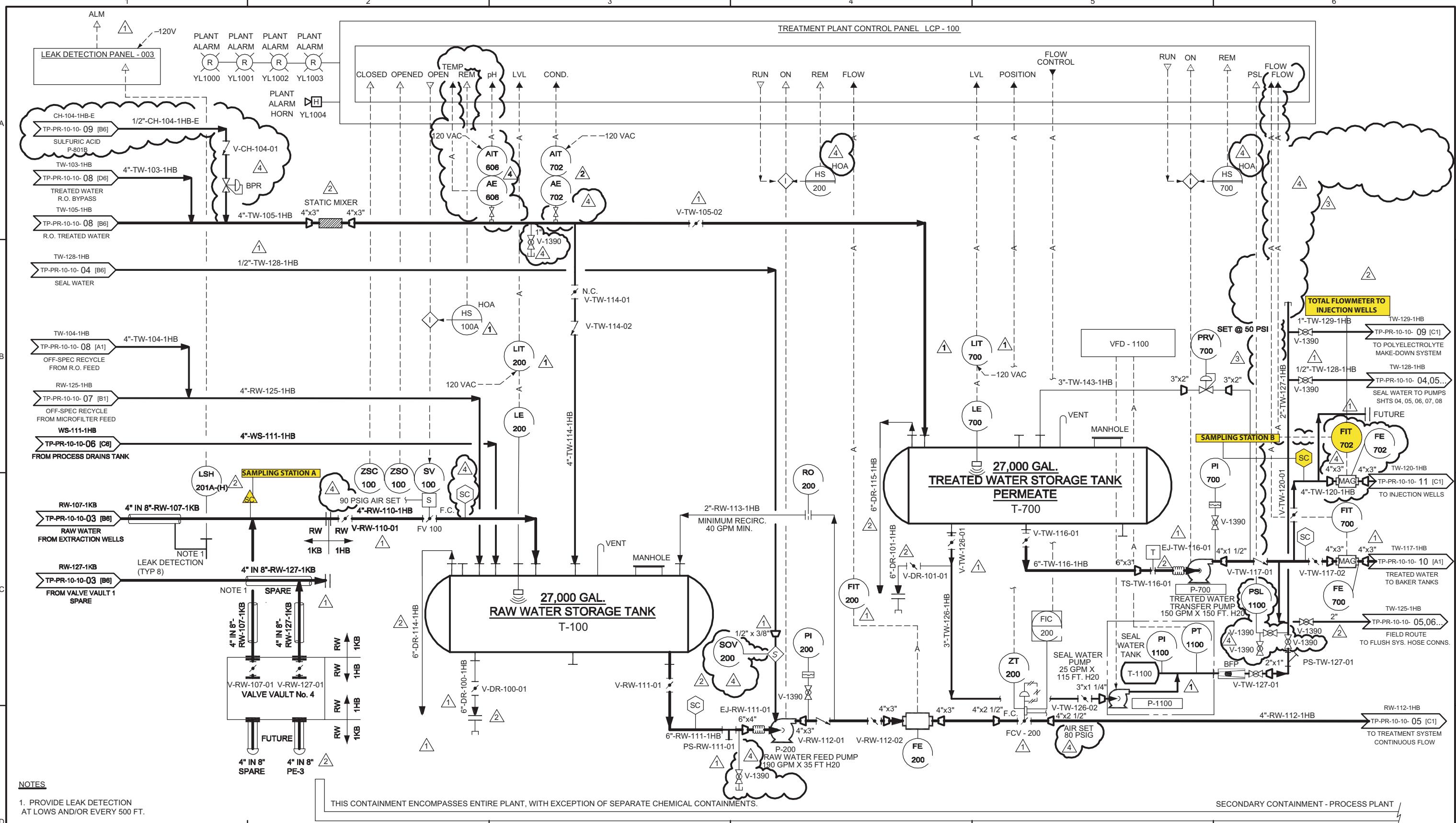
SC-701 = Sampling location for all reverse osmosis samples is tap on pipe T-701 (see attached P&ID PR-10-04).

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

ALKB =	alkalinity, bicarb as CaCO ₃	MO =	molybdenum
ALKC =	alkalinity, carb as CaCO ₃	MOIST =	moisture
AL =	aluminum	NH3N =	ammonia (as N)
Ag =	silver	NI =	nickel
AS =	arsenic	NO ₃ NO ₂ N =	nitrate/nitrite (as N)
B =	boron	PB =	lead
BA =	barium	PH =	pH
BE =	beryllium	SB =	antimony
CD =	cadmium	SC =	specific conductance
CO =	cobalt	SE =	selenium
CR =	chromium	SO ₄ =	sulfate
CR6 =	hexavalent chromium	TDS =	total dissolved solids
CU =	copper	TL =	thallium
FE =	iron	TLI =	Truesdail Laboratories, Inc.
FETD =	iron, dissolved	TRB =	turbidity
FL =	fluoride	V =	vanadium
HG =	mercury	ZN =	zinc
MN =	manganese		
MND =	manganese, dissolved		

Figures





RESPONSIBLE ENGINEER: Kenneth L. Martins PE # CH4876 Exp. 4-30-06	NO.	DATE	REVISION	BY	CHK	REVISION APPROVAL	REV	DATE 09/21/05	PRINT DISTRIBUTION	STATUS					PACIFIC GAS & ELECTRIC CO. TOPock COMPRESSOR STATION INTERIM MEASURE 3 EXPANDED GROUNDWATER EXTRACTION AND TREATMENT SYSTEM	PROCESS AND INSTRUMENTATION DIAGRAM SHEET 04 STORAGE AREA
										ISSUED	REV	DATE	SDE	PEM		
	D	07/28/04	FOR INTERNAL REVIEW	EFC	AJ	DISCIPLINE	REVIEWED	DISCIPLINE	REVIEWED	DATE						
	O	09/03/04	APPROVED FOR CONSTRUCTION	EFC	AJ	CIVIL		ELECTRICAL		STATUS						
1	10/13/04	REVISED AND APPROVED FOR CONSTRUCTION	EFC	AJ	STRUCTURAL		INST & CONTROL		REV.	PRELIMINARY	D	07/28/04				
2	01/23/05	REVISED AND APPROVED FOR CONSTRUCTION	EFC	AJ	MECHANICAL		ARCHITECTURAL		CLIENT	APPROVED FOR CONSTRUCTION	O	09/03/04	KLM	TP		
3	02/14/05	ADDED RECIRC. LINE AND PRV VALVE TO T-700 - APPROVED FOR CONSTRUCTION	EFC	AJ	PROCESS		ENVIRONMENTAL		FIELD	REVISED & APPROVED FOR CONSTRUCTION	4	/	/			PROJ NO. 315994
4	09/21/05	REVISED PER AS-BUILT CONDITIONS	EFC	AJ	PIPELINE		GEN. ARRANG.		INTRA CO.							

BAR IS ONE INCH
ON ORIGINAL DRAWING

SCALE NONE

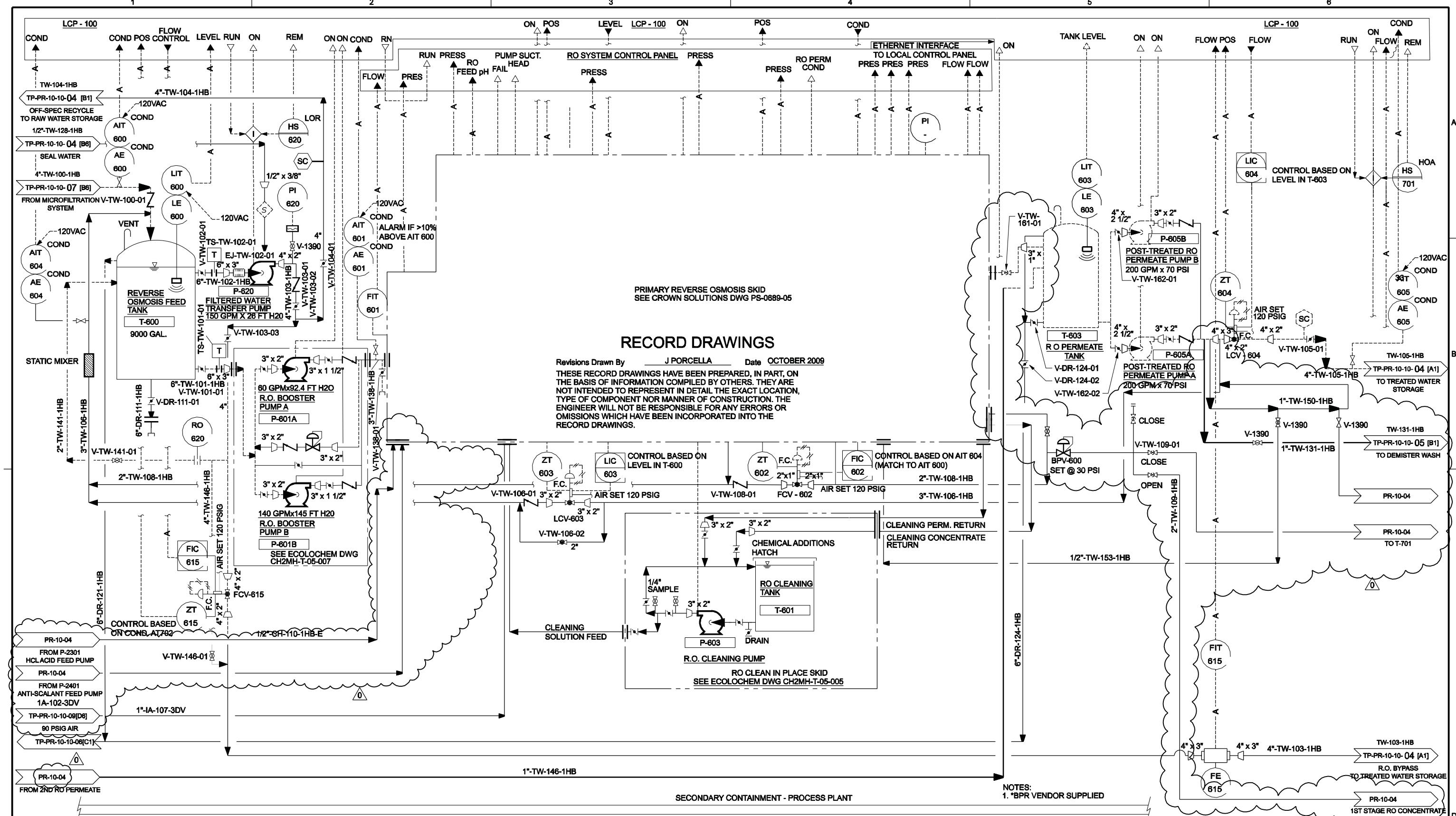
CH2MHILL

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

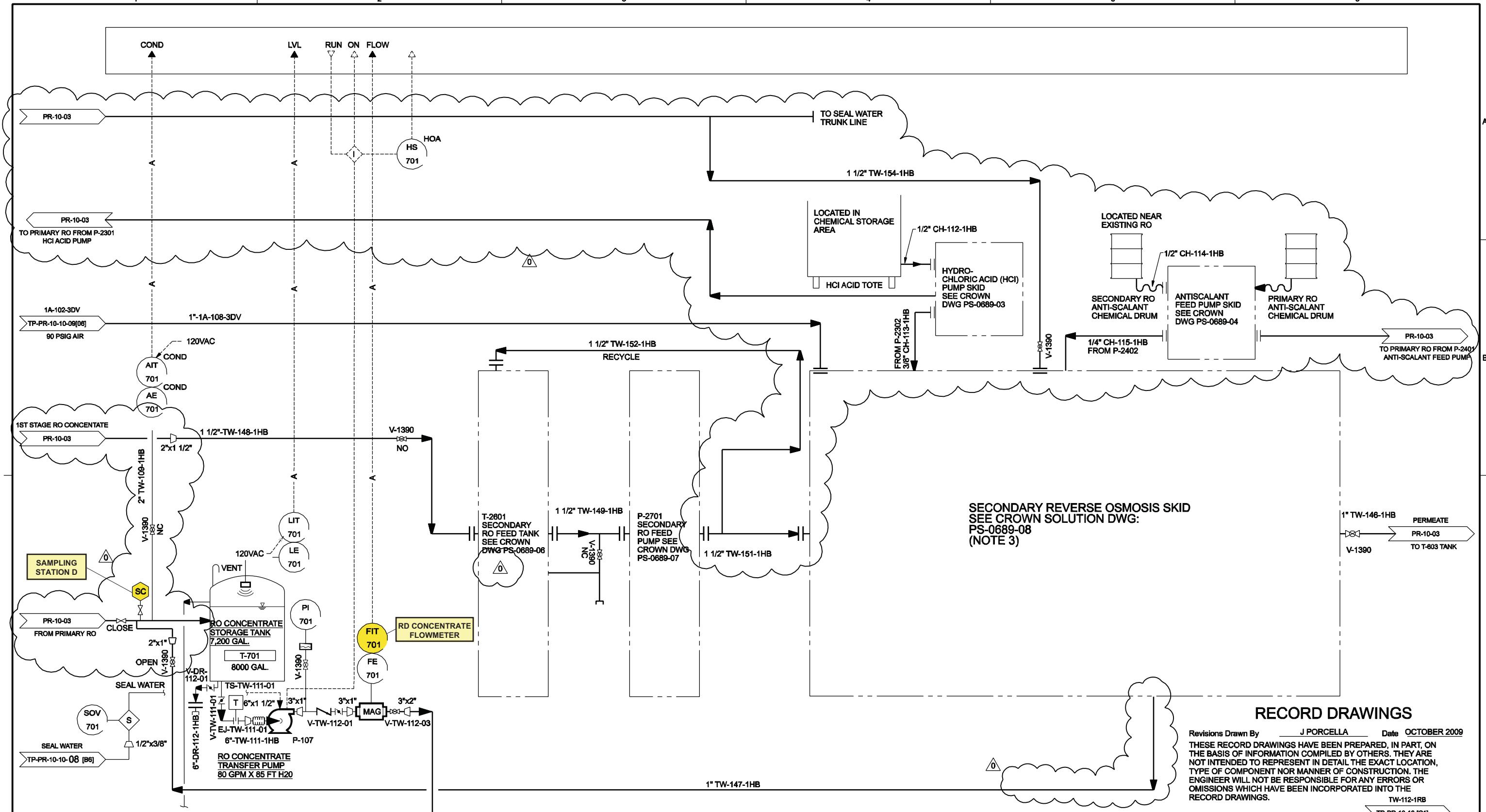
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PLOT DATE: 21-SEP-2005

PLOT TIME:



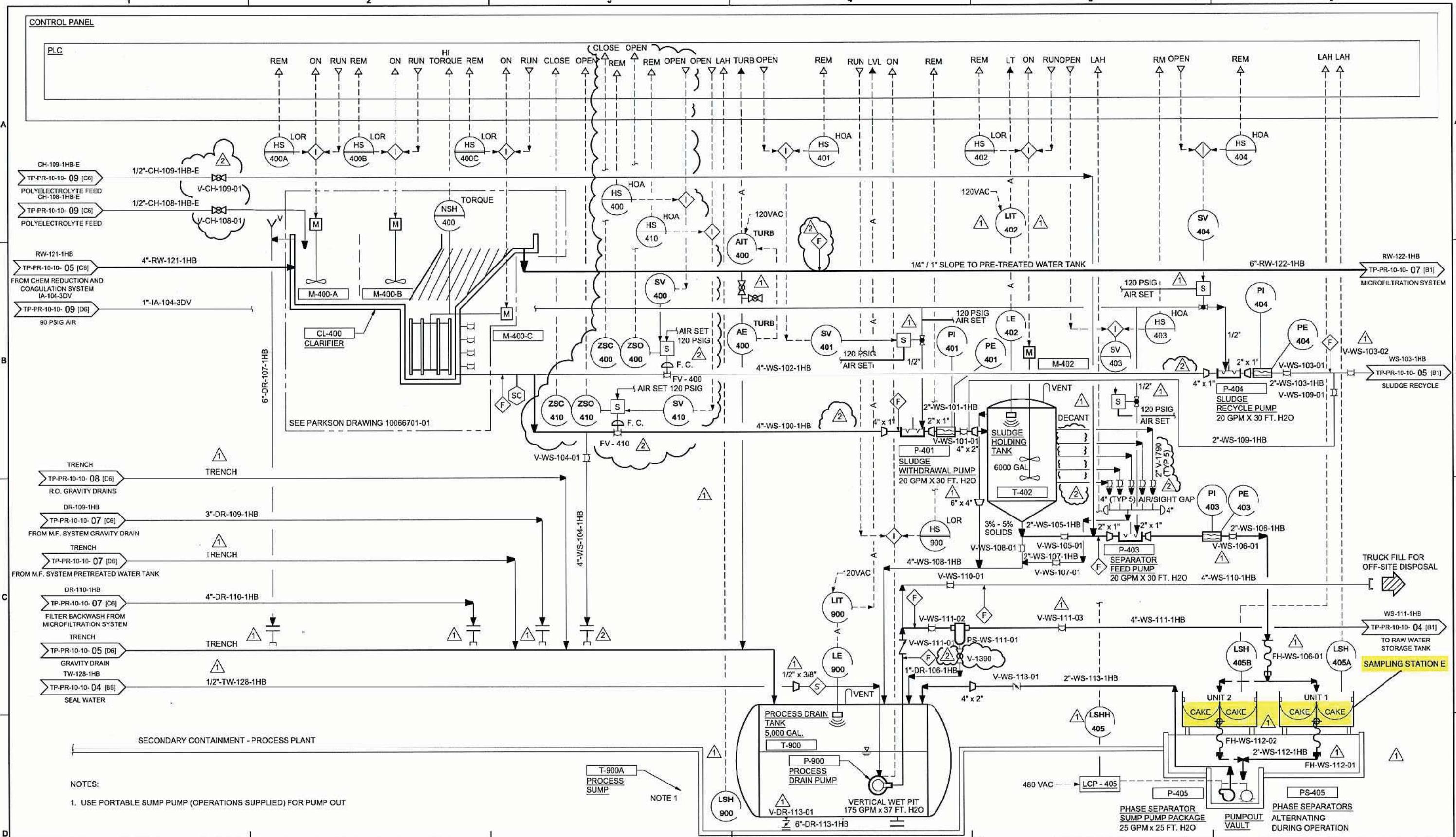
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			C	D			DISCIPLINE	REVIEWED			DISCIPLINE	REVIEWED	DATE	SDE	PEM	ISSUED	REV	DATE	SDE	PEM
A	2/12/09	INTERNAL REVIEW					CIVIL	SJ	ELECTRICAL	FH	STATUS		PRELIMINARY	A	2/12/09	JP	JP			
B	2/12/09	CLIENT REVIEW					STRUCTURAL		INST & CONTROL	JG	REV.		FOR REVIEW AND APPROVAL	C	4/01/09	JP	JP			
C	4/01/09	FOR REVIEW AND APPROVAL					MECHANICAL	SJ	ARCHITECTURAL		CLIENT		APPROVED FOR CONSTRUCTION							
O	11/17/09	FINAL RECORD ISSUE					PROCESS	DF	ENVIRONMENTAL		FIELD		REVISED & APPROVED FOR CONSTRUCTION	0	10/02/09	JP	JP		PROJ NO. 362032	
							PIPELINE	SJ	GEN. ARRANG.	SJ	INTRA CO.								SCALE NONE	
																			CH2MHILL	
																			DWG. NO. PR - 10 - 03	REV. 0



RECORD DRAWINGS

Revisions Drawn By J PORCELLA Date OCTOBER 2009
 THESE RECORD DRAWINGS HAVE BEEN PREPARED, IN PART, ON THE BASIS OF INFORMATION COMPILED BY OTHERS. THEY ARE NOT INTENDED TO REPRESENT IN DETAIL THE EXACT LOCATION, TYPE OF COMPONENT NOR MANNER OF CONSTRUCTION. THE ENGINEER WILL NOT BE RESPONSIBLE FOR ANY ERRORS OR OMISSIONS WHICH HAVE BEEN INCORPORATED INTO THE RECORD DRAWINGS.

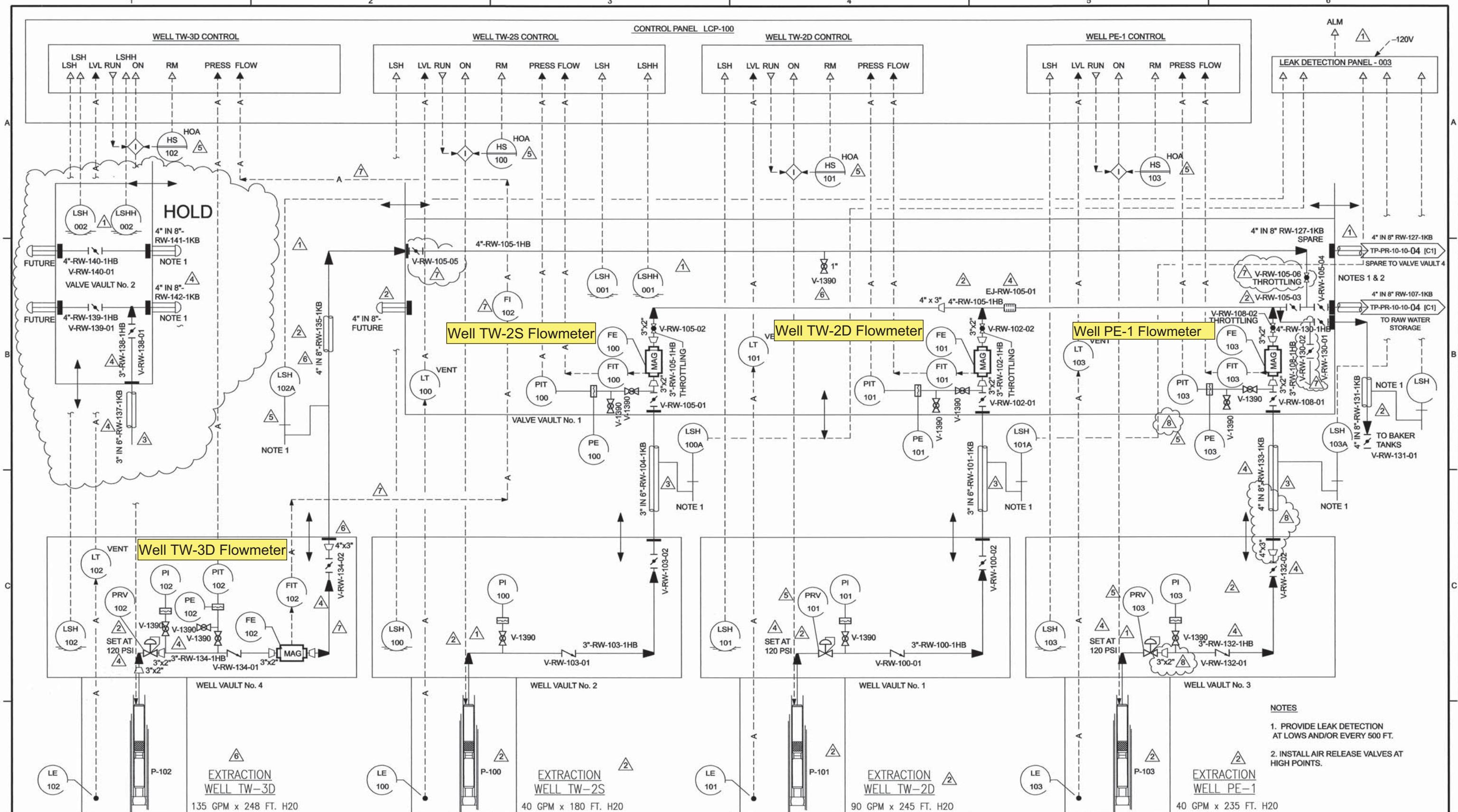
** ORIGINALLY STAMPED AND SIGNED BY: JOHN PORCELLA CALIFORNIA PE NO. C70145 ON 04-01-2009 **	RESPONSIBLE ENGINEER: John Porcella C70145 PE#	NO.	DATE	REVISION	BY	CHK	REVISION APPROVAL	REV 0	DATE 10/02/09	PRINT DISTRIBUTION	STATUS					PACIFIC GAS & ELECTRIC CO. TOPOCK COMPRESSOR STATION INTERIM MEASURE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



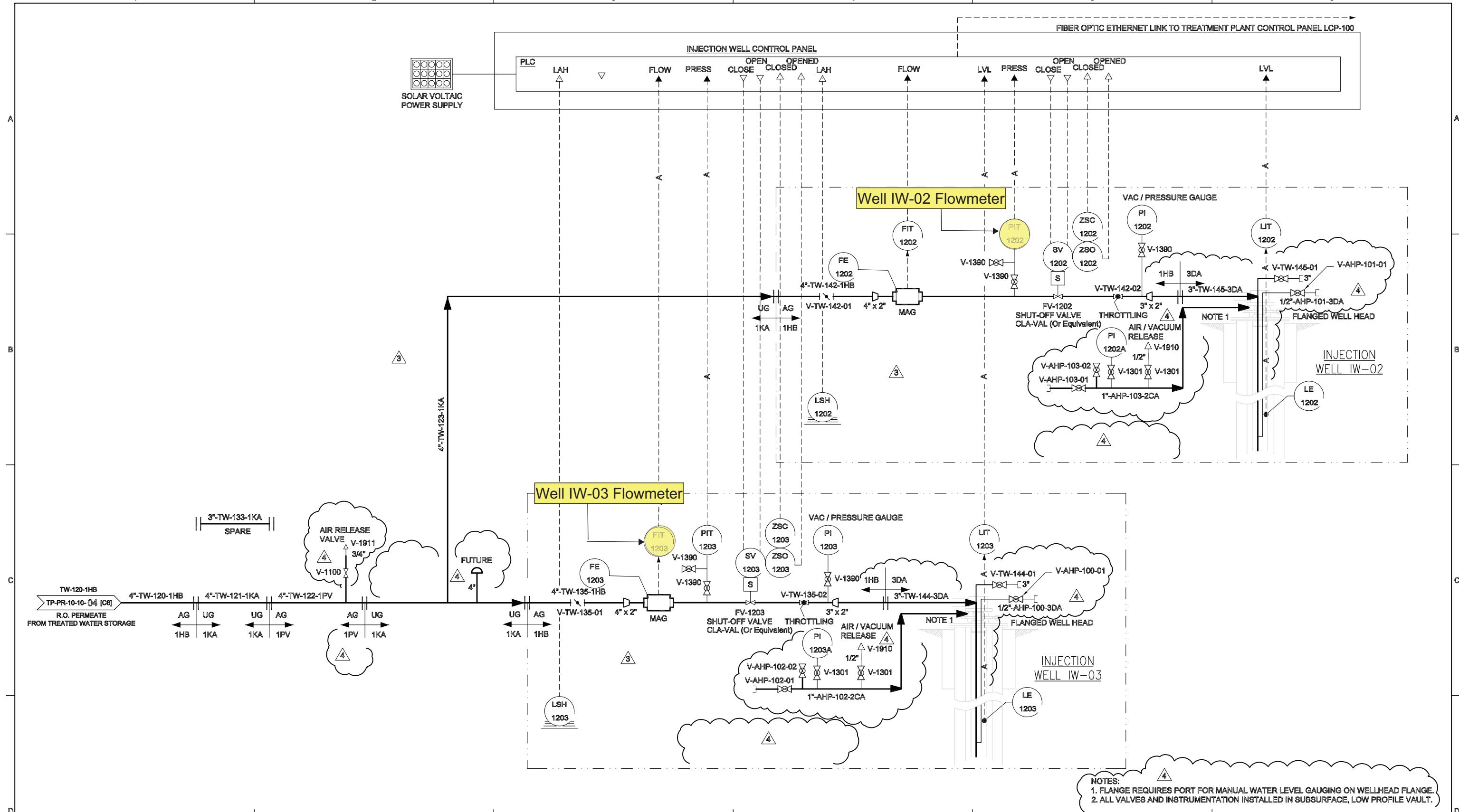
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REUSE OF DOCUMENTS:



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



RESPONSIBLE ENGINEER: Kenneth L. Martins PE # CH4876 Exp. 04/05	NO.	DATE	REVISION	BY	CHK	REVISION APPROVAL	REV	DATE 03/10/05	PRINT DISTRIBUTION	STATUS					PACIFIC GAS & ELECTRIC CO. TOPOCK COMPRESSOR STATION INTERIM MEASURE 3 EXPANDED GROUNDWATER EXTRACTION AND TREATMENT SYSTEM	PROCESS AND INSTRUMENTATION DIAGRAM SHEET 11 INJECTION WELLS
										ISSUED	REV	DATE	SDE	PEM		
	A	07/28/04	FOR INTERNAL REVIEW	EFC	AJ	DISCIPLINE	REVIEWED	DISCIPLINE	REVIEWED	DATE						
	0	09/03/04	APPROVED FOR CONSTRUCTION	EFC	AJ	CIVIL		ELECTRICAL		STATUS						
	1	10/13/04	REVISED AND APPROVED FOR CONSTRUCTION	EFC	AJ	STRUCTURAL		INST & CONTROL		REV.						
	2	01/23/05	REVISED AND APPROVED FOR CONSTRUCTION	EFC	AJ	MECHANICAL		ARCHITECTURAL		CLIENT						
	3	02/14/05	REVISED AND APPROVED FOR CONSTRUCTION	EFC	AJ	PROCESS		ENVIRONMENTAL		FIELD						
	4	03/10/05	REMOVED HOLD AND APPROVED FOR CONSTRUCTION	EFC	AJ	PIPELINE		GEN. ARRANG.		INTRA CO.						
										SCALE		NONE				

Appendix A

Third Quarter 2017 Laboratory Analytical Reports

Analytical Bench Log Book

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-700BWD2913	8/24/17	1345	8/24/17	1352	HQ440D	8-24-17	1802	-51.53	Josh R	7.12

Notes:

Notes:

Notes:

Notes:

Notes:

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Notes:

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

Analytical Bench Log Book

WDR pH Results

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

Sample Name	Date of sampling	Time of sampling	Date of analysis	Time of analysis	pH Meter #1, #2, or #3 etc. See cover Sheet for Serial Number	Date pH meter Calibrated	Time pH meter Calibrated	Slope of the Curve	Analyst Name (for the pH result)	pH Result
1 T-700 D	06-06-17	1230	06-06-17	1255	HQ4400	06-06-17	0030	55.54	G.Glopla	6.95

Notes:

2 100 D	06-06-17	1230	06-06-17	1250	HQ4400	06-06-17	0030	55.54	G.Glopla	6.93
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Notes:

3 SC-701-WDR-SAC-T-5-17	1415	7-5-17	1425	HQ440D	7-5-17	0030	-54.82	Josh R	8.60
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Notes:

4 SC-700B-WDR-SAC-T-5-17	1410	7-5-17	1424	HQ440D	7-5-17	0030	-54.82	Josh R	7.07
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Notes:

5 SC-100B-WDR-SAC-T-5-17	1406	7-5-17	1427	HQ440D	7-5-17	0030	-54.82	Josh R	7.23
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Notes:

6 SC-100B-WDR-SAC-T-5-17	1030	8-1-17	1040	HQ440D	8-1-17	0130	-53.96	How Meers	6.87
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Notes:

7 SC-100B-WDR-SAC-T-5-17	1035	8-1-17	1043	HQ440D	8-1-17	0130	-53.96	How Meers	7.20
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Notes:

Reminder: WDR Required pH Range for the Effluent (SC-700B) is: 6.5 - 8.4									
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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 T-700B	06-06-17	1230	06-06-17	1255	HQ4400	06-06-17	0030	55.54	G. GLOPA	6.95
2 100B	06-06-17	1230	06-06-17	1250	HQ4400	06-06-17	0030	55.54	G. GLOPA	6.93

Notes:

3 SC-701-WDR-SAC	7-5-17	1415	7-5-17	1425	HQ4400	7-5-17	0030	54.82	Josh R	8.60
4 SC-700B-WDR-SAC	7-5-17	1410	7-5-17	1426	HQ4400	7-5-17	0030	54.82	Josh R	7.07

Notes:

5 SC-700B-WDR-SAC	7-5-17	1406	7-5-17	1427	HQ4400	7-5-17	0030	54.82	Josh R	7.23
6 SC-700B -wdr-SAC	8-1-17	1030	8-1-17	10:40	HQ4400	8-1-17	0130	-52.96	Josh R	6.82

7 SC-700B -wdr-SAC	8-1-17	1035	8-1-17	10:43	HQ4400	8-1-17	0130	-52.96	Josh R	7.20
Notes:										

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

Analytical Bench Log Book

WDR pH Results

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

Sample Name	Date of sampling	Time of sampling	Date of analysis	Time of analysis	pH Meter #1, #2, or #3 etc. See cover Sheet for Serial Number	Date pH meter Calibrated	Time pH meter Calibrated	Slope of the Curve	Analyst Name (for the pH result)	pH Result
1 SC-700B WDRS03	8-24-17	1345	8-24-17	1352	HQ440D	8-24-17	1802	-54.53	Josh R	7.12

Notes:

2 SC-NAS-WDRS04	9-5-17	10:00	9-5-17	10:10	HQ440D	9-5-17	0030	-55.39	Mark Meyers	6.89
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Notes:

3 SC-100B-WDRS04	9-5-17	10:05	9-5-17	10:12	HQ440D	9-5-17	0030	-55.39	Mark Meyers	7.11
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Notes:

4 SC-101-WDRS05	10-3-17	10:34:17M	10-3-17	1236	HQ4400	10-3-17	0030	-54.01	G. Gloria	7.49
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Notes:

5 SC-700B-WDRS05	10-3-17	1240	10-3-17	1245	HQ4400	10-3-17	0030	-54.01	G. Gloria	7.36
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Notes:

6 SC-100B-WDRS05	10-3-17	1252	10-3-17	1259	HQ4400	10-3-17	0030	-54.01	G. Gloria	7.25
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Notes:

7										
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Reminder: WDR Required pH Range for the Effluent (SC-700B) is: 6.5 - 8.4



July 20, 2017

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: Asset Laboratories
SAMPLE I.D.: N024863-001C
DATE RECEIVED: 07/7/17
ABC LAB. NO.: AST0717.011

DOHS (TITLE 22) HAZARDOUS WASTE BIOASSAY USING FATHEAD MINNOWS

96 HOUR LC50 = >750 mg/l
STATUS = Pass

Respectfully yours,

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:	07/7/17
SAMPLE I.D.:	N024863-001C	LAB #	AST0717.011

WATER QUALITY

DILUTION WAT	Reconst. Fresh	AERATION:	Single Bubble Air
CONTROL HARDNESS	CONTROL ALKALINITY		
Beg: 43 mg/l	End: 45 mg/l	Beg: 31 mg/l	End: 33 mg/l
SAMPLE HARDNESS	SAMPLE ALKALINITY		
Beg: 61 mg/l	End: 105 mg/l	Beg: 42 mg/l	End: 85 mg/l

ORGANISM INFORMATION

SPECIES:	Pimephales promelas	DATE RECD:	06/15/17
COMMON NAME	Fathead Minnow	AVERAGE LNTH:	37 mm
SOURCE:	Thomas Fish Co.	AVERAGE WT:	0.67 gm
CARRIER:	California Overnight	NO. FISH / TANK:	10

TEST DATA

DATE: TIME:	INITIAL			24 HOURS			48 HOURS			72 HOURS			96 HOURS		
	07/11/17 1055	07/12/17 910	07/13/17 1104	07/14/17 1123	07/15/17 1248										
CONC.	Dis. Oxy.	Temp. dg.C	pH	Dis. Oxy.	Temp. dg.C	pH	#Fish Dead	Dis. Oxy.	Temp. dg.C	pH	#Fish Dead	Dis. Oxy.	Temp. dg.C	pH	#Fish Dead
0 (Con.)	8.8	19.8	7.7	8.0	19.3	7.8	0	7.8	19.4	7.7	0	7.9	19.5	7.8	0
400 mg/l	8.8	19.8	7.7	8.1	19.3	7.8	0	7.8	19.3	6.8	0	7.6	19.4	7.1	0
400 mg/l	8.7	19.9	7.6	8.2	19.3	7.7	0	7.5	19.4	6.8	0	7.3	19.5	7.1	0
750 mg/l	8.7	19.9	7.6	8.1	19.3	7.5	0	7.4	19.4	6.9	0	7.1	19.5	7.1	0
750 mg/l	8.7	19.9	7.4	8.2	19.4	7.5	0	7.7	19.5	6.9	0	7.5	19.6	7.2	0

FINAL DATA

TOTAL MORTALITIES	
0 (Con.)	0
400 mg/l	0
400 mg/l	0
750 mg/l	0
750 mg/l	0

FINAL RESULTS

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

Joe Freas, Senior Toxicologist

Date

7/21/17

CHAIN-OF-CUSTODY RECORD

Page 1 of 1



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

QC Level: Level IV

Subcontractor:

Aquatic Bioassay & Consulting
29 N Olive
Ventura, CA 93001

TEL: (805) 643-5621
FAX:
Acct #:

Field Sampler: SIGNED

06-Jul-17

Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests	
				Bioassay	
N024863-001C / Phase Separator-560-Sludge	Soil	7/5/2017 2:45:00 PM	80ZG	1	

General Comments:
Please email sample receipt acknowledgement to the PM.
Please use PO#:N24863A Please email Invoices and Account Receivable Statements to AssetAP@assetlaboratories.com. For questions, call Marlon at (702)-307-2659. Please e-mail results to reports.IV@assetlaboratories.com by: Normal TAT.
Please analyze for Bioassay. CH2M Hill samples.
96 hr Accute

GSO #: 536758131

Date/Time

Date/Time

Relinquished by:	<i>RL</i>	7/6/2017	17:00	Received by:	<i>LMW</i>
Relinquished by:				Received by:	<i>7-7-17 / 845</i>

July 21, 2017

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

Workorder No.: N024863

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

Attention: Doug Scott

Enclosed are the results for sample(s) received on July 05, 2017 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,

Maney Gutierrez

Puri Romualdo
Laboratory Director

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



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NEVADA | P:702.307.2659 F:702.307.2691
3151 W. Post Rd., Las Vegas, NV 89118
ELAP Cert 2676 | NV Cert NV00922
ORELAP/NELAP Cert 4046

CLIENT: CH2M HILL
Project: PG&E Topock, 680375.02.IM.OP.00
Lab Order: N024863

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

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

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

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

Samples were analyzed within method holding time.

Subcontracted Analyses:

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

Analytical Comments for EPA 300.0:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria on QC samples N024863-001A MS and N024863-001A MSD possibly due to matrix interference. 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 on QC samples N024863-001B-MS and N024863-001B-MSD since the analyte concentration in the sample is disproportionate to the spike level. Post Spike and Matrix Spike Insoluble met acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

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ASSET Laboratories

Date: 21-Jul-17

CLIENT: CH2M HILL
Project: PG&E Topock, 680375.02.IM.OP.00
Lab Order: N024863
Contract No: IM3PLANT-AR

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N024863-001A	Phase Separator-560-Sludge	Soil	7/5/2017 2:45:00 PM	7/5/2017	7/21/2017
N024863-001B	Phase Separator-560-Sludge	Soil	7/5/2017 2:45:00 PM	7/5/2017	7/21/2017
N024863-001C	Phase Separator-560-Sludge	Soil	7/5/2017 2:45:00 PM	7/5/2017	7/21/2017



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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 21-Jul-17

CLIENT: CH2M HILL
Lab Order: N024863
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N024863-001

Client Sample ID: Phase Separator-560-Sludge
Collection Date: 7/5/2017 2:45:00 PM
Matrix: SOIL

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

RunID: NV00922-IC8_170706B	QC Batch: R116157	PrepDate	Analyst: RAB			
Fluoride	31	1.1	4.5	mg/Kg-dry	2	7/6/2017 02:22 PM

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

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

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ASSET Laboratories

Date: 21-Jul-17

CLIENT: CH2M HILL
Work Order: N024863
Project: PG&E Topock, 680375.02.IM.OP.00

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

Sample ID	SampType:	MBLK	TestCode:	300_S	Units:	mg/Kg	Prep Date:	RunNo:					
Client ID:	PBS	Batch ID:	R116157	TestNo:	EPA 300.0		Analysis Date:	SeqNo:					
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Fluoride		ND	1.0										
Sample ID	LCS-R116157	SampType: LCS	TestCode: 300_S	Units: mg/Kg			Prep Date:	RunNo: 116157					
Client ID:	LCSS	Batch ID: R116157	TestNo: EPA 300.0				Analysis Date:	SeqNo: 2683898					
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Fluoride		12.146	1.0	12.50	0	97.2	90	110					
Sample ID	N024863-001ADUP	SampType: DUP	TestCode: 300_S	Units: mg/Kg-dry			Prep Date:	RunNo: 116157					
Client ID:	ZZZZZZ	Batch ID: R116157	TestNo: EPA 300.0				Analysis Date:	SeqNo: 2683900					
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Fluoride		30.600	4.5								31.31	2.29	20
Sample ID	N024863-001AMS	SampType: MS	TestCode: 300_S	Units: mg/Kg-dry			Prep Date:	RunNo: 116157					
Client ID:	ZZZZZZ	Batch ID: R116157	TestNo: EPA 300.0				Analysis Date:	SeqNo: 2683901					
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Fluoride		53.206	4.5	56.17	31.31	39.0	80	120					\$
Sample ID	N024863-001AMSD	SampType: MSD	TestCode: 300_S	Units: mg/Kg-dry			Prep Date:	RunNo: 116157					
Client ID:	ZZZZZZ	Batch ID: R116157	TestNo: EPA 300.0				Analysis Date:	SeqNo: 2683902					
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Fluoride		53.376	4.5	56.17	31.31	39.3	80	120	53.21	0.320	20	S	

Qualifiers:

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



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

ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 21-Jul-17

CLIENT: CH2M HILL
Lab Order: N024863
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N024863-001

Client Sample ID: Phase Separator-560-Sludge
Collection Date: 7/5/2017 2:45:00 PM
Matrix: SOIL

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL METALS BY ICP							
EPA 3050B				EPA 6010B			
RunID: NV00922-ICP2_170711E	QC Batch: 62765			PrepDate	7/7/2017		Analyst: CEI
Antimony	ND	0.41	4.5	mg/Kg-dry	1	7/11/2017 08:25 PM	
Arsenic	14	0.48	2.2	mg/Kg-dry	1	7/12/2017 12:41 PM	
Barium	60	0.095	2.2	mg/Kg-dry	1	7/11/2017 08:25 PM	
Beryllium	ND	0.085	2.2	mg/Kg-dry	1	7/11/2017 08:25 PM	
Cadmium	ND	0.081	2.2	mg/Kg-dry	1	7/11/2017 08:25 PM	
Chromium	3100	0.090	2.2	mg/Kg-dry	1	7/11/2017 08:25 PM	
Cobalt	3.9	0.081	2.2	mg/Kg-dry	1	7/11/2017 08:25 PM	
Copper	130	0.089	4.5	mg/Kg-dry	1	7/11/2017 08:25 PM	
Lead	ND	0.089	2.2	mg/Kg-dry	1	7/11/2017 08:25 PM	
Manganese	420	0.18	2.2	mg/Kg-dry	1	7/11/2017 08:25 PM	
Molybdenum	2.7	0.079	2.2	mg/Kg-dry	1	7/11/2017 08:25 PM	
Nickel	28	0.094	2.2	mg/Kg-dry	1	7/11/2017 08:25 PM	
Selenium	ND	0.35	2.2	mg/Kg-dry	1	7/11/2017 08:25 PM	
Silver	ND	0.091	2.2	mg/Kg-dry	1	7/11/2017 08:25 PM	
Thallium	9.9	0.36	4.5	mg/Kg-dry	1	7/12/2017 12:41 PM	
Vanadium	40	0.082	2.2	mg/Kg-dry	1	7/11/2017 08:25 PM	
Zinc	36	0.14	2.2	mg/Kg-dry	1	7/11/2017 08:25 PM	

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

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

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ASSET Laboratories

Date: 21-Jul-17

CLIENT: CH2M HILL
Work Order: N024863
Project: PG&E Topock, 680375.02.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_SPGE

Sample ID	MB-62765	SampType: MBLK	TestCode: 6010_SPGE	Units: mg/Kg	Prep Date: 7/7/2017	RunNo: 116260							
Client ID:	PBS	Batch ID: 62765	TestNo: EPA 6010B	EPA 3050B	Analysis Date: 7/11/2017	SeqNo: 2688536							
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Antimony		ND	2.0										
Barium		ND	1.0										
Beryllium		ND	1.0										
Cadmium		ND	1.0										
Chromium		ND	1.0										
Cobalt		ND	1.0										
Copper		ND	2.0										
Lead		ND	1.0										
Manganese		ND	1.0										
Molybdenum		ND	1.0										
Nickel		ND	1.0										
Selenium		ND	1.0										
Silver		ND	1.0										
Vanadium		ND	1.0										
Zinc		ND	1.0										

Sample ID	LCS-62765	SampType: LCS	TestCode: 6010_SPGE	Units: mg/Kg	Prep Date: 7/7/2017	RunNo: 116260							
Client ID:	LCSS	Batch ID: 62765	TestNo: EPA 6010B	EPA 3050B	Analysis Date: 7/11/2017	SeqNo: 2688537							
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Antimony		24.127	2.0	25.00	0	96.5	85	115					
Barium		24.600	1.0	25.00	0	98.4	85	115					
Beryllium		24.946	1.0	25.00	0	99.8	85	115					
Cadmium		24.955	1.0	25.00	0	99.8	85	115					
Chromium		24.813	1.0	25.00	0	99.3	85	115					
Cobalt		24.651	1.0	25.00	0	98.6	85	115					
Copper		24.932	2.0	25.00	0	99.7	85	115					
Lead		24.679	1.0	25.00	0	98.7	85	115					

Qualifiers:

B Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit

DO Surrogate Diluted Out

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



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

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EPA ID CA01638

CLIENT: CH2M HILL
Work Order: N024863
Project: PG&E Topock, 680375.02.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_SPGE

Sample ID	LCS-62765	SampType: LCS	TestCode: 6010_SPGE	Units: mg/Kg	Prep Date:	7/7/2017	RunNo:	116260					
Client ID:	LCSS	Batch ID: 62765	TestNo: EPA 6010B	EPA 3050B	Analysis Date:	7/11/2017	SeqNo:	2688537					
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Manganese		49.725	1.0	50.00	0	99.5	85	115					
Molybdenum		24.474	1.0	25.00	0	97.9	85	115					
Nickel		24.681	1.0	25.00	0	98.7	85	115					
Selenium		24.556	1.0	25.00	0	98.2	85	115					
Silver		26.277	1.0	25.00	0	105	85	115					
Vanadium		25.017	1.0	25.00	0	100	85	115					
Zinc		24.674	1.0	25.00	0	98.7	85	115					

Sample ID	N024862-005A-MS	SampType: MS	TestCode: 6010_SPGE	Units: mg/Kg	Prep Date:	7/7/2017	RunNo:	116260					
Client ID:	zzzzzzz	Batch ID: 62765	TestNo: EPA 6010B	EPA 3050B	Analysis Date:	7/11/2017	SeqNo:	2688541					
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Antimony		20.814	2.0	24.89	0	83.6	75	125					
Barium		168.902	1.0	24.89	144.1	99.6	75	125					
Beryllium		22.152	1.0	24.89	0	89.0	75	125					
Cadmium		25.402	1.0	24.89	1.032	97.9	75	125					
Chromium		47.845	1.0	24.89	25.33	90.5	75	125					
Cobalt		30.030	1.0	24.89	8.178	87.8	75	125					
Copper		43.451	2.0	24.89	17.52	104	75	125					
Lead		41.179	1.0	24.89	19.39	87.6	75	125					
Manganese		310.151	1.0	49.78	266.9	86.9	75	125					
Molybdenum		22.397	1.0	24.89	0.2289	89.1	75	125					
Nickel		44.497	1.0	24.89	22.09	90.0	75	125					
Selenium		21.694	1.0	24.89	0	87.2	75	125					
Silver		24.011	1.0	24.89	0	96.5	75	125					
Vanadium		68.748	1.0	24.89	42.36	106	75	125					
Zinc		104.502	1.0	24.89	83.64	83.8	75	125					

Qualifiers:

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

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



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EPA ID CA01638

CLIENT: CH2M HILL
Work Order: N024863
Project: PG&E Topock, 680375.02.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_SPGE

Sample ID	N024862-005A-MSD	SampType: MSD	TestCode: 6010_SPGE	Units: mg/Kg	Prep Date:	7/7/2017	RunNo:	116260				
Client ID:	zzzzzz	Batch ID: 62755	TestNo: EPA 6010B	EPA 3050B	Analysis Date:	7/11/2017	SeqNo:	2688542				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony		20.373	2.0	24.91	0	81.8	75	125	0	0	0	20
Barium		162.923	1.0	24.91	144.1	75.5	75	125	0	0	0	20
Beryllium		22.168	1.0	24.91	0	89.0	75	125	0	0	0	20
Cadmium		26.751	1.0	24.91	1.032	103	75	125	0	0	0	20
Chromium		47.184	1.0	24.91	25.33	87.7	75	125	0	0	0	20
Cobalt		30.755	1.0	24.91	8.178	90.6	75	125	0	0	0	20
Copper		41.802	2.0	24.91	17.52	97.5	75	125	0	0	0	20
Lead		39.851	1.0	24.91	19.39	82.1	75	125	0	0	0	20
Manganese		310.074	1.0	49.83	266.9	86.7	75	125	0	0	0	20
Molybdenum		21.848	1.0	24.91	0.2289	86.8	75	125	0	0	0	20
Nickel		46.066	1.0	24.91	22.09	96.2	75	125	0	0	0	20
Selenium		21.205	1.0	24.91	0	85.1	75	125	0	0	0	20
Silver		23.372	1.0	24.91	0	93.8	75	125	0	0	0	20
Vanadium		66.110	1.0	24.91	42.36	95.3	75	125	0	0	0	20
Zinc		109.143	1.0	24.91	83.64	102	75	125	0	0	0	20

Sample ID	MB-62765	SampType: MBLK	TestCode: 6010_SPGE	Units: mg/Kg	Prep Date:	7/7/2017	RunNo:	116269				
Client ID:	PBS	Batch ID: 62765	TestNo: EPA 6010B	EPA 3050B	Analysis Date:	7/12/2017	SeqNo:	2689031				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic		ND	1.0									
Thallium		0.174	2.0									

Sample ID	LCS-62765	SampType: LCS	TestCode: 6010_SPGE	Units: mg/Kg	Prep Date:	7/7/2017	RunNo:	116269				
Client ID:	LCSS	Batch ID: 62765	TestNo: EPA 6010B	EPA 3050B	Analysis Date:	7/12/2017	SeqNo:	2689032				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic		25.250	1.0	25.00	0	101	85	115				
Thallium		24.660	2.0	25.00	0	98.6	85	115				

Qualifiers:

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



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ANALYTICAL QC SUMMARY REPORT

CLIENT: CH2M HILL
Work Order: N024863
Project: PG&E Topock, 680375.02.IM.OP.00

TestCode: 6010_SPGE

Sample ID	N024862-005A-MS	SampType:	MS	TestCode:	6010_SPGE	Units:	mg/Kg	Prep Date:	7/7/2017	RunNo:	116269	
Client ID:	zzzzzz	Batch ID:	62755	TestNo:	EPA 6010B	EPA 3050B		Analysis Date:	7/12/2017	SeqNo:	2689038	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic		32.652	1.0	24.89	8.228	98.1	75	125				
Thallium		23.191	2.0	24.89	1.661	86.5	75	125				

Sample ID	N024862-005A-MSD	SampType:	MSD	TestCode:	6010_SPGE	Units:	mg/Kg	Prep Date:	7/7/2017	RunNo:	116269	
Client ID:	zzzzzz	Batch ID:	62765	TestNo:	EPA 6010B	EPA 3050B		Analysis Date:	7/12/2017	SeqNo:	2689039	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic		31.504	1.0	24.91	8.228	93.4	75	125				
Thallium		22.773	2.0	24.91	1.661	84.7	75	125	23.19	3.58	20	20

Qualifiers:

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



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 EPA ID CA01638

ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 21-Jul-17

CLIENT: CH2M HILL
Lab Order: N024863
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N024863-001

Client Sample ID: Phase Separator-560-Sludge
Collection Date: 7/5/2017 2:45:00 PM
Matrix: SOIL

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

RunID: NV00922-IC6_170707A	QC Batch: 62783		PrepDate	7/7/2017	Analyst: RAB
Hexavalent Chromium	75	0.23	mg/Kg-dry	5	7/7/2017 03:27 PM

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

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

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ASSET Laboratories

Date: 21-Jul-17

CLIENT: CH2M HILL
Work Order: N024863
Project: PG&E Topock, 680375.02.IM.OP.00

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

Sample ID	SampType: MBLK	TestCode: 7199_S_PGE	Units: mg/Kg	Prep Date:	7/7/2017	RunNo:	116210				
Client ID:	Batch ID: 62783	TestNo: EPA 7199	EPA 3060A	Analysis Date:	7/7/2017	SeqNo:	2686370				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									S
Sample ID	SampType: LCS	TestCode: 7199_S_PGE	Units: mg/Kg	Prep Date:	7/7/2017	RunNo:	116210				
Client ID:	Batch ID: 62783	TestNo: EPA 7199	EPA 3060A	Analysis Date:	7/7/2017	SeqNo:	2686371				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	3.854	0.20	4.000	0	96.4	80	120				
Sample ID	SampType: DUP	TestCode: 7199_S_PGE	Units: mg/Kg-dry	Prep Date:	7/7/2017	RunNo:	116210				
Client ID:	Batch ID: 62783	TestNo: EPA 7199	EPA 3060A	Analysis Date:	7/7/2017	SeqNo:	2686373				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	75.599	2.2									
Sample ID	SampType: DUP	TestCode: 7199_S_PGE	Units: mg/Kg-dry	Prep Date:	7/7/2017	RunNo:	116210				
Client ID:	Batch ID: 62783	TestNo: EPA 7199	EPA 3060A	Analysis Date:	7/7/2017	SeqNo:	2686374				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	69.642	2.2									
Sample ID	SampType: MS	TestCode: 7199_S_PGE	Units: mg/Kg-dry	Prep Date:	7/7/2017	RunNo:	116210				
Client ID:	Batch ID: 62783	TestNo: EPA 7199	EPA 3060A	Analysis Date:	7/7/2017	SeqNo:	2686375				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	78.806	2.2	44.84	74.70	9.15	75	125				

Qualifiers:

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



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

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 EPA ID CA01638

CLIENT: CH2M HILL
Work Order: N024863
Project: PG&E Topock, 680375.02.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 7199_S_PGE

Sample ID	N024863-001B-MSD	SampType:	MSD	Batch ID:	62783	TestNo:	EPA 7199	TestCode:	7199_S_PGE	Units:	mg/Kg-dry	Prep Date:	7/7/2017	RunNo:	116210	
Client ID:	ZZZZZZ														SeqNo:	2686376
Analyte				Result	PQL	SPK value	SPK Ref Val	%REC		LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Hexavalent Chromium				81.605	2.2	44.92	74.70	15.4		75	125	78.81	3.49	20	S	
Sample ID	N024863-001B-MS I	SampType:	MS	Batch ID:	62783	TestNo:	EPA 7199	TestCode:	7199_S_PGE	Units:	mg/Kg-dry	Prep Date:	7/7/2017	RunNo:	116210	
Client ID:	ZZZZZZ														SeqNo:	2686379
Analyte				Result	PQL	SPK value	SPK Ref Val	%REC		LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Hexavalent Chromium				1224.639	22	1484	0	82.5		75	125					
Sample ID	N024863-001B-PS	SampType:	MS	Batch ID:	62783	TestNo:	EPA 7199	TestCode:	7199_S_PGE	Units:	mg/Kg-dry	Prep Date:	7/7/2017	RunNo:	116210	
Client ID:	ZZZZZZ														SeqNo:	2686380
Analyte				Result	PQL	SPK value	SPK Ref Val	%REC		LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Hexavalent Chromium				120.154	2.2	44.83	74.70	101		75	125					

Qualifiers:

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



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

ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 21-Jul-17

CLIENT: CH2M HILL
Lab Order: N024863
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N024863-001

Client Sample ID: Phase Separator-560-Sludge
Collection Date: 7/5/2017 2:45:00 PM
Matrix: SOIL

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

RunID: NV00922-AA1_170707A	QC Batch: 62782	PrepDate	7/7/2017	Analyst: CEI
Mercury	ND	0.027	0.22	mg/Kg-dry

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

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

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ASSET Laboratories

Date: 21-Jul-17

CLIENT: CH2M HILL

Work Order: N024863

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

ANALYTICAL QC SUMMARY REPORT

TestCode: 7471_S_PGE

Sample ID	MB-62782	SampType: MBLK	TestCode: 7471_S_PGE	Units: mg/Kg	Prep Date:	7/7/2017	RunNo:	116182					
Client ID:	PBS	Batch ID:	62782	TestNo: EPA 7471A	Analysis Date:	7/7/2017	SeqNo:	2685242					
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Mercury		ND	0.10										
Sample ID	LCS-62782	SampType: LCS	TestCode: 7471_S_PGE	Units: mg/Kg	Prep Date:	7/7/2017	RunNo:	116182					
Client ID:	LCSS	Batch ID:	62782	TestNo: EPA 7471A	Analysis Date:	7/7/2017	SeqNo:	2685243					
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Mercury		0.428	0.10	0.4167	0	103	75	125					
Sample ID	N024865-002A-MS	SampType: MS	TestCode: 7471_S_PGE	Units: mg/Kg-dry	Prep Date:	7/7/2017	RunNo:	116182					
Client ID:	ZZZZZZ	Batch ID:	62782	TestNo: EPA 7471A	Analysis Date:	7/7/2017	SeqNo:	2685244					
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Mercury		0.480	0.12	0.4817	0.01504	96.5	75	125					
Sample ID	N024865-002A-MSD	SampType: MSD	TestCode: 7471_S_PGE	Units: mg/Kg-dry	Prep Date:	7/7/2017	RunNo:	116182					
Client ID:	ZZZZZZ	Batch ID:	62782	TestNo: EPA 7471A	Analysis Date:	7/7/2017	SeqNo:	2685245					
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Mercury		0.508	0.12	0.4817	0.01504	102	75	125	0.4799	5.62	20		

Qualifiers:

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

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

ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 21-Jul-17

CLIENT: CH2M HILL
Lab Order: N024863
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N024863-001

Client Sample ID: Phase Separator-560-Sludge
Collection Date: 7/5/2017 2:45:00 PM
Matrix: SOIL

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

RunID: NV00922-WC_170706B	QC Batch: R116169	PrepDate	Analyst: CEI
Percent Moisture	55.49	0.1000	wt%
			1
			7/6/2017

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

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

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ASSET Laboratories

Date: 21-Jul-17

CLIENT: CH2M HILL
Work Order: N024863
Project: PG&E Topock, 680375.02.IM.OP.00

ANALYTICAL QC SUMMARY REPORT**TestCode:** PMOIST

Sample ID	MB-R116169	SampType: MBLK	TestCode: PMOIST	Units: wt%	Prep Date:	RunNo: 116169							
Client ID:	PBS	Batch ID: R116169	TestNo: D22216		Analysis Date:	SeqNo: 2684669							
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Percent Moisture		ND	0.1000										
Sample ID	N024609-004A-DUP	SampType: DUP	TestCode: PMOIST	Units: wt%	Prep Date:	RunNo: 116169							
Client ID:	ZZZZZZZ	Batch ID: R116169	TestNo: D22216		Analysis Date:	SeqNo: 2684671							
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Percent Moisture		8.005	0.1000										

Qualifiers:

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

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

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

CH2MHILL

CHAIN OF CUSTODY RECORD

Page 1 OF 1

Project Name	PG&E Topock			Container	Glass	250ml	Glass	4 oz jar	
Location	PG&E Topock			Preservatives:	none	4°C	none	4°C	
Project Number	680376.02.M.OP.00			Filtered:	NA	NA	NA	NA	
Project Manager	Scott O'Donnell			Holding Time:	NA	14	NA	180	
Sample Manager	Shawn Duffy								
Task Order									
Project	W3PLANTARAR.WDR.560-SLUDGE								
Turnaround Time	10 Days								
Shipping Date:									
COC Number:	560-S								
Phase Separator	560-Sludge	DATE	TIME	Matrix					
	7-5-17	1445	Soil	X	X	X	X	N024863 - 01	
									TOTAL NUMBER OF CONTAINERS
									6
									3 (JW)

Approved by Joh Renshaw
 Sampled by Joh Renshaw
 Relinquished by Joh Renshaw
 Received by Joh Renshaw
 Relinquished by Joh Renshaw
 Received by Joh Renshaw

Signatures Joh Renshaw Date/Time 7-5-17 14:00 Shipping Details
Joh Renshaw Method of Shipment: FedEx
Joh Renshaw On ice: yes / no yes ice
Joh Renshaw Airbill No: 12442
Joh Renshaw Lab Name: ASSET Laboratories
Joh Renshaw Lab Phone: (702) 307-2659

Special Instructions:
 ATTN: Sample Custody
 and Mation Cartin
 Report Copy to Doug Scott
 (970) 731-0336

ASSET Laboratories

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

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

Cooler Received/Opened On: 7/5/2017 Workorder: N024863

Rep sample Temp (Deg C): 4.0 IR Gun ID: 2

Temp Blank: Yes No

Carrier name: ASSET

Last 4 digits of Tracking No.: NA Packing Material Used: None

Cooling process: Ice Ice Pack Dry Ice Other None

Sample Receipt Checklist

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

Comments:

For:

Checklist Completed By: MBC  7/17/2017

Reviewed By: MBC 7/18/2017



ASSET Laboratories

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

www.atl-labs.com

TEL: 7023072659

FAX: 7023072659

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

QC Level: Level IV

Subcontractor:

Aquatic Bioassay & Consulting
29 N Olive
Ventura, CA 93001

TEL: (805) 643-5621
FAX:
Acct #:

06-Jul-17

Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests	
				Bioassay	
N024863-001C / Phase Separator-560-Sludge	Soil	7/5/2017 2:45:00 PM	8OZG	1	

General Comments:

Please email sample receipt acknowledgement to the PM.

Please use PO#:N24863A Please email Invoices and Account Receivable Statements to AssetAP@assetlaboratories.com. For questions, call Marion at (702)-307-2659. Please e-mail results to reports.Iv@assetlaboratories.com by: Normal TAT.

Please analyze for Bioassay. CH2M Hill samples.

96 hr Acute

Relinquished by:	Date/Time	Received by:	Date/Time
	7/6/2017 17:00		
Relinquished by:		Received by:	

List of Analyst

ASSET Laboratories Work Order: **N024863**

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



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July 31, 2017

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

Workorder No.: N024864

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

Attention: Doug Scott

Enclosed are the results for sample(s) received on July 05, 2017 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 Romualdo

Puri Romualdo
Laboratory Director

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CLIENT: CH2M HILL
Project: PG&E Topock, 680375.02.IM.OP.00
Lab Order: N024864

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

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

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

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

Samples were analyzed within method holding time.

Subcontracted Analyses:

Ammonia was subcontracted to Truesdail -Irvine,CA.

Analytical Comments for EPA 200.8:

Dilution was necessary for sample N024864-003 due to associated internal standard not meeting method criteria possibly due to matrix interference. Sample was analyzed with dilution and internal standard met method criteria. Affected analytes for this failed internal standard were reported at dilution that meet internal standard recovery limit.

Analytical Comments for EPA 218.6:

Dilution was necessary for samples N024864-002 and N024864-003 due to matrix interference. Samples were analyzed at lower dilution however matrix spike recovery was 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.



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ASSET Laboratories

Date: 31-Jul-17

CLIENT: CH2M HILL
Project: PG&E Topock, 680375.02.IM.OP.00
Lab Order: N024864
Contract No: IM3PLANT-AR

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N024864-001A	SC-100B-WDR-560	Water	7/5/2017 2:06:00 PM	7/5/2017	7/31/2017
N024864-001B	SC-100B-WDR-560	Water	7/5/2017 2:06:00 PM	7/5/2017	7/31/2017
N024864-001C	SC-100B-WDR-560	Water	7/5/2017 2:06:00 PM	7/5/2017	7/31/2017
N024864-001D	SC-100B-WDR-560	Water	7/5/2017 2:06:00 PM	7/5/2017	7/31/2017
N024864-001E	SC-100B-WDR-560	Water	7/5/2017 2:06:00 PM	7/5/2017	7/31/2017
N024864-002A	SC-700B-WDR-560	Water	7/5/2017 2:10:00 PM	7/5/2017	7/31/2017
N024864-002B	SC-700B-WDR-560	Water	7/5/2017 2:10:00 PM	7/5/2017	7/31/2017
N024864-002C	SC-700B-WDR-560	Water	7/5/2017 2:10:00 PM	7/5/2017	7/31/2017
N024864-002D	SC-700B-WDR-560	Water	7/5/2017 2:10:00 PM	7/5/2017	7/31/2017
N024864-002E	SC-700B-WDR-560	Water	7/5/2017 2:10:00 PM	7/5/2017	7/31/2017
N024864-003A	SC-701-WDR-560	Water	7/5/2017 2:15:00 PM	7/5/2017	7/31/2017
N024864-003B	SC-701-WDR-560	Water	7/5/2017 2:15:00 PM	7/5/2017	7/31/2017
N024864-003C	SC-701-WDR-560	Water	7/5/2017 2:15:00 PM	7/5/2017	7/31/2017



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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 31-Jul-17

CLIENT: CH2M HILL
Lab Order: N024864
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N024864-001

Client Sample ID: SC-100B-WDR-560**Collection Date:** 7/5/2017 2:06:00 PM**Matrix:** WATER

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

RunID: NV00922-WC_170706F	QC Batch: R116234	PrepDate	Analyst: RB
Specific Conductance	7600	0.10	umhos/cm
		0.10	1
			7/6/2017 05:45 PM

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

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

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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 31-Jul-17

CLIENT: CH2M HILL
Lab Order: N024864
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N024864-002

Client Sample ID: SC-700B-WDR-560
Collection Date: 7/5/2017 2:10:00 PM
Matrix: WATER

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

RunID: NV00922-WC_170706F	QC Batch: R116234	PrepDate	Analyst: RB
Specific Conductance	7000	0.10	umhos/cm
		0.10	1
			7/6/2017 05:45 PM

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

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

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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 31-Jul-17

CLIENT: CH2M HILL
Lab Order: N024864
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N024864-003

Client Sample ID: SC-701-WDR-560
Collection Date: 7/5/2017 2:15:00 PM
Matrix: WATER

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

RunID: NV00922-WC_170706F	QC Batch: R116234	PrepDate	Analyst: RB
Specific Conductance	62000	0.10	umhos/cm
		0.10	1
			7/6/2017 05:45 PM

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

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

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ASSET Laboratories

Date: 31-Jul-17

ANALYTICAL QC SUMMARY REPORT

CLIENT: CH2M HILL
Work Order: N024864
Project: PG&E Topock, 680375.02.IM.OP.00

TestCode: 120.1_WPGE

Sample ID	N024864-003ADUP	SampType:	DUP	TestCode:	120.1_WPGE	Units:	umhos/cm	Prep Date:		RunNo:	116234	
Client ID:	ZZZZZZ	Batch ID:	R116234	TestNo:	EPA 120.1			Analysis Date:	7/6/2017	SeqNo:	2687532	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	62300.000	0.10				62500		0.321	10			

Qualifiers:

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

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

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



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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 31-Jul-17

CLIENT: CH2M HILL
Lab Order: N024864
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N024864-001

Client Sample ID: SC-100B-WDR-560
Collection Date: 7/5/2017 2:06:00 PM
Matrix: WATER

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

RunID: NV00922-WC_170706C	QC Batch: 62775			PrepDate	7/6/2017	Analyst: QBM
Total Dissolved Solids (Residue, Filterable)	4600	50	50	mg/L	1	7/6/2017 08:39 AM

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

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

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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 31-Jul-17

CLIENT: CH2M HILL
Lab Order: N024864
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N024864-002

Client Sample ID: SC-700B-WDR-560
Collection Date: 7/5/2017 2:10:00 PM
Matrix: WATER

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

RunID: NV00922-WC_170706C	QC Batch: 62775			PrepDate	7/6/2017	Analyst: QBM
Total Dissolved Solids (Residue, Filterable)	4000	50	50	mg/L	1	7/6/2017 08:39 AM

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

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

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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 31-Jul-17

CLIENT: CH2M HILL
Lab Order: N024864
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N024864-003

Client Sample ID: SC-701-WDR-560**Collection Date:** 7/5/2017 2:15:00 PM**Matrix:** WATER

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

RunID: NV00922-WC_170706C	QC Batch: 62775		PrepDate	7/6/2017	Analyst: QBM
Total Dissolved Solids (Residue, Filterable)	48000	500	500	mg/L	1
					7/6/2017 08:39 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
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ASSET Laboratories

Date: 31-Jul-17

ANALYTICAL QC SUMMARY REPORT

CLIENT: CH2M HILL
Work Order: N024864
Project: PG&E Topock, 680375.02.IM.OP.00

TestCode: 160.1_2540C_W

Sample ID	LCS-62775	SampType: LCS	TestCode: 160.1_2540C	Units: mg/L	Prep Date: 7/6/2017	RunNo: 116205							
Client ID:	LCSW	Batch ID: 62775	TestNo: SM2540C		Analysis Date: 7/6/2017	SeqNo: 2686299							
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera)		973,000	10	1000	0	97.3	80	120					
Sample ID	MB-62775	SampType: MBLK	TestCode: 160.1_2540C	Units: mg/L	Prep Date: 7/6/2017	RunNo: 116205							
Client ID:	PBW	Batch ID: 62775	TestNo: SM2540C		Analysis Date: 7/6/2017	SeqNo: 2686300							
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	N024864-003A-DUP	SampType: DUP	TestCode: 160.1_2540C	Units: mg/L	Prep Date: 7/6/2017	RunNo: 116205							
Client ID:	ZZZZZZ	Batch ID: 62775	TestNo: SM2540C		Analysis Date: 7/6/2017	SeqNo: 2686305							
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera)		48300,000	500										

Qualifiers:

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



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

ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 31-Jul-17

CLIENT: CH2M HILL
Lab Order: N024864
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N024864-001

Client Sample ID: SC-100B-WDR-560**Collection Date:** 7/5/2017 2:06:00 PM**Matrix:** WATER

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

RunID: NV00922-ICP2_170718E	QC Batch: 62819			PrepDate	7/12/2017	Analyst: CEI
Aluminum	ND	2.7	50	µg/L	1	7/18/2017 10:39 AM
Boron	970	38	100	µg/L	1	7/18/2017 07:52 PM
Iron	ND	1.8	20	µg/L	1	7/18/2017 10:39 AM

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

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

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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 31-Jul-17

CLIENT: CH2M HILL
Lab Order: N024864
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N024864-002

Client Sample ID: SC-700B-WDR-560
Collection Date: 7/5/2017 2:10:00 PM
Matrix: WATER

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

RunID: NV00922-ICP2_170718E	QC Batch: 62819			PrepDate	7/12/2017	Analyst: CEI
Aluminum	ND	2.7	50	µg/L	1	7/18/2017 11:07 AM
Boron	940	38	100	µg/L	1	7/18/2017 08:12 PM
Iron	33	1.8	20	µg/L	1	7/18/2017 11:07 AM

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

E Value above quantitation range
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ASSET Laboratories

Date: 31-Jul-17

CLIENT: CH2M HILL
Work Order: N024864
Project: PG&E Topock, 680375.02.IM.OP.00

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

Sample ID	SampType:	MBLK	TestCode:	200.7_WPGE	Units:	µg/L	Prep Date:	7/12/2017	RunNo:	116419			
Client ID:	Batch ID:	62819	TestNo:	EPA 200.7			Analysis Date:	7/18/2017	SeqNo:	2696049			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Boron		ND	100										
Sample ID	LCS-62819	SampType:	LCS	TestCode:	200.7_WPGE	Units:	µg/L	Prep Date:	7/12/2017	RunNo:	116419		
Client ID:	LCSTW	Batch ID:	62819	TestNo:	EPA 200.7			Analysis Date:	7/18/2017	SeqNo:	2696050		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Boron		4717.600	100	5000	0	94.4	85	115					
Sample ID	N024864-001E-MS	SampType:	MS	TestCode:	200.7_WPGE	Units:	µg/L	Prep Date:	7/12/2017	RunNo:	116419		
Client ID:	ZZZZZZZ	Batch ID:	62819	TestNo:	EPA 200.7			Analysis Date:	7/18/2017	SeqNo:	2696054		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Boron		6041.058	100	5000	970.7	101	75	125					
Sample ID	N024864-001E-MSD	SampType:	MSD	TestCode:	200.7_WPGE	Units:	µg/L	Prep Date:	7/12/2017	RunNo:	116419		
Client ID:	ZZZZZZZ	Batch ID:	62819	TestNo:	EPA 200.7			Analysis Date:	7/18/2017	SeqNo:	2696055		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Boron		6033.626	100	5000	970.7	101	75	125					
Sample ID	MB-62819	SampType:	MBLK	TestCode:	200.7_WPGE	Units:	µg/L	Prep Date:	7/12/2017	RunNo:	116423		
Client ID:	PBW	Batch ID:	62819	TestNo:	EPA 200.7			Analysis Date:	7/18/2017	SeqNo:	2696078		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Aluminum		8.278	50										
Iron		18.794	20										

Qualifiers:

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

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



H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

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CLIENT: CH2M HILL
Work Order: N024864
Project: PG&E Topock, 680375.02.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WPGEPPB

Sample ID LCS-62819										Sample ID N024864-001E-MSD										Sample ID N024864-001E-MSD									
Client ID: LCSW		SampType: LCS		TestCode: 200.7_WPGE		Units: µg/L		Prep Date: 7/12/2017		Analysis Date: 7/18/2017		LowLimit		HighLimit		RPD Ref Val		%RPD		RPDLimit		Qual							
Client ID: ZZZZZZ		Batch ID: 62819		TestNo: EPA 200.7		PQL		SPK value		SPK Ref Val		%REC																	
Analyte																													
Aluminum		9693.497	50	10000	0	96.9	85																						
Iron		108.692	20	100.0	0	109	85																						
Aluminum		10713.853	50	10000	0	107	75																						
Iron		106.255	20	100.0	19.16	87.1	75																						
Aluminum		10729.192	50	10000	0	107	75																						
Iron		103.384	20	100.0	19.16	84.2	75																						

Qualifiers:

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



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

ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 31-Jul-17

CLIENT: CH2M HILL
Lab Order: N024864
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N024864-001

Client Sample ID: SC-100B-WDR-560**Collection Date:** 7/5/2017 2:06:00 PM**Matrix:** WATER

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

RunID: NV00922-ICP7_170724B	QC Batch: 62823			PrepDate	7/12/2017	Analyst: CEI
Antimony	ND	0.031	0.50	µg/L	1	7/24/2017 06:23 PM
Arsenic	2.9	0.025	0.10	µg/L	1	7/24/2017 06:23 PM
Barium	28	0.070	1.0	µg/L	1	7/25/2017 08:28 PM
Copper	ND	0.26	1.0	µg/L	1	7/24/2017 06:23 PM
Lead	ND	0.037	1.0	µg/L	1	7/24/2017 06:23 PM
Manganese	7.7	0.056	0.50	µg/L	1	7/24/2017 06:23 PM
Molybdenum	21	0.039	0.50	µg/L	1	7/24/2017 06:23 PM
Nickel	ND	0.040	1.0	µg/L	1	7/24/2017 06:23 PM
Zinc	ND	0.27	10	µg/L	1	7/24/2017 06:23 PM

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

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

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

Print Date: 31-Jul-17

CLIENT: CH2M HILL
Lab Order: N024864
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N024864-002

Client Sample ID: SC-700B-WDR-560**Collection Date:** 7/5/2017 2:10:00 PM**Matrix:** WATER

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

RunID: NV00922-ICP7_170724B	QC Batch:	62823			PrepDate	7/12/2017	Analyst: CEI
Antimony	ND	0.031	0.50	µg/L	1	7/24/2017 06:34 PM	
Arsenic	ND	0.025	0.10	µg/L	1	7/24/2017 06:34 PM	
Barium	15	0.070	1.0	µg/L	1	7/25/2017 08:33 PM	
Copper	ND	0.26	1.0	µg/L	1	7/24/2017 06:34 PM	
Lead	ND	0.037	1.0	µg/L	1	7/24/2017 06:34 PM	
Manganese	0.94	0.056	0.50	µg/L	1	7/24/2017 06:34 PM	
Molybdenum	21	0.039	0.50	µg/L	1	7/24/2017 06:34 PM	
Nickel	ND	0.040	1.0	µg/L	1	7/24/2017 06:34 PM	
Zinc	ND	0.27	10	µg/L	1	7/24/2017 06:34 PM	

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

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

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

Print Date: 31-Jul-17

CLIENT: CH2M HILL
Lab Order: N024864
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N024864-003

Client Sample ID: SC-701-WDR-560
Collection Date: 7/5/2017 2:15:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL METALS BY ICPMS							
EPA 200.8							
RunID: NV00922-ICP7_170724B	QC Batch: 62823			PrepDate	7/12/2017		Analyst: CEI
Antimony	ND	0.79	12	µg/L	25	7/24/2017 06:46 PM	
Arsenic	1.5	0.12	0.50	µg/L	5	7/24/2017 07:02 PM	
Barium	190	0.35	5.0	µg/L	5	7/25/2017 08:56 PM	
Beryllium	ND	1.1	12	µg/L	25	7/24/2017 06:46 PM	
Cadmium	ND	1.2	12	µg/L	25	7/24/2017 06:46 PM	
Cobalt	ND	0.13	2.5	µg/L	5	7/24/2017 07:02 PM	
Copper	ND	1.3	5.0	µg/L	5	7/24/2017 07:02 PM	
Lead	ND	0.92	25	µg/L	25	7/25/2017 08:39 PM	
Manganese	84	0.28	2.5	µg/L	5	7/24/2017 07:02 PM	
Molybdenum	260	0.97	12	µg/L	25	7/24/2017 06:46 PM	
Nickel	13	0.20	5.0	µg/L	5	7/24/2017 07:02 PM	
Selenium	42	0.14	2.5	µg/L	5	7/24/2017 07:02 PM	
Silver	ND	1.5	12	µg/L	25	7/24/2017 06:46 PM	
Thallium	ND	0.74	12	µg/L	25	7/25/2017 08:39 PM	
Vanadium	ND	0.11	5.0	µg/L	5	7/24/2017 07:02 PM	
Zinc	ND	1.3	50	µg/L	5	7/24/2017 07:02 PM	

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

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

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ASSET Laboratories

Date: 31-Jul-17

CLIENT: CH2M HILL
Work Order: N024864
Project: PG&E Topock, 680375.02.IM.OP.00

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

Sample ID	SampType: MB-62823	TestCode: MBLK	Units: µg/L	Prep Date: 7/12/2017	RunNo: 116588							
Client ID:	Batch ID: 62823	TestNo: EPA 200.8		Analysis Date: 7/24/2017	SeqNo: 2704780							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Antimony	0.127	0.50										
Arsenic	ND	0.10										
Beryllium	ND	0.50										
Cadmium	ND	0.50										
Cobalt	ND	0.50										
Copper	0.598	1.0										
Lead	ND	1.0										
Manganese	ND	0.50										
Molybdenum	0.118	0.50										
Nickel	ND	1.0										
Selenium	ND	0.50										
Silver	0.156	0.50										
Thallium	ND	0.50										
Vanadium	0.054	1.0										
Zinc	1.177	10										

Sample ID	SampType: LCS	TestCode: 200.8_W	Units: µg/L	Prep Date: 7/12/2017	RunNo: 116588							
Client ID:	Batch ID: 62823	TestNo: EPA 200.8		Analysis Date: 7/24/2017	SeqNo: 2704781							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Antimony	10.131	0.50	10.00	0	101	85	115					
Arsenic	9.825	0.10	10.00	0	98.3	85	115					
Beryllium	9.559	0.50	10.00	0	95.6	85	115					
Cadmium	10.064	0.50	10.00	0	101	85	115					
Cobalt	9.545	0.50	10.00	0	95.5	85	115					
Copper	10.627	1.0	10.00	0	106	85	115					
Lead	9.976	1.0	10.00	0	99.8	85	115					
Manganese	99.883	0.50	100.0	0	99.9	85	115					

Qualifiers:

B Analyte detected in the associated Method Blank

E Value above quantitation range

R RPD outside accepted recovery limits

S Calculations are based on raw values

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out



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CLIENT: CH2M HILL
Work Order: N024864
Project: PG&E Topock, 680375.02.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID	LCS-62823	SampType: LCS	TestCode: 200.8_W	Units: µg/L		Prep Date:	7/12/2017	RunNo:	116588			
Client ID:	LCSW	Batch ID: 62823	TestNo: EPA 200.8			Analysis Date:	7/24/2017	SeqNo:	2704781			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum		9.874	0.50	10.00	0	98.7	85	115				
Nickel		10.016	1.0	10.00	0	100	85	115				
Selenium		9.365	0.50	10.00	0	93.6	85	115				
Silver		10.501	0.50	10.00	0	105	85	115				
Thallium		9.843	0.50	10.00	0	98.4	85	115				
Vanadium		9.936	1.0	10.00	0	99.4	85	115				
Zinc		10.380	10	10.00	0	104	85	115				
Sample ID	N024934-001B-MS	SampType: MS	TestCode: 200.8_W	Units: µg/L		Prep Date:	7/12/2017	RunNo:	116588			
Client ID:	zzzzzzz	Batch ID: 62823	TestNo: EPA 200.8			Analysis Date:	7/24/2017	SeqNo:	2704787			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony		10.839	0.50	10.00	0	108	75	125				
Arsenic		11.083	0.10	10.00	0.5355	105	75	125				
Beryllium		11.122	0.50	10.00	0	111	75	125				
Cadmium		10.373	0.50	10.00	0	104	75	125				
Cobalt		9.352	0.50	10.00	0	93.5	75	125				
Copper		13.556	1.0	10.00	4.427	91.3	75	125				
Lead		10.987	1.0	10.00	0	110	75	125				
Manganese		100.751	0.50	100.0	0	101	75	125				
Molybdenum		12.442	0.50	10.00	0.9428	115	75	125				
Nickel		9.385	1.0	10.00	0	93.9	75	125				
Selenium		9.891	0.50	10.00	0.3972	94.9	75	125				
Silver		9.299	0.50	10.00	0	93.0	75	125				
Thallium		10.949	0.50	10.00	0	109	75	125				
Vanadium		14.140	1.0	10.00	3.823	103	75	125				
Zinc		109.095	10	100.0	10.24	98.9	75	125				

Qualifiers:

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



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

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

CLIENT: CH2M HILL
Work Order: N024864
Project: PG&E Topock, 680375.02.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID	N024934-001B-M-SD	SampType: MSD	TestNo.: EPA 200.8	Units: µg/L	Prep Date:	7/12/2017	RunNo:	116588				
Client ID:	zzzzzz	Batch ID: 62823	TestNo.: EPA 200.8	Units: µg/L	Analysis Date:	7/24/2017	SeqNo:	2704792				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	10.845	0.50	10.00	0	108	75	125	125	10.84	0.0579	20	
Arsenic	11.087	0.10	10.00	0.5355	106	75	125	11.08	0.0377	20		
Beryllium	11.250	0.50	10.00	0	112	75	125	11.12	1.14	20		
Cadmium	10.283	0.50	10.00	0	103	75	125	10.37	0.871	20		
Cobalt	9.255	0.50	10.00	0	92.6	75	125	9.352	1.05	20		
Copper	13.549	1.0	10.00	4.427	91.2	75	125	13.56	0.0526	20		
Lead	10.900	1.0	10.00	0	109	75	125	10.99	0.790	20		
Manganese	98.991	0.50	100.00	0	99.0	75	125	100.8	1.76	20		
Molybdenum	12.405	0.50	10.00	0.9428	115	75	125	12.44	0.298	20		
Nickel	9.350	1.0	10.00	0	93.5	75	125	9.385	0.380	20		
Selenium	10.326	0.50	10.00	0.3972	99.3	75	125	9.891	4.31	20		
Silver	9.277	0.50	10.00	0	92.8	75	125	9.299	0.234	20		
Thallium	10.722	0.50	10.00	0	107	75	125	10.95	2.10	20		
Vanadium	13.934	1.0	10.00	3.823	101	75	125	14.14	1.47	20		
Zinc	107.259	10	100.0	10.24	97.0	75	125	109.1	1.70	20		

Sample ID	MB-62823	SampType: MBLK	TestCode: 200.8_W	Units: µg/L	Prep Date:	7/12/2017	RunNo:	116622				
Client ID:	PBW	Batch ID: 62823	TestNo.: EPA 200.8	Units: µg/L	Analysis Date:	7/25/2017	SeqNo:	2706211				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium		ND	1.0									

Sample ID	LCS-62823	SampType: LCS	TestCode: 200.8_W	Units: µg/L	Prep Date:	7/12/2017	RunNo:	116622				
Client ID:	LCSW	Batch ID: 62823	TestNo.: EPA 200.8	Units: µg/L	Analysis Date:	7/25/2017	SeqNo:	2706212				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium		9.937	1.0	10.00	0	99.4	85	115				

Qualifiers:

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

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ORELAP/NELAP Cert 4046
- 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:** N024864**Project:** PG&E Topock, 680375.02.IM.OP.00**ANALYTICAL QC SUMMARY REPORT****TestCode:** 200.8_W

Sample ID	N024934-001B-MS	SampType:	MS	TestCode:	200.8_W	Units:	µg/L	Prep Date:	7/12/2017	RunNo:	116622	
Client ID:	ZZZZZZ	Batch ID:	62823	TestNo:	EPA 200.8 <th></th> <th></th> <th>Analysis Date:</th> <td>7/25/2017<th>SeqNo:</th><td>2706216</td></td>			Analysis Date:	7/25/2017 <th>SeqNo:</th> <td>2706216</td>	SeqNo:	2706216	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium		138.877	1.0	100.0	27.73	111	75	125				
Sample ID	N024934-001B-MSD	SampType:	MSD	TestCode:	200.8_W	Units:	µg/L	Prep Date:	7/12/2017	RunNo:	116622	
Client ID:	ZZZZZZ	Batch ID:	62823	TestNo:	EPA 200.8 <th></th> <th></th> <th>Analysis Date:</th> <td>7/25/2017<th>SeqNo:</th><td>2706217</td></td>			Analysis Date:	7/25/2017 <th>SeqNo:</th> <td>2706217</td>	SeqNo:	2706217	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium		137.809	1.0	100.0	27.73	110	75	125	138.9	0.772	20	

Qualifiers:

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

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



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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 31-Jul-17

CLIENT: CH2M HILL
Lab Order: N024864
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N024864-001

Client Sample ID: SC-100B-WDR-560**Collection Date:** 7/5/2017 2:06:00 PM**Matrix:** WATER

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

RunID: NV00922-IC7_170706A	QC Batch: R116147	PrepDate	Analyst: RAB		
Hexavalent Chromium	550 6.6	20	µg/L	100	7/6/2017 10:43 AM

TOTAL METALS BY ICPMS**EPA 200.8**

RunID: NV00922-ICP7_170724A	QC Batch: 62823	PrepDate	7/12/2017	Analyst: CEI	
Chromium	520 0.096	5.0	µg/L	5	7/24/2017 06:29 PM

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

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

**ASSET LABORATORIES**
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES**"Servina Clients with Passion and Professionalism"**

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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 31-Jul-17

CLIENT: CH2M HILL
Lab Order: N024864
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N024864-002

Client Sample ID: SC-700B-WDR-560
Collection Date: 7/5/2017 2:10:00 PM
Matrix: WATER

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

RunID: NV00922-IC7_170706A	QC Batch: R116147	PrepDate	Analyst: RAB		
Hexavalent Chromium	ND 0.33	1.0	µg/L	5	7/6/2017 12:20 PM

TOTAL METALS BY ICPMS**EPA 200.8**

RunID: NV00922-ICP7_170724A	QC Batch: 62823	PrepDate	7/12/2017	Analyst: CEI	
Chromium	ND 0.019	1.0	µg/L	1	7/24/2017 06:34 PM

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

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

**ASSET LABORATORIES**
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES**"Servina Clients with Passion and Professionalism"**

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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 31-Jul-17

CLIENT: CH2M HILL
Lab Order: N024864
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N024864-003

Client Sample ID: SC-701-WDR-560**Collection Date:** 7/5/2017 2:15:00 PM**Matrix:** WATER

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

RunID: NV00922-IC7_170706A	QC Batch: R116147	PrepDate	Analyst: RAB
Hexavalent Chromium	ND 1.6	5.0	µg/L
		25	7/6/2017 12:54 PM

TOTAL METALS BY ICPMS**EPA 200.8**

RunID: NV00922-ICP7_170724A	QC Batch: 62823	PrepDate	7/12/2017	Analyst: CEI
Chromium	ND 0.096	5.0	µg/L	5
			7/24/2017 07:02 PM	

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

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

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ASSET Laboratories

Date: 31-Jul-17

CLIENT: CH2M HILL
Work Order: N024864
Project: PG&E Topock, 680375.02.IM.OP.00

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

Sample ID	SampType:	TestCode:	Units:	Prep Date:	RunNo:							
Client ID:	Batch ID:	TestNo:	µg/L	Analysis Date:	SeqNo:							
Analyte		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Chromium	0.031	1.0										
Sample ID LCS-62823	SampType: LCS	TestCode: 200.8_W_CR	Units: µg/L	Prep Date: 7/12/2017	RunNo: 116586							
Client ID: LCSW	Batch ID: 62823	TestNo: EPA 200.8		Analysis Date: 7/24/2017	SeqNo: 2704703							
Chromium	9.917	1.0	10.00	0	99.2	85	115					
Sample ID N024934-001B-MS	SampType: MS	TestCode: 200.8_W_CR	Units: µg/L	Prep Date: 7/12/2017	RunNo: 116586							
Client ID: ZZZZZZZ	Batch ID: 62823	TestNo: EPA 200.8		Analysis Date: 7/24/2017	SeqNo: 2704709							
Chromium	22.637	1.0	10.00	13.13	95.1	75	125					
Sample ID N024934-001B-MSD	SampType: MSD	TestCode: 200.8_W_CR	Units: µg/L	Prep Date: 7/12/2017	RunNo: 116586							
Client ID: ZZZZZZZ	Batch ID: 62823	TestNo: EPA 200.8		Analysis Date: 7/24/2017	SeqNo: 2704714							
Chromium	22.221	1.0	10.00	13.13	90.9	75	125	22.64	1.85	20		

Qualifiers:

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

CLIENT: CH2M HILL
Work Order: N024864
Project: PG&E Topock, 680375.02.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WU_PGE

Sample ID	SampType:	MBLK	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	116147		
Client ID:	Batch ID:	R116147	TestNo:	EPA 218.6			Analysis Date:	7/6/2017	SeqNo:	2683631		
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-R116147	SampType: LCS	TestCode: 218.6_WU_P	Units: µg/L			Prep Date:		RunNo:	116147		
Client ID:	LCSW	Batch ID: R116147	TestNo: EPA 218.6				Analysis Date:	7/6/2017	SeqNo:	2683632		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.859	0.20	5.000	0	97.2	90	90	110				
Sample ID	N024864-001CDUP	SampType: DUP	TestCode: 218.6_WU_P	Units: µg/L			Prep Date:		RunNo:	116147		
Client ID:	ZZZZZZ	Batch ID: R116147	TestNo: EPA 218.6				Analysis Date:	7/6/2017	SeqNo:	2683634		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	571.740	20								545.6	4.68	20
Sample ID	N024864-001CMS	SampType: MS	TestCode: 218.6_WU_P	Units: µg/L			Prep Date:		RunNo:	116147		
Client ID:	ZZZZZZ	Batch ID: R116147	TestNo: EPA 218.6				Analysis Date:	7/6/2017	SeqNo:	2683635		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1029.760	20	500.0	545.6	96.8	90	90	110				
Sample ID	N024864-001CMSD	SampType: MSD	TestCode: 218.6_WU_P	Units: µg/L			Prep Date:		RunNo:	116147		
Client ID:	ZZZZZZ	Batch ID: R116147	TestNo: EPA 218.6				Analysis Date:	7/6/2017	SeqNo:	2683636		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1032.120	20	500.0	545.6	97.3	90	110	1030		0.229	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- DO Surrogate Diluted Out
- Calculations are based on raw values
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- ASSET LABORATORIES 11110 Artesia Blvd., Ste B, Cerritos, CA 90703 ELAP Cert 29211
- *Servina Clients with Passion and Professionalism*

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

CLIENT: CH2M HILL
Work Order: N024864
Project: PG&E Topock, 680375.02.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WU_PGE

Sample ID	N024864-002CMS	SampType:	MS	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:	
Client ID:	zzzzzz	Batch ID:	R116147	TestNo:	EPA 218.6			Analysis Date:	7/6/2017
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val
Hexavalent Chromium		5.322	1.0	5,000	0	106	90	110	

Sample ID	N024864-003BMS	SampType:	MS	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:	
Client ID:	zzzzzz	Batch ID:	R116147	TestNo:	EPA 218.6			Analysis Date:	7/6/2017
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val
Hexavalent Chromium		25.550	5.0	25,00	2,082	93.9	90	110	

Qualifiers:

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



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 EPA ID CA01638

ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 31-Jul-17

CLIENT: CH2M HILL
Lab Order: N024864
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N024864-001

Client Sample ID: SC-100B-WDR-560
Collection Date: 7/5/2017 2:06:00 PM
Matrix: WATER

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

RunID: NV00922-WC_170706E	QC Batch: R116233	PrepDate	Analyst: RB
Turbidity	0.33	0.10	0.10
		NTU	1
			7/6/2017 06:00 PM

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

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



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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 31-Jul-17

CLIENT: CH2M HILL
Lab Order: N024864
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N024864-002

Client Sample ID: SC-700B-WDR-560
Collection Date: 7/5/2017 2:10:00 PM
Matrix: WATER

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

RunID: NV00922-WC_170706E	QC Batch: R116233	PrepDate	Analyst: RB
Turbidity	0.22	0.10	0.10
		NTU	1
			7/6/2017 06:00 PM

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

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



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ASSET Laboratories

Date: 31-Jul-17

CLIENT: CH2M HILL
Work Order: N024864
Project: PG&E Topock, 680375.02.IM.OP.00

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

Sample ID	MB-R116233	SampType: MBLK	TestCode: 2130_W	Units: NTU	Prep Date:	RunNo: 116233							
Client ID:	PBW	Batch ID: R116233	TestNo: SM 2130B		Analysis Date:	SeqNo: 2687524							
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Turbidity		ND	0.10										
Sample ID	N024864-001BDUP	SampType: DUP	TestCode: 2130_W	Units: NTU	Prep Date:	RunNo: 116233							
Client ID:	ZZZZZZZ	Batch ID: R116233	TestNo: SM 2130B		Analysis Date:	SeqNo: 2687526							
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Turbidity		0.330	0.10										
Sample ID	N024864-002BDUP	SampType: DUP	TestCode: 2130_W	Units: NTU	Prep Date:	RunNo: 116233							
Client ID:	ZZZZZZZ	Batch ID: R116233	TestNo: SM 2130B		Analysis Date:	SeqNo: 2687528							
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Turbidity		0.210	0.10										

Qualifiers:

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

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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 31-Jul-17

CLIENT: CH2M HILL
Lab Order: N024864
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N024864-003

Client Sample ID: SC-701-WDR-560
Collection Date: 7/5/2017 2:15:00 PM
Matrix: WATER

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

RunID: NV00922-AA1_170707B	QC Batch: 62781		PrepDate	7/7/2017	Analyst: CEI
Mercury	ND	0.087	0.20	µg/L	1
					7/7/2017 01:40 PM

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

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

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ASSET Laboratories

Date: 31-Jul-17

CLIENT: CH2M HILL

Work Order: N024864

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

ANALYTICAL QC SUMMARY REPORT

TestCode: 245.1_W

Sample ID	MB-62781	SampType: MBLK	TestCode: 245.1_W	Units: µg/L	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Client ID:	PBW	Batch ID: 62781	TestNo: EPA 245.1												
Analyte		Result	PQL	SPK value	SPK Ref Val										
Mercury		ND	0.20												
Sample ID	LCS-62781	SampType: LCS	TestCode: 245.1_W	Units: µg/L	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Client ID:	LCSW	Batch ID: 62781	TestNo: EPA 245.1												
Analyte		Result	PQL	SPK value	SPK Ref Val										
Mercury		4.616	0.20	5.000	0			92.3	85	115					
Sample ID	N024864-003C-MS	SampType: MS	TestCode: 245.1_W	Units: µg/L	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Client ID:	ZZZZZZ	Batch ID: 62781	TestNo: EPA 245.1												
Analyte		Result	PQL	SPK value	SPK Ref Val										
Mercury		4.692	0.20	5.000	0			93.8	75	125					
Sample ID	N024864-003C-MSD	SampType: MSD	TestCode: 245.1_W	Units: µg/L	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Client ID:	ZZZZZZ	Batch ID: 62781	TestNo: EPA 245.1												
Analyte		Result	PQL	SPK value	SPK Ref Val										
Mercury		4.655	0.20	5.000	0			93.1	75	125	4.692	0.786	20		

Qualifiers:

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

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

ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 31-Jul-17

CLIENT: CH2M HILL
Lab Order: N024864
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N024864-001

Client Sample ID: SC-100B-WDR-560**Collection Date:** 7/5/2017 2:06:00 PM**Matrix:** WATER

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

RunID: NV00922-IC8_170706A	QC Batch: R116156	PrepDate	Analyst: RAB			
Fluoride	2.5	0.017	0.50	mg/L	5	7/6/2017 10:11 AM

ANIONS BY ION CHROMATOGRAPHY**EPA 300.0**

RunID: NV00922-IC8_170706A	QC Batch: R116156	PrepDate	Analyst: RAB			
Sulfate	500	0.64	25	mg/L	50	7/6/2017 11:43 AM

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

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

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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 31-Jul-17

CLIENT: CH2M HILL
Lab Order: N024864
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N024864-002

Client Sample ID: SC-700B-WDR-560**Collection Date:** 7/5/2017 2:10:00 PM**Matrix:** WATER

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

RunID: NV00922-IC8_170706A	QC Batch: R116156	PrepDate	Analyst: RAB
Fluoride	2.1 0.0068	0.20 mg/L	2 7/6/2017 10:26 AM

ANIONS BY ION CHROMATOGRAPHY**EPA 300.0**

RunID: NV00922-IC8_170706A	QC Batch: R116156	PrepDate	Analyst: RAB
Sulfate	450 0.64	25 mg/L	50 7/6/2017 11:58 AM

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

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

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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 31-Jul-17

CLIENT: CH2M HILL
Lab Order: N024864
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N024864-003

Client Sample ID: SC-701-WDR-560
Collection Date: 7/5/2017 2:15:00 PM
Matrix: WATER

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

RunID: NV00922-IC8_170706A	QC Batch: R116156	PrepDate	Analyst: RAB
Fluoride	26 0.068	2.0 mg/L	7/6/2017 10:42 AM

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

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

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ASSET Laboratories

Date: 31-Jul-17

CLIENT: CH2M HILL

Work Order: N024864

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

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_FPG

Sample ID	MB-R116156_F	SampType: MBLK	TestCode: 300_W_FPG	Units: mg/L	Prep Date:		RunNo: 116156						
Client ID:	PBW	Batch ID: R116156	TestNo: EPA 300.0		Analysis Date:	7/6/2017	SeqNo: 2683816						
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Fluoride		ND	0.10										
Sample ID	LCS-R116156_F	SampType: LCS	TestCode: 300_W_FPG	Units: mg/L	Prep Date:		RunNo: 116156						
Client ID:	LCSW	Batch ID: R116156	TestNo: EPA 300.0		Analysis Date:	7/6/2017	SeqNo: 2683817						
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Fluoride		1.239	0.10	1.250	0	99.1	90	110					
Sample ID	N024864-001BDUP	SampType: DUP	TestCode: 300_W_FPG	Units: mg/L	Prep Date:		RunNo: 116156						
Client ID:	ZZZZZZZ	Batch ID: R116156	TestNo: EPA 300.0		Analysis Date:	7/6/2017	SeqNo: 2683821						
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Fluoride		2.619	0.50										
Sample ID	N024864-001BMS	SampType: MS	TestCode: 300_W_FPG	Units: mg/L	Prep Date:		RunNo: 116156						
Client ID:	ZZZZZZZ	Batch ID: R116156	TestNo: EPA 300.0		Analysis Date:	7/6/2017	SeqNo: 2683822						
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Fluoride		8.641	0.50	6.250	2.522	97.9	80	120					
Sample ID	N024864-001BMSD	SampType: MSD	TestCode: 300_W_FPG	Units: mg/L	Prep Date:		RunNo: 116156						
Client ID:	ZZZZZZZ	Batch ID: R116156	TestNo: EPA 300.0		Analysis Date:	7/6/2017	SeqNo: 2683823						
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Fluoride		8.529	0.50	6.250	2.522	96.1	80	120					

Qualifiers:

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

R RPD outside accepted recovery limits
 Calculations are based on raw values



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

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EPA ID CA01638

CLIENT: CH2M HILL
Work Order: N024864
Project: PG&E Topock, 680375.02.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID	SampType:	Batch ID:	TestCode:	Units:	Prep Date:	Analysis Date:	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sample ID MB-R116156_SO4	MBLK	TestNo: EPA 300.0	TestNo: 300_W_SO4P	Units: mg/L								
Client ID: PBW												
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC						
Sulfate		0.188	0.50									
Sample ID LCS-R116156_SO4	LCS	Batch ID: R116156	TestNo: EPA 300.0	TestCode: 300_W_SO4P	Units: mg/L	Prep Date:						
Client ID: LCSW												
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC						
Sulfate		3.934	0.50	4.000	0	98.4						
Sample ID N024864-001BDUP	DUP	Batch ID: R116156	TestNo: EPA 300.0	TestCode: 300_W_SO4P	Units: mg/L	Prep Date:						
Client ID: ZZZZZZ												
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC						
Sulfate		497.415	25									
Sample ID N024864-001BMS	MS	Batch ID: R116156	TestNo: EPA 300.0	TestCode: 300_W_SO4P	Units: mg/L	Prep Date:						
Client ID: ZZZZZZ												
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC						
Sulfate		695.640	25	200.0	502.7	96.5						
Sample ID N024864-001BMSD	MSD	Batch ID: R116156	TestNo: EPA 300.0	TestCode: 300_W_SO4P	Units: mg/L	Prep Date:						
Client ID: ZZZZZZ												
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC						
Sulfate		697.450	25	200.0	502.7	97.4						

Qualifiers:

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



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 3151 W. Post Rd., Las Vegas, NV 89118
 ELAP Cert 29211
 EPA ID CA01638
 CALIFORNIA P:862.219.7435 F:862.219.7436
 11110 Artesia Blvd., Ste B, Cerritos, CA 90703
 ELAP Cert 29211
 EPA ID CA01638

ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 31-Jul-17

CLIENT: CH2M HILL
Lab Order: N024864
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N024864-001

Client Sample ID: SC-100B-WDR-560
Collection Date: 7/5/2017 2:06:00 PM
Matrix: WATER

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

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

RunID: NV00922-WC_170710A	QC Batch: R116231	PrepDate	Analyst: RB			
Nitrate/Nitrite as N	3.0	0.11	0.25	mg/L	5	7/10/2017

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

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

**ASSET LABORATORIES**
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES**"Servina Clients with Passion and Professionalism"**

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

ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 31-Jul-17

CLIENT: CH2M HILL
Lab Order: N024864
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N024864-002

Client Sample ID: SC-700B-WDR-560
Collection Date: 7/5/2017 2:10:00 PM
Matrix: WATER

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

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

RunID: NV00922-WC_170710A	QC Batch: R116231	PrepDate	Analyst: RB			
Nitrate/Nitrite as N	2.8	0.11	0.25	mg/L	5	7/10/2017

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

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

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

ASSET Laboratories

Date: 31-Jul-17

CLIENT: CH2M HILL

Work Order: N024864

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

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID	MB-R116231	SampType: MBLK	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 116231							
Client ID:	PBW	Batch ID: R116231	TestNo: SM4500-NO3		Analysis Date:	SeqNo: 2687481							
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-R116231	SampType: LCS	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 116231							
Client ID:	LCSW	Batch ID: R116231	TestNo: SM4500-NO3		Analysis Date:	SeqNo: 2687482							
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N		0.502	0.050	0.5000	0	100	85	115					
Sample ID	N024710-001CDUP	SampType: DUP	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 116231							
Client ID:	ZZZZZZZ	Batch ID: R116231	TestNo: SM4500-NO3		Analysis Date:	SeqNo: 2687484							
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N		ND	0.10				0.06040	0	20				
Sample ID	N024710-001CMS	SampType: MS	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 116231							
Client ID:	ZZZZZZZ	Batch ID: R116231	TestNo: SM4500-NO3		Analysis Date:	SeqNo: 2687485							
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N		1.023	0.10	1.000	0.06040	96.3	75	125					
Sample ID	N024710-001CMSD	SampType: MSD	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 116231							
Client ID:	ZZZZZZZ	Batch ID: R116231	TestNo: SM4500-NO3		Analysis Date:	SeqNo: 2687486							
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N		1.039	0.10	1.000	0.06040	97.8	75	125	1.023	1.51	20		

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
DO	Surrogate Diluted Out		Calculations are based on raw values
ASSET LABORATORIES CALIFORNIA P:762.219.7435 F:762.219.7436 11110 Artesia Blvd., Ste B, Cerritos, CA 90703 ELAP Cert 2921 EPA ID CA01638			
NEVADA P:702.307.2659 F:702.307.2691 3151 W. Post Rd., Las Vegas, NV 89118 ELAP Cert 2676 NV Cert NV00922 ORELAP/MELAP Cert 4046			

CH2MHILL

CHAIN OF CUSTODY RECORD

Project Name	PG&E Topock		Container:	1 Liter	1 Liter	1 Liter	250 ml	1 Liter	500 ml	500 ml	1 Liter			
Location	PG&E Topock		Poly	Poly	Poly	Poly	Poly	Poly	Poly	Poly	Poly			
Project Number	680375.02.MI.OP.00		4°C Lab	4°C	4°C	4°C	4°C	4°C	4°C	4°C	4°C			
Project Manager	Scott O'Donnell		Preservatives:	H2SO4										
Sample Manager	Shawn Duffy		Filtered:	NA	NA	NA	NA	NA	NA	NA	NA			
Number of Containers														
Comments														
Turbidity (SM2130)														
Total Title22Metals														
Total Metals(E200.7 and E200.8)														
Total Metals (E200.8 Mn)														
TDS (SM2540C)														
Nitrate/Nitrite (SM4560NO3-E)														
E218.6 Lab Filtered														
CONDUCTIVITY (E120.1)														
Anions (E300.0) Fluoride														
Anions (E300.0) F ⁻ & SO ₄ ²⁻														
AMMONIA (SM4500NH3D)														
DATE	TIME	Matrix												
SC-100B-WDR-560	7-5-17	1404	Water	X	X	X	X	X	X	X	X	N024864 - 01		
SC-700B-WDR-560	7-5-17	1400	Water	X	X	X	X	X	X	X	X	- 02		
SC-701-WDR-560	7-5-17	1415	Water	X	X	X	X	X	X	X	X	- 03		
													TOTAL NUMBER OF CONTAINERS	
													14	

Approved by	John Roenke	Signature	Date/Time	7-5-17 14:00	Shipping Details	FedEx	ATTN:	John Roenke	Special Instructions:
Sampled by			Method of Shipment:	7-5-17 14:15	On Ice:	Yes	No		The SC-100B & SC-700B Total metals List: Cr,Al,Sb,As,Ba,S,Cu,Pb,Mn,Mo,Ni,Fe,Zn
Relinquished by			Airbill No:	7-5-17 14:07					
Received by				7-5-17 14:27					
Relinquished by			Lab Name:	ASSET Laboratories	Sample Custody	and			
Received by			Lab Phone:	(702) 307-2659	Marion Cartin				
					Report Copy to	Doug Scott			
									(970) 731-0536

ASSET Laboratories

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

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

Cooler Received/Opened On:	7/5/2017	Workorder:	N024864		
Rep sample Temp (Deg C):	4.0	IR Gun ID:	2		
Temp Blank:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No			
Carrier name:	ASSET				
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None		
Cooling process:	<input checked="" type="checkbox"/> Ice	<input type="checkbox"/> Ice Pack	<input type="checkbox"/> Dry Ice	<input type="checkbox"/> Other	<input type="checkbox"/> None

Sample Receipt Checklist

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

Comments: Samples 1 (SC-100B-WDR-560) and 2 (SC-700B-WDR-560) received at pH 7 and sample 3 (SC-701-WDR-560) at pH 8. For Total Metals adjusted to pH < 2 with HNO3 and for Ammonia/NO3 adjusted to pH < 2 with H2SO4. For Hex Cr filtered and then preserved with Ammonium Buffer.

For:

Checklist Completed By: MBC  7/17/2017

Reviewed By: MBC 7/18/2017



ASSET Laboratories

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

www.atl-labs.com

TEL: 7023072659

QC Level: Level IV

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

Subcontractor:
Truesdail
3337 Michelson Drive, Suite CN750
Irvine, CA 92612

TEL: (714) 730-6239
FAX: (714) 730-6462
Acct #: .

06-Jul-17

Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests	
				SM4500-NH3D	
N024864-001A / SC-100B-WDR-560	Water	7/5/2017 2:06:00 PM	32CZP	1	
N024864-002A / SC-700B-WDR-560	Water	7/5/2017 2:10:00 PM	32CZP	1	

General Comments:

Please email sample receipt acknowledgement to the PM.

Please use PO#: N24864A. Please email Invoices and Account Receivable Statements to AssetAP@assetlaboratories.com. For questions, call Marion at (702)-307-2659. Please e-mail results to reports.IV@assetlaboratories.com by: Normal TAT.

Please analyze for Ammonia. CH2M Hill samples.

Relinquished by:	Date/Time	Received by:	Date/Time
<i>J.D.</i>	7/6/2017 17:00		

List of Analysts

ASSET Laboratories Work Order: **N024864**

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



ASSET LABORATORIES
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TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING



Established 1931

REPORT

3337 MICHELSON DRIVE, SUITE CN 750
IRVINE, CA 92612
(714) 730-6239 • FAX (714) 730-6462
www.truesdail.com

Client: Advanced Technology Laboratories-NV

3151 W Post Rd
Las Vegas, NV 89118

Attention: Marlon Cartin

Project Name: ATL-NV

Work Order No.: 17G0152

Originally Printed: 07/25/2017

Revision 1 Date: 08/18/2017

CASE NARRATIVE

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Ammonia analyses. A summary table for this laboratory number is included in Section 2. Complete laboratory reports, wet chemistry raw data, quality control data and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data are under Section 5.

The samples were received and delivered with the chain of custody on July 7, 2017, intact and in chilled condition. The sample will be kept in a locked refrigerator for 30 days; thereafter will be kept in warm storage for additional 2 months before disposal.

The report was revised on August 18, 2017 in order to correct an incorrect Sample ID (N024864-001A / SC-100B-WDR-560). The data has not changed.

If you have any questions or require additional information, please contact me at (714) 730-6239 ext. 203.

SAMPLE RECEIPT SUMMARY

Sample ID	Laboratory ID	Matrix	Type	Date Sampled	Date Received
N024864-001A / SC-100B-WDR-560	17G0152-01	Water	Grab	07/05/2017 14:06	07/07/2017 09:15
N024864-002A / SC-700B-WDR-560	17G0152-02	Water	Grab	07/05/2017 14:10	07/07/2017 09:15

DEFINITIONS

Symbol	Definition
DF	Dilution Factor
MDL	Method Detection Limit
ND	Not Detected
RL	Reporting Limit

Respectfully yours,

Shelly Brady
Customer Service Manager

This report applies to the sample(s), or product(s), investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed. This report shall not be reproduced without the written consent of Truesdail Laboratories, Inc., and must be reproduced in its entirety.



TRUESDAIL LABORATORIES, INC.

Client: Advanced Technology Laboratories-N Project Name: ATL-NV
Project Number: [none]

Printed: 08/18/2017

N024864-001A / SC-100B-WDR-560
17G0152-01 (Water)

Analyte	Result	RL	Units	DF	Batch	Analyzed	Analyst	Method	Notes
---------	--------	----	-------	----	-------	----------	---------	--------	-------

Truesdail Laboratories, Inc

Wet Chemistry

Ammonia ND 0.0500 mg/L 1 1707285 07/15/2017 09:42 Alexander Luna SM 4500-NH3 D M

N024864-002A / SC-700B-WDR-560
17G0152-02 (Water)

Analyte	Result	RL	Units	DF	Batch	Analyzed	Analyst	Method	Notes
---------	--------	----	-------	----	-------	----------	---------	--------	-------

Truesdail Laboratories, Inc

Wet Chemistry

Ammonia ND 0.0500 mg/L 1 1707285 07/15/2017 09:44 Alexander Luna SM 4500-NH3 D M



TRUESDAIL LABORATORIES, INC.

Client: Advanced Technology Laboratories-N Project Name: ATL-NV
Project Number: [none]

Printed: 08/18/2017

QUALITY CONTROL**Wet Chemistry**

Truesdail Laboratories, Inc

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	% Rec Limits	RPD	RPD Limit	Note
---------	--------	----	-------	-------------	---------------	------	--------------	-----	-----------	------

Batch: 1707285 - SM 4500-NH3 D M**Blank (1707285-BLK1)**

Prepared & Analyzed: 7/15/2017

Ammonia ND 0.0500 mg/L

LCS (1707285-BS1)

Prepared & Analyzed: 7/15/2017

Ammonia 0.426 0.0500 mg/L 0.400 106 90-110

Duplicate (1707285-DUP1)**Source: 17G0222-01**

Prepared & Analyzed: 7/15/2017

Ammonia 24.1 1.25 mg/L 24.4 1 20

Matrix Spike (1707285-MS1)**Source: 17G0120-05**

Prepared & Analyzed: 7/15/2017

Ammonia 0.461 0.0500 mg/L 0.400 0.0458 104 75-125

Matrix Spike Dup (1707285-MSD1)**Source: 17G0120-05**

Prepared & Analyzed: 7/15/2017

Ammonia 0.459 0.0500 mg/L 0.400 0.0458 103 75-125 0.3 20

ANALYSIS DATA SHEET

Inorganics

Client: Advanced Technology Laboratories-NV
Client Sample ID: N024864-001A / SC-100B-WDR-560
Lab Sample ID: 17G0152-01
Project: ATL-NV

Date Sampled: 07/05/17 14:06 Matrix: Water

CAS NO.	Analyte	Concentration (mg/L)	MDL	RL	DF	Q	Analyst	Analyzed	Method
7664-41-7	Ammonia	ND	0.0111	0.0500	1		AxL	07/15/17 09:42	SM 4500-NH3 D N

ANALYSIS DATA SHEET

Inorganics

Client: Advanced Technology Laboratories-NV
Client Sample ID: N024864-002A / SC-700B-WDR-560
Lab Sample ID: 17G0152-02
Project: ATL-NV

Date Sampled: 07/05/17 14:10 Matrix: Water

CAS NO.	Analyte	Concentration (mg/L)	MDL	RL	DF	Q	Analyst	Analyzed	Method
7664-41-7	Ammonia	ND	0.0111	0.0500	1		AxL	07/15/17 09:44	SM 4500-NH3 D N

METHOD BLANK DATA SHEET

SM 4500-NH3 D M

Client: Advanced Technology Laboratories-NV

Project: ATL-NV

Laboratory ID: 1707285-BLK1

Prepared: 07/15/17 06:32 Preparation: SM 4500-NH3 D M Matrix: Water

Analyzed: 07/15/17 09:21 Instrument: TL01 File ID: 7G15001-019

Batch: 1707285 Sequence: 7G15001

CAS NO.	COMPOUND	CONC. (mg/L)	MDL	RL	Q
7664-41-7	Ammonia	ND	0.0111	0.0500	

LCS / LCS DUPLICATE RECOVERY

SM 4500-NH3 D M

Client: Advanced Technology Laboratories-NV

Project: ATL-NV

Work Order: 17G0152

Matrix: Water Prep Method: SM 4500-NH3 D M

Prep Batch: 1707285 Lab Sample ID: 1707285-BS1

ANALYTE	SPIKE ADDED (mg/L)	LCS CONCENTRATION (mg/L)	LCS % REC.	QC LIMITS REC.
Ammonia	0.400	0.426	106	90 - 110

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

Matrix Spike

Client: Advanced Technology Laboratories-NV
Project: ATL-NV
Work Order: 17G0152

Matrix: Water Analysis Method: SM 4500-NH3 D M
Prep Batch: 1707285 Prep Method: SM 4500-NH3 D M
Laboratory ID: 1707285-MS1
Source Sample ID: 17G0120-05

ANALYTE	SPIKE ADDED (mg/L)	SAMPLE CONCENTRATION (mg/L)	MS CONCENTRATION (mg/L)	MS % REC.	QC LIMITS REC.
Ammonia	0.400	0.0458	0.461	104	75 - 125
ANALYTE	SPIKE ADDED (mg/L)	MSD CONCENTRATION (mg/L)	MSD % REC. #	% RPD	QC LIMITS RPD REC.
Ammonia	0.400	0.459	103	0.3	20 75 - 125

DUPLICATES

Duplicate

Client: Advanced Technology Laboratories-NV
Project: ATL-NV

Matrix: Water Laboratory ID: 1707285-DUP1
Prep Batch: 1707285 Initial/Final: 2 mL / 50 mL
Prep Method: SM 4500-NH3 D M Analysis: SM 4500-NH3 D M

ANALYTE	SAMPLE CONCENTRATION (mg/L)	DUPLICATE CONCENTRATION (mg/L)	RPD %	Q	CONTROL LIMIT
Ammonia	24.4	24.1	1		20

**Log-in check list
For level III data package**

Client: **ATL** Lab Number: **17G0152**

Received Date: **7-7-17**

Sample receiving review	Yes	No	N/A	Comment
Was special login form received by login personnel?	✓			
Was COC received and signed by client and login personnel?	✓			
Were all sample temperature measured and recorded on COC?	✓			
Did you measure and record the pH on all metals samples on COC?			✓	
Has sample integrity and analysis discrepancy form been filled out completely?	✓			
Were all intercompany yellow forms generated and stamped with "alert level III QC" note?	✓			
Have check -in and check out lists been filled out and attached to appropriate form?	✓			
Were sample containers labeled with TLI numbers, date, and time sampled?	✓			
Did you notify analyst or group leader about short holding time?			✓	
Was a copy of COC attached to all yellow intracompany form?	✓			
For special clients, have all their samples been logged into the internal COC book?	✓			
Were samples locked in fridge or special storage area?	✓			
Was temperature recorded in the log book?	✓			
Sample receiving Signature:	<i>J Brown</i>			



WORK ORDER

Printed: 7/7/17 9:54:20AM

17G0152 ✓

Truesdail Laboratories, Inc

Client: Advanced Technology Laboratories-NV ✓
 Project: ATL-NV

Project Manager: Shelly Brady
 Project Number: [none]

Report To:

Advanced Technology Laboratories-NV
 Marlon Cartin
 3151 W Post Rd
 Las Vegas, NV 89118
 Phone: (702) 307-2659
 Fax: (702) 307-2691

Invoice To:

Advanced Technology Laboratories-NV
 Marlon Cartin
 3151 W Post Rd
 Las Vegas, NV 89118
 Phone :(702) 307-2659
 Fax: (702) 307-2691

Date Due: 07/18/2017 16:30 (7 day TAT)

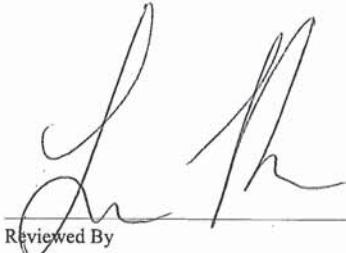
Date Received: 07/07/2017 09:15 ✓✓

Received By: Jacqueline Brown ✓

Date Logged In: 07/07/2017 09:48

Samples Received at: 6.3°C ✓
 Chain of Custody received Yes Samples intact? Yes
 Letter (if sent) matched No Custody seals (if any) No
 Requested analyses accepted Yes Analyses within hold time Yes
 Samples received in a Yes

Analysis	Due	TAT	Expires	Comments
17G0152-01 N024864-001A / SC100B-WDR-560 [Water] Sampled 07/05/2017 14:06 (GMT-08:00) Pacific Time (US &	07/18/2017 08:00	7	08/02/2017 14:06	
17G0152-02 N024864-002A / SC-700B-WDR-560 [Water] Sampled 07/05/2017 14:10 (GMT-08:00) Pacific Time (US &	07/18/2017 08:00	7	08/02/2017 14:10	

Reviewed By 

7/7/17
Date

Page 1 of 1

August 17, 2017

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

Workorder No.: N025284

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

Attention: Doug Scott

Enclosed are the results for sample(s) received on August 01, 2017 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 Libuccino

Puri Romualdo
Laboratory Director

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CLIENT: CH2M HILL
Project: PG&E Topock, 680375.02.IM.OP.00
Lab Order: N025284

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

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

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

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

Samples were analyzed within method holding time.

Subcontracted Analyses:

Ammonia was subcontracted to Truesdail-Irvine,CA.

Analytical Comments for EPA 200.8:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Copper in QC samples N025284-001C-MS, N025284-001C-MSD and N025352-002H-MS 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 N025284-001C-MS and N025284-001C-MSD since the analyte concentration in the sample is disproportionate to the spike level. The associated Laboratory Control Sample (LCS) recovery was acceptable.



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ASSET Laboratories

Date: 17-Aug-17

CLIENT: CH2M HILL
Project: PG&E Topock, 680375.02.IM.OP.00
Lab Order: N025284
Contract No: IM3PLANT-AR

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N025284-001A	SC-100B-WDR-561	Water	8/1/2017 10:35:00 AM	8/1/2017	8/17/2017
N025284-001B	SC-100B-WDR-561	Water	8/1/2017 10:35:00 AM	8/1/2017	8/17/2017
N025284-001C	SC-100B-WDR-561	Water	8/1/2017 10:35:00 AM	8/1/2017	8/17/2017
N025284-002A	SC-700B-WDR-561	Water	8/1/2017 10:30:00 AM	8/1/2017	8/17/2017
N025284-002B	SC-700B-WDR-561	Water	8/1/2017 10:30:00 AM	8/1/2017	8/17/2017
N025284-002C	SC-700B-WDR-561	Water	8/1/2017 10:30:00 AM	8/1/2017	8/17/2017
N025284-002D	SC-700B-WDR-561	Water	8/1/2017 10:30:00 AM	8/1/2017	8/17/2017
N025284-002E	SC-700B-WDR-561	Water	8/1/2017 10:30:00 AM	8/1/2017	8/17/2017



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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 17-Aug-17

CLIENT: CH2M HILL
Lab Order: N025284
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N025284-001

Client Sample ID: SC-100B-WDR-561
Collection Date: 8/1/2017 10:35:00 AM
Matrix: WATER

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

SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: NV00922-WC_170802D	QC Batch: R116827	PrepDate	Analyst: LR
Specific Conductance	6700	0.10	umhos/cm
		0.10	1
			8/2/2017 09:50 AM

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

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

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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 17-Aug-17

CLIENT: CH2M HILL
Lab Order: N025284
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N025284-002

Client Sample ID: SC-700B-WDR-561
Collection Date: 8/1/2017 10:30:00 AM
Matrix: WATER

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

SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: NV00922-WC_170802D	QC Batch: R116827	PrepDate	Analyst: LR
Specific Conductance	6800	0.10	umhos/cm
		0.10	1
			8/2/2017 09:50 AM

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

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

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ASSET Laboratories

Date: 17-Aug-17

CLIENT: CH2M HILL
Work Order: N025284
Project: PG&E Topock, 680375.02.IM.OP.00

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

Sample ID	N025284-001ADUP	SampType:	DUP	TestCode:	120.1_WPGE	Units:	umhos/cm	Prep Date:		RunNo:	116827	
Client ID:	ZZZZZZ	Batch ID:	R116827	TestNo:	EPA 120.1			Analysis Date:	8/2/2017	SeqNo:	2719263	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	6730.000	0.10				6700		0.447	10			

Qualifiers:

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

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



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

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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 17-Aug-17

CLIENT: CH2M HILL
Lab Order: N025284
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N025284-001

Client Sample ID: SC-100B-WDR-561
Collection Date: 8/1/2017 10:35:00 AM
Matrix: WATER

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

RunID: NV00922-WC_170802J	QC Batch: 63179		PrepDate	8/2/2017	Analyst: LR
Total Dissolved Solids (Residue, Filterable)	4000	50	mg/L	1	8/2/2017 01:11 PM

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

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

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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 17-Aug-17

CLIENT: CH2M HILL
Lab Order: N025284
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N025284-002

Client Sample ID: SC-700B-WDR-561
Collection Date: 8/1/2017 10:30:00 AM
Matrix: WATER

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

RunID: NV00922-WC_170802J	QC Batch: 63179			PrepDate	8/2/2017	Analyst: LR
Total Dissolved Solids (Residue, Filterable)	3900	50	50	mg/L	1	8/2/2017 01:11 PM

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

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

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ASSET Laboratories

Date: 17-Aug-17

ANALYTICAL QC SUMMARY REPORT

CLIENT: CH2M HILL
Work Order: N025284
Project: PG&E Topock, 680375.02.IM.OP.00

TestCode: 160.1_2540C_W

Sample ID	SampType:	TestCode:	Units:	Prep Date:	RunNo:						
Client ID:	Batch ID:	TestNo:	mg/L	Analysis Date:	SeqNo:						
Analyte	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera)	951.000	10	1000	0	95.1	80	120				
Sample ID M-B-63179	SampType: MBLK	TestCode: 160.1_2540C	Units: mg/L	Prep Date:	8/2/2017	RunNo:	116833				
Client ID: PBW	Batch ID: 63179	TestNo: SM2540C		Analysis Date:	8/2/2017	SeqNo:	2719301				
Total Dissolved Solids (Residue, Filtera)	ND	10									
Sample ID N025284-002BDUP	SampType: DUP	TestCode: 160.1_2540C	Units: mg/L	Prep Date:	8/2/2017	RunNo:	116833				
Client ID: ZZZZZZ	Batch ID: 63179	TestNo: SM2540C		Analysis Date:	8/2/2017	SeqNo:	2719304				
Total Dissolved Solids (Residue, Filtera)	4035.000	50									

Qualifiers:

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



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

ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 17-Aug-17

CLIENT: CH2M HILL
Lab Order: N025284
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N025284-002

Client Sample ID: SC-700B-WDR-561
Collection Date: 8/1/2017 10:30:00 AM
Matrix: WATER

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

RunID: NV00922-ICP2_170810E	QC Batch: 63260			PrepDate	8/10/2017	Analyst: CEI
Aluminum	ND	2.7	50	µg/L	1	8/10/2017 08:10 PM
Boron	980	38	100	µg/L	1	8/10/2017 08:10 PM
Iron	ND	1.8	20	µg/L	1	8/10/2017 08:10 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

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ASSET Laboratories

Date: 17-Aug-17

CLIENT: CH2M HILL
Work Order: N025284
Project: PG&E Topock, 680375.02.IM.OP.00

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

Sample ID	Client ID:	SampType:	Batch ID:	TestCode:	Units:	Prep Date:	Analysis Date:	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual	
Analyte				PQL	SPK value	SPK Ref Val	%REC								
Aluminum		MB-63260	LCSW	SampType: LCS	TestCode: 200.7_WPGE	Units: µg/L	Prep Date: 8/10/2017	Analysis Date: 8/10/2017							
Boron				Batch ID: 63260	TestNo: EPA 200.7										
Iron				Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	
					20.860	50	10000	0	102	85	115				
					ND	100	5000	0	99.3	85	115				
					14.692	20	100.0	0	112	85	115				
Aluminum		N025284-002E-MS1	zzzzzzz	SampType: MS	TestCode: 200.7_WPGE	Units: µg/L	Prep Date: 8/10/2017	Analysis Date: 8/10/2017							
Boron				Batch ID: 63260	TestNo: EPA 200.7										
Iron				Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	
					10237.010	50	10000	0	102	85	115				
					4966.471	100	5000	0	99.3	85	115				
					112.354	20	100.0	0	112	85	115				
Aluminum		N025284-002E-MSD	zzzzzzz	SampType: MSD	TestCode: 200.7_WPGE	Units: µg/L	Prep Date: 8/10/2017	Analysis Date: 8/10/2017							
Boron				Batch ID: 63260	TestNo: EPA 200.7										
Iron				Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	
					9631.872	50	10000	0	96.3	75	125				
					5814.028	100	5000	981.2	96.7	75	125				
					111.071	20	100.0	14.49	96.6	75	125				
Aluminum		LCS1-63260		SampType: LCS	TestCode: 200.7_WPGE	Units: µg/L	Prep Date: 8/10/2017	Analysis Date: 8/10/2017							
Boron				Batch ID: 63260	TestNo: EPA 200.7										
Iron				Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	
					20.860	50	10000	0	102	85	115				
					ND	100	5000	0	99.3	85	115				
					14.692	20	100.0	0	112	85	115				

Qualifiers:

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



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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 17-Aug-17

CLIENT: CH2M HILL
Lab Order: N025284
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N025284-001

Client Sample ID: SC-100B-WDR-561
Collection Date: 8/1/2017 10:35:00 AM
Matrix: WATER

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

RunID: NV00922-ICP7_170809A	QC Batch: 63208		PrepDate	8/8/2017	Analyst: CEI
Manganese	21	0.056	0.50	µg/L	1
					8/9/2017 11:19 AM

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

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

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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 17-Aug-17

CLIENT: CH2M HILL
Lab Order: N025284
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N025284-002

Client Sample ID: SC-700B-WDR-561
Collection Date: 8/1/2017 10:30:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL METALS BY ICPMS							
EPA 200.8							
RunID: NV00922-ICP7_170809A	QC Batch: 63208			PrepDate	8/8/2017		Analyst: CEI
Antimony	ND	0.031	0.50	µg/L	1	8/9/2017 12:20 PM	
Arsenic	ND	0.025	0.10	µg/L	1	8/9/2017 12:20 PM	
Barium	12	0.070	1.0	µg/L	1	8/9/2017 12:20 PM	
Copper	ND	0.26	1.0	µg/L	1	8/9/2017 12:20 PM	
Lead	ND	0.037	1.0	µg/L	1	8/9/2017 12:20 PM	
Manganese	1.2	0.056	0.50	µg/L	1	8/9/2017 12:20 PM	
Molybdenum	19	0.039	0.50	µg/L	1	8/9/2017 12:20 PM	
Nickel	ND	0.040	1.0	µg/L	1	8/9/2017 12:20 PM	
Zinc	ND	0.27	10	µg/L	1	8/9/2017 12:20 PM	

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

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

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ASSET Laboratories

Date: 17-Aug-17

CLIENT: CH2M HILL

Work Order: N025284

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

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID	MB-63208	SampType: MBLK	TestCode: 200.8_W	Units: µg/L	Prep Date:	8/8/2017	RunNo:	116974					
Client ID:	PBW	Batch ID:	63208	TestNo: EPA 200.8	Analysis Date:	8/9/2017	SeqNo:	2725978					
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Antimony		ND	0.50										
Arsenic		ND	0.10										
Barium		ND	1.0										
Copper		ND	1.0										
Lead		ND	1.0										
Manganese		ND	0.50										
Molybdenum		ND	0.50										
Nickel		ND	1.0										
Zinc		ND	10										

Sample ID	LCS-63208	SampType: LCS	TestCode: 200.8_W	Units: µg/L	Prep Date:	8/8/2017	RunNo:	116974					
Client ID:	LCSW	Batch ID:	63208	TestNo: EPA 200.8	Analysis Date:	8/9/2017	SeqNo:	2725979					
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Antimony		10.174	0.50	10.00	0	0	102	85	115				
Arsenic		10.298	0.10	10.00	0	0	103	85	115				
Barium		10.324	1.0	10.00	0	0	103	85	115				
Copper		10.371	1.0	10.00	0	0	104	85	115				
Lead		10.567	1.0	10.00	0	0	106	85	115				
Manganese		101.670	0.50	100.0	0	0	102	85	115				
Molybdenum		10.218	0.50	10.00	0	0	102	85	115				
Nickel		10.466	1.0	10.00	0	0	105	85	115				
Zinc		102.610	10	100.0	0	0	103	85	115				

Sample ID	N025284-001C-MS	SampType: MS	TestCode: 200.8_W	Units: µg/L	Prep Date:	8/8/2017	RunNo:	116974					
Client ID:	ZZZZZZ	Batch ID:	63208	TestNo: EPA 200.8	Analysis Date:	8/9/2017	SeqNo:	2725985					
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
B	Analyte detected in the associated Method Blank		E	Value above quantitation range			H	Holding times for preparation or analysis exceeded					
ND	Not Detected at the Reporting Limit		R	RPD outside accepted recovery limits			S	Spike/Surrogate outside of limits due to matrix interference					
DO	Surrogate Diluted Out			Calculations are based on raw values									

Qualifiers:

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



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EPA ID CA01638

CLIENT: CH2M HILL
Work Order: N025284
Project: PG&E Topock, 680375.02.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID	N025284-001C-MS	SampType: MS	TestCode: 200.8_W	Units: µg/L	Prep Date:	8/8/2017	RunNo:	116974					
Client ID:	zzzzzz	Batch ID: 63208	TestNo: EPA 200.8		Analysis Date:	8/9/2017	SeqNo:	2725985					
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Antimony		9.279	0.50	10.00	0.03548	92.4	75	125					
Arsenic		12.192	0.10	10.00	2.857	93.3	75	125					
Barium		33.335	1.0	10.00	25.12	82.1	75	125					
Copper		4.930	1.0	10.00	0	49.3	75	125					S
Lead		9.125	1.0	10.00	0	91.2	75	125					
Manganese		110.726	0.50	100.0	20.62	90.1	75	125					
Molybdenum		29.038	0.50	10.00	19.24	97.9	75	125					
Nickel		8.358	1.0	10.00	0	83.6	75	125					
Zinc		78.564	10	100.0	0	78.6	75	125					
Sample ID	N025284-001C-MS	SampType: MSD	TestCode: 200.8_W	Units: µg/L	Prep Date:	8/8/2017	RunNo:	116974					
Client ID:	zzzzzz	Batch ID: 63208	TestNo: EPA 200.8		Analysis Date:	8/9/2017	SeqNo:	2725987					
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Antimony		9.288	0.50	10.00	0.03548	92.5	75	125					
Arsenic		12.165	0.10	10.00	2.857	93.1	75	125					
Barium		33.294	1.0	10.00	25.12	81.7	75	125					
Copper		5.040	1.0	10.00	0	50.4	75	125					
Lead		9.183	1.0	10.00	0	91.8	75	125					S
Manganese		111.145	0.50	100.0	20.62	90.5	75	125					
Molybdenum		28.922	0.50	10.00	19.24	96.8	75	125					
Nickel		8.476	1.0	10.00	0	84.8	75	125					
Zinc		79.158	10	100.0	0	79.2	75	125					
Sample ID	N025352-002H-MS	SampType: MS	TestCode: 200.8_W	Units: µg/L	Prep Date:	8/8/2017	RunNo:	116974					
Client ID:	zzzzzz	Batch ID: 63208	TestNo: EPA 200.8		Analysis Date:	8/9/2017	SeqNo:	2726017					
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Antimony		9.723	0.50	10.00	0.6145	91.1	75	125					
Arsenic		19.970	0.10	10.00	10.44	95.3	75	125					

Qualifiers:

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



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CLIENT: CH2M HILL**Work Order:** N025284**Project:** PG&E Topock, 680375.02.IM.OP.00**ANALYTICAL QC SUMMARY REPORT****TestCode:** 200.8_W

Sample ID	Client ID:	SampType:	Batch ID:	TestNo.: EPA 200.8	TestCode: 200.8_W	Units: µg/L	Prep Date:	8/8/2017	RunNo: 116974
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	Analysis Date:	8/9/2017	SeqNo: 2726017
Barium		31.013	1.0	10.00	21.95	90.6	LowLimit	75	RPD Ref Val
Copper		7.268	1.0	10.00	0	72.7	HighLimit	75	%RPD
Lead		8.840	1.0	10.00	0	88.4	Ref Val	75	RPDLimit
Molybdenum		77.637	0.50	10.00	69.38	82.6	LowLimit	75	Qual
Nickel		23.457	1.0	10.00	14.87	85.9	HighLimit	75	
Zinc		84.837	10	100.0	5.695	79.1	Ref Val	75	

Sample ID	Client ID:	SampType:	Batch ID:	TestNo.: EPA 200.8	TestCode: 200.8_W	Units: µg/L	Prep Date:	8/8/2017	RunNo: 116974
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	Analysis Date:	8/9/2017	SeqNo: 2726018
Manganese		281.760	2.5	100.0	185.8	96.0	LowLimit	75	RPD Ref Val
							HighLimit	75	%RPD
							Ref Val	75	RPDLimit
								75	Qual

Qualifiers:

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

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



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

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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 17-Aug-17

CLIENT: CH2M HILL
Lab Order: N025284
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N025284-001

Client Sample ID: SC-100B-WDR-561
Collection Date: 8/1/2017 10:35:00 AM
Matrix: WATER

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

RunID: NV00922-IC7_170802A	QC Batch: R116844	PrepDate	Analyst: RAB		
Hexavalent Chromium	440 3.3	20	µg/L	100	8/2/2017 02:28 PM

TOTAL METALS BY ICPMS**EPA 200.8**

RunID: NV00922-ICP7_170809A	QC Batch: 63208	PrepDate	8/8/2017	Analyst: CEI	
Chromium	440 0.096	5.0	µg/L	5	8/9/2017 11:24 AM

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

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

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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 17-Aug-17

CLIENT: CH2M HILL
Lab Order: N025284
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N025284-002

Client Sample ID: SC-700B-WDR-561
Collection Date: 8/1/2017 10:30:00 AM
Matrix: WATER

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

RunID: NV00922-IC7_170802A	QC Batch: R116844	PrepDate	Analyst: RAB
Hexavalent Chromium	ND 0.033	0.20	µg/L
			1 8/2/2017 02:57 PM

TOTAL METALS BY ICPMS**EPA 200.8**

RunID: NV00922-ICP7_170809A	QC Batch: 63208	PrepDate	8/8/2017	Analyst: CEI
Chromium	ND 0.019	1.0	µg/L	1 8/9/2017 12:20 PM

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

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

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ASSET Laboratories

Date: 17-Aug-17

CLIENT: CH2M HILL

Work Order: N025284

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

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W_CRPGE

Sample ID	MB-63208	SampType: MBLK	TestCode: 200.8_W_CR	Units: µg/L	Prep Date:	8/8/2017	RunNo:	116974					
Client ID:	PBW	Batch ID: 63208	TestNo: EPA 200.8		Analysis Date:	8/9/2017	SeqNo:	2726043					
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Chromium		ND	1.0										
Sample ID	LCS-63208	SampType: LCS	TestCode: 200.8_W_CR	Units: µg/L	Prep Date:	8/8/2017	RunNo:	116974					
Client ID:	LCSW	Batch ID: 63208	TestNo: EPA 200.8		Analysis Date:	8/9/2017	SeqNo:	2726044					
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Chromium		9.984	1.0	10.00	0	99.8	85	115					
Sample ID	N025284-001C-MS	SampType: MS	TestCode: 200.8_W_CR	Units: µg/L	Prep Date:	8/8/2017	RunNo:	116974					
Client ID:	ZZZZZZZ	Batch ID: 63208	TestNo: EPA 200.8		Analysis Date:	8/9/2017	SeqNo:	2726051					
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Chromium		434.196	5.0	10.00	4.38.4	-41.7	75	125					S
Sample ID	N025284-001C-MSD	SampType: MSD	TestCode: 200.8_W_CR	Units: µg/L	Prep Date:	8/8/2017	RunNo:	116974					
Client ID:	ZZZZZZZ	Batch ID: 63208	TestNo: EPA 200.8		Analysis Date:	8/9/2017	SeqNo:	2726055					
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Chromium		436.623	5.0	10.00	4.38.4	-17.4	75	125					
Sample ID	N025352-002H-MS	SampType: MS	TestCode: 200.8_W_CR	Units: µg/L	Prep Date:	8/8/2017	RunNo:	116974					
Client ID:	ZZZZZZZ	Batch ID: 63208	TestNo: EPA 200.8		Analysis Date:	8/9/2017	SeqNo:	2726082					
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Chromium		8.735	1.0	10.00	0	87.3	75	125					

Qualifiers:

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



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

CLIENT: CH2M HILL
Work Order: N025284
Project: PG&E Topock, 680375.02.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WU_PGE

Sample ID	SampType:	MBLK	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	116844		
Client ID:	Batch ID:	R116844	TestNo:	EPA 218.6			Analysis Date:	8/2/2017	SeqNo:	2719387		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20										
Sample ID	SampType:	LCS	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	116844		
Client ID:	Batch ID:	R116844	TestNo:	EPA 218.6			Analysis Date:	8/2/2017	SeqNo:	2719388		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.042	0.20	5.000	0	0	101	90	110				
Sample ID	SampType:	MS	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	116844		
Client ID:	Batch ID:	R116844	TestNo:	EPA 218.6			Analysis Date:	8/2/2017	SeqNo:	2719390		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	955.560	20	500.0	4.43.6	102	102	90	110				
Sample ID	SampType:	MSD	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	116844		
Client ID:	Batch ID:	R116844	TestNo:	EPA 218.6			Analysis Date:	8/2/2017	SeqNo:	2719391		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	956.700	20	500.0	4.43.6	103	90	110	955.6	0.119	20		
Sample ID	SampType:	MS	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	116844		
Client ID:	Batch ID:	R116844	TestNo:	EPA 218.6			Analysis Date:	8/2/2017	SeqNo:	2719393		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.192	0.20	1.000	0.1235	107	90	110					

Qualifiers:

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



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CLIENT: CH2M HILL
Work Order: N025284
Project: PG&E Topock, 680375.02.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WU_PGE

Sample ID	N025254-009ADUP	SampType:	DUP	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:	
Client ID:	zzzzzz	Batch ID:	R116844	TestNo:	EPA 218.6			Analysis Date:	8/2/2017
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val
Hexavalent Chromium		91.689	2.0				91.43	91.43	0.287

Qualifiers:

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



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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 17-Aug-17

CLIENT: CH2M HILL
Lab Order: N025284
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N025284-001

Client Sample ID: SC-100B-WDR-561
Collection Date: 8/1/2017 10:35:00 AM
Matrix: WATER

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

RunID: NV00922-WC_170802G	QC Batch: R116830	PrepDate	Analyst: LR
Turbidity	0.24	0.10	0.10
		NTU	1
			8/2/2017 10:45 AM

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

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



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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 17-Aug-17

CLIENT: CH2M HILL
Lab Order: N025284
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N025284-002

Client Sample ID: SC-700B-WDR-561
Collection Date: 8/1/2017 10:30:00 AM
Matrix: WATER

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

RunID: NV00922-WC_170802G	QC Batch: R116830	PrepDate	Analyst: LR
Turbidity	0.16	0.10	0.10
	NTU	1	8/2/2017 10:45 AM

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

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

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ASSET Laboratories

Date: 17-Aug-17

CLIENT: CH2M HILL
Work Order: N025284
Project: PG&E Topock, 680375.02.IM.OP.00

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

Sample ID	MB-R116830	SampType: MBLK	TestCode: 2130_W	Units: NTU	Prep Date:	RunNo: 116830							
Client ID:	PBW	Batch ID: R116830	TestNo: SM 2130B		Analysis Date:	SeqNo: 2719267							
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Turbidity		ND	0.10										
Sample ID	N025284-001ADUP	SampType: DUP	TestCode: 2130_W	Units: NTU	Prep Date:	RunNo: 116830							
Client ID:	ZZZZZZZ	Batch ID: R116830	TestNo: SM 2130B		Analysis Date:	SeqNo: 2719269							
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Turbidity		0.230	0.10										
Sample ID	N025284-002BDUP	SampType: DUP	TestCode: 2130_W	Units: NTU	Prep Date:	RunNo: 116830							
Client ID:	ZZZZZZZ	Batch ID: R116830	TestNo: SM 2130B		Analysis Date:	SeqNo: 2719271							
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Turbidity		0.150	0.10										

Qualifiers:

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



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 EPA ID CA01638

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

ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 17-Aug-17

CLIENT: CH2M HILL
Lab Order: N025284
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N025284-002

Client Sample ID: SC-700B-WDR-561
Collection Date: 8/1/2017 10:30:00 AM
Matrix: WATER

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

RunID: NV00922-IC8_170802A	QC Batch: R116821	PrepDate	Analyst: RAB			
Fluoride	2.3	0.032	0.50	mg/L	5	8/2/2017 10:31 AM

ANIONS BY ION CHROMATOGRAPHY**EPA 300.0**

RunID: NV00922-IC8_170802A	QC Batch: R116821	PrepDate	Analyst: RAB			
Sulfate	470	1.1	25	mg/L	50	8/2/2017 11:32 AM

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

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

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ASSET Laboratories

Date: 17-Aug-17

CLIENT: CH2M HILL
Work Order: N025284
Project: PG&E Topock, 680375.02.IM.OP.00

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

Sample ID	Client ID:	SampType:	Batch ID:	TestCode:	TestNo:	Units:	Prep Date:	Analysis Date:	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
MB-R116821_F	PBW	MBLK	R116821	300_W_FPG	EPA 300.0	mg/L								
Analyte				Result	PQL	SPK value	SPK Ref Val	%REC						
Fluoride			ND	0.10										
Sample ID	Client ID:	SampType:	Batch ID:	TestCode:	TestNo:	Units:	Prep Date:	Analysis Date:						
LCS-R116821_F	LCSW	LCS	R116821	300_W_FPG	EPA 300.0	mg/L								
Analyte				Result	PQL	SPK value	SPK Ref Val	%REC						
Fluoride			1.261	0.10	1.250	0	101	90	90	110				
Sample ID	Client ID:	SampType:	Batch ID:	TestCode:	TestNo:	Units:	Prep Date:	Analysis Date:						
N025284-002BDUP	ZZZZZZZ	DUP	R116821	300_W_FPG	EPA 300.0	mg/L								
Analyte				Result	PQL	SPK value	SPK Ref Val	%REC						
Fluoride			2.249	0.50										
Sample ID	Client ID:	SampType:	Batch ID:	TestCode:	TestNo:	Units:	Prep Date:	Analysis Date:						
N025284-002BMS	ZZZZZZZ	MS	R116821	300_W_FPG	EPA 300.0	mg/L								
Analyte				Result	PQL	SPK value	SPK Ref Val	%REC						
Fluoride			8.366	0.50	6.250	2.300	97.1	80	80	120				
Sample ID	Client ID:	SampType:	Batch ID:	TestCode:	TestNo:	Units:	Prep Date:	Analysis Date:						
N025284-002BMSD	ZZZZZZZ	MSD	R116821	300_W_FPG	EPA 300.0	mg/L								
Analyte				Result	PQL	SPK value	SPK Ref Val	%REC						
Fluoride			8.353	0.50	6.250	2.300	96.9	80	80	120	8.366	0.156	20	

Qualifiers:

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



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E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
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EPA ID CA01638

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

CLIENT: CH2M HILL
Work Order: N025284
Project: PG&E Topock, 680375.02.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID	SampType:	Batch ID:	TestNo:	TestCode:	Units:	Prep Date:	Analysis Date:	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	RunNo:	SeqNo:
Sample ID MB-R116821_SO4	MBLK		TestNo: EPA 300.0	TestCode: 300_W_SO4P	Units: mg/L									RunNo: 116821	SeqNo: 2718970
Client ID: PBW		Batch ID: R116821													
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC									
Sulfate		ND	0.50												
Sample ID LCS-R116821_SO4	LCS	Batch ID: R116821	TestNo: EPA 300.0	TestCode: 300_W_SO4P	Units: mg/L	Prep Date:	Analysis Date:							RunNo: 116821	SeqNo: 2718971
Client ID: LCSW															
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC									
Sulfate		3.856	0.50	4.000	0	96.4									
Sample ID N025284-002BDUP	DUP	Batch ID: R116821	TestNo: EPA 300.0	TestCode: 300_W_SO4P	Units: mg/L	Prep Date:	Analysis Date:							RunNo: 116821	SeqNo: 2718973
Client ID: ZZZZZZ															
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC									
Sulfate		470.585	25											474.7	0.871
Sample ID N025284-002BMS	MS	Batch ID: R116821	TestNo: EPA 300.0	TestCode: 300_W_SO4P	Units: mg/L	Prep Date:	Analysis Date:							RunNo: 116821	SeqNo: 2718974
Client ID: ZZZZZZ															
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC									
Sulfate		675.250	25	200.0	474.7	100									
Sample ID N025284-002BMSD	MSD	Batch ID: R116821	TestNo: EPA 300.0	TestCode: 300_W_SO4P	Units: mg/L	Prep Date:	Analysis Date:							RunNo: 116821	SeqNo: 2718975
Client ID: ZZZZZZ															
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC									
Sulfate		690.935	25	200.0	474.7	108								675.2	2.30

Qualifiers:

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



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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 17-Aug-17

CLIENT: CH2M HILL
Lab Order: N025284
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N025284-002

Client Sample ID: SC-700B-WDR-561
Collection Date: 8/1/2017 10:30:00 AM
Matrix: WATER

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

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

RunID: NV00922-WC_170815A	QC Batch: R117105	PrepDate	Analyst: RB			
Nitrate/Nitrite as N	2.6	0.11	0.25	mg/L	5	8/15/2017

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

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

**ASSET LABORATORIES**
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES**"Servina Clients with Passion and Professionalism"**

CALIFORNIA | P:562.219.7435 F:562.219.7436
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EPA ID CA01638

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

ASSET Laboratories

Date: 17-Aug-17

CLIENT: CH2M HILL

Work Order: N025284

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

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID	MB-R117105	SampType: MBLK	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 117105							
Client ID:	PBW	Batch ID: R117105	TestNo: SM4500-NO3		Analysis Date:	SeqNo: 2733100							
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-R117105	SampType: LCS	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 117105							
Client ID:	LCSW	Batch ID: R117105	TestNo: SM4500-NO3		Analysis Date:	SeqNo: 2733101							
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N		0.504	0.050	0.5000	0	101	85	115					
Sample ID	N025313-002DDUP	SampType: DUP	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 117105							
Client ID:	ZZZZZZZ	Batch ID: R117105	TestNo: SM4500-NO3		Analysis Date:	SeqNo: 2733104							
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N		3.280	0.25								2.924	11.4	20
Sample ID	N025313-002DMS	SampType: MS	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 117105							
Client ID:	ZZZZZZZ	Batch ID: R117105	TestNo: SM4500-NO3		Analysis Date:	SeqNo: 2733105							
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N		5.171	0.25	2.500	2.924	89.8	75	125					
Sample ID	N025313-002DMSD	SampType: MSD	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 117105							
Client ID:	ZZZZZZZ	Batch ID: R117105	TestNo: SM4500-NO3		Analysis Date:	SeqNo: 2733106							
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N		5.169	0.25	2.500	2.924	89.8	75	125			5.171	0.0387	20

Qualifiers:

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



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

CH2MHILL**CHAIN OF CUSTODY RECORD**

Page 1 of 1

		Number of Containers											
Project Name	PG&E Topock	Container	1 Liter Poly	1 Liter Poly	250 mL Poly	1 Liter Poly	500 mL Poly	1 Liter Poly	500 mL Poly	1 Liter Poly	Comments		
Location	PG&E Topock	Preservatives:	4°C Lab H2SO4	4°C	4°C	4°C Lab H2SO4	4°C	4°C	4°C	4°C			
Project Number	680375.02.IIM.OP.00	Filtered:	NA	NA	NA	NA	NA	NA	NA	NA			
Project Manager	Scott O'Donnell	Holding Time:	28	7	7	1	28	7	180	180	7		
		Turbidity (SM2130)											
		Total Metals(E200.8) Cr & Mn											
		Total Metals(E200.7 and E200.8)											
		TDS (SM2540C)											
		Nitrate/Nitrite (SM4500NO3-E)											
		E218.6 Lab Filtered											
		CONDUCTIVITY (E120.1)											
		Anions (E300.0) F ⁻ , SO ₄ ²⁻											
		AMMONIA (SM4500NH3D)											
		DATE	TIME	MATRIX								ATTN:	
SC-100B-WDR-561		8/1/17	10:35	Water		X	X		X	X	X	N025284 - 01	3
SC-700B-WDR-561		8/1/17	10:30	Water	X	X	X	X	X	X	X	- 02	4
												TOTAL NUMBER OF CONTAINERS	7

Approved by		Date/Time	8/1/17 11:05	Shipping Details	FedEx	ATTN:	Special Instructions:
Sampled by		Date/Time	8/1/17 10:30	Method of Shipment:	On Ice:	yes / no	SC-700B Total metals List: Cr, Al, Sb, As, Ba, Cu, Pb, Mn, Mo, Ni, Fe, Zn
Relinquished by		Date/Time	8/1/17 13:21		Airbill No:		Sample Custody and Marion Cartin
Received by		Date/Time	8/1/17 18:21		Lab Name:	ASSET Laboratories	Report Copy to Doug Scott (970) 731-0636
Relinquished by		Date/Time	8/1/17 18:57		Lab Phone:	(702) 307-2659	
Received by		Date/Time	8/1/17 19:05				

ASSET Laboratories

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

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

Cooler Received/Opened On: 8/1/2017 Workorder: N025284

Rep sample Temp (Deg C): 2.2 IR Gun ID: 2

Temp Blank: Yes No

Carrier name: ASSET

Last 4 digits of Tracking No.: NA Packing Material Used: None

Cooling process: Ice Ice Pack Dry Ice Other None

Sample Receipt Checklist

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

Comments: Samples were lab filtered and preserved according to individual test requirement.

Checklist Completed By MBC MBC 8/2/2017

Reviewed By: HSL 8/11/2017



ASSET Laboratories

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TEL: 7023072659
FAX: 7023072691

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

QC Level: Level IV

Subcontractor:

Truesdail
3337 Michelson Drive, Suite CN750
Irvine, CA 92612

TEL: (714) 730-6239
FAX: (714) 730-6462
Acct #:

Field Sampler: SIGNED

02-Aug-17

Sample ID	Matrix	Date Collected	Bottle Type	SM4500-NH3D	Requested Tests
NO25284-002A / SC-700B-WDR-561	Water	8/1/2017 10:30:00 AM	32OZP	1	

General Comments:

Please email sample receipt acknowledgement to the PM.

Please use PO# N25284A Please email Invoices and Account Receivable Statements to AssetAP@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 NH3 by SM 4500NH3C. CH2M Hill Sample.

Relinquished by: *Mary Clark*
Relinquished by: _____

Date/Time

650: 537 084 844

Date/Time

8/1/17 02:17:00 Received by:
Received by: _____

List of Analysts

ASSET Laboratories Work Order: **N025284**

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



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TRUESDAIL LABORATORIES, INC.

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REPORT

3337 MICHELSON DRIVE, SUITE CN 750
IRVINE, CA 92612
(714) 730-6239 • FAX (714) 730-6462
www.truesdail.com

Client: Advanced Technology Laboratories-NV

3151 W Post Rd
Las Vegas, NV 89118

Work Order No.: 17H0085

Printed: 08/18/2017

Attention: Marlon Cartin

Project Name: ATL-NV

CASE NARRATIVE

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Ammonia analyses. A summary table for this laboratory number is included in Section 2. Complete laboratory reports, wet chemistry raw data, quality control data and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data are under Section 5.

The sample was received and delivered with the chain of custody on August 3, 2017, intact and in chilled condition. The sample will be kept in a locked refrigerator for 30 days; thereafter will be kept in warm storage for additional 2 months before disposal.

If you have any questions or require additional information, please contact me at (714) 730-6239 ext. 203.

SAMPLE RECEIPT SUMMARY

Sample ID	Laboratory ID	Matrix	Type	Date Sampled	Date Received
N025284-002A / SC-700B-WDR-561	17H0085-01	Water		08/01/2017 10:30	08/03/2017 08:30

DEFINITIONS

Symbol	Definition
DF	Dilution Factor
MDL	Method Detection Limit
ND	Not Detected
RL	Reporting Limit

Respectfully yours,

Shelly Brady
Customer Service Manager

This report applies to the sample(s), or product(s), investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed. This report shall not be reproduced without the written consent of Truesdail Laboratories, Inc., and must be reproduced in its entirety.



TRUESDAIL LABORATORIES, INC.

Client: Advanced Technology Laboratories-N Project Name: ATL-NV
Project Number: [none]

Printed: 08/18/2017

N025284-002A / SC-700B-WDR-561
17H0085-01 (Water)

Analyte	Result	RL	Units	DF	Batch	Analyzed	Analyst	Method	Notes
---------	--------	----	-------	----	-------	----------	---------	--------	-------

Truesdail Laboratories, Inc

Wet Chemistry

Ammonia ND 0.0500 mg/L 1 1708254 08/13/2017 15:31 Alexander Luna SM 4500-NH3 D M

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TRUESDAIL LABORATORIES, INC.

Client: Advanced Technology Laboratories-N Project Name: ATL-NV
Project Number: [none]

Printed: 08/18/2017

QUALITY CONTROL
Wet Chemistry
Truesdail Laboratories, Inc

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	% Rec Limits	RPD	RPD Limit	Note
---------	--------	----	-------	-------------	---------------	------	--------------	-----	-----------	------

Batch: 1708254 - SM 4500-NH3 D M

Blank (1708254-BLK1)							Prepared & Analyzed: 8/13/2017			
Ammonia	ND	0.0500	mg/L							
LCS (1708254-BS1)							Prepared & Analyzed: 8/13/2017			
Ammonia	0.373	0.0500	mg/L	0.400		93	90-110			
Duplicate (1708254-DUP1)							Source: 17H0085-01 Prepared & Analyzed: 8/13/2017			
Ammonia	0.0481	0.0500	mg/L		0.0498			4	20	
Matrix Spike (1708254-MS1)							Source: 17H0068-01 Prepared & Analyzed: 8/13/2017			
Ammonia	0.824	0.0500	mg/L	0.400	0.395	107	75-125			
Matrix Spike Dup (1708254-MSD1)							Source: 17H0068-01 Prepared & Analyzed: 8/13/2017			
Ammonia	0.836	0.0500	mg/L	0.400	0.395	110	75-125	1	20	

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ANALYSIS DATA SHEET

Inorganics

Client: Advanced Technology Laboratories-NV
Client Sample ID: N025284-002A / SC-700B-WDR-561
Lab Sample ID: 17H0085-01
Project: ATL-NV

Date Sampled: 08/01/17 10:30 Matrix: Water

CAS NO.	Analyte	Concentration (mg/L)	MDL	RL	DF	Q	Analyst	Analyzed	Method
7664-41-7	Ammonia	ND	0.0111	0.0500	1		AxL	08/13/17 15:31	SM 4500-NH3 D N

METHOD BLANK DATA SHEET

SM 4500-NH3 D M

Client: Advanced Technology Laboratories-NV

Project: ATL-NV

Laboratory ID: 1708254-BLK1

Prepared: 08/13/17 14:30 Preparation: SM 4500-NH3 D M Matrix: Water

Analyzed: 08/13/17 15:03 Instrument: TL01 File ID: 7H13002-020

Batch: 1708254 Sequence: 7H13002

CAS NO.	COMPOUND	CONC. (mg/L)	MDL	RL	Q
7664-41-7	Ammonia	ND	0.0111	0.0500	

LCS / LCS DUPLICATE RECOVERY

SM 4500-NH3 D M

Client: Advanced Technology Laboratories-NV

Project: ATL-NV

Work Order: 17H0085

Matrix: Water Prep Method: SM 4500-NH3 D M

Prep Batch: 1708254 Lab Sample ID: 1708254-BS1

ANALYTE	SPIKE ADDED (mg/L)	LCS CONCENTRATION (mg/L)	LCS % REC.	QC LIMITS REC.
Ammonia	0.400	0.373	93	90 - 110

DUPLICATES

N025284-002A / SC-700B-WDR-561

Client: Advanced Technology Laboratories-NV
Project: ATL-NV

Matrix: Water Laboratory ID: 1708254-DUP1
Prep Batch: 1708254 Initial/Final: 50 mL / 50 mL
Prep Method: SM 4500-NH3 D M Analysis: SM 4500-NH3 D M

ANALYTE	SAMPLE CONCENTRATION (mg/L)	DUPLICATE CONCENTRATION (mg/L)	RPD %	Q	CONTROL LIMIT
Ammonia	0.0498	0.0481			20

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

Matrix Spike

Client: Advanced Technology Laboratories-NV
Project: ATL-NV
Work Order: 17H0085

Matrix: Water Analysis Method: SM 4500-NH3 D M
Prep Batch: 1708254 Prep Method: SM 4500-NH3 D M
Laboratory ID: 1708254-MS1
Source Sample ID: 17H0068-01

ANALYTE	SPIKE ADDED (mg/L)	SAMPLE CONCENTRATION (mg/L)	MS CONCENTRATION (mg/L)	MS % REC.	QC LIMITS REC.
Ammonia	0.400	0.395	0.824	107	75 - 125
ANALYTE	SPIKE ADDED (mg/L)	MSD CONCENTRATION (mg/L)	MSD % REC. #	% RPD	QC LIMITS RPD REC.
Ammonia	0.400	0.836	110	1	20 75 - 125



ASSET Laboratories

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17H0085 CHAIN-OF-CUSTODY RECORD

Subcontractor:

Truesdail
3337 Michelson Drive, Suite CN750
Irvine, CA 92612

TEL: (714) 730-6239
FAX: (714) 730-6462
Acct #:

QC Level: Level IV

02-Aug-17

Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests
N025284-002A / SC-700B-WDR-561	Water	8/1/2017 10:30:00 AM	32OZP	1

ALERT !!
Level IV QC

General Comments:

Please email sample receipt acknowledgement to the PM.

Please use PO# N25284A. Please email Invoices and Account Receivable Statements to AssetAP@assetlaboratories.com. For questions, call Marlon at (702)-307-2659. Please e-mail results to reports.IV@assetlaboratories.com by: Normal TAT

Please analyze for NH3 by SM 4500NH3C. CH2M Hill Sample.

Relinquished by:	<i>John Brown</i>	Date/Time	600: 537 084 844
Received by:	<i>John Brown</i>	Date/Time	8/2/17 21700 8/3/17 8:30
Received by:		Date/Time	

4.7 °C

**Log-in check list
For level III data package**

Client: ATL

Lab Number: 17H0085

Received Date: 8-03-17

Sample receiving review	Yes	No	N/A	Comment
Was special login form received by login personnel?	✓			
Was COC received and signed by client and login personnel?	✓			
Were all samples temperature measured and recorded on COC?	✓			
Did you measure and record the pH on all metals samples on COC?			✓	
Has sample integrity and analysis discrepancy form been filled out completely?	✓			
Were all intercompany yellow forms generated and stamped with "alert level III QC" note?	✓			
Have check -in and check out lists been filled out and attached to appropriate form?	✓			
Were sample containers labeled with TLI numbers, date, and time sampled?	✓			
Did you notify analyst or group leader about short holding time?			✓	
Was a copy of COC attached to all yellow intracompany form?	✓			
For special clients, have all their samples been logged into the internal COC book?	✓			
Were samples locked in fridge or special storage area?	✓			
Was temperature recorded in the log book?	✓			
Sample receiving Signature:	<i>J. Brown</i>			



WORK ORDER

Printed: 8/3/17 8:57:21AM

17H0085

Truesdail Laboratories, Inc

Client: Advanced Technology Laboratories-NV
Project: ATL-NV

Project Manager: Shelly Brady
Project Number: [none]

Report To:

Advanced Technology Laboratories-NV
Marlon Cartin
3151 W Post Rd
Las Vegas, NV 89118
Phone: (702) 307-2659
Fax: (702) 307-2691

Invoice To:

Advanced Technology Laboratories-NV
Marlon Cartin
3151 W Post Rd
Las Vegas, NV 89118
Phone :(702) 307-2659
Fax: (702) 307-2691

Date Due: 08/14/2017 16:30 (7 day TAT)

Received By: Jacqueline Brown

Date Received: 08/03/2017 08:30

Logged In By: Jacqueline Brown

Date Logged In: 08/03/2017 08:50

Samples Received at: 4.7°C

Chain of Custody re Yes Samples intact? Yes

Letter (if sent) matc No Custody seals (if an No

Requested analyses Yes Analyses within hol Yes

Samples received in Yes

Analysis	Due	TAT	Expires	Comments
17H0085-01 N025284-002A / SC-700B-WDR-561 [Water] Sampled 08/01/2017 10:30 (GMT-08:00) Pacific Time (US &				
Ammonia E ✓	08/14/2017 08:00	7	08/29/2017 10:30	

Reviewed By

Date

8/3/17

Page 1 of 1

Page 21 of 27

September 08, 2017

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

Workorder No.: N025633

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

Attention: Doug Scott

Enclosed are the results for sample(s) received on August 24, 2017 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 Littucaw for

Puri Romualdo
Laboratory Director

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



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ORELAP/NELAP Cert 4046

CLIENT: CH2M HILL
Project: PG&E Topock, 680375.02.IM.OP.00
Lab Order: N025633

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

Samples were received intact with proper chain of custody documentation.

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

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

Samples were analyzed within method holding time.

Subcontracted Analyses:

Ammonia was subcontracted to Truesdail-Irvine,CA.

Analytical Comments for EPA 200.8:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Copper in QC samples N025633-001E-MS and N025633-001E-MSD possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

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Page 2 of 4

ASSET Laboratories

Date: 08-Sep-17

CLIENT: CH2M HILL
Project: PG&E Topock, 680375.02.IM.OP.00
Lab Order: N025633
Contract No: IM3PLANT-AR

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N025633-001A	SC-700B-WDR-563	Water	8/24/2017 1:45:00 PM	8/24/2017	9/8/2017
N025633-001B	SC-700B-WDR-563	Water	8/24/2017 1:45:00 PM	8/24/2017	9/8/2017
N025633-001C	SC-700B-WDR-563	Water	8/24/2017 1:45:00 PM	8/24/2017	9/8/2017
N025633-001D	SC-700B-WDR-563	Water	8/24/2017 1:45:00 PM	8/24/2017	9/8/2017
N025633-001E	SC-700B-WDR-563	Water	8/24/2017 1:45:00 PM	8/24/2017	9/8/2017



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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 08-Sep-17

CLIENT: CH2M HILL
Lab Order: N025633
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N025633-001

Client Sample ID: SC-700B-WDR-563
Collection Date: 8/24/2017 1:45:00 PM
Matrix: WATER

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

SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: NV00922-WC_170825D	QC Batch: R117474	PrepDate	Analyst: LR
Specific Conductance	6600	0.10	umhos/cm
		0.10	1
			8/25/2017 09:55 AM

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

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

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ASSET Laboratories

Date: 08-Sep-17

ANALYTICAL QC SUMMARY REPORT

CLIENT: CH2M HILL
Work Order: N025633
Project: PG&E Topock, 680375.02.IM.OP.00

TestCode: 120.1_WPGE

Sample ID	N025633-001BDUP	SampType: DUP	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:	RunNo: 117474						
Client ID:	ZZZZZZ	Batch ID: R117474	TestNo: EPA 120.1		Analysis Date: 8/25/2017	SeqNo: 2747205						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	6530.000	0.10				6570		0.611	10			

Qualifiers:

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

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

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



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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 08-Sep-17

CLIENT: CH2M HILL
Lab Order: N025633
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N025633-001

Client Sample ID: SC-700B-WDR-563
Collection Date: 8/24/2017 1:45:00 PM
Matrix: WATER

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

TOTAL FILTERABLE RESIDUE**SM2540C**

RunID: NV00922-WC_170828B	QC Batch: 63569			PrepDate	8/28/2017	Analyst: LR
Total Dissolved Solids (Residue, Filterable)	3800	50	50	mg/L	1	8/28/2017 01:30 PM

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

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

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ASSET Laboratories

Date: 08-Sep-17

ANALYTICAL QC SUMMARY REPORT

CLIENT: CH2M HILL
Work Order: N025633
Project: PG&E Topock, 680375.02.IM.OP.00

TestCode: 160.1_2540C_W

Sample ID	SampType:	LCS	TestCode:	160.1_2540C	Units:	mg/L	Prep Date:	8/28/2017	RunNo:	117478			
Client ID:	Batch ID:	63569	TestNo:	SM2540C			Analysis Date:	8/28/2017	SeqNo:	2748546			
Analyte			PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera)		938.000	10	1000	0	93.8	80	120					
Sample ID	MB-3569	SampType: MBLK	TestCode: 160.1_2540C	Units: mg/L			Prep Date:	8/28/2017	RunNo:	117478			
Client ID:	PBW	Batch ID:	63569	TestNo:	SM2540C		Analysis Date:	8/28/2017	SeqNo:	2748547			
Analyte			PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera)		ND	10										
Sample ID	N025633-001BDUP	SampType: DUP	TestCode: 160.1_2540C	Units: mg/L			Prep Date:	8/28/2017	RunNo:	117478			
Client ID:	ZZZZZZ	Batch ID:	63569	TestNo:	SM2540C		Analysis Date:	8/28/2017	SeqNo:	2748549			
Analyte			PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera)		3740.000	50								3840	2.64	5

Qualifiers:

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

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

ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 08-Sep-17

CLIENT: CH2M HILL
Lab Order: N025633
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N025633-001

Client Sample ID: SC-700B-WDR-563
Collection Date: 8/24/2017 1:45:00 PM
Matrix: WATER

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

RunID: NV00922-ICP2_170907A	QC Batch: 63691			PrepDate	9/6/2017	Analyst: CEI
Aluminum	ND	2.7	50	µg/L	1	9/7/2017 10:15 AM
Boron	1100	38	100	µg/L	1	9/7/2017 10:15 AM
Iron	72	1.8	20	µg/L	1	9/7/2017 10:15 AM

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

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

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ASSET Laboratories

Date: 08-Sep-17

CLIENT: CH2M HILL
Work Order: N025633
Project: PG&E Topock, 680375.02.IM.OP.00

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

Sample ID	SampType:	TestCode:	Units:	Prep Date:	RunNo:							
Client ID:	Batch ID:	TestNo:	EPA 200.7	Analysis Date:	SeqNo:							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RDP	RPDLimit	Qual
Aluminum	ND	50	10000	0	98.4	85	115					
Boron	ND	100	5000	0	95.5	85	115					
Iron	14.979	20	100.0	0	109	85	115					
Sample ID	SampType:	TestCode:	Units:	Prep Date:	RunNo:							
Client ID:	Batch ID:	TestNo:	EPA 200.7	Analysis Date:	SeqNo:							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RDP	RPDLimit	Qual
Aluminum	9843.322	50	10000	0	98.4	85	115					
Boron	4776.727	100	5000	0	95.5	85	115					
Iron	109.095	20	100.0	0	109	85	115					
Sample ID	SampType:	TestCode:	Units:	Prep Date:	RunNo:							
Client ID:	Batch ID:	TestNo:	EPA 200.7	Analysis Date:	SeqNo:							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RDP	RPDLimit	Qual
Aluminum	9806.178	50	10000	0	98.1	75	125					
Boron	5763.441	100	5000	1094	93.4	75	125					
Iron	177.810	20	100.0	72.12	106	75	125					
Sample ID	SampType:	TestCode:	Units:	Prep Date:	RunNo:							
Client ID:	Batch ID:	TestNo:	EPA 200.7	Analysis Date:	SeqNo:							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RDP	RPDLimit	Qual
Aluminum	9868.100	50	10000	0	98.7	75	125					
Boron	5883.600	100	5000	1094	95.8	75	125					
Iron	190.390	20	100.0	72.12	118	75	125					

Qualifiers:

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

ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 08-Sep-17

CLIENT: CH2M HILL
Lab Order: N025633
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N025633-001

Client Sample ID: SC-700B-WDR-563
Collection Date: 8/24/2017 1:45:00 PM
Matrix: WATER

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

RunID: NV00922-ICP7_170831E	QC Batch: 63612			PrepDate	8/31/2017	Analyst: CEI
Antimony	ND	0.031	0.50	µg/L	1	8/31/2017 05:12 PM
Arsenic	0.44	0.025	0.10	µg/L	1	8/31/2017 05:12 PM
Barium	9.6	0.070	1.0	µg/L	1	8/31/2017 05:12 PM
Copper	14	0.26	1.0	µg/L	1	8/31/2017 05:12 PM
Lead	ND	0.037	1.0	µg/L	1	8/31/2017 05:12 PM
Manganese	31	0.056	0.50	µg/L	1	8/31/2017 05:12 PM
Molybdenum	33	0.039	0.50	µg/L	1	8/31/2017 05:12 PM
Nickel	2.9	0.040	1.0	µg/L	1	8/31/2017 05:12 PM
Zinc	ND	0.27	10	µg/L	1	8/31/2017 05:12 PM

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

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

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ASSET Laboratories

Date: 08-Sep-17

CLIENT: CH2M HILL

Work Order: N025633

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

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID	MB-63612	SampType: MBLK	TestCode: 200.8_W	Units: µg/L	Prep Date:	8/31/2017	RunNo:	117642					
Client ID:	PBW	Batch ID:	63612	TestNo: EPA 200.8	Analysis Date:	8/31/2017	SeqNo:	2756165					
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RDP	RPDLimit	Qual
Antimony		ND	0.50										
Arsenic		ND	0.10										
Barium		ND	1.0										
Copper		ND	1.0										
Lead		ND	1.0										
Manganese		ND	0.50										
Molybdenum		ND	0.50										
Nickel		ND	1.0										
Zinc		ND	10										

Sample ID	LCS-63612	SampType: LCS	TestCode: 200.8_W	Units: µg/L	Prep Date:	8/31/2017	RunNo:	117642					
Client ID:	LCSW	Batch ID:	63612	TestNo: EPA 200.8	Analysis Date:	8/31/2017	SeqNo:	2756166					
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RDP	RPDLimit	Qual
Antimony		9.615	0.50	10.00	0	96.1	85	115					
Arsenic		9.910	0.10	10.00	0	99.1	85	115					
Barium		9.876	1.0	10.00	0	98.8	85	115					
Copper		10.051	1.0	10.00	0	101	85	115					
Lead		9.701	1.0	10.00	0	97.0	85	115					
Manganese		98.242	0.50	100.0	0	98.2	85	115					
Molybdenum		9.602	0.50	10.00	0	96.0	85	115					
Nickel		10.142	1.0	10.00	0	101	85	115					
Zinc		99.912	10	100.0	0	99.9	85	115					

Sample ID	N025633-001E-MS	SampType: MS	TestCode: 200.8_W	Units: µg/L	Prep Date:	8/31/2017	RunNo:	117642					
Client ID:	ZZZZZZ	Batch ID:	63612	TestNo: EPA 200.8	Analysis Date:	8/31/2017	SeqNo:	2756170					
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RDP	RPDLimit	Qual
B	Analyte detected in the associated Method Blank		E	Value above quantitation range			H	Holding times for preparation or analysis exceeded					
ND	Not Detected at the Reporting Limit		R	RPD outside accepted recovery limits			S	Spike/Surrogate outside of limits due to matrix interference					
DO	Surrogate Diluted Out			Calculations are based on raw values									

Qualifiers:

CA	California P:702.307.2659 F:702.307.2691	NEVADA P:702.307.2659 F:702.307.2691
CC	11110 Artesia Blvd., Ste B, Cerritos, CA 90703	3151 W. Post Rd., Las Vegas, NV 89118
ELAP Cert	2921	ELAP Cert 2676 NV Cert NV00922
EPA ID	CA01638	ORELAP/NELAP Cert 4046
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CLIENT: CH2M HILL
Work Order: N025633
Project: PG&E Topock, 680375.02.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID	N025633-001E-MS	SampType: MS	TestCode: 200.8_W	Units: µg/L	Prep Date:	8/31/2017	RunNo:	117642					
Client ID:	zzzzzz	Batch ID: 63612	TestNo: EPA 200.8	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC							
Antimony	9.515	0.50	10.00	0.1772	93.4	75	125						
Arsenic	9.803	0.10	10.00	0.4407	93.6	75	125						
Barium	18.602	1.0	10.00	9.637	89.7	75	125						
Copper	20.995	1.0	10.00	13.70	73.0	75	125						
Lead	9.173	1.0	10.00	0	91.7	75	125						
Manganese	113.309	0.50	100.0	31.35	82.0	75	125						
Molybdenum	43.220	0.50	10.00	32.95	103	75	125						
Nickel	11.511	1.0	10.00	2.944	85.7	75	125						
Zinc	83.234	10	100.0	2.955	80.3	75	125						
Sample ID	N025633-001E-MSD	SampType: MSD	TestCode: 200.8_W	Units: µg/L	Prep Date:	8/31/2017	RunNo:	117642					
Client ID:	zzzzzz	Batch ID: 63612	TestNo: EPA 200.8	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC							
Antimony	9.487	0.50	10.00	0.1772	93.1	75	125						
Arsenic	9.755	0.10	10.00	0.4407	93.1	75	125						
Barium	18.195	1.0	10.00	9.637	85.6	75	125						
Copper	20.575	1.0	10.00	13.70	68.8	75	125						
Lead	9.220	1.0	10.00	0	92.2	75	125						
Manganese	112.479	0.50	100.0	31.35	81.1	75	125						
Molybdenum	42.840	0.50	10.00	32.95	98.9	75	125						
Nickel	11.623	1.0	10.00	2.944	86.8	75	125						
Zinc	83.808	10	100.0	2.955	80.9	75	125						

Qualifiers:

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

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

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

ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 08-Sep-17

CLIENT: CH2M HILL
Lab Order: N025633
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N025633-001

Client Sample ID: SC-700B-WDR-563
Collection Date: 8/24/2017 1:45:00 PM
Matrix: WATER

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

RunID: NV00922-IC7_170825A	QC Batch: R117428	PrepDate	Analyst: RAB
Hexavalent Chromium	ND 0.033	0.20	µg/L
			1 8/25/2017 10:36 AM

TOTAL METALS BY ICPMS**EPA 200.8**

RunID: NV00922-ICP7_170831E	QC Batch: 63612	PrepDate	8/31/2017	Analyst: CEI
Chromium	ND 0.019	1.0	µg/L	1 8/31/2017 05:12 PM

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

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

**ASSET LABORATORIES**
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ORELAP/NELAP Cert 4046

ASSET Laboratories

Date: 08-Sep-17

CLIENT: CH2M HILL
Work Order: N025633
Project: PG&E Topock, 680375.02.IM.OP.00

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

Sample ID	SampType: MBLK	TestCode: 200.8_W_CR	Units: µg/L	Prep Date:	8/31/2017	RunNo:	117642					
Client ID:	Batch ID: 63612	TestNo: EPA 200.8		Analysis Date:	8/31/2017	SeqNo:	2754393					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0										
Sample ID LCS-63612	SampType: LCS	TestCode: 200.8_W_CR	Units: µg/L	Prep Date:	8/31/2017	RunNo:	117642					
Client ID: LCSW	Batch ID: 63612	TestNo: EPA 200.8		Analysis Date:	8/31/2017	SeqNo:	2754394					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Chromium	9.525	1.0	10.00	0	95.2	85	115					
Sample ID N025633-001E-MS	SampType: MS	TestCode: 200.8_W_CR	Units: µg/L	Prep Date:	8/31/2017	RunNo:	117642					
Client ID: ZZZZZZZ	Batch ID: 63612	TestNo: EPA 200.8		Analysis Date:	8/31/2017	SeqNo:	2754398					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Chromium	8.939	1.0	10.00	0.6878	82.5	75	125					
Sample ID N025633-001E-MSD	SampType: MSD	TestCode: 200.8_W_CR	Units: µg/L	Prep Date:	8/31/2017	RunNo:	117642					
Client ID: ZZZZZZZ	Batch ID: 63612	TestNo: EPA 200.8		Analysis Date:	8/31/2017	SeqNo:	2754399					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Chromium	8.751	1.0	10.00	0.6878	80.6	75	125					

Qualifiers:

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

CLIENT: CH2M HILL
Work Order: N025633
Project: PG&E Topock, 680375.02.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WU_PGE

Sample ID	SampType: MBLK	TestCode: 218.6_WU_P	Units: µg/L	Prep Date:	RunNo:						
Client ID:	Batch ID: R117428	TestNo: EPA 218.6		Analysis Date:	SeqNo:						
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-R117428	SampType: LCS	TestCode: 218.6_WU_P	Units: µg/L	Prep Date:	RunNo: 117428						
Client ID: LCSW	Batch ID: R117428	TestNo: EPA 218.6		Analysis Date:	SeqNo: 2745695						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.906	0.20	5.000	0	98.1	90	110				
Sample ID N025619-001ADUP	SampType: DUP	TestCode: 218.6_WU_P	Units: µg/L	Prep Date:	RunNo: 117428						
Client ID: ZZZZZZ	Batch ID: R117428	TestNo: EPA 218.6		Analysis Date:	SeqNo: 2745697						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.763	0.20							1.802	2.20	20
Sample ID N025633-001CMS	SampType: MS	TestCode: 218.6_WU_P	Units: µg/L	Prep Date:	RunNo: 117428						
Client ID: ZZZZZZ	Batch ID: R117428	TestNo: EPA 218.6		Analysis Date:	SeqNo: 2745699						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.129	0.20	1.000	0.09580	103	90	110				
Sample ID N025633-001CMSD	SampType: MSD	TestCode: 218.6_WU_P	Units: µg/L	Prep Date:	RunNo: 117428						
Client ID: ZZZZZZ	Batch ID: R117428	TestNo: EPA 218.6		Analysis Date:	SeqNo: 2745700						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.128	0.20	1.000	0.09580	103	90	110				

Qualifiers:

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



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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 08-Sep-17

CLIENT: CH2M HILL
Lab Order: N025633
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N025633-001

Client Sample ID: SC-700B-WDR-563
Collection Date: 8/24/2017 1:45:00 PM
Matrix: WATER

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

RunID: NV00922-WC_170825B	QC Batch: R117472		PrepDate	Analyst: LR		
Turbidity	0.25	0.10	0.10	NTU	1	8/25/2017 11:00 AM

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

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

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ASSET Laboratories

Date: 08-Sep-17

CLIENT: CH2M HILL
Work Order: N025633
Project: PG&E Topock, 680375.02.IM.OP.00

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

Sample ID	MB-R117472	SampType: MBLK	TestCode: 2130_W	Units: NTU	Prep Date:	RunNo: 117472						
Client ID:	PBW	Batch ID: R117472	TestNo: SM 2130B		Analysis Date:	SeqNo: 2747197						
Analyte		Result	PQL	SPK value	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Turbidity		ND	0.10									
Sample ID	N025633-001BDUP	SampType: DUP	TestCode: 2130_W	Units: NTU	Prep Date:	RunNo: 117472						
Client ID:	ZZZZZZZ	Batch ID: R117472	TestNo: SM 2130B		Analysis Date:	SeqNo: 2747199						
Analyte		Result	PQL	SPK value	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Turbidity		0.260	0.10			0.2500			0.2500	3.92	30	

Qualifiers:

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

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



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

ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 08-Sep-17

CLIENT: CH2M HILL
Lab Order: N025633
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N025633-001

Client Sample ID: SC-700B-WDR-563**Collection Date:** 8/24/2017 1:45:00 PM**Matrix:** WATER

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

RunID: NV00922-IC8_170825A	QC Batch: R117469	PrepDate	Analyst: RAB			
Fluoride	2.4	0.032	0.50	mg/L	5	8/25/2017 12:13 PM

ANIONS BY ION CHROMATOGRAPHY**EPA 300.0**

RunID: NV00922-IC8_170825A	QC Batch: R117469	PrepDate	Analyst: RAB			
Sulfate	410	1.1	25	mg/L	50	8/25/2017 01:45 PM

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

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

**ASSET LABORATORIES**
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ASSET Laboratories

Date: 08-Sep-17

CLIENT: CH2M HILL

Work Order: N025633

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

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_FPG

Sample ID	MB-R117469_F	SampType: MBLK	TestCode: 300_W_FPG	Units: mg/L	Prep Date:		RunNo: 117469						
Client ID:	Batch ID:	R117469	TestNo: EPA 300.0		Analysis Date:	8/25/2017	SeqNo: 2747046						
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Fluoride		ND	0.10										
Sample ID	LCS-R117469_F	SampType: LCS	TestCode: 300_W_FPG	Units: mg/L	Prep Date:		RunNo: 117469						
Client ID:	Batch ID:	R117469	TestNo: EPA 300.0		Analysis Date:	8/25/2017	SeqNo: 2747047						
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	98.2	90	110					
Sample ID	N025633-001BDUP	SampType: DUP	TestCode: 300_W_FPG	Units: mg/L	Prep Date:		RunNo: 117469						
Client ID:	Batch ID:	R117469	TestNo: EPA 300.0		Analysis Date:	8/25/2017	SeqNo: 2747049						
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Fluoride		2.442	0.50										
Sample ID	N025633-001BMS	SampType: MS	TestCode: 300_W_FPG	Units: mg/L	Prep Date:		RunNo: 117469						
Client ID:	Batch ID:	R117469	TestNo: EPA 300.0		Analysis Date:	8/25/2017	SeqNo: 2747050						
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Fluoride		8.328	0.50	6.250	2.351	95.6	80	120					
Sample ID	N025633-001BMSD	SampType: MSD	TestCode: 300_W_FPG	Units: mg/L	Prep Date:		RunNo: 117469						
Client ID:	Batch ID:	R117469	TestNo: EPA 300.0		Analysis Date:	8/25/2017	SeqNo: 2747053						
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Fluoride		8.347	0.50	6.250	2.351	95.9	80	120					

Qualifiers:

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



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

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CLIENT: CH2M HILL
Work Order: N025633
Project: PG&E Topock, 680375.02.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID	Client ID:	SampType:	Batch ID:	TestCode:	Units:	Prep Date:	Analysis Date:	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
MB-R117469_SO4	PBW	MBLK	R117469	300_W_SO4P	mg/L								
				TestNo: EPA 300.0									
Analyte			Result	PQL	SPK value	SPK Ref Val	%REC						
Sulfate			ND	0.50									
LCS-R117469_SO4	LCSW	LCS	R117469	300_W_SO4P	mg/L								
				TestNo: EPA 300.0									
Analyte			Result	PQL	SPK value	SPK Ref Val	%REC						
Sulfate			3.845	0.50	4.000	0	96.1						
N025633-001BDUP	ZZZZZZ	DUP	R117469	300_W_SO4P	mg/L								
				TestNo: EPA 300.0									
Analyte			Result	PQL	SPK value	SPK Ref Val	%REC						
Sulfate			416.460	25									
N025633-001BMS	ZZZZZZ	MS	R117469	300_W_SO4P	mg/L								
				TestNo: EPA 300.0									
Analyte			Result	PQL	SPK value	SPK Ref Val	%REC						
Sulfate			614.705	25	200.0	4.14.2	100						
N025633-001BMSD	ZZZZZZ	MSD	R117469	300_W_SO4P	mg/L								
				TestNo: EPA 300.0									
Analyte			Result	PQL	SPK value	SPK Ref Val	%REC						
Sulfate			610.470	25	200.0	4.14.2	98.1						

Qualifiers:

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



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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 08-Sep-17

CLIENT: CH2M HILL
Lab Order: N025633
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N025633-001

Client Sample ID: SC-700B-WDR-563
Collection Date: 8/24/2017 1:45:00 PM
Matrix: WATER

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

RunID: WETCHEM_170907A	QC Batch: R117718	PrepDate	Analyst: QBM			
Nitrate/Nitrite as N	2.3	0.11	0.25	mg/L	5	9/7/2017

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

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

**ASSET LABORATORIES**
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ASSET Laboratories

Date: 08-Sep-17

CLIENT: CH2M HILL
Work Order: N025633
Project: PG&E Topock, 680375.02.IM.OP.00

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

Sample ID	Client ID:	SampType:	Batch ID:	TestCode:	Units:	Prep Date:	Analysis Date:	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
MB-R117718	**PBW	MLK	R117718	4500N03F_W	mg/L								
				SM4500-NO3									
Analyte				Result	PQL	SPK value	SPK Ref Val	%REC					
Nitrate/Nitrite as N			ND	ND	0.050								
Sample ID	Client ID:	SampType:	Batch ID:	TestCode:	Units:	Prep Date:	Analysis Date:	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
LCS-R117718	LCSW	LCS	R117718	4500N03F_W	mg/L								
				SM4500-NO3									
Analyte				Result	PQL	SPK value	SPK Ref Val	%REC					
Nitrate/Nitrite as N			0.471	0.050	0.5000	0		94.2	85	115			
Sample ID	Client ID:	SampType:	Batch ID:	TestCode:	Units:	Prep Date:	Analysis Date:	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
N025633-001DDUP	ZZZZZZ	DUP	R117718	4500N03F_W	mg/L								
				SM4500-NO3									
Analyte				Result	PQL	SPK value	SPK Ref Val	%REC					
Nitrate/Nitrite as N			2.293	0.25							2.301	0.348	20
Sample ID	Client ID:	SampType:	Batch ID:	TestCode:	Units:	Prep Date:	Analysis Date:	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
N025633-001DMDS	ZZZZZZ	MS	R117718	4500N03F_W	mg/L								
				SM4500-NO3									
Analyte				Result	PQL	SPK value	SPK Ref Val	%REC					
Nitrate/Nitrite as N			4.765	0.25	2.500	2.301		98.6	75	125			
Sample ID	Client ID:	SampType:	Batch ID:	TestCode:	Units:	Prep Date:	Analysis Date:	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
N025633-001DMSD	ZZZZZZ	MSD	R117718	4500N03F_W	mg/L								
				SM4500-NO3									
Analyte				Result	PQL	SPK value	SPK Ref Val	%REC					
Nitrate/Nitrite as N			4.459	0.25	2.500	2.301		86.3	75	125	4.765	6.63	20

Qualifiers:

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



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CH2MHILL

CHAIN OF CUSTODY RECORD

Project Name	PG&E Topock		Container:	1 Liter Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly	500 ml Poly	500 ml Poly	1 Liter Poly
Location	PG&E Topock		4°C Lab	4°C	4°C	4°C	4°C	4°C	4°C	4°C
Project Number	680375.02.M.OP.00		Preservatives:	H2SO4		H2SO4				
Project Manager	Scott O'Donnell		Filtered:	NA	NA	NA	NA	NA	NA	NA
Sample Manager	Shawn Duffy		Holding Time:	28	7	1	28	7	180	7
Number of Containers										
Task Order										
Project	IM3PLANT-ARAR-WDR-563									
Turnaround Time	10 Days									
Shipping Date:										
COC Number:	563									
DATE	TIME	Matrix								
SC-700B-WDR-563	8/24/17	13:45	Water	X	X	X	X	X	X	N025633 - 01
TOTAL NUMBER OF CONTAINERS										4

Approved by	Signatures	Date/Time	Shipping Details	ATTN:	Special Instructions:
Sampled by		8-24-17 13:45	FedEx		SC-700B Total metals List: Cr, Al, Sb, As, Ba, B, Cu, Pb, Mn, Mo, Ni, Fe, Zn
Relinquished by		8-24-17 13:45	On Ice: <input checked="" type="checkbox"/> yes <input type="checkbox"/> no		Sample Custody
Received by		8/24/17 13:45	Airbill No:		and
Relinquished by		8/24/17 13:45	Lab Name: ASSET Laboratories		Report Copy to
Received by		8/24/17 13:45	Lab Phone: (702) 307-2659		Doug Scott (970) 731-0636
w/ T blank, 18:17					

ASSET Laboratories

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

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

Cooler Received/Opened On: 8/24/2017 Workorder: N025633
Rep sample Temp (Deg C): 3.4 IR Gun ID: 2
Temp Blank: Yes No
Carrier name: ASSET
Last 4 digits of Tracking No.: NA Packing Material Used: None
Cooling process: Ice Ice Pack Dry Ice Other None

Sample Receipt Checklist

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

Comments: Received @ pH 7. Fraction for Hex Cr was lab filtered and preserved with Ammonium Buffer. Fraction for Metals was preserved with HNO3 and for Ammonia/NO3 with H2SO4.

Checklist Completed By: YR  8/29/2017

Reviewed By:  8/29/2017



ASSET Laboratories

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

www.atl-labs.com

TEL: 7023072659

FAX: 7023072691

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

QC Level: Level IV

Subcontractor:

Truesdail
3337 Michelson Drive, Suite CN750
Irvine, CA 92612

TEL: (714) 730-6239
FAX: (714) 730-6462
Acct #: .

28-Aug-17

Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests	
				SM4500-NH3D	
N025633-001A / SC-700B-WDR-563	Water	8/24/2017 1:45:00 PM	32CZP	1	

General Comments:

Please email sample receipt acknowledgement to the PM.

Please use PO#: N25633A. Please email Invoices and Account Receivable Statements to AssetAP@assetlaboratories.com. For questions, call Marion at (702)-307-2659. Please e-mail results to reports.IV@assetlaboratories.com by: Normal TAT.

Please analyze for Ammonia. CH2M Hill sample.

GSO #: 537396964

Relinquished by:	Date/Time	Received by:	Date/Time
	8/28/17 17:00		

List of Analysts

ASSET Laboratories Work Order: **N025633**

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



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TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING



Established 1931

REPORT

3337 MICHELSON DRIVE, SUITE CN 750
IRVINE, CA 92612
(714) 730-6239 • FAX (714) 730-6462
www.truesdail.com

Client: Advanced Technology Laboratories-NV

3151 W Post Rd
Las Vegas, NV 89118

Work Order No.: 17H0499

Printed: 09/28/2017

Attention: Marlon Cartin

Project Name: ATL-NV

CASE NARRATIVE

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Ammonia analyses. A summary table for this laboratory number is included in Section 2. Complete laboratory reports, wet chemistry raw data, quality control data and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data are under Section 5.

The sample was received and delivered with the chain of custody on August 29th, 2017, intact and in chilled condition. The sample will be kept in a locked refrigerator for 30 days; thereafter will be kept in warm storage for additional 2 months before disposal.

If you have any questions or require additional information, please contact me at (714) 730-6239 ext. 203.

SAMPLE RECEIPT SUMMARY

Sample ID	Laboratory ID	Matrix	Type	Date Sampled	Date Received
N025633-001A / SC-700B-WDR-563	17H0499-01	Water		08/24/2017 13:45	08/29/2017 08:45

DEFINITIONS

Symbol	Definition
DF	Dilution Factor
MDL	Method Detection Limit
ND	Not Detected
RL	Reporting Limit

Respectfully yours,

Shelly Brady
Customer Service Manager

This report applies to the sample(s), or product(s), investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed. This report shall not be reproduced without the written consent of Truesdail Laboratories, Inc., and must be reproduced in its entirety.



TRUESDAIL LABORATORIES, INC.

Client: Advanced Technology Laboratories-N Project Name: ATL-NV
Project Number: [none]

Printed: 09/28/2017

N025633-001A / SC-700B-WDR-563
17H0499-01 (Water)

Analyte	Result	RL	Units	DF	Batch	Analyzed	Analyst	Method	Notes
---------	--------	----	-------	----	-------	----------	---------	--------	-------

Truesdail Laboratories, Inc

Wet Chemistry

Ammonia	0.250	0.0500	mg/L	1	1709017	09/03/2017 14:31	Alexander Luna	SM 4500-NH3 D M
---------	-------	--------	------	---	---------	------------------	----------------	-----------------

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TRUESDAIL LABORATORIES, INC.

Client: Advanced Technology Laboratories-N Project Name: ATL-NV
Project Number: [none]

Printed: 09/28/2017

QUALITY CONTROL
Wet Chemistry
Truesdail Laboratories, Inc

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	% Rec Limits	RPD RPD	RPD Limit	Note
---------	--------	----	-------	-------------	---------------	------	--------------	---------	-----------	------

Batch: 1709017 - SM 4500-NH3 D M

Blank (1709017-BLK1)							Prepared & Analyzed: 9/3/2017			
Ammonia	ND	0.0500	mg/L							
LCS (1709017-BS1)							Prepared & Analyzed: 9/3/2017			
Ammonia	0.415	0.0500	mg/L	0.400		104	90-110			
Duplicate (1709017-DUP1)							Prepared & Analyzed: 9/3/2017			
Ammonia	0.236	0.0500	mg/L		0.250			6	20	
Matrix Spike (1709017-MS1)							Prepared & Analyzed: 9/3/2017			
Ammonia	3.10	0.250	mg/L	2.00	1.14	98	75-125			
Matrix Spike Dup (1709017-MSD1)							Prepared & Analyzed: 9/3/2017			
Ammonia	3.34	0.250	mg/L	2.00	1.14	110	75-125	8	20	

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ANALYSIS DATA SHEET

Inorganics

Client: Advanced Technology Laboratories-NV
Client Sample ID: N025633-001A / SC-700B-WDR-563
Lab Sample ID: 17H0499-01
Project: ATL-NV

Date Sampled: 08/24/17 13:45 Matrix: Water

CAS NO.	Analyte	Concentration (mg/L)	MDL	RL	DF	Q	Analyst	Analyzed	Method
7664-41-7	Ammonia	0.250	0.0111	0.0500	1		AxL	09/03/17 14:31	SM 4500-NH3 D M

METHOD BLANK DATA SHEET

SM 4500-NH3 D M

Client: Advanced Technology Laboratories-NV

Project: ATL-NV

Laboratory ID: 1709017-BLK1

Prepared: 09/03/17 11:55 Preparation: SM 4500-NH3 D M Matrix: Water

Analyzed: 09/03/17 14:21 Instrument: TL01 File ID: 7I03001-020

Batch: 1709017 Sequence: 7I03001

CAS NO.	COMPOUND	CONC. (mg/L)	MDL	RL	Q
7664-41-7	Ammonia	ND	0.0111	0.0500	

LCS / LCS DUPLICATE RECOVERY

SM 4500-NH3 D M

Client: Advanced Technology Laboratories-NV
Project: ATL-NV
Work Order: 17H0499

Matrix: Water Prep Method: SM 4500-NH3 D M
Prep Batch: 1709017 Lab Sample ID: 1709017-BS1

ANALYTE	SPIKE ADDED (mg/L)	LCS CONCENTRATION (mg/L)	LCS % REC.	QC LIMITS REC.
Ammonia	0.400	0.415	104	90 - 110

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

Matrix Spike

Client: Advanced Technology Laboratories-NV
Project: ATL-NV
Work Order: 17H0499

Matrix: Water Analysis Method: SM 4500-NH3 D M
Prep Batch: 1709017 Prep Method: SM 4500-NH3 D M
Laboratory ID: 1709017-MS1
Source Sample ID: 17I0031-02

ANALYTE	SPIKE ADDED (mg/L)	SAMPLE CONCENTRATION (mg/L)	MS CONCENTRATION (mg/L)	MS % REC.	QC LIMITS REC.
Ammonia	2.00	1.14	3.10	98	75 - 125

ANALYTE	SPIKE ADDED (mg/L)	MSD CONCENTRATION (mg/L)	MSD % REC. #	% RPD	RPD	QC LIMITS REC.
Ammonia	2.00	3.34	110	8	20	75 - 125

* Values outside of QC limits

DUPLICATES

N025633-001A / SC-700B-WDR-563

Client: Advanced Technology Laboratories-NV
Project: ATL-NV

Matrix: Water Laboratory ID: 1709017-DUP1
Prep Batch: 1709017 Initial/Final: 50 mL / 50 mL
Prep Method: SM 4500-NH3 D M Analysis: SM 4500-NH3 D M

ANALYTE	SAMPLE CONCENTRATION (mg/L)	DUPLICATE CONCENTRATION (mg/L)	RPD %	Q	CONTROL LIMIT
Ammonia	0.250	0.236	6		20

**Log-in check list
For level III data package**

Client: ATL Lab Number: 17H0499

Received Date: 8-29-17

Sample receiving review	Yes	No	N/A	Comment
Was special login form received by login personnel?	✓			
Was COC received and signed by client and login personnel?	✓			
Were all sample temperature measured and recorded on COC?	✓			
Did you measure and record the pH on all metals samples on COC?		✓		
Has sample integrity and analysis discrepancy form been filled out completely?	✓			
Were all intercompany yellow forms generated and stamped with "alert level III QC" note?	✓			
Have check -in and check out lists been filled out and attached to appropriate form?	✓			
Were sample containers labeled with TLI numbers, date, and time sampled?	✓			
Did you notify analyst or group leader about short holding time?		✓		
Was a copy of COC attached to all yellow intracompany form?	✓			
For special clients, have all their samples been logged into the internal COC book?	✓			
Were samples locked in fridge or special storage area?	✓			
Was temperature recorded in the log book?	✓			
Sample receiving Signature:	<i>J. Brown</i>			



17H0499

CHAIN-OF-CUSTODY RECORD



FAX: 7023072691

QC Level: Level IV

Subcontractor:

Truesdail
3337 Michelson Drive, Suite CN750
Irvine, CA 92612

TEL: (714) 730-6239
FAX: (714) 730-6462
Acct #:

28-Aug-17

Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests	
				SM4500-NH3D	
N025633-001A / SC-700B-WDR-563	Water	8/24/2017 1:45:00 PM	32OZP	1	

ALERT !!
Level IV QC

General Comments:

Please email sample receipt acknowledgement to the PM.

Please use PO# N25633A. Please email Invoices and Account Receivable Statements to AssetAP@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. CH2M Hill sample.

GSO #: 537396964

Date/Time	Date/Time	Date/Time
Relinquished by: <i>MJ</i>	8/28/17 17:00	Received by: <i>J. B. Miller</i>
Relinquished by: _____	_____	Received by: _____

WORK ORDER

Printed: 8/29/17 9:12:24AM

17H0499

Truesdail Laboratories, Inc

Client: Advanced Technology Laboratories-NV ✓
Project: ATL-NV

Project Manager: Shelly Brady
Project Number: [none]

Report To:

Advanced Technology Laboratories-NV
Marlon Cartin
3151 W Post Rd
Las Vegas, NV 89118
Phone: (702) 307-2659
Fax: (702) 307-2691

Invoice To:

Advanced Technology Laboratories-NV
Marlon Cartin
3151 W Post Rd
Las Vegas, NV 89118
Phone :(702) 307-2659
Fax: (702) 307-2691

Date Due: 09/08/2017 16:30 (7 day TAT)

Received By: Jacqueline Brown ✓
Logged In By: Jacqueline Brown

Date Received: 08/29/2017 08:45
Date Logged In: 08/29/2017 09:03

Samples Received at: 4.3°C ✓
Chain of Custody rece Yes Samples intact? Yes
Letter (if sent) matche No Custody seals (if any) No
Requested analyses ac Yes Analyses within hold t Yes
Samples received in a Yes

Analysis	Due	TAT	Expires	Comments
17H0499-01 N025633-001A / SC-700B-WDR-563 [Water] Sampled 08/24/2017 ✓13:45 (GMT-08:00) Pacific Time (US &	09/08/2017 08:00	7	09/21/2017 13:45	
Ammonia E ✓				



Reviewed By

8/29/2017
Date

Page 1 of 1

September 21, 2017

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

Workorder No.: N025755

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

Attention: Doug Scott

Enclosed are the results for sample(s) received on September 05, 2017 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 Romualdo

Puri Romualdo
Laboratory Director

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



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

CLIENT: CH2M HILL
Project: PG&E Topock, 680375.03.IM.OP.00
Lab Order: N025755

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

Samples were received intact with proper chain of custody documentation.

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

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

Samples were analyzed within method holding time.

Subcontracted Analyses:

Ammonia was subcontracted to Truesdail-Irvine,CA.

Analytical Comments for EPA 200.8:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Copper in QC samples N025755-002D-MS and N025755-002D-MSD possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

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ASSET Laboratories

Date: 21-Sep-17

CLIENT: CH2M HILL
Project: PG&E Topock, 680375.03.IM.OP.00
Lab Order: N025755
Contract No: IM3PLANT-AR

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N025755-001A	SC-100B-WDR-564	Water	9/5/2017 10:05:00 AM	9/5/2017	9/21/2017
N025755-001B	SC-100B-WDR-564	Water	9/5/2017 10:05:00 AM	9/5/2017	9/21/2017
N025755-001C	SC-100B-WDR-564	Water	9/5/2017 10:05:00 AM	9/5/2017	9/21/2017
N025755-002A	SC-700B-WDR-564	Water	9/5/2017 10:00:00 AM	9/5/2017	9/21/2017
N025755-002B	SC-700B-WDR-564	Water	9/5/2017 10:00:00 AM	9/5/2017	9/21/2017
N025755-002C	SC-700B-WDR-564	Water	9/5/2017 10:00:00 AM	9/5/2017	9/21/2017
N025755-002D	SC-700B-WDR-564	Water	9/5/2017 10:00:00 AM	9/5/2017	9/21/2017
N025755-002E	SC-700B-WDR-564	Water	9/5/2017 10:00:00 AM	9/5/2017	9/21/2017



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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 21-Sep-17

CLIENT: CH2M HILL
Lab Order: N025755
Project: PG&E Topock, 680375.03.IM.OP.00
Lab ID: N025755-001

Client Sample ID: SC-100B-WDR-564
Collection Date: 9/5/2017 10:05:00 AM
Matrix: WATER

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

SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: NV00922-WC_170906B	QC Batch: R117674	PrepDate	Analyst: LR
Specific Conductance	7400	0.10	umhos/cm
		0.10	1
			9/6/2017 10:15 AM

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

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

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ORELAP/NELAP Cert 4046

ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 21-Sep-17

CLIENT: CH2M HILL
Lab Order: N025755
Project: PG&E Topock, 680375.03.IM.OP.00
Lab ID: N025755-002

Client Sample ID: SC-700B-WDR-564
Collection Date: 9/5/2017 10:00:00 AM
Matrix: WATER

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

SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: NV00922-WC_170906B	QC Batch: R117674	PrepDate	Analyst: LR
Specific Conductance	6900	0.10	umhos/cm
		0.10	1
			9/6/2017 10:15 AM

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

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

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ASSET Laboratories

Date: 21-Sep-17

CLIENT: CH2M HILL
Work Order: N025755
Project: PG&E Topock, 680375.03.IM.OP.00

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

Sample ID	N025755-001ADUP	SampType: DUP	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:	RunNo: 117674						
Client ID:	ZZZZZZ	Batch ID: R117674	TestNo: EPA 120.1		Analysis Date:	SeqNo: 2756229						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	7330.000	0.10				7360		0.408	10			

Qualifiers:

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



"Serving Clients with Passion and Professionalism"

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

NEVADA P:702.307.2659 F:702.307.2691
3151 W. Post Rd., Las Vegas, NV 89118
ELAP Cert 2676 | NV Cert NV00922
ORELAP/NELAP Cert 4046
EPA ID CA01638

CALIFORNIA P:9562.219.7435 F:9562.219.7436
11110 Artesia Blvd., Ste B, Cerritos, CA 90703
ELAP Cert 2921
EPA ID CA01638

ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 21-Sep-17

CLIENT: CH2M HILL
Lab Order: N025755
Project: PG&E Topock, 680375.03.IM.OP.00
Lab ID: N025755-001

Client Sample ID: SC-100B-WDR-564
Collection Date: 9/5/2017 10:05:00 AM
Matrix: WATER

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

TOTAL FILTERABLE RESIDUE**SM2540C**

RunID: NV00922-WC_170906D	QC Batch: 63683			PrepDate	9/6/2017	Analyst: LR
Total Dissolved Solids (Residue, Filterable)	4300	50	50	mg/L	1	9/6/2017 01:07 PM

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

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

**ASSET LABORATORIES**
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES**"Servina Clients with Passion and Professionalism"**

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ORELAP/NELAP Cert 4046

ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 21-Sep-17

CLIENT: CH2M HILL
Lab Order: N025755
Project: PG&E Topock, 680375.03.IM.OP.00
Lab ID: N025755-002

Client Sample ID: SC-700B-WDR-564
Collection Date: 9/5/2017 10:00:00 AM
Matrix: WATER

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

TOTAL FILTERABLE RESIDUE**SM2540C**

RunID: NV00922-WC_170906D	QC Batch: 63683			PrepDate	9/6/2017	Analyst: LR
Total Dissolved Solids (Residue, Filterable)	3900	50	50	mg/L	1	9/6/2017 01:07 PM

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

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

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ASSET Laboratories

Date: 21-Sep-17

ANALYTICAL QC SUMMARY REPORT

CLIENT: CH2M HILL
Work Order: N025755
Project: PG&E Topock, 680375.03.IM.OP.00

TestCode: 160.1_2540C_W

Sample ID	SampType:	TestCode:	Units:	Prep Date:	RunNo:						
Client ID:	Batch ID:	TestNo:	mg/L	Analysis Date:	SeqNo:						
Analyte	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera)	953,000	10	1000	0	95.3	80	120				
Sample ID MB-63683	SampType: MBLK	TestCode: 160.1_2540C	Units: mg/L	Prep Date: 9/6/2017	RunNo: 117676						
Client ID: PBW	Batch ID: 63683	TestNo: SM2540C		Analysis Date: 9/6/2017	SeqNo: 2757500						
Analyte	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera)	ND	10									
Sample ID N025755-001ADUP	SampType: DUP	TestCode: 160.1_2540C	Units: mg/L	Prep Date: 9/6/2017	RunNo: 117676						
Client ID: ZZZZZZZ	Batch ID: 63683	TestNo: SM2540C		Analysis Date: 9/6/2017	SeqNo: 2757502						
Analyte	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera)	4250,000	50			4300	1.17	5				

Qualifiers:

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



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

ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 21-Sep-17

CLIENT: CH2M HILL
Lab Order: N025755
Project: PG&E Topock, 680375.03.IM.OP.00
Lab ID: N025755-002

Client Sample ID: SC-700B-WDR-564
Collection Date: 9/5/2017 10:00:00 AM
Matrix: WATER

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

RunID: NV00922-ICP2_170907A	QC Batch: 63691			PrepDate	9/6/2017	Analyst: CEI
Aluminum	ND	2.7	50	µg/L	1	9/7/2017 10:41 AM
Boron	1100	38	100	µg/L	1	9/7/2017 10:41 AM
Iron	34	1.8	20	µg/L	1	9/7/2017 10:41 AM

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

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

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ASSET Laboratories

Date: 21-Sep-17

CLIENT: CH2M HILL
Work Order: N025755
Project: PG&E Topock, 680375.03.IM.OP.00

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

Sample ID	SampType:	TestCode:	Units:	Prep Date:	RunNo:							
Client ID:	Batch ID:	TestNo:	EPA 200.7	Analysis Date:	SeqNo:							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RDP	RPDLimit	Qual
Aluminum	ND	50										
Boron	ND	100										
Iron	14.979	20										
Sample ID	SampType:	TestCode:	Units:	Prep Date:	RunNo:							
Client ID:	Batch ID:	TestNo:	EPA 200.7	Analysis Date:	SeqNo:							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RDP	RPDLimit	Qual
Aluminum	9843.322	50	10000	0	98.4	85	115					
Boron	4776.727	100	5000	0	95.5	85	115					
Iron	109.095	20	100.0	0	109	85	115					
Sample ID	SampType:	TestCode:	Units:	Prep Date:	RunNo:							
Client ID:	Batch ID:	TestNo:	EPA 200.7	Analysis Date:	SeqNo:							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RDP	RPDLimit	Qual
Aluminum	9806.178	50	10000	0	98.1	75	125					
Boron	5763.441	100	5000	1094	93.4	75	125					
Iron	177.810	20	100.0	72.12	106	75	125					
Sample ID	SampType:	TestCode:	Units:	Prep Date:	RunNo:							
Client ID:	Batch ID:	TestNo:	EPA 200.7	Analysis Date:	SeqNo:							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RDP	RPDLimit	Qual
Aluminum	9868.100	50	10000	0	98.7	75	125					
Boron	5883.600	100	5000	1094	95.8	75	125					
Iron	190.390	20	100.0	72.12	118	75	125					

Qualifiers:

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

ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 21-Sep-17

CLIENT: CH2M HILL
Lab Order: N025755
Project: PG&E Topock, 680375.03.IM.OP.00
Lab ID: N025755-001

Client Sample ID: SC-100B-WDR-564
Collection Date: 9/5/2017 10:05:00 AM
Matrix: WATER

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

RunID: NV00922-ICP7_170911G	QC Batch: 63702			PrepDate	9/8/2017	Analyst: CEI	
Manganese		5.8	0.056	0.50	µg/L	1	9/11/2017 08:22 PM

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

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

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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 21-Sep-17

CLIENT: CH2M HILL
Lab Order: N025755
Project: PG&E Topock, 680375.03.IM.OP.00
Lab ID: N025755-002

Client Sample ID: SC-700B-WDR-564
Collection Date: 9/5/2017 10:00:00 AM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL METALS BY ICPMS							
EPA 200.8							
RunID: NV00922-ICP7_170911G	QC Batch: 63702			PrepDate	9/8/2017		Analyst: CEI
Antimony	ND	0.031	0.50	µg/L	1	9/11/2017 08:28 PM	
Arsenic	0.17	0.025	0.10	µg/L	1	9/11/2017 08:28 PM	
Barium	13	0.070	1.0	µg/L	1	9/18/2017 09:56 PM	
Copper	ND	0.26	1.0	µg/L	1	9/19/2017 10:57 AM	
Lead	ND	0.037	1.0	µg/L	1	9/11/2017 08:28 PM	
Manganese	4.5	0.056	0.50	µg/L	1	9/11/2017 08:28 PM	
Molybdenum	19	0.039	0.50	µg/L	1	9/11/2017 08:28 PM	
Nickel	1.1	0.040	1.0	µg/L	1	9/11/2017 08:28 PM	
Zinc	ND	0.27	10	µg/L	1	9/11/2017 08:28 PM	

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

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



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ASSET Laboratories

Date: 21-Sep-17

CLIENT: CH2M HILL

Work Order: N025755

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

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID	MB-63702	SampType: MBLK	TestCode: 200.8_W	Units: µg/L	Prep Date:	9/8/2017	RunNo:	117822					
Client ID:	PBW	Batch ID:	63702	TestNo: EPA 200.8	Analysis Date:	9/11/2017	SeqNo:	2761595					
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Antimony		0.044	0.50										
Arsenic		ND	0.10										
Lead		ND	1.0										
Manganese		ND	0.50										
Molybdenum		0.211	0.50										
Nickel		ND	1.0										
Zinc		ND	10										

Sample ID	LCS-63702	SampType: LCS	TestCode: 200.8_W	Units: µg/L	Prep Date:	9/8/2017	RunNo:	117822					
Client ID:	LCSW	Batch ID:	63702	TestNo: EPA 200.8	Analysis Date:	9/11/2017	SeqNo:	2761596					
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Antimony		10.105	0.50	10.00	0	101	85	115					
Arsenic		10.066	0.10	10.00	0	101	85	115					
Lead		10.183	1.0	10.00	0	102	85	115					
Manganese		101.824	0.50	100.00	0	102	85	115					
Molybdenum		9.846	0.50	10.00	0	98.5	85	115					
Nickel		10.135	1.0	10.00	0	101	85	115					
Zinc		100.638	10	100.0	0	101	85	115					

Sample ID	N025755-002D-MS	SampType: MS	TestCode: 200.8_W	Units: µg/L	Prep Date:	9/8/2017	RunNo:	117822					
Client ID:	ZZZZZZ	Batch ID:	63702	TestNo: EPA 200.8	Analysis Date:	9/11/2017	SeqNo:	2761604					
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Antimony		9.492	0.50	10.00	0.03893	94.5	75	125					
Arsenic		9.619	0.10	10.00	0.1740	94.4	75	125					
Lead		9.471	1.0	10.00	0	94.7	75	125					
Manganese		89.367	0.50	100.0	4.472	84.9	75	125					

Qualifiers:

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



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

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

CLIENT: CH2M HILL
Work Order: N025755
Project: PG&E Topock, 680375.03.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID N025755-002D-MS		SampType: MS	TestCode: 200.8_W		Units: µg/L	Prep Date: 9/8/2017		RunNo: 117822				
Client ID: ZZZZZZ		Batch ID: 63702	TestNo: EPA 200.8			Analysis Date: 9/11/2017		SeqNo: 2761604				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Molybdenum	29.211	0.50	10.00	1.052	100	75	125					
Nickel	9.701	1.0	10.00	0	86.5	75	125					
Zinc	80.142	10	100.0	0	80.1	75	125					
Sample ID N025755-002D-MSD	SampType: MSD	TestCode: 200.8_W	Units: µg/L		Prep Date: 9/8/2017	RunNo: 117822						
Client ID: ZZZZZZ	Batch ID: 63702	TestNo: EPA 200.8			Analysis Date: 9/11/2017	SeqNo: 2761607						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Antimony	9.480	0.50	10.00	0.03893	94.4	75	125					
Arsenic	9.777	0.10	10.00	0.1740	96.0	75	125					
Lead	9.509	1.0	10.00	0	95.1	75	125					
Manganese	88.805	0.50	100.0	4.472	84.3	75	125					
Molybdenum	29.167	0.50	10.00	19.19	99.8	75	125					
Nickel	9.754	1.0	10.00	1.052	87.0	75	125					
Zinc	81.015	10	100.0	0	81.0	75	125					
Sample ID MB-63702	SampType: MBLK	TestCode: 200.8_W	Units: µg/L		Prep Date: 9/8/2017	RunNo: 117973						
Client ID: PBW	Batch ID: 63702	TestNo: EPA 200.8			Analysis Date: 9/18/2017	SeqNo: 2769044						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Barium	ND	1.0										
Sample ID LCS-63702	SampType: LCS	TestCode: 200.8_W	Units: µg/L		Prep Date: 9/8/2017	RunNo: 117973						
Client ID: LCSW	Batch ID: 63702	TestNo: EPA 200.8			Analysis Date: 9/18/2017	SeqNo: 2769045						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Barium	9.971	1.0	10.00	0	99.7	85	115					

Qualifiers:

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

CLIENT: CH2M HILL
Work Order: N025755
Project: PG&E Topock, 680375.03.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID	N025755-002D-MS	SampType: MS	TestCode: 200.8_W	Units: µg/L	Prep Date: 9/8/2017	RunNo: 117973						
Client ID:	ZZZZZZ	Batch ID: 63702	TestNo: EPA 200.8		Analysis Date: 9/18/2017	SeqNo: 2769050						
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium		22.124	1.0	10.00	13.06	90.7	75	125				
Sample ID	N025755-002D-MS	SampType: MSD	TestCode: 200.8_W	Units: µg/L	Prep Date: 9/8/2017	RunNo: 117973						
Client ID:	ZZZZZZ	Batch ID: 63702	TestNo: EPA 200.8		Analysis Date: 9/18/2017	SeqNo: 2769051						
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium		22.328	1.0	10.00	13.06	92.7	75	125	22.12	0.915	20	
Sample ID	MB-63702	SampType: MBLK	TestCode: 200.8_W	Units: µg/L	Prep Date: 9/8/2017	RunNo: 117989						
Client ID:	PBW	Batch ID: 63702	TestNo: EPA 200.8		Analysis Date: 9/19/2017	SeqNo: 2769494						
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper		ND	1.0									
Sample ID	LCS-63702	SampType: LCS	TestCode: 200.8_W	Units: µg/L	Prep Date: 9/8/2017	RunNo: 117989						
Client ID:	LCSW	Batch ID: 63702	TestNo: EPA 200.8		Analysis Date: 9/19/2017	SeqNo: 2769495						
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper		9.228	1.0	10.00	0	92.3	85	115				
Sample ID	N025755-002D-MS	SampType: MS	TestCode: 200.8_W	Units: µg/L	Prep Date: 9/8/2017	RunNo: 117989						
Client ID:	ZZZZZZ	Batch ID: 63702	TestNo: EPA 200.8		Analysis Date: 9/19/2017	SeqNo: 2769500						
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper		6.875	1.0	10.00	0	68.8	75	125				

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- DO Surrogate Diluted Out
- Calculations are based on raw values
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EPA ID CA01638
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL
Work Order: N025755
Project: PG&E Topock, 680375.03.IMP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID	N025755-002D-MSD	SampType:	MSD	TestCode:	200.8_W	Units:	µg/L	Prep Date:	9/8/2017	RunNo:	117989	
Client ID:	zzzzzz	Batch ID:	63702	TestNo:	EPA 200.8			Analysis Date:	9/19/2017	SeqNo:	2769501	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper		7.422	1.0	10.00	0	74.2	75	125	6.875	7.65	20	S

Qualifiers:

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



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

ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 21-Sep-17

CLIENT: CH2M HILL
Lab Order: N025755
Project: PG&E Topock, 680375.03.IM.OP.00
Lab ID: N025755-001

Client Sample ID: SC-100B-WDR-564
Collection Date: 9/5/2017 10:05:00 AM
Matrix: WATER

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

RunID: NV00922-IC7_170906A	QC Batch: R117681	PrepDate	Analyst: RAB		
Hexavalent Chromium	550 3.3	20	µg/L	100	9/6/2017 10:21 AM

TOTAL METALS BY ICPMS**EPA 200.8**

RunID: NV00922-ICP7_170918B	QC Batch: 63702	PrepDate	9/8/2017	Analyst: CEI	
Chromium	520 0.096	5.0	µg/L	5	9/18/2017 10:23 PM

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

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

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

Print Date: 21-Sep-17

CLIENT: CH2M HILL
Lab Order: N025755
Project: PG&E Topock, 680375.03.IM.OP.00
Lab ID: N025755-002

Client Sample ID: SC-700B-WDR-564
Collection Date: 9/5/2017 10:00:00 AM
Matrix: WATER

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

RunID: NV00922-IC7_170906A	QC Batch: R117681	PrepDate	Analyst: RAB
Hexavalent Chromium	ND 0.033	0.20	µg/L
			1 9/6/2017 11:01 AM

TOTAL METALS BY ICPMS**EPA 200.8**

RunID: NV00922-ICP7_170911F	QC Batch: 63702	PrepDate	9/8/2017	Analyst: CEI
Chromium	ND 0.019	1.0	µg/L	1 9/11/2017 08:28 PM

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

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

**ASSET LABORATORIES**
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ASSET Laboratories

Date: 21-Sep-17

CLIENT: CH2M HILL

Work Order: N025755

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

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W_CRPGE

Sample ID	MB-63702	SampType: MBLK	TestCode: 200.8_W_CR	Units: µg/L	Prep Date:	9/8/2017	RunNo:	117821					
Client ID:	PBW	Batch ID: 63702	TestNo: EPA 200.8		Analysis Date:	9/11/2017	SeqNo:	2761565					
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Chromium		ND	1.0										
Sample ID	LCS-63702	SampType: LCS	TestCode: 200.8_W_CR	Units: µg/L	Prep Date:	9/8/2017	RunNo:	117821					
Client ID:	LCSW	Batch ID: 63702	TestNo: EPA 200.8		Analysis Date:	9/11/2017	SeqNo:	2761566					
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Chromium		9.938	1.0	10.00	0	99.4	85	115					
Sample ID	N025755-0022D-MS	SampType: MS	TestCode: 200.8_W_CR	Units: µg/L	Prep Date:	9/8/2017	RunNo:	117821					
Client ID:	ZZZZZZZ	Batch ID: 63702	TestNo: EPA 200.8		Analysis Date:	9/11/2017	SeqNo:	2761574					
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Chromium		8.758	1.0	10.00	0.4375	83.2	75	125					
Sample ID	N025755-0022D-MSD	SampType: MSD	TestCode: 200.8_W_CR	Units: µg/L	Prep Date:	9/8/2017	RunNo:	117821					
Client ID:	ZZZZZZZ	Batch ID: 63702	TestNo: EPA 200.8		Analysis Date:	9/11/2017	SeqNo:	2761577					
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Chromium		8.862	1.0	10.00	0.4375	84.2	75	125	8.758	1.18	20		

Qualifiers:

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

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



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

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 EPA ID CA01638

CLIENT: CH2M HILL
Work Order: N025755
Project: PG&E Topock, 680375.03.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WU_PGE

Sample ID	SampType: MBLK	TestCode: 218.6_WU_P	Units: µg/L	Prep Date:			
Client ID:	Batch ID: R117681	TestNo: EPA 218.6		Analysis Date:			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit
Hexavalent Chromium	ND	0.20					
Sample ID	LCS-R117681	SampType: LCS	TestCode: 218.6_WU_P	Units: µg/L	Prep Date:		
Client ID:	Batch ID: R117681	TestNo: EPA 218.6			Analysis Date:		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit
Hexavalent Chromium	4.988	0.20	5.000	0	99.8	90	110
Sample ID	N025755-001BDUP	SampType: DUP	TestCode: 218.6_WU_P	Units: µg/L	Prep Date:		
Client ID:	Batch ID: R117681	TestNo: EPA 218.6			Analysis Date:		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit
Hexavalent Chromium	550.480	20					
Sample ID	N025755-001BMS	SampType: MS	TestCode: 218.6_WU_P	Units: µg/L	Prep Date:		
Client ID:	Batch ID: R117681	TestNo: EPA 218.6			Analysis Date:		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit
Hexavalent Chromium	1050.410	20	500.0	549.9	100	90	110
Sample ID	N025755-001BMSD	SampType: MSD	TestCode: 218.6_WU_P	Units: µg/L	Prep Date:		
Client ID:	Batch ID: R117681	TestNo: EPA 218.6			Analysis Date:		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit
Hexavalent Chromium	1056.760	20	500.0	549.9	101	90	110

Qualifiers:

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



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CLIENT: CH2M HILL
Work Order: N025755
Project: PG&E Topock, 680375.03.IMP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WU_PGE

Sample ID	N025755-002CMS	SampType:	MS	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:	
Client ID:	zzzzzz	Batch ID:	R117681	TestNo:	EPA 218.6			Analysis Date:	9/6/2017
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val
Hexavalent Chromium		0.953	0.20	1.000	0	95.3	90	110	

Qualifiers:

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



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 R RPD outside accepted recovery limits
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RunNo: 117681
 SeqNo: 2756313

Nevada Department of Environmental Protection, Bureau of Laboratories

ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 21-Sep-17

CLIENT: CH2M HILL
Lab Order: N025755
Project: PG&E Topock, 680375.03.IM.OP.00
Lab ID: N025755-001

Client Sample ID: SC-100B-WDR-564
Collection Date: 9/5/2017 10:05:00 AM
Matrix: WATER

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

RunID: NV00922-WC_170906C	QC Batch: R117675	PrepDate	Analyst: LR
Turbidity	0.23	0.10	0.10
		NTU	1
			9/6/2017 11:10 AM

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

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



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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 21-Sep-17

CLIENT: CH2M HILL
Lab Order: N025755
Project: PG&E Topock, 680375.03.IM.OP.00
Lab ID: N025755-002

Client Sample ID: SC-700B-WDR-564
Collection Date: 9/5/2017 10:00:00 AM
Matrix: WATER

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

RunID: NV00922-WC_170906C	QC Batch: R117675	PrepDate	Analyst: LR
Turbidity	0.32	0.10	0.10
		NTU	1
			9/6/2017 11:10 AM

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

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



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ASSET Laboratories

Date: 21-Sep-17

CLIENT: CH2M HILL
Work Order: N025755
Project: PG&E Topock, 680375.03.IM.OP.00

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

Sample ID	MB-R117675	SampType: MBLK	TestCode: 2130_W	Units: NTU	Prep Date:	RunNo: 117675							
Client ID:	PBW	Batch ID: R117675	TestNo: SM 2130B		Analysis Date:	SeqNo: 2756231							
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Turbidity		ND	0.10										
Sample ID	N025755-001ADUP	SampType: DUP	TestCode: 2130_W	Units: NTU	Prep Date:	RunNo: 117675							
Client ID:	ZZZZZZZ	Batch ID: R117675	TestNo: SM 2130B		Analysis Date:	SeqNo: 2756233							
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Turbidity		0.240	0.10										
Sample ID	N025755-002BDUP	SampType: DUP	TestCode: 2130_W	Units: NTU	Prep Date:	RunNo: 117675							
Client ID:	ZZZZZZZ	Batch ID: R117675	TestNo: SM 2130B		Analysis Date:	SeqNo: 2756235							
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD	Ref Val	%RPD	RPDLimit	Qual
Turbidity		0.320	0.10										

Qualifiers:

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



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

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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 21-Sep-17

CLIENT: CH2M HILL
Lab Order: N025755
Project: PG&E Topock, 680375.03.IM.OP.00
Lab ID: N025755-002

Client Sample ID: SC-700B-WDR-564
Collection Date: 9/5/2017 10:00:00 AM
Matrix: WATER

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

RunID: NV00922-IC8_170906A	QC Batch: R117697	PrepDate	Analyst: RAB			
Fluoride	2.4	0.032	0.50	mg/L	5	9/6/2017 01:22 PM

ANIONS BY ION CHROMATOGRAPHY**EPA 300.0**

RunID: NV00922-IC8_170906A	QC Batch: R117697	PrepDate	Analyst: RAB			
Sulfate	450	1.1	25	mg/L	50	9/6/2017 02:23 PM

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

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

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ASSET Laboratories

Date: 21-Sep-17

CLIENT: CH2M HILL
Work Order: N025755
Project: PG&E Topock, 680375.03.IM.OP.00

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

Sample ID	SampType: MBLK	TestCode: 300_W_FPG	Units: mg/L	Prep Date:	RunNo: 117697		
Client ID:	Batch ID: R117697	TestNo: EPA 300.0		Analysis Date:	SeqNo: 2756777		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit
Fluoride	ND	0.10					
Sample ID	LCS-R117697_F	SampType: LCS	TestCode: 300_W_FPG	Units: mg/L	Prep Date:	RunNo: 117697	
Client ID:	R117697	Batch ID: R117697	TestNo: EPA 300.0		Analysis Date:	SeqNo: 2756778	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit
Fluoride	1.240	0.10	1.250	0	99.2	90	110
Sample ID	N025755-002BDUP	SampType: DUP	TestCode: 300_W_FPG	Units: mg/L	Prep Date:	RunNo: 117697	
Client ID:	ZZZZZZZ	Batch ID: R117697	TestNo: EPA 300.0		Analysis Date:	SeqNo: 2756782	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit
Fluoride	2.273	0.50				2.386	4.83
Sample ID	N025755-002BMS	SampType: MS	TestCode: 300_W_FPG	Units: mg/L	Prep Date:	RunNo: 117697	
Client ID:	ZZZZZZZ	Batch ID: R117697	TestNo: EPA 300.0		Analysis Date:	SeqNo: 2756783	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit
Fluoride	8.290	0.50	6.250	2.386	94.5	80	120
Sample ID	N025755-002BMSD	SampType: MSD	TestCode: 300_W_FPG	Units: mg/L	Prep Date:	RunNo: 117697	
Client ID:	ZZZZZZZ	Batch ID: R117697	TestNo: EPA 300.0		Analysis Date:	SeqNo: 2756784	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit
Fluoride	8.326	0.50	6.250	2.386	95.0	80	120

Qualifiers:

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



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CLIENT: CH2M HILL
Work Order: N025755
Project: PG&E Topock, 680375.03.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID	SampType:	Batch ID:	TestNo:	TestCode:	Units:	Prep Date:	Analysis Date:	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sample ID MB-R117697_SO4	MBLK	Batch ID: R117697	TestNo: EPA 300.0	TestCode: 300_W_SO4P	Units: mg/L	Prep Date:	Analysis Date: 9/6/2017				RunNo: 117697		
Client ID: PBW											SeqNo: 2756791		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC							
Sulfate		0.147	0.50										
Sample ID LCS-R117697_SO4	LCS	Batch ID: R117697	TestNo: EPA 300.0	TestCode: 300_W_SO4P	Units: mg/L	Prep Date:	Analysis Date: 9/6/2017				RunNo: 117697		
Client ID: LCSW											SeqNo: 2756792		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC							
Sulfate		3.916	0.50	4.000	0	97.9							
Sample ID N025755-002BDUP	DUP	Batch ID: R117697	TestNo: EPA 300.0	TestCode: 300_W_SO4P	Units: mg/L	Prep Date:	Analysis Date: 9/6/2017				RunNo: 117697		
Client ID: ZZZZZZ											SeqNo: 2756796		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC							
Sulfate		452.265	25								450.5	0.395	20
Sample ID N025755-002BMS	MS	Batch ID: R117697	TestNo: EPA 300.0	TestCode: 300_W_SO4P	Units: mg/L	Prep Date:	Analysis Date: 9/6/2017				RunNo: 117697		
Client ID: ZZZZZZ											SeqNo: 2756797		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC							
Sulfate		656.785	25	200.0	450.5	103							
Sample ID N025755-002BMSD	MSD	Batch ID: R117697	TestNo: EPA 300.0	TestCode: 300_W_SO4P	Units: mg/L	Prep Date:	Analysis Date: 9/6/2017				RunNo: 117697		
Client ID: ZZZZZZ											SeqNo: 2756798		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC							
Sulfate		658.050	25	200.0	450.5	104							

Qualifiers:

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



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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 21-Sep-17

CLIENT: CH2M HILL
Lab Order: N025755
Project: PG&E Topock, 680375.03.IM.OP.00
Lab ID: N025755-002

Client Sample ID: SC-700B-WDR-564
Collection Date: 9/5/2017 10:00:00 AM
Matrix: WATER

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

RunID: NV00922-WC_170911B	QC Batch: R117783	PrepDate	Analyst: QBM			
Nitrate/Nitrite as N	2.7	0.11	0.25	mg/L	5	9/11/2017

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

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

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ASSET Laboratories

Date: 21-Sep-17

CLIENT: CH2M HILL
Work Order: N025755
Project: PG&E Topock, 680375.03.IM.OP.00

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

Sample ID	SampType:	Batch ID:	TestCode:	Units:	Prep Date:	Analysis Date:	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sample ID MB-R117783	SampType: MBLK	Batch ID: R117783	TestNo: SM4500-NO3	mg/L								
Client ID: PBW												
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC							
Nitrate/Nitrite as N	ND	0.050										
Sample ID LCS-R117783	SampType: LCS	Batch ID: R117783	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	Analysis Date:						
Client ID: LCSW			TestNo: SM4500-NO3									
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC							
Nitrate/Nitrite as N	0.511	0.050	0.5000	0	102	85	115					
Sample ID N025755-002EDUP	SampType: DUP	Batch ID: R117783	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	Analysis Date:						
Client ID: ZZZZZZZ			TestNo: SM4500-NO3									
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC							
Nitrate/Nitrite as N	2.815	0.25										
Sample ID N025755-002EMS	SampType: MS	Batch ID: R117783	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	Analysis Date:						
Client ID: ZZZZZZZ			TestNo: SM4500-NO3									
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC							
Nitrate/Nitrite as N	5.422	0.25	2.500	2.731	108	75	125					
Sample ID N025755-002EMSD	SampType: MSD	Batch ID: R117783	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	Analysis Date:						
Client ID: ZZZZZZZ			TestNo: SM4500-NO3									
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC							
Nitrate/Nitrite as N	5.561	0.25	2.500	2.731	113	75	125	5.422	2.53	20		

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- DO Surrogate Diluted Out
- S Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
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 EPA ID CA01638 ORELAP/NELAP Cert 4046

CH2MHILL**CHAIN OF CUSTODY RECORD**

Project Name	PG&E Topock	Container:	1 Liter Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly	500 ml Poly	500 ml Poly	500 ml Poly	1 Liter Poly	
Location	PG&E Topock	Preservatives:	4°C Lab H2SO4	4°C	4°C	4°C	4°C	4°C	4°C	4°C	
Project Number	680375.03.I.M.OP.00	Filtered:	NA	NA	NA	NA	NA	NA	NA	NA	
Project Manager	Scott O'Donnell	Holding Time:	28	7	1	28	7	180	180	7	
Sample Manager	Shawn Duffy	Number of Containers									
Task Order											
Project	IM3PLANT-ARAR-WDR-564	Comments									
Turnaround Time	10 Days										
Shipping Date:											
COC Number:	564										
		DATE	TIME	Matrix							
SC-100B-WDR-564		9-5-17	10:25	Water	x	x	x	x	x	N025755 - 01	
SC-700B-WDR-564		9-5-17	10:20	Water	x	x	x	x	x	- 02	
		TOTAL NUMBER OF CONTAINERS									
		7									

Approved by <i>Scott O'Donnell</i>	Signatures <i>Marlon Cartin</i>	Date/Time 05-17-10:20	Shipping Details Method of Shipment: FedEx On Ice: <input checked="" type="checkbox"/> no <input checked="" type="checkbox"/>	ATTN: Sample Custody and Marlon Cartin	Special Instructions: SC-700B Total metals List: Cr,Al,Sb,As,Ba,B,Cu,Pb,Mn,Mo,Ni,Fe,Zn Report Copy to Doug Scott (970) 731-0636
Sampled by <i>John Martin</i>		05-17-10:15	09-05-17 1435 Airbill No: <i>1481</i>		
Relinquished by <i>John Martin</i>		05-17-10:17	09-05-17 1437 Lab Name: ASSET Laboratories Lab Phone: (702) 307-2859		
Received by <i>Doug Scott</i>		05-17-10:17			
Relinquished by <i>Doug Scott</i>					
Received by <i>Doug Scott</i>					

ASSET Laboratories

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

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

Cooler Received/Opened On: 9/5/2017 Workorder: N025755

Rep sample Temp (Deg C): 2.2 IR Gun ID: 2

Temp Blank: Yes No

Carrier name: ASSET

Last 4 digits of Tracking No.: NA Packing Material Used: None

Cooling process: Ice Ice Pack Dry Ice Other None

Sample Receipt Checklist

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

Comments: Samples received at pH 7. For Hex Cr were lab filtered and preserved with Ammonium buffer.
For Total Metals were lab preserved with HNO3 and for Ammonia/NO3 with H2SO4, pH adjusted to < 2..

Checklist Completed By: YR 9/7/2017

Reviewed By: HSG 9/15/2017



ASSET Laboratories

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

www.atl-labs.com

TEL: 7023072659

QC Level: Level IV

CHAIN-OF-CUSTODY RECORD

Truesdail
3337 Michelson Drive, Suite CN750

Irvine, CA 92612

TEL: 7023072659

FAX: 7023072659

Subcontractor:

Truesdail
3337 Michelson Drive, Suite CN750
Irvine, CA 92612

TEL: (714) 730-6239

FAX: (714) 730-6462

Acct #: 07-Sep-17

Field Sampler: SIGNED

Date Collected: 9/5/2017 10:00:00 AM

Bottle Type: 32CZP

Sample ID: N025755-002A / SC-700B-WDR-564

Matrix: Water

Test Requested: SM4500-NH3D

Sample ID		Matrix	Date Collected	Bottle Type	Test Requested
N025755-002A / SC-700B-WDR-564		Water	9/5/2017 10:00:00 AM	32CZP	SM4500-NH3D

General Comments:

Please email sample receipt acknowledgement to the PM.

Please use PO#:N25755A Please email Invoices and Account Receivable Statements to AssetAP@assetlaboratories.com. For questions, call Marion at (702)-307-2659. Please e-mail results to reports.Iv@assetlaboratories.com by: Normal TAT.

Please analyze for Ammonia by SM4500NH3D. CH2M Hill sample. EDD Requirement Labspec7 edata.

GSO #: 537526062

Date/Time

Date/Time

Relinquished by: J.D. 9/7/2017 17:00 Received by: _____

Relinquished by: _____ Received by: _____

List of Analysts

ASSET Laboratories Work Order: **N025755**

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	SM 2130B, SM 2540C, EPA 120.1



ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

"Serving Clients with Passion and Professionalism"

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

NEVADA
3151 W. Post Rd., Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING



Established 1931

REPORT

3337 MICHELSON DRIVE, SUITE CN 750
IRVINE, CA 92612
(714) 730-6239 • FAX (714) 730-6462
www.truesdail.com

Client: Advanced Technology Laboratories-NV

3151 W Post Rd
Las Vegas, NV 89118

Work Order No.: 17I0128

Printed: 09/28/2017

Attention: Marlon Cartin

Project Name: ATL-NV

CASE NARRATIVE

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Ammonia analyses. A summary table for this laboratory number is included in Section 2. Complete laboratory reports, wet chemistry raw data, quality control data and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data are under Section 5.

The sample was received and delivered with the chain of custody on September 8th, 2017, intact and in chilled condition. The sample will be kept in a locked refrigerator for 30 days; thereafter will be kept in warm storage for additional 2 months before disposal.

If you have any questions or require additional information, please contact me at (714) 730-6239 ext. 203.

SAMPLE RECEIPT SUMMARY

Sample ID	Laboratory ID	Matrix	Type	Date Sampled	Date Received
N025755-002A / SC-700B-WDR-564	17I0128-01	Water		09/05/2017 10:00	09/08/2017 08:50

DEFINITIONS

Symbol	Definition
DF	Dilution Factor
MDL	Method Detection Limit
ND	Not Detected
RL	Reporting Limit

Respectfully yours,

Shelly Brady
Customer Service Manager

This report applies to the sample(s), or product(s), investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed. This report shall not be reproduced without the written consent of Truesdail Laboratories, Inc., and must be reproduced in its entirety.



TRUESDAIL LABORATORIES, INC.

Client: Advanced Technology Laboratories-N Project Name: ATL-NV
Project Number: [none]

Printed: 09/28/2017

N025755-002A / SC-700B-WDR-564
17I0128-01 (Water)

Analyte	Result	RL	Units	DF	Batch	Analyzed	Analyst	Method	Notes
---------	--------	----	-------	----	-------	----------	---------	--------	-------

Truesdail Laboratories, Inc

Wet Chemistry

Ammonia ND 0.0500 mg/L 1 1709292 09/14/2017 17:23 Alexander Luna SM 4500-NH3 D M

This report applies to the sample(s), or product(s), investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed. This report shall not be reproduced without the written consent of Truesdail Laboratories, Inc., and must be reproduced in its entirety.



TRUESDAIL LABORATORIES, INC.

Client: Advanced Technology Laboratories-N Project Name: ATL-NV
Project Number: [none]

Printed: 09/28/2017

QUALITY CONTROL
Wet Chemistry
Truesdail Laboratories, Inc

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	% Rec Limits	RPD RPD	RPD Limit	Note
---------	--------	----	-------	-------------	---------------	------	--------------	---------	-----------	------

Batch: 1709292 - SM 4500-NH3 D M

Blank (1709292-BLK1)	Prepared & Analyzed: 9/14/2017								
Ammonia	ND	0.0500	mg/L						
LCS (1709292-BS1)	Prepared & Analyzed: 9/14/2017								
Ammonia	0.419	0.0500	mg/L	0.400	105	90-110			
Duplicate (1709292-DUP1)	Source: 17I0064-01 Prepared & Analyzed: 9/14/2017								
Ammonia	3.14	0.250	mg/L	3.19			2	20	
Matrix Spike (1709292-MS1)	Source: 17I0128-01 Prepared & Analyzed: 9/14/2017								
Ammonia	0.452	0.0500	mg/L	0.400	0.0332	105	75-125		
Matrix Spike Dup (1709292-MSD1)	Source: 17I0128-01 Prepared & Analyzed: 9/14/2017								
Ammonia	0.444	0.0500	mg/L	0.400	0.0332	103	75-125	2	20

This report applies to the sample(s), or product(s), investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed. This report shall not be reproduced without the written consent of Truesdail Laboratories, Inc., and must be reproduced in its entirety.

ANALYSIS DATA SHEET

Inorganics

Client: Advanced Technology Laboratories-NV
Client Sample ID: N025755-002A / SC-700B-WDR-564
Lab Sample ID: 17I0128-01
Project: ATL-NV

Date Sampled: 09/05/17 10:00 Matrix: Water

CAS NO.	Analyte	Concentration (mg/L)	MDL	RL	DF	Q	Analyst	Analyzed	Method
7664-41-7	Ammonia	ND	0.0111	0.0500	1		AxL	09/14/17 17:23	SM 4500-NH3 D M

METHOD BLANK DATA SHEET

SM 4500-NH3 D M

Client: Advanced Technology Laboratories-NV

Project: ATL-NV

Laboratory ID: 1709292-BLK1

Prepared: 09/14/17 15:32 Preparation: SM 4500-NH3 D M Matrix: Water

Analyzed: 09/14/17 17:01 Instrument: TL01 File ID: 7I14003-012

Batch: 1709292 Sequence: 7I14003

CAS NO.	COMPOUND	CONC. (mg/L)	MDL	RL	Q
7664-41-7	Ammonia	ND	0.0111	0.0500	

LCS / LCS DUPLICATE RECOVERY

SM 4500-NH3 D M

Client: Advanced Technology Laboratories-NV
Project: ATL-NV
Work Order: 17I0128

Matrix: Water Prep Method: SM 4500-NH3 D M
Prep Batch: 1709292 Lab Sample ID: 1709292-BS1

ANALYTE	SPIKE ADDED (mg/L)	LCS CONCENTRATION (mg/L)	LCS % REC.	QC LIMITS REC.
Ammonia	0.400	0.419	105	90 - 110

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

N025755-002A / SC-700B-WDR-564

Client: Advanced Technology Laboratories-NV
Project: ATL-NV
Work Order: 17I0128

Matrix: Water Analysis Method: SM 4500-NH3 D M
Prep Batch: 1709292 Prep Method: SM 4500-NH3 D M
Laboratory ID: 1709292-MS1
Source Sample ID: 17I0128-01

ANALYTE	SPIKE ADDED (mg/L)	SAMPLE CONCENTRATION (mg/L)	MS CONCENTRATION (mg/L)	MS % REC.	QC LIMITS REC.
Ammonia	0.400	0.0332	0.452	105	75 - 125
ANALYTE	SPIKE ADDED (mg/L)	MSD CONCENTRATION (mg/L)	MSD % REC. #	% RPD.	QC LIMITS RPD REC.
Ammonia	0.400	0.444	103	2	20 75 - 125

* Values outside of QC limits

1710128



CHAIN-OF-CUSTODY RECORD

Page 1 of 1

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

www.asset-labs.com

TEL: 7023072659

FAX: 7023072691

QC Level: Level IV

General Comments:

Truesdail
3337 Michelson Drive, Suite CN750
Irvine, CA 92612

Subcontractor:

TEL: (714) 730-6239
FAX: (714) 730-6462
Act #: 07-Sep-17

Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests
N025755-002A / SC-700B-WDR-564	Water	9/5/2017 10:00:00 AM	32OZP	1

ALERT !!
Level IV QC

Please email sample receipt acknowledgement to the PM.

Please use PO# N25755A Please email Invoices and Account Receivable Statements to AssetAP@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. CH2M Hill sample. EDD Requirement Labspec7 edata.

Relinquished by:	Date/Time	GSO #:	Date/Time
121	9/7/2017 17:00	537526062	9-8-17 8150
Relinquished by:	Received by:	Received by:	Received by:

7.6 °C

**Log-in check list
For level III data package**

Client: ATL Lab Number: 1710128
 Received Date: 9-8-17

Sample receiving review	Yes	No	N/A	Comment
Was special login form received by login personnel?	✓			
Was COC received and signed by client and login personnel?	✓			
Were all sample temperature measured and recorded on COC?	✓			
Did you measure and record the pH on all metals samples on COC?			✓	
Has sample integrity and analysis discrepancy form been filled out completely?	✓			
Were all intercompany yellow forms generated and stamped with "alert level III QC" note?	✓			
Have check -in and check out lists been filled out and attached to appropriate form?	✓			
Were sample containers labeled with TLI numbers, date, and time sampled?	✓			
Did you notify analyst or group leader about short holding time?			✓	
Was a copy of COC attached to all yellow intracompany form?	✓			
For special clients, have all their samples been logged into the internal COC book?	✓			
Were samples locked in fridge or special storage area?	✓			
Was temperature recorded in the log book?	✓			
Sample receiving Signature:	<u>J Brown</u>			



WORK ORDER

Printed: 9/8/17 9:23:22AM

17I0128

Truesdail Laboratories, Inc

Client: Advanced Technology Laboratories-NV
Project: ATL-NV

Project Manager: Shelly Brady
Project Number: [none]

Report To:

Advanced Technology Laboratories-NV
Marlon Cartin
3151 W Post Rd
Las Vegas, NV 89118
Phone: (702) 307-2659
Fax: (702) 307-2691

Invoice To:

Advanced Technology Laboratories-NV
Marlon Cartin
3151 W Post Rd
Las Vegas, NV 89118
Phone :(702) 307-2659
Fax: (702) 307-2691

Date Due: 09/19/2017 16:30 (7 day TAT)

Received By: Jacqueline Brown

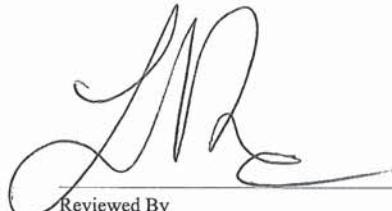
Date Received: 09/08/2017 08:50

Logged In By: Jacqueline Brown

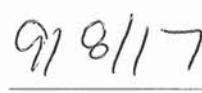
Date Logged In: 09/08/2017 09:08

Samples Received at: 7.8°C
Chain of Custody rece Yes Samples intact? Yes
Letter (if sent) matche No Custody seals (if any) No
Requested analyses ac Yes Analyses within hold t Yes
Samples received in a Yes

Analysis	Due	TAT	Expires	Comments
17I0128-01 N025755-002A / SC-700B WDR-564 [Water] Sampled 09/05/2017 10:00 (GMT-08:00) Pacific Time (US &	09/19/2017 08:00	7	10/03/2017 10:00	
Ammonia E				



Reviewed By



Date

Page 1 of 1